Contoso's network analysis

Here are the results of Contoso's analysis of the changes needed on their network to accommodate the different categories of Microsoft's cloud offerings.

SaaS cloud offerings
Office 365, EMS, and Dynamics 365

Successful adoption of SaaS services by users depends on highly-available and performant connectivity to the Internet, or directly to Microsoft cloud services.

For mobile users, their current Internet access is assumed to be adequate.

For users on the Contoso intranet, each office must be analyzed and optimized for throughput to the Internet and round-trip times to Microsoft's Europe datacenter hosting the Office 365, EMS, and Dynamics 365 tenants.

Azure PaaS
Mobile applications

To better support mobile workers, legacy apps and some file sharing sites are being reworked and deployed as Azure PaaS apps. For optimum performance, Contoso plans to deploy the new apps from multiple Azure datacenters across the world. Azure Traffic Manager to send client app requests, whether they originate from a mobile user or a computer in the office, to the nearest Azure datacenter hosting the app.

The IT department will need to add PaaS application performance and traffic distribution to their network health monitoring solution.

Azure IaaS
Server-based workloads

To move some legacy and archival servers out of the Paris campus datacenters and add servers as needed for quarter-end processing, Contoso plans to use virtual machines running in Azure infrastructure services.

The Azure virtual networks that contain these servers must be designed for non-overlapping address spaces, routing, and integrated DNS.

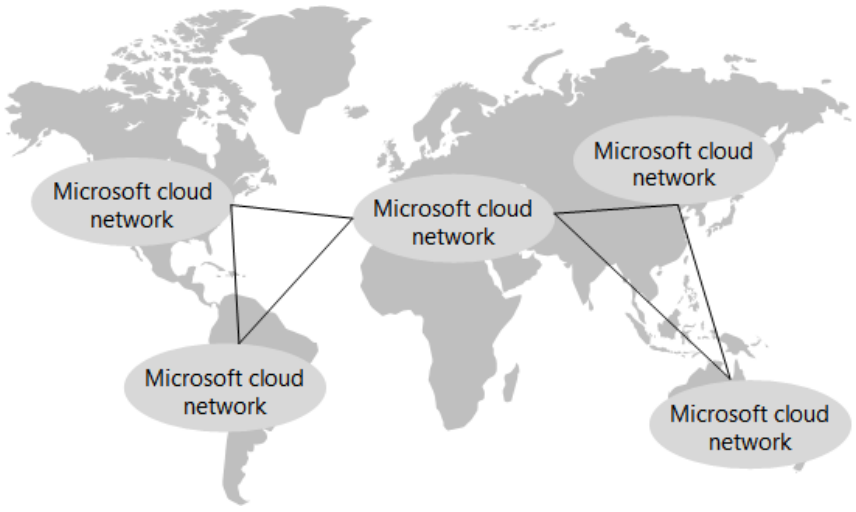
The IT department must include these new servers in their network management and monitoring system.

Contoso's use of ExpressRoute

ExpressRoute is a dedicated WAN connection from your location to a Microsoft peering location that connects your network to the Microsoft cloud network. ExpressRoute connections provide predictable performance and a 99.9% uptime SLA.

With an ExpressRoute connection, you are connected to the Microsoft cloud network and all the Microsoft datacenter locations in the same continent. The traffic between the cloud peering location and the destination Microsoft datacenter is carried over the Microsoft cloud network.

With ExpressRoute Premium, you can reach any Microsoft datacenter on any continent from any Microsoft peering location on any continent. The traffic between continents is carried over the Microsoft cloud network.



Based on the analysis of current and future traffic to Microsoft's cloud offerings and its requirements for high quality of service for Skype-based communications, Contoso has performed a network assessment and implemented an any-to-any (MPLS-based) ExpressRoute Premium connection from the Paris headquarters to the Microsoft peering location in Europe.

Consistent performance for Paris campus staff for SaaS applications

With 15,000 employees in the Paris campus all simultaneously accessing Office 365, Intune, and Dynamics 365, Contoso wants to ensure that that access is consistently performant and is not competing with regional Internet traffic.

Consistent performance for administration of distributed Azure PaaS apps

All of Contoso's application developers and core infrastructure IT administrators are in the Paris campus.

With Azure PaaS apps distributed to different Azure datacenters around the world, Contoso needs consistent performance from the Paris campus to administer the apps and their storage resources, which consist of TB of documents.

Consistent performance for administration of servers in Azure IaaS

Contoso's datacenter administrators are in the Paris campus and the servers to be deployed in Azure are an extension of the Paris datacenter.

Contoso needs consistent performance to these new servers for access to legacy apps and archival storage and for end-of-quarter processing.

Contoso's path to cloud networking readiness

1. **Optimize employee computers for Internet access**
   Individual computers will be checked to ensure that the latest TCP/IP stack, browser, NIC drivers, and security and operating system updates are installed.
2. **Analyze Internet connection utilization at each office and increase as needed**
   Each office will be analyzed for the current Internet usage and WAN link bandwidth will be increased if operating at 70% or above utilization.
3. **Analyze DMZ systems at each office for optimal performance**
   Firewalls, IDSs, and other systems in the Internet path will be analyzed for optimal performance. Proxy servers will be updated or upgraded as needed.
4. **Add ExpressRoute Premium for the Paris campus**
   Provides consistent access to SaaS cloud offerings for Paris campus workers and administration of Azure PaaS and IaaS workloads across the world.
5. **Create and test an Azure Traffic Manager profile for Azure PaaS apps**
   Test an Azure Traffic Manager profile that uses the performance routing method to gain experience in distributing Internet traffic to regional locations.
6. **Reserve private address space for Azure VNets**
   Based on the numbers of projected short and long-term servers in Azure IaaS, reserve private address space for Azure VNets and their subnets.

Cloud networking resources

Microsoft Cloud Networking for Enterprise Architects
http://aka.ms/cloudarchnetworking

Network planning and performance tuning for Office 365
http://aka.ms/tune

ExpressRoute for Office 365
http://aka.ms/expressrouteoffice365

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