INTERNET ACCESS PROVIDER CABLE TELEVISION'S BUSINESS PLAN

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ABSTRACT

The cable television industry has a history of conceptualizing, creating and offering innovative programming to entertain and inform its subscribers. From it's earliest days as a reception medium through satellite delivered programming, pay-per-view and interactive gaming, the industry has developed new technologies and risked significant capital. The latest and most innovative form of "programming" is available on the Internet. Cable television's challenge is to deliver this new "programming" through a competitively priced, superior Internet access product by leveraging off it's superior bandwidth.

The deployment of Internet access over cable television systems represents a substantial opportunity for creating a new revenue stream using existing infrastructure. This will also create a strategic advantage for cable companies as they are threatened by new competitors for the basic video product.

The Internet represents access to the largest library of information in existence. The merging of the cable television industry and the Internet (which heretofore had been associated with the computer industry), is based on the premise that the Internet is rapidly becoming a multimedia environment. Historically, information on the Internet consisted primarily of simple text. Today, the Internet is shifting to an increased dependence on very graphically rich content which takes an interminable amount of time to download using standard telephone dial-up modems. Internet users are demanding higher access speeds to reduce the amount of time that is consumed simply waiting for information. This shift in the composition of Internet related content has created an opportunity for broadband providers (cable) with superior speed over narrowband (dial-up) providers.

This paper offers a layman's introduction to the Internet, defines the business opportunity available to an Internet Service Provider ("ISP") and constructs a basic business plan for a cable television company in the Internet access business.

INTERNET SERVICE PROVIDERS

To those who are unfamiliar, the Internet is a connected set of computer networks running a standard protocol with a globally administered address space. Simply put, the computer networks can all talk to each other and information can be directed from one computer to another by defining its location using commonly accepted directions. The Internet has no beginning or end and as networks are added or deleted or if a failure occurs in a network it has no effect on the rest of the Internet. Most importantly, no one owns the Internet, it is a shared resource.

An Internet Service Provider ("ISP") provides residential and/or business access to the Internet through a transmission system. An ISP connects a computer through telephone or other data transmission lines (i.e., coaxial cable) to a central facility which then routes the connection to an Internet gateway. There are several well known, publicly traded ISPs including American On-Line ("AOL"), CompuServe and NetCom. These companies provide the same product; however, they seek differentiation through subscriber access availability, technical support and proprietary content that is not generally available on the Internet.

There are currently over 70 million personal computers ("PCs") and home PC penetration is estimated at 60% of households by the year 2000. With a computer plus peripherals costing more than $2,500, it is expected that on-line subscriptions (i.e., internet access) at a relatively cheap $20-$30 per month will reach 100% of PC equipped homes. In addition, the roll-out of cheap Internet "appliances" (Internet access only computers) under development by Oracle Corp. and Sun Microsystems, Inc. and Sony's WebTV will increase the demand for Internet access.

A cable television company in the internet service business has three distinct advantages:

- The company has a relationship with its subscriber base
- The company has an in-place infrastructure (offices, back-office staff, technical and marketing expertise)
- The cable operator can offer multiple Internet access options not available to non-wired competitors by using cable plant for either one-way or two-way transmission.

Access Options

An ISP provides a subscriber with access to the Internet through three primary methods; telephone dial-up modems ("Dial-up"), hybrid cable modems ("Hybrid") or high speed cable modems ("HSCM").

Telephone: Dial-up

The vast majority of ISPs are limited to using the local exchange carrier's ("LEC") network to offer access to the Internet. The transmission lines are either wholly-owned (as in the case of an ISP operated by a LEC) or lines (numbers) are leased by the independent ISP. Current transmission speeds are between 28.8kbps and 56.6kbps. LECs also offer ISDN lines which operate at up to 128kbps but at a significantly greater lease line expense. This expense will decrease over time as LECs upgrade their systems. LECs have also made significant progress on asymmetrical digital subscriber line ("ADSL") technology which promises even higher speeds. However, ADSL modems are still being field tested and require significant improvement in transmission facilities and expensive specialized modems.

Cable: Hybrid and High Speed Modems

As noted, in terms of access options, a cable television operator has a distinct advantage over Dial-up ISPs. The cable operator can offer multiple services by using the LECs lines for Dial-up service and cable plant for either one-way or two-way transmission.

Hybrid/Asymmetrical

In a Hybrid environment a modem is connected to both the cable television system and the telephone system. The cable television system provides the downlink path from the Internet and the telephone system connects the PC back to the Internet. This method is fairly efficient, resulting in a significant increase in access speed because most Internet surfers are downloading graphically rich content comprised of a tremendous amount of data while only returning relatively small amounts of information. This does, however, require a hybrid modem (which is not a retail product and is currently only available from a cable television company) and either a shared or second telephone line which increases the customer's access expense.

High Speed Cable

High speed cable access to the Internet requires HSCMs, cable television plant with a clear return channel and sufficient bandwidth. This offers the maximum speed to and from the Internet. Exact comparisons of speed are

difficult because access to the bandwidth available for the Internet over cable is dynamically allocated based on available unused capacity. Therefore, system design and demand will determine access speed. The speed differential over Dial-up access is so great, however, that full cable connectivity could take up to 60% of the on-line market share.

Other: MMDS and Satellite

There are other technologies available that are struggling to create access to the Internet via satellite and MMDS delivered downlinks connected to telephone return paths. These are considered niche competitors due to satellite transponder shortages, terrestrial interference and propagation footprints.

The Market

Dial-up modems now come as standard equipment on most PCs or they can be purchased separately from any computer retailer. ISPs offering Dial-up service come in many flavors including local, regional and national providers. Local providers are typically small businesses that were started over the last few years. On a regional basis most LECs offer Dial-up Internet access as well as growing availability of speedier ISDN service.

There are also multiple national ISPs including American On-Line ("AOL"), CompuServe and NetCom. These companies have created nationwide backbones connected to local points of presence ("POPs"). POPs must be located near every market where the national provider intends to offer competitive service, as subscribers will not pay long distance toll charges to connect to the Internet. The tremendous investment required to create sufficient POPs has limited many national providers footprints to more densely populated communities.

Hybrid and HSCMs are currently available in limited quantities and are not subject to a common operating standard (i.e., Dial-up modems are interoperable on any telephone system. However, Hybrid and HSCMs only work on the cable system that supplied the modem). CableLabs, the cable television research and development group, is working on a set of standards that will be released in 1997. The interoperability standards will shift the Hybrid and HSCM modem to a retail environment and away from the ISP's balance sheet.

There are several large cable companies rolling out HSCM service using brand names like, Time Warner's, RoadRunner, US West Media's, Highway1 and TCI affiliate, @Home. All of these services have moved beyond trial stage and are marketing service in those cable systems where they have completed two-way rebuilds.

A CABLE TELEVISION ISP BUSINESS PLAN

For a cable television system operator there are numerous reasons to consider becoming an Internet Service Provider including: (i) if a cable company is not selling Internet access, someone else will be, and it could be a competitor for basic video service; (ii) it provides an additional revenue stream over which to spread the cost of rebuilds and upgrades; (iii) it provides a strategic product alternative to market against competitors for video service; (iv) it will increase cash flow and subsequent exit valuation in the event of a sale; (v) as the Internet changes to more closely resemble "programming", it will eventually steal some of cable's high-end video customers; and (vi) many cable television channels are offering interactive web sites which are becoming an important part of the programming mix.

Once the decision has been reached to consider the business, a cable company should consider the following three step plan:

- Market Evaluation,
- Financial Projection, and
- Service Deployment.

Market Evaluation

A market evaluation must be completed to ascertain if the environment is right for the service. A prospective ISP should focus on the following:

ISP Competition

Major urban markets have a plethora of small ISPs as well as nationally based providers struggling to attract subscribers. Smaller markets will necessarily have fewer competitors as well as few national providers which can provide a local phone number.

Market Demographics

The Wall Street Journal reported that the average household income of on-line users was over $48,000 or 9% over the national average and online users also tend to outpace the general education levels as compared with U.S. adults. However, as the cost of access declines and PC penetration climbs, education and income will fade in importance as the market bellwethers.

Local Telephone Service

The largest variable cost for the ISP is the local telephone line expense. A Dial-up ISP must maintain a sufficient number of local numbers to ensure a minimal number of busy signals when subscribers attempt to log on. Several ISPs reported an average of 8:1 to 10:1 (subscribers to lines) as the appropriate level. Monthly rates for telephone lines from LECs vary widely from market to market. Cable operators offering Hybrid service will have to maintain the same number of lines as Dial-up; however, HSCMs which bypass telephone lines, will not incur this expense.

Joint Venture Opportunities

The opportunity to joint venture with a local business such as a newspaper or radio station can be strategically important. This kind of partner can provide local content (school schedules, local sports, local issue bulletin boards) as well as auxiliary advertising. This is increasingly valuable as ISPs proliferate and attempt to differentiate themselves.

Educational and Business Institutional Presence

Educational institutions such a colleges and universities attract a great deal of Internet usage among students and researchers. In addition, many businesses are large users of the Internet for communications, E-mail and research. This built-in demand can jump start an ISP.

Financial Projections

A financial plan for the ISP business includes: type of service offering (Dial-up, Hybrid and/or HSCM), subscriber penetration projections, operating expenses including LEC line charges for local, long distance and high speed connectivity to the backbone, license fees, software expenses, subscriber billing, promotion, marketing, customer service, staffing and general office expense. A simplistic outline of a five year plan is attached as Exhibit 1.

Capital expenditures both at the Internet control center and for modems, both Hybrid and HSCM, are specifically not addressed herein due to the vast differences in existing cable system architectures and resulting rebuild or upgrade costs and in the differences in capital required by different vendors (some but not all of which would have a direct relationship to system performance).

Type of Service

As noted there are three types of Internet connectivity available to a cable based ISP, Dial-up, Hybrid or HSCM, however, while a cable television based ISP is limited by the condition of its existing plant, it should offer as many services as possible. Even the largest cable operators which are launching HSCM service (RoadRunner, @Home and Highway1) are also quietly offering Dial-up service for those subscribers who don't require the speed of cable modems or simply want the lowest cost option. These subscribers are also the best source of migratory growth as they become more adept on the Internet and can migrate easily onto either Hybrid or HSCM service.

Deployment

After assessing the market and the viability of offering Internet access, an operator must choose whether to purchase an existing ISP or build the business internally.

The location of the target acquisition or the site of a new build must be carefully considered to take into account availability of scaled-up telephone service, access to the Internet backbone provider, and location relevant to any other cable systems that may be locations to launch ISP service. For example, a cable operator that has clustered several small systems can tie back to the ISP control center via T-1 (high speed, high capacity telephone lines) lines and avoid duplication of Internet headend equipment while expanding the universe of possible customers.(See Figure 1)

Independent of which method or if all three methods of connectivity are offered, all of the services require a central processing point, the Internet cable headend equivalent. It is here that the connection from both the subscriber and the Internet are interfaced on the ISP's computers (referred to as servers), which provide storage for e-mail, news, and other content which is stored at the local system level. In addition, a server stores account information and access control (password) information.

The headend is connected to local data (telephone) circuits to subscribers in a hybrid and Dial-up environment and to the cable plant when using HSCM. The headend is also connected by high capacity links, typically T-1 lines to an Internet backbone provider. Internet backbone providers are analogous to wholesalers of Internet access while the local ISP is the retailer.

In terms of valuing potential acquisitions there are no solid "benchmarks of value" as are used in the cable television industry. The variables involved in the decision include: size of the ISP, financial strength, operating history, quality of existing equipment, employees and market niche. What little information available suggests that prices

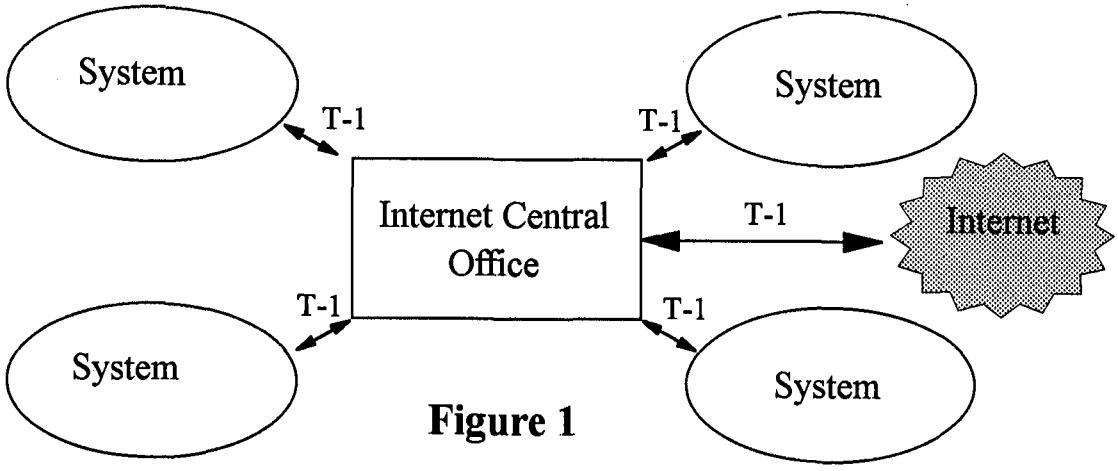


Figure 1

have ranged from one to one and one-half times annual revenue or in some cases just a small premium over the cost of the equipment.

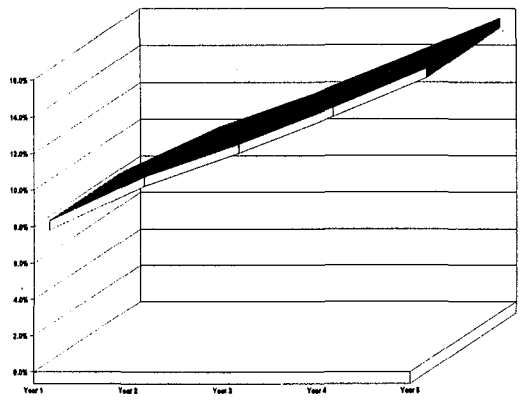
Subscriber Growth

On-line penetration is expected to reach 100% of PC equipped homes and, within the next three years, PC penetration is projected to rise to 60% of all households. For a typical Dial-up ISP, penetration is a function of the percent of PC equipped homes in its market times the percentage of modem equipped (Dial-up) homes times the percentage of expected market share.

Many cable operators start by calculating ISP penetration as a percent of cable subscribers (assuming a natural advantage with current customers). Figure 2 highlights projected penetration over 5 years:

Five Year Penetration Growth

Figure 2



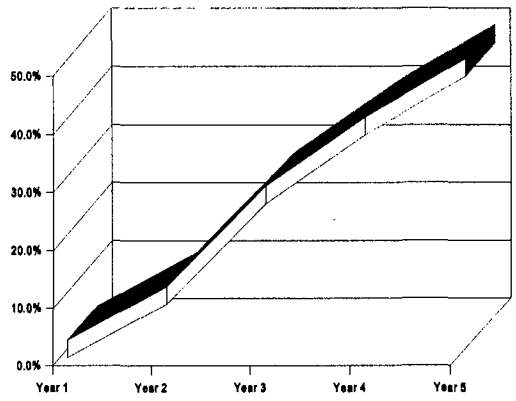
The projection above assumed 50% PC penetration, 50% modem penetration and 30% market share. PC penetration climbs to 70% by the fifth year and modem penetration climbs to 75% while market share remains static at 30% over the period. This is a conservative assumption. An operator offering Hybrid or HSCM service would not be limited by Dial-up modem penetration. In addition, market share, due to multiple products and cable's compelling product differentiation, would be considerably higher.

Operating Margin

The projection assumptions include, penetration as described above, market based pricing of $19.95 for Dial-up, $29.95 for Hybrid and $35.00 for HSCM (not launched until the fourth year of the projection to permit the operator to rebuild plant to two-way specifications). Expenses are composed of telephone charges which include LEC charges (assuming an 1:8 ratio for inbound lines to subscribers) as well as one T-1 expense. SG&A was calculated assuming fixed staffing and a per subscriber charge. This combination of subscriber growth, service mix and expense assumptions results in an operating margin that climbs from negative in the first year to 49% in the fifth year. See Figure 3 for the five year operating margin trend.

Operating Margin

Figure 3



Staffing

A key to success as an ISP is to find employees experienced with computers and the Internet. The most common complaints regarding ISPs relate either to busy signals when attempting to go on-line, or to poor service from the Internet provider's "help desk". A help desk requires a 24-hour a day staff available to advise subscribers. If the operator chooses to outsource this component there are several companies which can

provide this service for a flat rate or on a per call charge.

Customer service costs are variable with the number of subscribers. As penetration increases, the ratio of customer service representatives needed will decline due the larger installed base. Several ISPs shared projections which scaled help desk staff from 500:1 (subscribers per staffer) to 1,500:1 by the fifth year of operation.

In order to improve customer service one cable ISP instituted a bulk PC purchasing program and subsidized employee purchases of PCs for home use. This resulted in a more computer/Internet friendly staff capable of providing better service and information on the Internet.

Outsourcing

There are "turnkey" companies that will design and install the components necessary to operate an ISP as well as provide management, help desks and maintenance.

Service Launch

Deployment of the service is the final step of the business plan and consists of three components:

- Marketing,
- Pricing, and,
- Installation.

Marketing

The most effective form of marketing for ISPs is word of mouth. The news of easy access, a customer-friendly help desk and popular local content will quickly spread through a community.

Pricing

Market knowledge gained in the initial feasibility analysis will guide pricing. However, when AT&T launched its $19.95 per month flat charge for unlimited access it set the standard for Dial-up pricing.

Hybrid and HSCM service is less dependent on price as it is currently the exclusive provenance of the cable operator. Most cable operators are adding discounts tied to cable service in order to induce migration and for use as a marketing tool for both services. In addition, ISPs have traditionally accepted credit cards subject to pre-approval.

Installation

There is usually no physical installation expense tied to Dial-up services as it is a simple software adaptation for a modem equipped PC. The subscriber needs to download the software from a diskette provided by the ISP to begin service.

Hybrid and HSCM service will require physical installation to configure the computer's hardware for the modem. This will be a growing issue and liability for operators.

Valuation

The value enhancement to a cable television operator for owning and operating an ISP is not readily calculable. Wall Street analysts are adding 20% to MSOs offering Internet access service with additional value for those MSOs interfacing with a national backbone provider, particularly @Home.

In the attached model, at the end of the fifth year the ISP is generating $146,410 per year in cash flow. The cable operator at the end of the fifth year is projected to have 6,495 cable subscribers generating approximately $38.25 in monthly revenue or $2,984,201 in annual revenue. Assuming a 45% cable operating margin the operator has $1,342,890 in cable cash flow. Cable/ISP cash flow totals $1,489,300, of which 10% is derived from the ISP.

Over time the assumption is that ISP service will be perceived as another form of programming similar to HBO or pay-per-view, and operators will receive an exit valuation at the same multiple as is applied to any other cash flow. A cable operator therefore can project a 10% increase in exit valuation on the combined entity a the time of sale even with these very conservative projections. The service will also protect value over time from subscriber loss to competitive providers

CONCLUSION

The Internet is a vast tool which has become the standard for information and entertainment access. Along with the radio, television and telephone, the Internet has made significant changes in how we communicate, entertain and learn.

ISP service is not a silver bullet for a cable operator. However, it is a way to create a new revenue source. Cable television operators would be remiss not to consider the ISP business and take advantage of their competitive superiority in terms of customer contact, infrastructure and superior bandwidth.

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A CABLE TELEVISION ISP SIMPLIFIED STATEMENT OF OPERATING CASH FLOW	Year 1	Year 2	Year 3	Year 4	Year 5
Cable:					
Homes Passed	10,000	10,200	10,404	10,612	10,824
Basic Subscribers	6,000	6,120	6,242	6,367	6,495
Penetration	*60.0%*	*60.0%*	*60.0%*	*60.0%*	*60.0%*
Internet Service:					
Dial-up	315	424	475	480	410
Hybrid	135	182	256	349	410
HSCM	0	0	0	44	205
Total Subscribers	450	606	730	872	1,026
Penetration	*7.5%*	*9.9%*	*11.7%*	*13.7%*	*15.8%*
Monthly Rates:					
Dial-Up	$19.95	$19.95	$19.95	$19.95	$19.95
Hybrid	$29.95	$29.95	$29.95	$29.95	$29.95
HSCM	$35.00	$35.00	$35.00	$35.00	$35.00
Revenue:					
Dial-Up	$37,706	$88,472	$107,592	$114,254	$106,561
Hybrid	$24,260	$56,922	$78,599	$108,638	$136,461
HSCM	$0	$0	$0	$9,159	$52,257
Installation	$13,500	$4,676	$7,386	$9,330	$6,153
Total Revenue	$75,465	$150,071	$193,578	$241,382	$301,433
Expenses:					
Telephoney	$43,500	$48,176	$51,911	$56,169	$60,784
S,G & A*	$86,750	$87,919	$90,022	$92,020	$94,238
Total Expenses	$130,250	$136,096	$141,933	$148,189	$155,023
Operating Cash Flow	($54,785)	$13,976	$51,645	$93,192	$146,410
Operating Margin	-72.6%	9.3%	26.7%	38.6%	48.6%

* A portion of SG&A that could be capitalized has been treated as an expense for cash flow purposes.

EXHIBIT 1