



# Home Economics

## Building a Base for Residential Broadband

By Mitch Shapiro

**T**he residential broadband market and cable's role in it have experienced alternating cycles of hype and pessimism, as each success and failure along the learning curve has become the focus of conventional wisdom and prognostication. Beneath the exaggerated headlines and convention-floor hype, however, cable's strategy has for the most part remained close to its conservative roots—incremental investment to justify incremental cash-flow growth.

Here we examine where the cable industry stands today on the broadband learning curve in terms of deploying new residential services and expanding revenue, EBITDA (earnings before interest, taxes, depreciation and amortization) and free cash flow (EBITDA minus capital spending). We also take a comparative look at four leading multiple system operators (MSOs) to highlight the options, issues and outcomes related to broadband strategy, execution and financial performance.

The basic building blocks of cable's "new service" strategy can be summed up as follows:

1) *Ownership consolidation, system clustering and accelerated network upgrades to support expanded bandwidth, two-way services and consolidation of headends and operations.* This process is very far along today for some large MSOs, with others racing to catch up by 2002.

2) *Widespread rollout of digital video services, which for top MSOs has already reached the mid- to high teens in terms of its penetration of basic subscribers.* Digital is proving a valuable tool for winning back customers lost to direct broadcast satellite (DBS), boosting revenue and cash flow and providing a platform for next-generation interactive TV services.

3) *Deployment of high-speed data service, which has reached penetrations in the high teens in some markets but only 3 percent industrywide, due in part to its dependence on plant upgrades.* We expect data to get more attention during 2001-2002, as its service footprint expands thanks to ongoing upgrades and progress accelerates in key areas such as retail distribution, self-installation and



deployment of next-generation platforms that support tiered services and IP telephony.

4) *Introduction of residential voice service.* For a few MSOs, notably Cox and AT&T, this has taken the form of circuit-switched lifeline service. For others it will take the form of VoIP second-line service deployed on next-generation cable modem platforms—in trials during 2001-2002, then more broadly during 2002-2003.

5) *Limited local deployments of commercial video-on-demand (VOD) service during 2000, with plans to dramatically expand VOD footprints during 2001-2002 and beyond.* Operators see this as the next logical step in leveraging their expanding base of digital set-tops and building a foundation for future ITV services. They also are now convinced that VOD's incremental capital cost (\$50 to \$75 per digital subscriber) have finally reached a range where they can be paid back within three years, even under a fairly conservative set of revenue assumptions.

6) *Trials and limited commercial deployments of interactive TV*

*services during 2000-2001.* Cable also will keep an eye toward further refinement and standardization of technologies and business models and more widespread deployments during 2002-2004.

7) *Development of the necessary staffing.* Marketing, billing, training, software, back office, network management, OSS and other systems will be put in place to support the efficient provision and maintenance of these new services in an increasingly competitive environment.

#### **Digital: First a Defense, Then an Offense**

During the mid-1990s, digital cable suffered prolonged and embarrassing deployment delays. This allowed DBS to enjoy several years as the sole provider of digital service—with its 100-plus channels, improved picture quality and high-tech cachet. Not surprisingly, this period marked a low-point in cable's reputation and valuations.

After several years of watching DBS capture high-revenue cable customers and the lion's share of new customer growth, digital cable

was increasingly viewed as an urgently needed defensive tool for cable.

Over the past few years, however, digital also has evolved into a more offensive weapon. As operators have gained experience marketing digital, they've become more aggressive in their approach to DBS, with "dish-buy-back" campaigns aimed at winning back customers lost to satellite providers. These programs have been aided by declining dish prices, which means DBS customers have less money invested in their equipment, thus lowering the "buy-back" price.

Last year, for example, Charter Communications launched a "win-back" campaign offering DBS subscribers \$150 to \$200 if they would switch back to Charter's digital service at a discounted rate and commit to a one-year contract. The campaign netted average take rates of 19 percent and rates as high as 35 percent in some areas.

In Michigan, Comcast's win-back program netted comparable take rates of 20 percent. To qualify for the offer, DBS customers had to commit to a higher-end Comcast digital package for a period of time, in exchange for a \$10 to \$15 monthly discount on that package. Since the \$65 in monthly revenue netted by this program is well above Comcast's average per-customer revenue, it suggests the company is winning back some of the big spenders it previously lost to DBS.

Comcast's packaging strategy is another example of how digital cable is evolving. The company began the year 2000 with a single digital service aimed at customers subscribing to analog premium services like HBO and Showtime. Costing an extra \$9.95 per month, this "Digital Classic" service attracted 40 percent of all Comcast premium customers after 18 months, with some early-launch markets capturing 60 percent penetration of existing pay subscribers.

In August 2000, Comcast introduced a \$14.95 service which added another 33 channels and was geared toward a wider audience, including analog "basic-only" customers. This "Digital Plus" attracted 40 to 45 percent of all newly connected Comcast customers while also helping to reduce digital churn.

High churn levels have been one of the main concerns about digital cable's performance. Today most major operators report average monthly digital churn rates in the 4 to 5 percent range, as compared to basic-cable churn of 2 to 3 percent.

According to Banc of America Securities analyst Doug Shapiro, digital churn may be less of a problem than some fear. In a January report he argued that while "digital churn is worth watching," its economic impact "shouldn't be blown out of proportion." Among his reasons were facts such as: 1) high churn is typical during promotional periods; 2) there has so far been little or no retention marketing in digital cable; 3) new, higher-value services like Comcast's Digital Plus tend to be "stickier" than earlier digital offerings; 4) digital churn doesn't lead to lost subscribers, only loss of incremental revenue streams; and 5) digital cable acquisition costs are much lower than those experienced by DBS and cellular.

As penetrations rise and operators refine their packaging and marketing, digital is becoming a significant and high-margin revenue stream. Cox, for example, reports an average of \$16 per digital subscriber in incremental monthly revenue. Comcast, whose

cable unit reported total revenue of \$2.75 billion for the first three quarters of 2000 (an annualized rate of \$3.67 billion) took in more than \$100 million in digital revenue during 2000, a year in which it doubled digital penetration in systems where the service was available. It expects to boost this penetration to 30 percent in 2001, while doubling digital revenues.

Comcast officials say its EBITDA margin for incremental digital revenue is a whopping 80 percent vs. companywide margins in the mid-forties. High margins mean faster payback on digital set-tops. At \$15 per digital customer in incremental monthly revenue and an 80 percent margin, the resulting \$12 per month in cash flow would pay for a \$300 digital box in 25 months, even without any additional revenue from new services like VOD.

We get another perspective on the impact digital can have on cash flow when we consider Paul Allen's Charter Communications, now the fourth largest MSO after adding 4 million subscribers via 13 acquisitions during the past few years.

Not surprisingly, Charter spent most of 1999 digesting these acquisitions. It also launched a \$3.5 billion network upgrade program in its new systems, a relatively large percentage of which lacked the bandwidth and two-way capability to successfully launch broadband services.

Charter's Digital Push		
	Digital Subscribers	Quarterly Additions
YE1999	155,400	
1Q00	224,700	69,300
2Q00	375,000	150,300
3Q00	653,800	278,800
12/24/00	1,000,000	346,200

*Source: Charter Communications*

With its focus on acquisitions and upgrades, Charter entered 2000 with only 155,400 digital customers, less than 3 percent of its 6.3 million basic subscribers. It also ended 1999 with relatively anemic per-sub revenue growth. During

the fourth quarter its cable operation generated monthly revenue of \$40.13 per basic subscriber, an increase of less than 1 percent from third quarter's \$39.83.

With the acquisition-integration process well-enough in hand by the start of 2000, Charter was ready for a major digital marketing push. It began the year forecasting a run rate of 10,000 digital installations per week, which it revised upward to 12,000 during the second quarter. Thanks in part to a successful "Digital Summer Sizzle" promotion, its third quarter run-rate was 21,500 installs per week. That pushed total digital customers to 653,800 at the end of the quarter, more than 10 percent of its basic subscribers.

In the fourth quarter Charter pushed even harder, launching an employee incentive program targeting a million digital customers by yearend and a DBS "win-back" campaign. Rather than hire contractors, it opted to pay its own employees overtime to handle digital installations—a process in which good customer education can help reduce follow-up calls and churn. By the peak Christmas selling season, weekly installs hit 40,000 and the million-customer goal was reached December 24.

## Strategy + Execution = Performance

	Monthly Revenue per Basic Sub				EBITDA Margin			EBITDA per Basic Subscriber			Subscriber	3Q00	3Q00
	3Q99	3Q00	\$ Change	% Change	3Q99	3Q00	Change	3Q99	3Q00	Change	Growth Rate (%)	EBITDA to CapEx Ratio	3Q00 Quarterly CapEx Per Sub
<b>AT&amp;T</b>	\$45.34	\$50.15	\$4.81	10.6%	28.6%	24.6%	-4.0%	\$12.97	\$12.34	\$(0.63)	0.4%	49%	\$75.84
<b>Charter</b>	\$39.83	\$44.26	\$4.43	11.1%	45.0%	47.5%	2.5%	\$17.92	\$21.02	\$3.10	2.3%	51%	\$125.18
<b>Comcast</b>	\$44.75	\$47.73	\$2.98	6.7%	45.2%	46.1%	0.9%	\$20.23	\$22.00	\$1.78	1.1%	139%	\$47.55
<b>Cox</b>	\$44.81	\$48.80	\$3.99	8.9%	38.9%	39.2%	0.3%	\$17.43	\$19.13	\$1.70	2.4%	60%	\$96.00

Source: Broadband Markets Analysis of Company Data

### Strategy, Execution and Financial Performance

The above table provides some clues as to the relationship between an MSO's broadband strategy, its execution of that strategy and its financial performance. The table provides comparative financial data for Charter and three other MSOs whose relative performance highlights some of the key dynamics in these relationships.

For example, Charter's acceleration of network upgrades and digital deployments during 2000 is reflected in its third quarter capital spending of more than \$125 per subscriber, much higher than the other three MSOs in our analysis. This heavy spending level also puts it near the bottom in terms of EBITDA-to-CapEx ratios.

At the same time, however, there are clear signs that Charter's spending has paid off. Its digital push and relatively successful acquisition-integration program are reflected in a steadily increasing rate of cash-flow growth during last year. Whereas first quarter 2000 EBITDA was 10.8 percent above 1999 levels—fairly consistent with its peers and the industry's historical trends—growth jumped dramatically to 16.4 percent and 20.2 percent, respectively in the second and third quarters, with company officials predicting even faster growth in the fourth quarter. And, as the above table shows, Charter's digital push helped the company add 2.5 percentage points to its cash-flow margin, boost per-subscriber monthly revenue more than 11 percent (\$4.43) and increase its subscriber base by 2.3 percent, a close second to Cox's 2.4 percent.

Whereas both AT&T's and Charter's current cable holdings were patched together from a large number of recent acquisitions (and in AT&T's case, system swaps), AT&T appears to have faltered in the areas of focus, integration and execution. This shows up in as AT&T's inability to translate healthy per-subscriber revenues into cash-flow growth. Though it boasted the highest per-customer revenue in 3Q00, including a very healthy annual increase, AT&T's per-customer EBITDA and operating margins were far below its peers. It also was the weakest performer in terms of subscriber growth.

Whereas Charter focused its new service agenda mainly on digital video, AT&T's cable management—which suffered significant turnover since acquiring TCI in 1998—has tried to move forward simultaneously and aggressively on the digital, data and telephony front. And

it has done so while confronting an array of financial, regulatory and other challenges unique among its cable peers, not the least of which being unexpectedly severe problems in its core long-distance business.

Another difference is that Charter's acquisitions were relatively "undeveloped" in terms of network upgrades and new service launches, which left it with a fairly clean slate upon which to begin writing its own strategic plan. AT&T, in contrast, inherited a variety of already-upgraded architectures and new service platforms/strategies through its various transactions. Charter also was more able to consistently complete its transactions in a timely manner compared to the long regulatory delays often endured by AT&T.

The Chicago market stands as a good example of AT&T's challenges. Faced with competition from Ameritech in suburbia and an overbuilder (since acquired by RCN) in affluent urban areas, the AT&T staff has been under intense pressure to rapidly integrate, upgrade and rollout new services in a patchwork of systems inherited from six different Chicago-area operators. Layer AT&T's other problems on top of that and you start to get the picture.

Overall, while the focus and continuity of management and strategy at the cobbled-together Charter appears to have firmed up with time, AT&T seems to have never recovered these key competitive elements, a deficiency that dates back at least to the days when TCI launched several waves of restructuring in what some believed was an effort to dress the company up for sale to AT&T.

Cox also makes for a good comparison with AT&T because it is the only other major MSO that has been deploying circuit-switched telephony and pushing a full bundle of voice, video and data services. But unlike AT&T, whose operating margin suffered greatly as

### Cox Rolls Out the Broadband Bundle

	% "Product-ready" Homes			% Penetration Within Footprint		
	Digital	Data	Voice	Digital	Data	Voice
Orange County, CA	97%	97%	76%	20%	19%	20%
Phoenix, AZ	60%	60%	20%	12%	7%	17%
Omaha, NE	94%	98%	100%	10%	6%	16%

Source: Cox Communications; data as of the end of 3Q00

it simultaneously pushed digital video, high-speed data and telephony, Cox has been able to keep margins steady in the high thirties throughout the course of its new service rollout.

While lower than most of its peers, Cox's current margins vary little from those it was experiencing back in the mid-90s, before its aggressive new service launches. We believe one reason for its relatively low margin is that Cox has spent more on marketing (5.4 percent of revenue in 3Q00), customer service and other areas that have helped it remain at or near the top among its peers in terms of customer satisfaction and related measures. We believe this investment has, for the most part, served it well in positioning itself as a provider of bundled services that include lifeline telephony.

Cox was relatively early to invest in plant upgrades and by 1999 had upgraded most of its major clusters, the bulk of which (unlike AT&T) it had been serving for many years. Nevertheless, its recent rash of acquisitions combined with its simultaneous rollout of digital, data and voice yielded 3Q00 per-sub capital spending that was

standing cable holdings but also has dramatically expanded its holdings during the recent wave of industry consolidation. Upgrades are already complete in most of its core holdings, with recent acquisitions on an accelerated schedule to catch up. Where Comcast differs dramatically from Cox is that it has steered clear of circuit-switched telephony. Instead it will wait for an IP-based voice platform, which it plans to use to deliver second-line service at a price point in the \$10 per month range.

Without the capex burden of a telephony rollout or the upgrade load faced by Charter, Comcast had the lowest 3Q00 capex-per-sub of the four MSOs in our analysis. And though its monthly revenue per subscriber was lower and slower-growing than that of AT&T and Cox, its strong and stable margins (hovering in the mid-forties since 1996) yielded the groups highest EBITDA per subscriber. The combination of relatively low capex and strong margins made it the only one of the group for which EBITDA exceeded capex during 3Q00.

It's also worth noting that Comcast systems in Michigan have faced several years of competition from Ameritech. In our view this has strengthened the company, forcing it to learn how to accelerate upgrades and new service launches and compete against a credible and well-financed opponent. According to company officials, Comcast's Michigan subscriber base returned to a growth mode in 2000 after two years of attrition in its battle with Ameritech.

The table to the left provides an example of how a Comcast operation in a major market has moved through various phases of spending and cash-flow generation since 1996. It highlights the fact that cable operators are gradually migrating from a period of heavy fixed capital spending on network upgrades into a period of incremental investment driven more directly by new cash-flow-producing services.

For those with sound strategies and solid execution, the result will be expanding production of free cash flow to support future rollouts of new services like VOD, ITV, IP telephony and a range of targeted services that can drive penetration and per-customer revenue. In future articles we will take a closer look at the market potential and business models for some of these new broadband services. **FAT**

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### Building Free Cash Flow in a Major Market: A Comcast Example (Dollars In Millions)

	1996	1997	1998	1999	2000E	2001E	1996-2001 Increase
<b>Upgraded Plant</b> (750MHz+)	35%	70%	85%	100%	100%	100%	
<b>Revenue</b>	141	159	181	202	225	260	84%
Annual change		13%	14%	12%	11%	16%	
<b>Operating Cash Flow</b>	80	87	96	106	116	135	69%
Annual change		9%	10%	10%	9%	16%	
<b>Capital Expenditures</b>							
Fixed	30	38	22	21	7	6	
Variable	11	18	30	35	25	22	
<b>Total Cap. Expend.</b>	41	56	52	56	32	28	
Annual change		37%	-7%	8%	-43%	-13%	
<b>Free Cash Flow</b>	39	31	44	50	84	107	174%
Annual change		-21%	42%	14%	68%	27%	

Source: Comcast Corp.

27 percent higher than AT&T's and double Comcast's. Yet even with this high level of per-customer capex, Cox's much healthier operating margins gave it a higher EBITDA-to-capex ratio than AT&T (60 percent vs. 49 percent).

With its relatively unique ability to offer residential voice, video and data, Cox has become increasingly focused on marketing the benefits of multi-service bundles. Its top ranking in 3Q00 subscriber growth and second ranking behind AT&T in per-customer revenue suggest its bundled-service marketing campaigns have enjoyed some success.

To support this notion, Cox officials often cite the relatively high and balanced new service penetration rates achieved in some Cox markets, notably Orange County, Calif., an affluent area where digital, data and voice have all been available for several years (see Cox table on page 42).

Comcast resembles Cox in that it had a substantial core of long-