



# Consolidation Impact on WAN

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Remember the early Data Centers using proprietary protocols and platforms? Since then Data Centers have evolved to a decentralized architecture. But the "retro" is in and the Data Centers are evolving to a centralized architecture once again.

Seriously, the Data Centers are being re-centralized to consolidate the computing resources (namely servers).

## **Consolidating the Data Center resources brings the following benefits:**

- Server virtualization is easier if not only possible to achieve.
- Performance can be more easily scaled.
- High availability is easier to achieve.
- Operational manageability presents fewer overheads to administrators.
- Duplicating the resources can be eliminated.
- Last but not least, the costs are reduced.

But the consolidation also has pitfalls if not correctly addressed, especially on the remote users. WAN networks are slower and lack sufficient bandwidth when compared to LAN, thus the remote users would soon start to complain.

## **The challenge can be tackled differently**

One way would be to add bandwidth to WAN connections. But this is not a good approach since first it is expensive - WAN bandwidth is much more expensive than that of LAN, and second, adding bandwidth does not solve the delay introduced by the length of the WAN links.

One might think that deploying the QoS policy would do the trick, but the issue is that QoS effectively limits the available bandwidth to different traffic types. Thus in congested networks more delay would be introduced for certain traffic types.

To tackle the challenge better we have to look at the applications that are used over WAN, how these applications behave and how they can be optimized.

Often the applications use chatty protocols and exchange numerous messages even for a simple operation (like CIFS for example). Many remote users use the same data. Upon transitional connectivity problems, getting back to full speed takes some time. So the key word is optimize. Optimize the protocol behavior, data access and TCP flow.

Thus when engaging in consolidation the solution should also address the following challenges:

- How to accelerate the applications and thus mitigate the latency introduced by the WAN.
- How to eliminate sending of repetitive data thru WAN.
- How to offload servers from unnecessary requests.
- Options to run services like print service locally without duplicating the servers/resources.

Cisco WAAS (Wide Area Application Services) is an example of a solution that tackles these challenges.

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