Nortel Networks

Network solutions *for* master planned communities

Technologies for a new market segment

Each year, some 450,000 Internet-savvy, college-educated professionals are handed the keys to a brand new home in a master planned community that promotes a lifestyle of leisure and convenience.

Facing a future in which the Internet will be as common a utility as water and electricity, why not build state-of-the-art services into the master plan? Among today's sub-urban professionals, sophisticated network services can be as powerful a draw as a community pool and tennis courts.
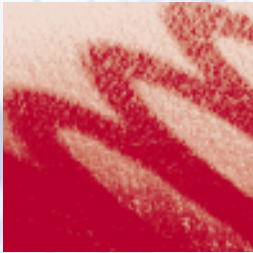
If you're a land developer or service provider, you can turn to Nortel Networks for complete solutions to add value to your master planned communities, and capture your share of a new multi-million-dollar market.

The way homeowners use the telecommunications network has changed dramatically, yet their "last mile" network hasn't kept pace. According to Insight Research (2000), 54 million North American users access the Internet from a home computer, but only 3 million have any form of high-speed access—only six percent.

That disconnect opens up a vast opportunity for a service provider or developer—or an alliance of the two—to target this niche, especially in new developments geared toward upscale consumers.

NORTEL NETWORKS™

High-speed connectivity among the people and businesses in a community

The master planned community (MPC) market represents a particularly good opportunity for developers and service providers to create wired communities with high-speed voice, data, and video access, along with value-added local community services.

The demographics tell the story. By 2004, more than 22 million homes will have high-speed access, and more than 70 percent of these users prefer a single service provider for their diverse telecommunications needs, according to IDC (2000). A recent IDC survey of homeowners clamoring for high-speed access revealed that more than half are college-educated professionals, two-career married couples with an average household income above $60,000.

Convenience and accessibility are important in their lifestyles—and MPC homeowners satisfy that with amenities and conveniences such as golf courses, tennis courts, theaters, and stores right in the neighborhood. This population also expects the best in accessibility, luxury, and reliability from their communication services.

These demographics translate into revenue potential. The total market for data services alone in master planned communities exceeds $625 million, by our conservative estimates (based on U.S. census statistics). Potentially one-third of that revenue will come from new developments, the most promising segment of the market.

And the market is growing. Of the 1.1 million homes built in the U.S. in 1999, about 30 percent were in master planned communities, according to the National Association of Homebuilders.

In 2000, 100,000 new homes were being built with wiring in place for phone, TV, entertainment, "smart home" services, and more. By 2004, close to a half-million new homes will be built with pre-planned network wiring (Cahners In-Stat, 2000).

Complete solutions for master planned communities

Nortel Networks provides complete solutions for developers and service providers that want to add value to master planned communities through broadband access and community-based services.

Our solutions bring service, flexibility, and performance directly to the desktop and set-top. Not a generic, one-size-fits-all solution, our architectures enable service providers to tailor the infrastructure and custom service bundles to the specific needs of a community.

With our MPC solutions, on-site service providers and developers can offer broadband speed, connectivity, and compelling new applications, such as multi-player gaming, virtual CD-ROM, streaming video clips (such as news on demand) and more.

Imagine being able to promote high-value services such as multiple lines, lightning-fast Web browsing, secure access to corporate networks for work-at-home users, videoconferencing, online gaming, and automated home management.

Through the community intranet Web portal, residents could set up a tee time at the local golf course, exchange school news, participate in local events, manage home appliances, participate in discussions and games, and more. They could tap into remote video to monitor daycare facilities, play areas, and community events.

These entertainment and communication services add value to the total community lifestyle offering, while producing new and recurring revenues for the service provider and developer.

Service providers benefit by extending the reach of their brand and voice/data/video service offerings to a captive audience of receptive, affluent customers. Developers and builders increase property values and allure by adding value to the total community lifestyle offering. Homeowners benefit from a broad range of high-bandwidth services and participation in a local online community.

In one typical MPC scenario, the developer negotiates an arrangement with a service provider to extend broadband services to the community—and participating homebuilders install structured wiring systems in the new houses. As a result, all the homeowners have equivalent broadband capability to enjoy exclusive voice, video, data, and home automation services.

We also offer architectures for providers who choose to deliver just a subset of the total service opportunities—for example, to use an incumbent carrier for voice telephony, and overbuild cable TV and data capabilities. Our MPC solutions can be placed in either public or private easements, depending on the preferences of the developer and service provider.

The MPC infrastructure to fit

The specific architecture for our MPC solution is defined more by business and service attributes than by equipment. In designing an optimal network, we consider the following key issues:

- **Maximum service flexibility.** Since this is new construction, providers can build ahead to meet the needs of future, bandwidth-intensive services. We have complete solutions for multiple access technologies, that can be scaled to fit communities of all sizes.

- **Quality of service.** Our MPC networks are engineered for a high level of control over user traffic and data center server traffic, to support premium levels of reliability, availability, and service quality.

- **Plentiful bandwidth.** Our network solutions are scalable—in access, aggregation, and backbone—to meet surges in demand as new applications gain popularity. The mini-PoPs we deploy in MPCs are downsized versions of the architectures we deploy in large Internet service providers (ISPs) and central offices—designed for modular growth and carrier-grade reliability.

- **Privacy and security.** Our solutions can offer added security, where required. Integrated firewall and authentication capabilities protect the security and privacy of users on the shared network.

- **Efficiency of content distribution.** Our MPC strategy includes solutions to proactively reduce backbone traffic through such methods as caching, which moves the content closer to the subscriber, and multicasting to reduce the number of identical data streams through the network.

Homeowners can be offered a choice of broadband access technologies, including but not limited to:

- **DSL** (digital subscriber line) services over unshielded twisted pair wiring can support up to 6 Mbps. An integrated access device at the home provides an "always on" connection for voice, data, and video—ideal for small to mid-sized communities.

- **Hybrid Fiber Coax** uses a combination of coaxial cable from the home to a curbside transceiver that serves many homes, and optical fiber to the community PoP.

Create an electronic community that mirrors the real community, customized with local yellow pages, directory of local e-mail addresses, access to local library materials, and a custom portal to Web sites for local schools, businesses, and more.

Sampling of MPC services

Communication services
- Multiple communication lines
- High-speed data and Internet access
- Office-type telephony services
- Featured phone and fax over Internet
- Telecommuter and home office services
- Secure access to corporate networks
- Videoconferencing
- Online PC backup
- E-mail with fast download
- Home networking of multiple devices
- Access to hosted applications

Entertainment and community services
- Interactive community intranet
- Syndicated community content
- Personalized, directory-based services
- Remote video monitoring
- Online gaming and music enjoyment
- Business-to-consumer e-commerce
- Community Web portals
- Community "bulletin boards" and chat
- eCommerce with local businesses
- Streaming and on-demand video
- Multimedia applications
- Cable TV programming
- Web TV, videophone

Smart home service
- Home security monitoring
- Health monitoring
- Control of home appliances
- Gas/water metering

...add value to master planned communities

This solution offers 10 Mbps to each house for voice, data, and video, using a cable modem in the home to convert data, and a voice port mounted on the side of the house to convert voice.

- **Optical solutions** offer enormous bandwidth to each house for voice, data, and video. **Optical Ethernet** combines the reach and reliability of optical networking with the simplicity and cost-effectiveness of Ethernet to deliver higher bandwidth at lower cost. **Hybrid Fiber Coax** solutions bring up to 10 Mbps to each home through a combination of coaxial cable from the home to a curb-side transceiver, and optical fiber to the community PoP—or up to 100 Mbps directly to a fiber port at the home.

- Copper- or fiber-based **Ethernet connections** offer the lowest cost per bit of any competing data solution. We offer a complete portfolio of carrier-grade Ethernet technologies for high-speed Internet access and transparent connection of community networks to wide area networks.

- **Wireless local area network** (LAN) based on the IEEE 802.11 industry standard transmit data up to 1000 feet over the air-through walls and other non-metal barriers—on an unlicensed frequency.

Our complete MPC solution also includes high-capacity core systems, transport networks that exploit the bandwidth-boosting capabilities of dense wave division multiplexing (DWDM), and powerful data centers for network and service management.

Whatever the size and unique requirements of the master planned community, we can create the on-site network architecture to fit.

Benefits of our MPC solution

Service providers can gain new revenues from an affluent customer base, and accelerate their success by addressing customer needs even as their homes are being built. The provider is well positioned to pull in additional revenue from emerging services,

all while keeping implementation costs low due to the density of the service area. By implementing a valued amenity, developers/builders can increase the value of their total lifestyle offering, attract new homebuyers in a competitive market, and develop ongoing relationships that can help promote future sales. Agreements with on-site service providers can create additional income for developers from revenue-sharing and from renting PoP space to providers. Property developers generally gain these advantages without upfront infrastructure costs.

Homeowners enjoy fast network access for bandwidth-hungry applications, such as online gaming and music, community Web portals, Internet telephony, "smart home" automation, video on demand, video-conferencing, and more. They may also enjoy discounts on service bundles, plus the convenience of getting telephone, cable TV, and high-speed Internet access on one monthly bill.

The MPC network also enables vibrant "e-communities" that mirror the real community. In line with the MPC concept, the network creates a new way to connect with neighbors across the street, to revitalize a community, and enrich the way homeowners live, learn, and work.

To find out more about our complete solutions for becoming an on-site service provider and securing your share of this fast-growing MPC market, call us or visit our Web site at: **www.nortelnetworks.com.**

Nortel Networks as your ally

Nortel Networks is your fast track to success. We have the technology, people, and programs to jump-start your entry or expansion in any on-site service provider market.

- Our **complete technology portfolio** includes highly scalable, carrier-grade technologies for access, aggregation, and core. That means you can rely on one source for the end-to-end MDU solution. If you prefer a multi-vendor solution, you'll appreciate our commitment to open, industry standards for maximum interoperability.

- Our **alliances with manufacturers** of customer-premises equipment expand your options for customer access devices, whether you deploy DSL, Ethernet, cable, fiber, or wireless.

- **Financing options and incentives**—such as trial programs and turnkey reseller packages, where available—can minimize the risk of entry into new markets.

- Our **cooperative marketing and business planning programs** accelerate your market success with a full portfolio of enhanced revenue services.

- Our **Global Professional Services team** delivers service solutions for any phase of your business and network evolution, from strategic planning to network optimization to ongoing maintenance and support, and everything between.

NORTEL NETWORKS™