dimension data

Performance Optimisation

What could a 50% improvement in network performance mean to your business?

At its most simple, performance optimisation is the addition of technology to a network, in order to accelerate the end-user's access to any given application. The primary objective is speed – delivering applications to users, irrespective of where the applications reside, and irrespective of where the users are connecting from, in the most efficient way possible.

Performance optimisation is the art of applying **policy and technology** to strategic parts of the network **to optimise how application traffic is transmitted and delivered over the network.**

The technologies that can be added to the network function in a variety of ways to deliver improved network performance:

Optimise your bandwidth

Bandwidth savings are achieved through the compression of network traffic, effectively making the traffic smaller and placing frequently accessed content closer to the user by caching the content. Such bandwidth savings reduce the time needed to access applications, both improving end-user efficiency and negating the need for additional, costly bandwidth purchases.

Assure the gains promised by infrastructure consolidation and centralisation

Performance optimisation can play a significant part in enabling the infrastructure savings promised by consolidating and centralising technology infrastructure, particularly where subsequent traffic changes prevented effective network access. In these circumstances, performance optimisation technologies can dramatically reduce the number of requests 'to-ing' and 'fro-ing' across a network through optimising the protocols, resulting in up to a 100 times improvement in network traffic flow and download speed.

Boost your operational efficiency and productivity

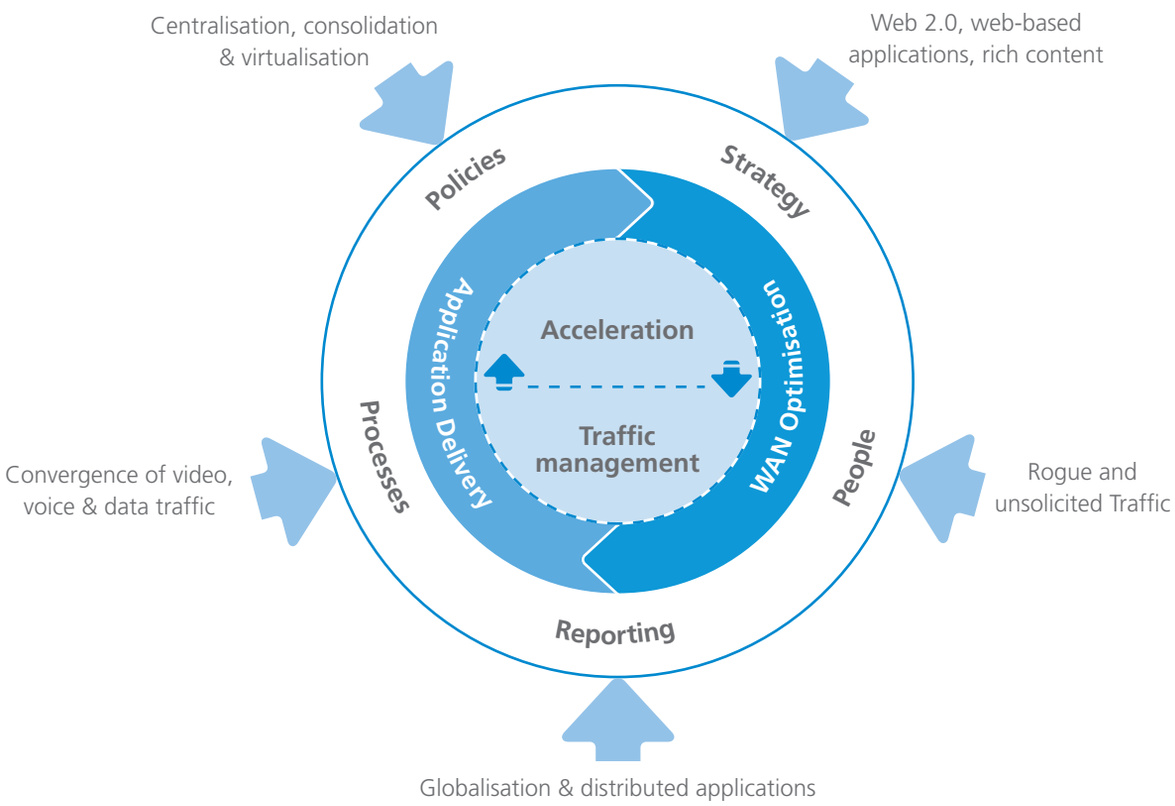
The value of the operational time savings that these optimisation technologies afford is hard to quantify, but ask yourself: 'what would a 100-fold efficiency gain mean to your organisation?' Is your company 'making do' with a level of performance that could – quite easily – be dramatically improved?

There are many benefits to optimising traffic on the network and the results can be astonishing. In addition, return on investment analysis generally reveals payback periods in less than 12 months.

Performance optimisation solutions

A holistic approach to performance optimisation is critical, from understanding the market drivers and the IT trends that contribute to the need for performance optimisation, to an approach that is inclusive of performance strategy, processes and measurement and takes all the various technology options into account. Dimension Data understands all the aspects that contribute to successful performance optimisation projects, and this translates into a compelling vision of a performance solution.

performance optimisation



Dimension Data provides an end-to-end approach to help clients achieve the maximum performance benefits out of the performance optimisation solutions delivered.

Our team will spend time with all your IT functions reviewing the latest trends in this space and making sure that all options are explored, explained and discussed.

Dimension Data typically performs an assessment of the network environment to gain an understanding of the current network traffic patterns. This assists in pin-pointing areas of the network that will benefit most from a Performance Optimisation solution.

The Dimension Data team is able to deliver a proof of concept to demonstrate the capabilities of the solution before any investment is made, thereby reducing the risk associated with technology projects.

Once the benefits have been proven, Dimension Data will design an appropriate solution, deploy it in your IT environment and ensure the installation across a single country, or multiple countries and territories managed to agreed timelines.

Dimension Data will also provide any ongoing hardware and software maintenance that is needed, as well as any ongoing services support to make sure that the investment continues to deliver superior performance through the life cycle of the solution.

Why your network might need performance optimisation

As you strive to increase and improve the value that IT delivers to your organisation, you're probably considering several of the following market trends and new technologies. What you may not be aware of is that they could be adversely affecting or even hindering your network's performance.

Data centre consolidation and server and storage consolidation and centralisation are both emergent trends that dramatically affect traffic patterns – patterns that reflect the physical location of hosts and servers. The majority of applications were not designed to be delivered over Wide Area Networks (WANs); while protocols may previously have enjoyed unlimited bandwidth on the branch or campus network, they are now burdened by the constraints of the WAN and subject to bottlenecks and delays.

The migration of client and server applications to **web-enabled applications** – SAP and Oracle being just two examples – is a pervasive trend. These web-based applications introduce new protocols and traffic flows, which traditional network architecture and design don't allow for, and typically require up to ten times more bandwidth than client-server models. Many networks cannot distinguish between newly introduced web applications and employee Internet access, and consequently business-critical data will get the same treatment as lower priority recreational data.

Networks are increasingly transporting **data, voice and video**, when most were designed only for data traffic. Not only have traffic loads increased, but new and varying traffic types are introduced that require different network characteristics in order to work successfully. The advantages of converged communications technology will be largely unrealised if lack of speed and bandwidth, delay or latency, packet jitter, and packet loss impede its effectiveness.

Many companies are **outsourcing or multi-sourcing** parts of their operations to service providers all over the world, and frequently incur the usual WAN performance problems. Long distance WAN links are expensive and well worth optimising to ensure that the investment is realised. The modern work force is more mobile than ever, and needs high speed access to applications, irrespective of where and how they connect to a network, in order to work effectively.

Unsolicited and rogue traffic can have a pervasive impact on a network. In an age of unprecedented IT literacy, consumers are both rapid adopters of new technology and voracious users of everything from SKYPE to IM to Facebook. Leading industry analysts estimate that more than 50% of network traffic is non-business related. This extra traffic can sap a company's bandwidth resources during working hours and may well be congesting the network, to the detriment of business-critical traffic.

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Making performance optimisation work for you

Poor application and technology performance will dramatically affect the productivity, efficiency and ability of the end user. If the end user can't work optimally, then the company they work for will not see a return of investment on either their employees or their IT projects. However, performance optimisation is not a simple 'put a device in the network' kind of solution and a more structured and measured approach is necessary for success.

Some of the challenges your organisation might face are:

Accelerating the most critical traffic

It is often very difficult to identify the areas within the network that would benefit the most from this solution and you should ensure you have access to the depth of protocol knowledge needed to interpret the traffic breakdowns that identify the protocol types most in need of acceleration techniques.

Designing and implementing the right architecture

Architecting this solution is a critical component of success, given that WAN optimisation technologies sit in the WAN, and application acceleration technologies sit in the data centre.

Selecting your technology toolset

Ensuring that the technologies being considered are appropriate – and optimally suited for the business requirement – is critical to getting the most benefit from the investment.

Managing the implementation across IT areas

Making a success of performance optimisation requires strong program management skills and logistical capabilities. It's imperative to have a pool of networking skills – including data centre and application level protocol skills – to deliver the high level of ongoing support on any performance optimisation solution.

The performance optimisation technology toolset:

What performance optimisation technologies deliver

	optimised WAN	optimised application delivery	optimised protocols	traffic reduction
Bandwidth management: Business-critical application data needs to have bandwidth reserved for it while low priority and recreational traffic have an allocated bandwidth allowance.	√	√		
Protocol acceleration and optimisation: TCP/IP is not an efficient protocol for many of today's applications, especially over a WAN. Protocol optimisation takes these protocols and makes them more efficient.	√	√	√	
Accelerated file services: These protocols are typically 'chatty' and were designed to operate over a LAN. Technologies in this category focus on improving the inefficiencies of these file and data services that have been transferred to a WAN.	√		√	
Compression: Involves a reduction in the amount of traffic that is transmitted over the network without losing the original content, which is then reconstituted at the destination.	√	√		√
Caching: Data that has been transmitted down a WAN link is stored locally and is then served from the local cache when next requested.	√	√		√
Content management: Control over unsolicited and rogue traffic which can consume large percentages of corporate bandwidth.	√	√		√
Offload services: Provide TCP, SSL and XML offload capabilities to free up CPU cycles on the application servers as well as allow for control of encrypted traffic.	√	√		
Server load balancing: The ability to spread the work, or load, between two or more application servers, leading to higher levels of reliability, redundancy, predictability and improved scaling of applications.		√		

Dimension Data's expertise

To get a network to perform at its peak requires complete, in-depth networking expertise, a comprehensive understanding of the underlying protocols and knowledge of the applications that are running over the network. Dimension Data has a long history of delivering sophisticated networking solutions with a focus on performance engineering to ensure that clients get the maximum performance out of their networks and data centres.

Having global reach is an important client consideration when selecting a Performance Optimisation partner, as many of these devices are installed in remote geographic locations to speed up connectivity from these sites to centralised application servers. Dimension Data has operations in over 49 countries and a Preferred Partner Programme in place that allows us to deliver solutions into over 150 countries. Dimension Data's Global Procurement and Logistics capabilities ensure that network optimisation devices are shipped to all corners of the world quickly, cost effectively and within project timelines.

In addition to the large geographic reach that is required, local skills are needed to ensure that the devices deployed are maximising the optimisation benefits and that locally-deployed hardware has the appropriate support and maintenance in the case of hardware failure. Dimension Data's Global Service Centres and Service Level Agreement (SLA)-driven support service – Uptime – form the core of our global hardware maintenance capability and give our clients assurance that their technology hardware is supported to business – oriented SLAs.

Application delivery solutions in the data centre require specific scripting skills that are used on an ongoing basis to ensure that the applications are being delivered optimally in that specific environment. Dimension Data has the Professional Services team in place to provide these services.

Dimension Data has deployed over 12,500 optimisation devices in the last three years and supports some of the most geographically widespread Performance Optimisation solutions in the world.

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Performance optimisation success stories

One of the **largest shipping companies in the world**, with headquarters in the UK and offices in harbours across the globe, implemented performance optimisation technology on their network. The solution enabled them to roll out **branch office consolidation** successfully, which **reduced** their **branch IT footprint by 85%**, reduced their **bandwidth usage by 80%**, and dramatically **improved operational** costs and **realised Green IT objectives**.

A leading **integrated engineering and service provider** in Australia and South East Asia consolidated data storage from 40 sites to a central data centre. The WAN optimisation appliances installed delivered **'intelligent' application optimisation and acceleration, and improved end user response** times and reliability with **lower bandwidth costs**.

A technology distributor and reseller recently implemented a performance optimisation solution to both **enable centralised management of its file server environment** and **optimise the data** streams regularly traversing their WAN. As a result, more than 750 employees located at 15 different sites now have **faster access** to the company's core applications and files.

A business services provider, with a geographic footprint spanning both Africa and the Middle East, implemented a new **bandwidth optimisation** solution to ensure the effective **delivery of services for more than 4,000 end users**. This solution also ensured sufficient bandwidth to cater for the company's **geographical expansion** in Africa.

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A simple five stage approach

What should you do if you suspect that your network is not optimised?

Assess: Look at what traffic your network is actually carrying and review the IT projects and initiatives that you have put in place over the last 18 months. Consider whether you are planning to undertake any new projects.

Structure: Implement the tools and systems to effectively structure the traffic that you carry. Think about which applications and technologies are business-critical and consider allocating a specified portion of capacity to them.

Accelerate: Once you've taken control of your network traffic, investigate which applications need an extra boost to take them to optimal performance levels. Some of the newer optimisation technologies accelerate specific traffic and are well worth implementing.

Operate: Begin the iterative process of monitoring traffic and adjusting your strategy accordingly. Bear in mind that what gets measured, gets managed, gets done. Report on performance and assign people to be accountable.

Scale: Extend your optimisation across your entire environment so that you can reap the full benefits. Watch as your network improves, users experience better performance and productivity jumps.

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