Cost Cutting by Rightsizing Network Reliability

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Enterprises should grade their sites by reliability needs because this is the biggest factor driving WAN costs. Selectively reducing the reliability goals for sites can result in significant savings.

Key Findings

- Combining multiple, less-expensive services in parallel can deliver the same levels of reliability at lower prices than a single, high-quality connection.

- Reducing the reliability target for a location by one "9" (for example, from 99.99% to 99.9% availability) will typically save 30% of the WAN costs for that site.

- Transition costs, such as installation charges for new services, will typically eliminate half of the first year's savings.

Recommendations

- Ensure that any reduction in reliability is explained to the business units and agreed on in terms they can fully comprehend.

- Put plans into place to handle business processes during outages.

ANALYSIS

Enterprise networking costs are increasingly a function of network reliability, rather than the traditional metrics of bandwidth and distance. For some time, Gartner has recommended that enterprises categorize their locations into a small number of groups according to their reliability needs and then deploy appropriate networking solutions for each group. The appropriate solution for a given reliability goal might vary by bandwidth and geography. See Table 1 for a simplified example of this approach.

Table 1. Simplified Example of Site Categorization

	Site Type	Goal	Typical Solution
Grade A	Data centers	99.999% availability	Dual, diversely routed fiber access links to diverse points of presence, connected to one or two Multiprotocol Label Switching (MPLS) networks, plus an Internet virtual private network (VPN)
Grade B	Headquarter sites and critical production sites	99.99% availability	Dual fiber access (larger sites) or fiber plus wireless (smaller sites) to MPLS, plus an Internet VPN
Grade C	Midsize locations and depots	99.95% availability	Leased line to MPLS, plus DSL to an Internet VPN
Grade D	Sales offices	99.9% availability	Leased line to MPLS or dual Internet connections
Grade E	Small sales offices and franchised agents	99.0% availability	"Business grade" DSL to an Internet VPN

Source: Gartner (April 2008)

If an enterprise can move sites from one category to a lower one or drop the reliability goal for an entire category of sites, then it can significantly reduce its communication costs. However, this reduction in reliability needs to be clearly articulated to and agreed on by the rest of the organization. This may mean expressing the expected outcome in less-technical terms (for example, 99.0% availability translates into approximately 3.5 days offline per year), so that the business can understand the potential impact on its processes and look at what workarounds might be possible. A useful starting point for analyzing the impact of downtime is to use an "expected cost" approach — the cost of an event multiplied by the probability of the event occurring.

It is also important for enterprises not to simply base their reliability plans on operators' stated availability goals or on service-level agreements (SLAs) backed up by trivial penalties. This is especially the case with lower-priced services, such as DSL. For example, availability SLA goals for so-called "business class" DSL services in Europe vary between 97.0% and 99.6%. Enterprises should base their reliability plans on a combination of their practical experience with each technology, operator and geography combined, wherever possible, with strong SLAs that are supported by substantial penalties. Enterprises also need to consider whether other aspects of performance will be affected by reducing the services purchased, such as increased latency.

Enterprises should not just think in terms of meeting these objectives simply by means of a primary connection that is combined with a backup link if necessary. For some time, Gartner has recommended hybrid WANs that combine multiple technologies and networks in parallel. A first

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approximation of the outcome of combining links in parallel is to use this formula: Site availability = 1 - (1 - Path 1 availability) x (1 - Path 2 availability) x (1 - Path N availability).

Therefore, for example, combining two Internet links each with 98.0% availability would result in 99.96% site availability. Combining a 99.8% MPLS connection with a 98.0% available Internet connection would result in 99.996% site availability, and adding a second Internet connection would increase site availability up to 99.99992%. However, this mathematical model must be used with caution because it assumes that all the outage sources are independent, which may not always be the case in enterprise networks. For example, all the access lines might follow the same route into the site, or a common ISP backbone may have been used for all connections.

One-Time Cost of Changing Sites

Changing sites between one grade of service and another will incur costs. There are two principal areas where these costs can occur:

- The first area is the cost of canceling the existing service. Renewing or renegotiating these service elements is typically annual, so the remaining rental period for a large number of sites will be six months, on average. However, networking contracts vary enormously. In the worst case, a "fixed service for fixed duration" contract would prevent any changes until a multiyear contract is renewed. A more typical case, especially in the case of a larger network where any migration would need to be phased, would be to align access renewals with the rollout schedule for the new service to eliminate waste.

- The new service will often have an installation/activation charge, although this may be waived in some markets. Where charged, this is typically equivalent to approximately three months of the new service's rental cost. Assuming that the new service is 30% less expensive than the old service, this will be 17.5% of the original service cost. On average, therefore, the one-time cost of change will be half of the first year's savings.

Enterprises should try to ensure that new or renegotiated contracts for network services accommodate this type of flexibility with minimal volume commitments, that these commitments are not tied to specific services and that pricing is agreed on for various service options. When attempting to make this type of change in less-flexible contracts, enterprises may need to look at contractual loopholes, such as being allowed to cancel services for other causes. However, enterprises should preferably engage with their providers in a more "partnership" approach and seek flexibility in the short term as part of a longer-term view of the relationship.

Potential Cost Savings

Assuming that one-third of an enterprise's sites can be dropped a grade in service levels, and that this is done without altering other factors such as bandwidth, the savings for these sites would be approximately 30%. This would equate to a reduction of approximately 10% of the enterprise's WAN service costs.

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