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BANDWIDTH DRIVERS

Mark R. Langner
Managing Director
Senior Research Analyst

Todd M. Fernandez
Associate Analyst

Bert T. Bangayan
Associate

The True "Virtualization" of the Communication Services Model

By Mark Langner, Senior Research Analyst

In the communications services industry, we have been talking about “virtual networks” for some time. These services blended raw communications infrastructure (transit pipes, co-location facilities, etc.) with routing, security and application-level intelligence to allow companies to outsource communications and IT functionality. These are the sexy high-value data services that we have often characterized as “solutions” in our research coverage.

To date, however, a service provider looking to provide a "virtualized" or outsourced solution had to deploy network facilities (bandwidth, data centers, etc.) on a leased or owned basis. These assets often represent large capital outlays financed by massive levels of debt. They have also resulted in tremendous underutilization of many of those assets as these nascent businesses ramp up. Not surprisingly, there is a long payback time associated with those assets, in some cases taking up to 3 or 4 years for these companies to reach EBITDA positive. For instance, in our coverage universe, Loudcloud is not expected to turn EBITDA positive until 2003. Even Exodus, which is the closest to generating operating cash, became EBITDA positive after 5 years of operation.

"Heavy" First-Generation Business Model

Obviously this “heavy” cost structure increases risk for investors, with debt potentially being the lethal element in this “financing drug cocktail.” If a company misses revenue growth targets (which is not uncommon for newer companies of any type), the existing debt burden can become the impediment to raising additional capital to keep the business running to cash flow breakeven. Even worse, it can ultimately drive the company into bankruptcy.

The irony is that much of the value these companies provide their customers is not derived from the “heavy” elements of the business model. Instead, it comes from the intellectual property (usually software, sometimes business processes, or a combination of both) that makes the high-value service, well…high value.

This situation is not always great for investors. A company that may have been attractive for its unique and “high-value” service may end up getting killed by the costs of deploying commodity-like assets to deliver that high value. Making matters worse is that companies that excel in developing high value “solutions” are not usually experts at deploying commodity-like assets such as bandwidth or data center space.

For instance, we see the true value in InterNAP in the capabilities of its ASsimilator technology. ASsimlator allows the company to select the best network to deliver a customer’s traffic -- creating an outsourced “multi-homed” solution that improves performance over the Internet. However, the co-location facilities, large number of P-NAPs, and large number of network connections (eleven per POP) do not drive InterNAP's value as an investment. Co-location space may have been important to own in 1999 when it was scarce, and a large network of P-NAPs may have been important in 2000 when low-cost, high-speed local connectivity did not exist. But the company is nearing the roll-out of its new ASsimilator 3.0 technology that will make having all of those network connections somewhat redundant. These assets do not diminish InterNAP's value to the customer. Conversely, they do little

Mark R. Langner
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Todd M. Fernandez
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Bert T. Bangayan
Associate

to add value to the InterNAP business and represent a substantial portion of the capital that the company will spend. To read more of our views on this see our April 11 note.

This is not entirely the fault of the companies. To be fair, the market for many of these commodity services has evolved greatly in the last 24 months -- and many items were unavailable even 6 months ago. Additionally, capital was extremely cheap (and at the time it looked like it would be forever). But this has all changed now, creating what we call a “second-mover” advantage for those companies that may be able to build their companies in a more capital efficient manner than first-generation providers.

Have Opportunity, Will Evolve

The fact that the capital markets are not keen on financing high-capital cost, debt-laden startups has not stopped the flow of good ideas on how enterprises can outsource their IT and data services needs. It has, however, given rise to the concept of a “lighter” business model, partially because of tighter capital markets that are more focused on where these new companies can add value to their customers.

In a lot of ways these “new” business models represent a nirvana for investors: software-like gross margins and low capital requirements, with carrier-like recurring revenue streams. Add to this stability from the customer “stickiness” that is inherent to higher-value outsourced solutions, and these services represent the best of many worlds from a return-on-capital basis.

These new business models are an evolution of early “light” models pioneered by service providers such as Akamai. The company's business model, while certainly a first-generation model since Akamai purchases lots of bandwidth, showed the direction that high value intellectual property-driven service models could go. Its business model currently generates gross margins in the 60% range (which should only go up), and is characterized by recurring revenues and low customer churn. This model was, and still is, a step up over the more capital-intensive, less differentiated “telecom” service models.

"Lighter" and Newer Solutions Arrive

By eliminating much of the ownership of basic data services elements, the newer “solutions” models take this one step further. These companies partner with ISPs, telecom companies, and web hosting providers (which have the necessary raw elements of bandwidth, data center space, etc.) to deploy services based on their proprietary technology.

For instance, NetVMG, which is an emerging competitor to InterNAP, is deploying a service that will allow ISPs and direct enterprise customers to manage end-to-end performance across multiple backbones. This is very similar to the capabilities that InterNAP is rolling out with its Assimilator 3.0 technology. The service solutions for the customer are similar. The difference in business models, however, is large. NetVMG does not plan to build or purchase any facilities. This decision cut their capital expenditure requirements to reach profitability from $160 million to approximately $30 million. With the "lighter" model, EBITDA margins should move from around 40% to north of 70% over the long term -- all while retaining a recurring revenue model.

SmartPipes, which calls itself an “IP Software Services” company, is another example of a more "virtualized” business model. The company provides secure IP VPNs to enterprise customers and sells its services on a white-label basis through carriers such as WorldCom. In doing so, SmartPipes avoids the networking and bandwidth costs associated with physically building the VPNs.

Even more "heavy" infrastructure plays are getting on the bandwagon. Sigma Networks, a next-generation metro optical networking provider, is an example of a company pursuing a “lighter” capital model. When undertaking their analysis of the market, Sigma determined that owning fiber only represented between 2% and 5% of the cost in its business plan, but added between $2.5 million and $6 million per fiber mile to their capital expenditure budget -- or $1.9 billion to $4.5 billion for a 15 city build-out. By leasing the fiber from other builders and focusing instead on the operation of the facilities, Sigma is able to avoid the massive capital infusion (and debt) that would be necessary to build fiber -- thereby reducing investors' risk.

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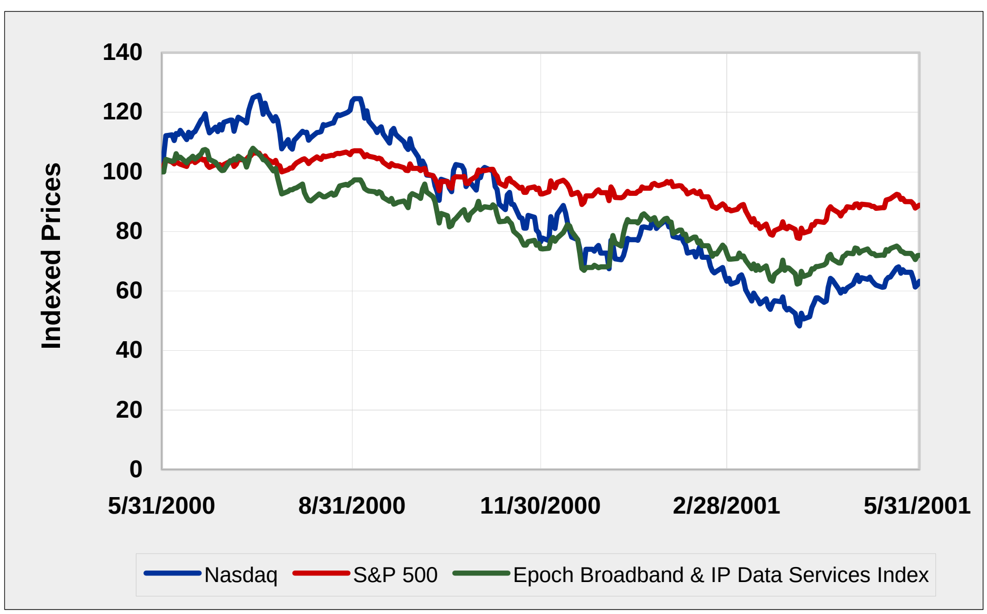
Looking Forward

New service models were all the rage in 1998 and 1999. Venture capitalists, who traditionally were not investors in service companies due to the large amounts of capital needed to construct facilities, were attracted to the market because of the growing importance of technology to new service models (something where VCs had lots of experience). The low cost of capital, which allowed the raising of debt and an active mezzanine market, provided the necessary leverage and capital bulk to allow the VCs to get involved in this market.

Today, investing in service model companies has come to a grinding halt. However, I don't think it will stay that way. The new "lighter" service model will likely be the vehicle by which the venture community stays active in this space. The new companies will provide the necessary innovation in service concepts and technology that the market demands, but that the incumbent "telecom" carriers are unlikely to be able to provide. This model is good for investors. When these new companies come to market, they will have the benefit of the second-mover advantage and can learn lessons from the first-generation, next-gen data service providers.

Capital Markets Review

The Epoch Broadband and IP Data Services Index was down 3.1% over the last two weeks to close at 71.9. This decrease compared to a 2.3% decrease in the Nasdaq Composite and a 2.4% decrease in the S&P 500. The past two weeks were relatively quiet in the capital markets for communications services companies. The record-setting activity in the high yield markets simmered down following WorldCom's $11.9 billion offering in May. Investments in Europe continue to drive the majority of private equity activity. This week, we highlight two companies across the Atlantic that received venture capital funding. DigiPlex, a neutral co-location services provider in Europe, managed to raise $55 million in equity, while Sila Communications, a provider of wireless application services in Europe and Asia, received $37 million.



Broadband and IP Data Services Performance

The performance of individual Broadband and IP Data Services stocks was mixed over the past two weeks. The largest percentage gainer was Equinix, which improved 12.5%. Covad Communications

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Associate

had a volatile trading week, finishing down 6.4%, as the company finally announced its fourth quarter and fiscal year 2000 results. Covad posted disappointing annual results with a net loss of over $1.4 billion and a funding gap in the range of $400 million to $700 million. On the downside, StorageNetworks and Level 3 were the largest percentage losers over the past two weeks. StorageNetworks was down 13.4%, due mostly to profit taking after the stock more than doubled since April 27, while shares of Level 3 lost 18%.

Company	Ticker	Price Per Share (6/1/01)	Price Per Share (5/18/01)	Change over 2 weeks $	%
360networks	TSIX	$1.25	$1.20	$0.05	4.2%
Akamai	AKAM	10.35	10.01	0.34	3.4%
Covad	COVDE	1.03	1.10	-0.07	-6.4%
Digital Island	ISLD	3.36	3.35	0.01	0.3%
Equinix	EQIX	1.35	1.20	0.15	12.5%
Exodus	EXDS	7.99	8.15	-0.16	-2.0%
InterNAP	INAP	2.82	2.87	-0.05	-1.7%
Level 3	LVLT	11.28	13.75	-2.47	-18.0%
Loudcloud Inc	LDCL	4.03	4.36	-0.33	-7.6%
StorageNetworks	STOR	19.00	21.93	-2.93	-13.4%
Median					**-1.9%**

Looking Ahead

With the second quarter coming to a close at the end of the month and earnings announcements ensuing shortly thereafter, companies should have decent visibility into how their quarterly numbers will match up against guidance. With this improved visibility comes the increased chance that companies may issue earnings pre-announcements. Last quarter Akamai, InterNAP, and 360networks issued pre-announcements. While none of the companies in our coverage universe has done so this quarter, we would not be surprised to see a pre-announcement or two just around the corner, especially after Sun Microsystems lowered its guidance last week due to slowing demand.

On the earnings calendar, Loudcloud is due to report first-quarter results on June 12. In addition, the SUPERCOMM conference will be taking place in Atlanta from June 3 through June 7. We are not expecting any earth-shattering announcements from the service providers, but this should be a good chance to get a glimpse into new technology developments from the equipment vendors.

In the broader economy, non-farm productivity results are due out June 5. Economists are expecting a 0.7% drop in productivity, compared to last quarter's 0.1% decline. During the week of June 12, major indicators of inflation should be released. The May Producer Price Index will be published June 14, followed by the Consumer Price Index on June 15. In April, both of these indices rose 0.3%.

Industry News (click on link)

5/21/01 EDS Will Offer Akamai's EdgeSuite Service

5/24/01 Covad Communications Announces Fourth Quarter and 2000 Results

5/29/01 Akamai Selected to Power Web Operations of US Government Organizations

5/29/01 360networks Obtains Facilities-Based License to Operate in Japan

5/30/01 Equinix Announces Neutral, Real-World IP Testing Environment

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5/30/01 Loudcloud Expands Offerings With Caching Cloud Service

5/30/01 McLeod Plans to Cut 5% of Work Force

5/31/01 Digital Island and Cable & Wireless Announce Early Termination of Hart-Scott-Rodino

5/31/01 Deutsche Telekom, France Telekom Unload Their 10% Stakes in Sprint

Financings

Date	Company	Ticker	Description
5/15/01	DigiPlex	Private	$55 million in third round of venture capital, led by the Carlyle Group and Providence Equity Partners. Provider of carrier-neutral co-location centers in Europe.
5/15/01	Sila Communications	Private	$37 million in a corporate round of venture capital led by Reuters, with a post valuation of $167 million. Provider of wireless application services focused on the financial services markets in Europe and Asia.

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Comparable Company Analysis

Company	Ticker	Price Per Share (6/1/01)	Enterprise Value *(millions)*	Calendar Year Revenues *(millions)* CY00E	CY01E	Enterprise Value/ CY00E Revenues	CY01E Revenues
Infrastructure							
360networks	TSIX	$1.25	$3,983	$510.5	$541.2	7.8x	7.4x
Covad	COVDE	1.03	662	158.7	220.9	4.2	3.0
Equinix (3)	EQIX	1.35	151	13.0	75.1	11.6	2.0
Exodus	EXDS	7.99	7,014	823.7	1,526.0	8.5	4.6
Genuity	GENU	3.42	3,452	1,179.0	1,287.5	2.9	2.7
Global Crossing	GX	12.40	22,521	3,957.6	5,191.7	5.7	4.3
Globix	GBIX	3.00	614	90.8	136.5	6.8	4.5
Level 3	LVLT	11.28	8,221	1,185.0	1,665.0	6.9	4.9
Metromedia Fiber Network	MFNX	4.04	4,669	188.1	474.6	24.8	9.8
Williams Communications	WCG	4.31	5,696	839.1	1,450.1	6.8	3.9
Median						6.9x	4.4x
Competitive Integrated							
Allegiance Telecom	ALGX	$15.31	$1,802	$285.2	$548.8	6.3x	3.3x
Broadwing	BRW	24.77	8,673	2,050.1	2,505.5	4.2	3.5
McLeodUSA	MCLD	5.22	7,403	1,396.7	2,035.9	5.3	3.6
Sprint	FON	20.96	23,643	17,688.0	17,693.5	1.3	1.3
Time Warner Telecom	TWTC	38.99	4,969	487.3	745.8	10.2	6.7
WorldCom	WCOM	18.07	81,233	39,857.0	40,488.0	2.0	2.0
XO Communications	XOXO	3.13	6,602	723.8	1,380.1	9.1	4.8
Median						5.3x	3.5x
Data-Focused Retail							
Allied Riser	ARCC	$0.97	$85	$13.7	$48.5	6.2x	1.7x
AOL	AOL	52.75	241,075	36,213.0	40,625.1	6.7	5.9
At Home	ATHM	4.21	2,786	656.8	626.7	4.2	4.4
Earthlink	ELNK	13.31	1,179	986.6	1,223.0	1.2	1.0
RCN Group	RCNC	5.51	3,630	333.5	532.7	10.9	6.8
Median						6.2x	4.4x
Integrated Incumbent							
AT&T	T	$21.49	$153,226	$65,981.0	$66,918.6	2.3x	2.3x
BellSouth	BLS	40.56	84,660	26,151.0	28,151.2	3.2	3.0
Qwest	Q	36.91	74,737	12,281.8	22,018.6	6.1	3.4
SBC Communications	SBC	42.05	157,377	53,369.0	56,849.3	2.9	2.8
Verizon	VZ	54.74	217,510	58,751.0	70,559.7	3.7	3.1
Median						3.2x	3.0x
Solutions							
Akamai	AKAM	$10.35	$1,144	$89.8	$175.8	12.7x	6.5x
Digex	DIGX	18.20	1,181	174.7	269.7	6.8	4.4
Digital Island	ISLD	3.36	296	92.6	154.1	3.2	1.9
InterNAP	INAP	2.82	364	69.6	134.1	5.2	2.7
Loudcloud (3)	LDCL	5.25	374	8.2	74.8	45.5	5.0
StorageNetworks	STOR	19.00	1,711	48.2	153.3	35.5	11.2
Universal Access	UAXS	4.59	363	51.1	151.6	7.1	2.4
Median						7.1x	4.4x
Overall Median						6.3x	3.5x

NOTE(S):

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2. THE ANALYST(S) INVOLVED IN THE PREPARATION OF THIS REPORT HAS AN INVESTMENT POSITION IN THE SUBJECT SECURITY.
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