SPHERE CONSULTING GROUP, LLC

Corporate Management Services

DATA ACCESS NETWORK SERVICES AND DIGITAL SUBSCRIBER LINE (DSL) MARKETING PLAN

PRESENTED TO:

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Executive Summary

High-speed Internet access is deemed the prime driver for Asymmetrical Digital Subscriber Line (ADSL) for the home (consumer) market.

Internet access is the *"killer application"* for ADSL. The Internet has shown phenomenal growth in the past few years. It is estimated this number is expected to grow to 87 million in 2000. As the content of Internet traffic changes to more complex graphic pages and large files, the time to download such files using dial-up modems can be quite long. With throughput of up to 8 megabits per second (Mbps) downstream and 640 kilobits per second (Kbps) upstream, ADSL technology is seen as the immediate solution to the problem of slow download times, at up to 25 times faster than today's typical modem speeds.

In addition to DSL, the services covered in this marketing plan include Data CPE, ISDN, ATM, Frame Relay, Switched-56 and T1/DS1. Because it is a strategic initiative for 2000, this plan concentrates on DSL. However, individual ISDN, ATM, Frame Relay, Switch 56 and T1 plans will be developed beginning 1Q00. YTD October data access revenue was $6.7 million in 1998. Total data access network revenue has grown about 51% YTD October 1999, to $10.2 million. Marketing campaigns will be planned for CY 2000 in order to maintain ISDN, Frame Relay, and other data services revenues and product life cycles. Revenue targets will be supported by running 1 campaign each quarter in 2000.

CY 2000 projected data services revenue is $13.5 Million, which represents a 35% increase from CY 1999. The projected revenue budget for CY 2000 Revenue Budget Breakdown:

Data Services	$9,144,000
ISDN Services	$2,200,000
ADSL/HDSL	$1,900,000
Frame Relay	$156,000
ISDN	$100,000
Total	$13,500,000

ADSL revenue projection for CY 2000 is $1,900,000 out of the $13,500,000. The average Internet subscriber revenue projection is $45 of revenue per subscriber for ADSL broadband data access services. The average revenue is modeled upon Gig Harbor DSL business case. That analysis assumed 80% residential and Business Service I combined at $35.00; and 20% of Business II at $81.50 for CY 2000, with 345 Gig Harbor subscribers projected for YE 2000.

The projected CY 2000 total ADSL subscribers are 7036 units by year-end or 586 subscribers/month. CY 2000 ADSL business cases analysis will be developed for each ADSL location deployed, along with investment justification (ROI). The CY 2000 deployment markets will be over 44 markets.

The data access services promotional and marketing budget for CY 2000 is $750,000 to achieve 7036 subscribers by YE 2000. The CY 2000 cost/sale for DSL is $107. This cost covers promotions, marketing and commission expenses. The proposed capital ADSL CY 2000 capital deployment budget is roughly $21,000,000. This budget results in an estimated $560 of capital per equipped access line. The total CY 2000 ADSL deployment reachable lines are 699,927 access lines. In order to reach this goal, ILEC needs to deploy 58,328 access lines/month. The CY 2000 ADSL penetration rate is 1% by year-end, which results in 7036 ADSL subscribers and 699,927 ADSL reachable access lines.

From an equipment perspective, ILEC will equip the network with a minimal 3% ADSL capability and wire for 6% in each wire center that is DSL-capable.

ILEC has set a goal of having half of its DSL-capable base of access lines be DSL-ready by YE 2000. Using Engineering's assumptions that on average 80% of the total access lines are within the technical loop specifications of ADSL, ILEC will have 699,927 ADSL capable access lines or 55% of the existing access lines by year end CY 2000. Using the 80% ADSL capable assumption, the GTE Arkansas properties will have 24% DSL capability by year-end CY 2000 if no other markets are identified.

The predominant reason any customer will buy from ILEC is the $50 bundled price point for all-the-time, high-speed Internet access. In addition, ILEC provides residential and business customers with high-speed digital connections for efficient access to the Internet or Corporate Local Area Networks (LANs) via standard telephone lines. The positioning statement for ILEC will be "high-speed Internet access" driven by applications on the Internet. In addition, ILEC has the ability to bundle value-added applications, i.e. e-commerce, Web hosting, e-mail, Web design. With these abilities in mind, DSL will be sold under the service mark "LightSpeed" (pending service mark search).

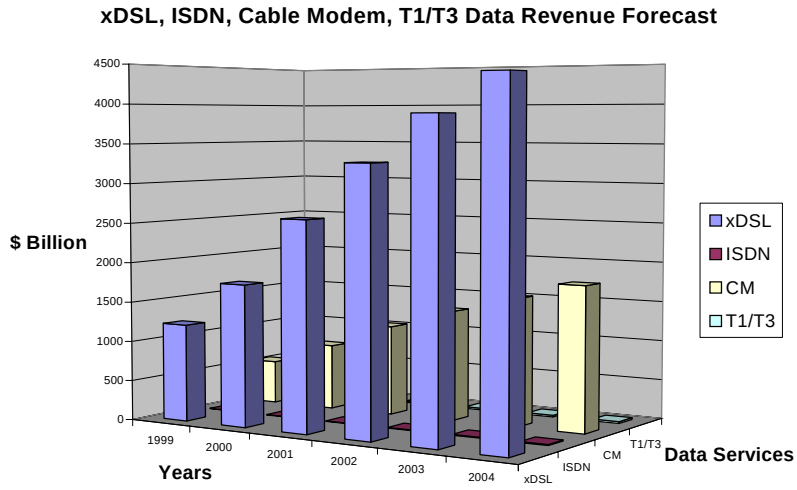
The table below summarizes the metrics which will be used to gauge the progress of the DSL and Data Services Marketing Plan for 2000 and 2001.

Product	Metric	1998	1999	2000	2001
DSL					
	Markets	n/a	5	45	100
	Access Lines Deployed	n/a	1000	700K	1.4M
	Subscribers	n/a	150	7000	14000
	Penetration (%)	n/a	0	1%	2%
	ARPU	n/a	$75	$45	$42
	Revenues	n/a	$ 153,282	$1,900,000	$ 5,342,400
	Revenue Growth (%)	n/a	n/a	1140%	181%
	Mktg Expenses	n/a	n/a	$ 750,000	$ 1,000,000
	Mktg Expense Growth (%)	n/a	n/a	n/a	33%
	Cost of Sale (Mktg only)	n/a	n/a	$ 100	$ 143
Data					
	Revenues (millions)	$9.3	$12.3	$11.6 **	$ 15.7
	Revenue Growth (%)	n/a	32%	35%**	35%

** These figures show a reduction from 1999 to 2000 in actual revenues due to reclassification of revenues in 1999. The relevant revenue streams grew 35%.

Market Assessment (Market Situation)

Market Growth



The DSL family domestic US market is expected to grow from $1.2 billion in 1999 to $4.3 billion in 2004. About 160,000 DSL lines were installed in those markets in mid-1999, up from 50,000 in mid-1998. This high growth is attributable to these factors:

- Continually increasing demand for bandwidth
- Leveraging the existing installed copper infrastructure
- Decreasing costs for DSL lines.

High-speed Internet access is the prime driver for Asymmetrical Digital Subscriber Line (ADSL) for the home (consumer) market. ILEC's DSL product is slated to grow from a few thousand dollars of revenue in 1999 to $1.9 million in 2000, and from a handful of subscribers today to 7036 by year-end 2000.

The ever-increasing demand for more bandwidth is the major factor that should expand the DSL market. Applications such as Internet access and telecommuting are placing enormous pressures on today's local access network infrastructure. As these applications continue to grow in popularity, service providers are being forced to find means of relieving local loop bandwidth bottlenecks. ILEC's Internet Service currently has 70,000 Internet dial up subscribers. For reference, if ILEC could get just 10% of our installed Internet customer base to add DSL service, we would meet our 2000 subscriber goal.

The ability to provision broadband services over the existing copper infrastructure is another factor that will drive the DSL market's growth. ILEC has over 1.5 million access lines, and by YE2000 almost 700,000 will be equipped for DSL service.

The decreasing cost of DSL lines is a fourth factor that should contribute to market expansion. The price of a DSL line has decreased considerably in the past two years. Prices are expected to continue falling rapidly over the next three years as mass deployment of DSL technology takes place. Currently, ILEC's average cost per equipped line is $560, excluding engineering and installation and network service management expenses.

Competitive and Industry Analysis

As a result of the Telecommunications Act of 1996, new data competitors are trying to establish themselves in the traditional realm of the RBOC and the ILEC. Some of these new competitors are using DSL to rapidly offer broadband services, while others such as Cable Television (CATV) providers represent alternative technologies pushing the incumbent local exchange carriers (ILECs) to deploy DSL in order to not lose market share. As an example, a new data competitor, ISP Concentric Networks, has pricing that ranges from $124 to $359 per month depending on the bandwidth.

Another DSL service provider, GTE Internet is waiving the $50 Internet access installation fee plus $340 CPE modem and ILEC installation fee before the end of the year (see Exhibits for competitors' web sites).

BellSouth FastAccess Internet Service is only $50 per month for unlimited monthly usage if the customer is a subscriber to BellSouth Complete Choice® telephone feature package. This amount includes the use of all regular BellSouth.net features and support. BellSouth® FastAccess Internet Service is $59.95 per month for unlimited monthly usage when purchased by itself. This amount includes the use of all regular BellSouth.net features and support. BellSouth is currently running a special holiday promotion. For orders placed before January 1, 2000:

- BellSouth FastAccess customers receive the first 30 days of service free.
- Customers pay $100 plus tax for the ADSL modem
- Installation fee (a standard value of $199.95) is waived
- Service Activation fee (a standard value of $99.95) is waived
- The modem cost can be spread over 4 monthly payments when billed to the BellSouth phone bill

US West Internet monthly fee assuming a one-year contract ranges from $29.95 to $840 per month depending on the bandwidth selected. The one-time service activation fee will range from $69 to $74. US West is offering a free modem–a $245 value.

DSL Vendor Market Share

Market share in the DSL market is largely dictated by the contracts awarded by the ILECs.

Asymmetric DSL (ADSL) Market

ADSL is probably receiving the most attention of all the DSL technologies at this time. Carriers began initiating trials of this emerging technology in 1996 and the first large-scale commercial rollouts began in 1997. Presently, the market for ADSL is on the verge of exploding, as the large ILECs begin deploying it widely throughout the United States.

The primary drivers for the asymmetric DSL market include the following:

- Increasing demand for high-speed Internet access.
- Competition from alternative technologies, such as cable modems.
- The technology requires fewer additional equipment than competing technologies, such as cable modems.

Symmetric DSL (SDSL) Market

The symmetric US domestic market was $312 million in 1998. HDSL is the most established of the symmetric DSL technologies. This is the technology that was deployed in four ILEC markets in 1998 as a trial. This technology is not part of the 2000 plan for DSL, but will remain in place to continue generating revenue with existing customers.

High Bit Rate DSL (HDSL) Market

HDSL is the most established of the DSL technologies. Revenues for this market reached $178 million in 1996 in the US. The driving application for HDSL is cost-effective T1 service. Approximately 60 percent of all T1 lines installed in 1996 used HDSL technology because it is more economical than traditional T1.

Very High Bit Rate (VDSL) Market

A discussion of revenue and unit forecasts for the VDSL market is also premature. Companies are currently engaging in discussions to determine the value of VDSL, establish standards, and resolve technical limitations. Several companies have developed prototype products for testing. Overall, VDSL products are not expected to penetrate the market with many units until after the turn of the century. ILEC is investigating uses and migration to VDSL for 2001 and beyond.

Budget Summary (ILEC Historical Data)

Data access network services represents Data CPE, DSL/ATM, ISDN, ATM, Frame Relay, Switched-56 and T1/DS1 services. Data access revenue was $9.2 million in CY 1998. At present, total data access network revenue represents a growth of 51% YTD October, which is from $6.7 million last year to $10.2 million in October this year-to-date. The incremental difference from CY 1998 to present is $3.5 million YTD.

Only $117 thousand of the YTD revenue includes the few lines of DSL deployed today. Those DSL lines were early tests, and were tariffed at $100 per month, over twice that of the 2000 service. The lion's share of the $10.2M in 1999 revenues are recurring charges, which puts the focus on ILEC getting the incremental revenues for next year. Product Management will run 1 campaign per quarter in 2000 for non-DSL data services. These actions will support garnering the $3.5M incremental revenue next year.

CY 2000 projected revenue is $13.5 Million, which represents a 35% increase from CY 1999. The projected revenue budget for CY 2000 consist of Telco Basic Local Services, Deregulated Marketing Revenue and Other Telco Revenue. CY 2000 Revenue Budget Breakdown:

Data Services	$9,144,000
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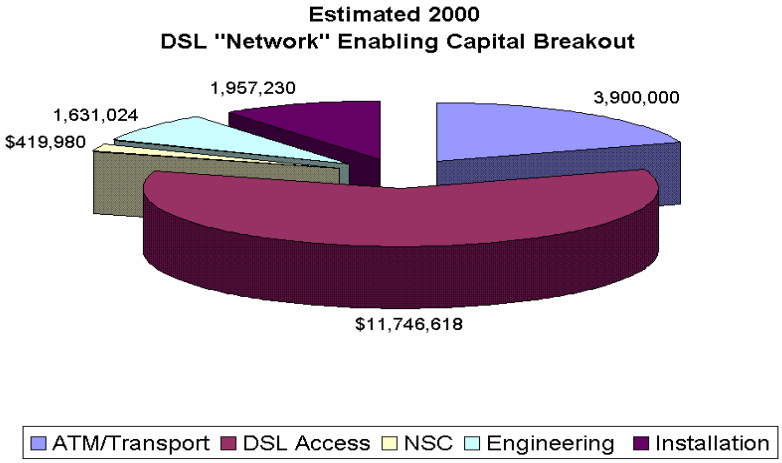
ADSL revenue projection for CY 2000 is $1,900,000 out of the $13,500,000. The average Internet subscriber revenue projection is $45 of revenue per subscriber for ADSL data access services. The average projection modeled is based on Gig Harbor DSL projections of 80% Residential and Business Service I at $35 and 20% of Business II at $81.50 for CY 2000 with 345 subscribers modeled for CY 2000. For ILEC as a whole, the projected CY 2000 ADSL Internet subscribers projected is 7036 subscribers by year-end or 586 subscribers/month.

The data access network product promotional and marketing budget for CY 2000 is $750,000 to achieve 7036 subscribers by CY 2000 year-end. The CY 2000 cost-of -sales is $107 per subscriber, which will cover marketing, promotional and commission expenses.

The total proposed capital ADSL and central-office capital budget for ILEC's existing properties for CY 2000 is $19,654,852. In the existing CY 2000 Budget proposals there is $965,940 proposed for DSL related projects. Therefore, the estimate additional capital outlay is $18,688,912. Below is a breakdown of the estimated expenditures by company.

The total estimated cost of hardware for CY 2000 shown in the summary is $15,646,618. Assuming 26 additional ATM switch deployments in CY 2000, the estimated ATM investment for CY 2000 will be $3,900,000. Subtracting the ATM investment ($3,900,000) from the total hardware yields $11,746,618 for DSL hardware "access" expenditures or $560 per equipped access line, excluding engineering and installation and network service center management estimates. See graph below:

Company #	Company Access Lines	Targeted Access Lines	Reachable 90%	Equipped Market Access Lines 3%	Hardware Purchased '99	Budgeted 2000	Hardware 615/800/950	NSC Cost $20	Engineering 10.00%	Installation 12.00%	Total
35	19,343	6,867	6,180	185	$0	$0	$175,750	$3,700	$17,575	$21,090	$218,115
39	22,834	22,834	20,551	617	$0	$0	$586,150	$12,340	$58,815	$70,338	$727,443
44	19,113	19,113	17,202	516	$0	$0	$490,200	$10,320	$49,020	$58,824	$608,364
42	21,465	21,465	19,319	580	$0	$0	$551,000	$11,600	$55,100	$66,120	$683,820
51	13,491	13,491	12,142	364	$0	$0	$345,800	$7,280	$34,580	$41,496	$429,156
56	36,634	35,977	32,380	971	$0	$0	$922,450	$19,420	$92,245	$110,694	$1,144,809
69	31,137	15,168	13,651	410	$0	$0	$389,500	$8,200	$38,950	$46,740	$483,390
70	65,451	65,451	58,906	1,767	$0	$0	$1,686,705	$35,340	$100,671	$130,405	$1,361,121
106	2,771	2,771	2,494	75	$178,251	$0	$0	$1,500	$7,125	$8,550	$17,175
108	12,081	12,081	10,873	326	$0	$83,086	$309,700	$6,520	$30,970	$37,164	$301,268
109	21,558	21,434	19,289	579	$329,290	$24,995	$0	$11,580	$32,929	$39,516	$59,030
111	15,415	14,741	13,267	398	$304,854	$0	$146,954	$7,960	$30,485	$36,583	$221,982
119	8,794	8,794	7,915	237	$0	$83,086	$225,150	$4,740	$22,515	$27,018	$196,337
120	82,789	82,789	74,510	2,235	$0	$309,870	$1,374,525	$44,700	$137,453	$164,943	$1,411,751
125	32,683	31,683	28,515	855	$0	$0	$684,000	$17,100	$68,400	$82,080	$851,580
137	11,285	11,285	10,157	305	$0	$0	$289,750	$6,100	$28,975	$34,770	$359,595
141	166,896	102,197	91,978	2,759	$646,310	$153,660	$1,483,529	$55,180	$158,870	$190,644	$1,734,563
142	13,939	13,594	12,235	367	$0	$0	$348,650	$7,340	$34,865	$41,838	$432,693
144	34,023	4,137	3,723	112	$0	$0	$106,400	$2,240	$10,640	$12,768	$132,048
145	43,749	37,689	33,921	1,018	$0	$81,112	$967,100	$20,360	$96,710	$116,052	$1,119,110
146	63,574	63,574	57,217	1,717	$0	$0	$1,055,955	$34,340	$105,596	$126,715	$1,322,606
149	88,965	39,852	35,868	1,076	$0	$0	$1,027,700	$21,520	$102,770	$127,664	$1,268,684
156	87,264	52,720	47,449	1,424	$0	$111,840	$1,204,150	$28,480	$120,415	$144,498	$1,385,703
162	91,833	77,996	70,196	2,106	$0	$118,291	$1,881,000	$42,120	$188,100	$225,720	$2,218,649
		Total Lines	Addressable Market 90%	Lines Equipped	1999 Equipment Purchased	2000 Existing Budget Total	2000 Total Hardware Cost	NSC Cost	Engineering	Installation	2000 Proposed Budget Additions Total
		777,703	699,938	20,999	$1,458,705	$965,940	$15,646,618	$419,980	$1,631,024	$1,957,230	$18,688,912
										Total Budget (Existing + Proposed) for DSL Deployment 2000:	$19,654,852



Placement and Price (Positioning)

DSL Positioning

Internet access is the *"killer application"* of ADSL. The Internet has shown phenomenal growth in the past few years. It is estimated this number is expected to grow to 87 million in 2000. As the content of Internet traffic changes to more complex, graphic pages and large files, the time to download such files using dial-up modems can be quite long. With ultimate throughput of up to 8 megabits per second (Mbps) downstream (not currently available) and 640 kilobits per second (Kbps) upstream, ADSL technology is seen as the immediate solution to the problem of slow download times. The asymmetric nature of ADSL is perfect for Internet applications, with high downstream traffic and low upstream traffic.

An increasing trend is interconnecting physically dispersed offices and their local area networks (LANs) to form wide area networks (WANs). In addition, a growing population of telecommuters needs remote LAN access. They require higher bandwidth than regular dial-up modems can provide. Many new applications used in today's work environments--such as file transfer, electronic mail, Internet access, and videoconferencing--require high bandwidth. In addition, the number of telecommuters has increased rapidly in the last several years. These people require higher throughput to connect to the corporate LAN from remote sites. The DSL market incorporates a range of technologies, each developed for specific applications, distances, and transmission rates.

The deployment of ADSL technology is expected to pass through several phases before becoming an off-the-shelf consumer product. In the first phase, carriers offering ADSL services are likely to provide ADSL customer premise equipment (CPE). Subscribers will lease or purchase the ADSL modems from their service providers or ADSL manufacturer. The second phase of ADSL deployment will have subscribers purchasing the configured modems from the carriers. It will be the end user's responsibility to install the ADSL CPE devices. In the last phase, the subscribers will be able to buy the ADSL device from a local store and activate it with their service providers. At this stage, ADSL services should be widely available, and the equipment should be standardized and interoperable. Business end users are expected to be the target customers in the early ADSL deployment phase, however, eventually, residential customers will become the main consumer group. This phase is expected in 4Q00-1Q01.

ILEC provides residential and business customers with high-speed digital connections for efficient access to the Internet or Corporate Local Area Networks (LANs) via standard telephone lines. This high-speed access technology is 25 to 143 times faster than today's Internet dial up technology. The position statement for ILEC's DSL service in 2000 will be "high-speed Internet access" driven by Internet application. ILEC has the ability and will bundle value-added applications, i.e. e-commerce, with DSL. With these strengths in mind, and an eye to the catchy "dot-com" marketplace, the name "LightSpeed" was coined for the DSL service (service mark search pending).

"LightSpeed" will be the product name for ILEC's family of Digital Subscriber Line product bandwidth offerings. "LightSpeed" will replace the existing "Express Services" family of products and services. Trademark research for the name "LightSpeed" is pending and under final evaluation with input from the field and corporate promotions and advertising experts.

DSL Advantages

In the digital local loop market, DSL products compete with cable modems, satellites, hybrid fiber coax (HFC), fiber-to-the-home (FTTH), and ISDN. However in CY 2000 cable modems will be the major threat. DSL affords the user the following advantages over cable modems:

- Dedicated high-speed data access, compared with the shared connection of a cable modem
- Constant, always-on Internet connection
- Simultaneous voice and data connection over the same line
- More security than a cable modem. Cable modem data is shared and passed among the members of a cable neighborhood or subdivision.

Unlike coaxial cable, DSL has the advantage of having sole use of the phone line's bandwidth, resulting in increased speed and security. For example, with DSL when files are transferred from the customer's home, that data is transferred directly from the home to the central office. This is the same way 56K modems work today. However, with cable modems, the customer's data has to traverse a ring around the neighborhood. Which means when many people in the neighborhood all try to use their computers, say, after work, local network congestion can occur. Each of the cable modem customers in the neighborhood must *share the bandwidth* around the neighborhood. In contrast, DSL customers have their own dedicated line back to the central office. To compound the effect, cable companies are oversubscribing, which can result in less performance for the customer. This shared bandwidth is an disadvantage for cable modems, which means that large graphics files can take longer to download and viewed by the user. This performance limitation is exactly like that of a business local-area-network, which gets "clogged" when too many people are trying to send and receive too many files. As stated, DSL has the advantage over cable modems of being point-to-point and able to be used on common telephone lines, whereas cable modems must share bandwidth.

Additionally, television cables need to be reconditioned to operate in send and receive mode, or bi-directionally. Telco copper lines are already engineered to support bi-directional transmission. Finally, telephone companies have more experience than cable companies with two-way communications.

These factors give Telcos an advantage in competing with cable companies in the high-speed networking market.

DSL Disadvantages

DSL in its current incarnation suffers from an access point distance limitation. For a DSL line to work, the customer must be located up to 18,000 ft. from the DSL Access equipment housed in a building, not a free-standing cabinet. In other words, areas which cannot be addressed in mass deployments, are any cabinet-based access points or digital loop carriers (DLCs). ILEC currently has solutions to address central-office based DSL deployments as well as remotes housed in buildings. Therefore, the limitation rests with buildings vs. cabinets. ILEC Engineering is working with the vendors to address the cabinet based DSL deployments, and expect to have solutions for AFC, Alcatel (formally DSC) and Marconi (formally RELTEC) by 2Q00. So, in the environment prior to 2Q00, the customer must live within 18,000 feet of a *building* (central office or sheltered remote) to get ILEC DSL service.

Currently, ILEC's modem "Cost of Ownership" can be seen as uncompetitive against CATV companies and CLEC services. For example, US West, a neighboring DSL provider, is giving away DSL modems as a Christmas promotion. ILEC's current offer puts a $500 price tag in front of the customer before he or she even signs up for the service. The $500 non-recurring charge is for the modem, installation, and other one-time fees.

5. Pricing Strategy

The Telecommunications Act of 1996 deregulated the telecommunications service industry and opened the market for cable television (CATV) companies to compete with incumbent local exchange carriers (LECs) and inter-exchange carriers (IXCs). Cable modems constituted CATV providers' attempt to dominate the data services market. Impressive speeds of up to a shared 40 Mbps make cable modems a realistic contender in the high-speed data market. Internet service providers (ISPs) and competitive local exchange carriers (CLECs) are two groups of new entrants in the telephony market.

The predominant competitors to most ILECs are CATV and CLEC companies. Gig Harbor at present has no competition, however, AT&T plans to deploy ADSL in Gig Harbor some time in 1Q00. In the Northwest Region, pricing for cable modems and competitive DSL service ranged from $17.95 to $160.00 for DSL/Internet service.

ILEC's DSL pricing is as follows:

- ADSL 192/256kbps – Residential and Business Service I monthly rate is $35 for ILEC with a non-recurring charge of $95.

- ADSL 512/768kbps – Business Service II monthly rate is $81.50 with a non-recurring charge of $95. The ADSL access service connection (ASC) for DS1 is $180 with a non-recurring charge for $170 and DS3 is

$1,400 with a non-recurring charge of $555. Additional charges will apply for transport. Pricing is restricted for Gig Harbor, Washington only.

Competitive Internet Service Providers' (CISPs) Digital Subscriber Access Services monthly rates for Channel Termination will range from $150.00 for DS1 to $2,400 for DS3. Channel Mileage Termination cost per termination is included. ADSL Access Service Connections will range from $180.00 for DS1 to $1,800 for DS3 along with nonrecurring charges of $170.00 for DS1 and $555.00 for DS3. ILEC ISP will offer Alcatel CPE to their Internet subscribers. Alcatel CPE pricing is very competitive. Competitive ISPs will procure ADSL CPE directly from ADSL modem OEMs, i.e. Alcatel, Westel, Telmax, etc.

DSL Pricing (Gig Harbor Rollout Only)

- CPE is ILEC Internet Service Pricing Only

Market Segment	ILEC	CT-IIS	Monthly	BW (Kbps)	*CPE	Cost/Subscriber
Residential	$35.00	$14.95	$49.95	256/192	$259.00	$308.95
Business I	$35.00	$44.95	$79.95	256/192	$259.00	$338.95
Business II	$81.50	$250.45	$331.95	768/512	$600.00	$931.95
ADSL Nonrec. Fee	$95.00	$75.00				$170.00

ISPs/Cost/Subscriber				
ILEC/ISPsI/ADSL Accs.	$180.00	$180.00	DS1	Market
ILEC/ISPsII/ADSL Accs.	$1,400.00	$1,400.00	DS3	Market
ADSL Nonrec.Fee	$170.00		DS1	Market
ADSL Nonrec. Fee	$555.00		DS3	Market
ADSL Nonrec. Fee	$555.00		DS3	Market

The ADSL access service line charge is billed to the subscriber to the local exchange service. The special access or ATM or Frame Relay access services rate elements are billed to the ADSL access customer's ISP or other telecommunication service provider.

ILEC's DSL service is competitively priced; not the cheapest, but value that can be sold to the customer. Cable modems may come in at $5-10 per month cheaper, but the dedicated data "pipe" (not shared) back to the central office can be shown to be of value. The sticking point on pricing is the CPE (modem) and the non-recurring charges. They add up to around $500 which will limit the take on the service. The current strategy for modem pricing is set by the ILEC Internet Group, and is a classic skimming strategy. That is, the idea is to pass along the cost of the DSL modem to as many customers as will buy it. Then, later, with competition, subsidize the cost of the modem to the customers who were unwilling to pay cost for the modem.

The ADSL line charge is billed on a monthly charge per local exchange service line and nonrecurring installation fee per local exchange service line. The tariff reference is NECA Tariff FCC No. 5, Section 8.1.5 (D), Section 17.4.9 (A), and Section 8.1.5 (D) and 17.4.9 (A).

6. Promotion (Marketing Activities)

Data Access Solutions

High-speed Internet access is deemed the prime driver for Asymmetrical Digital Subscriber Line (ADSL) for the home (consumer) market. The asymmetric nature of ADSL is well suited for Internet applications requiring high-rate downstream traffic and low-rate upstream traffic. With up to 8 Mbps downstream and 640 Kbps upstream throughput, ADSL technology is seen as the immediate solution to the problem of slow surfing speeds.

Customers are excited about DSL's always-on capability as well as flat-rate pricing. Choosing the speed they need means customers tend to buy as much bandwidth as they can afford. ILEC ISP will provide e-commerce, e-mail,

Web Hosting and design for their Internet subscribers over ADSL at a rate of 256/192 Kbps, which is 4.5 times faster than the best dial-up technology. The speed a customer needs depends on the application for which he will use the service. Video-on-demand requires at least 384 Kbps and more. Advertising agencies and graphics design firms have higher bandwidth needs, and usually opt for the 1.1 Mbps SDSL.

Pricing will be pushed down as applications increase, technology matures and competition increases. A decrease in prices can already be seen as more services providers crowd into markets, as they discover and install more cost-effective technology, and offer customers different levels of service.

Mass Market

Although most DSL service providers have their hands full just answering the phone and filling orders, their futures rest in their ability to offer value-added services and applications to customers with large DSL pipes. Once we have hooked customers on bandwidth, ILEC should be ready to deliver more high-margin value-added solutions. ILEC ISP has over 70,000 Internet customers and will provide ADSL value-added solutions such as Web hosting, e-commerce, e-mail and Web design. Value-added solutions in the end will be the key to DSL's future, such as offering a point to point link between the customer and the ISP, and act as a full-service layer for customers' data services.

At present, Gig Harbor has 5 ISPs, and one ISP has over 2,500 Internet customers. This ISP projects 20% of existing Internet dial up customers will move to ADSL, which means 500 ADSL customers the end of CY 2000. At present the market for ADSL end-users from a ILEC's DSL (ILEC) perspective are the ISPs (ours and competitors to ours) re-selling ADSL to their end users. ISPs are value-added re-sellers (VARs) of ADSL.

ILEC ILEC and ISP will bundle services that provide a full set of Internet related technology services, including e-mail, Web hosting, server collocation, network security services, virtual private networks, authentication, managed firewall services and local area network management (LAN/WAN) and operation outsourcing. Plans for these bundles are under development, but of course the initial bundle is DSL and Internet.

ADSL CY 2000 Rollout

Three major tools of mass-promotion are advertising, sales promotion and public relations.

Advertising is the use of paid media by ILEC to inform, persuade or remind potential high speed data access Internet end users the benefits of Digital Subscriber Line technology and ILEC as a Broadband Data Communications Solutions Company. Internet is an application of Digital Subscriber Line technology. Advertising is in development for 30-second spots that will position ILEC as a data communication provider of high-speed data access. This video spot will be a standard for all DSL CY 2000 rollout locations. The advertising strategy is to create a "Tsunami" effect at the rollout of DSL for CY 2000, followed by aggressive segment marketing of specific segments for each CY 2000 location: i.e. residential, business and ISPs. The CY 2000 budget for media promotion is $500,000.

Sales promotion will cover a wide variety of short-term incentive tools—commissions and direct mail—designed to stimulate consumers and the sales force. Segment marketing campaign discussions will be focused on targeting ISP account development strategies similar to value-added resellers. Targeted ADSL seminars supported by telemarketing and direct mail campaigns along with promotional co-branding strategies supporting other ISPs and ILEC ISP. Other ISPs are resellers of DSL, which is very similar to hardware/software value-added resellers (VARs). The CY 2000 budget for telemarketing is $125,000, $100,000 for direct mail campaigns and $25,000 for research.

Public relations—which involves gaining favorable publicity and creating a favorable company image—will generate awareness and preference for ILEC. The public relations message at present will be to "stoke the fires" for high-speed Internet in Gig Harbor. Press releases and newspaper articles are being written. ILEC PR is presently working on an article for the local Gig Harbor Newspaper referencing the ADSL Gig Harbor November 23rd rollout.

Product Development & Provisioning Plans

DSL Technologies
Certain DSL technologies are better suited for specific applications than others. The choice of technology depends on factors such as bandwidth requirements, symmetric or asymmetric demands and cost issues.

SDSL Technology (Few, Older ILEC Deployments)

Fractional T1
SDSL permits the flexibility to adjust transmission rates to a subset of T1 between 64 Kbps and 1.544 Mbps. Internet applications can use SDSL.

Business Internet access
Unlike HDSL, SDSL permits Internet access on single pairs. This makes it a more cost-effective way of receiving two-way bandwidth capacity for Internet access.

LAN interconnect
SDSL offers improved characteristics over HDSL for this application because it operates over only one copper pair.

Telecommuting
This rapidly growing application requires high bandwidth in both directions. An individual working at home may need to collaborate with coworkers through group ware software applications, transfer large files or images, and work on the Internet. These functions can best be achieved through the use of SDSL.

Distance learning
An extension of this application would entail interactive learning in which the student could actively participate in the learning process. This requires a duplex technology such as SDSL.

ADSL Technology (New ILEC Deployments)

High-speed Internet access
ADSL is particularly well suited for residential Internet access applications because consumers generally require large amounts of downstream data, but very small amounts of data are sent back upstream, up to 18,000 ft.

Video-on-demand (VOD)
VOD was initially the driving application for ADSL. Initial trials of ADSL for this purpose indicated that not enough demand exists to offset the costs at this time to market ADSL solely as a VOD service. However, ADSL is an appropriate medium for VOD because of its asymmetric nature.

Distance learning
This application enables students to receive live instruction from remote locations through copper phone lines. ADSL is the best option for this application because it requires the bulk of information to be sent downstream.

HDSL Technology

Repeaterless T1 and E1 services
HDSL enables the transmission of signals up to 12,000 feet without the use of repeaters. In contrast, traditional T1 services require repeaters every 3,000 to 4,000 feet.

Business Internet access
Unlike the residential sector, businesses generally require a symmetric technology for their Internet use. This is because the Internet is often used as a tool to interact with customers. The development of Intranets further necessitates symmetric transmission.

Local area network (LAN) interconnect

A remote office can be connected to a corporate data network at speeds reaching 1.544 Mbps (T1) using HDSL. HDSL is one of the best technologies for this application because it provides symmetric transmission links.

VDSL Technology (Future)

Very High-Speed Digital Subscriber Line

VDSL is the only DSL-based technology capable of supporting this high-density TV and other applications requiring 8 Mbps.

Provisioning Plans

ADSL Technology

Within ILEC's current operating areas there were 580,927 access lines identified in the original list for DSL deployment in CY 2000, Network Planning has added 158,764 access lines for a total of 739,691. The additions take into account the overall network configurations such as host, and subtending or remote exchanges. The Gig Harbor network cluster, the very first ADSL deployment in ILEC's network, has a total access line count of 38,001. The Gig Harbor network includes the exchanges of Gig Harbor, Vashon, North Vashon, and Arletta. Those line counts brings the grand total of access lines passed to 777,692. Assuming on average that 80% of the total identified access lines are within the technical loop specifications of DSL, ILEC will have 699,927 DSL capable access lines or 55% of the existing access lines by year end CY 2000.

The original plan for the GTE Arkansas properties showed all of the properties acquired in CY 2000 being DSL-capable by year end CY 2000, a total of 212,314 access lines. Network Planning has reduced the number of access lines by 147,542 to 64,772. The exchanges of Stuttgart, Jacksonville Main, Jacksonville West, Cabot and Russellville, and the associated estimated capital expenditures are shown on the attached spread sheet titled GTE Arkansas. Using the 80% DSL capable assumption, the GTE Arkansas properties will have 24% DSL capability by year end CY 2000 if no other markets are identified. Network Planning is currently working with GTE personnel to verify exact network architecture and local loop make up. The original marketing plan had 100% of the Missouri properties listed or 112,576 access lines. None of the GTE Wisconsin areas were identified.

The total CY 2000 DSL Rollout Plan reachable lines are 699,927. This means an average of 58,328 access lines will be deployed per month. The CY 2000 ADSL penetration rate is 1% by year-end, which gives 7036 ADSL subscribers on 699,927 ADSL reachable access lines. From an equipment perspective, ILEC will equip the network with a minimal 3% DSL capability and wire for 6% in each wire center that is DSL-capable. Integrated line card solutions for ILEC's cabinet based access points will be available from AFC's UMC-1000, Alcatel's Litespan, and Marconi's DISC*S platforms starting mid-year 2000

In developing the cost, three tiers of per-line estimates were used. These estimates are based on end to end network enablement and take into account the total mass deployment scenarios that will include integrating DSL solutions in lower density applications. For market clusters greater than 50,000 access lines, $615 was used as an average cost of hardware, plus 10% engineering and 12% installation and $20 per equipped line for network management.

- For market clusters greater than 25,000, but less 50,000 access lines, $800 was used as an average cost of hardware, plus 10% engineering and 12% installation and $20 per equipped line for network management.

- For market clusters less than 25,000 access lines, $950 was used as an average cost of hardware, plus 10% engineering and 12% installation and $20 per equipped line for network management.

These hardware estimates include:

- The cost of the DSLAM, integrated into existing network elements or adjunct DSL solutions.

- Allocated per line portion of the ATM switches that will be required to tie the various DSLAMs together and hand off to the service layer.

Network Planning is currently estimating that ILEC will need approximately 30 ATM switches in 2000 to perform aggregation and interconnection, four of which have been purchased in 1999. An exact plan detailing the location of each switch will be developed in conjunction with Region and Division engineers to maximize existing facilities such as transport and minimize ongoing operational support and maintenance cost.

Today, in order to ensure interoperability between the Central Office DSLAM being used in Gig Harbor and our subscribers, ILEC Network Planning recommends only modems that have the Alcatel chipset. One of the major reasons for this recommendation is that Alcatel has the largest list of alternate source compatible modems in the industry. ILEC will also be moving into a distributed filter deployment in CY 2000. This will lower operation cost by eliminating deploying a truck for residential installations and achieve customer turn-up faster. From a CPE perspective this means support of the G.Lite standard, ITU G.922.2, will also be important. If a CPE modem is not G.Lite compatible (G.922.2), there will have to be a micro-filter placed on every phone being used in the home, without exception. Modems that are G.Lite (G.922.2) compatible will allow the subscriber to possibly miss a filter install and still have a properly functioning DSL service, which from a customer service standpoint could be a huge advantage.

CY 2000 Rollout will consist of Lacrosse first, Lorain second and Kalispell third in the early part of the first quarter 2000.

SDSL Technology

LaCrosse, Onalaska, West Salem, Superior, North Prairie markets presently use SDSL technology. Current plans are to leave the SDSL technology in place in these markets in order avoid stranded investment of the SDSL capital in-place.

Key Issues

- First time-to-market of ADSL deployment to maximize market penetration, marketshare and positioning against CATV competitors.

- G.lite standards evolution. This standard will allow customer-installable modems and remove the requirement of sending a ILEC installer to the customer's home.

- CPE "cost of ownership," including the modem and the installation fees for the DSL/Internet end user will need to come down for either competitive reasons (if they begin to give the modem away) or for penetration and revenue goals (non-recurring charge too high and keeping customers away).

- The ability for Engineering to deploy DSL to 60,000 access lines per month

- The ability for Operations to handle and install 600 customers per month to meet the $1.9 million goal in 2000.