Nortel Networks

Network solutions *for* multi-tenant properties

Technologies for office and business networking

The playing field has hardly been level for small to medium-sized businesses trying to compete in North America. When it comes to networking with suppliers, distributors, and customers, a modest-sized enterprise in a typical multi-tenant commercial building has been disadvantaged, compared to larger competitors that can afford sophisticated communication networks and services. Until now.

Nortel Networks has assembled cost-effective network solutions that enable small and mid-sized businesses in multi-tenant buildings—such as strip malls, warehouses, transportation hubs, and office buildings—to enjoy the same sophisticated network services as the big guys.

In the traditional network model, each tenant in an office park or strip mall had a separate connection to the service provider's central office or point-of-presence (PoP). That architecture made it costly for small to mid-sized businesses to consider the latest network services, much less multiple bandwidth-hungry services. Now, Nortel Networks has complete solutions that enable service providers to bring the PoP right into the multi-tenant building. As a result, tenants can afford high-speed Internet and data access, videoconferencing, voice, and more—while preserving the security and privacy of their traffic.

NORTEL NETWORKS™

Service providers...
Offer high-revenue services from on-site networks developed in cooperation with property owners/managers.

Building owners/managers...
Add value and differentiation to your multi-tenant properties, to attract and retain your tenants and revenues

The small-business market has typically been perceived as, well, small. But taken collectively, and approached through real estate investment trusts that control multiple properties, it's actually a large, under-served market.

The Yankee Group classifies 118,000 buildings in the U.S. as shared tenant office spaces, home to more than 3 million business tenants. As of 1999, more than half of all small and mid-sized businesses had Internet access, and another million join in each year, according to the Gartner Group. This customer group is a study in contrasts:

- They're turning to the Internet and eCommerce at a rapid rate, yet they generally don't have the internal staff to control and manage these services. They are open to outsourcing (which they already do for voice), yet have only begun to explore outsourcing data, video, and value-added services.

- They are continually increasing their reliance on the Internet and data communication in general (81 percent say they plan on using the Internet to grow their companies), yet only three percent of them had broadband Internet access in 1999, according to Insight Research (2000).

- They need to have network services on a par with larger organizations, in order to compete, but are naturally disadvantaged by their size, especially if they don't own their buildings.

These disconnects open up a huge opportunity for service providers to place state-of-the-art network offerings right at their doorsteps. The savvy provider that extends voice, video, high-speed data, and Internet access to multi-tenant business properties will gain a foothold in a lucrative niche maket —one in which hardware investments are minimal and rapidly recouped.

Complete solutions for multi-tenant commercial properties

Nortel Networks has complete solutions to help property management firms and service providers increase revenues and capture a strong position in this market, whether they choose to deploy services on optical Ethernet, hybrid fiber-coax, DSL (digital subscriber line), optical metropolitan area networks, or wireless access—using existing in-building wiring or new infrastructure.

Our MTU strategy can be customized to the unique requirements of the service provider, property owner/manager, and business customers. Whether the need is for a do-it-yourself package of pre-integrated, proven network components—or a total turnkey offering that includes everything from equipment to network operation— we have a solution to fit.

With our MTU solutions, service providers can offer turnkey, one-stop shopping for featured telephony, high-speed Internet access, secure eCommerce, firewalls, broadband video, Webcasting, Web hosting, videoconferencing, Internet protocol virtual private networks (IP VPNs), intranet/extranet service, email, back-office services such as inventory and database management, and more.

Wholesale suppliers, connectivity and application resellers, and managed service providers can benefit by extending the reach of their brand and service offerings. Property owners/managers increase property values and allure by promoting advanced services in their buildings. Tenants can graduate from low-speed dial-up modems or ISDN lines to high-speed Internet access or remote LAN connectivity.

Bundled, broadband services over **Ethernet, DSL, fiber, and wireless**

...to each business *in* *multi-tenant commercial properties*

MTU infrastructure options

The specific architectures for our MTU solution are defined more by business and service attributes than by equipment. Whatever the building/complex configuration, legacy in-building wiring, and service provider business case, Nortel Networks can create the MTU architecture to fit, satisfying the following key issues:

- **Minimum up-front cost and construction.** Our MTU solutions use existing wiring, to the extent possible, thereby minimizing disruption and implementation cost. We offer options for high-speed data over unshielded twisted pair (CAT3 and CAT5), coaxial cable, combinations of fiber and cable, and wireless.

- **Plentiful bandwidth.** The mini-PoPs we deploy in MTUs are down-sized versions of the architectures we deploy in large Internet service provider (ISP) PoPs and central offices designed for modular growth and carrier-grade reliability. By being able to meet growing demands for bandwidth, businesses enjoy faster downloads, the option to use bandwidth-intensive applications such as videoconferencing and remote data storage, and the ability to order different service tiers at different prices according to bandwidth consumption.

- **Concurrent data and voice.** Now that voice and data can be carried on one connection, the business can consider new application possibilities, such as Internet-based voice mail, and email notification of voice mail.

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

- **Privacy and security.** Our MTU solutions use integrated firewalls, authentication, and encryption capabilities, plus physical and/or logical separation (e.g. virtual LAN) to protect the confidentiality of customers' data on the network.

- **Always-on networking.** Users can stay connected to the network as long as they wish—using one service or application while the network streams content in the background or stays alert for someone trying to reach the user.

- **Efficiency of content distribution.** Our MTU strategy proactively reduces network congestion through caching—which moves the content closer to the subscriber—and multicasting to reduce the number of identical data connections through the network.

Broadband access can be offered to business tenants through a choice of technologies, such as the following:

- **DSL** (digital subscriber line) services over existing telephone lines or CAT3/CAT5 twisted pair wiring connects the customer's local area nework (LAN) to a DSL gateway and from there to a PoP in a building equipment closet, serving one or more local buildings.

Sampling of MPC services

Telephony services
- Office-type telephony services, including multiple lines, messaging, and more
- Customer care/call centers
- Featured phone and fax over Internet

Internet/data/VPN services
- High-speed data and Internet access
- Email with large file downloads
- Intranet/extranet services
- Secure branch office connectivity
- Online PC backup
- Network security, firewalls
- Webcasting, Web hosting
- IP virtual private networks (IP VPNs)
- Business-to-business eCommerce
- Business-to-consumer eCommerce
- Data storage and retrieval
- Internet audio- and videoconferencing
- Access to hosted applications
- Back-office services (such as inventory and database management)

Video services
- Broadband videoconferencing
- Remote video monitoring
- Streaming and on-demand video
- Multimedia applications

This low-cost solution, which takes advantage of the most prevalent in-building wiring in place today, supports POTS voice, voice over DSL or IP, high-speed Internet access, limited IP-based video streaming, and more, up to five miles from the PoP.

- A hybrid network of **optical fiber and coaxial cable** offers 10 Mbps total bandwidth to each tenant for voice, data, and video—and transport at the speed of light to the service provider's head end or PoP, equipped with the latest "intelligent" service and network features.

- **Dedicated Ethernet** 10/100BaseT and 100BaseFX lines connect tenant LANs to the in-building PoP with 100 Mbps connections (up to 1000 Mbps possible if there is a need). This solution supports voice over IP, high-speed Internet access, IP-based video streaming and video on demand, and more—with end-to-end control over quality of service.
- **Wireless LANs** based on the IEEE 802.11 industry standard use 10/100-Mbps downlinks to transmit data up to 1000 feet over the air on an unlicensed frequency—through walls and other non-metal barriers—to an Ethernet switch in the MTU equipment room.

Our complete MTU solutions also include options for cable installations, high bandwidth core systems, transport networks that exploit the bandwidth-boosting capabilities of dense wave division multiplexing (DWDM), and powerful data centers for service, network, and content management.

Whatever the size and unique requirements of the multi-tenant business property, Nortel Networks can create the on-site network architecture to fit.

Benefits of our MTU solution

By targeting their marketing efforts at whole blocks of tenants, service providers can capture more customers at lower cost. They can gain customers and revenues fast by delivering a wide range of enhanced services, such as high-speed Internet access, firewalls, desktop and application management, and secure eCommerce. And since multiple tenants share one connection infrastructure, the cost of providing those services is minimized.

By aligning with an on-site service provider for state-of-the-art networking, property owners/managers add value and appeal to their properties, increase their ability to attract and retain tenants, and reduce churn.

In the process, they can reduce their sales/marketing costs, reduce the significant expense of preparing space for new tenants, and gain recurring revenues from agreements with service providers. Furthermore, they stream-line operations, because they don't have to accommodate unique providers for each tenant, all seeking access to the building's equipment closet and other secured areas.

By sharing the high-speed connection infrastructure with other tenants, small and mid-sized business users can now afford the sophisticated services that they need for a competitive edge— such as Web commerce, secure intranet/extranets, access to hosted applications, and more—without having to hire in-house network experts to manage it all. They can procure premium levels of service on demand—such as for weekly file backup to off-site storage, or a periodic videoconference—while using more budget-conscious services for day-to-day needs, if they wish.

They may also further benefit from discounted pricing by selecting bundled services from the on-site service provider.

To find our more about our complete solutions for becoming an on-site service provider and securing your share of the MTU 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 MTU solution. If you prefer a multi-vendor solution, you'll appreciate our commitment to open, industry standards for maximum interoperability.
- Our **Global Professional Services team** enables you to outsource network design, implementation, service provisioning, monitoring and maintenance, operations, and service assurance—any or all of these services.
- Our **alliances with manufacturers** of customer-premises equipment expand your options for customer access devices, no matter which technology you choose to deploy.
- **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.

NORTEL NETWORKS™