



Information Renaissance

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May 7, 1996

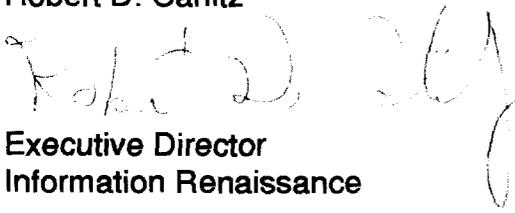
Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

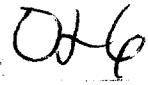
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Dear Mr. Secretary:

Enclosed is the original set of reply comments, along with six copies, in the matter of the Federal-State Joint Board on Universal Service, CC Docket No. 96-45. These comments are respectfully submitted on behalf of Information Renaissance, a nonprofit organization which seeks to further the development of computer networks in support of education, community development and economic revitalization. We appreciate your consideration of these comments.

Sincerely,
Robert D. Carlitz


Executive Director
Information Renaissance


Name: _____
Title: _____

**Reply Comments Before the
Federal Communications Commission
Washington, DC 20554**

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MAY 8 1996

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In the Matter of)
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Federal-State Joint Board on)
Universal Service)
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CC Docket No. 96-45

**Re: Notice of Proposed Rulemaking
and Order Establishing Joint Board**

Reply Comments from Information Renaissance

prepared by

Robert D. Carlitz
Eugene F. Hastings, II
Mario Zinga

(May 8, 1996)

Recapitulation.

In its original comments on the Universal Service provisions of the Telecommunications Act of 1996 *Information Renaissance* suggested that the implementation of Universal Service provisions for schools, libraries and rural health care providers be driven by four general principles:

1. Scalability.
2. Aggregation.
3. Evolution.
4. Affordability.

These principles, which are based upon several years experience with large-scale school and community networking projects, led us to recommendations which covered the following four topics:

1. Provision of the Local Loop.
2. Competition beyond the Local Loop.
3. Reliability.
4. Monitoring.

We will not repeat the detailed principles here nor will we elaborate upon our previous recommendations. Rather we will use them as reference points in replying to comments submitted by other organizations on the Universal Service provisions of the 1996 Act. We would also like to make some remarks on the level of participation in the original comment round on Universal Service and offer some suggestions as to how participation could efficiently be increased by using the technology itself as an aid.

Participatory democracy.

Of the approximately 250 comments submitted to the FCC, we note that only 2 represent individual school districts. This represents little more than 0.01% of the nation's school districts even though provisions of the Telecommunications Act target schools, libraries and rural health care providers with significant and much-needed subsidies through an expanded Universal Service Fund. By contrast, essentially all of the nation's telephone companies, cable companies and telecommunications trade associations have responded to the FCC's Notice of Proposed Rulemaking (NPRM).

As noted in the NPRM nearly half of the nation's schools have some form of Internet connectivity. This suggests that by using the Internet the FCC could involve a far higher percentage of the nation's school districts in their decision-making process. To that end *Information Renaissance* undertook to place online all of the comments submitted in response to the FCC's NPRM, CC Docket No. 96-45 and requested a one week extension of the deadline for receipt of reply comments in this matter. While we did not receive a

positive response to this request, the FCC's rejection was not decided until Monday, May 6, which gave all respondents one extra day in which to submit reply comments to the Commission.

On a typical day in which the comments have been online we have seen queries from several dozen different sites. While this number may not appear to be large, it is in fact larger than the entire number of copies of the printed comments that have been ordered from the International Transcription Service (the FCC's copy contractor). This means that each day the comments appear online, as many people outside of Washington as have previously participated in the rulemaking process are able to participate via the Internet. We regard this statistic as a strong argument for the FCC to make all future dockets available online. We hope to maintain the online service that we have initiated for CC Docket No. 96-45 for the duration of the FCC's proceedings in this area. Interested parties may access this information at <http://www.cbp.edu/info-ren/fcc/telecom.html>.

Behind the statistics there is an important concept emerging. Through telecommunications technologies, and specifically through the low-cost Internet, new models of participatory democracy are emerging. We urge the FCC to encourage models which allow for the widespread participation of groups affected by their regulations, in the present case the nation's schools, libraries and rural health care providers. By using the Internet to publish the proceedings on a given docket, and by allowing the electronic submission of comments and reply comments, the FCC can greatly broaden public participation in its rulemaking process. Furthermore, this broader debate can be carried out at lower cost and with greater speed than under the mechanisms that the FCC has traditionally employed in this area.

While this procedural recommendation does not bear directly on any of the recommendations we made in our original comments, it does relate directly to the principles which we advocated in those comments. Specifically, it allows for a rulemaking process which can scale to involve large numbers of participants in a manner which is affordable both to the participants and the FCC itself. Traditional mechanisms for aggregating the opinions of a given class of affected parties remain open; that is, trade associations and other groups can still express their opinions. But these groups need not have direct Washington representation to make their voices heard effectively.

Discounts versus mandated services.

In our previous comments we advocated that a portion of the required infrastructure for a school, library or rural health provider be provided to them for free. Specifically, we recommended that the "last mile" or "local loop" be provided at no cost. We argued for this particular discount mechanism because we felt that this portion of the infrastructure is the least competitive and that the proposed mechanism would best stimulate the introduction of new technologies in the local loop.

Many of the groups who filed comments on CC Docket No. 96-45 have taken a different approach, suggesting that there be lists of standard services, with prices and discounts to be determined through an elaborate regulatory process. We feel that this approach is more

likely to conflict with the overarching goal of the Telecommunications Act to achieve broad competition among various telecommunications providers than the simpler strategy that we proposed in our initial filing. Furthermore, as noted in our previous filing, the strategy we propose is one which is likely to promote the introduction of new technologies for the local loop more rapidly than would discounts off a fixed schedule of services.

Core versus advanced services.

There are two categories of Universal Service subsidies defined in the Telecommunications Act. The first category refers to core telecommunications services and the second category refers to advanced services. From the initial round of comments on CC Docket No. 96-45 it is clear that there are differences of opinion as to how these terms are to be interpreted and how industry is supposed to respond to the demands of the Act. Many of the cable companies have argued that there is no need for Universal Service support for *any* advanced services. They argue that the cable industry will provide such services with no mandate from the FCC.

While we applaud the cable industry's ambitions in this area, we are painfully aware of the gap between past promises at the corporate level and actual implementation at the local level. We fear that unless there are guarantees of minimal service provided under the Telecommunications Act, there will develop severe inequalities in the availability of such services to school districts across the country.

It is probably necessary to distinguish between individual and institutional needs when one discusses core versus advanced services. Individual T1 lines are a rarity for residential service, but they are probably necessary for any school which seeks to provide adequate network access for a majority of its students and teachers. Thus, if core residential service were to be defined as, say a single ISDN telephone line, one would have to scale this level of core service to the institutional environment and require T1 or better connectivity for whole school sites.

This argument is a simple illustration of the principles of scalability and aggregation that underlay our original comments to the FCC on this matter.

Scope of intended telecommunications use.

We were surprised to find disagreement in the comments that were submitted to the FCC on the scope of telecommunications infrastructure required to supply the basic needs of schools and libraries. The Telecommunications Act is quite clear in referring to telecommunications services for every *classroom* in the nation. To us this implies the construction of local area networks (to scale to accommodate usage by all students and teachers and to aggregate school traffic) and the provision of links to a metropolitan area fabric of connectivity with bandwidth great enough to handle the aggregate traffic requirements.

Several respondents adopted a much more limited view of the Act's goals for schools and libraries. GTE, for example, proposed to implement the Kickstart laboratory model, which clearly fails to meet the Telecommunication Act's goal of access from every classroom. US West proposes the provision of a 56 or 64 kilobit line to every school. Our experience shows that such a link is adequate only for the introductory phase of school networking activity, when only a small fraction of a typical school is making use of network resources. but for more active sites higher bandwidth links are essential.

Timetable for implementation.

Several of the industry respondents, for example TCG and MCI, argued that the telecommunications needs of schools and libraries are not yet clear, and that the FCC should study these needs in greater detail before undertaking a program of Universal Service support for these organizations. Given our own experience in this area, which covers several years and includes thousands of teachers, students and community residents, we cannot agree that the needs of schools and libraries are unknown. The Telecommunications Act is clear in stating the urgency of providing adequate telecommunications services to schools and libraries. We regard it as unconscionable to delay implementation of this portion of the Act in the name of further study.

Magnitude of the required subsidy.

In our previous comments to the FCC we did not attempt to attach a dollar figure to the subsidies that will be required for connectivity to schools, libraries and rural health providers. Other groups have attempted to define this figure, and we would like to caution against making it too low. The core services mandated for each of the nation's classrooms by the Act make it necessary to provide a typical school with T1 connectivity, if one considers the present range of typical educational applications. To offset the cost of the local loop for this level of service, using current technologies and current pricing, would require a subsidy on the order of \$10,000 per school each year, or a total of about one billion dollars annually for all of the nation's schools. The cost of connectivity for libraries and rural health care providers can be decided in a similar manner. We would caution against budgeting much lower figures into the Universal Service fund for this application, since it would fail to meet the Act's primary goals in this area.

Evolution of the technology deployed in the schools.

The Telecommunications Act specifies that technologies for schools and libraries should evolve over time as the technology itself evolves. How should this be done, and what steps are necessary to guarantee that this will happen? *Information Renaissance* has argued that the FCC should monitor the magnitude of network traffic on links to schools and libraries. The local loop for any congested link could be upgraded free of charge. Underutilized links would point to sites where there is inadequate equipment for end

users, inadequate training and maintenance, or simply inadequate demand for network resources. These are important considerations for effective school use of networking technology, but they lie outside the scope of the Universal Service Fund as defined by the present Telecommunications Act.

We regard the evolutionary requirement of the Act as one of its most important features and urge the FCC to incorporate mechanisms into its enforcement of the Act to assure that this evolution is indeed maintained.

Summary.

The Telecommunications Act of 1996 offers an unprecedented opportunity to develop needed infrastructure in schools and libraries across the country and to enable these organizations to meet the educational goals of an increasingly technological society. Based upon experience with school and community networking projects in Pittsburgh, *Information Renaissance* believes that the Universal Service fund can act as a mechanism to encourage the timely deployment of new, fast and efficient telecommunications technologies for the nation's schools and libraries. This deployment can significantly enhance the educational environment of affected schools and allow all students, teachers and families to participate in the nation's evolving information economy.

Respectfully Submitted,
Robert D. Carlitz, Executive Director

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