Net@EDU BROADBAND PRICING GROUP UPDATE

DEFINING THE VALUE OF THE HIGHER EDUCATION COMMUNITY TO THE BROADBAND CARRIERS

August 2000
SECTION I

Mission

In the coming months and years, higher education institutions will rely increasingly on broadband telecommunications and networking services to deliver educational services, conduct business, and manage their operations. However, despite this critical need, Net@EDU members have noted regional discrepancies in the pricing and availability of these services that are not easily explained by geography or technology.

Net@EDU’s Working Group on Pricing for Advanced Network Connections—also referred to as the Broadband Pricing Group (BPG)—has helped maintain a continuing and constructive dialogue between higher education and the broadband industry on this subject to create a better understanding about the value each brings to the other.

Defining the value of the higher education market to broadband providers is a subjective undertaking, one that necessitates collaborative discussion. This paper summarizes the key points of the discussion to date, concentrating on the real and perceived benefits higher education offers to broadband providers who have entered this market, and delineating the challenges and concerns broadband providers face in serving the higher education market.

This paper is also a work in progress; a collaborative tool that can provide both communities focus on strategic planning based on a common understanding of their goals and objectives and produce a value-added proposition that will benefit both communities.

It is hoped this exchange will permit the introduction of products to market more quickly based on the true needs of higher education and will help develop market/product forecasts based on needs analysis for the development and functionality of the higher education community’s needs.

The BPG would like to thank all of the contributing groups for their time, input, and willingness to work with the BPG to facilitate positive change in the broadband networking arena. We also encourage everyone to stay involved as we work together to provide affordable, readily available broadband services to the entire higher education community.
SECTION II

Overview: ‘The HEC/Broadband Community Value Proposition’

“If the higher education community was to initiate an IPO, how would its value be described in the prospectus?”

Net@EDU meeting attendees asked this question generally agreed that higher education’s ability to be viewed as a compelling partner and lucrative market for the broadband community finds support in three major areas.

- **Size/scope of the HEC**

The higher education market in the United States is quite large, with 4,064 degree-granting colleges and universities, and 2.7 million employees serving more than 15 million students\(^1\).

Due to the collaborative nature of research and teaching, the U.S. higher education market extends internationally, further increasing its size and scope and offering a powerful voice for best-in-class networking projects. The international membership of EDUCAUSE provides one example of this extended reach.

Add in the many relationships higher education institutions maintain within their respective communities, research ties with federal government, and health care initiatives, and the size of the market grows exponentially. The varied financial health and geographic locations of higher education institutions ensures their information technology needs cannot be met by a single technology or vendor.

- **HEC collaboration is more than any other community/business of the same size/scope**

Historically, higher education has collaborated with the business community in pushing the technology envelope. Internet2 is just one example in which universities, industry, and the federal government are working to develop and deploy advanced network technologies. Some other successful endeavors include:

  - MiCTA, which helps nonprofit institutions negotiate contracts for products and services at significantly reduced rates with IT vendors

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\(^1\) Krebs, A., and Robinson, R. ‘Ready for For-Profit Education?’,
Converge, May 2000, p. 63.
• The various "gigapop" consortiums around the country

• Various statewide and regional consortiums like NetworkVa.

• Higher education library consortiums

• **HEC leadership in advanced technology**

With significant federal funding, extensive research collaboration with private business, and a high degree of interaction among researchers at various institutions, higher education is the nation’s leading research engine. Universities often serve as "beta" sites for the testing of new methodologies and technologies the private sector is unwilling to pursue due to cost or other considerations. The Internet (and initiatives such as Internet2) have fostered significant additional collaborative research, which often requires greater bandwidth to provide maximum synchronicity. The wide geographic and financial diversity of higher education institutions will require multiple vendors willing to collaborate on innovative solutions.

Besides the infrastructure needed for research collaboration, higher education also will need greater capacity to promote online learning. Increasing numbers of faculty and students are utilizing networks for their daily instruction. Lifelong learners who do not reside on campus will rely on fiber to the home to complete their studies and be part of the university community. Vendors willing to make an initial investment in building out circuits and supplying the services will earn brand name recognition with students and provide an inroad into building a loyal customer base.

**Higher Education Perspective:**

**HEC/Broadband Community Collaboration Challenges**

Creating greater opportunities for collaboration between the higher education and broadband communities has not been without challenges.

Faced with increasing competition, lower margins for traditional services, and continuing technology change, broadband providers have had to increase their focus on shorter-term, higher-margin opportunities. Higher education, on the other hand, remains a complex bureaucracy with stringent purchasing policies and tight budgets. Consequently, the broadband community has shown little interest in the higher education market outside of consumer-based activities such as residence hall service or campus access.

Broadband providers are not organized to deal efficiently with the higher education market. There is a lack of focus on higher education among competing sales forces. Higher education’s requirements for broadband services are often not well understood by the regional sales representatives responsible for these accounts. Higher education’s needs and specifications are generally beyond what their typical customer requires. Support for seemingly vague research and development projects poses particular problems.
Public higher education institution's sales cycles can be significantly longer than in the private sector, creating a disincentive for sales teams focusing on short-term sales goals. Higher education transactions typically contain unique requirements that may or may not be available in legacy systems or in the skill sets of vendor personnel. Vendor salespersons sometimes over commit resulting in inadequate customer care and customer dissatisfaction in a post-sale environment.

All of this makes it difficult for local sales personnel to adequately represent the higher education customer to their company.

The broadband industry thinks higher education has unrealistic expectations in its desire to obtain leading-edge technology for research and development at deep discounts. Vendors understandably resist setting low price points in the market for leading-edge services. They are also concerned about exposure in the marketplace, especially when tariffs are filed that deeply discount services for higher education. Emphasis on price is problematic for a vendor trying to create value, particularly in a low-share marketplace.

Finally, broadband applications require intensive coordination and collaboration among vendor product houses, product managers, offer managers, access managers, contract managers, and technical marketing staff. This expertise has been focused primarily on bundling voice services and non-complex data applications. The typical vendor perception is that higher education applications are less profitable than commercial applications and bandwidth limitations in carrier networks prompt carriers to provision more profitable customer applications first.

All of these issues must be addressed if the higher education and broadband communities are to reach mutually satisfying working relationships. Higher education must aggressively define, substantiate, and reinforce its value to the industry through well-defined project plans, commitment of resources, and focus on mutually beneficial outcomes. The value proposition follows.

**HEC Perspective: The Value of HEC to the Broadband Community**

**Opportunities and Issues**

The total education market – K-12, adult education, corporate training, and higher education – has an estimated worth of nearly $700 billion. Higher education makes up a significant portion of this market.

Colleges and universities are voracious consumers of bandwidth and that rate of consumption will increase as

- research and educational applications are developed that demand more and more bandwidth (including applications such as MOOs and Napster that are
not officially sanctioned by all colleges and universities but consume their bandwidth nonetheless)

- the use of high-bandwidth applications spreads throughout the higher education community, especially various forms of online or e-learning.

E-learning, a market estimated to be worth more than $7 billion by 2002\(^2\), will drive much of the increased demand for bandwidth because many distance learning applications are bandwidth-intensive and because colleges and universities of all types and sizes are preparing distance learning programs. The increased use of audio and video in distance learning programs will drive both two- and four-year institutions to acquire more bandwidth. Students taking these courses will acquire more bandwidth, as well, and demand will spread rapidly throughout higher education.
SECTION III

Value and Challenges in Working with the HEC as Seen by the Broadband Industry

Net@EDU was pleased to have significant broadband industry participation at the Pricing Forums held in 1999 and in June 2000, and is eager to continue the dialogue. To ensure that the momentum continues, the Net@EDU Value Paper team, has developed the following four questions as guidelines for the Broadband Community to use when contributing their input to this paper

1. What is the value your company sees in the higher education community?
2. What are the challenges that your company or industry faces in general?
3. What specific challenges does your company face when attempting to work with higher education?
4. How should the broadband community and higher education work together in the future to ensure the success of both groups?

Broadband representatives were asked to participate in a panel discussion at the most recent pricing workshop. Representatives at that meeting included Adelphia Business Solutions, Applied Theory, Bell Atlantic, Cisco, Extant Communications, and Qwest. Participants cited a number of tangible and intangible values in the higher education market common to most vendors.

Intangible Values

Higher education often attempts to define its value in terms of intangible benefits, which are not easily quantified and cannot always be related directly to profitability. While believing that intangible values can exert a positive market outcome, the broadband community must be very careful in determining which of these intangibles are truly useful in influencing pricing.

Mindshare is an intangible that has been attractive to vendors providing direct services to students. Winning the hearts and minds of college students to a product line, such as PC brand makes it worthwhile for vendors to sell products at very thin margins.

Bandwidth vendors have a much harder time with mindshare because connectivity is a back-end service that most students have no knowledge of. How many students know their university’s OC3 is provisioned by Qwest or Bell Atlantic, or that their school’s network is powered by Cisco routers?
Being involved prominently in higher education technology initiatives, such as participation in highly visible Internet2 projects, can give a vendor an edge in a competitive market. Both Qwest and Bell Atlantic said their work with specific institutions on projects such as these has generated revenue.

Qwest believes that higher education has high status in the business community, and commands a certain cachet. Business leaders generally think higher education is an unbiased, honest, and highly competent user of information technologies. Therefore, having a successful track record and a large customer base within higher education can have a pull-through affect with commercial business. Leveraging institutional loyalties also can lead to business. Pointing out to the CIO of a large corporation that Qwest handles his alma mater’s research traffic may open the door to opportunity.

However, for the most part, the bandwidth market is very price-sensitive and in markets where price is the deciding factor, the cachet of being a player offers little tangible value to vendors since it does not play a significant role in purchasing decisions.

Broadband providers agree that higher education has been very helpful as an advocate for regulatory reform. Higher education understands the regulatory environment as well as the Incumbent Local Exchange Carriers since a university is, in essence, a private telephone company. Higher education has often supported Bell Atlantic’s positions on legislative change, competition, and regulatory reform resulting in increased pricing flexibility for Bell Atlantic and increased opportunities for the broadband vendor community. Higher education has benefited from this in terms of pricing and new alternatives.

Collaborating with colleges and universities on research provides technology companies access to bright minds and the fruits of innovative research. Selling inexpensive bandwidth to colleges—and especially research universities—can be seen as an investment in collaborative research that may yield benefits to vendors in the form of end products. Bell Atlantic, which does not have a research and development organization, acknowledges higher education as an important product development engine. Reciprocal benefits to specific higher education institutions have been realized—through specialized pricing, for example, but have not been extended to the larger community.

Unfortunately, the value of collaborative research with higher education rarely justifies the sale of inexpensive bandwidth. The problem often has to do with how companies are structured. Different divisions within a company often compete for profitability. The sales division that sells inexpensive bandwidth to promote collaborative research and that sees the benefit of that research accrue to a different division (say, R&D or manufacturing) is robbed of incentive. It can’t rationalize low profitability in exchange for benefits to another division in the company.

**Tangible Values**
The obvious response is revenue. Because higher education is a voracious consumer of other products and services that many bandwidth vendors sell—dial-up, long-distance, or wireless services—one means of offsetting low profitability from the sale of inexpensive bandwidth is to negotiate deals that provide vendors competitive advantage with students, faculty, staff, and alumni. For example, in exchange for an aggressively priced OC3 connection, a college or university might offer the vendor preferred status as a provider of wireless or dial-up services to its populations, including agreements to co-market those services aggressively.

A higher education institution’s status in its community—often as one of the largest consumers of services—can lead to pull-through commercial and residential business for broadband businesses providing services to that school simply through association.

Sales of other, more profitable products and services to institutions of higher education, such as Web hosting or security services that have higher profit margins than bandwidth, can be bundled with the sale of inexpensive bandwidth to offset costs. Higher education must proactively work with the vendor community to craft bundled deals offering vendors reasonable profits. For example, in exchange for inexpensive bandwidth, a college might host servers that run its distance learning programs with the same vendor, or bundle dial-up or DSL services from that vendor with the college’s distance learning courses to students requiring remote access.

Vendors also should consider investing in for-profit companies created by colleges and universities by providing low-cost bandwidth as an equity stake. Many colleges and universities are creating for-profit companies to develop, market, and sell their distance learning programs, and equity stakes in those ventures may be a means of generating revenue.
Challenges for the Vendor Community

The four overriding challenges for the vendor community are obtaining commitments, procurement, availability, and profitability.

Higher education’s procurement processes represent a major challenge for all industry players. Highly divergent procurement policies make adequate market coverage difficult. Qwest noted that higher education procurement processes increase the cost of doing business. Vendors may have the same expenses in responding to a $20,000 opportunity as they do to a $1 million opportunity.

Coverage or availability of services is also a challenge for broadband service providers. Even when there was only one choice for connectivity, total regional deployment was not possible due in part to cost recovery mandates. This has resulted in coverage problems for new entrants into the market. Providing ubiquitous, economical broadband end-to-end connectivity is the objective of all players, and maintaining profitability on broadband services in the face of downward pricing pressure is critical to their business objectives.

Broadband providers are looking for guaranteed return on investment. This affects industry willingness to reduce margins without guaranteed commitments. As competitive pressures force prices downward, the vendor community tends to re-evaluate whether working with the HEC is truly an opportunity that can be leveraged.

Although the rapid change of technology suggests the HEC minimize contractual commitment, this poses a problem for the vendor community. The HEC and the broadband industry need to work together to effectively demonstrate the value of the relationship from a profitability perspective.

Industry Responses

John Walker, Regional Vice President of STAR Markets, Qwest Communications

1. What is the value your company sees in the higher education community?

*I agree with the three areas outlined in the paper as making higher education a valuable and lucrative market from a vendor standpoint. However, these same three areas can also make it a difficult market with which to work. Whereas the overall higher education market offers a very large opportunity, for the most part, decisions are made on an institution-by-institution basis so it’s difficult to provide adequate market coverage. Because of the collaborative nature of higher education, vendor “best practices” can be easily duplicated across the community but vendors really have to stay on their toes so as not to provide poor service that instantly gets communicated to the community as a whole. Finally, the early technology adaptive nature of higher education allows vendors to collaborate with institutions to implement new methods and technologies but it also challenges vendors to more quickly deploy those technologies to meet the community’s ever growing needs.*
One of the biggest values that Qwest sees in higher education is its status as viewed from the business community. Business leaders generally believe higher education to be an unbiased, honest and highly competent user of information technologies. Therefore, having a successful track record and a large customer base within higher education, can have a pull-through effect with commercial business. For instance, being able to say to the CIO of a large corporation who is an alumnus of an Internet2 institution that Qwest carries all the research traffic for their alma mater can diminish any uneasiness he may feel. His school’s prior decision substantiates his.

Additionally, often a higher education institution is one of the largest members of its local community. Schools become community rallying points and people identify with their local institution even if they did not attend school there. This can also lead to pull-through business on both the commercial and residential side for a vendor if they are providing services to that school.

2. What are the challenges that your company or industry faces in general?

There are a couple of challenges that I believe face our company and the industry that relate especially to the provision and delivery of broadband services; providing ubiquitous, economical broadband end-to-end connectivity and maintaining profitability on broadband services in the face of downward pricing pressure.

The ability to provide ubiquitous broadband connectivity has always been an issue due to the LEC’s inability to provide large bandwidth circuits to their entire service area. Because of the scarcity of capacity, “last mile” broadband connections can often cost more than the long haul portion. In some cases, local broadband connections require construction that either takes too long to meet the customer’s needs or makes the service economically impracticable. This seems to be getting better over the last couple of years but the increased demand will ensure that it is an issue for the near future.

The other area that is an ongoing challenge is the need to remain profitable in a time of downward price pressure. As more and more companies are entering the broadband industry, prices have decreased. While this is not necessarily a bad thing for vendors, it does force vendors to rethink their pricing models and possibly force them to make infrastructure changes that allow them to reduce the cost of providing services.

3. What specific challenges does your company face when attempting to work with the HEC?

- Obtaining commitment/consensus as a community
- Lack of a single entity/voice representing higher education
- Perception that higher education’s goal in partnering with industry is to receive services for free or at below-margin costs.
• Higher education is not cognizant of the broadband industry’s need to be profitable. The old University adage of "how much above free" is too frequently at odds with the business needs of the broadband community.

Of the four items above, I believe the last two are becoming less and less of an issue over the last few years. I think that there are enough people in higher education with the business acumen to realize that a business that supplies you with services below their cost will not be around long. I do think that the other two comments regarding a community-wide consensus are bigger obstacles. A vendor is forced to re-sell services to each institution within higher education starting at the ground floor because there is no consensus or single voice representing the community. This makes it difficult to provide adequate market coverage due to personnel constraints are it relates to return on investment.

Another challenging area in is the procurement process. I don’t expect it to change in the near future, nor do I think it should as it is much more unbiased than in the commercial community. However, the procurement process increases the cost of doing business as the vendors have the same expenses in responding to a $20,000 opportunity as they do a $1,000,000 one. I think that MiCTA (Garret: Spell out what this is here or will everyone reading know?) has done a lot in the last couple of years to help alleviate the procurement process through their use of “endorsed and recommended vendors”. A vendor can respond to the one MiCTA RFP and yet garner business from a number of institutions without having the expense of response preparation for each entity. This is an area that EDUCAUSE may want to explore vis-à-vis becoming a repository for competitively bid rates for a variety of services.

4. How should the broadband community and higher education work together in the future to ensure the success of both groups?

I think forums like this are very useful in the sharing of ideas and direction for both higher education and the vendor community. Working together we should be able to come up with the mechanisms to make broadband communications more widely available and to maintain necessary profit margins for the providers. In addition to the establishment of a community-wide “approved” vendor and pricing list that I mention above, we need to explore new and different ways to bundle broadband services. There may be ways to “postalize” or “tier” access pricing so as to make it more affordable to the remote or financially strapped institutions without penalizing the urban schools who already enjoy low-access pricing. Instead of asking the “haves” to subsidize the “have nots”, it may be more effective to leverage the overall purchasing power of a large number of institutions to garner lower pricing across the board.

I also believe that the role of gigapops will become even more important to broadband providers. When the Abilene Network as first introduced, there was talk that gigapops would play a lesser role but I think that has proven to be untrue. In fact, the Abilene Network has made it more affordable for schools to connect to research networks and the gigapops have had a great deal to do with that. Gigapops allow broadband
providers access to multiple institutions through one central connection point, thereby reducing the carrier’s costs. We should probably work together to explore a means to leverage the services provided by gigapops and the reduced cost of goods sold from the provider’s standpoint to come up with ways to price services that make it even more attractive for a school to join a gigapop.

Marcy Irons, Director of Market Management – Higher Education, Verizon, nee Bell Atlantic

1. What is the value that your company sees in the higher education community?

Although higher education is one of the smallest market segments in the Bell Atlantic footprint, BA values it because institutions traditionally have been our greatest customers, great marketing engines, and great product development partners. As BA evolves away from a utility environment, we are looking for ways to enhance the value of our traditional telephony services and find new applications for emerging technologies. Higher education is one of the catalysts driving this change and BA relies on higher education to introduce us to new opportunities and challenge our business models.

At the most fundamental business level, higher education has been a great customer, buying across all product lines and organizations. This, of course, was due in part to the legacy regulatory environment, but was also a result of complimentary demographics of higher education, i.e. within our “region” or within a state. As Bell Atlantic becomes more flexible in what services we can provide, and as both higher education and BA expand our geographic reach, we anticipate these business opportunities will to expand as well.

As a marketing partner, higher education has provided insight regarding how to market technology and to whom. Through their community relationships and national visibility, institutions have helped BA understand and address economic development issues, pushed us to develop new applications and driven technology decisions affecting state, local, and K-12 initiatives. One key example is how Virginia Tech influenced ATM product attributes, and demonstrated how it could be used as a model for distance learning and Internet access in statewide networking.

Next, and possibly most important, higher education has been a great product development partner. Since we are prohibited from manufacturing and therefore rely on the ingenuity of equipment manufacturers, we are not always able to drive the product sets from our suppliers that meet the needs or the price points of higher education. This also affects our ability to enter into “trials,” which sometimes requires significant investment in a technology and resources that may not be able to be leveraged elsewhere. Higher education has been a primary resource for us in evaluating what technologies we do deploy and why, and they continue to be trial
partners in many FOA’s (First Office Applications), such as the many DSL services being brought to market today.

Lastly, higher education has also been an agent of change for not only Bell Atlantic, but the entire Telecom Industry. Influencing the federal and state regulatory agencies on issues surrounding regulatory reform and competition have had a significant impact on pricing and cost recovery models used by the Telecom industry.

2. What are the challenges that your company or industry faces in general?

The primary challenge facing our industry today is still regulation. Regulation at the federal and state levels dictate how services are priced and how we recover costs. It also mandates channel strategies and how we need to provide services to our competitors. Internally, even with increasingly flexible regulatory environments, the business models based on the legacy regulations have not adapted to the competitive arena.

Regulation also affects our ability to work with higher education in technology and marketing trials. Trials offer partnership opportunities for us to learn, leverage technology, and tailor offerings to meet the needs of higher education. We do look to the community first when trial opportunities arise, but we need to be able to find a way to be more engaged in trial activities.

One last challenge facing our industry is that we are driven to be profitable unlike anything we have ever experienced. While opportunities in technology are increasing at a frightening pace, “telephone companies” are struggling with their obligation to support the traditional telephony networks, implement emerging technologies, and meet the revenue growth dictated by Wall Street. This directly affects a corporation’s willingness to decrease profit margins or limit contractual obligations.

3. What specific challenges does your company face when attempting to work with higher education?

The two biggest challenges in working with higher education are profitability and the regulatory environment. The demand for profitability (internally and externally) affects the costing and pricing models that enable us to compete, affect the availability of resources to respond to unique RFP’s, and dictate the need for contractual commitments.

Again, from a regulatory perspective, we still have substantial limitations in meeting the evolving needs of higher education. Issues such as where and how we can partner, with whom we can partner, if we can package regulated (network) and deregulated services, and even if we have the ability to respond as a prime varies from state to state. Continued creativity and ingenuity are essential for us to succeed in the newly competitive arena.

4. How should the broadband community and higher education work together in the future, to ensure the success of both groups?
Ensuring that higher education and private industry clearly understand each other’s objectives is essential in meeting the connectivity demands to address rapidly changing technologies. Utilizing industry associations and forums such as this is an important tool to facilitate that information exchange. Also, working together in the formative stages of any major project is a key element to ensure that broadband service providers have the time to evaluate the opportunity, understand the resources needed, and have the drive, the creativity, and flexibility necessary to meet new and unique needs of higher education.

Anne Amster – Director of Sales, Extant, Inc. Dynegy Connect

1. What is the value that your company sees in higher education?

Extant views the higher education community value proposition in much the same way the community has defined it. There is no doubt that the size; scope, collaborative value, and advanced technology leadership provided by higher education make it a necessary community for Extant to support in terms of price, quality, and services. At Extant, we are not impacted or concerned with the retail versus wholesale price and profitability pressures that the traditional long-distance providers face nor are we impacted or concerned with the regulatory issues facing the RBOCs. Our strategy is to provide innovative solutions to our customers.

Fundamentally, we believe that our involvement with organizations such as higher education positively impact our business because collaboration with such an organization can only have a favorable influence on our business model. The breadth and depth of your collective skill sets, application knowledge, and business requirements serve to engage us and permit us to stretch beyond our boundaries.

We also believe in the power of the spoken word as it relates to business referrals. Certainly our objective is to deliver equity to our shareholders. By providing services to higher education, we believe that we can further develop relationships with additional educational organizations and leverage these relationships for incremental revenue for Extant. Clearly our vision of meeting the challenges provided by higher education are different than the traditional long-distance providers and the RBOCs. We prefer to consider ourselves as customer solutions driven without the cross-product and cross-segment baggage that often makes dealing with bandwidth providers difficult.

Additionally, Extant’s dual business model of providing not only broadband transport, but also working as a wholesaler for DSL services in underserved marketplaces helps us to work with higher education in providing solutions that can be of value not just in large market cities, but the land grant locations as well. Through a partnership of knowledge and understanding, Extant and higher education can find solutions.
Extant realizes the value of working with higher education to provide high-level discussions and provide valuable insight regarding their technology research. Through these discussions, these ideas can help us stay ahead of the technology curve, which is difficult based on the nature of transport demands and the cost of the equipment that is deployed. Our ability to successfully grow our business is directly tied to our ability to support our customers. We see higher education institutions as legitimate leaders in the identification of new applications and market opportunities. The challenges you face in support of a growing non-residential student population, the growth and distribution of non-traditional programs and on-line distance learning program development and competition can present opportunities for Extant in a variety of ways. It is our strategy to find ways to support your requirements at costs that provide the critical win-win opportunities essential to any strategic partnership.

2. What are the challenges that your company or industry face in general?

As broadband needs increase in the marketplace, there are a number of challenges facing most broadband companies. First, there is a significant challenge for providers to delivery broadband services ubiquitously. Second, the challenge is to deliver this service profitably. Third, the challenge is to deliver broadband end-to-end including the last mile.

At Extant, we are committed to extending the footprint of our network while at the same time adding network capacity. We believe that our optical-based network configuration makes our network less costly to deploy, resulting in better price support for our customers without sacrificing quality or reliability that is critical to wholesale business community. However, we are a shareholder value-driven organization.

On the last mile issue, there is not much we can do to shift the RBOCs (Garret: Again, spell this out or will readers know this?) into high gear in support of broadband access. We believe that there has been positive movement due to competition, but feel that we have a long way to go. Through partnerships and strategic relationships, we are confident that in targeted markets, we can obtain and deliver end-to-end broadband services at rates customers can afford. The value that this strategy represents to higher education is that we are nimble enough to quickly execute agreements and establish partnerships in locations important to you but not necessarily to the larger traditional long-distance providers of RBOCs. Flexibility is important to us, and it should be to you as well.

3. What specific challenges does your company face when attempting to work with the HEC?

Working with higher education is currently a very time-consuming and cumbersome process. This is due to the fact that the goals and needs of the community seem to have not been clearly defined. As a result, each organization within higher education seems
to have set its own goals and have its own needs. To date, the strategy sessions that I have participated in make me realize and appreciate the difficulties in defining objectives and a “needs” consensus by the community, which has members across the board, from Tier One city-based schools to land grant universities in more rural areas. As a result of this variation in views, it is, and most likely will continue to be, difficult to provide each member with the same level of pricing, quality, and service.

Without one unified voice and requirements definition for services, providers will be required to address each application individually. This makes it very difficult for any vendor to provide a ubiquitous solution. What we see are individual case basis (ICB) solutions required for many higher education applications, which makes it difficult to provide one solution to fit everyone’s needs. Additionally, it makes it more difficult for a vendor to meet with each organization individually, define the application, and try to evaluate each site on an individual case basis (ICB). While the provider can support ICB applications by school, it does take a lot of resources versus the use of an existing product set. Additionally, a school must understand that when they are asking for a service that a supplier must view as a non-standard product, response time is delayed until all of the information needed to submit a response can be gathered.

Contract negotiations always seem to be difficult within higher education and many times take a very long time until a signed copy of an agreement is received. This becomes a very frustrating and time-consuming process, which at times could raise costs because of the resources spent on negotiations. The process for defining the application, proposing the service in support of the application, the negotiation of the contract for services, and the installation of service should be standardized across all participating institutions.

4. How should the broadband community and higher education work together in the future to ensure the success of both groups?

I believe that a partnership between a vendor and higher education can be of significant value. The reason is that we can walk a path together that we both feel is fair. As vendors, we have certain profitability needs to our shareholders, and yet we want to provide high quality transport to higher education. Only open dialogue and an understanding of what a vendor is willing to provide, can work to help the success of both groups. This is one of the reasons that I believe that vendor participation in the meetings of the broadband pricing group is essential to our ability to work successfully together.

I also believe that the role of the gigapops will become even more vital to higher education, and therefore to the broadband vendors. They have the ability to unify the needs of the community, and understand the issues of those higher education members that surround their gigapop to be able to work with the vendors to provide creative solutions. Finally, we must find a way to clearly define the needs and wants of the
higher education community and similar organizations to allow service providers to find ways to establish standardized services to these market segments. Standardization allows some level of predictability on the part of service providers. Predictability supports managed costs. It is imperative that the broadband community collaborates closely with higher education to find ways to standardize service requirements and service delivery by region or market. Through this standardization, providers and higher education can establish metrics by which success will be measured thus allowing the provider community to more efficiently manage costs thus becoming more competitive in support of the broadband needs of higher education.
SECTION IV

Summary

Benefits of Collaboration by the HEC and Broadband Community

The higher education community must be proactive and creative in crafting agreements that allow vendors to realize a net profit from sales of inexpensive bandwidth. It is important for vendors to work with colleges and universities as well. Failure to establish a relationship between the higher education community and the vendor community that serves the needs of both could have significant ramifications for the vendor community: loss of the higher education market.

Bandwidth vendors’ relationship with the higher education community is different than that of other products and services. Unlike PCs or Pepsi, which colleges and universities cannot produce and thus must purchase from vendors, the higher education community can acquire its own network infrastructure, conceivably on a very large scale. The Southeastern Universities Research Association (SURA), for example, is exploring the possibility of acquiring the network infrastructure to offer inexpensive bandwidth to its members in thirteen states and perhaps to sell excess capacity to offset its operational costs. Vendor failure to establish relationships with colleges and universities that addresses their need for inexpensive bandwidth, therefore, might drive the higher education community to become its own provider of bandwidth. The vendor community is then deprived of a market that is very large indeed.

Reasons for Optimism

In the end, there are many reasons to believe that the higher education community and the vendor community will find ways to create new economic relationships that meet both communities needs because both have a great deal invested in that relationship. The higher education community needs the products and services that vendors provide, especially the networked world that vendors have built and the vendor community’s investment in collaborative research. To ensure the viability of the companies that provide those products and services, the higher education community cannot ignore the vendor community’s need to make a profit.

The vendor community, too, has an important stake in the long-term prosperity of the higher education community, which is an important source of technical research and innovation and also trains the vendor community’s the labor force. It is imperative, therefore, that colleges and universities remain economically viable and endowed with the technical resources needed to train the nation’s labor force. So when vendors contemplate the terms of their relationship with the higher education community, vendors cannot ignore the fact that colleges and universities need to minimize the cost of what is a very expensive resource: connectivity to the Internet.
SECTION V

History of the Bandwidth Pricing Group

Members from both communities have met several times to discuss issues surrounding this topic.

Net@EDU Forum on Pricing for Advanced Data Communication Services, Northwestern University, August 18, 1998

This meeting initiated an organized dialogue between the higher education and broadband vendor communities. Vendors appreciated the opportunity to hear the concerns of higher education and to have a forum to express their frustrations in dealing with the community. Several major “action items” resulted from this meeting. The first was a commitment from both communities to continue meeting. Another was to explore how broadband services should be priced in the future. It was also decided that smaller working groups would be able to focus more closely on the issues. The BPG was created as a commitment by Net@EDU members to focus on this issue and provide a central resource to continue the dialogue.

Meeting notes from the Northwestern University forum may be found at: http://www.educause.edu/netatedu/contents/reports/pricing980818

Net@EDU Broadband Pricing Forum, Penn State University, November 1999

BPG members, members of several Universities, representatives of several telecommunications carriers, telecommunications economists, and representatives from voice and data equipment manufacturers assembled to further define and discuss this topic. One outcome of this meeting was a Vision Statement, as well as specific goals for the BPG (http://www.educause.edu/netatedu/groups/pricing/goals.html). To facilitate the vision and goals of the BPG group, three specific task groups were initiated at this forum to explore the issues surrounding cost and accessibility of broadband services. The three task groups are:

1. High speed, cost-effective access to the national education research network (Abilene).
2. High speed, cost-effective access to the national education research networks beyond Abilene.
3. The value-add of the higher education community to the Telecommunications industry.

Net@EDU Annual Meeting, Tempe, Arizona, February 2000

The BPG, several industry representatives, and Robert Cohen (Economic Strategies Institute) spent an entire day working on the issues confronting the three task groups. The “value add” group was charged with writing a “white paper,” which would be updated by the group periodically, and could be utilized by higher education institutions working
individually or collectively with broadband carriers. It became clear to the members of the BPG, that before we could truly begin to discuss/negotiate value with broadband carriers, members of the higher education community must begin to understand what their real value is individually as well as what higher education collectively means to these carriers.

Net@EDU Broadband Pricing Forum, University of Colorado Boulder, June 2000

BPG members, members of the higher education community, and representatives from the telecommunications industry listened to progress reports from the three task force groups. Participants provided feedback on revising the draft survey to make it easier to complete and work on a matrix of common characteristics that would enable the working group to reach general conclusions.

An industry panel provided feedback to the first draft of the higher education community value paper, providing the group assigned with this task guidance on how to structure the final draft.

Several participants presented current and potential models of accessing high-speed networks. Forum participants discussed how to best leverage the “K-20” market to generate corporate interest in providing affordable bandwidth to the higher education community. What organizational entities exist that can help spur competition within the broadband provider industry? Organizing regional and state networks under an existing or new umbrella organization was also proposed for forum participant consideration.
SECTION VI

Appendix of Organizations Referenced in This Report

ACUTA

The Association for Telecommunications Professionals in Higher Education (ACUTA) is an international non-profit educational association serving nearly 800 colleges and universities. ACUTA also has 120 corporate affiliate members, representing all categories of vendors who serve the educational market, including equipment manufacturers, Regional Bell Operating Companies (RBOCs), long distance carriers, software providers, and consultants. ACUTA is a member-driven organization dedicated to the enhancement of teaching, learning, research, and public (community) service by providing leadership in the application of telecommunications technology for higher education.

EDUCAUSE

EDUCAUSE is an international, nonprofit association whose mission is to help shape and enable transformational change in higher education through the introduction, use, and management of information resources and technologies in teaching, learning, scholarship, research, and institutional management.

EDUCAUSE membership is open to institutions of higher education, corporations serving the higher education information technology market, and other related associations and organizations. EDUCAUSE programs include professional development activities, print and electronic publications, strategic/policy initiatives, research and development, and a wealth of online information services.

Current membership includes more than 1,700 colleges, universities, and education organizations and more than 150 corporations.

Net@EDU

Net@EDU is the networking policy arm of EDUCAUSE. As part of EDUCAUSE, Net@EDU enjoys access to a vast network of information and other professional resources.
Net@EDU was created in July 1998 with the merger of the Networking and Telecommunications Task Force (NTTF) and the Federation of American Research Networks (FARNET). Uniting these policy leadership organizations gives members a stronger voice for promoting the development of advanced networking in higher education.

The activities of Net@EDU members span the spectrum of academic networking, from administration of campus networks to local, state, regional, national and international networking projects.

**SURA**

The Southeastern Universities Research Association (SURA) is a consortium of 46 universities in 13 southeastern states and the District of Columbia established in 1980 as a non-stock, nonprofit corporation. Generally, the organization's purpose is to serve as an entity through which colleges, universities, and other organizations may cooperate with one another and with government and other organizations in acquiring, developing, and using laboratories, machines, and other research facilities and in furthering knowledge in the physical, biological, and other natural sciences and engineering.

**UCAID/Internet 2**

Internet2 is a consortium being led by over 170 universities working in partnership with industry and government to develop and deploy advanced network applications and technologies, accelerating the creation of tomorrow's Internet. Internet2 is recreating the partnership among academia, industry, and government that fostered today’s Internet in its infancy. The primary goals of Internet2 are to:

- Create a leading edge network capability for the national research community.
- Enable revolutionary Internet applications.
- Ensure the rapid transfer new network services and applications to the broader Internet community.
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