This report summarizes the findings and presents data from a nationwide survey conducted by the Texas Education Network (TENET) from July 25 to September 30, 1994. In response to a TENET questionnaire, representatives from 46 of the 50 states, Puerto Rico, and the U.S. Bureau of Indian Affairs reported on the status of telecommunications networks for K-12 public schools in their areas at the time of the survey. The report begins with an analysis of survey responses, and is followed by 52 state profiles describing computer telecommunications in the schools. Findings include: (1) by October 1, 1994, the majority of states had implemented or were preparing to implement public telecommunications networks, with 38% of respondents describing state networking efforts as "operational" or "partially operational"; (2) K-12 schools were just beginning to adopt telecommunications network technologies; (3) state officials recognized the need for telecommunications technology for education and had begun planning for it; (4) funding was the most daunting and problematic of 8 potential barriers to school networks; (5) lack of equity in public access to networked technology, lack of skilled personnel, widely scattered communities, and inadequate and outdated technology were identified as other obstacles to K-12 networks; (6) 19 states reported that funding for educational networks was available from local, district, state, and "other" sources; and (7) private sector support may influence public sector adoption of telecommunications. Appendices include state listings of public officials responsible for educational networking and major network and Internet service providers, and the TENET questionnaire. (Author/SWC)
Networks for Goals 2000 Reform
Bringing the Internet to K-12 Schools
Texas Education Network
July 25–September 30, 1994
Southwest Educational Development Laboratory
Networks for Goals 2000 Reform

Bringing the Internet to K-12 Schools

July 25–September 30, 1994

Connie Stout, Director
Texas Education Network

Southwest Educational Development Laboratory
Acknowledgments

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this report summarizes the findings and presents data from a nationwide survey conducted by the Texas Education Network (TENET) from July 25 to September 30, 1994. In response to a TENET questionnaire, representatives from 46 of the 50 states, Puerto Rico, and the U.S. Bureau of Indian Affairs reported on the status of telecommunications networks for K-12 public schools in their areas at the time of the survey.

Findings
- By October 1, 1994, the great majority of states had implemented or were preparing to implement public telecommunications networks. Thirty-eight (79%) of the respondents described networking efforts within their state as "operational" or "partially operational." Public information networks were slowly becoming a standard feature on the American landscape.
- K-12 schools were just beginning to adopt telecommunications network technologies when surveyed. Seventeen (35%) of the respondents listed Internet addresses for Gopher or Mosaic servers in K-12 schools or school systems in their states. While network technology had begun reaching K-12 schools, it had been deployed more commonly for other public services.
- States officials recognized the need for telecommunications technology for education and had begun planning for it. Forty-one of responding states had developed or were developing formal technology plans for school telecommunications networks when surveyed.
- Funding emerged as the most daunting and problematic of eight potential barriers to school networks. Fifty-six percent of the respondents rated Funding as a problem, creating a unique and striking consensus. Other barriers drawing strong ratings as problems were Technical Infrastructure (29%) and Legislative Actions (25%).
- Respondents voluntarily identified other obstacles to K-12 networks, including:
  - Lack of equity in public access to network technologies.
  - Lack of skilled personnel to deploy and service school networks.
  - Widely scattered communities that would be expensive to link with costly fiber networks.
  - Inadequate and outdated technology in local, rural telephone companies.
- Nineteen states reported funding for educational networks was available from local district, state, and "other" sources. States that maximized their funding opportunities were, predictably, less apt to rate Funding as a problem.
- Federal sources were the most frequently cited form of "other" funding for K-12 networks. Across the nation a wide variety of funding strategies were in use, such as specialized tariffs or tiered pricing. No one method predominated.
- A major service provider had established a program encouraging infrastructure development in 30 states. Private sector support may influence public sector adoption of telecommunications.
n the interval since this study was conducted as part of the State Networking Project, computer networking has continued to advance with astonishing rapidity. A recent QED (Quality Education Data) study revealed that, in the past year, use of computer networks in schools has grown by 64 percent. During 1994, Gopher traffic increased by 197 percent and use of the World Wide Web, by a staggering 1,713 percent, according to the Merit Network, a supplier of Internet services.

All of which spotlights the importance, if not the necessity, of linking public K-12 classrooms to the Internet and other computer telecommunications networks. Not only has technology evolved and connectivity increased, but the sheer quantity of valuable educational resources the networks can deliver has been compounded exponentially. Clearly, it is urgent that all American students get Internet tools placed into their hands.

But delivering those tools is a monumental task, as the State Networking Project demonstrates. It is true, survey data are accurate only for a specific and brief time period. The obvious facts reported here are temporal. Yet this drawback is overcome when one considers a more salient point: the problems facing public officials who assessed educational networks in their states are shared and persistent.

What problems are these? Infrastructure building. Regulatory actions. Most intimidating of all is the problem of funding school networks. More than half of our respondents rated funding as a problem for state and local education agencies. And infrastructure development, regulatory environment, and, above all, funding are the unchanging issues underpinning the short-lived statistics gathered here.

Perhaps it's tempting to dismiss these observations as the usual complaint of educators: they always want more money and, seemingly, never have enough. But to do so would be a disservice not only to educators but to the first grade girl hungry to explore the lost world of dinosaurs on the Internet. The fourth grade class swapping observations on acid rain with counterparts in Central America. The farmboy studying Russian in a distance-learning classroom. These children and youths should be beneficiaries of burgeoning network resources. They will not be—until decisionmakers shape policies guaranteeing every student equal access to these educational tools.

Yes, it will be costly to link schools to flourishing information networks. But the evidence argues we may pay a greater price if we do not help children become literate users of technology. We hope the information here will shed light on the extent of this issue.

Connie Stout, Director
Texas Education Network
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Networks for Goals 2000 Reform

Bringing the Internet to K-12 Schools

July 25–September 30, 1994
Consider this document a snapshot of a moment in American education. The moment is July through September 1994. The subject of the photo is American public elementary and secondary schools—and their readiness and ability to use a powerful and increasingly influential tool: the National Information Infrastructure (NII), known popularly as the Internet or the information superhighway.

The report speaks directly to the challenge Vice President Al Gore issued to the National Education Association on April 8, 1994:

...it makes sense now to build networks of information superhighways that can convey large amounts of information and take them right to the classroom. Our administration has called upon the industries involved and set as a national goal the linking of every public classroom in America to this information superhighway by the turn of the century. We believe that it can be done. And there are many hopeful signs that it is now in the process of being done.¹

But how close are America's school systems to achieving this goal? This report attempts to measure the distance between current achievements and future goals. It also attempts to map the emerging course of the information superhighway for public schools, kindergarten-to-twelfth grade. Finally, the report spotlights some potential obstacles that may block the development of the information highway as it reaches toward American educators and their students.

Project Summary

Providing information superhighway links to every public school—much less each classroom—in the United States by the year 2000 is a visionary challenge. Helping to pave the way, the National Science Foundation, the U.S. Department of Commerce, and the U.S. Department of Education funded a task force led by The University of Texas at Austin Computation Center and the Texas Education Network (TENET). Calling itself the State Networking Project, the task force provided a meeting place for leaders with dual expertise in technology and education from all 50 states, the U.S. Bureau of Indian Affairs, and the Commonwealth of Puerto Rico.

TENET staff marshaled State Networking Project participants by requesting that each state department of education identify the staff person designated as responsible for telecommunications networking. This person in turn identified the network service provider(s) in their state. Representatives of federal, state, and local governments were identified as additional network partners as well.

Task force members were asked to assess the status of telecommunications networking in their states' elementary and secondary schools—and to identify network implementation strategies guaranteeing equal access to these technologies for every public school pupil in the country. They shared their understanding and experience in on-line discussions, at a national workshop held in September 1994, and in a survey that described the status of educational telecommunications networks in their home state from late summer to early fall 1994.

Responses to this survey are recorded and synthesized here. The questionnaires were developed and distributed by TENET staff in late July 1994; respondents returned them no later than October 1. This report, therefore, describes the conditions of educational networks for a specific time period. Data appearing here were reported by task force members from 46 states, the Bureau of Indian Affairs, and Puerto Rico; unfortunately, responses from Delaware, Mississippi, Oklahoma, and Virginia became available too late to appear in the following comparative analysis of survey responses.

The survey's 26 questions spanned five broad categories:

- Statistical and quantitative data specific to each state. What are the state's headcounts of teachers, students, campuses, and districts? What are student headcounts in the most and least populated districts? How many districts serve 1,000 or fewer students?

- The status of the state's telecommunications networking projects, with measures of that status. Are the state's networking efforts "operational," "partially operational," "planned," "proposed," or currently nonexistent? What depth and variety of state public information is available on-line? Do any community and freenet enterprises serve state residents, and do they cooperate with public education?

- The role of telecommunications networks in state plans. To what degree has telecommunications networking been incorporated, first, into the broader technology plans of the state and, second, into state plans for its public schools? Has a state Goals 2000 committee been appointed to promote school reform? Does it include a telecommunications representative?

- Funding of state telecommunications networks. How is the state paying for its telecommunications networks? What funding sources are available to schools specifically for network service deployment and services? Have any service providers established programs to encourage infrastructure building? Has the state utility commission ordered special tariffs for K-12 education? Beside state and local district monies, what funding sources are available to pay for educational networks?

- Barriers to telecommunications. How do states rate eight potential barriers to telecommunications networking? What hurdles unique to the state's geography and population distribution must be overcome before the Internet is accessible to every child attending its public schools? What other obstacles could delay or restrain each state in establishing universal educational networks?
Findings from these inquiries appear in the opening section of the report. Because funding emerged as the most pressing concern of survey respondents, a special section on funding barriers to educational networking precedes the general discussion of funding strategies.

The narrative analysis is followed by 52 State Profiles presenting survey responses or education demographic data from all 50 states, plus the Bureau of Indian Affairs and Puerto Rico. The Appendices contain the names and addresses of the individuals responsible for educational technology in the responding states and the TENET questionnaire.

1 Data from all four states are included in the State Profiles elsewhere in the report.
Data Analysis Methods

Comparing the responses to the five broad categories of information sought in the survey provides insight into exactly where the information highway is reaching America's schools, where the highway has been blocked, and which obstacles loom large. Please note, however, that this report seeks merely to highlight this information; it does not attempt to diagnose the difficulties or to advocate specific solutions for the barriers to networks identified by survey respondents. An effort has been made to treat each state's data objectively, and to present responses as accurately yet uniformly as possible. Survey responses were not second-guessed; no secondary sources were used to verify replies. Rather, every effort has been made to transcribe or analyze these data as reported on the questionnaire by respondents.

The prompts on the questionnaire themselves were designed to invite a variety of responses, from a simple "yes" or "no" to lengthy descriptions. And responses did range in length and complexity. While some participants answered every prompt tersely, many supplied detailed information when appropriate. These ruminative replies are among the most provocative material collected here; where space permits, they appear verbatim in the State Profiles.

A similar range of responses occurred with requests for quantitative information: some participants responded with figures rounded in the thousands and other were precise to the single digit. It is assumed that respondents provided the most current numbers available and that the numbers apply to public K-12 school systems only. Likewise, headcounts of teachers are assumed to apply exclusively to full-time, permanent staff and "districts" to refer only to those with actively enrolled students. Nonetheless, enrollment figures should be read with a skeptical eye, for definitions vary widely from state to state. Louisiana, for example, could be reported as having 66 or 74 local education agencies, depending on whether vocational school districts are included along with the state's regular parish and city districts—a difference of 12 percent. Precisely accurate comparisons cannot be made in such diverse circumstances.
Fall 1994: Networking Reaches K-12 Schools

Based on survey responses, the goal of Internet connectivity by the year 2000 for every public K-12 classroom probably will not occur in any of the 46 reporting states, the Commonwealth of Puerto Rico, nor in schools managed by the Bureau of Indian Affairs. However, almost every state has begun to incorporate educational telecommunications in their broader technology plans and nearly 80 percent have deployed telecommunications networks carrying public information. Seventeen states reported that, at the time of the survey, a handful of their schools already had an established Internet presence with Gopher or Mosaic addresses for specific schools or school districts. Should use of the national information infrastructure (NII) continue growing at its present rate, by the year 2000 every state should be able to boast that at least some if not many of its K-12 teachers can include network-based activities in their lesson plans.

Only three respondents (from Maine, Vermont, and Puerto Rico) characterized their state as lacking network telecommunications. Six others described their networks as “planned” or “proposed.” In contrast, 38 states (79%) said their “state networking efforts” were “partially operational” or “operational.”

While these self-descriptions may indicate the general sophistication of a state’s network infrastructure, they were subject to broad interpretation by survey participants. A respondent from a state recognized as a pacesetter in educational networking described two discrete phases of its extensive and busy fiber optic network as “planned” and “proposed.” The distinction between “operational” and “partially operational” networks (undefined on the questionnaire) seems to have been especially murky to other respondents, prompting some to interpret the terms very freely. One “operational” state noted its network offers e-mail services to state employees (and reported none other) while a state in a different region summarized its extensive menu of information services with the “partially operational” designation. Yet another state bestowed three separate status labels upon its three separate networking enterprises. Obviously, one state’s networking ideal could be the first step for another.

Within the bounds of these caveats, nearly 80 percent of the surveyed states described their networks as “partially operational” or “operational.” By October 1994 the lion’s share of states had implemented or were preparing to implement public telecommunications networks.

Were there other, more precise measures of a state’s networking attainments? Two were mentioned on the TENET questionnaire: the state’s use of other information technologies and the range of information services it makes available on-line.

The most frequently reported technology was the state information network, which was in use in 29 of the states (60%). These intermediate systems were usually linked to interstate, national, and global networks on one hand and to community or site-specific local networks on the other. In many cases reported by survey respondents, the actual local internetwork link was made by server computers operating Gopher or Mosaic software. A majority of states reporting such networks also named or knew of specific K-12 schools that were operating a Gopher or Mosaic address on the Internet—with some anomalies. Maine, for example, reportedly lacked a state Gopher server and piggybacked its telecommunications services on the state university system. Yet Maine reported that at least one public school within the state borders possessed a Gopher or Mosaic server delivering Internet access.

But Maine is an exception. Speaking in the broadest of generalizations, it was far more typical that larger public institutions, such as state government, would first implement information networks. Only later would smaller public institutions, community libraries and K-12 schools among them, establish their own local area networks using on-site server technology.

When the survey was taken, K-12 schools were just beginning to enter this new world. One-third of the surveyed states (17) named at least one K-12 school maintaining an Internet presence via on-site Gopher or Mosaic servers. Both Arkansas and Utah, for example, listed Gopher or Mosaic addresses for two schools while New Mexico (at the top end) reported network nodes at 27 schools. Colorado noted school districts in Fort Collins and Boulder maintained Gopher or Mosaic servers that delivered network service to an
unspecified number of schools. New York mentioned that "a number" of intermediate educational units (BOCES) were establishing gateways to the World Wide Web, and Nebraska reported Internet addresses for 19 educational service units.

If the addresses provided on the surveys are reliable indicators, there are more high schools than middle or elementary schools that have Internet hookups and the benefits such technology affords. Seldom were elementary schools named as possessing Gopher or Mosaic addresses that directly connect students to the wealth of expertise and information available on the wide area networks of the Internet.

Such trends are not surprising. A 1993 study conducted by Princeton Survey Research Associates found that only 15 percent of teachers work in a "high-tech" environment offering:

- computers in their classrooms (82%) and access to fax machines (69%) and modems (94%) at the school site....High-tech environments are most likely found at the senior high level, as well as in larger schools, suburban schools and in more affluent school districts.²

If the variety and depth of information services available on a network can chart the sophistication of a state's systems technologies, survey results reveal a very hopeful trend. More than 87 percent (42 of 48) of the respondents reported that their states provided electronic information about all or some combination of the legislature, public utility or public service commission, department of education, and "other" public organizations. Reporting no electronic information services when surveyed were Puerto Rico and five states: Connecticut, Idaho, Maine, New Hampshire, and Vermont.

Since the surveys were usually completed by employees of state education departments, it could be predicted that the most frequently listed information services were educational (36 states) followed by "other" services (30 states): often public library databases, e-mail services, newsgroups and bulletin board systems, or file transfer protocol (FTP) tools to download remote data files. Just under half of the states (22) electronically posted information on their legislatures, while five reportedly provided data from their public utility commissions.

A significant majority of respondents reported that freenets or community data networks existed somewhere within their state borders: 37 states identified one to three community networks. Slightly more than half of these localized networks were described as collaborating to some degree with the state department of education.

States, communities, and their public schools were slowly adopting advanced telecommunications technologies. With 17 states reporting that at least one of their schools operated servers on-site to connect to the Internet, it seems some progress has been made since Honey and Henriquez' widely disseminated 1993 study of telecommunicating teachers:

...use of the Internet is not yet a widespread or common practice among educators in the K-12 community; only half of our technologically sophisticated respondents [48%] report having access to the Internet,...In addition, our findings suggest that the Internet is serving as a more effective resource for professional development activities than it is for student learning activities.³

While it may be premature to call these findings obsolete, survey responses demonstrate quantifiable progress has been made in bringing the power of educational networking within the reach of American public school students.

1 New Hampshire's self-described networking status was unclearly marked on the returned questionnaire.

3 Honey, Margaret and Andrés Henríquez. (1993). *Telecommunications and K-12 Educators: Findings from a National Survey*, pp. 30-31. New York: Center for Technology in Education, Bank Street College of Education. It should be noted that the Honey and Henríquez study is not strictly comparable to this one. In the former, classroom teachers were interviewed rather than the state officials surveyed here. The teachers reported on conditions in their schools instead of summarizing statewide conditions, as participants do here. Most respondents to the earlier survey were located in the northeastern United States, rather than coming from across the nation as here. Finally, the pool of Internet users and Internet tools has grown exponentially since 1991 and 1992, when Honey and Henríquez conducted their survey. Yet, as noted in the text, the Honey and Henríquez findings have been often quoted and provide a unique point of reference in discussions of K-12 adoption of Internet-based teaching.
The prominence awarded to telecommunications networks in general technology plans can indicate how serious a commitment a state government has made to regional implementation of the national information infrastructure. No sooner had federal Goals 2000 legislation passed in March 1994 than the Clinton administration began stumping for state K-12 educators to adopt networking tools. A new infusion of federal seed money became available to every state that incorporated educational networks in its broader technology plans.

Perhaps in response to federal patronage, by October 1994 a stunning majority of the surveyed states had embraced telecommunications networks—especially for their schools. They reportedly had built in computer telecommunications modules in one of two plans: in either their general state technology plans or in their plans specifically for K-12 schools.

In fact, 28 states (58%) reported having telecommunications components in either their statewide technology plans or in their technology plans for K-12 schools. Thirteen more (27%) were penciling in telecommunications networks for their statewide or K-12 technology plans when surveyed. The remaining seven reported that, as of October 1994, they had no plans for educational networking.

States tended to include educational networks in either their state plans or in their public schools plans. Only 15 states (31%) reported telecommunications components appear in both plans.

Among states formulating their telecommunications plans when surveyed, the great majority were more apt to plan networking functions for their schools or for their schools and state than for their state alone. In fact, eight of the 17 states claiming “in process” planning had specified networking exclusively for their schools, while seven were incorporating networking in both their state and school technology plans. A mere two states planned for educational telecommunications networks solely in their state technology plans.

Did incentives spun off from Goals 2000 legislation prod states into adding educational networking to their technology plans? Since the survey did not ask exactly when the participating states began telecommunications planning, the causal relationship between passage of the federal measure in March 1994 and state-based network blueprints by the following September is nebulous.

Yet it’s entirely possible that state-based Goals 2000 committees engendered by the legislation may serve important functions in the handful of states that otherwise lack plans for school telecommunications. Maine, Vermont, and Puerto Rico each reported a dearth of statewide technology planning, for example. Yet all three have appointed Goals 2000 committees, presumably enabling them to tackle technology planning among other educational reforms.

Actually, every one of the 11 states reporting no Goals 2000 committee at the time of the survey had incorporated telecommunications networking into their K-12 technology plans. It appears that, when these states planned network technology, they planned it first for schools.

There also appears to be a relationship between states that described their networking efforts as “operational” or “partially operational” and active technology planning. Technology plans alone cannot be credited with prompting states to initiate educational networking. Apparently in some states (California, Georgia, and Michigan among them), piecemeal public network deployment began before formal technology plans were written.

Yet nearly every state that was planning telecommunications networks for their schools, their state, or both also described their networking efforts as “operational” or “partially operational”; that is, 19 of 21 states with K-12 plans, 20 of 23 with state plans and 14 of 16 with plans for both K-12 and the state consistently gave themselves the highest technology development grades available on the questionnaires. The correlation is open to differing interpretations:

- Specific plans for networking ensure the technology is adopted.
- In those states where network technology has been implemented most successfully, it has almost always been planned.
Technology planning remains productive for states intent on educational reform. Between March and September 1994, 34 of the responding states (71%) had formed or were forming Goals 2000 committees—perhaps as evidence of their commitment to bettering their schools or perhaps as a stratagem for obtaining more federal dollars. But it's obvious that, among educational reformers, a preferred means of improvement was planning and developing K-12 networks.
Funding: The Dominant Barrier to K-12 Telecommunications

We’ve seen that by autumn 1994 most states were committed to establishing information networks for K-12 public schools. Most of the responding states had implemented telecommunications networks intended to serve the educational community along with other public organizations. Even in those states lacking established public telecommunications networks, officials had written technology plans pointing the way toward network-based schooling for their elementary and secondary students.

Yet barriers to telecommunications networks exist. And they may have forced otherwise supportive educators and state officials to postpone or restrain educational network plans. What were these potential barriers? Did they differ from state to state? Survey respondents rated several specific “potential barriers” on the questionnaire using a Likert Scale.

The questionnaire listed eight factors as “potential barriers...to your state’s telecommunications networking efforts.” These potential barriers were:

A. Legislative and Regulatory Actions.
B. Technical Infrastructure and Support.
C. Professional Development and Training.
D. Funding: Initial and Long-term.
E. On-line Ethical and Liability Issues.
F. Infusion into Goals 2000 and Educational Development.
G. Developing Private Sector and Community Partners.
H. Educational Systems and Policy Barriers.

A ninth, Other: Please Specify barrier concluded the list.

Respondents were asked to assign each potential barrier with a specific numerical rating on a scale from 1 to 5. These ratings were to delimit “the extent to which [each potential barrier] (1) is a problem or (5) is not a problem.” The degree of difficulty decreased by steps from the most problematic Level 1 to the nonproblematic Level 5. Precise definitions of Levels 2, 3, and 4 did not appear on the questionnaire.

One respondent rated only five of the barriers, presumably in descending order from the most to the least problematic: Funding, Infrastructure, Training, Developing Partners, and Systems-Policy. The barrier ratings of four states (Georgia, New Mexico, Oregon, and Vermont) were provided by two respondents who occasionally gave differing ratings to specific barriers. Please see the State Profiles for these double ratings. Ten of the 48 states responded to the Other: Please Specify barrier, although very few gave numerical ratings to such responses.

If any single finding stands out in the survey, it is that a majority of states rated Funding as the most daunting barrier to educational networking.

Twenty-seven out of 48 respondents (56%) indicated that Funding is a Level 1 difficulty; i.e., Funding “is a problem” [See Graph D]. That half the states designated Funding as a Level 1 problem is not in itself remarkable; however, as Graphs A to H show, no other potential difficulty elicited such a unified, or extreme, response. Furthermore, this Level 1 rating should be viewed in comparison to the generally far lower ratings given to other potential barriers.

For example, while 27 respondents gave Funding a Level 1 difficulty rating, only eight chose the Level 2 rating, six each assigned it a Level 3 or 4 rating and only two gave it a Level 5 (“not a problem”) difficulty rating. Moreover, a higher number of respondents gave the Funding barrier a Level 1 rating than any other barrier and rating combination on the survey. The distinction becomes clear in Table 1, in which the survey’s top five barrier-rating combinations are ranked by frequency.

The gulf between the Funding rating and those assigned to other barriers is dramatized by Table 1: 27 respondents agreed that Funding is a Level 1 difficulty. The second highest number of respondents to agree on a barrier/rating combination were the 18 who gave Level 3 ratings to the Systems-Policy barrier [Graph H]. Then come the groups of 16: 16 respondents selected the Goals 2000 as a Level 3 difficulty [Graph F]; 16 the Developing Partners as a Level 3 [Graph G]; 16 each listed Training as a Level 2 and Level 3 [Graph C].
The Five Most Frequently Selected Barrier/Rating Combinations

<table>
<thead>
<tr>
<th>Barrier/Rating</th>
<th>Frequency of Response</th>
<th>Percentage of Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding/1</td>
<td>27</td>
<td>56.3%</td>
</tr>
<tr>
<td>Systems-Policy/3</td>
<td>18</td>
<td>37.5%</td>
</tr>
<tr>
<td>Goals 2000/3</td>
<td>16</td>
<td>33.3%</td>
</tr>
<tr>
<td>Training/2</td>
<td>16</td>
<td>33.3%</td>
</tr>
<tr>
<td>Training/3</td>
<td>16</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

Table 1

There is also a connotation of weight or importance innate to the Likert Scale itself. In this survey, a barrier given a Level 1 difficulty rating would naturally be viewed as far more critical than a barrier with a relatively insubstantial Level 4 or almost nonexistent Level 5 difficulty rating.

Recognizing this implication, most survey respondents selected Level 1 difficulty ratings sparingly, thereby creating a sense of urgency whenever they appeared. Here again, the 27 states selecting Level 1 for the Funding barrier is exceptional, as Table 2 illustrates.

Note that 27 respondents (56.3%) gave Level 1 ratings to the Funding barrier [Graph D]. In contrast, 14 respondents (29%) selected Level 1 ratings for Infrastructure—the second largest group of respondents to rate a barrier as a Level 1 problem [Graph B]. The third most frequent occurrence of Level 1 ratings were the 12 respondents (25%) for Legislative Actions [Graph A]. And so it went as the groups grew smaller. It is worth noting that both the Infrastructure and Legislative Actions barriers are arguably pertinent if not intimately linked to funding issues.1

The scale itself also highlights the extraordinary nature of 27 participants choosing to rate a single barrier as a Level 1 difficulty. A Likert Scale invites moderation; respondents are typically reluctant to assign ratings at the extremes of 1 or 5. But while reticence was the apparent rule with other barrier ratings, 56.3 percent of survey respondents rated Funding at the most noticeable extreme of 1.

And it was far more typical for respondents to designate barriers with difficulty ratings in the moderate Level 2, 3, or 4 range, creating the bell-shaped pattern seen clearly on Graphs C, E, F, G, and H. A glance at the eight graphs demonstrates typical versus extraordinary patterns. For instance, 18 states (37.5%) gave the Systems-Policy barrier a Level 3 difficulty rating—the most frequently selected difficulty designation for that barrier [Graph H]. Graphs C, E, F, and G demonstrate that similar frequency distribution patterns occurred with four other barriers:

- **Training** (16 respondents, Level 2 and 16 respondents, Level 3).
- **Ethics/Liability** (15 respondents, Level 3).
- **Goals 2000** (16 respondents, Level 3).
- **Developing Partners** (16 respondents, Level 3).

It's plain that, as a barrier to K-12 networks, Funding is in a class by itself. And survey respondents had broadcast their extraordinary concerns with financing school networks in an equally extraordinary show of consensus.

1 It may be productive to remember that concerns related to **Training**, **Systems-Policy**, and **Ethics/Liability** do not usually surface until a functional system is up and running. Also, **Goals 2000** involves political considerations that may have colored participants' responses.
A Level 1 difficulty rating by 56 percent of survey respondents indicated that financing educational networks worries officials from a meaningful number of states. Examining how states have paid for their K-12 networks may cast light on why financial concerns overshadowed the other barriers rated by survey participants.

What sources of funding have been available for educational networking: local district, state, or “other”? Nineteen of the states noted they considered all three (local district, state, or “other”) as funding sources for networking projects. Another 19 states relied on two funding sources: 12 on local district and state funds while four sought local district and “other” funds and three sought state and “other” funds. Eight states, Puerto Rico, and the Bureau of Indian Affairs reported only a single source of funding available to them: either local district or state or “other.”

Significantly, the greater the number of funding sources reported by a state, the less likely it was to list Funding as a Level 1 barrier in K-12 telecommunications implementation. States reporting only one source to fund their telecommunications efforts, not surprisingly, were also most likely to assign a Level 1 rating to Funding. It seems to have mattered little whether the single funding source was state, local district, or “other,” although Alabama and Maryland, the two states reporting only local district funding, rated Funding as a Level 1 problem. Likewise with Arkansas, Maine, and Wyoming; all were reportedly dependent on the single “other” category of funds and all rated Funding as a Level 1 difficulty. Of the three states relying on state-only funding, Montana also gave Funding a Level 1 rating, slightly softening the correlation between the array of at-hand financial resources and heightened funding concerns.

States with two sources of funding tended to be less apt to report funding worries than those with only one—as would be expected. For instance, of the 12 states relying on local and state funding to develop educational telecommunications, five listed Funding as a Level 1 concern (Alaska, California, Illinois, Minnesota, and Vermont). On the other hand, Connecticut, Kansas, Louisiana, and South Dakota, the four states citing funding sources as local and “other,” all gave Funding a Level 1 rating.

A significant number of states (25) were sharing resources with other educational networks—almost always from universities. This seemed to be indicative of the trend toward the development of partnerships between universities and primary/secondary school systems. It also appears to be a means for public schools to cultivate multiple funding sources. However, multiple funding resources were not a universal cure for schools systems coping with funding stresses. A third of the states listing Funding as a Level 1 barrier cited their funding as coming from local, state, and “other” sources—that is, a significant portion of states that had maximized funding sources nevertheless cited Funding as a Level 1 barrier to educational networking.

For all states—triple-, dual-, or single-funded—the “other” category might yield the greatest funding opportunities. A total of 31 states (64%) checked “other” as a source of funding for their educational networks. Eleven of the 31 declined to identify the “other” funding source. Eight of the remaining states listed private sector organizations as sources of telecommunications goods and services or direct funding for school networks. All of the remaining 12 states, however, named federal sources as the “other” or as one of their “other” funding sources; the dozen included the Bureau of Indian Affairs, a federal school system. Similar to Puerto Rico, some survey participants may have cited federal sources because their K-12 telecommunications networks had been funded primarily by the National Science Foundation, a sire of the American Internet. But more important than which agency was named is the fact that a quarter of the states seeking educational funding looked to Washington.

Where else did states reportedly seek funding? Among the “other” sources cataloged were corporate grants, gifts from philanthropic organizations, company donations of used computer equipment, partnerships with businesses. These included the ISDN deployment planned for a limited number of California schools by Pacific Bell Corporation. Georgia reported, under the “other” category, that state lottery receipts had been tagged for school networking. While awaiting legislative approval of annual operating funds
beginning the 1995-96 fiscal year, Arkansas drew a loan from its teachers' retirement system. North Dakota charged school users membership subscriptions, in the manner of Prodigy, CompuServe, and other commercial network service providers.

Only New York mentioned bond issues, a traditional means of capitalizing education. Nine states reported they had employed a relatively new funding strategy: their public utilities commissions had mandated specialized service tariffs for public school networks. In the case of Nebraska, the utility commission simply deregulated service rates, giving local districts the latitude to negotiate their own discounts. At the opposite end of the spectrum, Tennessee instituted tiered pricing based on the sophistication of the telecommunications services used. But the majority of government-dictated K-12 tariff programs called for schools to receive flat percentage savings on standard or commercial telecommunications usage rates. Texas schools, for example, benefit from a standardized 25 percent discount for any in-state telephone service used primarily for distance learning.

In a promising trend, nearly half of the nine states that instituted specialized tariffs for public school networking (Iowa, Nebraska, New Mexico, and Texas) also rated Funding as a barrier in the moderate 2, 3, or 4 difficulty range. Perhaps specialized tariffs for educational networks do alleviate funding pressures. At the time of the survey, four states, (Kansas, West Virginia, Vermont, and Utah) reported they were establishing special tariffs for education. Subsequent study of these states could better determine the impact of specialized service tariffs.

Communications service providers not only shape the cost of telecommunications networks; they are also key players in promoting information infrastructure development, according to one interpretation of survey results. Thirty states (62%) reported that a major service provider had begun a program to implement a statewide information infrastructure—and in most cases that supplier was a telephone company. Eight of these states reported the infrastructure was already partially available; 11 described the infrastructure as “in process”; and six said their infrastructure was in the planning stage.

In five of the 30 states, the precise level of infrastructure development was unclear.

As one would expect, the active promotion of infrastructure development by a service provider seems to have nudged some states into action. Twenty-six of the 30 states reporting such programs also described their networking efforts as “partially operational” or “operational.” But like the correlation between technology plans and standing Goals 2000 committees, the status/infrastructure connection may be equivocal. There were insufficient survey data to determine how frequently provider promotion of networking led to implementation, if a causal link exists between the two at all.

To recap survey findings: states seemed to ease the financial burdens of educational networking when they:

- Maximized funding opportunities.
- Mandated user discounts for K-12 public schools.

Finally, states may tend to develop school networks sooner with the encouragement of telecommunications service providers.

State administrators have demonstrated their willingness to support telecommunications networks for public school students. Financing the undertaking is a problem many are yet to surmount.
Barriers to K-12 Telecommunications

What other general trends can be identified in survey responses? There was surprising coherence in the obstacles volunteered by survey participants.

Thirty states reported barriers related to their regional locations and 39, obstacles related to population distribution. Because the actual obstacles identified by the states do not fit neatly into the two tidy categories of “Regional Problems” and “Population Problems,” it’s best to identify specific problems uncovered in the surveys.

Alaska’s respondent summarized obstacles at their extreme:

The bulk of Alaska’s population resides in Anchorage, Fairbanks, and Juneau. The rest of the population is scattered across the state in small rural areas with limited access—most have no roads into the community. This results in technological haves and have-nots—most of the rural communities have no access to 56KB lines—the infrastructure just isn’t there. Most of those rural communities have no cash-based economy—they are Native subsistence villages. Therefore, at this time, there is limited incentive for the telephone companies to invest in the infrastructure in these areas...when the traffic will not provide a return on that investment.

Variations on these themes resounded on many of the surveys.

For instance, many respondents described problems arising from populations split between crowded urban areas and their rural counterparts. In some states, urban school districts benefited from easier access to people with the technical expertise to deploy and administer educational networks. Colorado reported that a lack of such professionals creates problems in the more isolated areas of that state. A total of eight states—including the leaders in technological development, Texas, Hawaii, and Tennessee—explicitly pointed to a “lack of human infrastructure” as a barrier to educational networks.

Ten states reported that a significant percentage of their school populations is scattered or pocketed in remote locations; several others noted the “rural character” of their state creates difficulties in physically linking widely dispersed campuses and school districts. Among these is South Dakota. Only a portion of South Dakotans profit from access to “a state backbone running from east to west in the center of the state, but the majority of schools are some distance from this line.” As the Alaskan respondent noted, in such circumstances service providers have limited incentives to lay costly fiber networks that few people will use.

A total of 18 states identified barriers related to telephone service and telecommunications infrastructure—particularly in rural areas. Some members of this group judged the rural infrastructure as of poor quality or as simply inadequate to supply advanced telecommunications technologies to schools.

Others, including New Mexico, said all too frequently rural telecommunications service was provided by a crazy quilt of local “mom and pop” phone companies hampered by outmoded technology and a lack of current engineering expertise. Eight others had simply too many telephone companies serving state citizens. Minnesota distinguished itself in terms of sheer numbers: it reported that 93 phone companies serve its citizens. Obviously, it would be a challenge for state technology planners to induce so many competitors to cooperate in building a flexible, state-of-the-art public network infrastructure.

And a significant number of states reported a gulf between the school districts, often expressing this disparity with the phrase “equity issues,” which appeared in the surveys of eight states. While it sometimes invoked urban versus rural concerns, the phrase had wider meaning.

For instance, Missouri linked “access and equity because of diversity.” For the respondent from Illinois “equity” had to do first with quantity and demographic counts: “One-half of the student population is located in Chicago and its surrounding areas. Equity between urban and rural is an issue.” Rhode Island echoed this sentiment: “Urban areas lack funds, human resources, and significant business partners.”

But the barriers facing the majority of states were too idiosyncratic to be summarized here. Please see individual State Profiles for these data.
II. State Profiles
### Alabama State Facts

<table>
<thead>
<tr>
<th>Number of school districts</th>
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<tbody>
<tr>
<td>Number of school buildings</td>
<td>1,400</td>
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<tr>
<td>Number of K-12 teachers</td>
<td>41,000</td>
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<tr>
<td>Number of K-12 students</td>
<td>715,000</td>
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<tr>
<td>Number of students in largest district</td>
<td>65,000</td>
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<td>Number of students in smallest district</td>
<td>750</td>
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<td>Number of districts that have fewer than 1,000 students</td>
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### Status of State Networks

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<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
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<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Legislative Public Utility Commission/Public Service Commission</td>
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<td>Yes</td>
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<td>State Department of Education</td>
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<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Community networks or freenets established in state</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Technology Plans

| Long-range planning for telecommunications incorporated into state technology plans | No | No | No | No | No |
| Long-range planning for telecommunications incorporated into state K-12 plans | Yes | Yes | Yes | Yes | Yes |
| Goals 2000 planning committee established | No | No | No | No | No |
| Telecommunications contact Dr. Ron Wright | Yes | Yes | Yes | Yes | Yes |
| Intermediate educational units are available to assist schools with training for telecommunications implementation | No | No | No | No | No |
| Eleven regional research and inservice centers at state universities | Yes | Yes | Yes | Yes | Yes |

### Funding for Educational Networks

| Funding sources available | No | No | No | No | No |
| Local District State Other In state plan but not yet funded | Yes | Yes | Yes | Yes | Yes |
| Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission | No | No | No | No | No |
| $7.50 for local LATA calls and 800 numbers | No | No | No | No | No |
| Tariff information is available on-line | Yes | Yes | Yes | Yes | Yes |
| A major telecommunications provider has a program encouraging infrastructure development in the state | No | No | No | No | No |
### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th>Potential Barriers</th>
<th>Rating</th>
<th>Description</th>
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<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td>5</td>
<td>Networking issues or obstacles related to regional location</td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td>4</td>
<td>Lack of phone service (at the level needed, e.g., 56KB lines) in some rural areas.</td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td>3</td>
<td>Networking issues or obstacles related to population distribution</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td>2</td>
<td>Same as above.</td>
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<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td>1</td>
<td>Other concerns about telecommunications</td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td></td>
<td>No response was provided.</td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**For further information, contact**

Dr. Ron Wright  
Alabama State Department of Education  
3317 Gordon Persons Building  
50 North Ripley St.  
Montgomery, AL 36130  
WRIGHTRJ@AOL.COM  
(205) 242-8071  
Fax (205) 242-0482

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**Additional Information**

Identified and rated another Barrier to State Networks  
Funding.

State’s computer networking efforts are operational at system level—planned at the school level.
### Alaska

#### State Facts

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
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<td>54</td>
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<tr>
<td>Number of school buildings</td>
<td>467</td>
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<tr>
<td>Number of K-12 teachers</td>
<td>7,283</td>
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<tr>
<td>Number of K-12 students</td>
<td>119,201</td>
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<td>Number of students in largest district</td>
<td>44,280</td>
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<td>Number of students in smallest district</td>
<td>23</td>
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<td>Number of districts that have fewer than 1,000 students</td>
<td>41</td>
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#### Status of State Networks

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<tr>
<th>Network Development</th>
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<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
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<tr>
<td>Information services currently provided by state network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>State Department of Education</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The network used by schools is the University of Alaska Computer Network, which provides e-mail and Internet access.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

State Gopher server or Mosaic home address | No |
K-12 Gopher server or Mosaic home address Not that I'm aware of. | No |
Community networks or freenets established in state Fairbanks community network and State Library Electronic Doorway (SLED), a function of the state education department. Otherwise, there are no formal collaborative efforts with community systems. | Yes |

#### Technology Plans

| Long-range planning for telecommunications incorporated into state technology plans | Yes |
| The Governor's Telecommunications Information Council (TIC) has a plan that primarily focuses on applications for state government and some public information use. | |
| Long-range planning for telecommunications incorporated into state K-12 plans | No |
| Not yet. Will be part of Goals 2000 planning. | |

Goals 2000 planning committee established | Yes |
Being finalized. | |

Intermediate educational units are available to assist schools with training for telecommunications implementation | Yes |
We have only one: the Southeast Regional Resource Center, which currently coordinates our Star Schools project but has no other staff assigned to these functions. | |

#### Funding for Educational Networks

| Funding sources available | Yes |
| Local District | |
| State (Planned) | |
| Other | No |

Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission | No |
A major telecommunications provider has a program encouraging infrastructure development in the state | No |
Networking issues or obstacles related to regional location
The topography and wide dispersion of population in the state in small remote villages makes it impossible to utilize land lines. Most communications in rural Alaska is via satellite.
Continued in Additional Information

Networking issues or obstacles related to population distribution
The bulk of Alaska's population resides in Anchorage, Fairbanks, and Juneau. The rest of the population is scattered across the state in small rural areas with limited access—most have no roads into the community. This results in technological haves and have-nots—most of the rural communities have no access to 56KB lines—the infrastructure just isn't there. Many of those rural communities have no cash-based economy—they are Native subsistence villages. Therefore, at this time, there is limited incentive for the telephone companies to invest in the infrastructure in these areas...when the traffic will not provide a return on that investment.

Other concerns about telecommunications
In many ways, Alaska has the greatest needs for modern telecommunications, yet currently policymakers are not addressing this issue. Perhaps by the time Alaskans realize what they need and start making demands on the system, the window of opportunity offering to help subsidize the infrastructure through grants and other funding sources will be gone.

For further information, contact
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Alaska Department of Education
801 W. 10th St., Suite 200
Juneau, AK 99801-1894
rmls@tundra.alaska.edu
(907) 465-8724
Fax (907) 465-3396

The current infrastructure in small, remote villages precludes high-speed, reliable data transmission. In addition, because of that fact, intrastate rates are probably the highest in the nation. While other places, even rural areas of the nation, have the ability to lay fiber, there are some parts of Alaska that could never have fiber laid. New wireless technologies may hold some promise, but for the short-term the state will have to determine how to upgrade satellite-based technologies and who will pay for such an expensive venture. In addition, the rural areas may never see the benefits of competition, since we have a limited number of long distance providers and no competition in local telephone providers.
### Arizona State Facts

<table>
<thead>
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<th>Category</th>
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<tr>
<td>Number of school districts</td>
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</tr>
<tr>
<td>Number of school buildings</td>
<td>1,008</td>
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<tr>
<td>Number of K-12 teachers</td>
<td>37,879</td>
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<tr>
<td>Number of K-12 students</td>
<td>709,261</td>
</tr>
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<td>Number of students in largest district</td>
<td>67,639</td>
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<tr>
<td>Number of students in smallest district</td>
<td>6</td>
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<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>126</td>
</tr>
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### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Legislative</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>K-12 Gopher/Telnet information sources.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>State Gopher server or Mosaic home page address 162.126.3.3 (Gopher)</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address Some in development.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Community networks or freenets established in state</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>They collaborate with the State Department of Education</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</table>

### Technology Plans

- Long-range planning for telecommunications incorporated into state technology plans **Minimally.**
- Long-range planning for telecommunications incorporated into state K-12 plans **Will be revised as part of the state's Goals 2000 effort.**
- Goals 2000 planning committee established
- Telecommunications contact **Kathryn Kilroy**
- Intermediate educational units are available to assist schools with training for telecommunications implementation

### Funding for Educational Networks

- **Local District**
  - State (Planned)
  - Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
  - US WEST Frame Relay Clouds

- **Other**
  - A major telecommunications provider has a program encouraging infrastructure development in the state
POTENTIAL BARRIERS TO STATE NETWORKS

a. Legislative and Regulatory Actions

b. Technical Infrastructure and Support

c. Professional Development and Training

d. Funding: Initial and Long-term

e. On-line Ethical and Liability Issues

f. Infusion into Goals 2000 and Educational Development

g. Developing Private Sector and Community Partners

h. Educational Systems and Policy Barriers

Networking issues or obstacles related to regional location
Although our local carrier is a partner in our statewide networking efforts, there is a need for an improved relationship between its regional office and the state.

Networking issues or obstacles related to population distribution
Rural schools and those isolated urban schools do not have sufficient resources to adequately address networking.

Other concerns about telecommunications
No response was provided.

For further information, contact
Kathryn Kilroy, Associate Superintendent
Arizona Department of Education
1535 W. Jefferson St.
Phoenix, AZ 85007
kkilroy@ade.state.az.us
(602) 542-4889
Fax (602) 542-3590
**Arkansas**

### State Facts
- **Number of school districts:** 314
- **Number of school buildings:** 1,098
- **Number of K-12 teachers:** 30,000
- **Number of K-12 students:** 450,000
- **Number of students in largest district:** 26,000
- **Number of students in smallest district:** 91
- **Number of districts that have fewer than 1,000 students:** 2/3 of total

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
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<td>Legislative</td>
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<td>State Department of Education</td>
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<td>Other</td>
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<td>Under development. See Additional Information.</td>
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<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Governor is forming a task force to develop a plan.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We are developing one currently.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goals 2000 planning committee established</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telecommunications contact Bob Friedman</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Of the 15 cooperatives, perhaps three have staff that could or have assisted districts or us in telecommunications activities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Funding for Educational Networks
- Funding sources available
- Local District
- State (Planned)
- Other
  - See Additional Information

- **Special telecommunications tariffs for education**
- Established by the Public Utility Commission/Public Service Commission
- Overall, the tariff provides about a 55 percent reduction. It includes frame-relay services for T1, 56 and 384 KB and nonframe relay services for T1 and 56 KB. Fiber is not part of the tariff.

- A major telecommunications provider has a program encouraging infrastructure development in the state
  - See Additional Information

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**24 Arkansas**
POTENTIAL BARRIERS TO STATE NETWORKS

Networking issues or obstacles related to regional location
None.

Networking issues or obstacles related to population distribution
None.

Other concerns about telecommunications
Rural; small economic base upon which to fund technology. Many small telephone companies.

For further information, contact
Bob Friedman
Arkansas Public School Computer Network
#4 State Capitol Mall, Room 401A
Little Rock, AR 72201
Bobf@apscn.k12.ar.us
(501) 682-5035

Ann Poteet
Arkansas Department of Education
#4 State Capitol Mall, Room 301A
Little Rock, AR 72201
APoteet@hp.k12.ar.us
(501) 682-4267
Fax (501) 682-4561

[As far as K-12 networks,] the Arkansas Public School Computer Network is the major service provider. Some individual schools are using commercial services like America Online or the post-secondary networks until their APSCN connection is in place.

We are working on several community LAN projects with cable TV providers and fiber LANs with telephone companies. We do not collaborate with any freenet organizations to my knowledge.

APSCN has a loan from the state teacher retirement system for development. An annual operating request using state funds has been submitted to the General Assembly beginning with the 1995-96 fiscal year.

APSCN and the Department of Computer Services have been working with Southwestern Bell on infrastructure development as part of a Public Service Commission overearnings stipulation.
### California

#### State Facts

<table>
<thead>
<tr>
<th>Category</th>
<th>Information</th>
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</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>1,002</td>
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<tr>
<td>Number of school buildings</td>
<td>7,713</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>250,000</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>5,267,277</td>
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<td>Number of students in largest district</td>
<td>639,129</td>
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<tr>
<td>Number of students in smallest district</td>
<td>11</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>442</td>
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#### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Legislative</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Public Utility Commission/</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Public Service Commission</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Other</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>No state education network is in place, although information is being provided via the Internet. California legislative information is available via the Internet on a Gopher server. State Department of Education information is available via the Department's Gopher. California Basic Educational Data (demographics) and information from the Healthy Start/Healthy Kids Office will soon be available via the Internet. State Gopher server or Mosaic home page address California State Gopher.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address Information unavailable at this time.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Technology Plans

- Long-range planning for telecommunications incorporated into state technology plans:
  - No, although Governor Wilson has convened an Information Technology Council that will be considering statewide technology issues, including those of education.

- Long-range planning for telecommunications incorporated into state K-12 plans:
  - Yes

- These plans are identified in the K-12 Network Technology Planning Guide. They are being developed further by the Golden State Education Network-Communications Task Force.

- Goals 2000 planning committee established:
  - No

- Team not selected at this time:
  - Yes

- Intermediate educational units are available to assist schools with training for telecommunications implementation:
  - Yes

#### Funding for Educational Networks

- Funding sources available:
  - Yes

- Local District
  - Yes

- State (Planned)
  - Yes

- Other:
  - Yes

- The California Public Utilities Commission has made $40 million available for K-12 schools that can be used mainly for infrastructure, but also for staff development and applications development. This is on hold due to protests to the ruling.

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission:
  - No

- A major telecommunications provider has a program encouraging infrastructure development in the state:
  - Yes

- Pacific Bell and GTE.

See Additional Information.
Networking issues or obstacles related to regional location
California is in a prime position to develop school networks and have Internet access made available to most areas of the state. One of the major problems is the lack of funding from the state that would permit statewide planning and implementation to occur. What exists now are many individual districts, schools, and county offices of education that are working independently to bring communications into the classroom. But there is no consistent, overriding plan that directs and supports a statewide effort.

The Department recently published the *K-12 Network Technology Planning Guide* that addresses issues of local infrastructure planning, staff development, technical support, and benefits to educational reform.

Networking issues or obstacles related to population distribution
California is faced with a diverse school population that is increasing in mainly urban areas but also in rural areas. Considerations of equity are a critical concern, but are difficult to address because of the lack of low-cost telco services in many areas of the state. This issue is being addressed through discussions with the CPUC, the Legislature, major industry, and the Governor's Office.

Other concerns about telecommunications
No response was provided.

**For further information, contact**
Carole Teach for Bill Padia  
California Department of Education  
Research, Evaluation and Technology Division  
721 Capitol Mall, 4th floor  
Sacramento, CA 95814  
bpadia@cde.ca.gov or cteach@goldmine.cde.ca.gov  
(916) 657-2757  
Fax (916) 657-4978
## Colorado

### Status of State Networks

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Technology Plans

- Long-range planning for telecommunications incorporated into state technology plans
- See Additional Information

- Long-range planning for telecommunications incorporated into state K-12 plans
- We are currently developing a long-range plan for educational technology; telecommunications will have a major place in it.

- Goals 2000 planning committee established
- The committee has not yet been appointed by the Governor and Chief State School Officer.

- Intermediate educational units are available to assist schools with training for telecommunications implementation
- We have voluntary membership BOCES, but they don't currently have expertise in this field. The State Library, through ACLIN, has about 75 Super Trainers to train/assist with library access.

#### Funding for Educational Networks

- Funding sources available
  - Local District
    - State (Planned)
  - Other
    - Corporate grants; partnerships with for-profits through Colorado SuperNet; federal, US WEST Foundation and Annenberg grants.

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
  - US WEST and the independent telcos are currently upgrading all existing mechanical switches to digital, eliminating all multiparty service, upgrading general telephone service, and laying optical fiber when additional capacity is needed. Several of these are under PUC programs.

---

### State Facts

- Number of school districts: 176
- Number of school buildings: 1,360
- Number of K-12 teachers: 33,419
- Number of K-12 students: 612,635
- Number of students in largest district: 81,311
- Number of students in smallest district: 41
- Number of districts that have fewer than 1,000 students: 113

---
POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>Potential Barrier</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td>5</td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td>4</td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td>3</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td>2</td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td>1</td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td></td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td></td>
</tr>
</tbody>
</table>

Networking issues or obstacles related to regional location
Development of state-of-the-art telecommunications services (ISDN, call forwarding, etc.) in rural Colorado is a major problem. Additionally, there are no plans to expand these services to the rural areas.

Networking issues or obstacles related to population distribution
Computing expertise in rural areas is scarce—funding is limited. How to make network economically viable in the long-term, given low population areas and in the more densely populated, low SES inner city.

Other concerns about telecommunications
Lack of federal vision and policy to support and expand K-12 networking. Insuring that bandwidth is as affordable as processing power.

For further information, contact
Eric Feder
Colorado Department of Education
201 East Colfax
Denver, CO 80203
efeder@csn.org
(303) 866-6859
Fax (303) 830-0793

ADDITIONAL INFORMATION

Identified and rated another Potential Barrier to State Networks
Lack of phone lines in schools

The Colorado Advanced Technology Institute (CATI) sponsors the Colorado Rural Telecommunications Project. Under this program, 12 rural communities are developing and about to implement telecommunications-based economic development and/or educational projects. While Denver FreeNet's main emphasis is on health issues (it is based at the School of Nursing at the University of Colorado), it houses a pilot BBS for the Department of Education and participates in several grants we have written and received. Others include the Boulder Community Network, Telluride InfoZone, and the Gunnison Community Network.

Several state agencies, including the Colorado Telecommunications Advisory Commission (TAC), are independently and yet cooperatively developing statewide telecommunications plans. The Governor has directed the Lieutenant Governor to head a telecommunications initiative. Additionally, the Governor's Office with industry and government partners has applied for a TIIAP planning grant.
**Connecticut**

### State Facts

- **Number of school districts**: 166
- **Number of school buildings**: 981 (1991)
- **Number of K-12 teachers**: 35,000 (1991)
- **Number of K-12 students**: 489,000 (1992-93)
- **Number of students in largest district**: 25,000
- **Number of students in smallest district**: 739
- **Number of districts that have fewer than 1,000 students**: 53

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Legislative</td>
<td>Public Utility Commission/Public Service Commission</td>
<td>State Department of Education</td>
<td>Other</td>
<td>Now being considered. None are yet operational.</td>
</tr>
</tbody>
</table>

#### Technology Plans

- **Long-range planning for telecommunications incorporated into state technology plans**
- **Administrative agencies of the state are linked together via a statewide network known as STATENET.**
  - **Yes**
- **Now in development.**
  - **Yes**
- **Connecticut has established a Joint Committee on Educational Technology with the mission of developing a statewide educational technology plan.**
  - **No**
- **Goals 2000 planning committee established**
  - **Not yet formed. Currently being established.**
  - **No**
- **Intermediate educational units are available to assist schools with training for telecommunications implementation**
  - **Yes**
  - **See Additional Information**

### Funding for Educational Networks

- **Local District**
- **State (Planned)**
- **Other**
  - Schools are dependent upon local funding and support. "Other" includes school partnerships with corporations, federal and state grants for schools, and corporate grant opportunities.
- **Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission**
  - **No**
- **A major telecommunications provider has a program encouraging infrastructure development in the state**
  - **Yes**
- **SNET, the local telephone company has announced plans to construct 1-SNET, a high bandwidth network over the next 1½ years.**
  - **Yes**
## Potential Barriers to State Networks

| a. Legislative and Regulatory Actions | 5  |
| b. Technical Infrastructure and Support | 4  |
| c. Professional Development and Training | 3  |
| d. Funding: Initial and Long-term | 2  |
| e. On-line Ethical and Liability Issues | 1  |

### Networking issues or obstacles related to regional location
None apparent.

### Networking issues or obstacles related to population distribution
Connecticut has long been recognized as having two Connecticuts: the haves and the have-nots. Since schools are dependent upon the local community for technology, the opportunities for technology are directly tied to the local tax base. In the state, we are challenged with urban environments such as Hartford, Bridgeport, and New Haven, but we also must deal with rural low-income areas that cannot provide the technology resources needed for educational system.

### Other concerns about telecommunications
- National standards for student achievement—i.e., what should students be expected to know or be able to do after 12 years in high school with regard to telecommunications and technology?
- In addition to the need for access to telecommunications (a statewide network, building distribution, etc.), schools must be able to provide computers and other related hardware if students are to effectively make use of the information superhighway. Where will the support ($$) come from?
- Will the Internet (or future information highway) be able to support the anticipated increased use by schools? How will the Internet be able to handle the increased access requests?
- What will be the impact on schools as a result of deregulation of the telecommunications industry?
- Professional development programs and teacher preparatory programs need to provide more training in using technology.

### Additional Information

Identified but did not rate several additional Potential Barriers to State Networks
- Lack of local technology support personnel in school districts.
- Building wiring. Distribution within schools does not permit easy access to telecommunications throughout school buildings. The typical number of phone lines in an average school building is four to six, which does not permit access to telecommunications for classroom use.
- Lack of categorical funding for technology and, specifically, telecommunications.
- Local school districts not required to use state funds for any technology.
- Lack of technology standards for school construction/renovation. This issue is currently being addressed by a state-level committee on ed tech standards.
- Awareness level and support by local school administrators: e.g., superintendents, principals, board of education members, parents.

There are two types of agencies that offer support to education:
1. Regional Educational Service Centers with six throughout the state.
2. Cooperative Library Service Units with four throughout the state to support educational library services.

Both receive some state funding but are operated by independent boards.

For further information, contact
Betty Goyette, Connecticut State Dept. of Education
227 Church St., Hartford, CT 06510
(203) 566-6660
Fax (203) 566-5623

Tom Buckley, SNET
227 Church St., 9th Floor, New Haven, CT 06510
BUCKLEY1@BIOMED.MED.YALE.EDU
(203) 771-3115
Fax (203) 865-5198
## Delaware

### State Facts

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Number of school districts</td>
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</tr>
<tr>
<td>Number of school buildings</td>
<td>176</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>6,252</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>104,321</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>N/A</td>
</tr>
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</table>


### Status of State Networks

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Network Development

- Information services currently provided by state network
- Legislative
- Public Utility Commission/Public Service Commission
- State Department of Education
- Other

- State Gopher server or Mosaic home page address
- K-12 Gopher server or Mosaic home page address
- Community networks or freenets established in state

#### Technology Plans

- Long-range planning for telecommunications incorporated into state technology plans
- Long-range planning for telecommunications incorporated into state K-12 plans
- Goals 2000 planning committee established
- Intermediate educational units are available to assist schools with training for telecommunications implementation

### Funding for Educational Networks

- Funding sources available
  - Local District
  - State
  - Other

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission

- A major telecommunications provider has a program encouraging infrastructure development in the state

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POTENTIAL BARRIERS TO STATE NETWORKS

Networking issues or obstacles related to regional location
Networking issues or obstacles related to population distribution
Other concerns about telecommunications
For further information, contact

a. Legislative and Regulatory Actions
b. Technical Infrastructure and Support
c. Professional Development and Training
d. Funding: Initial and Long-term
e. On-line Ethical and Liability Issues
f. Infusion into Goals 2000 and Educational Development
g. Developing Private Sector and Community Partners
h. Educational Systems and Policy Barriers
### Florida

#### State Facts

<table>
<thead>
<tr>
<th>Number of school districts</th>
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</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
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<td>Number of K-12 teachers</td>
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<td>Number of K-12 students</td>
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</tr>
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<td>Number of students in largest district</td>
<td>370,000</td>
</tr>
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<td>Number of students in smallest district</td>
<td>980</td>
</tr>
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<td>Number of districts that have fewer than 1,000 students</td>
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#### Status of State Networks

<table>
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<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Legislative</td>
<td>State Department of Education</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
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<tr>
<td>See Additional Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Technology Plans | | |
|-------------------|------------------|
| Long-range planning for telecommunications incorporated into state technology plans | No |
| There have been some discussions, but I'm not aware of a statewide plan. | No |
| Long-range planning for telecommunications incorporated into state K-12 plans | No |
| Goals 2000 planning committee established | No |
| The Florida Department of Education appoints the state's Goals 2000 team. | No |
| Telecommunications contact Bill Schmid | No |
| Intermediate educational units are available to assist schools with training for telecommunications implementation | No |
| FIRN, however, provides telecommunications trainers (FIRNTEC's) who supports K-12 education and their use of FIRN. | No |

#### Funding for Educational Networks

| Funding sources available | No |
| Local District | No |
| State (Planned) | No |
| Other | No |
| Federal grants. | No |
| Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission | No |
| A major telecommunications provider has a program encouraging infrastructure development in the state | No |
| Not within the state but within a district | No |
| Sprint/Centel is offering Internet access to approximately 20 schools at no cost during the first year. They plan to offer an attractive access rate after the first year. | No |
POTENTIAL BARRIERS TO STATE NETWORKS

Networking issues or obstacles related to regional location
Currently, there are no major issues or obstacles related to regional locations in Florida.

Networking issues or obstacles related to population distribution
Currently, there are no major obstacles, but future applications will require bandwidth that might not be available in rural areas. Although this is not an issue today, we will want to be proactive to insure that it will not be a problem in the future.

Other concerns about telecommunications
With all the talk of National Information Infrastructure and privatizing the Internet, how can we protect our investment and insure K-12 access to the Internet remains affordable?

For further information, contact
Bill Schmid
Florida Information Resource Network (FIGN)
325 W. Gaines St., B1-14
Tallahassee, FL 32399
schmidb@mail.firn.edu
(904) 487-8656
Fax: (904) 488-3691

Freenets collaborate with the State Department of Education
Yes
FIRN has and will continue to collaborate with each of the freenets.

The state's educational network, the Florida Information Resource Network (FIRN), is fully operational. The state's educational network provides legislative and Department of Education information, including the State University System and the Division of Community Colleges.

Currently, the Florida Information Resource Network (FIRN) provides Internet access for K-12 education. FIRN's TCP/IP backbone has a collaborative agreement with SURANET. By October 1994, FIRN will have 11 major Internet nodes and 37 subnodes. Four of the major nodes are owned by SURANET.
### Georgia

**STATE FACTS**

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>182</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>1,932</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>75,602</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>1,235,304</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>81,486</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>173</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>12</td>
</tr>
</tbody>
</table>

*Two respondents from Georgia completed surveys. Their responses to questions have been combined and their barrier ratings are marked A and B.*

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Legislative</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Gopher, Mosaic, FTP, News.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Technology Plans**

Long-range planning for telecommunications incorporated into state technology plans

*See Additional Information*

**Funding for Educational Networks**

Funding sources available

- Local District
- State (Planned)
- Other
- The lottery.

Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission

One has been requested but there has been no action.

A major telecommunications provider has a program encouraging infrastructure development in the state

*The Department of Administrative Services—extensive backbone structure.*

*See Additional Information.*

**Community networks or freenets established in state**

The Dekalb County freenet does not directly cooperate with the K-12 community but is helpful when asked.

The Georgia College Education Network (GCEduNet) project operates to benefit K-12.

Intermediate educational units are available to assist schools with training for telecommunications implementation.

There are both the traditional Regional Educational Support Agencies, which have provided educational support to the school districts, and the new Georgia Department of Education Technology Training Centers, which will focus on technology.
### Potential Barriers to State Networks

#### Networking issues or obstacles related to regional location
The telephone companies do not have digital transport facilities at many of the rural locations and they have not offered to backhaul the data at a reasonable cost. This can work a hardship on the smaller rural school districts that most need the help from technology.

#### Networking issues or obstacles related to population distribution
The people who are keeping pace with the rapid changes in technology are located in the population centers of the state. This means that the required support people are not always available in the portions of the state that would most benefit by the infusion of technology.

#### Other concerns about telecommunications
Ongoing cost and its acceptance by school sites. See Additional Information

### Additional Information
The Board of Regents for the University System and Department of Administrative Services both have extensive connectivity. The DOAS is developing and implementing an expansion of their existing SNA network to add the TCP/IP protocols and add connections to all state agencies. This activity is coordinated with and in cooperation with the University System and PeachNet's activities for education. The two networks are currently interoperable. Many of the colleges and universities have Gopher and Mosaic servers.

I have three major concerns about telecommunications technology:
- With immediate impending improvements in communications technology, will people be able to adjust to the infusion of new ideas into their lives and activities? For example, relatively sheltered rural communities will suddenly have access to other religious, political, and sexual views (to name three hot areas in the South). I am afraid the adjustment will be difficult.
- Can the education system find a way to pay for the bandwidth that will be required to make significant improvements in education in rural areas? The present tax system seems unsuited for the task.
- Can the 35 local telephone companies in the state along with cable companies, long distance carriers, and other providers cooperate in constructing the facilities education will need at a cost education can afford, or will it fall to the state to create the infrastructure with public funds?
### Hawaii

#### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Technology Plans</th>
<th>Funding for Educational Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Funding sources available</td>
</tr>
<tr>
<td>Legislative</td>
<td>The Department of Education's telecommunications plan is an integral part of the state's telecommunications plan and the state's Institutional Network plan.</td>
<td>Local District</td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>State (Planned)</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>The telecommunications and network plans are incorporated in the state's education plan.</td>
<td>Other</td>
</tr>
<tr>
<td>Other</td>
<td>Goals 2000 planning committee established</td>
<td>Federal grants.</td>
</tr>
<tr>
<td>Hawaii FYI.</td>
<td>Members are employees of the Department of Education and community members.</td>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address kalama.doe.hawaii.edu (128.171.48.20) (Gopher) [<a href="http://www.kalama.doe.hawaii.edu">http://www.kalama.doe.hawaii.edu</a> (Mosaic)]</td>
<td>Telecommunications contacts Sharon Arakaki, K. Kim</td>
<td>There is no special telecommunications tariff for education in Hawaii.</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state</td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td>They collaborate with the State Department of Education.</td>
<td>See Additional Information</td>
</tr>
<tr>
<td>There is Hawaii FYI, a public information provider. There is some collaboration with the Hawaii FYI and the Department of Education to provide information service to the schools.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### State Facts

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>1</td>
</tr>
<tr>
<td>Number of school buildings</td>
<td>3,900</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>11,513</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>180,000</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>180,000</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>180,000</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>0</td>
</tr>
</tbody>
</table>
Networking issues or obstacles related to regional location
There is a limited number of network service providers in Hawaii; therefore, the low competition in network services tends to keep the telecommunications costs fairly expensive. Working and coordinating with several different telecommunication providers for installation of the Institutional Network has been challenging. Availability of some of the advanced network technologies from the major network providers in Hawaii sometimes lags.

Networking issues or obstacles related to population distribution
Some schools in the remote rural areas of the neighbor islands, such as the islands of Molokai, Hawaii, and Maui, are not served by the major telecommunications providers for high-speed digital networks.

Other concerns about telecommunications
Training the users and operators of telecommunication network must be addressed as an important part of the telecommunications planning process for the schools.

For further information, contact
Sharen Arakaki
K. Kim
Department of Education, State of Hawaii
1390 Miller St.
Honolulu, HI 96813
sharen@kalama.doe.hawaii.edu
(808) 733-4733
kkim@kalama.doe.hawaii.edu
(808) 586-3211
Fax (808) 586-3227

ADDITIONAL INFORMATION
We have one school district. The State Department of Education is the school district for public schools in the state of Hawaii.

We have a statewide, protocol-independent, wide area data network that connects all schools and offices in the state to the computer hosts.

The state has embarked on building the Institutional Network (I-Net) primarily from the agreement on cable TV franchises. The I-Net will be based on SONET and other fiber optic network and Ethernet over CATV technology. Our goal is to connect all schools to the I-Net. GTE Hawaiian Tel has started implementing a so-called “worldclass network” that will provide frame relay service, SMDS, ATM service, and some video applications.
### Idaho

#### Status of State Networks

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information services currently provided by state network</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A. No present state network.</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>They collaborate with the State Department of Education</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Technology Plans

- **Long-range planning for telecommunications incorporated into state technology plans**
- **Long-range planning for telecommunications incorporated into state K-12 plans**
- **Goals 2000 planning committee established**
- **Idaho does not have one.**
- **Intermediate educational units are available to assist schools with training for telecommunications implementation**

#### Funding for Educational Networks

- **Funding sources available**
- **Local District**
- **State (Planned)**
- **Other**
- **The state grant program for 1994-95 equals $10 million.**
- **Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission**
- **A major telecommunications provider has a program encouraging infrastructure development in the state**

---

#### State Facts

- Number of school districts: **112**
- Number of school buildings: **650**
- Number of K-12 teachers: **12,015**
- Number of K-12 students: **236,774**
- Number of students in largest district: **26,099**
- Number of students in smallest district: **10**
- Number of districts that have fewer than 1,000 students: **59**
### POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td>5</td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td>4</td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td>3</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td>2</td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td>1</td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td></td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td></td>
</tr>
</tbody>
</table>

- **Networking issues or obstacles related to regional location**
  - Idaho is geographically challenged. The state spans two LATAs for purposes of telecommunications. Much of the state is too far removed from the major metropolitan areas.

- **Networking issues or obstacles related to population distribution**
  - Idaho is mostly rural and has a need for greater technology implementation.

- **Other concerns about telecommunications**
  - N/A.

**For further information, contact**

Robert (Bob) Pyle
Idaho Public Television-Learning Link
1455 N. Orchard
Boise, ID 83706
bobpyle@idptv.idbsu.edu
(208) 373-7220
Fax (208) 373-7245
## Illinois

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Department of Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>isbe.state.il.us.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>Not available.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td></td>
<td>Yes</td>
<td></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>They collaborate with the State Department of Education</td>
<td></td>
<td></td>
<td></td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

### Technology Plans

<table>
<thead>
<tr>
<th>Long-range planning for telecommunications incorporated into state technology plans</th>
<th>In progress.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>In progress.</td>
</tr>
<tr>
<td>Goals 2000 planning committee not established</td>
<td>No</td>
</tr>
<tr>
<td>The Goals 2000 planning committee for Illinois has not been named yet.</td>
<td>No</td>
</tr>
<tr>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td>No</td>
</tr>
<tr>
<td>Not yet. Our intermediate educational units are being reorganized. It is planned to have these services provided by the new structure.</td>
<td>No</td>
</tr>
</tbody>
</table>

### Funding for Educational Networks

<table>
<thead>
<tr>
<th>Funding sources available</th>
<th>Local District</th>
<th>State (Planned)</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### State Facts

- Number of school districts: 921
- Number of school buildings: 4,151
- Number of K-12 teachers: 110,874
- Number of K-12 students: 1,883,892
- Number of students in largest district: 409,499
- Number of students in smallest district: 24
- Number of districts that have fewer than 1,000 students: 515
POTENTIAL BARRIERS TO STATE NETWORKS

Networkung issues or obstacles related to regional location
This state is divided into over 14 separate LATAs.

Networking issues or obstacles related to population distribution
One-half of the student population is located in Chicago and its surrounding areas. Equity between urban and rural is an issue.

Other concerns about telecommunications
No response was provided.

For further information, contact
Frank Whitney
Illinois State Board of Education
100 N. First St., S395
Springfield, IL 62777
fwhitney@eagle.sangamon.edu
(217) 782-4313
Fax (217) 782-4550
<table>
<thead>
<tr>
<th>State Facts</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>294</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of school buildings</td>
<td>1,903</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>55,218</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>960,434</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>46,656</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>220</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Network Development**
- Information services currently provided by state network
- Legislative
- Public Utility Commission/Public Service Commission
- State Department of Education
- Other state agency data.

**Technology Plans**
- Long-range planning for telecommunications incorporated into state technology plans
  - In process.
- Long-range planning for telecommunications incorporated into state K-12 plans
  - In process.
- Goals 2000 planning committee established

**Funding for Educational Networks**
- Funding sources available
- Local District
- State (Planned.)
- Other
  - Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
  - Other state agency data.
  - A major telecommunications provider has a program encouraging infrastructure development in the state
  - Opportunity Indiana through Ameritech.

**State Gopher server or Mosaic home page address**
- ideanet.doe.state.in.us (Gopher)
- http://ideanet (Mosaic)

**K-12 Gopher server or Mosaic home page address**
- Not yet, but within one month.

**Community networks or freenets established in state**
- Access Indiana.
<table>
<thead>
<tr>
<th>Potential Barriers to State Networks</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td>5</td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td>4</td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td>3</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td>2</td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td>1</td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development*</td>
<td></td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td></td>
</tr>
</tbody>
</table>

Networking issues or obstacles related to regional location
No response was provided.

Networking issues or obstacles related to population distribution
No response was provided.

Other concerns about telecommunications
No response was provided.

For further information, contact
Mike Huffman
Department of Education, State of Indiana
Room 229, State House
Indianapolis, IN 46204-2798
mhuffman@ideanet.doe.state.in.us
(317) 232-0808
Fax (317) 233-6326
### Iowa State Facts

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>397</td>
</tr>
<tr>
<td>Number of school buildings</td>
<td>1,956</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>32,236</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>497,040</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>30,372</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>51</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>285</td>
</tr>
</tbody>
</table>

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Technology Plans</th>
<th>Funding for Educational Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information services currently provided by state network</td>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td>Legislative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>The Iowa Telecommunications and Technology Commission (ITTC) was established during the 1994 Iowa legislative session.</td>
</tr>
<tr>
<td>State Department of Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address IOWA Database, Mosaic, URL address: <a href="http://192.217.170.20/">http://192.217.170.20/</a></td>
<td>The Goals 2000 team members will be appointed by the Governor and the Director of the Iowa Department of Education by December 1, 1994.</td>
<td>The ITTC has the authority to set fees for the ICN. Currently, educational video rates are $5 per hour per site. Information on the rates is not available electronically.</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response was provided.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No response was provided.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Technology Plans

- Long-range planning for telecommunications incorporated into state technology plans: **Yes**
- Long-range planning for telecommunications incorporated into state K-12 plans: **Yes**
- Goals 2000 planning committee established: **Yes**
- The Goals 2000 team members will be appointed by the Governor and the Director of the Iowa Department of Education by December 1, 1994: **Yes**
- Intermediate educational units are available to assist schools with training for telecommunications implementation: **Yes**
- Iowa has 15 Area Education Agencies. Iowa’s three public universities (University of Iowa, University of Northern Iowa, and Iowa State University) are also providing preservice and inservice training: **Yes**

### Funding for Educational Networks

- Funding sources available: **Yes**

Local District
- State
- Other: Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission

The Iowa Telecommunications and Technology Commission (ITTC) was established during the 1994 Iowa legislative session. This three-member commission supervises the management, development, and operation of the state’s fiber optic network, the Iowa Communications Network (ICN). The ITTC has the authority to set fees for the ICN. Currently, educational video rates are $5 per hour per site. Information on the rates is not available electronically.

A major telecommunications provider has a program encouraging infrastructure development in the state Iowa Communications Network (ICN): **Yes**

See Additional Information.
In 1989, Governor Terry Branstad proposed, and Iowa lawmakers adopted, legislation that would create the Iowa Communications Network (ICN). The ICN is a statewide, two-way, full-motion, interactive, fiber optic telecommunications system. Construction began in 1991 on the backbone of the ICN, which connected distance education classrooms in each of Iowa’s 99 counties as well as the three public universities and Iowa Public Television. These original 103 sites were located at 52 public school districts, 43 sites in Iowa’s 15 merged area community college regions, two of the 15 Area Education Agencies (AEA), and two independent colleges. Transmission of classes over the ICN began in August 1993. During the 1993-94 school year, approximately 20 independent colleges and universities initiated plans to connect to the ICN. Additionally, a Request For Proposals (RFP) was released in August 1994 to begin the process of adding about 500 more sites to the ICN, thereby connecting every school district within the state, the remaining AEAs, and selected public libraries.

No one within the Iowa Department of Education has responsibility for K-12 computer networking. Educational applications on the state’s fiber optic network are coordinated by Iowa Public Television.

For further information, contact
Ted Stilwill
Iowa Department of Education
Grimes State Office Building
Des Moines, IA 50319
(515) 281-3333
Fax (515) 242-5988
## Kansas

### State Facts

- **Number of school districts**: 304
- **Number of school buildings**: 1,485
- **Number of K-12 teachers**: 30,282
- **Number of K-12 students**: 457,744
- **Number of students in largest district**: 47,132
- **Number of students in smallest district**: 90
- **Number of districts that have fewer than 1,000 students**: 148

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Opertional</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Legislative</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>I do not know of any schools that have a Gopher or Mosaic home page</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Community networks or freenets established in state Sunflower FreeNet. Not collaborating with the State Department of Education at this time.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Technology Plans

- **Long-range planning for telecommunications incorporated into state technology plans**: Yes
- **The state legislature recently appointed a Telecommunications Strategic Planning Committee to do this.**: Yes
- **Long-range planning for telecommunications incorporated into state K-12 plans**: No
- **Not at this time. The Goals 2000 Technology Planning Committee will probably be addressing this.**: Yes
- **Goals 2000 planning committee established**: Yes
- **Telecommunications contact Jerry Niebaum and Scott Clatterbuck of the Goals 2000 Technology Planning Committee.**: Yes
- **Intermediate educational units are available to assist schools with training for telecommunications implementation**: Yes
- **There are 12 regional education service centers in Kansas. Some staff may be available to assist with training related to telecommunications implementation if they have the expertise. Most would have to be trained first.**: Yes

### Funding for Educational Networks

- **Funding sources available**: Yes
- **Local District**: Yes
- **State**: Yes
- **Other Grants.**: Yes
- **Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission**: Yes
- **The Kansas Corporation Commission (KCC), the state agency and governing body for the telecommunications industry, has worked with businesses, educators, medical professionals, and state officials since 1989 on interactive video and approved the telecommunications transmission of the distance learning school clusters. The KCC is currently... establishing a tariff for the Southwestern Bell Telephone distance learning network.**: Yes
- **A major telecommunications provider has a program encouraging infrastructure development in the state The Kansas Research and Education Network. See Additional Information.**: Yes
### POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>Potential Barrier</th>
<th>Not a Problem</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td><img src="1" alt="Rating" /></td>
<td><img src="5" alt="Rating" /></td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td><img src="1" alt="Rating" /></td>
<td><img src="5" alt="Rating" /></td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td><img src="1" alt="Rating" /></td>
<td><img src="5" alt="Rating" /></td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td><img src="1" alt="Rating" /></td>
<td><img src="5" alt="Rating" /></td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td><img src="1" alt="Rating" /></td>
<td><img src="5" alt="Rating" /></td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td><img src="1" alt="Rating" /></td>
<td><img src="5" alt="Rating" /></td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td><img src="1" alt="Rating" /></td>
<td><img src="5" alt="Rating" /></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td><img src="1" alt="Rating" /></td>
<td><img src="5" alt="Rating" /></td>
</tr>
</tbody>
</table>

#### Networking issues or obstacles related to regional location
Kansas is 82,000 square miles.

#### Networking issues or obstacles related to population distribution
Most of the population of Kansas is situated in the eastern part of the state. There is a number of rural school districts where the distances are great.

#### Other concerns about telecommunications
Most schools lack basic telephone service to classrooms. The task of wiring buildings will be enormous, not to mention establishing local area networks in schools.

#### For further information, contact
Denise Moore  
Kansas State Board of Education  
120 E. 10th St.  
Topeka, KS 66612  
dmoore@smtpgw.ksbe.state.ks.us  
(913) 296-1230  
Fax (913) 296-7933

### ADDITIONAL INFORMATION

The Information Network of Kansas (INK) was created by the 1990 Legislature to provide electronic access of public information to Kansas businesses and citizens on an on-line computer network. INK provides legislative, bank, legal, insurance, business and commercial, library, state-agency, local government, and children's information services. A special section of INK, the Kansas Education Network, is dedicated to the support of public education. It provides educators and students electronic access to INK's many information services, plus a continually growing list of educational applications. INK also provides e-mail and Internet access.

As a result of recent legislation, Southwestern Bell will be constructing a statewide fiber-based distance learning network. This network will initially provide on-request, two-way interactive video for schools in its service areas. Data communications on these networks will also be possible.

The Kansas Research and Education Network (KANREN) provides direct Internet access through a regional provider for its member educational institutions. Current members include four-year and community colleges. Future expansion of KANREN will include public schools and libraries.
**STATE FACTS**

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Legislative</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Public Utility Commission/Public Service Commission</td>
<td>Higher education, all state agencies.</td>
</tr>
<tr>
<td>State Department of Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
</tr>
<tr>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
</tr>
<tr>
<td>Goals 2000 planning committee established</td>
</tr>
<tr>
<td>Telecommunications contact Don E. Coffman</td>
</tr>
<tr>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Funding for Educational Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding sources available</td>
</tr>
<tr>
<td>Local District</td>
</tr>
<tr>
<td>State</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Federal grant.</td>
</tr>
</tbody>
</table>

| Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission |
| A major telecommunications provider has a program encouraging infrastructure development in the state |

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>176</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>1,375</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>37,000</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>600,000</td>
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<tr>
<td>Number of students in largest district</td>
<td>100,000</td>
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<tr>
<td>Number of students in smallest district</td>
<td>150</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>41</td>
</tr>
</tbody>
</table>
### POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
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</tr>
</thead>
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<tr>
<td>b. Technical Infrastructure and Support</td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
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<tr>
<td>g. Developing Private Sector and Community Partners</td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
</tr>
</tbody>
</table>

**Networking issues or obstacles related to regional location**
State is serviced by 20 local exchange carriers, and many of the smaller LECs have inferior service and/or technology.

**Networking issues or obstacles related to population distribution**
State-of-the-art technology (example: ISDN) available only in large metropolitan areas.

**Other concerns about telecommunications**
No response was provided.

**For further information, contact**
Don F. Coffman  
Kentucky Department of Education  
500 Mero St.  
Frankfort, KY 40601  
(502) 564-6900  
Fax (502) 564-5680
### Number of school districts
66

### Number of school buildings
1,444

### Number of K-12 teachers
46,000

### Number of K-12 students
774,000

### Number of students in largest district
86,300

### Number of students in smallest district
1,400

### Number of districts that have fewer than 1,000 students
0

### Technology Plans
Long-range planning for telecommunications incorporated into state technology plans.
A state telecommunications plan is being developed.
K-12 education has not participated in the development of the state telecommunications plan.

Long-range planning for telecommunications incorporated into state K-12 plans.
State plans for K-12 education have not included telecommunications.

Goals
2000 planning committee established
Telecommunications contact None.

Funding for Educational Networks
Funding sources available
Local District
State
Other
See Additional Information

Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission.
A 67 percent price reduction for schools and libraries for a distance-insensitive flat rate of $110 per month for 56KBps lines and $358 per month for T1 lines, one line per location.

A major telecommunications provider has a program encouraging infrastructure development in the state.
Bellsouth says statewide support for ISDN access is underway. Also discussing possible demand for ATM switches.

### State Gopher server or Mosaic home page address
Not for K-12 education.
SDE has participated in a state grant proposal to develop information servers across 13 Louisiana governmental agencies, including the legislative and judicial branches.

K-12 Gopher server or Mosaic home page address
Not to our knowledge.

See Additional Information
<table>
<thead>
<tr>
<th>POTENTIAL BARRIERS TO STATE NETWORKS</th>
<th>PROBLEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td>5</td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
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<tr>
<td>c. Professional Development and Training</td>
<td>3</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td>2</td>
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<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td>1</td>
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<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td>1</td>
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<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td>1</td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td>1</td>
</tr>
</tbody>
</table>

Networking issues or obstacles related to regional location
None.

Networking issues or obstacles related to population distribution
Louisiana's population is concentrated in the southern areas of the state. Rural, suburban, and urban areas have their local issues.

Other concerns about telecommunications
Network access for education is inhibited by our knowledge of (comfort with) networking technologies. The rapid changes in network technologies add to the anxiety of making decisions. Educators express concerns that they are "at the mercy" of technology vendors. Clearinghouses for networking and technology approaches that work in education could assist decisionmakers.

Education plans for networking must integrate administrative and instructional applications. Education cannot afford to build and maintain separate networks.

Telecommunications and technology funding opportunities in Louisiana have been primarily isolated, one-time projects with short-term impact. Local plans, reinforced by a statewide plan, could provide an improved framework for sustained and focused progress.

For further information, contact
Barbara H. Andrepont, Director
Louisiana Department of Education
Bureau of Management Information Systems
3455 Florida Blvd.
Baton Rouge, LA 70806
BAndrepont%ED@mail.doe.state.la.us
(504) 342-0091
Fax (504) 342-1912

ADDITIONAL INFORMATION

Community networks or freenets established in state: Yes
Freenet efforts are underway in several Louisiana cities. Collaboration is not active with the SDE at this time.

Identified and rated three additional Potential Barriers to State Networks
- K-12 networking projects must compete with other education priorities for funding.
- Organization and staffing within and across education must be improved to support statewide networking efforts.
- Responsibilities for networking support must be defined and assigned.

Status of State Networks
Operational Statewide educational administrative network to school district offices since 1986. State backbone wide area network with Internet connection (LANET) operational since 1993 now serving state agencies, parish libraries, and state universities.
Partially Operational School district, school, and classroom access to LANET/Internet through university (pilots underway).
Planned State technology plan to be developed in Fiscal Year 1994-95. To include educational networking in response to Goals 2000.
Proposed A project for 13 state agencies to design and implement Internet servers.

Current educational networking is supported via two methods. Administrative networking is accomplished through a leased-line SNA network managed by the Department of Education, Bureau of Management Information Systems. Instructional (classroom) networking is accomplished by dial-up and leased-line arrangements for various services through independent projects.
Networking funding is available in some school districts through state tax initiatives. Louisiana has no separate, identifiable state funding for K-12 networks. Louisiana education trust monies and state formula funding can be used to support computer networking. Limited federal education funding is available.
<table>
<thead>
<tr>
<th>State Facts</th>
<th>Status of State Networks</th>
<th>Technology Plans</th>
<th>Funding for Educational Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>284</td>
<td>Network Development</td>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
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<tr>
<td>Number of school buildings</td>
<td>739</td>
<td>Information services currently provided by state network</td>
<td>Not yet.</td>
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<tr>
<td>Number of K-12 teachers</td>
<td>14,222</td>
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<td>Local District</td>
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<tr>
<td>Number of K-12 students</td>
<td>212,245</td>
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<td>Number of students in largest district</td>
<td>7,950</td>
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<tr>
<td>Number of students in smallest district</td>
<td>3</td>
<td>Other</td>
<td>Limited.</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>10%</td>
<td>N/A</td>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td></td>
<td></td>
<td>State Gopher server or Mosaic home page address</td>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Working on it with University of Maine System.</td>
<td>Not yet in place.</td>
</tr>
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<td></td>
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<td>K-12 Gopher server or Mosaic home page address</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Starting.</td>
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</tr>
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<td>They collaborate with the State Department of Education</td>
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<tr>
<td></td>
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<td>Not yet.</td>
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</table>

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<td>No</td>
<td>Yes</td>
<td>No</td>
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### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th></th>
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<tr>
<td>2</td>
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<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### a. Legislative and Regulatory Actions

Networking issues or obstacles related to regional location
Too early to tell.

#### b. Technical Infrastructure and Support

Networking issues or obstacles related to population distribution
Very rural state; many independent phone companies.

Other concerns about telecommunications
We are just beginning the planning process.

#### d. Funding: Initial and Long-term

For further information, contact
Richard Riley
Maine Department of Education
State House Station #23
Augusta, ME 04333
K3057 APlink Internet
(207) 287-5815
Fax (207) 287-5900

#### e. On-line Ethical and Liability Issues

#### f. Infusion into Goals 2000 and Educational Development

#### g. Developing Private Sector and Community Partners

#### h. Educational Systems and Policy Barriers
### Maryland

#### State Facts

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>1,254</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>45,187</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>772,638</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>115,918</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>2,738</td>
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<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>0</td>
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</tbody>
</table>

#### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
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<tr>
<td>Information services currently provided by state network</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
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<tr>
<td>Public Utility Commission/Public Service Commission</td>
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<tr>
<td><strong>State Department of Education</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
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<tr>
<td><strong>Public library network.</strong></td>
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<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>Yes</td>
<td></td>
<td>No response was provided.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>Yes</td>
<td></td>
<td>No response was provided.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>They collaborate with the State Department of Education</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
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</tr>
<tr>
<td><strong>Technology Plans</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goals 2000 planning committee established</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Funding for Educational Networks

| Funding sources available | Yes |
| Local District | |
| State | |
| Other | |

#### Other

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- Discount rate for subscribing schools for two-way interactive distance earning applications
- A major telecommunications provider has a program encouraging infrastructure development in the state
- The special tariff for distance learning.
| POTENTIAL BARRIERS TO STATE NETWORKS |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| **a. Legislative and Regulatory Actions** |
| **b. Technical Infrastructure and Support** |
| **c. Professional Development and Training** |
| **d. Funding: Initial and Long-term** |
| **e. On-line Ethical and Liability Issues** |
| **f. Infusion into Goals 2000 and Educational Development** |
| **g. Developing Private Sector and Community Partners** |
| **h. Educational Systems and Policy Barriers** |

**Networking issues or obstacles related to regional location**
Maryland has four LATAs. We need to solve the problem of interLATA communication.

**Networking issues or obstacles related to population distribution**
We have students in both urban and rural settings, as well as students living in neighboring states.

**Other concerns about telecommunications**
No response was provided.

**For further information, contact**
Greg Talley
Maryland State Department of Education
200 West Baltimore St.
Baltimore, MD 21201
gtalley@umd5.edu
(410) 333-2632
Fax (410) 333-2026

---

**ADDITIONAL INFORMATION**

Identified and rated additional Potential Barriers to State Networks
Educational Systems 1
Policy Barriers 5

A representative of Maryland's telecommunications industry also commented:
Bell Atlantic is deploying video dial tone and constructing a statewide distance learning network.

Other concerns about telecommunications
Both of the situations described as networking obstacles are impacted by the local exchange company's inability to provide service across LATA boundaries.
### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Technology Plans</th>
<th>Funding for Educational Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Funding sources available</td>
</tr>
<tr>
<td>Legislative</td>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>Local District</td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Through Mass Ed Online.</td>
<td>State</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Goals 2000 planning committee established</td>
<td>Other</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address By September 15, 1994.</td>
<td>Telecommunications contacts Greg Nadeau and Connie Louie</td>
<td>No</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address By September 15, 1994.</td>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td>Yes</td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td>Yes</td>
<td>The Massachusetts Corporation for Educational Telecommunications (MCET) is working with the Department to make it happen.</td>
</tr>
</tbody>
</table>

### STATE FACTS

- **Number of school districts**: 436
- **Number of school buildings**: 1,782
- **Number of K-12 teachers**: 60,000
- **Number of K-12 students**: 879,663
- **Number of students in largest district**: 60,000
- **Number of students in smallest district**: 1
- **Number of districts that have fewer than 1,000 students**: 130
POSSIBLE BARRIERS TO STATE NETWORKS

Networking issues or obstacles related to regional location
We are working closely with the Regional Lab.

Networking issues or obstacles related to population distribution
We are trying our best to include the western part of the state. All of our activities have included schools which are in the western part of the state as well as the other parts of the state.

Other concerns about telecommunications
N/A.

For further information, contact
Connie Louie
Massachusetts Department of Education
350 Main Street
Malden, MA 02148
clouie@meen.mass.edu
(617) 388-3300 ext. 275
Fax (617) 388-3395
### Michigan State Facts

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>614</td>
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<tr>
<td>Number of school buildings</td>
<td>3,548</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>85,348</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>1,581,058</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>N/A (Detroit)</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of districts that have fewer</td>
<td></td>
</tr>
<tr>
<td>than 1,000 students</td>
<td>N/A</td>
</tr>
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</table>

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Public Utility Commission/ Public Service Commission</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Technology Plans

- Long-range planning for telecommunications incorporated into state technology plans
- Being developed.

### Funding for Educational Networks

- Funding sources available

#### Local District

- State
- Other

#### Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- No

#### A major telecommunications provider has a program encouraging infrastructure development in the state
- Yes

#### Ameritech excess earning rate case
- Yes
POTENTIAL BARRIERS TO STATE NETWORKS

Networking issues or obstacles related to regional location
Dial-in access. Long distance phone calls.

Networking issues or obstacles related to population distribution
No.

Other concerns about telecommunications
No.

For further information, contact
James Fitzpatrick
Michigan Department of Education
P.O. Box 30008
Lansing, MI 48909
fitz@mdenet.mde.state.mi.us
(517) 335-0613
Fax (517) 373-3325

ADDITIONAL INFORMATION

Identified and rated another Potential Barrier to State Networks
Technical Standards

MICHIGAN 61
### Minnesota

**State Facts**

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>379</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>1,600</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>50,000</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>850,000</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>43,000</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>150</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>250</td>
</tr>
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</table>

**Status of State Networks**

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>State Department of Education</td>
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</tr>
<tr>
<td>Other</td>
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<td></td>
</tr>
<tr>
<td>See Additional Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Technology Plans**

| Long-range planning for telecommunications incorporated into state technology plans | Yes |
| Long-range planning for telecommunications incorporated into state K-12 plans | Yes |
| By April 1, 1995. | |
| Goals 2000 planning committee established | Yes |
| Telecommunications contact | Mark Manning |
| Intermediate educational units are available to assist schools with training for telecommunications implementation | Yes |

**Funding for Educational Networks**

| Funding sources available | Yes |
| Local District | |
| State | |
| Other | |
| Local District funding depends on the school district; about 20 percent have funding available. State: $350,000. | |
| Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission | No |
| A major telecommunications provider has a program encouraging infrastructure development in the state | No |
### POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>Not a Problem</th>
<th>Problem</th>
</tr>
</thead>
</table>

#### a. Legislative and Regulatory Actions

- Networking issues or obstacles related to regional location
  - Equity and long distance charges.

#### b. Technical Infrastructure and Support

- Networking issues or obstacles related to population distribution
  - Quality of rural phone lines; 93 phone companies in Minnesota; cost.

#### c. Professional Development and Training

- Other concerns about telecommunications
  - How to cooperate with higher education; funding sources; K-12 has private, local, long-term leases.

#### d. Funding: Initial and Long-term

- For further information, contact
  - Mark Manning
  - Minnesota Department of Education
  - 550 Cedar St.
  - St. Paul, MN 55101
  - MANNIN@TIES.K12.MN.USA
  - (612) 297-3151
  - Fax (612) 297-1795

#### e. On-line Ethical and Liability Issues

#### f. Infusion into Goals 2000 and Educational Development

#### g. Developing Private Sector and Community Partners

#### h. Educational Systems and Policy Barriers

**ADDITIONAL INFORMATION**

Beginning to implement some Department of Education curricular material and legislative information services.
### State Facts

- Number of school districts: 149
- Number of school buildings: 3,507
- Number of K-12 teachers: 28,557
- Number of K-12 students: 503,374
- Number of students in largest district: 33,444
- Number of students in smallest district: 278
- Number of districts that have fewer than 1,000 students: 14

### Status of State Networks

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
</table>

#### Network Development
- Information services currently provided by state network
- Legislative
- Public Utility Commission/Public Service Commission

#### State Department of Education
- Other

- State Gopher server or Mosaic home page address
- K-12 Gopher server or Mosaic home page address
- Community networks or freenets established in state

#### Technology Plans
- Long-range planning for telecommunications incorporated into state technology plans
- Long-range planning for telecommunications incorporated into state K-12 plans
  - It is being planned.
- Goals 2000 planning committee established
- Intermediate educational units are available to assist schools with training for telecommunications implementation

### Funding for Educational Networks
- Funding sources available
  - Local District
  - State
  - Other
- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- Tariff information is available on-line
- A major telecommunications provider has a program encouraging infrastructure development in the state
POTENTIAL BARRIERS TO STATE NETWORKS

- Legislative and Regulatory Actions
- Technical Infrastructure and Support
- Professional Development and Training
- Funding: Initial and Long-term
- On-line Ethical and Liability Issues
- Infusion into Goals 2000 and Educational Development
- Developing Private Sector and Community Partners
- Educational Systems and Policy Barriers

Networking issues or obstacles related to regional location
No response was provided.

Networking issues or obstacles related to population distribution
Cost of telecommunications lines.

Other concerns about telecommunications
Equity among schools.

For further information, contact
Nathan Slater
Mississippi Department of Education
P. O. Box 771
Jackson, MS 39205
ns1@ca.msstate.edu
(601) 359-3487
Fax (601) 359-2027
### Missouri

#### State Facts
- **Number of school districts**: 538
- **Number of school buildings**: 3,000
- **Number of K-12 teachers**: 53,000
- **Number of K-12 students**: 840,409
- **Number of students in largest district**: 38,519
- **Number of students in smallest district**: 21
- **Number of districts that have fewer than 1,000 students**: 365

#### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tr>
<td>Information services currently provided by state network</td>
<td>Yes</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
<td>Yes</td>
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<td></td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Yes</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*State Gopher server or Mosaic home page address*
- K-12 Gopher server or Mosaic home page address
  - In Lee's Summit, MO.
  - Address not available.
- Community networks or freenets established in state
- They collaborate with the State Department of Education

#### Technology Plans
- Long-range planning for telecommunications incorporated into state technology plans
  - In process.
- Long-range planning for telecommunications incorporated into state K-12 plans
  - In process.
- Goals 2000 planning committee established
- Telecommunications contact Susan Cole
- Intermediate educational units are available to assist schools with training for telecommunications implementation

#### Funding for Educational Networks
- Funding sources available
  - Local District
  - State
  - Other
- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- A major telecommunications provider has a program encouraging infrastructure development in the state
POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>NOT A PROBLEM</th>
<th>PROBLEM</th>
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<tbody>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
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</tbody>
</table>

a. Legislative and Regulatory Actions

b. Technical Infrastructure and Support

c. Professional Development and Training

d. Funding: Initial and Long-term

e. On-line Ethical and Liability Issues

f. Infusion into Goals 2000 and Educational Development

g. Developing Private Sector and Community Partners

h. Educational Systems and Policy Barriers

Networking issues or obstacles related to regional location
There are over 40 phone companies in Missouri.

Networking issues or obstacles related to population distribution
Access and equity because of diversity.

Other concerns about telecommunications
No response was provided.

For further information, contact
Susan Cole
Missouri Department of Elementary and Secondary Education
P.O. Box 480
Jefferson City, MO 65101
scole1@services.dese.state.mo.us
(314) 751-3175
Fax (314) 751-9434
### Montana

#### Status of State Networks

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology Plans</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
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<tr>
<td>Yes</td>
<td></td>
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<tr>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
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<tr>
<td>Yes</td>
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<tr>
<td>Goals 2000 planning committee established</td>
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<td></td>
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</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Telecommunications contact Diane Oldman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td></td>
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</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Potentially.</td>
<td></td>
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</tbody>
</table>

#### Network Development

- Information services currently provided by state network
- Legislative
- Public Utility Commission/Public Service Commission
- State Department of Education
- Other
- METNET, a bulletin board system for teachers and students.

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Gopher server or Mosaic home page address</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
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</tr>
<tr>
<td>No</td>
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<tr>
<td>Community networks or freenets established in state</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- They collaborate with the State Department of Education
- Several share with METNET, the bulletin board system.

#### Funding for Educational Networks

- Funding sources available
- Local District State
- Other

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- No

- A major telecommunications provider has a program encouraging infrastructure development in the state
- No

#### State Facts

- Number of school districts: 495
- Number of school buildings: 700
- Number of K-12 teachers: 9,950
- Number of K-12 students: 163,020
- Number of K-12 students in largest district: 16,281
- Number of students in smallest district: 2
- Number of districts that have fewer than 1,000 students: 451
POTENTIAL BARRIERS TO STATE NETWORKS

a. Legislative and Regulatory Actions

b. Technical Infrastructure and Support

c. Professional Development and Training

d. Funding: Initial and Long-term

e. On-line Ethical and Liability Issues

f. Infusion into Goals 2000 and Educational Development

g. Developing Private Sector and Community Partners

h. Educational Systems and Policy Barriers

Networking issues or obstacles related to regional location
Split state-providers.

Networking issues or obstacles related to population distribution
Distance between cities.

Other concerns about telecommunications
No response was provided.

For further information, contact
Johnny W. Lott
SIMMS Project
Department of Mathematical Sciences
University of Montana
Missoula, MT 59812
ma_jwl@selway.umt.edu
(406) 243-2696
Fax (406) 243-2674
## Nebraska State Facts

<table>
<thead>
<tr>
<th>Category</th>
<th>Number/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>958</td>
</tr>
<tr>
<td>Number of school buildings</td>
<td>1,695</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>21,160</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>315,781</td>
</tr>
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<td>Number of students in largest district</td>
<td>43,158</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>20</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>913</td>
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### Status of State Networks

<table>
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<th>Network Development</th>
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<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plan</th>
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<tbody>
<tr>
<td>Information services</td>
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<td></td>
</tr>
<tr>
<td>Currently provided by state network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Department of Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nebraska's electronic information services include state university and college library services, network news, and listing services.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>See Additional Information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>For the Internet addresses for the 19 Educational Service Units scattered throughout the state.</td>
<td></td>
<td></td>
<td></td>
<td>See Additional Information.</td>
</tr>
</tbody>
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### Technology Plans

<table>
<thead>
<tr>
<th>Funding for Educational Networks</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local District</td>
<td>No</td>
</tr>
<tr>
<td>State</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>No</td>
</tr>
<tr>
<td>Educational Service Unit</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Long-range planning for telecommunications incorporated into state technology plans: **Not by the state.**
- Long-range planning for telecommunications incorporated into state K-12 plans: **Goals 2000 planning committee established.**
- Intermediate educational units are available to assist schools with training for telecommunications implementation: **The 19 Educational Services Units are required by statute to provide access and training related to the Internet.**
- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission: **Yes**
- The PUC has deregulated rates, which allows for negotiation to occur: **Yes**
- A major telecommunications provider has a program encouraging infrastructure development in the state: **Yes**
- There are ongoing cooperative efforts by the 42 phone companies that service the state and the Nebraska Division of Communications: **Yes**

---

* Counts appearing in State Facts include public and nonpublic schools.
POTENTIAL BARRIERS TO STATE NETWORKS

a. Legislative and Regulatory Actions

b. Technical Infrastructure and Support

c. Professional Development and Training

d. Funding: Initial and Long-term

e. On-line Ethical and Liability Issues

f. Infusion into Goals 2000 and Educational Development

g. Developing Private Sector and Community Partners

h. Educational Systems and Policy Barriers

Networking issues or obstacles related to regional location
None.

Networking issues or obstacles related to population distribution
Urban settings have greater tax base with which to pay for network services.

Other concerns about telecommunications
No response was provided.

For further information, contact
David Ankenman
Nebraska Mathematics and Science Coalition
Box 880231
Lincoln, NE
ankenman@nde4.nde.state.ne.us
(402) 471-4820
Fax (402) 471-0117

Wayne Fisher
Nebraska Department of Education
Box 94987
Lincoln, NE 68509-4987
fisher@nde4.nde.state.ne.us
(402) 471-2085
Fax (402) 471-0117

ADDITIONAL INFORMATION

Community networks or freenets established in state
Yes
There are currently two freenet efforts in the state. One is in Omaha, the other in Lincoln. Both were supported by the Department of Education.

They collaborate with the State Department of Education
Yes

Identified and rated additional Potential Barriers to State Networks
Technical complexity of the task. Political structure (climate) to allow for cooperation.

Schools access the Internet at nodes located in the 19 Educational Service Units. Six nodes have Gopher servers and two have Mosaic home pages. The node at the Department of Education will have Mosaic soon. Internet addresses of those having Mosaic pages:
nde4.nde.state.ne.us
ips.esu18.k12.ne.us
esu3.esu3.k12.ne.us

Nodes having Gopher servers are:
nde4.nde.state.ne.us.
esu6.esu6.k12.ne.us
genie.esu10.k12.ne.us
panesu.esu14.k12.ne.us
esul6.esul6.k12.ne.us

These last five and the esu3.esu12.ne.us server are located at Nebraska’s 19 Educational Service Units. Internet addresses for other ESUs are:
mother.esu1.k12.ne.us
esu2.esu2.k12.ne.us
gilligan.esu7.k12.ne.us
pluggers.esu8.k12.ne.us
esu9.esu9.k12.ne.us
courier.esu11.k12.ne.us
esu15.esu15.k12.ne.us
esu17.esu17.k12.ne.us
ips.esu18.k12.ne.us
ops.esu19.k12.ne.us
### State Facts

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>17</td>
</tr>
<tr>
<td>Number of school buildings</td>
<td>395</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>12,509</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>235,800</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>145,327</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>130</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>4</td>
</tr>
</tbody>
</table>

### Status of State Networks

#### Network Development
- Information services currently provided by state network
- Legislative
- Public Utility Commission/Public Service Commission
- State Department of Education
- Other
  - University of Nevada System.

#### Technology Plans
- Long-range planning for telecommunications incorporated into state technology plans
- Long-range planning for telecommunications incorporated into state K-12 plans
  - **In process.**
- Goals 2000 planning committee established
- Intermediate educational units are available to assist schools with training for telecommunications implementation

#### Funding for Educational Networks
- Funding sources available
  - Local District
  - State
  - Other
    - Federal.
- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- A major telecommunications provider has a program encouraging infrastructure development in the state

### Technology Plans

<table>
<thead>
<tr>
<th>Category</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Development</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology Plans</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Funding for Educational Networks</td>
<td>No</td>
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</table>
### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th>Potential Barrier</th>
<th>Not a Problem</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Networking issues or obstacles related to regional location**
No response was provided.

**Networking issues or obstacles related to population distribution**
We have several rural districts that would pay toll charges to access the Nevada School Network.

**Other concerns about telecommunications**
None.

**For further information, contact**

Cindy Lou Little  
Lin Forrest  
Nevada Department of Education  
400 W. King St., Capitol Complex  
Carson City, NV 89710  
cindyl@nsn.scs.unr.edu  
lforrest@nsn.scs.unr.edu  
(702) 687-3136  
Fax (702) 687-5660
### New Hampshire

#### State Facts

- **Number of school districts**: 176
- **Number of school buildings**: 450
- **Number of K-12 teachers**: 11,200
- **Number of K-12 students**: 185,360
- **Number of students in largest district**: 15,336
- **Number of students in smallest district**: 20
- **Number of districts that have fewer than 1,000 students**: 100

#### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
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<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Legislative Public Utility Commission/ Public Service Commission</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>State Department of Education Other</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address One school has a home page.</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Technology Plans

- **Long-range planning for telecommunications incorporated into state technology plans**: Not that I am aware of. The PUC may have some sort of plan.
- **Long-range planning for telecommunications incorporated into state K-12 plans**: Our K-12 plan is under development.
- **Goals 2000 planning committee established**: New Hampshire has not yet submitted a Goals 2000 application. We are in the planning stage.
- **Intermediate educational units are available to assist schools with training for telecommunications implementation**: An intermediate structure consists of 67 School Administrative Units that are funded by the districts.

#### Funding for Educational Networks

- **Funding sources available**: Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- **A major telecommunications provider has a program encouraging infrastructure development in the state**: No

* The New Hampshire respondents did not provide a status classification.
POTENTIAL BARRIERS TO STATE NETWORKS

a. Legislative and Regulatory Actions

b. Technical Infrastructure and Support

c. Professional Development and Training

d. Funding: Initial and Long-term

e. On-line Ethical and Liability Issues

f. Infusion into Goals 2000 and Educational Development

g. Developing Private Sector and Community Partners

h. Educational Systems and Policy Barriers

Networking issues or obstacles related to regional location
No response was provided.

Networking issues or obstacles related to population distribution
No response was provided.

Other concerns about telecommunications
No response was provided.

For further information, contact
Sallie Fellows
New Hampshire State Department of Education
101 Pleasant St.
Concord, NH 03301
sallie@ed.state.nh.us
(603) 271-2778
Fax (603) 271-1953
### New Jersey

**State Facts**

<table>
<thead>
<tr>
<th></th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tbody>
<tr>
<td>Number of school districts</td>
<td>595</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Number of school buildings</td>
<td>2,292</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>81,593</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Number of K-12 students</td>
<td>1,130,560</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Number of students in largest district</td>
<td>45,356</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>298</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Technology Plans**

- Long-range planning for telecommunications incorporated into state technology plans
  - Not yet.
  - Yes
  - No

**Funding for Educational Networks**

- Local District
  - Yes
- State
  - Yes
- Other
  - No

**Network Development**

<table>
<thead>
<tr>
<th>Information services currently provided by state network</th>
<th>Legislative</th>
<th>Public Utility Commission/ Public Service Commission</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Department of Education</td>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>School-based information, Department of Health,</td>
<td>School-based information, Department of Health,</td>
<td></td>
</tr>
<tr>
<td>Department of Environmental Protection, libraries.</td>
<td>Libraries.</td>
<td></td>
</tr>
</tbody>
</table>

- State Gopher server or Mosaic home page address
- K-12 Gopher server or Mosaic home page address
- Community networks or freenets established in state

**Intermediate educational units are available to assist schools with training for telecommunications implementation**

- Yes

**Technology Plans**

- Goals 2000 planning committee established
  - In process of formation.

**Funding for Educational Networks**

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
  - No

- A major telecommunications provider has a program encouraging infrastructure development in the state
  - Yes
### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th>Potential Barriers</th>
<th>Rating</th>
</tr>
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<tbody>
<tr>
<td>Networking issues or obstacles related to regional location</td>
<td>5</td>
</tr>
<tr>
<td>Networking issues or obstacles related to population distribution</td>
<td>4</td>
</tr>
<tr>
<td>Other concerns about telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>Attempts to address tariff imposed by providers through the New Jersey Board of Regulatory Commissioners</td>
<td>2</td>
</tr>
<tr>
<td>For further information, contact</td>
<td></td>
</tr>
<tr>
<td>Julia Stapleton</td>
<td></td>
</tr>
<tr>
<td>Ted Smorodin</td>
<td></td>
</tr>
<tr>
<td>New Jersey Department of Education</td>
<td></td>
</tr>
<tr>
<td>CN 500 - 240 West State St.</td>
<td></td>
</tr>
<tr>
<td>Trenton, NJ 08625-0500</td>
<td></td>
</tr>
<tr>
<td><a href="mailto:jstaple@11nj.nj.pbs.org">jstaple@11nj.nj.pbs.org</a></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:ettn@11nj.nj.pbs.org">ettn@11nj.nj.pbs.org</a></td>
<td></td>
</tr>
<tr>
<td>(609) 984-1644</td>
<td></td>
</tr>
<tr>
<td>(609) 984-1805</td>
<td></td>
</tr>
<tr>
<td>Fax (609) 292-7276</td>
<td></td>
</tr>
</tbody>
</table>
### State Facts

- **Number of school districts**: 89
- **Number of school buildings**: 704
- **Number of K-12 teachers**: 19,346
- **Number of K-12 students**: 321,164
- **Number of students in largest district**: 92,697
- **Number of students in smallest district**: 51
- **Number of districts that have fewer than 1,000 students**: 48

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tr>
<td>Information services currently provided by state network</td>
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<tr>
<td>Legislative</td>
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</tr>
<tr>
<td>Public Utility Commission/ Public Service Commission</td>
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<td></td>
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<tr>
<td>State Department of Education</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Mexico Technet. Tel/FTP.</td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- **State Gopher server or Mosaic home page address**
- **K-12 Gopher server or Mosaic home page address**
- **APSICC/APS.Edu: (Los Alamos High School.) See Additional Information.**

### Technology Plans

- Long-range planning for telecommunications incorporated into state technology plans
- Long-range planning for telecommunications incorporated into state K-12 plans
- Goals 2000 planning committee established
  - **Being appointed.**
  - **Telecommunications contact Carlos Atencio**

### Funding for Educational Networks

- Funding sources available
  - Local District
  - State
  - Other
  - Federal grants.

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
  - We pay commercial rates.

- A major telecommunications provider has a program encouraging infrastructure development in the state
  - Both New Mexico Technet and the University of New Mexico are moving to connect the state.

* Two respondents from New Mexico completed surveys. Their responses to some questions and barrier ratings are marked A and B.
### Networking issues or obstacles related to regional location

- **A)** Many poor rural districts.
- **B)** Twenty-seven phone companies serve rural areas with a lack of facilities, vast distances, sparse population, and high unemployment and high poverty levels (25-30 percent). US WEST has the major population centers. Others are mom 'n pop operations or rural co-ops with little engineering expertise or plans. There's a lack of ISDN, frame relay in most rural areas.

### Networking issues or obstacles related to population distribution

- **B)** New Mexico is the fifth largest state in geography, the second smallest in population.

### Other concerns about telecommunications

- **A)** Awareness on the part of those who could benefit.
- **B)** Cost, lack of facility, autonomous school districts, lack of telephone service in some areas, lack of funding.

### For further information, contact

**Kurt Steinhaus**
Technology Unit, Department of Education, New Mexico
300 Don Gaspar
Santa Fe, NM 87501-2786
SCHLSTEIN@TECHNET.NM.ORG
(505) 827-6648
Fax (505) 827-6696

**Marianne Granoff**
New Mexico Technet, Inc.
4100 Osuna NE, Suite 103
Albuquerque, NM 87109
granoff@technet.nm.org
(505) 345-6555
Fax (505) 345-6559

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**ADDITIONAL INFORMATION**

Respondent B identified and rated another Potential Barrier to State Networks

Local autonomy of districts

---

New Mexico Technet, Inc. is a self-supporting, private, nonprofit corporation operating throughout New Mexico and on the Navajo Reservation in Utah, Arizona, and Colorado. It provides the management of a statewide fiber optic computer network serving the State of New Mexico, the state universities, and statewide research, educational, and economic-development interests.

Technet provides free Internet access to all public and private K-12 schools in New Mexico via free dial-in accounts (including 800 number access) on our VAX computers. Technet has established nodes throughout the state, including those at 27 high schools. Many smaller, two-year, and vocational post-secondary institutions also use Technet dial-in accounts for their Internet access.

Among the activities supported by Technet are: *The New Mexico Super-Computer Challenge* Over 160 teams of New Mexico high school students (over 700 students and teachers) compete for scholarships and computer equipment for their schools by designing and completing projects using supercomputers at the various national laboratories located in New Mexico.

*NEDCOMM, the New Mexico Educators Communication Network* New Mexico primary and secondary schools are provided with modem access to guidance and consulting databases, college course directories at the state universities, school administration information, teacher availability databases, bulletin board systems, USENET News, etc.

Technet was originally created by the State of New Mexico, the three state research universities, and the national laboratories and research organizations.
### New York

#### State Facts

<table>
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<th>Category</th>
<th>Value</th>
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<td>Number of school buildings</td>
<td>4,016</td>
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<tr>
<td>Number of K-12 teachers</td>
<td>188,846</td>
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<tr>
<td>Number of K-12 students</td>
<td>2,698,954</td>
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<td>Number of students in largest district</td>
<td>990,000</td>
</tr>
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<td>Number of students in smallest district</td>
<td>14</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
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#### Status of State Networks

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<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Development</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information services currently provided by state network</td>
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<td>Legislative</td>
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<td></td>
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</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
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<td></td>
</tr>
<tr>
<td>State Department of Education</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many others; other state agencies, universities.</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

#### Technology Plans

<table>
<thead>
<tr>
<th>Category</th>
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</thead>
<tbody>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Yes</td>
</tr>
<tr>
<td>Report on telecommunications exchange. Formed by the Governor in 1993.</td>
<td>Yes</td>
</tr>
<tr>
<td>Long-range planning for telecommunications incorporated into state K-12 plans 1990. Incorporated as part of Goals 2000. We have received approval of our Goals 2000 Plan.</td>
<td>Yes</td>
</tr>
<tr>
<td>Goals 2000 planning committee established</td>
<td>Yes</td>
</tr>
<tr>
<td>Telecommunications contact Dr. Michael Radlick</td>
<td>Yes</td>
</tr>
<tr>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation BOCES/NYSERNet partnership. They provide network access, training, and support.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Funding for Educational Networks

<table>
<thead>
<tr>
<th>Source</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local District</td>
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</tr>
<tr>
<td>State</td>
<td>Yes</td>
</tr>
<tr>
<td>Federal, partnerships with private vendors, universities.</td>
<td>Yes</td>
</tr>
<tr>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
<td>No</td>
</tr>
<tr>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state NYNEX—Recent PSC settlement. Also capital bonding.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

---

Community networks or freenets established in state Several community net groups statewide. Buffalo FreeNet, Capital Region Freenet.
POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>Potential Barrier</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networking issues or obstacles related to regional location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forty telcos in state with varying capabilities. Rural geographical obstacles.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Networking issues or obstacles related to population distribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural urban infrastructure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other concerns about telecommunications

For further information, contact
Denis Martin
NYSERNNet
Suite 103, 200 Elwood Davis Rd.
Liverpool, NY 13088-6147
dmartin@NYSERNNet.org
(518) 479-5156
Fax (315) 453-3032

Dr. Michael Radlick
New York State Education Department
Office of Instruction and Program Development
Room 967 EBA
Albany, NY 12234
MRADLICK@VM1.NYSED.GOV
(518) 473-9606
Fax (518) 486-5295
# North Carolina

## State Facts

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>119</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>1,948</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>68,566</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>1,387,763</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>82,228</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>745</td>
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<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>2</td>
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## Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tbody>
<tr>
<td>Information services</td>
<td>Provided by state network</td>
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<table>
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<tbody>
<tr>
<td>Public Utility Commission/ Public Service Commission</td>
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<table>
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<th>State Department of Education</th>
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<th>Partially Operational</th>
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<th>Proposed</th>
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<tbody>
<tr>
<td>State Personnel and State Library</td>
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<table>
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<th>State Gopher server or Mosaic home page address</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
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<tbody>
<tr>
<td>Gopher.Sips.State.NC.US</td>
<td>Yes</td>
<td></td>
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<tr>
<td><a href="http://www.sips.state.nc.us">www.sips.state.nc.us</a></td>
<td>Yes</td>
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<tr>
<td>(Mosaic)</td>
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<th>No Current Plans</th>
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<tbody>
<tr>
<td>Community networks or freenets established in state</td>
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<td>Yes</td>
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<tr>
<td>They collaborate with the State Department of Education</td>
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## Technology Plans

<table>
<thead>
<tr>
<th>Technology Plans</th>
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<th>Proposed</th>
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<tbody>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Yes</td>
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<tr>
<td>North Carolina Information Highway (NCIH)</td>
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<table>
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<th>Operational</th>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Goals 2000 planning committee established</th>
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<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecommunications contact Elsie Brumback</td>
<td>Yes</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Intermediate educational units are available to assist schools with training for telecommunications implementation</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partially. The 1994 session of general assembly appropriated nine positions to work with schools out of our Regional Service Centers.</td>
<td>No</td>
<td>Yes</td>
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## Funding for Educational Networks

<table>
<thead>
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<th>Funding sources available</th>
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<tr>
<td>Other</td>
<td></td>
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</tr>
<tr>
<td>$42 million for school technology, $7 million for the North Carolina Information Highway.</td>
<td>Yes</td>
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<table>
<thead>
<tr>
<th>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</th>
<th>Operational</th>
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</tr>
</thead>
<tbody>
<tr>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state Southern Bell, GTE, and Carolina Telephone providing fiber backbone for NCIH.</td>
<td>Yes</td>
<td>No</td>
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## Technology Plans

<table>
<thead>
<tr>
<th>Technology Plans</th>
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<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tbody>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Yes</td>
<td></td>
<td></td>
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<td></td>
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<td>North Carolina Information Highway (NCIH).</td>
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<table>
<thead>
<tr>
<th>Long-range planning for telecommunications incorporated into state K-12 plans</th>
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<th>Proposed</th>
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<tbody>
<tr>
<td>In progress.</td>
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<table>
<thead>
<tr>
<th>Goals 2000 planning committee established</th>
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<td></td>
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## State Personnel and State Library

<table>
<thead>
<tr>
<th>State Personnel and State Library</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
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<th>No Current Plans</th>
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</thead>
<tbody>
<tr>
<td>State Gopher server or Mosaic home page address</td>
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</tr>
<tr>
<td>Gopher.Sips.State.NC.US</td>
<td>Yes</td>
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<td><a href="http://www.sips.state.nc.us">www.sips.state.nc.us</a></td>
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<tr>
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<tr>
<td>Community networks or freenets established in state</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td>They collaborate with the State Department of Education</td>
<td>No</td>
<td>Yes</td>
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## Funding for Educational Networks

<table>
<thead>
<tr>
<th>Funding for Educational Networks</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
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<tbody>
<tr>
<td>Total funding</td>
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<td></td>
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<tr>
<td>$42 million for school technology, $7 million for the North Carolina Information Highway.</td>
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<tr>
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<td>Yes</td>
<td>No</td>
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</table>
### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th>Potential Barriers</th>
<th>Not a Problem</th>
<th>Problem</th>
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<tbody>
<tr>
<td><strong>a. Legislative and Regulatory Actions</strong></td>
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</tr>
<tr>
<td><strong>b. Technical Infrastructure and Support</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>c. Professional Development and Training</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>d. Funding: Initial and Long-term</strong></td>
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</tr>
<tr>
<td><strong>e. On-line Ethical and Liability Issues</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>f. Infusion into Goals 2000 and Educational Development</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>g. Developing Private Sector and Community Partners</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>h. Educational Systems and Policy Barriers</strong></td>
<td></td>
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</tbody>
</table>

**Networking issues or obstacles related to regional location**
Reasonable cost/service to remote areas.

**Networking issues or obstacles related to population distribution**
Service providers tend to focus on population-dense and business-rich locations.

**Other concerns about telecommunications**
A second problem is older infrastructures both within and between buildings.

**For further information, contact**
Elsie L. Brumback
North Carolina Department of Public Education
301 N. Wilmington St.
Raleigh, NC 27601-2825
ebrumbac@dpi.state.nc.us
(919) 715-1530
Fax (919) 733-4762
## State Facts

<table>
<thead>
<tr>
<th>Number of School Districts</th>
<th>260</th>
</tr>
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<tbody>
<tr>
<td>Number of School Buildings</td>
<td>480+</td>
</tr>
<tr>
<td>Number of K-12 Teachers</td>
<td>7,000+</td>
</tr>
<tr>
<td>Number of K-12 Students</td>
<td>127,000+</td>
</tr>
<tr>
<td>Number of Students in Largest District</td>
<td>11,000+</td>
</tr>
<tr>
<td>Number of Students in Smallest District</td>
<td>3</td>
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<tr>
<td>Number of Districts That Have Fewer than 1,000 Students</td>
<td>246</td>
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## Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
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<tbody>
<tr>
<td>Information services currently provided by state network</td>
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<tr>
<td>Legislative</td>
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<td>Public Utility Commission/Public Service Commission</td>
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<td>State Department of Education</td>
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<td>Other</td>
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</tbody>
</table>

| K-12 Gopher server or Mosaic home page address Under development. | | | | | |
| Community networks or freenets established in state | | | | | |

## Technology Plans

| Long-range planning for telecommunications incorporated into state technology plans | | | | | |
| Long-range planning for telecommunications incorporated into state K-12 plans | | | | | |
| Goals 2000 planning committee established | | | | | |
| Intermediate educational units are available to assist schools with training for telecommunications implementation | | | | | |

## Funding for Educational Networks

<table>
<thead>
<tr>
<th>No Current Plans</th>
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<tr>
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<table>
<thead>
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<tr>
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<table>
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No Current Plans | No Current Plans |
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No Current Plans | No Current Plans |
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No Current Plans | No Current Plans |
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<tbody>
<tr>
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A major telecommunications provider has a program encouraging infrastructure development in the state

No Current Plans | No Current Plans |
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<tr>
<th></th>
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<tbody>
<tr>
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No Current Plans | No Current Plans |
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<tbody>
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No Current Plans | No Current Plans |
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<th></th>
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<tbody>
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### POTENTIAL BARRIERS TO STATE NETWORKS

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<td>a. Legislative and Regulatory Actions</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Networking issues or obstacles related to regional location
No response was provided.

Networking issues or obstacles related to population distribution
No response was provided.

Other concerns about telecommunications
No response was provided.

For further information, contact
Gleason Sackman
SENDIT Project
P.O. Box 5164, NDSU Computation Center
Bismarck, ND
sackman@sendit.nodak.edu
<table>
<thead>
<tr>
<th>State Facts</th>
<th>Status of State Networks</th>
<th>Technology Plans</th>
<th>Funding for Educational Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts 611</td>
<td>Network Development</td>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of school buildings 3,900</td>
<td>Information services currently provided by state network</td>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>No</td>
</tr>
<tr>
<td>Number of K-12 teachers 90,000</td>
<td>Legislative</td>
<td>Goals 2000 planning committee established</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of K-12 students 1,800,000</td>
<td>Public Utility Commission/Public Service Commission</td>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of students in largest district 73,900</td>
<td>State Department of Education</td>
<td></td>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission No</td>
</tr>
<tr>
<td>Number of students in smallest district 6</td>
<td>Other</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students 122</td>
<td>State Gopher server or Mosaic home page address ODEVS1.ODE.OHIO.GOV</td>
<td></td>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state Ameritech supports distance learning projects. Yes</td>
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<tr>
<td></td>
<td>K-12 Gopher server or Mosaic home page address</td>
<td></td>
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<tr>
<td></td>
<td>They collaborate with the State Department of Education</td>
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<td></td>
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Network issues or obstacles related to regional location
None.

Networking issues or obstacles related to population distribution
None.

Other concerns about telecommunications
There is concern that the National Science Foundation will drop its funding of Internet by privatizing access. If private firms charge for Internet access, it may be detrimental to K-12 users who can’t afford the cost. Maybe the NSF funding should be targeted toward insuring K-12 will get free access.

For further information, contact
Steve Graves
Ohio Department of Education
2151 Carmack Rd.
Columbus, OH 43221
ADMIN_GRAVES@ODE.OHIO.GOV
(614) 466-7003
Fax (614) 466-0022

Andrew Qualtire
Management Council
Ohio Educational Computer Network
110 Brian St.
Mingo Junction, OH 43938
SDEA_QUALTIR@ODE.OHIO.GOV
(614) 535-1651
Fax (614) 283-2709
### State Facts

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>554</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>1,821</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>40,000</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>605,000</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>41,341</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>23</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>434</td>
</tr>
</tbody>
</table>

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
</tr>
<tr>
<td>Legislative</td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td>State Department of Education</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Government, educational, legislative, educational television</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
</tr>
<tr>
<td>Oklahoma State Telecommunications and Data Processing Committee State Plan; Tele-medicine State Plan; National Information Infrastructure and State Chamber of Commerce State Plan.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Funding for Educational Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding sources available</td>
</tr>
<tr>
<td>Local District</td>
</tr>
<tr>
<td>State</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Federal grants.</td>
</tr>
</tbody>
</table>

### Status of Operational Technology Plans

<table>
<thead>
<tr>
<th>Operational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Partially Operational</td>
</tr>
<tr>
<td>Proposed</td>
</tr>
<tr>
<td>No Current Plans</td>
</tr>
</tbody>
</table>

- **State Gopher server or Mosaic home page address: gopher osrhe.edu (ONENET) www.osrhe.edu (Mosaic)**
- **K-12 Gopher server or Mosaic home page address: gopher osrhe.edu (ONENET) www.osrhe.edu (Mosaic)**
- **Community networks or freenets established in state**

### Funding for Educational Networks

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission Currently under review.
- A major telecommunications provider has a program encouraging infrastructure development in the state None.

### Long-range planning for telecommunications incorporation into state K-12 plans

- Currently developing state technology and telecommunications plan.
- Goals 2000 planning committee established
- Not yet determined; half to be chosen by new Governor, half by Acting State Superintendent of Public Schools.

### Intermediate educational units are available to assist schools with training for telecommunications implementation

- Not at the present time.
POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>POTENTIAL BARRIERS</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory Actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Technical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure and Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Professional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development and Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Funding:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial and Long-term</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Networking issues or obstacles related to regional location
Twenty-nine telcos in state; rural geographical location.

Networking issues or obstacles related to population distribution
Rural-urban infrastructure.

Other concerns about telecommunications
Planning, standards, school and community access, equity.

For further information, contact
John Curran
Oklahoma State Department of Education
2500 N. Lincoln Blvd.
Oklahoma City, OK 73105
jcurran@phoenix.osrhe.edu
(405) 521-3994
Fax (405) 521-6205

Mike Erhart
ONENET
2500 N. Lincoln Blvd.
Oklahoma City, OK 73105
mike@phoenix.osrhe.edu
(405) 524-9210

ADDITIONAL INFORMATION

ONENET is operational since July 1, 1993. It provides the wide area network for the state.
**Oregon**

**State Facts**

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>277</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>1,215</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>31,595</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>516,611</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>54,975</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>7</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>141</td>
</tr>
</tbody>
</table>

**Status of State Networks**

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Information services currently provided by state network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislative</td>
<td>Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Other</td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>Oregon state Gopher.</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>They will have soon.</td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td>Yes, but with little collaboration [with the State Department of Education].</td>
</tr>
</tbody>
</table>

**Technology Plans**

| Long-range planning for telecommunications incorporated into state technology plans | Yes |
| Long-range planning for telecommunications incorporated into state K-12 plans | Yes |
| Goals 2000 planning committee established | Yes |
| Telecommunications contact Tom Cook | Yes |

| Intermediate educational units are available to assist schools with training for telecommunications implementation ...we actually have about 40 now. | Yes |

**Funding for Educational Networks**

| Funding sources available | Yes |
| Local District | Yes |
| State | Yes |
| Other | Yes |

| Special grants. | Yes |

| Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission | No |

| None. | None |

| A major telecommunications provider has a program encouraging infrastructure development in the state | Yes |

| US WEST is working with the Department of Education and school districts to develop infrastructure along with the Internet provider which is NorthWestNet. ED-NET is a state network with modem access as well as Internet access. | Yes |

* Two respondents from Oregon completed surveys. Their responses to questions have been combined and their barrier ratings are marked A and B.
### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th>Potential Barrier</th>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networking issues or obstacles related to regional location</td>
<td>4</td>
<td>No response was provided.</td>
</tr>
<tr>
<td>Networking issues or obstacles related to population distribution</td>
<td>5</td>
<td>No response was provided.</td>
</tr>
<tr>
<td>Other concerns about telecommunications</td>
<td>5</td>
<td>No response was provided.</td>
</tr>
<tr>
<td>For further information, contact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tom Cook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jim Sanner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon Department of Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Service Building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>255 Capitol St. NE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salem, OR 97310-0203</td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:tom.cook@state.or.us">tom.cook@state.or.us</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(503) 378-3185 ext. 435</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fax (503) 378-5156</td>
<td></td>
<td></td>
</tr>
<tr>
<td><a href="mailto:jim.sanner@state.or.us">jim.sanner@state.or.us</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(503) 378-8004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fax (503) 373-7968</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**For further information, contact**

Tom Cook
Jim Sanner
Oregon Department of Education
Public Service Building
255 Capitol St. NE
Salem, OR 97310-0203
tom.cook@state.or.us
(503) 378-3185 ext. 435
Fax (503) 378-5156
jim.sanner@state.or.us
(503) 378-8004
Fax (503) 373-7968

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### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th>Potential Barrier</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td>3</td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td>4</td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td>2</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td>1</td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td>3</td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td>1</td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td>2</td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td>1</td>
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</tbody>
</table>
## Pennsylvania

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Technology Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Long-range planning for telecommunications incorporated into state technology plans Presently being incorporated.</td>
</tr>
<tr>
<td>Legislative</td>
<td>Long-range planning for telecommunications incorporated into state K-12 plans Presently being incorporated.</td>
</tr>
<tr>
<td>Public Utility Commission/ Public Service Commission</td>
<td></td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Goals 2000 planning committee established</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td></td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td></td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Funding for Educational Networks

- **Local District**
- **State**
- **Other**

Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission

- **Yes**

A major telecommunications provider has a program encouraging infrastructure development in the state PANET—state telecommunications phone line is available to K-12 education and provides lower cost phone calls.

- **Yes**
POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>Barriers</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Networking issues or obstacles related to regional location
Pennsylvania is very rural. Very expensive to get lines to these distant, small, rural areas.

Networking issues or obstacles related to population distribution
Same as above.

Other concerns about telecommunications
Cost. Schools cannot afford monthly fees to cable companies, phone companies, etc.

For further information, contact
Pennsylvania Department of Education
333 Market St.
Harrisburg, PA 17126-0333
### Rhode Island

#### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Legislative</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Distributed services by cooperating providers: Brown University, Department of State Library Services, University of Rhode Island, Rhode Island Department of Education, WSBE Public TV.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Community networks or freenets established in state</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>They collaborate with the State Department of Education and the Department of State Library Services is also a provider.</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Technology Plans

- **Long-range planning for telecommunications incorporated into state technology plans**
  - **Beginning development under the Office of Higher Education.**
  - Under development.
  - Goals 2000 planning committee established To be determined.
  - Intermediate educational units are available to assist schools with training for telecommunications implementation.
  - In Rhode Island we have the ability to coordinate the training efforts of higher education, local school efforts, and other training providers.

#### Funding for Educational Networks

- **Funding sources available**
  - Local District
  - State
  - Other
  - Philanthropic.

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission.
- The telephone company has provided prepaid profit credit for services for schools.
- Tariff information is available on-line.
- A major telecommunications provider has a program encouraging infrastructure development in the state NYNEX, free phone line.
POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>NOT A PROBLEM</th>
<th>PROBLEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

a. Legislative and Regulatory Actions

b. Technical Infrastructure and Support

c. Professional Development and Training

d. Funding: Initial and Long-term

e. On-line Ethical and Liability Issues

f. Infusion into Goals 2000 and Educational Development

g. Developing Private Sector and Community Partners

h. Educational Systems and Policy Barriers

Networking issues or obstacles related to regional location
Funding to support impoverished areas.

Networking issues or obstacles related to population distribution
Urban areas lack funds, human resources, and significant business partners.

Other concerns about telecommunications
None.

For further information, contact
William J. Fiske
Rhode Island Department of Education
22 Hayes St., Room B-4
Providence, RI 02908
Fiske@K12.Brown.edu
(401) 277-2821
Fax (401) 351-7874
South Carolina

State Facts

Number of school districts 91
Number of school buildings 1,098
Number of K-12 teachers 38,222
Number of K-12 students 632,258
Number of students in largest district 44,343
Number of students in smallest district 542
Number of districts that have fewer than 1,000 students 7

The South Carolina respondent did not rate barrier F.

Status of State Networks

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Information services currently provided by state network
Legislative
Public Utility Commission/Public Service Commission
State Department of Education
Other
See Additional Information.

Technology Plans
Long-range planning for telecommunications incorporated into state technology plans
No response was provided.

Long-range planning for telecommunications incorporated into state K-12 plans
Goals 2000 planning committee established
N/A.

Intermediate educational units are available to assist schools with training for telecommunications implementation
None.

Funding for Educational Networks

Funding sources available
Local District
State
Other

Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
No

A major telecommunications provider has a program encouraging infrastructure development in the state
No response was provided.
**POTENTIAL BARRIERS TO STATE NETWORKS**

<table>
<thead>
<tr>
<th>Potential Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networking issues or obstacles related to regional location</td>
</tr>
<tr>
<td>Networking issues or obstacles related to population distribution</td>
</tr>
<tr>
<td>Other concerns about telecommunications</td>
</tr>
</tbody>
</table>

**5. Legislative and Regulatory Actions**

Technical ability is readily available; the problem is reasonable cost for providing services and the related funding issues.

**4. Technical Infrastructure and Support**

The greatest obstacle with population distribution is the lack of affordable telecommunications facilities that can provide access to all citizens, educational institutions, etc., within the state. The state's goal is to provide affordable access to all citizens, not just those in urban areas.

**3. Professional Development and Training**

Concerns not mentioned include the personnel resources to provide customer support and training for all the services that will be available via the various networks.

**2. Funding: Initial and Long-term**

For further information, contact Shirley McCandless South Carolina Department of Education 300 Gervais St. Columbia, SC 29201 SMcCand@SDE.State.SC.US (803) 737-1087 Fax (803) 734-0327

**1. On-line Ethical and Liability Issues**

South Carolina has a large, statewide, shared-backbone network consisting of multiple Tls and digital cross-connect devices. The network provides backbone facilities for the agencies having statewide needs and also provides facilities for the state's long distance voice system. The Office of Information Resources (OIR) has recently implemented a Columbia Metropolitan Area Network or MetroNet. The MetroNet will permit state government agencies in Columbia to connect their local area networks at various sites and will provide transport for intergovernmental electronic messaging, document transfer/sharing, and access to the Internet. A contract has been negotiated giving state government Tl access to the Internet with SunBelt.Net in Rock Hill. OIR is planning to expand the multiprotocol network throughout the state. Cisco routers in the Greenville, Charleston, and Florence will be connected by Tl data circuits to the MetroNet.

The state is designing a statewide dial-up network to meet a growing need for low-cost information transfer to locations not served by dedicated or direct-connect data services. One immediate need is dial-up Internet access for the state's K-12 community. The goal is to provide local access at a fixed rate.

The state also has a statewide multichannel Educational Television System using ITFS technology to serve K-12 and higher educational institutions. The system is served by state-owned microwave, but recently has begun to use satellite transmission. The use of compressed video is being explored for video conferencing and distance learning.

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**ADDITIONAL INFORMATION**

Community networks or freenets established in state  Yes

They collaborate with the State Department of Education  No

There is no formal collaboration.

South Carolina has a large, statewide, shared-backbone network consisting of multiple Tls and digital cross-connect devices. The network provides backbone facilities for the agencies having statewide needs and also provides facilities for the state's long distance voice system. The Office of Information Resources (OIR) has recently implemented a Columbia Metropolitan Area Network or MetroNet. The MetroNet will permit state government agencies in Columbia to connect their local area networks at various sites and will provide transport for intergovernmental electronic messaging, document transfer/sharing, and access to the Internet. A contract has been negotiated giving state government Tl access to the Internet with SunBelt.Net in Rock Hill. OIR is planning to expand the multiprotocol network throughout the state. Cisco routers in the Greenville, Charleston, and Florence will be connected by Tl data circuits to the MetroNet.

The state is designing a statewide dial-up network to meet a growing need for low-cost information transfer to locations not served by dedicated or direct-connect data services. One immediate need is dial-up Internet access for the state's K-12 community. The goal is to provide local access at a fixed rate.

The state also has a statewide multichannel Educational Television System using ITFS technology to serve K-12 and higher educational institutions. The system is served by state-owned microwave, but recently has begun to use satellite transmission. The use of compressed video is being explored for video conferencing and distance learning.
## South Dakota

### State Facts

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>178</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>713</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>11,627</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>151,073</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>17,786</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>152</td>
</tr>
</tbody>
</table>

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Information services currently provided by state network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legislative</td>
<td>Public Utility Commission/ Public Service Commission</td>
</tr>
<tr>
<td>State Department of Education</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Selected K-12 Internet newsgroups; educational events; job openings; IBM/Macintosh shareware; Internet newsgroups/e-mail.</td>
</tr>
</tbody>
</table>

State Gopher server or Mosaic home page address

K-12 Gopher server or Mosaic home page address

Community networks or freenets established in state

They collaborate with the State Department of Education

Resources are being shared between the state's Technology and Innovations in Education (TIE) [South Dakota's K-12 network provider] and INDIANnet.

### Technology Plans

| Long-range planning for telecommunications incorporated into state technology plans |
| Long-range planning for telecommunications incorporated into state K-12 plans |
| A technology plan is under development. |

Goals 2000 planning committee established

Telecommunications contact Dr. James Parry, Director Technology and Innovations in Education

jparry@sdtie.sdstate.edu

Intermediate educational units are available to assist schools with training for telecommunications implementation

See Additional Information.

### Funding for Educational Networks

<table>
<thead>
<tr>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding sources available</td>
</tr>
<tr>
<td>Local District</td>
</tr>
<tr>
<td>State</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Competitive federal grants have been applied for.</td>
</tr>
<tr>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state</td>
</tr>
</tbody>
</table>
Networking issues or obstacles related to regional location
South Dakota’s small population and the fact that a large number of schools are in extremely rural locations make access of any kind expensive. See Additional Information.

Networking issues or obstacles related to population distribution
The state’s small population and large land areas means that commercial vendors probably will not find South Dakota profitable to serve at affordable rates.

Other concerns about telecommunications
- South Dakota has more than 32 independent telephone companies, thus complicating statewide networking.
- School budgets as well as state government are at risk of large budget cuts this year, which further lessens the likelihood of state funding for telecommunications.
- Historically, higher education and K-12 have not collaborated extensively. The collaborations are necessary to build a strong telecommunications infrastructure.
- The lack of a comprehensive state plan for telecommunications means that the systems are being developed in parallel, rather than collaboratively.

For further information, contact
Randy Foudray
Technology and Innovations in Education (TIE)
1925 Plaza Blvd.
Rapid City, SD 57702-9357
rfoudray@silver.sdsmt.edu
(605) 394-1876
Fax (605) 394-5315

Anne Fallis
Technology for the Rural Enhancement of Communities (TREC) and TIE
22571 Smokey Ridge Rd.
Rapid City, SD 57702-6139
afallis@silver.sdsmt.edu
(605) 348-7293
Fax (605) 341-0940

The responsibility for K-12 networking is not placed within the state Department of Education, but at Technology and Innovations in Education (TIE), a nonprofit that often functions as an extension of the South Dakota Department of Education and Cultural Affairs.

TIE provides leadership and assistance to schools regarding technology applications and school restructuring. TIE services are available to all interested schools and include RDE (the K-12 network), the TIE newsletter, TIE’s annual conference featuring new technology, technology training and technical assistance to schools, and the TIE Preview Center, which offers software and videodisk products for review.

Commercial vendors offer [WAN network] points-of-presence in only three populations centers. The point-of-presence of the state’s NSF vendor MIDNET is in the extreme southeast corner of the state. There is a state backbone running from east to west in the center of the state, but the majority of schools are some distance from this line. For example, TIE pays $300 per month for a 56KB line, plus the yearly membership fee to MIDNET of $4600. Hookup time has been extremely slow.

Six other Internet nodes exist in the state. Five are at higher educational institutions, but there is little access allowed yet for K-12 schools. A major NSF Connections grant was written in 1992, and it is planned to bring up 23 new nodes but to date those connections are not in place.
### Tennessee

#### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See Additional Information.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**State Gopher server or Mosaic home page address**
- Not explicitly set up by the Tennessee Education Network (TEN).
- K-12 Gopher server or Mosaic home page address
- Reference previous answer.
- Community networks or freenets established in state
- They collaborate with the State Department of Education
- To the extent that we all know about each other.

**Technology Plans**
- Long-range planning for telecommunications incorporated into state technology plans
- At the state telecom organization level to meet the needs for state government operations as a telecom user, yes; at the Governor's level to incorporate economic development strategies, in process.
- Long-range planning for telecommunications incorporated into state K-12 plans
- Yes, although we're still working on it, realistically.
- Goals 2000 planning committee established
- Intermediate educational units are available to assist schools with training for telecommunications implementation
- Training centers run by the State Department of Education and higher ed.

**Funding for Educational Networks**
- Funding sources available
  - Local District
  - State
  - Other
- Private/philanthropic resources garnered by districts plus some broad-based creative partnership efforts, such as Vanderbilt University/Chamber of Commerce/State
- Purchasing collaborative to locate, refurbish, and deliver used PCs from the private sector to teachers.
- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- There is one for phone lines to schools for use in dialing into databases (Internet), one for phone lines in schools for voice processing/voicemail services, and one for T1 for video.
**POTENTIAL BARRIERS TO STATE NETWORKS**

"The single respondent who completed the Tennessee survey noted, "Responses are personal and don't necessarily reflect the views of all state folks involved; I did not take a poll of opinions.""

<table>
<thead>
<tr>
<th>a. Legislative and Regulatory Actions</th>
<th>NOT A PROBLEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Technical Infrastructure and Support</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td>5 4 3 2 1</td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td>5 4 3 2 1</td>
</tr>
</tbody>
</table>

**Networking issues or obstacles related to regional location**
N/A.

**Networking issues or obstacles related to population distribution**
Equity ($ resources at local level) a major issue. Also that we want to move ahead into higher level networks (direct-connect instead of dial-up; higher bandwidth, etc.) as soon as possible, but it tends to be the large, urban districts that are more ready and, therefore, are more likely to be able to provide "better" services to their teachers such as Mosaic, CU-SeeMe, etc.

**Other concerns about telecommunications**
N/A.

**For further information, contact**
Jack R. McFadden
Director, Telecommunications Policy and Planning
State of Tennessee
Department of Finance and Administration
OIR/Telecommunications
598 James Robertson Pkwy.
Nashville, TN 37243
JMCFADDEN@TEC.NET
Phone (615) 741-5080
Fax (615) 741-4996

**ADDITIONAL INFORMATION**

A major telecommunications provider has a program encouraging infrastructure development in the state. Reference the PSC's FY1 Tennessee program begun in 1990: There's one for phone lines to schools for use in dialing into databases (Internet), one for phone lines in schools for voice processing/voice-mail services, and one for T1 for video.

**Identified another Potential Barrier to State Networks**
Biggest problem, one I do not put under either Technical Infrastructure or Training, is lack of human infrastructure to support networking design, implementation, and operation—especially at the local level (LAN administrators, etc.)

TEN, Tennessee Education Network, is a state Department of Education/K-12 initiative. It is being conceived and implemented in the broader context of state government networking, working with those responsible for managing those networks in the Office for Information Resources. I find the use of the term "state network" unclear—whether it means the state K-12 network or all state government networking. We're trying to keep it all in sync in Tennessee.

The state's computer networking efforts are in first phase (dial-in) this summer, so considerable growth and change is in store for the network in this year.
**Texas**

**STATE FACTS**

<table>
<thead>
<tr>
<th>Number of school districts</th>
<th>1,048</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school buildings</td>
<td>6,184</td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td>261,427</td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td>3,535,742</td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td>198,013</td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td>7</td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>581</td>
</tr>
</tbody>
</table>

**Status of State Networks**

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Development</td>
<td>Information services currently provided by state network</td>
<td>Legislative</td>
<td>Public Utility Commission/Public Service Commission</td>
<td>State Department of Education</td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>See Additional Information.</td>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>See Additional Information.</td>
<td>Community networks or freenets established in state</td>
</tr>
<tr>
<td>They collaborate with the State Department of Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Technology Plans**

<table>
<thead>
<tr>
<th>Yes</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>Goals 2000 planning committee established</td>
</tr>
<tr>
<td>The Goals 2000 planning committee has not yet been appointed.</td>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td>The 20 regional education service centers offer staff development and support services for the school districts. They play a major role in the support of the network initiatives.</td>
</tr>
</tbody>
</table>

**Funding for Educational Networks**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding sources available</td>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td>There is an education tariff of a 25 percent discount for any intrastate telephone service that is used 50 percent of the time or more for distance learning: the Texas Distance Learning Discount.</td>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state</td>
</tr>
</tbody>
</table>

**Operational**

<table>
<thead>
<tr>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Proposed**

Yes

**No Current Plans**

No
POTENTIAL BARRIERS TO STATE NETWORKS

Networking issues or obstacles related to regional location
The physical infrastructure required for such network technology is absent in many of the schools. There is a lack of sufficient electrical wiring as well as computers, local area networks, and, more importantly, the trained staff who will be needed to support the use of this technology. The appropriate use of the technology is just being developed.

Networking issues or obstacles related to population distribution
Texas covers a large geographic area with students in both densely populated areas as well as very sparsely populated areas. Attempting to offer an equitable network to support such diversity is a challenge.

Other concerns about telecommunications
No response was provided.

For further information, contact
Connie Stout
Texas Education Network (TENET)
Pickle Research Center, CMS1.154
The University of Texas at Austin
10100 Burnet Rd.
Austin, TX 78758-4497
cstout@tenet.edu
(512) 475-9419
Fax (512) 475-9445

ADDITIONAL INFORMATION

State Gopher servers or Mosaic addresses
Texas Government Information Gopher
Department of Information Resources Gopher
Texas General Services administration home page
Texas Secretary of State home page
Texas Department of Information Resources
Technology Assessment Center

K-12 Gopher servers or Mosaic addresses
Texas Educational Network (TENET) Gopher server
Rice University CWIS
The TENET Web
Armadillo: The Texas Studies Gopher
Highland Park Scotties home page (an Austin elementary school)
**State Facts**

- Number of school districts: 40
- Number of school buildings: N/A
- Number of K-12 teachers: 18,790
- Number of K-12 students: 468,680
- Number of students in largest district: 79,200
- Number of students in smallest district: 191
- Number of districts that have fewer than 1,000 students: 6

**Status of State Networks**

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information services currently provided by state network</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Utility Commission/ Public Service Commission</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Department of Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Technology Plans**

- Long-range planning for telecommunications incorporated into state technology plans
- Technology 2000. See Additional Information.
- Under development. See Additional Information.
- Goals 2000 planning committee established
- Telecommunications contact Vicky L. Dahn
- Intermediate educational units are available to assist schools with training for telecommunications implementation
- Regional service centers with well-trained technology specialists are available to assist the rural school districts in their telecommunications implementation. Large school districts are developing in-house expertise in this area.

**Funding for Educational Networks**

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- This past legislative session, a new Information Technology Commission was established by the legislature. One of the issues this commission will deal with during the coming year is special telecommunications tariffs for education.

- A major telecommunications provider has a program encouraging infrastructure development in the state
- US WEST. See Additional Information.
### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th></th>
<th>NOT A PROBLEM</th>
<th>PROBLEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### a. Legislative and Regulatory Actions
Networking issues or obstacles related to regional location
Utah has insufficient clout to impact national policy.

Networking issues or obstacles related to population distribution
One of Utah's greatest challenges with networking deals with the rural nature of the state. Fiber services will be a long time coming and prohibitively expensive in some of our more rural areas.

#### b. Technical Infrastructure and Support
Other concerns about telecommunications
A great deal of time and attention is being paid to the "pipes." Not enough time and attention is being paid to the K-12 material that will flow through the pipes.

#### c. Professional Development and Training
For further information, contact
Dr. Vicky L. Dahn
Utah State Office of Education
250 East 500 South
Salt Lake City, UT 84111
vicky.dahn@sbe.k12.ut.us
(801) 538-7732
Fax (801) 538-7718

#### d. Funding: Initial and Long-term

#### e. On-line Ethical and Liability Issues

#### f. Infusion into Goals 2000 and Educational Development

#### g. Developing Private Sector and Community Partners

#### h. Educational Systems and Policy Barriers

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**ADDITIONAL INFORMATION**

State and K-12 Technology Plans

Technology 2000 is a broad, multifaceted initiative designed to propel Utah to leadership in the development and application of advanced information technology for state government, public and higher education, citizens, and private businesses.

Utah has been aggressive in building a statewide infrastructure to improve student achievement through integration of technology into the teaching and learning process. Existing legislation is in place that allows all schools and school districts to participate. Governing committees represent state government, public and higher education, local school districts, business and industry, and parents. The infrastructure has been built under the guidance of two entities: the Educational Technology Initiative, providing school and classroom computers and related technology, and the Utah Education Network, responsible for building a statewide telecommunications network.

US WEST has been an aggressive partner in building our state infrastructure. In addition, the independent telephone companies are also upgrading to fiber as quickly as possible.

**Community Networks** Some private companies offer Internet access for a price; however, we do not know of any collaborations with the state. The State Information Technology department started to offer free Internet access through the toll free state phone line, but retracted that access when it received the first $17,000 phone bill.

**Funding Sources** Local District: technology initiative and local funds. State: $5 million (K-12) appropriated for the year beginning July 1. Other: US WEST has secured corporate funds for deploying fiber.
### Status of State Networks

#### Network Development
- Information services currently provided by state network
  - Legislative
  - Public Utility Commission/Public Service Commission
  - State Department of Education
  - Other
- State Gopher server or Mosaic home page address
- Several Gopher servers in the state but none are state. Close to state: VETC.VSC.edu
- K-12 Gopher server or Mosaic home page address
- Community networks or freenets established in state
- They collaborate with the State Department of Education

#### Technology Plans
- Long-range planning for telecommunications incorporated into state technology plans
  - Not yet.
  - Long-range planning for telecommunications incorporated into state K-12 plans
  - Not yet.
- Goals 2000 planning committee established
  - Yet to be selected completely.
- Telecommunications contacts
  - Greg Martin
    - Middlebury, VT
    - gmartin@middlebury.edu
  - Ed Barry
    - Milton, VT
    - barry@lemming.uvm.edu
  - Sandy Lathem
    - Hinesburg, VT
    - slathem@moose.uvm.edu
- Intermediate educational units are available to assist schools with training for telecommunications implementation
- We have a consortium that is working on professional development, the Vermont Educational Telecommunications Consortium.

### Funding for Educational Networks
- Funding sources available
  - Local District
  - State
  - Other
- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
  - Currently under discussion.
- A major telecommunications provider has a program encouraging infrastructure development in the state
  - NYNEX has started VermontNet—not used much.

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* Two Vermont respondents completed surveys. Their responses to questions have been combined and their barrier ratings are marked A and B. Respondent B rated barriers selectively.
Networking issues or obstacles related to regional location
Rural areas are not well-served by phone lines.

Networking issues or obstacles related to population distribution
Rural telephone costs. Rural areas are not well-served by phone lines.

Other concerns about telecommunications
No response was provided.

For further information, contact
Frank Watson
Henry Geller
Vermont Institute for Science, Math and Technology
Box 310
Randolph Center, VT 03061-0310
fwatson@ssi.edc.org
hgeller@ssi.edc.org
(802) 728-4108
Fax (802) 728-3026
<table>
<thead>
<tr>
<th><strong>STATE FACTS</strong></th>
<th><strong>Status of State Networks</strong></th>
<th><strong>Technology Plans</strong></th>
<th><strong>Funding for Educational Networks</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td><strong>135</strong></td>
<td><strong>Network Development</strong></td>
<td><strong>Long-range planning for telecommunications incorporated into state technology plans</strong></td>
</tr>
<tr>
<td>Number of school buildings</td>
<td><strong>1,800 (approx.)</strong></td>
<td><strong>Information services currently provided by state network</strong></td>
<td><strong>In development.</strong></td>
</tr>
<tr>
<td>Number of K-12 teachers</td>
<td><strong>71,483</strong></td>
<td><strong>Legislative</strong></td>
<td><strong>Long-range planning for telecommunications incorporated into state K-12 plans</strong></td>
</tr>
<tr>
<td>Number of K-12 students</td>
<td><strong>1,022,456</strong></td>
<td><strong>Public Utility Commission/ Public Service Commission</strong></td>
<td><strong>Goals 2000 planning committee established</strong></td>
</tr>
<tr>
<td>Number of students in largest district</td>
<td><strong>133,474</strong></td>
<td><strong>State Department of Education</strong></td>
<td><strong>Intermediate educational units are available to assist schools with training for telecommunications implementation</strong></td>
</tr>
<tr>
<td>Number of students in smallest district</td>
<td><strong>333</strong></td>
<td><strong>Other</strong></td>
<td><strong>In development.</strong></td>
</tr>
<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td><strong>8</strong></td>
<td><strong>Classroom research and educational opportunities.</strong></td>
<td><strong>Yes</strong></td>
</tr>
</tbody>
</table>

* Virginia's data were current as of mid-November 1994, two months later than the information reported by other states.
### Potential Barriers to State Networks

<table>
<thead>
<tr>
<th>Potential Barriers</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Professional Development and Training</td>
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<tr>
<td>Funding: Initial and Long-term</td>
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<tr>
<td>On-line Ethical and Liability Issues</td>
<td>1</td>
</tr>
<tr>
<td>Infusion into Goals 2000 and Educational Development</td>
<td></td>
</tr>
<tr>
<td>Developing Private Sector and Community Partners</td>
<td></td>
</tr>
<tr>
<td>Educational Systems and Policy Barriers</td>
<td></td>
</tr>
</tbody>
</table>

Networking issues or obstacles related to regional location
Virginia has a larger rural population—very costly to provide service.

Networking issues or obstacles related to population distribution
See above.

Other concerns about telecommunications
Long-term vs. short-term planning that would be responsible to increasing requirements.

For further information, contact
Joe Aulino
Virginia Department of Education
P. O. Box 2120
Richmond, VA 23216
jaulino@pen.K12.va.us
(804) 225-2941
Fax (804) 371-8978
<table>
<thead>
<tr>
<th><strong>State Facts</strong></th>
<th><strong>Status of State Networks</strong></th>
<th><strong>Operational</strong></th>
<th><strong>Partially Operational</strong></th>
<th><strong>Planned</strong></th>
<th><strong>Proposed</strong></th>
<th><strong>No Current Plans</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of school districts</td>
<td>296</td>
<td></td>
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<td>Number of school buildings</td>
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<td>Number of K-12 teachers</td>
<td>45,000</td>
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<tr>
<td>Number of K-12 students</td>
<td>920,000</td>
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<tr>
<td>Number of students in largest district</td>
<td>43,000</td>
<td></td>
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<td>Number of students in smallest district</td>
<td>10</td>
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<td></td>
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<tr>
<td>Number of districts that have fewer than 1,000 students</td>
<td>50% (approx.)</td>
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<td><strong>Network Development</strong></td>
<td><strong>Technology Plans</strong></td>
<td><strong>Funding for Educational Networks</strong></td>
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<tr>
<td>Information services currently provided by state network</td>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>Funding sources available</td>
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<tr>
<td>Legislative</td>
<td>I think so.</td>
<td>Local District</td>
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<td>Public Utility Commission/Public Service Commission</td>
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<td>State</td>
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<td><strong>State Department of Education</strong></td>
<td>Goals 2000 planning committee established</td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Other</strong></td>
<td>No response was provided.</td>
<td>Marginal state funding.</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td><strong>Basically Internet-type services.</strong></td>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
<td></td>
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<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>No response was provided.</td>
<td>Carriers file tariffs.</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>No response was provided.</td>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>The Washington Utilities and Transportation Commission does not create rates.</td>
<td></td>
<td></td>
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<tr>
<td>No response was provided.</td>
<td>Community networks or freenets established in state</td>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>They collaborate with the State Department of Education Indirectly.</td>
<td></td>
<td></td>
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</table>
POTENTIAL BARRIERS TO STATE NETWORKS

<table>
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<tr>
<th>NOT A PROBLEM</th>
<th>PROBLEM</th>
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<tr>
<td>5</td>
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<td>3</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td></td>
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</tbody>
</table>

a. Legislative and Regulatory Actions

b. Technical Infrastructure and Support

c. Professional Development and Training

d. Funding: Initial and Long-term

e. On-line Ethical and Liability Issues

f. Infusion into Goals 2000 and Educational Development

g. Developing Private Sector and Community Partners

h. Educational Systems and Policy Barriers

Networking issues or obstacles related to regional location
Twenty-eight telephone companies.

Networking issues or obstacles related to population distribution
The obvious remote district(s).

Other concerns about telecommunications
The assumption that there is a National Information Infrastructure is a distraction.

For further information, contact
Albert Huff
Washington School Information Processing Cooperative
2000 200th Pl. SW
Lynnwood, WA 98036
ahuff@WSIPC.wednet.edu
(206) 775-8471 ext. 4200
Fax (206) 778-4020
### State Facts

- **Number of school districts**: 55
- **Number of school buildings**: 901
- **Number of K-12 teachers**: 20,900 (Pre-K—12)
- **Number of K-12 students**: 313,997 (Pre-K—12)
- **Number of students in largest district**: 33,545
- **Number of students in smallest district**: 1,146
- **Number of districts that have fewer than 1,000 students**: 0

### Status of State Networks

<table>
<thead>
<tr>
<th>Network Development</th>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tr>
<td>Information services currently provided by state network</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Legislative</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Public Utility Commission/Public Service Commission</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>State Department of Education</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Grant info, job openings, distance learning items, higher ed courses, special projects, pen pals, education calendars, Computer Learning Foundation statewide activities, etc.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>State Gopher server or Mosaic home page address</td>
<td>Currently being developed.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>Currently being developed.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Community networks or freenets established in state</td>
<td>On a very limited basis other than the one operated by the Department of Education. Other networks do collaborate with the Department of Education.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Technology Plans

- **Long-range planning for telecommunications incorporated into state technology plans**: Yes
- **Long-range planning for telecommunications incorporated into state K-12 plans**: In progress.
- **Goals 2000 planning committee established**: Yes
- **Telecommunications contact**: Brenda Williams

### Funding for Educational Networks

- **Funding sources available**: Yes
- **Local District**: State
- **Other**: Some federal programs and grants.

### Additional Information

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission but they have been working with us on contract prices.
- A major telecommunications provider has a program encouraging infrastructure development in the state.
- Bell Atlantic has started a World School project that provides 56KB frame relay services to all schools in their service area, which is about 85 percent of the state. This project will provide the schools with a router, software packages, and installation.
Network issues or obstacles related to regional location
Trying to work with smaller, local telcos.

Networking issues or obstacles related to population distribution
Many times local area networking is not installed with the telecommunications plan.

Other concerns about telecommunications
New federal legislation and FCC regulations—how will they affect our plans and costs?

For further information, contact
Brenda Williams
West Virginia Department of Education
1900 Kanawha Blvd., East
Building 6, Room 346
Charleston, WV 25305
brendaw@wvnvm.wvnet.edu
(304) 558-7880
Fax (304) 558-2584

Additional information
Status of West Virginia's computer networks
Operational—but being updated to allow Internet access.

The original Goals 2000 team consists of three people appointed by the State Superintendent's Office and three by the Governor's Office. They represent the State Department of Education, Governor's Office, teachers, parents, and business. Additional advisory and subcommittees are also being utilized.
Number of school districts 427

Number of school buildings 2,034

Number of K-12 teachers 51,011

Number of K-12 students 844,001

Number of students in largest district 95,259

Number of students in smallest district 59

Number of districts that have fewer than 1,000 students 107

Network Development
Information services currently provided by state network
Legislative
Public Utility Commission/Public Service Commission
State Department of Education
Other
Education statistics, special interest groups, e-mail, downloadable resource documents, state education agency calendar, publications ordering service.

State Gopher server or Mosaic home page address badger.state.wi.us
K-12 Gopher server or Mosaic home page address None to my knowledge.

Community networks or freenets established in state

They collaborate with the State Department of Education

Technology Plans
Long-range planning for telecommunications incorporated into state technology plans
The Department of Administration is conducting a major telecom study to do this.

Long-range planning for telecommunications incorporated into state K-12 plans
Plans are being drawn up now.

Goals 2000 planning committee established
Telecommunications contact Gordon Hanson staff, Bill Wilson

Intermediate educational units are available to assist schools with training for telecommunications implementation
Cooperative Educational Service Agencies (CESA) are available throughout the state—12 total.

Funding for Educational Networks
Funding sources available
Local District
State
Other
Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission Yes

A major telecommunications provider has a program encouraging infrastructure development in the state
The Department of Administration, Education Communications Board, and WISCNet in the public sector, Ameritech in the private sector.

Yes
<table>
<thead>
<tr>
<th>Potential Barriers to State Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
</tr>
<tr>
<td>b. Technical Infrastructure and Support</td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
</tr>
<tr>
<td>d. Funding: Initial and Long-term</td>
</tr>
<tr>
<td>e. On-line Ethical and Liability Issues</td>
</tr>
<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
</tr>
<tr>
<td>g. Developing Private Sector and Community Partners</td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
</tr>
</tbody>
</table>

**Networking issues or obstacles related to regional location**
Lack of access to the Internet.

**Networking issues or obstacles related to population distribution**
Many rural school districts do not have toll-free access to an Internet node without long distance phone charges, if they have access at all.

**Other concerns about telecommunications**
No response was provided.

**For further information, contact**
Gordon Hanson
Wisconsin Department of Public Instruction
125 S. Webster St.
Madison, WI 53702
HANSONGP@MACC.WISC.EDU
(608) 266-7112
Fax (608) 267-1052
<table>
<thead>
<tr>
<th>Status of State Networks</th>
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<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tr>
<td>Network Development</td>
<td>Information services currently provided by state network</td>
<td>Legislative</td>
<td>Public Utility Commission/ Public Service Commission</td>
<td>State Department of Education</td>
<td>Other</td>
</tr>
<tr>
<td></td>
<td>None.</td>
<td>State Gopher server or Mosaic home page address</td>
<td>State Gopher: farrat.state.wy.us.</td>
<td>K-12 Gopher server or Mosaic home page address</td>
<td>No</td>
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<td></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No.</td>
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<tr>
<td>Technology Plans</td>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
<td>No.</td>
</tr>
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<td></td>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>None.</td>
<td>None.</td>
<td>None.</td>
<td>No.</td>
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<tr>
<td></td>
<td>Goals 2000 planning committee established</td>
<td>In discussion.</td>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td>None.</td>
<td>No.</td>
</tr>
</tbody>
</table>

**Funding for Educational Networks**

- **No.**
  - Local District
  - State
  - Other
  - Foundations; federal funds.
  - Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
  - None.
  - A major telecommunications provider has a program encouraging infrastructure development in the state
  - None.

* The Wyoming respondents did not provide a status classification. They rated barriers selectively.
### POTENTIAL BARRIERS TO STATE NETWORKS

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>a. Legislative and Regulatory Actions</td>
<td>Networking issues or obstacles related to regional location</td>
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<tr>
<td>b. Technical Infrastructure and Support</td>
<td>No access to the Internet.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>c. Professional Development and Training</td>
<td>Networking issues or obstacles related to population distribution</td>
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<tr>
<td>d. Funding: Initial and Long-term</td>
<td>Rural and mountain terrain.</td>
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<tr>
<td>e. On-line Ethical and Liability Issues</td>
<td>Other concerns about telecommunications</td>
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<tr>
<td>f. Infusion into Goals 2000 and Educational Development</td>
<td>True integration of technology into education.</td>
<td></td>
<td></td>
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<tr>
<td>g. Developing Private Sector and Community Partners</td>
<td>For further information, contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Educational Systems and Policy Barriers</td>
<td>Steve King</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Wyoming Department of Education
2300 Capitol Ave.
Cheyenne, WY 82002
sking@educ.state.wy.us
(307) 777-6245
Fax (307) 777-6234

**ADDITIONAL INFORMATION**

All districts are linked by e-mail.
## State Facts

<table>
<thead>
<tr>
<th>Number of School Districts</th>
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<tbody>
<tr>
<td>Number of School Buildings</td>
<td>1,600</td>
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<tr>
<td>Number of K-12 Teachers</td>
<td>38,381</td>
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<tr>
<td>Number of K-12 Students</td>
<td>650,000</td>
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<td>Number of Students in Largest District</td>
<td>10,968</td>
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<td>Number of Students in Smallest District</td>
<td>1,691</td>
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<td>Number of Districts that have fewer than 1,000 students</td>
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## Status of State Networks

<table>
<thead>
<tr>
<th>Operational</th>
<th>Partially Operational</th>
<th>Planned</th>
<th>Proposed</th>
<th>No Current Plans</th>
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<tbody>
<tr>
<td>Network Development</td>
<td>Information services currently provided by state network</td>
<td>Legislative</td>
<td>Public Utility Commission/Public Service Commission</td>
<td>State Department of Education</td>
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</table>

<table>
<thead>
<tr>
<th>Technology Plans</th>
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<tbody>
<tr>
<td>Long-range planning for telecommunications incorporated into state technology plans</td>
<td>No</td>
</tr>
<tr>
<td>Long-range planning for telecommunications incorporated into state K-12 plans</td>
<td>No</td>
</tr>
<tr>
<td>Goals 2000 planning committee established</td>
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<tr>
<td>Intermediate educational units are available to assist schools with training for telecommunications implementation</td>
<td></td>
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## Funding for Educational Networks

<table>
<thead>
<tr>
<th>No Current Plans</th>
</tr>
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<tbody>
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<td>Funding sources available</td>
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<tr>
<td>Local District</td>
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<td>State</td>
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<tr>
<td>Other</td>
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<td>National Science Foundation.</td>
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## Technology Plans

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</thead>
<tbody>
<tr>
<td>Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission</td>
</tr>
<tr>
<td>A major telecommunications provider has a program encouraging infrastructure development in the state</td>
</tr>
</tbody>
</table>
Networking issues or obstacles related to regional location
N/A.

Networking issues or obstacles related to population distribution
N/A.

Other concerns about telecommunications
No response was provided.

For further information, contact
Herman Acuña
Resource Center for Science and Engineering
University of Puerto Rico
P.O. Box 23334 University Station
San Juan, PR 00931-3334
4_ACUNA@UPR1.UPR.CLU.EDU
(809) 765-5170
Fax (809) 756-7717
### Status of State Networks

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<thead>
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<th>State Department of Education</th>
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<th>Proposed</th>
<th>No Current Plans</th>
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<tbody>
<tr>
<td>Legislative</td>
<td>No</td>
<td>No</td>
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<td>No</td>
<td>No</td>
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<td>Public Utility Commission/</td>
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<td>Math and Science and News</td>
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<tr>
<td>for Teachers and Administrators</td>
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<tr>
<td>State Gopher server or</td>
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<td></td>
</tr>
<tr>
<td>Mosaic home page address</td>
<td></td>
<td></td>
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<tr>
<td>In the development stage—should be working in the next 45 days.</td>
<td>No</td>
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<td>Mosaic home page address</td>
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<tr>
<td>Community networks or</td>
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<td></td>
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<td>freenets established in state</td>
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<td></td>
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</tbody>
</table>

### Technology Plans

| Long-range planning for telecommunications incorporated into state technology plans | No |
| Long-range planning for telecommunications incorporated into state K-12 plans | No |
| Goals 2000 planning committee established | Yes |
| Telecommunications contacts Peter Camp, Charles Geboe, Sandra Fox, Roger Bordeaux, Carmen Taylor, William Mehojah | |
| Intermediate educational units are available to assist schools with training for telecommunications implementation | No |

### Funding for Educational Networks

- Funding sources available
  - Local District
  - State
  - Federal
    - See Additional Information.

- Special telecommunications tariffs for education established by the Public Utility Commission/Public Service Commission
- A major telecommunications provider has a program encouraging infrastructure development in the state
  - Discussing with US WEST.
Networking issues or obstacles related to regional location
We are in isolated, rural areas and have problems with telephone lines that are inadequate.

Networking issues or obstacles related to population distribution
Same as above.

Other concerns about telecommunications
Need to know what are the accepted standards for staff training, computers per student, budget for technology support. In our planning what standards should be used for developing a telecommunications program?

For further information, contact
William Mehojah, Jr.
Bureau of Indian Affairs
Office of Indian Education Programs
1849 C St. NW MS-3512-MIB
Washington, DC 20240
(202) 208-6175
Fax (202) 208-3312

We are a federally funded school system.
**Persons Responsible for Setting Up K-12 Networks**

**Alabama**
Dr. Ron Wright  
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APPENDICES 127
Major Network Service Providers for K-12 Education by State

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<th>Contact Person</th>
<th>Agency/Department</th>
<th>Address</th>
<th>Other Information</th>
</tr>
</thead>
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<td></td>
<td></td>
<td>Frankfort, KY 40601</td>
<td>FAX (502) 564-6856</td>
</tr>
<tr>
<td>Kentucky</td>
<td></td>
<td></td>
<td></td>
<td>E-MAIL <a href="mailto:DBALLARD@MSMAIL.STATE.KY.US">DBALLARD@MSMAIL.STATE.KY.US</a></td>
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</tr>
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<td></td>
<td></td>
<td>Boston, MA 02116</td>
<td>FAX (617) 727-0778</td>
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<tr>
<td>Massachusetts</td>
<td></td>
<td></td>
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<td>E-MAIL <a href="mailto:avdlippe@mecn.mass.edu">avdlippe@mecn.mass.edu</a></td>
</tr>
<tr>
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</tr>
<tr>
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<td></td>
<td></td>
<td>Helena, MT 59620</td>
<td>FAX (406) 444-3924</td>
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<tr>
<td>Michigan</td>
<td></td>
<td></td>
<td></td>
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</tr>
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<td></td>
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<td></td>
<td>E-MAIL <a href="mailto:bolanger@technet.NM.ORG">bolanger@technet.NM.ORG</a></td>
</tr>
<tr>
<td>Louisiana</td>
<td>LANET</td>
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<td></td>
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<tr>
<td>Louisiana</td>
<td></td>
<td>Office of Telecommunications Management</td>
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<tr>
<td>Louisiana</td>
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<tr>
<td>Louisiana</td>
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<tr>
<td>Maine</td>
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<td>Maine</td>
<td></td>
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<td>Auburn, ME 04212-0620</td>
<td>FAX (207) 783-9701</td>
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<tr>
<td>Maine</td>
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<td>Auburn, ME 04212-0620</td>
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<tr>
<td>Minnesota</td>
<td>South Central Bell</td>
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<td>Mississippi</td>
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<tr>
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Wisconsin
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Wyoming
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FAX (205) 971-7473
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<th>Contact Person</th>
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<th>Phone</th>
<th>Fax</th>
<th>Email</th>
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<tbody>
<tr>
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<td>Louisiana</td>
<td>None.</td>
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<tr>
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<td>Mississippi</td>
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<tr>
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<td>New Hampshire</td>
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<tr>
<td>New Mexico</td>
<td>Terry Bolanger</td>
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<tr>
<td>New York</td>
<td>Dennis Martin</td>
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<tr>
<td>North Carolina</td>
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Puerto Rico
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APPENDICES 133
Questionnaire for the State Networking Project

The following information will help us insure that this project addresses the issues most relevant to you. Please answer the following questions and return them to us by fax or e-mail no later than September 30, 1994.

1. Who are the members of your state's Goals 2000 planning committee? Please identify the telecommunications person on that team.

2. How many school districts are in your state?

3. How many school buildings are in your state?

4. What is the number of K-12 teachers?

5. What is the number of K-12 students?

6. How many students are in the largest district? ("Largest" refers to student population.)

7. How many students are in the smallest district? ("Smallest" refers to student population.)

8. How many districts have fewer than 1,000 students?

9. What is the current status of your state's computer networking efforts?
   ___ a. Operational
   ___ b. Partially Operational
   ___ c. Planned
   ___ d. Proposed
   ___ e. No Current Plans

10. Which information services are provided by your state network? (Indicate all that apply.)
    ___ a. Legislative
    ___ b. Public Utilities Commission/Public Service Commission
    ___ c. State Department of Education
    ___ d. Other (Please specify)

11. Does your state currently have a Gopher server or Mosaic home page? If so, what is the Internet address?

12. Do any schools in your state currently have a Gopher server or Mosaic home page? If so, what is the Internet address?

13. Are there community or freenet telecommunications efforts in your state? Does this network collaborate with your State Department of Education?

14. Has a major telecommunications provider established a program in your state to encourage infrastructure building within the state? If so, please explain.


16. Has a long-range plan for telecommunications been incorporated into your state's plans for K-12 education?

17. Has a long-range plan for telecommunications been incorporated into plans for your state at large?
18. Are intermediate educational units (e.g., regional education service centers, BOCES, etc.) available in your state to assist you with training related to telecommunications implementation? If so, please describe.

19. What funding sources are available to your state for computer networking efforts? (Indicate all that apply.)
   ___ a. Local District
   ___ b. State
   ___ c. Other

20. Who is the person responsible for setting up or directing the computer network for K-12 in your state department of education?
    Contact Name:
    Organization Name:
    Mailing Address:
    E-mail Address:
    Phone Number:
    Fax Number:

21. Who are the major network service providers for K-12 education in your state?
    Contact Name:
    Organization Name:
    Mailing Address:
    Internet Address:
    Phone Number:
    Fax Number:

22. Who are the major Internet service providers for K-12 education in your state?
    Contact Name:
    Organization Name:
    Mailing Address:
    Internet Address:
    Phone Number:

Each participant, please respond to the barrier questions.

23. Please rate each potential barrier independently in terms of the extent to which it (1) is a problem or (5) is not a problem for your state's telecommunications networking efforts.

   ___ a. Legislative and Regulatory Actions 1 2 3 4 5
   ___ b. Technical Infrastructure and Support 1 2 3 4 5
   ___ c. Professional Development and Training 1 2 3 4 5
   ___ d. Funding: Initial and Long-term 1 2 3 4 5
   ___ e. On-line Ethical and Liability Issues 1 2 3 4 5
   ___ f. Infusion into Goals 2000 and Educational Development 1 2 3 4 5
   ___ g. Developing Private Sector and Community Partners 1 2 3 4 5
   ___ h. Educational Systems and Policy Barriers 1 2 3 4 5
   ___ i. Other (Please specify) 1 2 3 4 5

24. Please describe any networking issues or obstacles related to regional location.

25. Please describe any networking issues or obstacles related to population distribution (urban/suburban/rural).

26. Do you have other concerns about telecommunications that we did not mention? If so, please describe.