

Networking Made Easy

Cbeyond's managed voice and data services ease IT burden.

DURING THE RECENT ECONOMIC SLUMP, S&K Computers in Denver, Colorado, was forced to downsize from 20 employees to six. Needless to say, the company was left with few resources to deal with unreliable WAN services. Yet, as of mid-2001, network reliability was a big problem, says Scott Lasater, S&K president. The company had changed network service providers several times to get increasingly better pricing and hoped that the changes would also yield higher network availability levels.

"Still, data outages were horrible, and we had nightmarish telephone service," recalls Lasater, who says his experiences with incumbent and competitive service providers alike were disappointing. "With one provider, in a period of six months, we had 14 outages, some of which lasted 24 hours and one that lasted 48 hours."

By the time a sales representative from Cbeyond Communications walked through the door, proposing to sell the company a package of managed voice and Internet-access services for half the price of what S&K was paying, Lasater was understandably skeptical. "But we had nothing left to lose by giving this carrier a shot," he says.

Fortunately, the arrival of Cbeyond marked a turning point for S&K. A Cisco *Powered* Network service provider, Cbeyond oversaw what Lasater describes as

a "transparent installation with no problems." Now, a year and a half later, Lasater says, "Cbeyond can take credit for helping us stay in business. Their service is flawless."

Consider a Specialist

It can be advantageous for small and mid-sized businesses to evaluate service providers that specifically target the needs of smaller organizations. Such providers are often attuned to the budget and resource constraints faced by smaller companies and, as a result, tend to offer simple-to-understand, flat-rate service packages and efficient online customer support.

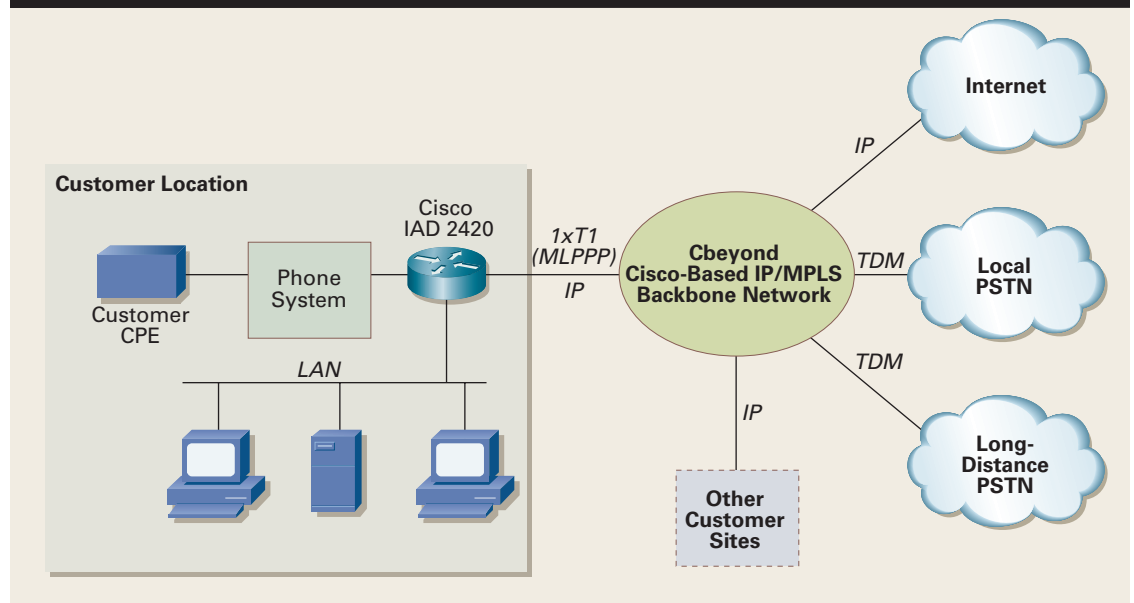
Understandably, small organizations that run a tight budgetary ship are heavily focused on their core businesses with little time to worry about IT and computer networking. For such organizations, out-tasking network equipment management and network connections troubleshooting to a responsive carrier can be a pivotal contributor to the success of their business.

Cbeyond, a managed network service provider, has successfully taken these considerations into account. The carrier offers integrated voice and data service packages, including an optional IP virtual private network (VPN) service with a 99.999 percent uptime guarantee, deployed on an all-Cisco infrastructure.

The carrier specifically targets businesses with up

ONE CONNECTION FITS ALL: At its customers' locations, Cbeyond installs and manages a Cisco IAD 2420, which connects to both a customer's existing phone system and LAN. The carrier shuttles IP traffic across its private Cisco-based backbone network, while handing off Internet data to upstream Internet service providers and phone calls to the PSTN. No voice traffic goes over the Internet.

TYPICAL SMALL-BUSINESS INTEGRATED ACCESS SERVICE SETUP



Top Honors

Stratecast Partners, a strategic analysis firm and division of Frost & Sullivan based in San Jose, California, named Cbeyond (cbeyond.net) the strongest integrated access service provider for small and midsized businesses in the US in its May 2003 report on the telecommunications

industry. The firm based its assessment on interviews with 13 of the top telco service providers and evaluated the companies on pricing, financial stability, commitment to small and midsized business customers, service options, and ease of use.

to 100 users and currently offers services in Atlanta, Georgia; Dallas-Fort Worth, Texas; and Denver, Colorado. Service in Houston, Texas, is on the roadmap for early 2004, according to Brooks Robinson, Cbeyond's chief marketing officer.

The company installs and manages a Cisco IAD 2420 Integrated Access Device (IAD) at a customer's location. The IAD merges voice communications from the customer's existing phone system and IP data traffic from the customer's LAN, then passes all traffic in IP format to Cbeyond's network. From there, traffic is forwarded to another customer VPN site, a local or long-distance public switched telephone network (PSTN) for termination, or the public Internet (see figure, page 70).

What seems to initially attract customers to Cbeyond is its pricing, though Cbeyond users say that the high availability and fast customer response times are what keep them loyal.

"I was most drawn to the idea of a flat bill [for all network services] every month," says Tom West, president of Intermark Languages Services Corporation in Atlanta, a Cbeyond customer.

West runs a five-employee company, located in a single site. Much of Intermark's business consists of exchanging e-mail documents for foreign-language translation with clients in Europe, so highly reliable Internet access is a priority for the company.

Before signing up for Cbeyond services in early 2001, says West, "We had four different providers—for Internet services, local phone lines, domestic long distance, and international long distance. We never knew what our bills would add up to. And we tend to be short-handed," he adds. "Previously, I had to look at four bills and write four checks each month. Now I write one. As a small business, I consider any form of consolidation and paperwork reduction desirable."

"I was most drawn to the idea of a flat bill [for all network services] every month. . . . As a small business, I consider any form of consolidation and paperwork reduction desirable."

—TOM WEST, PRESIDENT, INTERMARK LANGUAGES SERVICES CORPORATION

Cbeyond says its aim is to provide smaller organizations with local, long-distance, and Internet services for roughly the price of what traditional local and long-distance voice services would cost. "I don't know if a company our size could have received a T1 line at an affordable price," says West. "Our monthly bill is about [US]\$500 for everything, including five phone lines with 1500 minutes of long distance."

Likewise, E-Six Lab of Atlanta, Inc., a professional photo lab, says it has been saving money using Cbeyond's bundled service for the past year. Also, having a full T1 line is a big advantage, says Andy Campbell, production manager at the 14-employee company.

"With photography and digital imaging, we are transferring large files across the Internet," Campbell explains. "We

built an FTP [File Transfer Protocol] server in-house and put it online, so clients can send us large image files that we can manipulate."

Previously, E-Six was using a consumer-class ADSL service that delivered, at best, 256-Kbit/s upload speeds. "It is tough to host any type of server with those restrictions," Campbell says. "We're saving about [US]\$100 a month and now have a full T1 that lets us upload as fast as we download."

According to S&K's Lasater, in 1.5 years, he has experienced two outages, one that was caused by lightning and the other in which the entire business park where his company is located was out for several hours. "And if you send an e-mail for service through the Cbeyond Web portal, you get a response within a few minutes," he says.

Because Cbeyond converts time-division multiplexing (TDM) voice to voice over IP (VoIP) for transmission across its network, it leverages Cisco priority markings and low-latency queues to make sure that voice quality remains carrier-class.

“I didn’t turn to Cbeyond for the VoIP potential. I did it to get a T1 at a better price,” says Campbell. “The side benefit is that I’m not paying for voice. And the VoIP technology is transparent to us. Our callers don’t realize we are even using it.”

Service Package Particulars

Cbeyond offers tiered packages of managed services that include local and long-distance voice, broadband Internet service from 1.54- to 3-Mbit/s speeds for a monthly price that is usually less than the cost of a US T1 circuit alone. The three primary packages range in price from about US\$500 to US\$1300 per month and include 1500 to 6000 long-distance minutes (800-number, or toll-free, minutes can be applied to this allotment of minutes). The monthly fee also includes a choice of either an add-on voice-service package (voice mail, direct-inward-dial numbers, conferencing minutes and calling-card minutes) or an “e-business” package of e-mail and Web hosting services.

For an additional, US\$50 flat per-site monthly fee, Cbeyond customers can layer on IP VPN services in cases where they have more than one company location and require intersite communications. Cbeyond positions its IP VPN services as a low-cost alternative to Frame Relay. Cbeyond’s Robinson explains that IP VPN services remain exclusively on the carrier’s own backbone network, constructed of Cisco IP Security (IPSec), Multiprotocol Label Switching (MPLS), and IP equipment.

The provider installs and manages a Cisco 2420 multiservice IAD to combine voice and data at the customer’s site. The devices run traditional Layer 3 IP routing protocols, Dynamic Host Configuration Protocol (DHCP), Network Address Translation (NAT), quality of service (QoS), and VoIP.

A customer’s existing voice system—such as a key system, terminal block, or small PBX—plugs into the Cisco IAD 2420, as does an Ethernet LAN data server. The 2420 converts TDM voice to IP voice and sends it to Cbeyond’s own self-managed IP network. From there, voice is passed on to a local or a long-distance PSTN service. Internet traffic is handed off to one of several large Internet service providers with which Cbeyond has wholesale arrangements, according to Robinson.

Aggregating T1 Circuits

The Cbeyond package options allow for bandwidth of 1.54 Mbit/s (a T1), 2 Mbit/s, and 3 Mbit/s. Cbeyond uses Multilink Point-to-Point Protocol

(MLPPP) technology to combine two 1.54-Mbit/s T1s for the higher speeds.

Using MLPPP, multiple physical circuits are logically aggregated to increase bandwidth, but the service provider manages a single, logical interface only. This means that carriers do not have to configure or manage additional interfaces as additional links are activated. MLPPP fragments data packets and transmits them to the receiving end across the various separate physical links. At their destination, packets are reassembled based on PPP information embedded within them.

In general, MLPPP-based services are an attractive option to customers who would otherwise be forced to choose between tolerating poor performance or making quantum leaps from, for example, T1/E1 to T3/E3 speeds before such capacity

was actually required and cost-justifiable.

“I conduct bandwidth tests on a regular basis,” says Lasater, who contracts for just a single T1’s worth of capacity. “I don’t care what [Web] site I visit, regardless of the number of network hops, I get a minimum of 1.54 Mbit/s and usually more than that.”

Intermark’s West agrees that his organization is seeing an improvement. “We’re experiencing a night-and-day performance difference on the Internet,” he says.

Keeping It Simple

At the end of the day, Cbeyond says it tries to keep service-package decision options straightforward and simple. The provider offers compelling pricing and attempts to raise the bar on the level of responsiveness and support available to smaller organizations—all characteristics that Lasater, West, and Campbell say they appreciate.

West, whose vocation is to translate documents for clients, likely echoes the feelings of many with his plea for simplicity when it comes to networking: “Like a lot of small business owners, I just want things to work.” ▲▲

“We’re saving about [US]\$100 a month and now have a full T1 that lets us upload as fast as we download.”

—ANDY CAMPBELL, PRODUCTION MANAGER,
E-SIX LAB OF ATLANTA

FURTHER READING

- Cisco IOS® MPLS:
cisco.com/packet/154_9b1
- Cisco IAD 2420:
cisco.com/packet/154_9b2