MegaPath®

LOOK BEYOND CABLE

CHOOSING THE RIGHT INTERNET ACCESS FOR YOUR BUSINESS

WHAT'S THE BEST INTERNET ACCESS CHOICE FOR YOUR BUSINESS?

Cable operators actively promote their broadband Internet services as being the "latest and greatest" for small and mid-sized businesses (SMBs). Although cable can be a good choice for some scenarios, it falls short for many business Internet access and networking needs.

To be called business-class, an Internet service should meet three criteria. First, the service must have dedicated bandwidth, not shared. Because cable bandwidth is shared, the actual speed it delivers at any moment will depend on the current traffic load based on how much bandwidth is used by other nearby users. Second, the Internet service should be delivered over an infrastructure that is built to meet the highly demanding needs of business users, not the more limited expectations of residential customers. Third, the service should offer business-class service level agreements (SLAs) that deliver true business-class performance and features with real uptime guarantees. Cable providers typically offer "best-effort" service availability which means users get unspecified uptime guarantees without any recourse should their service go down for minutes, hours or days.

As businesses increasingly rely on data and voice communications, making the right access choice is essential for your business success. As alternatives to cable, Business Ethernet and T1 services offer significant advantages for performance, reliability, applications support, and security.

HIGH-SPEED CABLE? MAYBE, MAYBE NOT

When it comes to cable Internet services, the speeds you actually experience are likely to be substantially lower than the levels promised by the providers.

Cable providers publish their service speeds as "up to" claims, usually with fine-print disclaimers (see example below)*. Some cable operators don't even disclose this limitation, but the lack of disclosure doesn't mean the performance problem is nonexistent.

Minimum term service agreement required. Cox cannot guarantee uninterrupted or error-free Internet service or the speed of your service. Rates and bandwidth options vary and are subject to change. Equipment installed by Cox may vary and installation of networks, Ethernet cards or LAN wiring is not included. Static IP addresses may be required or dynamic IP addresses may be assigned without a static IP request, depending on location. Actual modem speeds vary. 150 Mbps speeds not available in all areas. Number of users and network management needs may require Cox to modify upstream and/or downstream speeds. Other restrictions apply.

*Actual description of performance levels from a major cable provider.

Several reasons lie at the heart of this performance difference.

SHARED BANDWIDTH

On a cable data service, all available bandwidth is shared among multiple users. For example, a 10 Mbps cable service in your neighborhood could be split among as many as 100 users. This means the amount of bandwidth available to your business can vary greatly during the day, depending on the moment-to-moment traffic levels generated by other users.

Cable providers have chosen this shared network design because they assume that not all users will be online at the same time or generate the same level of bandwidth demand. However, if you have a large presentation to upload or an important online meeting with a customer, you'll see the impact of shared, unpredictable bandwidth. As cable service becomes more popular, the increased user demand on that shared bandwidth will be a more noticeable challenge to conducting your business.

In contrast, the total bandwidth in a business Ethernet or T1 service is all yours all the time. Business Ethernet service supports dedicated symmetrical speeds up to 1x1 Gbps and dedicated asymmetrical speeds up to 50x10, while T1 and Bonded T1 circuits support dedicated speeds up to 12x12 Mbps at each site. A typical cable offering is a shared 10x2 Mbps service.
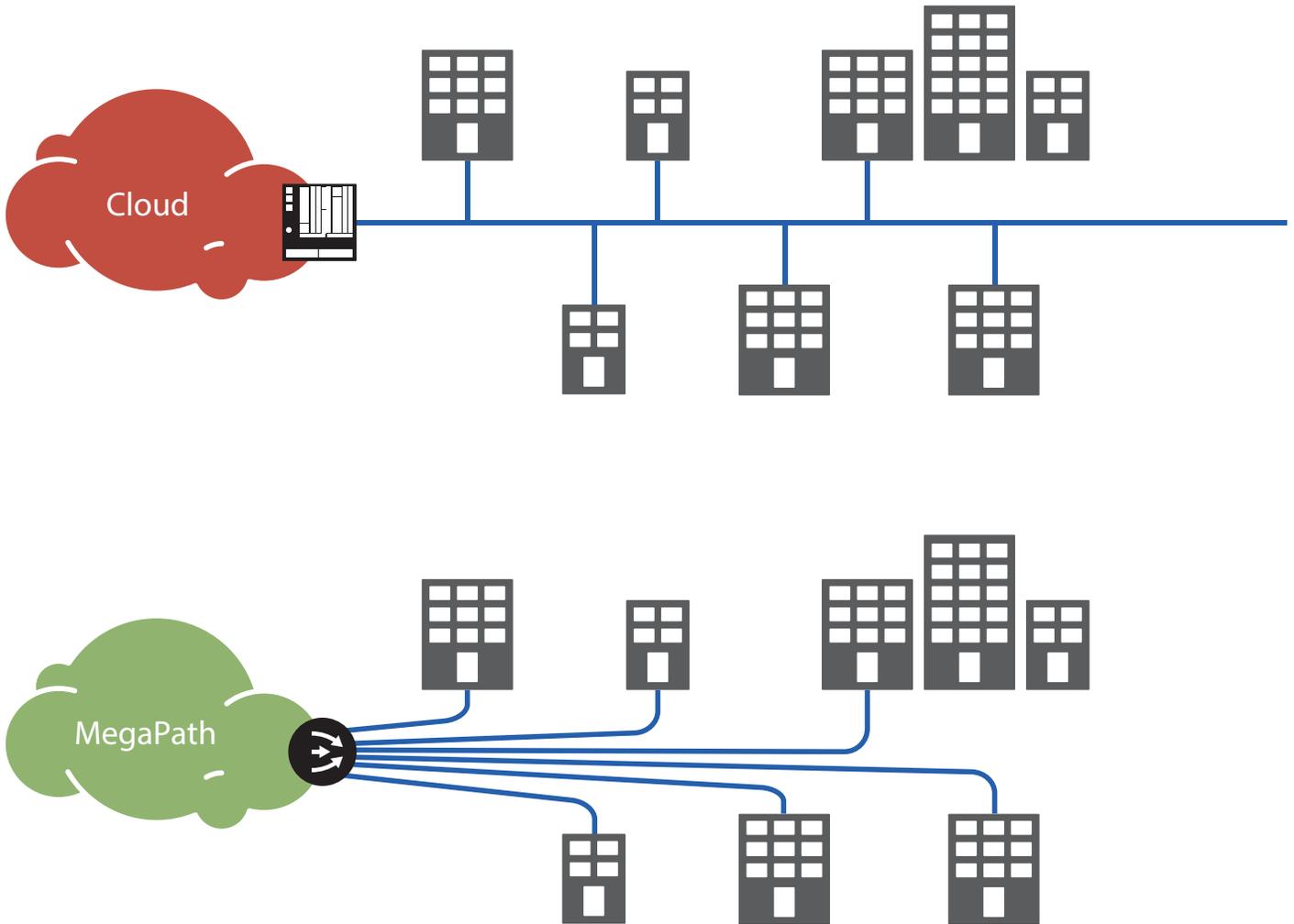
Unlike the shared bandwidth of cable services, MegaPath Business Ethernet and T1 customers enjoy a dedicated circuit with optimized bandwidth to each site.

ASYMMETRICAL SPEEDS

Asymmetrical access services deliver higher download than upload speeds when transferring data. While many business applications and locations require symmetrical services that offer the same speeds in both the upload and download directions, e.g., 10 Mbps download and 10 Mbps upload, in certain business situations, asymmetrical services can be a cost-saving connectivity option. Typically, these situations include business applications or locations with higher downstream than upstream traffic demands such as:

> Organizations without any servers on premises

> Locations that run non-mission-critical applications

> Branch offices that access applications from headquarters

> Remote office locations that do not upload a lot of content

Asymmetrical services can also provide affordable, temporary back-up Internet access for sites that have high requirements for business continuity if the primary network service has an outage.

Cable service is a common asymmetrical connection that was developed for residential customers, whereas asymmetrical

Ethernet services, now gaining in popularity, are a newer technology developed specifically for business users. Although cable and asymmetrical Ethernet access are similar in terms of delivering low-cost, asymmetrical bandwidth, asymmetrical Business Ethernet offers several distinct business-class advantages over cable, including:

> Business-class SLAs. Down time can mean lost customers and revenue. Cable provides "best effort" service availability. In contrast, a business-ready asymmetrical Ethernet connection includes business-class SLAs with real uptime guarantees.

> Dedicated versus shared bandwidth. With asymmetrical Business Ethernet, you won't share bandwidth with the users next door like you will with cable.

> Quality of Service (QoS) support. Look for a business-class platform engineered for QoS. Unlike cable, asymmetrical business Ethernet supports Class of Service (CoS) traffic prioritization capabilities to run bandwidth-intensive applications like voice and video.

Asymmetrical services are similar in terms of disparity in download and upload speeds. They are suitable for select business applications; however, they are not equal in terms of business-readiness. As the name implies, an asymmetrical Business Ethernet connection is intended for the demands of businesses and provides several advantages compared to cable.

NETWORK LATENCY

Cable systems generally have higher network latency, which means data takes longer to get from one point to another. Additionally, cable networks are not tuned with QoS for voice calls over the Internet. When QoS is not implemented in an Internet voice service, you may notice gaps in conversation, diminished voice quality, even dropped calls. This problem is compounded by bandwidth sharing on a cable network.

Business Ethernet or T1 services are suitable for all types of applications that require QoS including voice, video, virtual private network (VPN), and remote workers and servers. The reason: These dedicated access services support Class of Service (CoS) capabilities that prioritize voice and video traffic. Cable providers do not support CoS, which means voice calls and video streams are given the same priority as any other user data on the shared cable service.

SERVICE AVAILABILITY

Of course, concerns about network performance become moot when there is an outage. Cable providers usually support only "best-effort" objectives, meaning there may be no specific guarantees for network availability or repair time. A cable Internet service outage could extend for hours or even days without any recourse for the customer. And, if someone down the street is having service problems, the repair effort might disrupt your service, too.

This lower bar for network availability reflects the focus of cable providers on residential customers instead of the time-sensitive support needs of business customers. In this mindset, a service outage is tolerable since it traditionally involves just residential service. But for a business, a network outage can have the strongly negative impact of lost revenues, lower productivity, and reduced customer satisfaction.

In comparison, Ethernet and T1 outages and service issues are rare. Telecom networks are built with a high level of redundancy and repairs to one part of the network do not affect other users.

Typically, business-class services offer SLAs that promise network availability of 99.99 percent, which allows up to four and a half minutes of downtime per month. SLAs are even higher when the provider offers proactive monitoring and failover services.

Many SLAs also cover performance factors such as packet delivery rates, round-trip delay times, mean time to repair for reported problems, and installation intervals for new service. Telecom service providers typically have built-in payment penalties if the actual performance does not meet the levels promised. In most cases, cable providers do not offer this SLA depth, if they even offer service-level agreements at all.

NETWORK SECURITY: DO YOU REALLY WANT TO DIY?

Cable services rely on customers to implement and maintain their own data security tools. For a business with multiple users, this do-it-yourself (DIY) security can become a demanding task. And unless you have network security experts on staff, how can you be sure you're getting it right?

In Ethernet and T1 services, network security is managed end-to-end by the provider. Many telecom providers have a dedicated security operations center, staffed around-the-clock by personnel with high levels of cyber-security expertise.

SCENARIOS FOR CHOOSING CABLE

In some cases, cable service can be the right choice for Internet access, such as in locations where Ethernet or T1 services may not be available or cost-effective.

Cable can also provide back-up Internet access for sites that have requirements for business continuity if the primary network service has an outage.

The table will help you determine which Internet access services are right for the needs of your business applications and locations.

Service Attribute	Cable	Ethernet		T1
		Symmetrical Speeds	Asymmetrical Speeds	
Bandwidth	Asymmetrical, Shared	Symmetrical, Dedicated	Asymmetrical, Dedicated	Symmetrical, Dedicated
Speeds	Up to 10 Mbps download / 2 Mbps upload	Up to 1 Gbps	Up to 50x10 Mbps	Up to 12 Mbps
Availability	Best effort	100% with monitoring or failover	99.99% with monitoring or failover	100% with monitoring or failover
Performance Guarantee	No SLA	SLA	SLA	SLA
Business Application Support	Limited	Strong	Moderate	Strong
Voice Services	No CoS	CoS/QoS	CoS/QoS	CoS/QoS
Security	DIY	End-to-end network security from the provider	End-to-end network security from the provider	End-to-end network security from the provider
Service Provider Focus	Residential Customers	Business Customers	Business Customers	Business Customers

WHAT IS THE TRUE COST?

The initial price of broadband cable services may be tantalizingly low, but make sure you're looking at a realistic total cost.

> Productivity and customer service impact if actual cable speeds are less than the levels promised. Will poor network performance hamper your business function today and growth tomorrow?

> Limited potential for adopting cloud, voice, and video applications. New, media-rich technologies offer exciting opportunities to improve your operations and take your business in new directions. Will cable Internet access be enough to keep up?

> Business risk of DIY security for your network connection. What will be the cost of business downtime and damaged reputation if you're the target of a cyber attack?

> Finally, verify that cable services are offered at all of your locations. If cable construction is not completed in an area, site surveys, permitting, and installation can consume a lot of time and money before the service can be activated.

INTERNET ACCESS SERVICES FROM MEGAPATH

MegaPath offers multiple Internet access services to meet the diverse needs of businesses of all sizes.

With services such as symmetrical Ethernet and T1, applications can use the full available bandwidth in either direction. The circuit speeds are fixed and do not vary based on location or provider. Additionally, with symmetrical Ethernet and T1 circuits, users get the same speed in both the upload and download directions, e.g., 10 Mbps download and 10 Mbps upload.

Symmetrical services are ideal choices for Internet access at most business sites. These services offer the true business-class connectivity that enhances the value of data, voice, and video communications for your employees and customers.

MegaPath's asymmetrical Ethernet, cable, DSL, and wireless services can be the right fit for businesses with limited connectivity demands, and are also suitable for fill-in or business continuity/disaster recovery purposes.

MegaPath also offers SMB customers significant advantages as a service provider. With a focus on all business communication needs, MegaPath offers complete solutions for data, voice and video, VPN, and network security. These solutions mean you spend less time resolving network issues and more time on your business. Specifically, your business will benefit from:

> Industry-leading service-level agreements that deliver exceptional network reliability

> Professional installation of circuits and business-class routing equipment at your sites

> An online customer portal for simple account and billing management

> A network that was built to meet business needs from the start, backed by business-focused technical support

When it comes to networking, you have more choices than just cable. Learn more about how the many outstanding networking solutions from MegaPath can improve your business.

NEXT STEPS

Visit www.megapath.com to learn more, or contact a MegaPath Business Consultant today at 877-611-6342.