

8 Tips for Better Networking in a Capital Constrained Environment

Dr James Kershaw, Switched Data Products Manager, Nextgen Networks offers tips to help you improve network operations without re-inventing the wheel or depleting diminishing capital resources.

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In the current economic climate, network managers face enormous pressure to optimise performance and reduce costs. There is less capital available but expectations are even higher for IT infrastructure and applications to deliver bottom line business benefits.

Here are some tips that could help you improve network operations without re-inventing the wheel or digging too deeply into diminishing capital resources.

1. Do it smarter

In many cases, network infrastructure has grown in complexity and reach over time without an enormous amount of strategic planning. With little or no new capital available, it may be time to step back from the daily fire-fight, take a good look at what you have and investigate opportunities to conduct operations in a slightly smarter way.

It is an opportune time to gain a better understanding of business and operational priorities at the same time as eliminating inefficiencies and reducing administrative costs. Often you can make quick gains by merely adopting a different approach to configurations and/or human resource allocations.

Taking a holistic view of network operations and thinking laterally will allow you to identify recurring problems, underperforming hardware and applications and process deficiencies. In short you can often find significant cost savings and operational efficiencies without spending any money.

2. Gain visibility

An effective strategic review of network operations starts with being able to see what is happening and ideally what has happened historically. Improving visibility of the network does not have to be expensive or time consuming.



Many routers and network appliances you already own, such as Web caches and WAN optimisers, will have built-in reporting tools that you have perhaps never switched on or fully utilised. So, the first thing to do is to check out what you already have and see if it can help give insight to the functionality of the network and.

Meanwhile, there are a number of free or inexpensive network analyser tools available today. These can be easily deployed to provide a detailed breakdown of your network usage, traffic loads for various applications and bandwidth consumption.

Meaningful trend reports can be garnered from some of these resource utilisation monitoring tools with minimal configuration. There is also the opportunity to integrate this with automated alerts and alarms that will help to eliminate recurring issues before they become bigger problems.

3. Give the important stuff right of passage

Once you have network visibility, you can prioritise mission critical applications and reduce non-productive bandwidth use. It is important to make sure business continuity is maintained through defined Quality of Service (QoS) configurations which can negate the need for adding new bandwidth costs.

There are a number of ways that QoS can be applied to scarce bandwidth resources and every network will have unique configurations. Generally, it is managed at the WAN router level of infrastructure, so whoever controls the routers will have responsibility to set QoS boundaries. Innovative data carriers will support QoS automatically and for free.

All IT organisations should have a QoS policy statement. It can be as brief as a half-page document that defines which applications have access to various percentages of available bandwidth. It should outline which applications are critical to business continuity, which applications are supporting the business and which applications are hindering the business. Then you can make informed adjustments to QoS prioritisation.

4. Keep that which needs most attention close at hand

There have been a large number of network technology innovations over recent years that support the consolidation and centralisation of infrastructure. This has clear business benefits such as lower maintenance costs, less power usage and reduced infrastructure footprint. It is important to note that you don't have to consolidate and centralise everything into one location to gain advantages from the concept of having less hardware and fewer locations to do the same job.

Start by bringing complex technologies and those with high maintenance requirements as close as reasonable, so that servicing them doesn't cost as much as it would if they are dispersed over multiple locations.

Technologies such as layer 2 VPNs on public fibre infrastructure – as well as edge-of-the-network solutions such as WAN de-duplication and application accelerator appliances – have come a long way in recent years. They help to optimise bandwidth utilisation and naturally support centralisation by removing some of the performance barriers that promoted the original distributed model.

If you haven't checked out the latest products and data services supporting consolidation and centralisation, it is worth another look because often the return on minimal investment is worth the effort.

5. Make it work harder – consider virtualisation

There is a lot of noise these days from vendors and service providers about the value of storage and server virtualisation. When you do the sums it is clear the concept behind the enabling technology is sound and the cost/benefit equation looks pretty attractive so long as you have a quality network underpinning it.

The fundamental principle behind virtualisation is to optimise the use of available processing power and storage capacity. Many organisations have an array of dispersed servers performing different tasks. They are often only ever using about 5-10 percent of available CPU cycles and 10-20 percent disk space. Clearly this is an ineffective use of your computing resources.

Server virtualisation effectively uses a larger computer, subdividing the pool of its processing power and memory into an array of internally partitioned "computers" that run diverse applications inside the one box, thus achieving higher resource usage.

Similarly, virtualised storage solutions – such as SAN (Storage Area Networks), NAS (Network Attached Storage) and CAS (Content Address Storage) – consolidate disk space into centralised, larger storage devices. These concepts are not new, but they have matured significantly and make good sense in tougher economic times.

As well as savings in the actual physical infrastructure, benefits include reduced power requirements, lower administrative overheads and less maintenance. Virtualisation has a pretty good business case on bottom line benefits alone but it also has the really important side-effect of setting you down a path towards more responsible and environmentally friendly IT operations.

6. Converged communications are here

Convergence is another commonly evangelised technology concept that has been largely misunderstood in the past. Most organisations have in some form or manner integrated the carriage of voice, video and data over the same network. If you haven't done this yet, then you are missing out on potentially significant cost savings.

Moving all of your data traffic onto one network is easier and more affordable than ever and there is little or no doubt that VoIP (Voice over Internet Protocol) is here to stay. This is because the business case stacks up so well for organisations with multiple, dispersed locations.

It is a well-known fact, that for network voice and video to match up to their traditional counterparts, a capable network must be used. Thankfully, the advent of affordable, high-performance Ethernet-based Layer 2 VPNs brings flexible, high-capacity, self-manageable networks well within reach with flat fees and limited added costs.

7. Bring down the cost of data links

When it comes to looking at ways to save costs, it is essential to fully understand what you are paying for your data carriage services. This means all of the basic costs for fixed lines or VPNs over public networks as well as all of the additional cost items that are incurred when you need configuration changes, additional services, new connections and all of the other secondary costs that come with long-haul data links.

If you haven't investigated the premium data carriage services market recently, it is time to do so. There are now multiple suppliers in the market place with national long-haul capability and some who focus purely on providing the core carriage services built around the concept of Layer 2 VPNs.

The global trend for corporate WANs is moving towards Ethernet which is proving to be more secure, flexible, affordable and self-manageable than alternative WAN technologies, including private lines. Ethernet has the value proposition of being about carrying lots of bits at low cost. It is a mature, well established and understood technology which is Network Protocol Transparent.

Most carriers have interests in selling value-added managed services around their VPN offerings but it can often be far more cost effective to have self-managed services. In reality, most organisations can individually innovate for themselves better than a carrier.

8. Talk to your partners and suppliers

When trying to optimise performance and operational efficiency, it is always a good idea to engage in fresh conversation with your existing partners and suppliers with a view to getting a better deal or some additional value from the relationship.

Strategic decision making is reliant on a clear understanding of what your partners or suppliers can offer and what you need to help meet your objectives.

Most suppliers will now be well aware that they are selling into a capital-constrained environment, so if you talk to them they should be willing to help meet your expectations to cut costs. If they are not, then you have to be prepared to shop around.

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