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# DSL Success Stories

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# DSL Success Stories

DSL success stories are not the rarities one might think they are (and understandably given the prevailing conventional wisdom). Without question, there have been many highly publicized and spectacular failures of DSL providers over the past few years. At the same time, a number of providers of all types and sizes has been deploying DSL, offering customers advanced and exciting services and—in contrast to a host of critics—making money at it!

This paper profiles a few of these providers—an international PTT, a mid-sized incumbent, a national DSL CLEC (Competitive Local Exchange Carrier), a smaller independent telco, and a DSL ISP (Internet Service Provider)—as well as two vendors and a content provider that supply them. In all cases, these companies have gained substantial market share in their segments, have grown their customer bases at rates equal to or above the rest of the market, and are either profitable now or well on the road to profitability. Additionally, each has caught our attention because of its innovative and market-leading products and services—each one does something "cool," and does it better than its competitors.

## What's Working?

The companies profiled in this paper vary significantly in size, target market, and even in the function they perform in the overall DSL "food chain." Despite these differences, there are several common characteristics—keys to success—that examination of these companies brings to the fore. Among these success factors are the following:

- **Value-Added Services.** Basic Internet access has been a commodity product with commodity levels of profit margins for several years now. Value-added services (for both residential and business customers) have two key effects in this area: they increase average revenue per customer, and they tend to increase customer "stickiness," reducing churn.

- **OSS and Provisioning Automation.** Operational expenses (for both initial service provisioning and for ongoing service maintenance) have been one of the prime factors in reducing DSL service profitability. The most successful service providers have deployed automated systems that greatly reduce these costs.

- **Customer Choice.** One size doesn't fit all—different customers have different needs. Successful service providers know their customer base and have developed service packages that fit the needs of all their key market segments.

- **Customer Service.** DSL is not a new technology, neither is it a long-established one. Customers *will* run into problems (both with the service and of their own making), and smart service providers will have a robust customer service system in place to take care of customers both before and after service activation.

- **Pricing.** DSL services need to be priced correctly. This does not mean they need to be priced at ROI-killing levels, but they must be priced competitively to legacy solutions. To displace a competing solution, DSL should offer the same capabilities for less money or additional capabilities for roughly the same amount. Base services should be inexpensive to attract customers, with a wide range of value-added service packages available to increase the overall revenue per customer.

- **Focus on Broadband Services.** The most successful DSL companies are those that focus on DSL throughout the organization. Companies that do not make broadband a strategic focus from CEO to customer service rep tend to not be successful. The winners in the DSL market have passed a strategic message to all levels of the company: "Broadband is our future, and we must commit to it to achieve our goals."

None of these success factors should be a big surprise; in fact, most would be true for any new telecom service's success. They are worth discussing, however, considering the failure of more than a few DSL providers to implement them. In light of the increasing competition DSL providers (particularly incumbent telcos) face from cable companies and other new competitors, learning from the success of others is becoming not just good business but imperative.

The following discussion examines these DSL success stories in more detail. In each case, we discuss the company's background and history, review what it is doing now and why it is interesting, and discuss the key success factors that have allowed it to get where it is today.

# Aliant

Aliant is the incumbent telephone company for much of the Canadian Atlantic region, formed from the merger of four smaller local incumbents in the 1990s. After completing a transition to an all-digital network in the early 1990s, Aliant began looking forward to the next "disruptive technology" and decided to pursue a broadband strategy. Initial plans for a 10Mbps symmetric network were unsuccessful, so Aliant refocused on an ADSL infrastructure. This DSL infrastructure currently reaches 65% of Aliant's customers with 1.5Mbps data services and 20% of customers with 6Mbps service capable of providing a bundle of video, telephony, high-speed Internet, and related IP services.

## Aliant's Triple-Threat Service Package

Using an Alcatel DSL infrastructure, an IP video headend from Harmonic and iMagicTV middleware, Aliant can deliver a bundled package (called Aliant One) of two simultaneous TV programs, POTS voice, and high-speed Internet, along with video, music, and portal services to the PC. Aliant has taken a very "appliance-agnostic" approach to its services and provides most of these services to both the TV and the PC, allowing customers to choose which appliance they wish to use.

For the PC, in addition to standard high-speed Internet access, Aliant has created a "Tuned for Broadband" portal service, which uses an Aliant-wide intranet to deliver content to the PC. Currently on offer is a PC video service that uses the Windows Media Player to deliver ten channels of local broadcast content, as well as on-demand news, sports, and entertainment video programming to Aliant customers. This content is delivered within a content-sensitive window on the PC so customers can follow web links related to the video programming they are watching. Additionally, Aliant is partnering with Intertainer with an additional video to the PC offer, taking advantage of Intertainer's extensive video library and relationships with entertainment content providers. A community portal page called "Atlantic Zone" is offered as well.

For the TV, Aliant uses Pace set top boxes and offers customers a package of up to 190 broadcast and cable-only networks—virtually every channel it is allowed to offer in Canada. Traditional and scheduled pay-per-view is on offer, with an interactive ordering process enabled by the set top box remote control. Music streaming services similar to those offered by digital cable providers are also provided, giving customers 30 channels of CD-quality digital audio.

Internet content can also be viewed on the TV, using XML style sheets to reformat the web pages for viewing on a television screen. Customers may optionally lease a wireless keyboard for the set top box and use this for both web browsing and TV-based email services.

Voice services are analog POTS-based services, and Aliant also offers customers cellular service. Aliant provides an online self-service center for voice services, allowing subscribers the ability to change voice service options dynamically and without a phone call. Customers subscribing to the bundle of data, video, and voice services are billed for all services with a single bill and receive preferential treatment for service installations and upgrades. Bundled services, which also include long distance packages, are offered at a significant discount compared to the same services in an a la carte package.

Many observers have suggested that single-bill, bundled services might prove to be unpopular with consumers due to the "sticker shock" factor—the fact that the single bill would be for an amount significantly higher than that paid for any individual service. Aliant has not found this to be the case and has found through focus groups with customers that the very concept of sticker shock is almost offensive to them (they feel it insults their intelligence).

## Why Aliant Is a Success Story

With the Aliant One service, Aliant does exactly what many pundits say that incumbent telcos cannot do: provide a complete bundle of voice, video, and data services that competes head-to-head with anything offered by cable or satellite companies. Aliant does exactly what other incumbent telcos *must do* to confront the threat nearly all face from aggressive MSO competitors—invest in new technologies, innovate with new services, and price these services competitively compared to the alternatives.

## Aliant's Keys to Success

Aliant has focused its initial market efforts for Aliant One on its "high-value" customers—a segmentation based not on income levels but rather on other factors such as propensity to take other value-added services—homes with children. In fact, Aliant has found that income, educational level, and other related factors are not significant factors in a customer's propensity to buy broadband-based services (though they are, of course, factors in customer's ability to afford such services). Among this "high-value" group, Aliant has had a 50% success rate in selling the Aliant One service.

Ongoing market research, both in focus groups and in "living lab" environments, has been a major priority for Aliant. One lesson Aliant has learned while designing the Aliant One offer is that simply offering a comparable product to match that of the incumbent cable providers is not an effective way to gain market share. Although focus groups reacted positively to the concept of television over broadband services, when it came to switching from an existing cable or satellite provider, customers wanted either a cost savings or (as Aliant has offered) additional services like interactivity for the same price as the traditional service.

In Aliant's opinion, the ability to reach customers is key to success, so the company has included a direct broadcast satellite offer (using Bell ExpressVu service) as part of the bundled offer. This allows Aliant to offer a voice, video, and high-speed Internet bundle to customers who are today out of reach for the 6Mbps DSL offer.

Broadband services in general have been quite successful for Aliant, and the company has over 60% broadband market share within its service areas, with over 10% of the customer base taking ADSL broadband services. The overall churn rate for broadband services is just 2% and, while it is too early in the service life to have firm figures for the Aliant One service, early customer satisfaction surveys have indicated this figure will be greatly reduced for bundled service customers.

Internet services, both dial and DSL, are EBITDA positive businesses for Aliant with overall service integration and mainstreaming of billing, call centers, and provisioning process all contributing to this financial success. The Aliant One video service is not yet margin positive, but the overall bundle is—with set top box pricing and operating costs being the key metrics that Aliant is taking steps to reduce to make the video service itself profitable.

Finances are also assisted by Aliant's approach to content provisioning. The concept of creating an intranet throughout the service area has helped greatly, allowing Aliant to both reduce content transit costs and increase control (and the ability to bill customers for) content by keeping it within Aliant's own network. The "appliance-agnostic" approach has also reduced content provisioning expenses, as Aliant has developed an XML-based system that allows it to create or aggregate content once and automatically display it in the correct format for the customer without having to customize for the display appliance.

Aliant's early start in IP services (it was the first to provide dial-up services in its region and one of the first to offer broadband services) has allowed it to work through any "bugs" in its systems early, before mass adoption. Aliant has aggressively marketed its services, beginning with an early focus on consumer education and progressing beyond to marketing focused on Aliant's value-added services.

## Aliant Moving Forward

As Aliant continues to expand its broadband service portfolio, Voice over IP technologies are a significant next step. Aliant has a three-phase strategy for its move towards VoIP, beginning with an offer of value-added services like instant messaging. VoIP services as a second-line service for teens, work-at-home, and other high-margin groups is Step Two, with the final phase being an eventual conversion to an all IP converged network.

The "self-serve" concept, which currently allows Aliant One customers to modify voice services online, is expanding throughout the service portfolio. Future iterations will allow customers to view the same directory assistance, billing, and provisioning information available to customer service reps using a customized and simplified GUI—a step that Aliant believes will both increase customer satisfaction and greatly reduce ongoing operational expenses.

Finally, Aliant believes its future is based on its ability to converge IP services. In this model, the TV and PC (and eventually other appliances) are equals on the network, and the customer will be the one to choose which it uses. Aliant's intranet, which allows content to be created once and displayed in multiple ways, is the key to its ability to provide revenue-generating to customers in an efficient and profitable manner.

# BroadJump

Two of the biggest focuses of broadband service providers today are reducing operational expenses and finding ways to facilitate new services over their existing infrastructure; in fact, in today's capital-starved telecom market, these are two of the few areas in which service providers are willing to invest significantly. Providing the software infrastructure to perform these two tasks is exactly BroadJump's business, which is why it has been one of the most successful DSL-related companies in the industry for several years.

## What Is BroadJump Doing?

BroadJump initially approached the market with a product line (Virtual Truck®) of PC client software that enables service providers to automate DSL or cable installations for their subscribers. This product has been a great success and has been adopted by major DSL and cable providers worldwide. To date, over 4 million provisioning transactions have been facilitated by Virtual Truck Installer.

BroadJump has expanded its product line and is focusing on three key areas for service providers:

1. Subscriber Activation

2. Subscriber Management

3. Marketing and Revenue Generation

At the core of BroadJump's solutions is BroadJump ControlWorks, a software infrastructure system designed to enable service providers and content providers the ability to create, promote, fulfill, and execute broadband applications and services, including basic high-speed access and revenue-generating, value-added services. The ultimate goals of service providers, ISPs, and content providers are to efficiently get services to subscribers with minimal incremental investment. BroadJump's ControlWorks provides the consistent service delivery infrastructure to accomplish these goals.

In the subscriber activation arena, with the latest generation of Virtual Truck Installer, BroadJump has fully deployed the product in three of the four largest DSL providers in North America (SBC, BellSouth, and Bell Canada) as well as major cable providers like Time Warner/AOL. The keys for any subscriber activation product is its ability to decrease customer provisioning times, increase the ability of customers to perform self installations, and to reduce expenses by decreasing customer support requirements. As will be discussed shortly, BroadJump has had success in documenting these improvements.

In the subscriber management arena, BroadJump has launched (in conjunction with SupportSoft) a product line known as the Broadband Resolution Suite. BroadJump's main component of this suite is a product called SmartConnect—a PC software client that monitors a variety of performance and connection metrics and enables customers to solve problems on their own or be better informed when they need to call tech support call centers. SBC and BellSouth, among others, have deployed this solution (launched in late 2001) and have experienced an order-of-magnitude difference in the number of support calls and duration since using the solution. BroadJump's newest solution, ChannelDirect, is a software capability designed to provide marketing and revenue-generation services for DSL service providers. Built into the ControlWorks system and exposed through Virtual Truck Installer to subscribers, ChannelDirect allows service providers to present content, application, and service offers to customers at various touch points in an automated fashion. BroadJump does not act as a content aggregator but instead partners with third-party content providers to develop pre-integrated offers that can be sold to consumers through service providers. ChannelDirect also allows service providers to use the same infrastructure to market their own first-party offers, using the product to upsell customers services such as call waiting, caller ID, and line insurance. The benefit ChannelDirect gives service providers is improved offer take rates and reduced cost of fulfillment.

One tricky aspect of integrating third-party service offerings into an overall broadband software solution has been coordinating payments between the various providers. The ChannelDirect approach to this issue is simple and designed to reduce the financial risk to the service provider. The service provider is not charged for the ChannelDirect service—revenues are shared between it and the content provider—and the content provider pays BroadJump a transaction fee for each fulfilled service.

Like Aliant's content model discussed earlier, ChannelDirect is designed to be a "build once, use many times" service. A service provider can develop a single offering for an application or service and use it multiple times at different touch points, without having to spend time and money customizing the offer. A rules-based system allows the service provider to automatically target offers at customers. For example, an offer for caller ID could be applied when customers install their DSL service—looking up the customer record, determining if they have the service already, and dynamically deciding whether or not to present the offer to the customer.

## Why Is BroadJump a Success Story?

BroadJump has focused on what telcos need today—lower provisioning and support costs—and has successfully marketed easy-to-use, consumer-friendly software products that consumers actually use. As we will discuss shortly, BroadJump has been able to document and "prove" these benefits in deployment after deployment. As a result, its solutions have been adopted by most of North America's (and increasingly, the world's) largest broadband players.

BroadJump has also developed products that leverage this ubiquity in the network (and on customer's desktops) to address the next big issue for DSL service providers—service offering and delivery.

## BroadJump's Keys to Success

Probably the biggest factor for BroadJump's success to date has been the fact that it offers products designed to reduce service provider's operational expenses with the Virtual Truck and SmartConnect product lines. DSL providers worldwide have been emphasizing self-installation, self-help, and automation to reduce the cost of installing and supporting broadband customers. Major providers renew and expand their implementations of these BroadJump products to increase these efficiencies.

BroadJump has documented all these benefits with its customers, including the following metrics:

- SBC has achieved a 90% self-install rate and has reduced the time for a customer to perform a self install down to 30 minutes (a 50% reduction).

- BellSouth has also increased its self-install rate to above 90% and has documented reduced support calls not only for installations but also throughout the life of the customer.

The marketing and revenue-generation services enabled by ChannelDirect are currently in full-market trials, with an even mix of third-party services and service provider internal offers. The initial application offerings from BroadJump include McAfee virus protection, SkyDesk online backup, and online gaming services from NCsoft (examined in further detail in this paper).

BroadJump has performed extensive research on the services that broadband customers are likely to adopt, and it recently conducted a survey with market research firm Mindwave Research. The survey concluded that many broadband users would be interested in additional services like long distance and enhanced telephony applications from their DSL provider but simply have not been offered them. Over one-third of the respondents had made more than 11 online purchases in the previous year, and over half had spent more than $500 online.

The survey also found that many third-party applications that can be bundled with broadband services (like firewall services, gaming, virus protection software, online digital imaging, and backup services) are already used by a large percentage of broadband users. While the survey did not identify a single "Killer App" for broadband (there likely isn't one yet), it instead identified a number of broadband-enabled applications, each of which would attract significant market interest and help to drive broadband adoption.

## BroadJump's Next Steps

As it moves forward, BroadJump will continue to provide and expand its suite of service activation and management software solutions and further integrate the ChannelDirect product suite into the lineup. The ChannelDirect lineup will be expanded with additional applications like digital photography, online gaming, and parental controls. BroadJump is also pursuing applications with larger content providers, seeking out applications with even broader appeal than the ones mentioned previously and providing these content providers with a value proposition of building a service offer once and then utilizing it in multiple ways, across multiple providers.

As mentioned earlier, BroadJump works with both DSL and cable providers and all the successes discussed for DSL have held true for the company's cable partners. In fact, BroadJump has found that cable companies, because of their long-standing relationships with content providers and their core competency of providing entertainment content, have been more willing than DSL providers to focus their broadband strategy on content and not just on access. BroadJump's goal is to facilitate the shift to content for those DSL providers who have not yet made the leap and to offer a means for DSL providers to easily build mutually beneficial relationships with content providers to deliver consumers the content they want.

### NCsoft

*Subscription-based online PC gaming was launched in 1997 with the debut of Ultima Online, an online role-playing "virtual world." The first game to make money from a subscription-based service, Ultima Online was soon followed by a host of other game companies, including Korean company NCsoft. NCsoft's second game, Lineage, was launched in 1998 and grew into a national youth pastime with over 28,000 Internet game rooms (similar to cyber cafes) popping up around the country.*

*Lineage has become the world's most popular online game, with approximately 4 million subscribers and as many as 330,000 concurrent users—twice as many concurrent users as its competitors combined. Unlike most its competitors, Lineage is designed specifically for broadband users, and NCsoft has adopted a different business model than traditional online game companies. Most US online gaming companies sell the software as a retail boxed product and then charge a small monthly fee for usage; NCsoft gives away the game client and charges a higher monthly fee for service. Because Lineage is designed for broadband users, the client software is often updated for users to download, where traditional gaming clients are designed for a longer shelf life and are typically updated much less frequently.*

**NCsoft's Success Story**

*As mentioned previously, Lineage is the most widely played online game in the world and enjoys a 47% market share in Korea, a 90% market share in Taiwan, and is the second most popular online game in the Japanese market. Thus, NCsoft has had the most success in markets with high-broadband penetration. In the Korean market, which began mainly with players using game rooms, a full 30% of Lineage users now have home accounts, paying $21/month for their Lineage subscription (a higher amount than many pay for their ADSL service).*

*NCsoft has adopted a variety of payment methods for the service. For example, in Korea the Lineage subscription can be incorporated into the customer's DSL bill from KT or other providers—an extremely popular option there. Customers can also purchase the equivalent of prepaid calling cards for their subscriptions, and in Taiwan they can even pay for their gaming with their mobile phones.*

**NCsoft's Expansion Plans**

*In the US market, NCsoft has partnered with BroadJump and is trialing bundled gaming services with major broadband providers. The BroadJump partnership handles billing issues, and NCSoft provides and maintains the gaming servers, so the impact on the service provider is minimal.*

*Because the US market is currently oriented around retail game software and dialup-enabled gaming, NCsoft will enter the market with a lower price ($15/month) and will provide periodic CD mailings for game client updates. In the long run, NCsoft believes a revenue-sharing model, like the one found in the Korean gaming market, will prevail in the US, and that the superior gaming experience provided by broadband will be a driver of broadband services in the market.*

# Covad Communications

Covad Communications is a facilities-based DSL CLEC. With a nationwide network currently reaching over 40% of all US homes and 45% of all US businesses, Covad offers a broad mix of DSL-based data services ranging from consumer-grade ADSL to business-class SDSL and IDSL, through a mix of direct and wholesale channels. The last of the large independent DSL CLECs, Covad has recently expanded its offerings to include T1 services and has been augmenting its access solutions with a range of value-added ISP services such as VPN, managed security services, and web hosting.

## How It Got Here

Covad was founded in 1996 by several Intel alumni, following the passage of the Telecommunications Act. They believed the Act provided an opportunity in which a communications company focused on broadband and developed with the fast-moving flexibility that helped Intel succeed could be a leader in this new marketplace. One of the first movers in the DSL market, Covad launched services in late 1997 and began to develop a nationwide network. The early focus was on business customers, and Covad differentiated itself from its incumbent telco competitors by pursuing deployments of SDSL-based services providing symmetrical, "business-class" services.

Covad offers a variety of service levels ranging from 128Kbps IDSL up to 1.5Mbps SDSL and has recently begun utilizing its DSLAM infrastructure to offer T1 services to customers out of range for DSL solutions. Covad's direct channel customers are offered a range of value-added services like web hosting, and the company recently launched a firewall and VPN service. This service package, called TeleDefend, uses a NetScreen CPE device rather than a network-based or integrated CPE solution for its ability to support key performance benefits (and maintain Covad's latency SLAs). The service is fully managed and offered to the customer on a monthly fee basis (ranging from $150 for firewall only to $175 for a firewall/VPN combination service).

## How Has Covad Succeeded?

This path has not been easy for Covad, and the company, like just about all other CLECs, has faced financial difficulties due to the high capital costs of building out a nationwide DSL network and payment defaults of failed ISP partners. Unlike its competition though, Covad grew its customer base and revenues quickly enough and combined with greatly reduced operational costs. The company achieved what it calls "escape velocity"—a combination of substantial customer base and market share, solid ISP partnerships, and positive cash flow to enable Covad to restructure its debt and remain a financially viable company.

Today, Covad is the only nationwide independent provider of business-class DSL services and one of the few providers in any region with a full range of broadband services from 128Kbps IDSL up to 1.5Mbps SDSL or T1. While remaining price-competitive with its competitors, Covad has established a reputation for being the high-quality DSL provider, with exceptional reliability and performance at all price-levels guaranteed by industry-leading SLAs.

## Keys to Success

Not all DSL CLECs have survived the economic downturn and telecommunications industry consolidation of the past few years. In fact, all but a few have been sold off or shut down outright, but Covad has bucked these trends and remains in business as a viable alternative provider of DSL and other data services to businesses and consumers nationwide. How did Covad stay the course and succeed where others have failed? The primary reason is Covad's long-standing focus on being the high-quality provider of DSL services nationwide, building a substantial customer base on top of a highly automated, scalable network.

Covad is the largest competitive provider of DSL services in the US and, with nearly 360,000 subscribers, has more customers online than all its DSL CLEC competitors combined. Despite common misconceptions that competitive DSL providers cannot make money, Covad is on track to become cash flow positive by the second half of 2003 and is currently cash flow positive in 80% of its service locations (not counting corporate overhead).

Covad has achieved this level of financial success because of a substantial, continuing investment in an automated OSS and provisioning process. Over half of all line orders are completely "touchless"—a process that goes all the way from web-based ordering to the shipment of a self-install kit or scheduling of an install team for SDSL orders with no human intervention. This high level of automation has greatly reduced operational costs and also increased customer satisfaction by allowing ADSL orders to be fulfilled in just ten days. Further time and cost reductions have been realized from a move to 100% line sharing for ADSL circuits and a self-installation rate for these lines of over 90%.

Covad's customer base is split evenly between residential (mainly ADSL) and business (mainly SDSL and IDSL) customers, with residential customers being offered service through a number of consumer-oriented ISPs like EarthLink and Speakeasy.net. Covad's business customers are offered service through both wholesale channels (through a number of business-oriented ISP partnerships) and directly from Covad. The wholesale model, with the ISP (not the CLEC) maintaining the primary relationship with the customer, has been a source of some difficulty for DSL CLECs, mainly due to consolidation within the ISP industry and related payment disputes between ISPs and CLECs. Covad has, however, found success with its mixed direct/wholesale model by limiting its wholesale relationships to a relatively small number of innovative and financially stable ISPs and by moving customers served by troubled ISPs onto these "premium" partners or onto Covad's own direct ISP service.

While less important today due to greater general awareness of broadband services, customer education was an important component of Covad's early marketing efforts. Many of Covad's key points of differentiation are based on technical advantages not easily understood by end users comparing the service with consumer-grade ADSL alternatives.

Because of this, Covad has made a considerable effort to educate its potential users, particularly small businesses, on the business benefits of issues such as:

- Symmetric DSL vs. ADSL
- Bridged vs. Routed Connections
- Dynamic vs. Static IP Addressing
- Service Level Agreements (SLAs)

## Future Directions

As Covad moves forward, it intends to continue pursuing both residential and business markets. In the business sector, a mix of the wholesale ISP channel and the direct Covad.Net channel will continue, enabling potential customers to choose which service offer best fits their needs. Value-added services, such as extensions to the existing firewall and VPN services, will continue to be offered, and industry-leading SLAs have recently been launched. For the consumer market, Covad intends to remain wedded to the wholesale approach and will continue to partner with innovative consumer-oriented ISPs.

Covad is also in the process of offering its value-added services as a prepackaged service for wholesale ISPs to offer to their customers. The SLA services, for example, are available for pass through to wholesale end users, and the TeleDefend VPN product will also be packaged for wholesalers.

In the US today, only about 10% of the market takes advantage of a broadband service, and Covad believes this will eventually approach 100%. Covad's strategy is to continue to lead the way in value-added services, network quality, and customer satisfaction to be the leading competitive provider of services to small and medium businesses and to leverage these same qualities to be the infrastructure provider of choice for consumer-oriented DSL ISPs.

# Korea Telecom

As the incumbent PTT for the Republic of Korea, KT has long been the leading provider of telecommunications services. At the dawn of the Internet Era, in the late 1990s however, KT found itself still paying for a not-yet-profitable ISDN infrastructure buildout that was never going to provide the broadband speeds and services customers were beginning to demand. Deregulation had also been introduced into the Korean market, and new entrants to the market like Hanaro were beginning to roll out DSL services, and cable providers were beginning to offer cable modem services.

KT's answer to these threats was to aggressively launch and build out a nationwide network combining its fiber backbone with DSL access. This effort by any measure was a success and, although KT was neither the first telco to offer DSL nor the largest, it is now the largest provider of DSL services in the world with over 4 million customers online. This successful market penetration has been combined with some measure of financial success, and despite service prices typically around half those in the US, KT expects to be profitable with its DSL services portfolio by 2003.

## What KT Is Doing Today

With a DSL customer base comprised of nearly 98% residential customers, KT has not yet begun to offer business DSL services in earnest, but the portfolio of consumer services is actually quite broad. All services are branded under a single "umbrella" brand, Megapass, and DSL is complemented within this brand by Broadband Wireless Local Loop products, Ethernet-based products, and others. Due to the demographics of the Korean market, a significant share (14%) of DSL customers are served by "basement DSLAM" applications while the remainder are served by traditional Central Office DSLAM architectures.

Both services (in-building and CO) are packaged to appeal to a variety of customers with premium and lite-speed variations as well as support for home networks.

## Why Korea (and KT) Leads the World in Broadband

Korea enjoys the highest market penetration of broadband in the world, with over 50% of households using some broadband (compared to about 10% in the US). In this "big pond," KT has gone from a late entrant to the "big fish" with approximately 75% market share in the Korean DSL market. KT has also, as mentioned earlier, closed in on profitability with a portfolio based almost entirely on residential subscribers; in fact, business customers (with their higher ARPUs) make up about ten times less (in terms of overall percentage) of the customer base than they do for US incumbents.

Price is one major factor, with entry-level broadband service pricing beginning at around $19/month. But other factors are at play within the market that have made it particularly conducive to broadband adoption:

- **Strong Adoption of Online Services.** Online gaming (as discussed elsewhere in the paper), online content services (such as music downloads and streaming video), and ecommerce have all been widely adopted in Korea. Online stock trading, for example, accounts for two thirds of all stock trading in the country.

- **Focus on Education.** Korean parents are active participants in their children's educations and are willing to pay for broadband services as an investment in this education. A government program that has put broadband in virtually all the nation's schools has helped create familiarity and awareness of broadband.

- **Influence of Youth Culture.** Online gaming, chat rooms, and instant messaging have all become extremely popular among Korea's youth. Broadband has reached near fad proportions in this segment of the population and has greatly increased the demand for services across the culture.

## Why Has KT Succeeded?

In its own words, "courage" has been a key factor in KT's successful deployment of DSL. Faced with an expensive, unpaid-for ISDN infrastructure and competitors with substantial broadband market share advantages, KT completely shifted its focus towards DSL and broadband. KT's strategy, in contrast to the measured deployment strategies of many incumbents elsewhere, was to invest heavily in a nationwide network and in doing so to benefit from economies of scale (including equipment vendor discounts based on large volume commitments). These infrastructure economies have in turn allowed KT to provide service at an affordable price point.

Government policy has benefited KT as well, with the Korea Information Infrastructure (KII) Project. This initiative provided a series of government subsidies to support the buildout of a national fiber backbone, as well as a series of subsidies to support facilities-based provider's last-mile deployments in rural areas and small villages.

As discussed earlier, demand for broadband services has been a major driver as well, with DSL becoming a "must-have" trend throughout the nation. KT has augmented this "demand side" of the equation with customer education initiatives. Groups of key consumers (e.g., students and mothers) have been the subject of marketing efforts and focus groups, and a nationwide TV and print advertising campaign has helped bring brand awareness to Megapass. KT's massive infrastructure deployment, along with efficiencies in provisioning, has enabled it to meet this demand, with quarterly line additions peaking at over 650,000 during 2001. In fact, KT installed more lines in 2001 alone (over 2 million) than any US ILEC has installed cumulatively since 1998.

KT was able to capitalize on this demand due to a corporate-wide focus on broadband and an employee commitment to be "number one." Like every other DSL provider in the world, KT experienced some initial shortcomings (e.g., lack of internal data expertise and provisioning difficulties), but it was quickly able to mainstream DSL throughout its organization, resulting in a ten-fold increase in provisioning productivity. Automation and prequalification systems have been widely deployed, and KT can now tell before it places an order, not only whether or not it can receive a service but also what levels of service and speeds it can expect to achieve.

## KT's Broadband Future

With over 50% of the nation "wired" for broadband today and with a 75% DSL market share, KT justifiably feels that its DSL infrastructure is mature. KT has aggressively been adding services like online gaming to its portfolio and is now exploring new forms of value-adds. Home networking, not just connecting multiple PCs but using residential gateways to control all sorts of home systems like security and HVAC, is the next big DSL-related initiative. VDSL services are being explored to add video on demand and HDTV services to this intelligent gateway.

Expanding the broadband infrastructure to places where mobile use is likely (e.g., airports, cafes, university campuses) is another major initiative, as KT uses DSL and other broadband technologies to deploy wireless LAN hotspots throughout the country.

Finally, KT is aggressively moving into business DSL services. A number of business-oriented ADSL services are already being offered, with the expected fixed IP addresses, higher speeds, and multiple email addresses of a business-class DSL offer. An ecommerce service called "Bizmeka" is next in line, which is designed to offer ecommerce storefronts to DSL customers. G.shdsl services will be added to the business portfolio during 2002 as well to provide symmetric bandwidth services for business customers who need them.

# Speakeasy.Net

Speakeasy is a broadband ISP based in Seattle. Initially focused on "high-end" residential customers, Speakeasy has broadened its service offerings to include both businesses and a broader consumer base while simultaneously growing at a rate significantly ahead of the rest of the industry. In 2001, while dozens of broadband ISPs went bankrupt and shut down, Speakeasy grew its overall customer base by 350% and its business customer base by 450%. The current customer base is mostly residential, at approximately 80%, and the mix between ADSL and SDSL is 60/40.

## Bundles for Everyone

In the residential market, Speakeasy has developed a series of packages developed to meet the needs of customer segments with high broadband usage. This includes initial offerings for online gamers, the teleworker/SOHO market, and tech industry workers, along with a basic package for customers who want a broadband service but do not need one of the niche-focused packages.

- **Online Gamer.** Offered in ADSL, SDSL, and IDSL version, this package provides customers with static IP addresses and access to a private gaming server for low-latency, on-net performance.

- **Sysadmin.** Designed for IT professionals, the Sysadmin package provides fixed IP addresses, full protocol support (no ports blocked), support for servers, up to 400 MB of web storage space, and preferred access to RPMFind for maintaining software packages.

- **Home Office.** These packages offer firewall service, additional fixed IP addresses, and email addresses and, when used with IDSL and SDSL connections, provide both routed connectivity and SLAs.

In addition to the bundled packages, Speakeasy offers customers a variety of a la carte options including a wide range of speeds, fixed IP addresses, additional email addresses, shell accounts, and dial access for roaming. Two recently announced "add-on" packages are of particular interest to many more "mainstream" customers: Emusic.com and MyFirewall. For $10/month, Emusic provides customers with unlimited access to a collection of over 200,000 downloadable MP3 music files, which customers can download to their PCs, use in portable MP3 players, or burn to CDs.

The $4.95/month MyFirewall service utilizes Internet Security System's BlackICE technology. It differs from the simple client software firewalls offered by competing DSL providers because of its central management. Speakeasy has customized the BlackICE system to allow remote monitoring and management of the firewall service, which enables automatic software updates. This remote monitoring capability also makes it possible for Speakeasy to identify Internet threats across its entire network and to take proactive steps to isolate these attacks.

On the business side, Speakeasy offers a similar range of speed, IP address, email address, and related options, along with a number of web hosting packages. T1 services have been added to the portfolio to provide service to customers with locations out of reach of DSL.

## How Has Speakeasy Succeeded?

First and foremost for Speakeasy has been its innovative (and industry-leading) packaging of value-added services and bundles. Being smaller than some of its competitors has been an advantage. Speakeasy has been able to build its business on targeting high-value niche markets where savvy customers are willing to pay a bit more than commodity prices to receive the services they want and the customer support to back them up. As Speakeasy grows, however, it is finding there are plenty of services, like MyFirewall, which can appeal to a larger, less technical audience.

## Keys to Success

Speakeasy's service packages, and the segmented marketing efforts behind them, have been the biggest factor in the company's success to date. Much has been made (throughout the broadband industry) of the need for service providers to offer value-added services, both as a means to drive broadband acceptance and as a means to make broadband more profitable. Few companies have actually launched these services, but Speakeasy has been among the more innovative, if not the most innovative, ISPs in developing segment-oriented service packages and successfully selling them into its customer base.

Realizing that many small and medium businesses, not to mention home users, do not have a dedicated IT staff, customer service has been both a focus and a key differentiator for Speakeasy. Business customers, for example, receive dedicated account management services so they will have a single point of contact for both technical and business needs, including after-hours contacts and escalation of technical issues when needed.

The company has also taken a fiscally conservative approach to its growth, financing its first five years of growth internally, based on revenue rather than incurring debts or losing control of the company due to irrational economic growth. This has enabled Speakeasy to maintain a corporate culture exclusively focused on serving broadband customers who want something more than commodity, best-efforts service.

Speakeasy has also been focused on building out a robust network infrastructure with backbone connectivity through Internap, significant OSS, and provisioning automation. This automation provides benefits for both customers (who can, for example, closely track their DSL order and provisioning process) and for Speakeasy (in terms of both cost efficiencies and maintaining its corporate culture as the company's footprint grows).

## Speakeasy Moving Forward

Speakeasy is already well established among certain segments of the market, particularly in the gaming market, where it is the preferred ISP for many large online gaming communities. Moving forward, Speakeasy's efforts in the consumer segment will probably focus on services that appeal to a wider array of customers. The music and especially the MyFirewall services being offered today point the way, and Speakeasy plans to expand the "Neighborhood Watch" portfolio that encompasses MyFirewall with anti-virus, SPAM-filtering and content-filtering services in the near future.

Business services will expand as well, with VPN services being developed to complement the range of ADSL, SDSL, and T1 services being offered today.

# VideoTele.com

A spinoff of Tektronix, VideoTele.com began in the video business during the 1980 Winter Olympics, partnering with NYNEX to provide video feeds of the alpine skiing events. After this start, VideoTele.com began selling video transport services to telephone companies—mainly enabling live video feeds from sporting events—and also entered the distance-learning feed. (VideoTele.com equipment ties together over 3,000 schools with two-way video feeds.) Most recently, the company has begun supplying video headend equipment to telephone companies so it can use its broadband infrastructure to provide the "triple play" of voice, video, and data.

## What VideoTele.com Provides

VideoTele.com's solution is designed to handle the entire video equation "from dish to optics." This encompasses a turnkey video infrastructure including antenna farms, satellite receivers, and the IP video server, which interfaces into the telco's broadband backbone. VideoTele.com partners with Next Level Communications for complete VDSL infrastructure, and for ADSL installations, with Myrio for middleware and Fujitsu Siemens for set top boxes. The solution is also compatible with other broadband services (e.g., VideoTele.com has been deployed in a Fiber-to-the-Home network and supports DVB-ASI output for cable and hybrid systems as well) and is protocol neutral, supporting ATM, IP over ATM, IP over Ethernet, and pure IP in Gigabit Ethernet solutions.

A typical customer (one customer, CC Communications, is profiled elsewhere in this paper) is provided with over 100 channels of broadcast TV (the number depends on the set top box capacities). It is also provided with local video content (e.g., school and local government channels), plus traditional DSL high-speed Internet services and POTS voice service. In ADSL installations, the system can provide end users with two simultaneous channels of video programming and three in VDSL systems. To date, VideoTele.com has over 35 telephone companies worldwide with live commercial rollouts of video over DSL and continues to announce new deals, including a recent announcement with a major European PTT.

### CC Communications

*CC Communications, an independent telecommunications company serving Churchill County, Nevada, is an excellent example of the smaller incumbent telcos throughout the US moving aggressively to become providers of the "triple-play" combination of voice, video, and data that has made cable MSOs such a formidable competitor to telcos. Like many of these independents, CC Communications has deep roots in its community (over 100 years since incorporation) and because of this enjoys a familiarity and high level of intimacy with its customers—important factors when deploying entirely new types of service like video over broadband.*

**On Now**

*In February 2002, CC launched its "triple-play" service, On Now. Using an ADSL infrastructure, CC offers a commercial service with broadband Internet, analog POTS telephony, and a 40+ channel television lineup. The video system, which uses a VideoTele.com headend and middleware provided by Myrio, is designed to allow viewing of two separate simultaneous programs within a household. The initial channel lineup consists of broadcast and the most popular cable networks and is rapidly expanding (with a total of 75 channels expected by mid-2003).*

*Video on demand is available in two formats: traditional pay-per-view streamed at scheduled start times and on-demand downloaded video. The downloaded video is stored within the DSL set top box (CC uses a Fujitsu Siemens set) and can be played back, paused, rewound, and fast-forwarded like a VCR or PVR. Currently, two major studios have signed agreements to allow their content to be shown in this fashion, and CC expects the remaining major studios to follow suit before the end of 2002.*

*Within the $65 to $89 bundle (the price varies according to the number of premium TV channels to which the customer subscribes), CC includes a typical ADSL high-speed Internet offering. Long distance and cellular voice are available in addition to standard local POTS service, and CC provides a bundling discount for these customers.*

**CC Communications Success Story**

*In a small market (14,000 households), CC has achieved an excellent broadband penetration rate—out of 4,000 households using CC's Internet access services, 900 are DSL customers. Overall penetration of the On Now bundled service is still low (a few months after launch), but CC has converted virtually all its trial customers to paying customers. Taking a "slow-growth" approach to video services, the company is careful not to outstrip its ability to efficiently and reliably provision the service.*

## Why VideoTele.com Is Succeeding

Many telcos face increasing pressure from cable MSOs expanding their video offerings and leading the telcos in high-speed Internet access deployment. Cable telephony offers greatly increase this threat and are actively pursued by a number of cable MSOs (cable companies have signed up well more than a million voice customers in the US to date). This combination of services provides cable companies a bundle that most telcos simply cannot match, and the success in voice services comes at the expense of telco core voice customers—eating away at a vital and predictable telco revenue stream. Direct broadcast satellite providers also begin to compete directly with the telcos, offering video and their own DSL services, as well as exploring VoIP services to create their own complete bundle.

For these telcos, the "triple play" is the best way to leverage their existing infrastructure and meet these threats head-on. Smaller incumbent providers are probably the most threatened by these cable competitors because they do not have the financial resources and breadth of services to withstand the efforts of national MSOs. Not surprisingly, these smaller telcos have been the most enthusiastic adopters of VideoTele.com's solution, and their smaller size enables them to adopt to new technologies more quickly than their RBOC counterparts.

VideoTele.com has demonstrated its solution does not require millions of customers to become profitable; it has done ROI modeling with actual customer data that shows as few as 1,000 video customers would be enough to break even. For even smaller customers, the solution can be used in a regional deployment (e.g., VideoTele.com's first customer, Hutchinson Telephone, which formed a consortium of 15 small local telcos). These companies built a fiber ring connecting their networks and for the past several years have shared a single head-end complex to provide video services to all their customers.

Larger US providers have not yet deployed video services, as many are waiting for a standards-based solution. VideoTele.com is an active participant, along with three of the US's four major incumbent telcos and many major international PTTs, in the FS-VDSL subgroup of the FSAN (Full Service Access Network) Coalition. The group expects to complete the standard by the end of 2002, and deployments based on this standard are expected to begin in earnest in 2003.

**CC Communications Success Story (continued)**

*CC believes competitive pricing is a key to broadband adoption and has priced its basic DSL service lower than the national average at $39/month. Despite its obvious advantages, DSL must compete with dial-up services, and prevailing pricing (more than twice the cost of a typical dial-up connection) is a hard sell for many customers. Pricing for the On Now bundled service is even more aggressive; CC's goal for the price is to provide television and high-speed Internet for roughly the same price customers pay for a cable television and dial-up Internet alternative.*

*Despite this relatively low pricing structure, CC's Internet division is the company's 2nd most profitable. In fact, the Internet division trails only a cellular division, which is unusually profitable due to a large number of incoming cellular roaming fees. The On Now service is projected to become profitable in three years, given the slow rollout plans, and needs only 1,500 customers to reach profitability.*

*CC has taken several steps to ensure this profitability projection is met. First, it has joined the National Cable Television Cooperative, a consortium of smaller cable providers who pool together for group buys to reduce programming costs. This has enabled CC to obtain programming fees within a few cents per month of its cable competitor (a national MSO with programming fees based on millions of customer-scale purchases). Secondly, CC has begun to mainstream its DSL service within its call centers and provisioning organizations to reduce operational costs and make the provisioning process more efficient.*

*Finally, CC has found its video capital costs are not significantly higher than those of a cable competitor upgrading its network for two-way capacities. The head-end expenses are roughly equivalent to those of cable providers, and in rural markets like CC's, the outside plant infrastructure is often already in place for the telephone company but must be newly installed for cable companies. Provisioning and ongoing operational costs are still higher for the On Now service, and CC is aggressively pursuing automation and other enhancements to reduce these expenses. Provisioning and ongoing operational costs are still higher for the On Now service, and CC is aggressively pursuing automation and other enhancements to reduce these expenses.*

**Future Plans**

*CC plans to aggressively expand the On Now offering over the next year to year-and-a-half. As mentioned earlier, the channel lineup will be expanded to become more competitive with digital cable and direct broadcast satellite services, with a larger number of both basic and premium channels to be offered. PVR functionality is being added to the set top box with a forthcoming software upgrade (the hardware functionality already exists for the on-demand video service). Digital music will soon be added to the service as well. CC's high-speed Internet service is also being enhanced, with higher bandwidth options scheduled to launch during 2002.*

# What Do These Success Stories Mean to the Industry?

The foremost lesson provided by these companies is that DSL can be the basis of successful residential and consumer services. Contrary to much of the conventional wisdom, money can be made in the broadband services industry—even in the consumer segment. Automation and smart network design can keep provisioning and recurring expenses down and greatly reduce the amount of time required to reach profitability.

Smartly designed and marketed packages of value-added services is another key. Many providers are waiting for the "killer app" that will have customers knocking down their doors looking for broadband. However, there may never be a single application with broad enough appeal to move DSL fully into the mass market (like the World Wide Web moved dial-up Internet access from a techie's tool to a must-have consumer service). Instead we may see a series of less broadly-focused applications like Covad's managed VPN services for businesses, Speakeasy's Sysadmin package for network admins, or BroadJump and NCsoft's Lineage gaming offer. Each of these can appeal to smaller but still significant segments of the population and give them the reason to move to broadband. Studies have shown that most dial-up users are satisfied with their service, and they may continue to be satisfied if all they are offered is basic web surfing and email. Content and applications can move these Internet users into broadband if the packages are compelling and if they provide something that users cannot get with dialup.

Finally, we have shown that the full-service package—voice, video, and data—is a reality for DSL providers today. Cable MSOs are quite aggressive with their rollouts of voice services and pose an exceptional threat to not just the DSL business but the entire core customer base of many telcos. Service providers with a company-wide strategic focus on broadband can learn this lesson and leverage DSL as a tool to meet that threat, or they can continue to relegate DSL to the sidelines and face this strategic threat unarmed.

Most important are the profitability stories discussed in this paper. As many providers struggle to cover the costs of offering DSL services, we have shown it is possible to offer profitable DSL services. Most of the service providers discussed in this paper are at or very close to profitability. This is an important message to those still questioning the value of offering DSL services as a part of their portfolio.