

Time Warner Cable Gets Better MDU System

The Korcett helps TWC handle DoS attacks and bandwidth on demand in the First Mile

By David Daugherty ■ *Korcett Holdings*

Looking to improve tenant satisfaction and your revenue flow from cable and data services? Time Warner Cable Commercial Services has a new broadband subscription service called HiSpeedUp. TWC offers a base service of guaranteed bandwidth over fiber optic networks. Tenants are typically provided with basic Internet services as part of their rent.

HiSpeedUp then allows tenants to purchase up to 5 Mbps of symmetrical bandwidth on an “as needed” basis using a credit card. TWC’s deal is combined with revenue sharing options for MDU developers and operators. With a longer-term vision of “standardized” Internet services across a wide cross-section of TWC regional markets, HiSpeedUp will be appealing to MDU decision makers like Henry Pye. Henry is the Director of Resident Services and Technology at JPI Properties.

For MDU developers doing business with TWC in Austin, HiSpeedUp is improving overall tenant satisfaction and occupancy. “Obviously, resident satisfaction is always crucial,” notes Pye. “However, it is even more so for bulk services. The residents hold the owner responsible for poor bulk service... equating the value of the bulk service to the community’s worth. Poor bulk service is particularly damaging to student housing communities where disgruntled residents quickly spread the word to an entire university campus.

“We have been working with TWC Austin on the HiSpeedUp offering for the past 18 months and are very pleased with the results. TWC Austin is the first MSO to show a solid understanding for

our business needs as it relates to bulk high-speed Internet access. They understand that if we cannot provide superior Internet services in the student housing market we lose occupancy and profit.”

“From a technical perspective, management of the Internet service on the MDU LAN is key. All of the bandwidth in the world is useless without robust and dynamic management of bandwidth, applications, and users. TWC Austin was the first MSO to meet our standard Service Level Agreement. They continue to lead all MSOs in the provision of cost-effective bulk high-speed Internet access. We look forward to the deployment of *HiSpeedUp* services in all of TWC regional markets,” says Pye.

“Communications services can have a significant impact on any MDU project, either positive or negative,” says Ian Davis. Davis oversees the telecommunications practice group at Munsch Hardt Kopf & Harr, P.C. The telecom group focuses on counseling and representing clients in communications and technology-related transactions, including agreements related to telephone, video, Internet, fiber access, rooftop antennas, and wireless services.

“At a minimum, service providers should provide quality, reliable services,” says Davis, “that enable an owner to focus on its core business of leasing up and operating its asset. Some of our clients have successfully established relationships with quality providers that have enabled them to use communications services as a means of differentiating themselves from competitors.”

Says Davis, “many of our clients are willing to pay a premium for reliable ser-

VICES. In fact, many owners reject lower cost proposals from lesser-known providers in favor of more comprehensive proposals from reputable providers who have historically supplied reliable services. A few providers now offer different tiers of services and service responsiveness, and increasingly owners elect to receive upper-tier services and service responsiveness.”

MDU owners and operators are becoming painfully aware of the relationship between “reliable” Internet services and occupancy, and have begun demanding much tighter Service Level Agreements (SLAs) from Internet Service Providers.

On the flip side, MDUs that do not have reliable Internet services typically have difficulty maintaining occupancy. “One of our clients,” recalls Davis, “contacted us recently about poor satellite services at a project. The owner entered into a satellite service agreement that heavily favored the satellite provider. Unfortunately, by the time the owner contacted us, tenants had been without video services (other than local broadcast channels) for several weeks. By the time a replacement provider could restore service, our client had lost a number of tenants and had to provide rent concessions to others. Ensuing litigation from one of the tenants involving our client and the satellite service provider took months to resolve. Aside from months of lost revenue, the client was faced with unexpected legal expenses.”

It is not uncommon for MDU owners to prepare financial impact statements that quantify the financial ramifications of losing a single resident due

to poor communications services. This information is then used by the MDU owner and the service provider to construct enforceable SLA terms and buy-out rights.

Denial of Service (DoS) management features of HiSpeedUp also provide compelling business advantages for TWC. “We have a growing number of MDUs using HiSpeedUp services in Austin,” says TWC Commercial Services VP David Roon. “From an operational perspective, we have been able to increase bandwidth revenue and reduce trouble calls and truck rolls where HiSpeedUp has been deployed.”

The development of a fiber-based bulk Internet service like HiSpeedUp was an essential element of TWC commercial service business in Austin and has gone through at least three distinct phases of evolution. These include:

- (1) Construction of a scalable fiber transport infrastructure.
- (2) Establishment and maintenance of highly reliable MDU LANs.
- (3) Development and deployment of Web-based tenant service controls.

Migration from DOCSIS to Fiber

Many apartment complexes currently serviced by ISPs today, if they have any type of Internet service infrastructure, employ the use of dated network technology, specifically unmanaged switches serviced with DOCSIS modems. For this type of infrastructure DoS-related performance issues have gradually risen to nearly crisis proportions. To compound the situation, these DoS problems must be addressed at the infected computer. This means that service provider field technicians end up serving as the apartment complex’s IT staff on a day-to-day basis, fixing tenant computers just



Figure 1. Simple, straightforward MDU building demark. The bandwidth comes in on fiber.

to maintain reliable Internet services. From a business perspective, this is an insidious and expensive problem, which gradually erodes MDU occupancy and is often the root cause for other tenant dissatisfaction issues.

In early 2004, TWC Austin became aware of low-cost, ACL-enabled managed switches from several vendors. “After some preliminary lab trials”, says TWC Network Engineer Chris Bowman, “we elected to conduct a field trial in a single apartment complex. To make a long story short, the initial application showed immediate improvement in operations and we began using ACL-enabled managed switches in existing and new apartment complexes in the Austin regional market. With six months of application data under our belts, we had learned two things. First, ACLs provide the kind of edge controls required to establish and maintain MDU LAN integrity. Second, the subsequent reduction of trouble calls and truck rolls allowed the TWC engineering staff to focus on improving other areas of network performance.”

As figure 1 shows, with this technology MDU building demarks are remarkably simple, low cost, highly reliable,

fiber-fed, layer 2 Ethernet distribution systems. Internet services are delivered from the TWC Regional Data Center to the apartment complex via Nortel optical transport. A single gigabit Ethernet channel is typically allocated for each apartment complex even though a full gigabit of bandwidth is not typically deployed.

Maintaining Reliable Network Performance

The next phase for HiSpeedUp was eliminating DoS problems for the transport layer. Because most college students do not practice safe Internet access, the likelihood of experiencing DoS problems for MDU student housing is quite high. Korcett Bandwidth Management System incorporates proprietary technology called the Korcett Protection System (KPS) to isolate infected computers so that they will not cause problems for other tenants. This technology automates the processes typically used by experienced IT professionals when dealing with DoS attacks.

“Aside from a significant amount of peer-to-peer traffic within the MDU LAN, transport layer DoS attacks presented the most significant performance problem for MDU LANs,” notes Bowman, “and those are the problems we are addressing with the Korcett.”

The KPS is a proprietary DoS management engine and can be configured to isolate tenants with DoS problems without removing them from the network. This allows a tenant continued access with Internet-based tools (at greatly reduced bandwidth) to remove DoS threats from his or her computer before returning the tenant to full Internet bandwidth. Figure 2 illustrates the impact of removing DoS problems

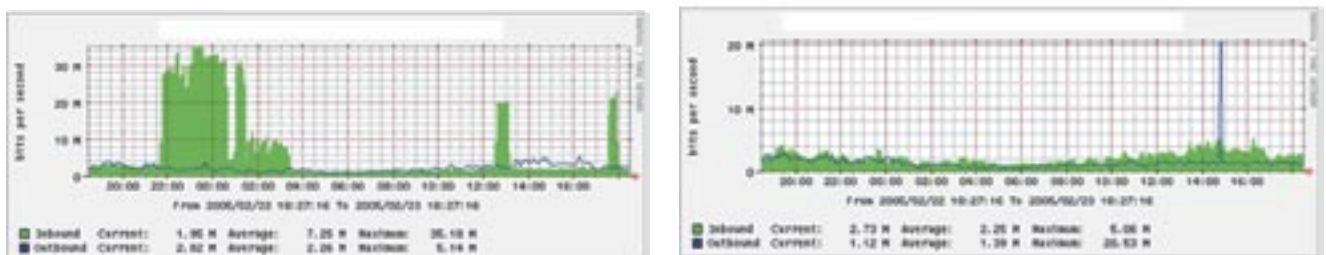


Figure 2. Bandwidth control before and after using The Korcett to detect and handle DoS attack.

Upgrade Packages	Pricing
Tier One - 1.5 Mbps by 1.5 Mbps	\$15/month
Tier Two – 3 Mbps by 3 Mbps	\$30/month
Gamers – 5 Mbps by 5 Mbps	\$50/month
Static IP Address – up to 5	\$15/month/IP Address

Table 1. The basic package, 768 Kbps download, 256 up, comes with the rent. Tenants can supplement that service with the packages above, accessing their account directly on the Web.

from the MDU LAN. Given the mission-critical role of basic Internet access in student housing, improved network performance during peak hours makes a significant difference in overall occupancy and profitability of the property. The Korcett Bandwidth Management System is manufactured by the Network Apparel Group (NAG) in Austin, Texas (www.korcett.com).

Tenant Service Management

To leave the realm of reliable Internet service and deliver a compelling tenant amenity, HiSpeedUp incorporates Internet-based service controls for tenants. Providing tenants with a way to customize their Internet services typically begins during tenant check-in. When incoming students register at the MDU office they are provided with a user ID and password that allow them to access the Internet. The first time tenants connect to the Internet they then use the user ID and password to authenticate and accept the TWC Acceptable Usage Policy (AUP). Tenants are then provided access to the Internet at the base rate, which typically comes as part of their lease agreement.

Because of the recent shift by content copyright owners toward litigation due to the unauthorized download and use of Internet content, tenant authentication has become an important issue for ISPs and MDU owners. “Most owners,” say Davis, “contract with a third party service provider (like TWC) to serve as the ISP and residents execute (electronically or in writing) the provider’s subscriber agreement and acceptable use policy. Some owners have also begun requiring

residents to sign a lease addendum that expressly acknowledges a third party is the ISP, and the resident is responsible for complying with the ISP’s subscriber agreement and acceptable use policies. In those cases where an owner acquires the bandwidth and provides and administers Internet services directly to residents (thereby serving as the ISP), the owner may have some exposure in that the underlying bandwidth contract may state the owner is responsible for use of the bandwidth by its end users.”

Once tenants have been authenticated, they are provided with access to an Internet management portal where they can modify existing services or purchase additional upgrades. If tenants are unhappy with Internet bandwidth, for example, TWC provides several upgrades (see table). “This is truly bandwidth on-demand,” says Roon. “The number of students willing to purchase bandwidth when it is immediately available has been surprising and a welcome contribution to our monthly revenue.” Preliminary data indicates that TWC could easily double their monthly recurring revenue through bandwidth up-selling.

Conclusion

Aside from the fact that TWC-Austin has some happy MDU customers, it has developed a bulk Internet solution that can be easily replicated in other service regions. TWC has also crafted a solid transport layer solution upon which it can distribute and support additional advanced services. This is perhaps the strongest argument for standardized bulk Internet solutions.

Advanced services like VoIP and IPTV

will depend upon underlying application protocol and will be subject to protocol-specific DoS attacks. If the ISP has not resolved DoS attacks at the lower levels of the ISO stack, identification and resolution of application-specific attacks will be more problematic. The good news is that advanced services like VoIP and IPTV are not widely deployed yet, so service providers have some time.

As solution bundles become more complex, managing new DoS threats up and down the ISO stack, including the appropriate resolution of problems, will become much more difficult. This is where bandwidth management systems like the Korcett will begin to show their true worth. Because these systems incorporate centralized Web management and local network appliances, network-based threat identification and subsequent resolution is centralized. Centralized control and management of network threats is a cost effective way to maintain adequate quality of customer service for widely dispersed Internet services.

From an operational perspective, service provider network engineers and customer support engineers have their hands full just keeping up with introduction and support of new features.

Any of the underlying network support features, like network threat management, that can be outsourced will help service providers establish and maintain acceptable levels of customer satisfaction. **BBP**

Acknowledgments

Special thanks for Ian Davis of Munsch Hardt Kopf & Harr, Henry Pye of JPI Properties, David Roon, and Chris Bowman from Time Warner Cable – Austin for their contribution of time and expertise.

About the Author

David Daugherty is the CEO and Founder of Korcett Holdings. Korcett Holdings is dedicated to the development and marketing of next generation Bandwidth Management System technology. For further information on Korcett go to www.korcett.com. David also invites those with questions, comments and Korcett inquiries to contact him at (512) 892-1412 or by email at david@korcett.com.