

# Stop Signs and Yields: Why Your Network Needs a Helping Hand



Juggling cost, availability and performance to gain the most from your network

Your network is more than switches, routers and boxes – it's a huge technology highway running through your business landscape that routes traffic, delivers information, and channels all your data and communications in a logical and orderly way. Your business cannot operate to optimal speed and effect without the core network being secure, ordered and healthy, any more than highways and roads can operate without power, programming and routing rules and hierarchies. However, while networks were originally designed for availability and cost to support business architecture at the time, these operations and technologies are changing extensively, making network performance a third and critical consideration.

In this article – the first in a series of four – we help you understand two emerging challenges to the power and speed of your network, and give some directives and signposts to solving the traffic backups, information blockages and sluggish flow of data that plague the modern network.

### Prioritisation of different traffic types

Imagine a familiar scenario – traffic gridlocked through a city block. Traffic lights are out of sync, movement is sluggish. Delivery trucks are blocking the exit, with traffic stalled behind the bottlenecks they create. Illegal cabs and taxis are driving in the emergency lanes to cut through the gridlock. Hooters are blaring, tempers flaring, and chaos and deadlock reign supreme... some intermittent traffic is moving forward, but progress is slow and there are many delays and travelers who will be late for important destinations and events. This familiar nightmare of metropolitan life is played out in microcosm in thousands of poorly planned, overwhelmed or outdated networks in organisations around the world.



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In many enterprises, the network has become like a congested highway – and we need strategies to cope. The answer is logical: we can partner technology with management skills to better control and prioritise traffic and data flow, to ensure that critical data, voice or images moves through smoothly, and discretionary or less time-critical material moves through at less busy times.

Returning to the traffic allegory, examples of ways to do this would be to limit usage for certain traffic types at certain critical times of the day, appoint a pointsman to direct traffic flow, put in place a dedicated

bus or high occupancy lane, or bar truck deliveries for example. And in a nutshell, this is also what network optimisation is all about – making the most of your existing infrastructure, setting rules in place to prioritise traffic flow, and getting information to its destination safely and in time to do good in your business.

Two of the elements that affect the performance of the modern information network are **data centre consolidation** and **server and storage consolidation** and **centralisation**. What are these two emergent trends all about, and how and why should they affect the way your

## Making the most of your existing infrastructure, **setting rules in place** to prioritise traffic flow.

network functions – particularly when it has worked just fine up until now?

Let's start with the first element, **Data Centre Consolidation**. In this process, a company reduces the number of data centres it operates to reduce the cost of multiple data centres, leverage new technologies like server virtualisation, ease the requirements around compliancy, and drive Green IT objectives.

These benefits are impressive, but they can come at the expense of the efficient running of the network. Networks are designed to support specific traffic patterns – and these traffic patterns are reflective of the physical location of hosts and servers. When companies consolidate or reduce the number of data centres, traffic patterns are changed – and the underlying network architecture is most likely no longer optimal for the new, resulting traffic pattern. Our key recommendation is that any data consolidation project include a full network assessment to ensure that the architecture still holds true – and then that you implement those changes to secure the integrity of your network.

Moving on to **Server and Storage Consolidation and Centralisation**, this is a critical trend in the industry, and most often part of a data consolidation project. New server and storage architectures have made this an attractive option for many organisations, and it's driven by highly desirable outcomes such as the need for less capital investment for fewer servers, the reduction of operational complexity and costs, and the simplification of backup and recovery. These are all compelling and persuasive reasons to join the move to consolidation, but again, there are caution signs.

The first major aspect is very similar to that described under Data Centre Consolidation

– traffic patterns undergo massive change. It's important to realise that when you move servers and storage elements from a branch to a centralised data centre, you will have a profound impact on overall performance. The underlying protocols that define the interactions of the branch server have always assumed the luxury of unlimited bandwidth on the branch or campus networks, and have typically been designed with LAN bandwidth in mind, and not the constraints of the WAN – this now burdens the wide area network and frequently results in significant bottlenecks and delays – leading to unhappy users and loss of productivity for branch users. Software distribution can also become a challenge and the risk of branch failure due to load is high in badly planned migrations. Consolidation and centralisation of servers can also have a grave impact on your compliancy best practice around backup and recovery. The backup and archiving process now has to traverse the WAN. This could potentially extend the process from minutes to multiple hours – and the end result is a consistently high load on the WAN – or even worse – users refusing

to perform the required backup and archiving processes (incredibly, this is not uncommon!), exposing the organisation to significant risk.

With so many great benefits to joining the move to server and storage consolidation, the temptation is to leap in feet first – but taking the time to understand the impacts and conduct a network change management assessment can make all the difference between realising the huge benefits of the technology for your company, or buying into a newer set of problems. This article has described the colossal knock-on effects of two modern technology trends, data centre consolidation, and server and storage consolidation and centralisation, on the orderly flow of data through the network, and the simple ways these trends can corrupt, interrupt and ultimately derail the smooth and efficient running of the network. In the next article, we'll take a closer look at the effects of the inexorable move to web-based applications and distributed application models on the network.

## When you move servers and storage elements from a branch to a centralised data centre, you will have **a profound impact** on overall performance.

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