Council for Education Policy
Research and Improvement

# Florida's Statewide Educational Network

## At a Crossroads for Future Deployment

**An in-depth look at the governmental network
configuration in Florida and whether changes would be
in order**

# DRAFT

## COUNCIL FOR EDUCATION POLICY RESEARCH AND IMPROVEMENT

## Florida's Statewide Education Network
**September 6, 2001**

**Introduction**

The State of Florida was a pioneer in network deployment in the 1970's and early 1980's. Recognizing the cost advantages of having a common voice network to serve the long distance needs of state agencies, Florida deployed the statewide SUNCOM network. This network has grown considerably over the years and now offers voice, data and video services to state and local government.

Florida's educational community was likewise active in recognizing the value of common network services. Educational entities quickly saw the benefits of using SUNCOM for voice services and became SUNCOM participants as soon as the state could make services available. Data communications was literally in its infancy and no overall deployment or coordination was underway at the state level. SUNCOM began consolidating long-distance data requirement into the bulk acquisition of circuits, but this was the extent of early state data support.

The State University System (SUS) had established regional data centers and were beginning to pursue common applications systems for university usage. In 1975, the SUS began connecting these regional data centers with SUNCOM long-distance circuits and used a variety of software products to have these computers share files of information and provide user terminal access. Universities used this network to report student and faculty information to the Board of Regents.

In the late 1970's, districts and colleges were reporting information to the Department of Education (DOE) and State Board of Community Colleges (SBCC). These data were used to respond to student population inquiries from the legislature, which were used to establish funding levels. It was the accuracy of these data and the timeliness of their submission that prompted the first serious consideration of a data network dedicated to education. Initial attempts dealt with attaching districts and colleges to the SUS network under the Florida Education Computing Project (FECP), which was the first funded statewide effort dedicated to educational computing. Efforts from the FECP had district, college and university staff working together on data sharing activities. The concept for a statewide data network dedicated to education originated during these exercises. In 1981, district, college and university staff approached the legislature about funding a pilot program for a Florida Information Resource Network (FIRN) to serve all public education in the state.

The legislature agreed to provide funds for the pilot in 1982, and based on the results, provided resources for statewide deployment in 1983. Viewed initially as a network that fostered sharing administrative information, the value as an instructional tool was recognized immediately. The founding principles for FIRN were:

- To affect a more timely means for having student population information available to state decision makers.
- To provide an equitable data network connection for every district, college and university.
- To be a statewide data communications facility dedicated to education.
- To provide access for educators and students to administrative, instructional and research computing facilities in Florida's educational system.

Accordingly, funding for FIRN was to be "off the top" of the allocation for education, so that an equitable level of service would be available to all participants, regardless of size or location in the state. At the time, FIRN was the first successful deployment of a common statewide educational data network in the nation.

SUNCOM could only provide long-distance circuits, and there was no capability to acquire a dedicated data network as a service. In order to create FIRN, the DOE had to purchase specialized equipment (called network nodes, which were actually data communications switches) and then blend this equipment in with the existing SUS network. Initially, FIRN consisted of Tymnet nodes using the X.25 international protocol and IBM System Network Architecture (SNA) devices. There was no Internet and no World Wide Web. E-Mail and personal computers were just being introduced. The predominate computing environment was large-scale mainframes connected to user terminal devices. Data networks were used to get user terminals to requested host mainframes and transfer files between mainframes.

**The Evolution of FIRN**

FIRN used the remainder of the 1980's to establish connections to all eligible entities. Common software began to be established so that districts could extract data according to standardized rules. E-Mail services were established for teachers and instructional software became available through the public domain and was made accessible from FIRN. The network topography expanded as more X.25 and SNA nodes were added to accommodate increased traffic and users. FIRN was now serving all districts, colleges and universities and requesting public libraries.

In the early 1990's, devices called "routers" were developed and networks were created to allow computers to communicate with each other on an equal basis, rather than terminals talking to mainframes. Desktop personal computers emerged as the primary device used to gain access to networks. Several of these networks in the United States and other countries were connected together, forming a new concept called "the Internet". FIRN and the Florida educational system quickly recognized that this new technology was going to become the predominate data communications protocol. They also were quick to recognize the impact the Internet could have on education. In 1993, FIRN began

an aggressive move to phase out the older network equipment and replace it with new routers capable of participating in the Internet.

Districts, colleges and universities also began preparing to use this new technology and the Internet. The SUNCOM network began offering routed data communications services in the same timeframe and, based on interest from agencies and education, established a statewide service for Internet access that featured higher transmission speeds than had previously been attainable. FIRN was the initial SUNCOM user to deploy this service. FIRN users quickly began using this improved and faster access to the Internet for instructional and research needs.

FIRN has continued to increase the capacity of the network and to add new services. This has been an evolutionary process over the past two decades. While the focus for connectivity to FIRN remains at the school district office and higher education main campus, districts have recognized the need to have both the Internet and their own intranet available to teachers and students. They have invested their own resources in both local area networks (LAN's) in the schools and connected these back to the district offices so that Internet access from FIRN will be available. The same scenario has been occurring with branch college and university campuses. The following table describes the user community that now depend on FIRN services:

**Florida Information Resource Network**

**Current User Community:**

–**All 67 School Districts, including**
        **90% of Florida's 3600 public schools, and**
        **70 % of the classrooms in these schools**
–**All 28 Community Colleges plus 6 Branch Campuses**
–**All 11 State Universities**
–**61 Community College Library Automation sites**
–**39 IFAS Extension Centers**
–**10 Miscellaneous sites**
 **(SUS Regional Data Centers, Educational Consortiums,**
   **PBS TV Stations…)**

**Plus educational users that pay for their local access circuits:**
–**30 Public Libraries**
–**46 Private Schools**

With this wide range of users, it is clear that FIRN is now providing services to the entire K-20 spectrum of education.

**FIRN's Mission and Services**

FIRN is an engrained fixture in the Florida educational community. Though not always praised, FIRN and its portfolio of service would be very difficult to do without. The mission of FIRN is rather straight forward:

> **To provide a common cost-efficient network and associated support and assistance structure in support of School District, Community College and University information access and sharing needs**

FIRN provides three basic functions to the users within the Florida Educational System:

1) **Network/Internet access & transport services** – this is the physical network. As in any wide area network, there are three components:
   - **Nodes** - the central switching points or hubs, which are analogous to interchanges in the interstate highway system, and
   - **Backbone** – the high-speed telecommunications circuits connecting the nodes, which correspond to the lanes on the interstate highway, and
   - **Local Access Circuits** – the telecommunications circuits that connect user sites (ie; schools, colleges & universities) to the nodes, which may be thought of as on-ramps to the interstate system.

   This configuration is depicted below for FIRN, with the Panama City node site expanded to illustrate the participation of districts, colleges and universities:
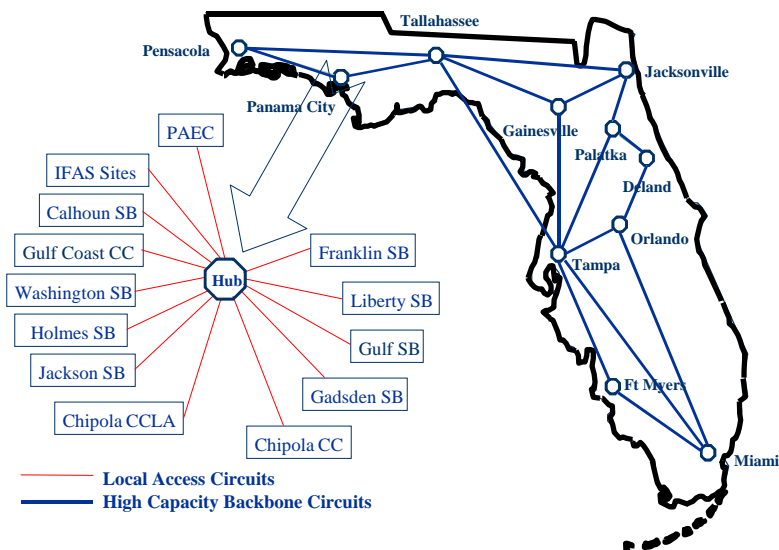


2) **Support staff for technical operations & assistance** - FIRN supports this network with a central technical staff in Tallahassee. There are also positions, called FIRNTEC's, located around the state. Housed in district, college or university sites, along with positions in the three educational consortiums, the primary focus of these resource is to assist users with how best they might use the portfolio of services.

3) **Statewide FIRN applications and web services** – FIRN provides the FASTER transcript exchange and the Bright Futures scholarship exchange and tracking applications on a statewide basis. The portfolio of services also includes filtered Internet access, dial-up access for teachers, hosting of web pages for schools and

classrooms, encryption for data transfers and a central web page with directories on educators and pointers to instructional resources.

These three functions provide the means for all public schools, colleges, universities and libraries to have equal access to critically needed applications and a wealth of instructional and research materials on the Internet, independent of their geographic location within the state. These tools have become an integral part of day-to-day instructional process in Florida education, reaching into the classrooms of all three delivery systems. These need to be retained and controlled by education. The second and third functions make FIRN unique. Although not always as responsive as educators would like, these functions are highly valued and in demand. Ways to increase the capability of these two functions need to be explored. The first function is one that may now be better provided by alternative means. This study will look at the potential for taking action on both of these issues.
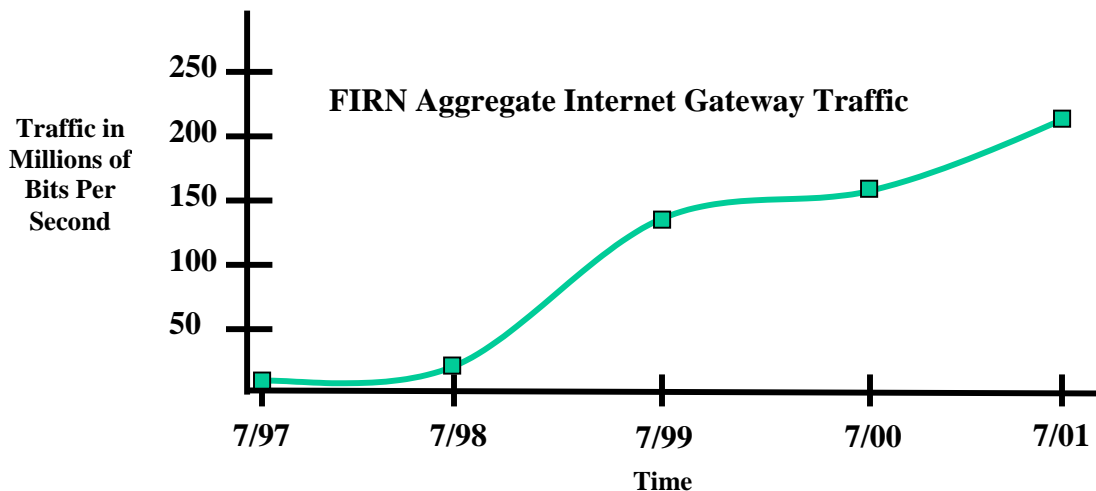
**Current Situation**

While SUNCOM and FIRN began their evolution when the technology available required them to be physically separate, both have now migrated into services that are predominately routed data communications based on the Internet protocol (IP). The routed IP service of each network is quite similar. In fact, both networks use identical router equipment and share the same communications backbone circuits across the state. This has been recognized for some time. FIRN and SUNCOM have discussed the possibility of more collaboration in the past, but the political aspect was never in a favorable light to make serious headway. Further evidence of this recognition may be found in the PEPC Statewide Telecommunications Task Force report, dated December 1995. Specific strategy #17 recommends that FIRN and SUNCOM investigate joint acquisitions of similar services to reduce costs.

The SUNCOM network is considering the establishment and migration to a next generation network (NGN). This new facility would replace the existing Asynchronous Transfer Mode (ATM) based network backbone technology that has been leased from the Florida telecommunications industry. The NGN would be IP based and represent a move toward a more standard protocol for all state and local government data communications needs. The design of such a new state network would include the capability to be expanded to add comprehensive voice and video services when deemed appropriate. As the State Technology Office completes plans for this network migration, FIRN must consider migrating its capability over to this new common network. The advantages are numerous and the benefits are measurable. With today's technology, the time is right for such consideration. Just as in 1993 when technology offered a better means for accomplishing the mission, an adjustment in the way services are provided is in order.

Customers of FIRN are continually asking for more capacity (referred to as bandwidth) on their local access circuits. Each time local access circuit capacity increases, FIRN has to address the resultant need for more bandwidth on the backbone. This is driven by user decisions to invest in technology and incorporate the Internet and its content into their

instructional portfolio of tools. Florida has dedicated funding for public school technology over the past eight years (in the amount of $515 million). Districts have used these funds to enhance school technology infrastructure and to acquire equipment and software for instructional use. During the same period, instructional and research content materials on the Internet have grown dramatically. Each year, more computers become available to students. A great portion of the usage of these systems is to access the Internet as a source library and research tool. Each time a new system is introduced and a student uses it to gain access to the Internet, more bandwidth is used over FIRN. The result has been a tremendous appetite for additional FIRN bandwidth across the state.

This can best be illustrated by showing the aggregate annual increases in bandwidth used to pass traffic to and from the Internet. FIRN provides Internet access through five gateways. These are high-speed access circuits located in Pensacola, Tallahassee, Orlando, Tampa and Miami. All of the FIRN statewide Internet traffic flows through these five points:

**FIRN Aggregate Internet Gateway Traffic**

Traffic in Millions of Bits Per Second (y-axis: 50, 100, 150, 200, 250)

Time (x-axis: 7/97, 7/98, 7/99, 7/00, 7/01)

The growth over this four-year cycle is by a factor of 27! The ramp up during 1998 was the direct result of schools getting discounts for telecommunications services from the federal Universal Service Fund, through a program called E-Rate. The result of 1996 federal legislation, this program is administered by the Federal Communications Commission. Basically, E-Rate reimburses K-12 educational entities a percentage of what they pay for eligible services. The percentage is based on student demographics. These reimbursements produced a significant amount of resources for school districts to re-invest in technology infrastructure within the schools. Also, during this time, FIRN was conducting an aggressive plan to upgrade the capacity of local access and backbone circuits and expanding the capacity of the Internet access gateways. The 1998 annual growth of 550% is a result of these events and the latent demand for access to Internet instructional content. While there is a noticeable slow-down in growth over the last two years, it is still at an annual rate of 34%. This growth pattern is not unique to Florida. Every state that offers Internet access is experiencing similar patterns.

While FIRN repeatedly submits legislative budget requests for network capacity upgrades, these issues are not funded in a fashion consistent with the user demands for bandwidth and the corresponding network traffic growth. In fact, going in to the 2001 legislative session, FIRN had requested funds to increase backbone and access circuit capacity. During the budget process, the FIRN budget was reduced by $1,000,000 in one part of these proceedings and the ending result was a budget at the same level as the prior year. With the high demand for more access and services, this is a significant problem.

Available resources have remained fairly steady while demands for service continue to increase at a significant rate. FIRN has been caught in a disturbing dilemma:
- Requests to expand network capability have not been addressed with funds, but
- Users continue to demand more services, but
- FIRN is unable to deliver, due to the lack of resources, and
- Users complain about poor service to their legislators and decision makers, and
- Legislature and decision makers form a negative opinion about FIRN and do not recommend additional funding.

In addition to the needs of instructional staff and students, the network is also a key delivery mechanism for the College Center for Library Automation (CCLA), the Florida Academic Counseling and Tracking for Students (FACTS) system, access to the K-20 education data warehouse and various distance learning initiatives, including the transport of video teleconferencing signals. The network is also a logical place to have Florida participate in Internet 2 activities. A great number of people and systems depend on this network. Unless this funding dilemma pattern is broken, a catastrophe is in the making.

In 1997, FIRN itself was declared eligible for E-Rate funds from the federal Universal Service Fund. These resources have been reinvested back into the network and have provided a means for addressing some of the more urgent growth demands from districts. Unfortunately, they cannot be used to address all of the growth needs. E-Rate monies must only be used for certain K-12 support needs and care must be taken to preserve the integrity of this fund source. It is important to note that the continuing eligibility of FIRN for this revenue resource is contingent upon Florida continuing with the line item General Revenue appropriation (off-the-top funding) for FIRN. Any cost recovery mechanism from districts will result in losing E-Rate eligibility.

E-Rate revenues for the first two years of reporting have produced $2.8 million for FIRN. This is based on those services that are eligible and E-Rate reimbursement is at 68% of dollars invested. It is estimated that the third year will produce revenues over $2 million. This level is expected to continue into the fourth reporting year. The lack of sufficient budget means FIRN must use E-Rate funds for day-to-day operational needs. Thus, there is no source of funds to address enhanced services that users are continually requesting. It is ironic that based on plans and projections, FIRN has been declared eligible for $9.4 million in E-Rate funds over the first three years. Actual receipts will be only $4.8 million. Had FIRN been appropriated the funds requested to match network growth and demands, up to another $4.6 million would have been recouped through E-Rate over the past three years!

Consider the following graphical representation of a flat funding history compared with a representative measure of network usage. This graph shows the state general revenue appropriation and re-imbursement for E-Rate eligible services. The funds specifically dedicated for community colleges local access circuits are not included, as these were for restricted use and only in existence for two years. The FIRN website access curve is more a measure of network usage. It is also an indicator of very steady traffic growth. This normalized curve doubles in units each year and the slope of this growth is constant. It is illustrated with the budget figures to compare fiscal resources available with user interest. With this measure of user interest and the 34% annual traffic growth through the Internet gateways from the previous figure, it becomes clear that usage and interest far exceed the ability to have sufficient capacity available. E-Rate revenues have been re-invested back into the network to keep up with this growth. Even with this source, there continues to be a trend of not enough resources to keep ahead of the usage power curve. There is no certainty the E-Rate will continue indefinitely. Loss of this reimbursement would pose significant funding problems for Florida.
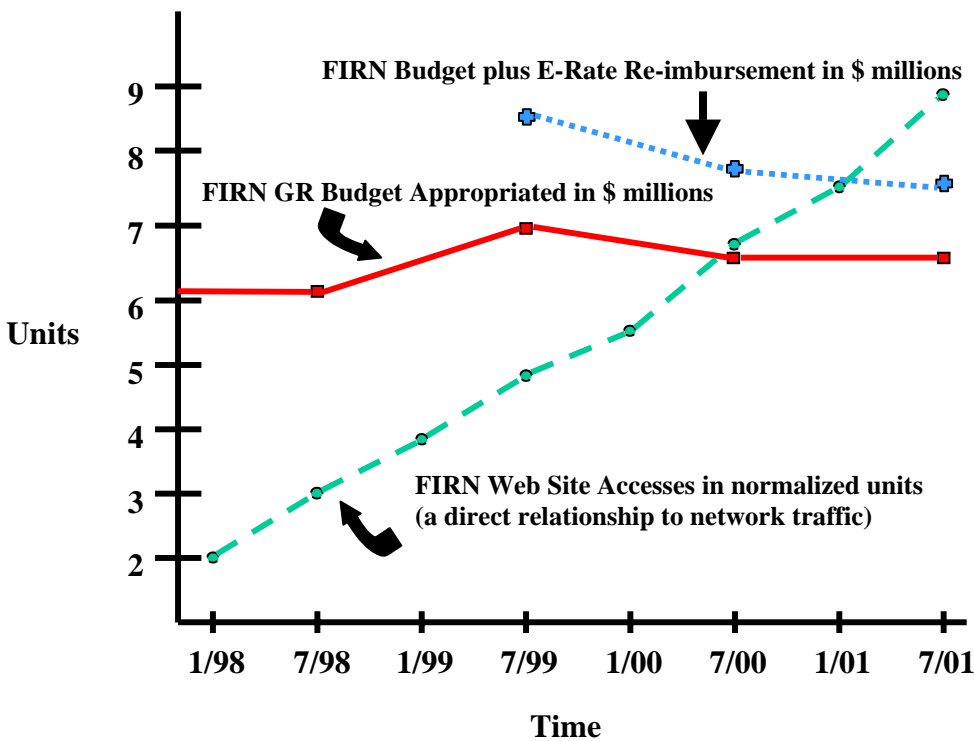


Based on the long-term acceptance from users of FIRN providing equitable access from the line item lump sum appropriation and the potential loss of E-Rate funds, cost recovery is not considered to be a solution to this funding dilemma. Florida must address this issue with a carefully devised plan, in order to preserve its prior investment, maximize the potential of E-Rate re-imbursements and to continue adequate access to technology as the new K-20 system is developed.

**Consideration of Moving Function #1 to SUNCOM**

Both SUNCOM and FIRN have a similar mission: Serve their respective constituents with desired network features in a cost efficient manner by using network traffic volumes to keep operational costs low. Both networks would benefit from finding out if they could be combined in a fashion that would continue to fulfill their respective missions, be expandable to meet future needs and bring the total volume together to further reduce the service rates for all Florida government.

Certainly, the technology of the early 21st century is conducive to combining these networks and carving out a logical partition to address each need. The intelligence in network node switching devices and associated control and management software is capable of such definitions and operational characteristics. This capability has been verified by technical staff from both SUNCOM and FIRN.

Both networks now enjoy the benefits of using volumes of network traffic to obtain the most advantageous price on network components. SUNCOM brings the volume needs of both state and local government (including FIRN) to competitively procure network backbone circuits. This process has produced very favorable results when rates are compared with other southeastern state government networks. These resultant savings are then passed on to all network participants. FIRN uses the volumes of all educational entities to acquire equipment and services at costs that are historically less that most entities could accomplish on their own.

Public education in Florida is already a major participant in the state SUNCOM network. Based on revenues in February, 2001 for all services, education now accounts for almost 20% of total network usage. The following table provides the breakdown for this usage:

| Education Entity | % of SUNCOM Usage |
|------------------|-------------------|
| Universities | 5.5% |
| Community Colleges | 1.7% |
| School Districts | 7.6% |
| FIRN | 2.8% |
| Dept of Education | 1.9% |

What is not readily available is how much education network traffic has been removed from FIRN and possibly SUNCOM and is now being handled by communications facilities acquired directly by the educational entity. Out of frustration with the inability of FIRN to address growth needs in a timely fashion and to accommodate students and staff with sufficient bandwidth, numerous educational entities have decided to augment both FIRN and SUNCOM services with their own solutions. These are usually in a high population area of the state and mostly attempts by the industry to gain business where

traffic volumes offer profitability.  This is sometimes referred to as "cherry picking".
Based on comments from district, college and university technical staff, DOE is aware
that instances like this do exist.  By having an industry-provided network transport
solution and addressing the FIRN funding issue, it is believed that a high percentage of
this off-net traffic will return when reliable and affordable service is demonstrated.  This
is based of several conversations with decision makers within the delivery systems.
Having these volumes of traffic return to a common network will help to drive down
costs for the benefit of all users.  Further, when these pockets of lower cost services are
identified, a common network will be in a position to incorporate such offerings for the
use by all participants.

This similarity between SUNCOM and FIRN and the existing usage of SUNCOM by
education are further indications that a common facility serving all government in Florida
is feasible.  Should the business volume of the three major components of a common
Internet Protocol (IP) based network:

  1)  - node switches, connected with
  2)  - high capacity backbone circuits, and connected to the end-users through
  3)  - local access circuits

be brought together and competitively procured, it would generate considerable interest
from the Florida telecommunications industry.  It is further felt that orchestrated in the
proper manner, a beneficial level of competition can be achieved, at least in the node and
backbone portions of the acquisition, and possibly also for local access circuits in certain
areas of the state.

The topography of both networks is very similar, in terms of network hub node locations.
This is predictable, as these locations are generally based on user population.  The
following table illustrates this point by showing the node locations of each network:

| Florida Network Node Locations | | |
|---|---|---|
| **Location** | SUNCOM | FIRN |
| Pensacola | yes | yes |
| Panama City | yes | yes |
| Tallahassee | yes | yes |
| Jacksonville | yes | yes |
| Gainesville | yes | yes |
| Palatka | no | yes |
| Deland | no | yes |
| Daytona | yes | no |
| Orlando | yes | yes |
| Tampa | yes | yes |
| West Palm Beach | yes | no |
| Ft Myers | yes | yes |
| Miami | yes | yes |

**How would such a merger be accomplished?**

In studying this possibility, it is important to recognize that FIRN is and has been a valuable service to education for almost two decades. Care must be taken to preserve the concept of a statewide educational data network, along with the full portfolio of services that FIRN offers to education. Considerable thought has been given to this and accordingly, the Department of Education has proposed, and the State Technology Office has accepted and incorporated this proposal into their network design, the following criteria:

1. A logical partition shall be defined within the State of Florida next generation network and this partition shall be dedicated to education. In effect, this partition shall become FIRN. It will also serve as a model for the state to define additional partitions to serve other areas of state government with unique needs, such as criminal justice and social services.

2. DOE shall continue to fund FIRN with a line item general revenue appropriation, thereby retaining equitable network access for all districts, colleges and universities, independent of size. This concept was one of the founding principles of FIRN. These first two criteria are also necessary in order to preserve and continue Florida's participation in the federal E-Rate program. This is vital, as this program had brought $232 million to Florida educational entities at the close of FY 2000/2001.

3. Technical staff within DOE/FIRN shall have the ability to continuously monitor the status of the logical partition defined as FIRN, in terms of traffic flow, load characteristics, routing tables, configurations, alarms, diagnostics and capacity limits. Such a view over the shoulder of the network provider will ensure contractual performance terms are met and permit planning for future traffic needs and services.

4. DOE/FIRN staff, along with staff from the K-20 system shall have the ability to conduct tests and experiments within the FIRN logical partition, which will be used to develop and deploy new features and services.

5. With the constant demands for increased capacity, the FIRN logical partition needs the ability to expand its access to bandwidth in a highly flexible and timely fashion. Such "bandwidth on demand" is highly desirable.

**Other Common State Networks – Plans and Actuality**

This concept of having a common state network to serve all government is not new. There are numerous instances where states have sought to establish common networks. Early examples are the initiatives in Kentucky and South Carolina where microwave based networks were built and operated by these states. While these facilities were functional and cost effective for long distance voice usage when deployed, the maintenance costs and improvements in technology quickly made them not as attractive as initial plans set forth. Both states now have minimal usage on these facilities.

In the late 1980's Iowa laid out an aggressive plan to build a fiber-optic based network to serve all of government and education with voice, data and video services. In this case, Iowa bid this project with the option of building or leasing the network. The decision to build originally included having state owned fiber coming to every Iowa government facility, including education. In its current operational state, Iowa owns the backbone and switching but leases the local access circuits from the telecommunications industry. While education is satisfied with the service provided, securing resources for upgrades to meet demands for additional capacity represent a constant challenge for education, especially in having sufficient Internet access capability.

North Carolina established a comprehensive plan in the mid 1990's to have high speed communications links (45 megabits or greater) to each of its schools for video and data based instruction. This concept included having this access be a part of a common state network. The plan was not fully implemented due to the level of deployment cost. One noted result of this effort is that 37% of the North Carolina school districts continue to use the common leased state network for Internet access and wide-area network requirements.

Georgia teamed with the telecommunications industry to utilize required revenue rebates to fund a video based addition to the state network. This effort only succeeded in becoming deployed in approximately 10% of the schools. Initially, usage was at no cost. Once the rebate credit had been used up, no schools were in a position to continue paying for this service and it was dropped. Education in Georgia has since bid and awarded a separate network for school Internet access, which was awarded to the state telecommunications industry. The Georgia Technical Authority has just issued a very comprehensive solicitation to establish a common network for all of government. Education officials are concerned that this effort may not be qualified for E-Rate.

Tennessee sought to provide education with routed network services as a part of a common network in the early 1990's. When this effort could not keep up with the demands for service, Tennessee education bid its portion of the network and awarded to a private sector firm, which also assists the state with E-Rate activity. Tennessee officials report that this deployment is not without problems, but generally is responsive to their needs.

**Conclusions from reviewing common network activity in other states:**

- Building and owning a state network comes with a cost overhead burden for maintenance and enhancements that historically is unaffordable by government

- Common statewide networks are feasible when acquired as a service from the private sector

- The cost of the last mile (ie; the local access circuit connecting the end-user to the closest network on-ramp) in communications networks remains the most costly of the three network components and it also is the most difficult for maintaining cost control

- The creation of any common network must be done with the ability and resources to expand capacity to meet user demands in a timely and affordable fashion

**Potential benefits from a common network**

Based on this research and the performance of Florida's SUNCOM network since 1986, a strong argument can be made that any common network to serve government in Florida could best be provided as a service from the Florida telecommunications industry. When considering the merger of FIRN and SUNCOM into a common network, under the criteria previously stated, there is the potential of achieving some significant performance improvements from both the network and from the support staff within education. The following highlight some, but not all of this potential:

a) In the design of a common network, major node locations can be increased beyond the existing levels that exist in SUNCOM and FIRN (13 nodal sites). Having more node sites will reduce the overall cost of local access circuits (users will be closer to network on-ramps). This will also increase the number of available routes, which directly enhances reliability.

b) FIRN would no longer be faced with addressing the cost of obsolescence of node equipment and funds for equipment upgrades due to traffic growth. FIRN would continue to seek funds for services to address growth, but historically, decision makers view this need in a more favorable light than money for equipment.

c) FIRN technical staff would still monitor the network, but without the full responsibility for deployment and corrective action. These staff will need to retain a high level of technical knowledge and skills, but could now devote more time to planning and experimentation. This would permit the development of a much-improved understanding of the need for new services and features and to offer adequate training to assistance staff. With the operational requirements always having priority, there never seems to be time or resources to properly perform planning and experimentation.

d) With the volumes of both networks being addressed, the engineering design will be capable of incorporating heretofore-unaffordable levels of redundancy within major node sites and routes. This will increase overall network availability.

e) At present, FIRN owns the nodal equipment, leases backbone circuits from SUNCOM and uses tariff offerings for most local access circuits. The owned nodal switches offer several scenarios for migration to the NGN. They have the potential to be highly cost effective staging devices as various SUNCOM and FIRN users are brought onto the NGN.

f) A common network will offer Florida education a much more attractive opportunity to participate in Internet 2. Start-up statewide network access to this facility is now estimated to be in the $250,000 range, but joining in this manner would allow all users to participate. When this is compared to costs in the $60,000 range for individual institution participation, a network approach makes strong fiscal sense.

g) Having a common network for government that is accessible from any location within Florida boarders can be a tremendous boost to economic development. Done in the proper fashion, this state facility can be the anchor tenant for the provision of similar services to Florida businesses throughout the state. While government and education functions are somewhat different from those of business, the information access and sharing aspect are highly compatible. It is felt the telecommunications industry in Florida can use such a facility for the state as a stimulus for similar service offerings that will enhance existing business communications and provide feature-rich capability to entice other business into the state. When this concept is brought together with the fact that Florida has two Internet Network Access Points (NAP) in operation, the potential also exists to significantly reduce the digital divide among Florida's citizens.

## Recommendations

The FIRN user community already consists of Florida's public K-20 education system. Instructional staff and students depend on FIRN for basic data communications services. Statewide educational systems and services, which represent significant investments by the state, must have adequate information transport capability in order to accomplish their purpose. The founding principles for FIRN are as valid today as they were in 1982. As in 1993, FIRN is at a cross roads with respect to its technological composition and again, timing is critical. The following recommendations are made in the interest of preserving, fixing and enhancing this valuable asset as Florida addresses its educational governance reorganization:

I. **FIRN should continue to work with the State Technology Office staff to garner a firm proposal for such a next generation network.** Once a proposal is obtained, education can then determine the level of participation that will best

satisfy the needs of networking services in the educational community.  Even though the State Technology Office is in the process of implementing major changes and has experienced a recent state of flux in leadership, the SUNCOM network remains a viable delivery vehicle for the type arrangement described in this recommendation.

II. **FIRN must prepare more detailed data justifying the need for increased bandwidth and services across the network.**  This must be based on current traffic and user plans for the future levels of service they will need.   It is also important to address the potential for increasing E-Rate revenues if FIRN is able to invest more state funds into eligible services.  These data must be presented to executive and legislative decision makers in a manner that is understandable, properly aligned with budget requests and reflects the importance to the instructional process.

III. **DOE must place a departmental priority on this effort and extend endorsement and support from the highest levels.**

IV. **The educational community must be kept well informed on this effort and must demonstrate a strong show of support.**  Now is the time to recognize that such a common network can and will properly serve all government in Florida. The solution is certainly not having a splintered educational community all trying to address the same problem independently.


## APPENDIX A.

### Status as of 6/20/02

When this report was prepared, there was activity at the State Technology Office (STO) that would produce the Next Generation Network (NGN) technical specifications, proceed with the acquisition process and have a contract award in late June 2002.  This activity has not progressed.  It is still feasible that one government network in Florida can be designed and deployed to address all needs, including those of education, however, the necessary activities to make this a reality have yet to be accomplished.. It is therefore felt that education must proceed with needed FIRN enhancements.