# The Business Case for Business Continuity

Protecting Your Enterprise From the Costs of Wide Area Network Downtime

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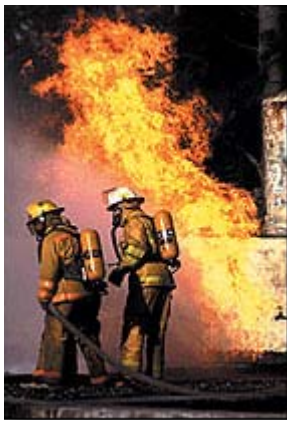
Since 2001, a series of manmade and natural disasters - from 911 in New York to the tsunami in Indonesia to Hurricane Katrina in the Gulf - has focused the minds of executives on the need to invest in business continuity. A business issue once given more lip service than serious consideration has now become a priority.

Over the same period, the spread of the Internet and intranet into every corner of business operations has made wide area networks (WANs) among the critical assets of the enterprise most in need of protection.

There is a certain irony in this, because one of the leading business continuity risks identified by managers all around the world is their reliance on paper records. Paper is vulnerable. It can be burned, torn or stained. Water damage can render it worthless. The obvious solution is to digitize the information on those documents - in other words, to avoid creating the paper in the first place or to turn it into a digital image accessible over the network. The irony is that by solving one business continuity risk, companies are increasing the risk of business disruption from downtime on the network.

This industry briefing explores the business drivers that need to be considered in decisions about business continuity for the enterprise WAN, as well as options for continuity and the technology with the economic trade-offs involved.

## Sizing the Problem



Whatever unimaginable thing can go wrong almost certainly will go wrong given enough time. Mike Semel, vice president of business continuity and compliance services at Connecting Point in Las Vegas, likes to tell a story about understanding business risks. A small firm of radiologists wanted his advice on business continuity and disaster planning. He asked them what scenarios might shut them down, and the radiologists insisted that the risk of a hazardous material accident was virtually zero. All the hazardous chemicals were at the hospitals. Then Semel used Google Earth to show them a satellite view of their office, which was within 80 feet of railroad tracks that regularly carried large shipments of hazardous materials. Across the street was a sporting good store that warehoused large quantities of gunpowder and other flammable chemicals. The point? The radiologists were thinking just about what was in their office rather than about the total range of risks their business faced. *(Channel Advisor*, August-October 2006)

The costs of shutting down an office or a business are relatively easy to understand. But an outage on the WAN? On a gut level, it seems more

inconvenience than threat. How many times have we called a customer service number or stood in line at a retail outlet only to be told, "I'm sorry, our computer's down. Can you call back?" Annoying, certainly, but hardly a disaster.

In a January 2005 story in *IT Week*, Martin Courtney noted that "Many IT managers see little need for network management system (NMS) tools and believe vendors and analysts exaggerate the cost of network downtime."

## Estimating the Costs of WAN Downtime

Those watching the bottom line may beg to differ. Courtney cites a 2004 study of 80 large US companies conducted by analyst firm Infonetics, which showed that they experienced an average of 501 hours of network downtime per year, and that this cost them an estimated 4% of their annual revenues, totaling millions of dollars. In separate research, analyst at Gartner estimated the hourly cost of network downtime for large companies at $42,000, with a typical business experiencing 87 hours of downtime per year, resulting in total losses exceeding $3.6 million per company.

Infonetics, based in San Jose, updated that research in 2006 with a survey of midsize businesses (101 to 1,000 employees), which suggested that they lost an average of 1% of annual revenue, or $867,000, to an average of 140 hours of downtime every year, with 56% of that caused by pure outages. In other research that drilled down into specifics, Infonetics found that, in its sample group, wide area networks experienced 3.7 hours of outage per month and an additional 3.4 hours of service degradation per month.

**A mere minute of downtime can bring big losses.**

SOURCE: ALINEAN

| Business Application | Estimated outage cost per minute |
|---|---|
| Supply chain management | $11,000 |
| E-commerce | $10,000 |
| Customer service | $3,700 |
| ATM/POS/EFT | $3,500 |
| Financial management | $1,500 |
| Human capital management | $1,000 |
| Messaging | $1,000 |

Whether or not you choose to accept this blizzard of statistics, it is fairly straightforward to evaluate your own organization's costs for downtime in the wide area network. The results may startle you.

## Downtime Cost Calculator

There are two financial losses associated with network downtime: lost productivity and business losses.

**Lost Productivity.** To calculate the loss of productivity due to wide area network outages:

- Determine the average hourly labor cost of employees at a site, which is total payroll costs divided by the number of employees, divided by the number of working hours in a year, typically 2,080.

- Determine the impact on productivity of an outage at a work site and express it as a percentage. If employees spend 100% of their time interacting with network applications - as would a customer service representative or equity trader - the impact is 100%. For most employees, the impact is less than 100% but may still be quite large.
- Multiply the number of workers affected by the outage by the average hourly labor cost, and by the percentage imact on productivity.
- Multiply the result by the duration of downtime, expressed in hours, to find the total cost of lost productivity.

**Business Losses.** To calculate the business loss due to wide area network outages:

- Determine the average profit per employee by dividing the company's profit in the most recent year by the number of employees.
- Multiply the number of workers affected by the outage by the average profit per employee, and by the percentage impact on productivity, as described above.
- Multiply the result by the duration of downtime, expressed in hours, to find the total business impact.

Making this calculation usually reveals a much greater financial impact than most people expect. The following is a typical example for a single 4-hour outage affecting one work site:

If WAN downtime is a monthly occurrence - as suggested by the Infonetics research into midsize businesses - the annual cost for just this one location is nearly $440,000. By this calculation, a system that prevented WAN outages from affecting employees at this location could cost a quarter-million per year and still be a bargain.

| **Lost Productivity** | |
|---|---|
| Average hourly labor cost | $24 |
| Impact on productivity | 50% |
| Number of workers affected | 300 |
| Duration of outage | 4 hours |
| Subtotal: $24 x .50 x 300 x 4 = | $14,400 |
| **Business Losses** | |
| Average profit per employee | $37 |
| Subtotal: $37 x .50 x 300 x 4 = | $22,200 |
| **Total** | **$36,600** |

## Protecting Against WAN Outages

The key to protecting against WAN outages is circuit redundancy. Should the primary circuit linking the remote location to the enterprise network go down, a backup circuit must be available and ready to take its place.

Achieving true redundancy, however, is harder than it looks. It is simple to purchase backup DSL or T1 line froms the local telco - but that line almost certainly shares risers, poles, conduits and other crucial elements with the primary circuit. This is true even if the circuit is provided by a different carrier, because there are a limited number of rights-of-way available to service providers in any community. A disaster that takes out the primary -

from weather to a careless backhoe operator - is more than likely to take out the backup as well. Major disasters in particular have a cascading effect that produces unforeseen consequences.

The two biggest disasters of this decade illustrate the point. The destruction of the World Trade Center in New York City took down all telephone service in lower Manhattan when it destroyed the Verizon switching center. But it also took out wireline and cellular service throughout the island because the systems became completely overloaded. The only dependable communications into and out of the disaster zone was through hastily deployed portable satellite antennas.

When Hurricane Katrina swept through the Gulf of Mexico, in addition to the other horrendous damage done, it took out a microwave-based telephone and data network that connected the hundreds of offshore oil platforms throughout the region. High winds tore microwave dishes from the platforms and knocked over the land-based towers. But a second communications network based on satellite survived with only scattered outages.

Satellite offers true redundancy because the circuit is a line-of-sight link to a satellite orbiting 22,500 miles above the earth's equator and back down to another antenna within the same "footprint." As long as there is electric power and an antenna, literally nothing on earth can stop it.

## Making Satellite Redundancy Pay Off

If satellite is such a perfect redundancy solution, why isn't it the standard?

There are two reasons. First, satellite bandwidth is expensive relative to DSL, T1 or even fiber to the premises. There are a limited number of satellites in orbit and the total available bandwidth is only a tiny fraction of that accessible through terrestrial networks. Limited supply and the high cost of building and launching a satellite have kept satellite capacity from following the downward price trend of the rest of the telecom industry.

There is also the matter of that 43,000-mile round-trip required to get each digital bit to its destination. It introduces latency much greater than standard Internet Protocol was designed to handle. This presents little challenge to largely one-way transmissions, whether of TV pictures or large data files, because data-tweaking techniques collectively known as acceleration can be used to efficiently fill the pipe. But it presents a major obstacle when we try to run the "chatty," highly-interactive applications that are the core of most enterprises, whether it is MS Exchange, SAP or Oracle, over a virtual private network. Not even Citrix can achieve acceptable performance in this environment under normal use.

So, if satellite is to be used for business continuity, something must be done to use the costly bandwidth very efficiently and to eliminate the latency issues that doom the core enterprise applications to failure.

Fortunately, something *has* been done.

## The Optimal Solution

End II End Communication's Optimal family of products use a revolutionary optimization technology to deliver high performance over high-latency connections, whether it's a satellite link or a low-quality terrestrial circuit. The result is a fully-functional office supporting telephony, Internet and enterprise applications - while maximizing employee productivity - anywhere you do business.

End II End's patent-pending optimization technology is called Broadband Network Optimization (BNO). It creates an AES 256 IPSec VPN that enables all business applications to run securely, cost-effectively and with LAN-like performance over satellite. How?

Simply put, BNO tests the characteristics of a communications circuit and configures the communications parameters to maximize data throughput. BNO evaluates the network path between the end points of a VPN tunnel in terms of speed, jitter, delay, and packet loss, and determines the optimal communications parameters for each endpoint to use. Through this optimization, the actual packet flow rate between VPN endpoints is significantly improved by better utilizing the available bandwidth. Higher utilization is accomplished by reducing the idle time between packets and selecting parameters and values to optimize the data flow rate. In other words, BNO can transmit considerably more data packets in the same amount of time compared to a non-optimized network, thus dramatically increasing the overall data throughput

Optimal software provides other efficiencies as well, which reduce overall cost of ownership. In a traditional network environment, Router, Firewall, QoS, VPN, and Intrusion Detection functions usually require multiple devices from one or more manufacturers, often with different operating systems, protocol stacks and unique network controls. Optimal software incorporates all of these functions in a single software product that runs on Intel-based PCs or servers. Optimal also provides Simple Unified Management that allows all sites and services to be managed remotely and collectively using a Web-based tool, with real time reporting on potential network threats and areas of congestion.

## OptimalLink Business Continuity

OptimaLink Business Continuity from End II End is a secure, cost-effective, satellite-based VPN that backs up terrestrial broadband circuits to keep your users online through common network outages and even disaster conditions. OptimaLink BC provides:

- Fixed satellite terminals fully integrated with all electronics including standard Ethernet ports for connection to the local area network. These units are pre-aimed by certified installers to ensure proper alignment with the satellite. Optional power generators and standby fuel tanks are also available.
- Satellite bandwidth from a variety of high-quality providers, with plans ranging from a prepaid bandwidth commitment to on-demand service.
- EIIE OptimalEdge software for PCs or LANs at remote sites and OptimalHub software for the data center.
- EIIE's failover technology that seamlessly and automatically transitions from the primary to the secondary network in the event of an outage. When the primary connection is restored, the failover feature automatically routes data traffic back to that network.

## Is Satellite-Based Redundancy Affordable?

The answer depends on how valuable the high degree of protection afforded by satellite is to your organization. That value may be measurable in dollars and cents, using the kind of financial calculations provided in this white paper. There may also be strategic considerations such as customer satisfaction, risk reduction or the need to maintain the value of information assets that determine your choice.

Like many IT investments, the cost of satellite business continuity depends on the implementation and cannot realistically be "ballparked." The largest single cost, however, will be bandwidth, and the use of Optimal software ensures not only a LAN-like experience for remote users over a VPN but as much as 30% reduction in satellite bandwidth requirements.

One solution adopted by many End II End customers is to deploy full-time satellite connectivity to a small number of remote locations, then install OptimaLink Business Continuity at all locations for use in case of WAN outages. This is highly cost-effective for companies with a few remote sites that have poor-quality, expensive or nonexistent terrestrial broadband. These sites gain LAN-like access to the enterprise network and the entire network gains business continuity protection. If terrestrial connectivity goes down at any location, the OptimalHub software's automatic failover feature switches

service to the satellite, "borrowing" a bit of bandwidth to bridge the short-term need.

## About End II End Communications

End II End Communications develops products that optimize, secure and manage the wide area network, enabling your enterprise applications to go where they have never gone before. Our Optimal products let your end users get down to business wherever they do business, while minimizing network costs and downtime. For last-mile connectivity or seamless business continuity, they deliver:

- Robust, LAN-like performance for mission-critical applications like Citrix, SAP, MS Exchange and Oracle over high-latency connections including satellite
- An end-to-end, industry-standard security solution in a single, multi-functional product
- The power to manage and monitor all sites and network services from the data center, applying changes across the entire WAN with a single click

End II End also offers total solutions for network deployment, business continuity and disaster recovery that combine software, hardware and satellite services to overcome local or global challenges to enterprise-class connectivity.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