Competition for Convergence:

The Battle Cry for Bundled Services

By Mor Allon ■ *OnePath Networks*

Bundled services, now! That has been the battle cry of service providers vying for a share of the booming multiple-dwelling unit (MDU) market.

The trend to bundle communications services to MDUs reflects the industry-wide move toward convergence, as traditionally disparate voice and data networks merge. Some industry forecasters predict competitive difficulties for providers that postpone offering integrated high-speed data, voice and video services to MDU property owners and residents. Even cautious analysts point out bundled services' strategic significance to providers.

The importance of broadband

Convergence can be defined as a service provider's ability to deliver bundled or integrated services from a single infrastructure. Opinions vary on how important it is for a provider to offer local and long-distance telephone services to MDU residents.

Bundled services, in the MDU market, are likely to include Digital Broadcast Satellite (DBS or L-Band), Satellite Master Antenna Television (SMATV) local access channels, and high-speed Internet access, also known as broadband services. Achieved by such technologies as cable modems and Digital Subscriber Lines (DSL), broadband services provide consumers with faster Internet access than is achievable with a dial-up modem. Broadband also offers always-on connectivity, which appeals to consumers frustrated by delays in dialing their Internet Service Providers (ISPs) for access.

Consumer demand for broadband services is expected to continue to exceed demand for video services. In the United States, the Compounded Annual Growth Rate (CAGR) for broadband data revenues is estimated to be 30 percent for the period from 1997 to 2002. This projection comes from IDC, GeoPartners and Forrester Research, three leading industry analyst firms. Over the same five-year period, the CAGR for video service revenues will be six percent, with a five percent CAGR for voice service revenues, according to these analyst firms.

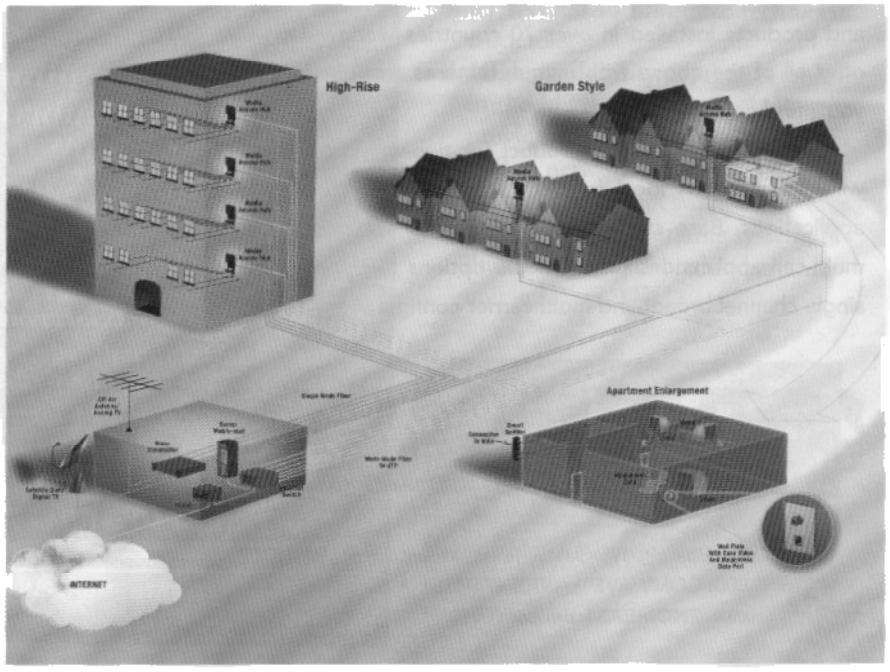
IDC, GeoPartners and Forrester anticipate that the CAGR for high-speed data subscribers in the United States will grow to 113 percent from 1997 to 2002. Meanwhile, they predict the CAGR for DBS subscribers to be 16 percent over this same period.

The Yankee Group, a Boston-based market analysis and consulting firm, reports that when video, data and voice service revenues are combined, the MDU market represents an annual revenue opportunity of approximately $20 billion for service providers. About 20 percent of all U.S. households live in MDUs, according to the firm's 1999 report, "Residential MDUs: A Market Yet to be Tapped?" This report states that two-thirds of MDU residents would prefer to receive all communications services from a single provider. Currently, an integrated provider serves only five percent of the 20 million U.S. MDUs that have five or more units.

The Yankee Group report defines an integrated service provider as:

- Offering at least one additional service besides its traditional core service
- Having a distinct strategy and incentive structure to motivate property owners and managers to sell its services to tenants

As service providers realize the potential of the MDU marketplace, competition to provide bundled services is intensifying. The MDU tenant should benefit from this competition by receiving better service at better prices, as was the intention of the telecommunications industry's deregulation that began in 1996.



Graphic 1

Advantages and challenges within the MDU market

In highly competitive rental markets, MDU property owners view the ability to offer tenants advanced communications services as a competitive sales advantage. Even in less competitive markets, owners are scrambling to update their properties' service offerings.

The provider that focuses on MDUs has access to a large and growing population. The Yankee Group notes that after considering floor plans and square footage, prospective MDU tenants evaluate rental units by the breadth of communications services offered. Consumers are likely to choose properties that offer advanced communications services over developments that lack such amenities, especially in tight rental markets.

Today, traditional video providers, such as Private Cable Operators (PCOs), are trying to determine how they can offer data in a bundled service offering. A typical operator has a long-term Right of Entry (ROE) agreement to deliver video services to a specific MDU property. PCOs currently pass by five percent of all U.S. MDU units, according to the Independent Cable & Telecommunications Association (ICTA), a provider trade organization. Meanwhile, ISPs that are successful at MDU broadband service delivery are calculating how they can incorporate video into their service mix.

Compared to early vendors, today's bundled service provider makes more efficient technology choices and places greater priority on offering improved billing and excellent customer service. The successful MDU service provider controls the overall access platform as well as the "wire" that goes into the apartment, the Yankee Group report found. This type of provider also maintains strong relationships with both the property owner and the end-customer.

One way providers earn a property owner's trust is to offer "100 percent access." This refers to a service provider's ability to cost-effectively wire each unit in an MDU property for high-speed Internet access and other services. All the necessary wiring is completed before the tenant moves into the unit. The provider no longer has to roll a truck to connect each new subscriber, thus decreasing the cost and time needed to provide new customers with both data and video services. This improved, faster service results in enhanced customer satisfaction.

How soon is soon enough?

Given the promise of the MDU market, providers now wonder which services they should offer and when. The typical PCO today offers 30-45 analog channels; many also offer digital service. Offering DBS is a strategic asset for the PCO – an asset that makes the MDU owner less likely to move to a franchise cable operator. Often, a PCO's first step toward convergence is adding Internet services, which increases the number of potential revenue-producing services delivered over the same infrastructure.

High-speed Internet access still is not ubiquitous. The Yankee Group predicts that there will be an increase to 2.4 million residential U.S. cable modem users – including single- and multi-family residents – by the end of 2000, a dramatic jump from 1.1 million users in 1999. The number of U.S. residential DSL users is expected to reach 900,000 by the end of 2000. That is triple the number of users recorded at the end of 1999.

Bill Burhop, the ICTA's executive director, recently observed a change among MDU owners. "Despite the initial failures of early PCOs that jumped on the bundled service bandwagon, property owners still want integrated services," he said. "MDUs want video with as many channels as the cable franchise, including channel lineups for property security. They want lineups that are designed for a property's demographics. MDUs are saying to PCOs, 'If you can deliver DBS and high-speed Internet too, that's great.'"

Meredith Rosenberg, director of the Consumer Market Convergence Group of the Yankee Group, concurs. "If you can offer two services, best of breed, that's more attractive to the MDU owner and all the better for the PCO," she said.

In its six-year history as a PCO offering bundled services, US Online of Austin, Texas has found that "a bundle is a much more compelling sell, not just to the resident but to the landlord," said company Chief Executive Officer Rob Solomon. "A package gives the property owner a lot more revenue (from the revenue-sharing structure most PCOs offer to the MDU owner). We have a very high retention rate among end-customers because everything is bundled. The customer wants a good price and the latest, most attractive products – quickly, simply and cheaply."

What happens to the PCO that doesn't offer bundled services? The general assessment is that vendors run the risk of losing business to either a franchise cable operator or a new-breed competitor. New-breed entrants often specifically focus on the MDU market, and offer bundled services through a variety of technological platforms.

Therefore, as operators move to become bundled service providers, they hope to increase the "stickiness" of their core products, according to Rosenberg. Stickiness refers to a provider's ability to retain customers because of its products' entrenched capabilities. By enhancing their products' stickiness, system operators can boost the attractiveness of their solutions to the MDU owner.

A choice of technological solutions

The service provider needs a technological foundation that is easy to install and that uses the property's current infrastructure, if one exists. A number of technologies are available to deliver convergence to MDU developments. They include:

Twisted-pair cable This solution consists of two independently insulated wires twisted around one another. One wire carries the signal while the other, grounded wire absorbs signal interference. Other twisted-pair solutions are:

- DSL, which uses sophisticated modulation schemes to pack data onto existing copper wires. DSL is sometimes referred to as a last-mile technology because it is used only for connections from a telephone switching station to a home or office – not between switching stations.
- Integrated Services Digital Network (ISDN), which, like DSL, operates over existing copper telephone lines. However, ISDN operates at slower speeds than DSL.

Wireless Leading wireless convergence technologies include Local-Area

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Wireless Network (LAWN), Local Multipoint Distribution System (LMDS), Microwave Multi-point Distribution System (MMDS) and Universal Mobile Telecommunications System (UMTS).

- LAWN is a type of local-area network that uses high-frequency radio waves rather than wires to communicate between nodes.
- LMDS is a fixed (non-mobile) wireless technology operating in the 28 GHz band, which offers line-of-sight coverage over distances up to three miles. It can deliver data and telephony services to 80,000 customers from a single node. LMDS brings high-bandwidth services to homes and offices within the "last mile" of connectivity, when cable or optical fiber may not be convenient or economical.
- MMDS is also known as wireless cable or Multipoint Multi-channel Distribution System. MMDS channels come in 6 MHz increments and run on licensed and unlicensed channels. A line-of-sight service, MMDS does not work well in mountainous regions. However, this solution is suitable for rural areas, where copper lines are not available.
- UMTS is a Third-Generation (3G) mobile technology that, when available, will deliver broadband information at speeds up to 2 Mbit s/sec. In addition to voice and data, UMTS will deliver audio and video to wireless devices anywhere in the world through fixed, wireless and satellite systems. UMTS services are expected to be launched in 2001.

Fiber Traditionally, fiber optics has been used as a way to connect local-area networks. In addition, telephone companies are steadily replacing traditional telephone lines with fiber-optic cables. In the future, almost all communications will employ fiber optics.

Fiber has several advantages over traditional copper lines as a technology for delivering bundled communications services to residential customers. With its greater bandwidth, fiber can carry more data. Fiber cables also are less susceptible to interference. In addition, fiber is thinner and lighter, so data can be transmitted digitally. Fiber's main disadvantage is the cables are expensive to install, are more fragile than wire and are difficult to split.

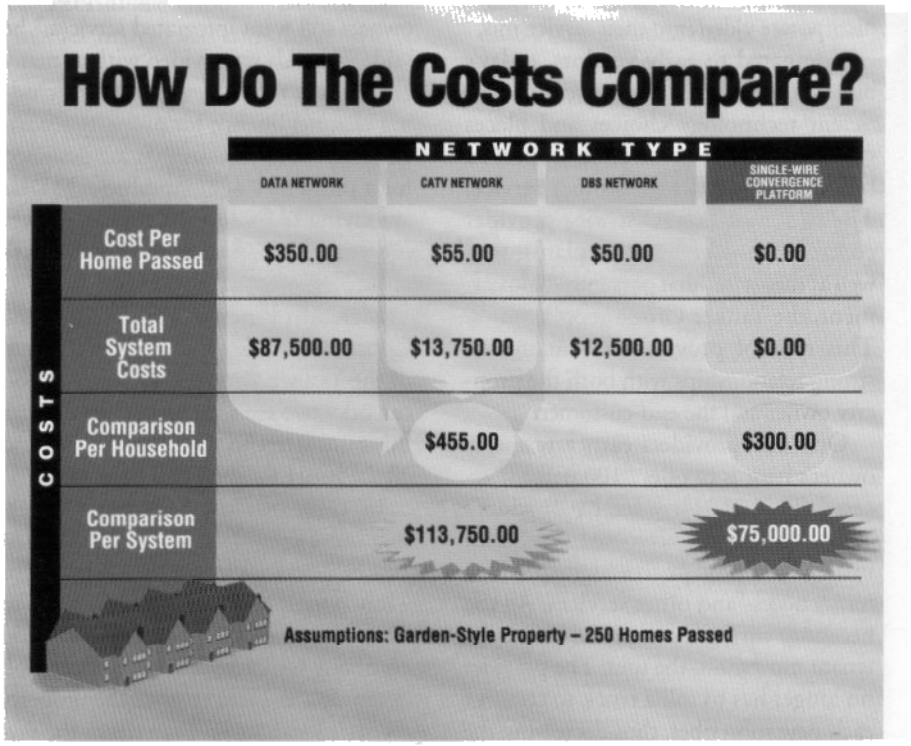
Hybrid Fiber Coax (HFC) Using both coaxial and fiber-optic cables, this access technology delivers video, voice telephony, data and other interactive services. An HFC network consists of a headend office, distribution center, fiber nodes and network interface units (NIUs). The network provides the necessary bandwidth for home broadband applications. HFC uses the spectrum from 5 MHz - 450 MHz for conventional downstream analog information, and from 450 MHz - 750 MHz for digital broadcast services such as voice and video telephony, video-on-demand and interactive television.

Cable modems These modems are designed to operate over cable TV lines. Because the coaxial cable used by cable TV provides much greater bandwidth than telephone lines, a cable modem can be used to achieve extremely fast access to the Internet. This, combined with the fact that millions of homes are already wired for cable, has made the cable modem something of a panacea for Internet and cable TV companies.

There are some technical difficulties with cable modems, however. The cable TV infrastructure is designed to broadcast TV signals in just one direction – from the cable operator to customers' homes. However, the Internet is a two-way system in which data also needs to flow from the customer to the server. In addition, it is not clear whether cable TV networks will be able to handle the ensuing traffic if millions of users begin using cable modems for Internet access.

Versatile, single-wire solution

In evaluating technological solutions that deliver bundled services, the MDU owner is less enthusiastic about technologies that require that the property be dug up again to add services. OnePath Networks, Inc. of Princeton, New Jersey, kept MDU owners' concerns in mind when it developed its family of convergence access platforms. One reason OnePath's SDTVplus™ infrastructure has been so successful in the MDU market is that the platform transports 2.4 GHz bandwidth over a fiber/coax sys-



Graphic 2

Convergence can be defined as a service provider's ability to deliver bundled or integrated services from a single infrastructure.

tem at competitive prices. Compared to competing solutions, this architecture offers service providers lower installation and maintenance costs, minimal service upgrade costs, decreased time investment and greater scalability.

OnePath recently developed an enhanced infrastructure known as iPath™. The new architecture is a broadband "funnel" that combines multiple services into a single access platform. By incorporating an Ethernet switch at each Media Access Hub (MAH) located on the MDU property, iPath delivers to tenants fully symmetrical high-speed data services, as well as DBS and SMATV television reception (See graphic 1.). The new OnePath infrastructure provides each home with upstream and downstream bandwidth at rates of 10 Megabits per second.

This modular, flexible architecture gives the system operator a wide number of data delivery options. The provider can deliver video, data and/or voice over a fiber/coax or coax-only platform. With iPath, service providers can buy a full convergence platform – completely equipped for broadband data, standard and L-band video transport – at cost parity with a stand-alone video delivery platform. When the combined service offerings that iPath supports are considered, the OnePath architecture offers lower costs per home passed than data-only, cable-only or DBS-only networks (See graphic 2.).

iPath also offers the provider the benefit of streamlined installation within the apartment. With cable modems, the tenant, not the apartment, is wired. There is a risk that the tenant may take the cable modem when he or she moves out. Rather than installing a cable modem – at an average cost of $250 – in each apartment, the enhanced OnePath solution requires only that each unit be equipped with a $25 Ethernet or Universal Serial Bus (USB) adapter.

The OnePath architecture wires the apartment unit, not the tenant. New tenants can receive a promotional compact disk from the leasing agent, and can subscribe for services via the provider's Internet home page. The provider no longer has to roll a truck to sign up new subscribers.

The bottom-line

It is clear that the service provider targeting the MDU market would be well advised to prepare its network system to deliver multiple services over a single-wire infrastructure. Initially, the operator can choose to offer only one service. The provider eventually may want to add DBS, high-speed data or telephony to the mix, or partner with a third party. The service provider does not have to develop all this expertise in-house. Some industry experts say that striking a strategic alliance with an experienced ISP or telephony-service deliverer is the ideal move for a PCO.

The bottom-line: As demand for delivery of bundled voice, video and data services among MDU tenants and property owners continues to grow, service providers run the risk of losing market share without offering a convergence-oriented distribution platform. Providers that deliver convergence stand to emerge victorious in the battle for bundled services. PWB

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