

The Heart of Cloud Computing: Networks - IO



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The National Institute of Standards and Technology (NIST) defines cloud computing as “a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”

Notice the word “network” at the heart of NIST’s cloud definition. It’s important, because when you cut through the smoke and fog, cloud computing is all about network availability, security, performance and accessibility.

Here’s what you should know:

Availability. Without networking, cloud services can’t be made available to end users. Yet from an end-user perspective, the cause of application non-availability or sub-par performance is indistinguishable regardless of where the problem actually exists in the application delivery chain. While the difficulty may lie in the cloud, at the provider’s data center or in the end user’s client, the network presents the most opportunities for problems due to its scope and complexity. That’s why it’s important to have the greatest number of carrier and routing options at your disposal.

Security. Accessing public cloud services creates a stress point between performance and security. Not all cloud computing providers support encrypted tunnels, so your business-critical data may be sent in the open on the Internet where it can be viewed by almost anyone. Where encryption is available, using it will undoubtedly increase delay and may harm performance. The only bulletproof way of cutting delay without compromising security is by minimizing transit hops, which is another reason why you want to have access to multiple carriers and routes.

Performance. Reaching a particular cloud computing service may involve moving information over several different networks. Having multiple carriers at your disposal will enable you to complete the path using smallest number

of hops.

Geographic location can exert a significant impact on cloud application performance. In most situations, the farther away the end-user is from the application, the longer the response time. Circuitous routing can actually add extra distance between users and applications. To fix routing problems before they can hurt your business applications, consider a blended bandwidth service that automatically provides the optimal network path.

Accessibility. Another important network consideration is private cloud access. Gartner predicts it will soon become the norm for large companies to have their own highly automated private cloud networks in which all resources can be managed from a single point and assigned to applications or services as needed. Businesses typically reach into their own private clouds with the same technology they use to access to their data centers, such as an Internet VPN. Therefore, a fast, reliable connection is essential.

Private intra-cloud networking is often conducted over a point-to-point connection between data center sites, so it's important that these links have enough capacity to ensure minimal network delays regardless of where in the private cloud a given application is run. In many respects, a business' ability to tap into a comprehensive and efficient private cloud hinges on the quality of the network connections between the data centers that comprise the cloud. A data transport network service using dark fiber and Dense Wave Division Multiplexing (DWDM) technology to ensure fault tolerant connectivity between data centers provides an ideal solution.

Final Point. There's no question that network availability, security, performance and accessibility are essential to business-quality cloud computing. That's why it's important to take the time to create a strong, flexible and scalable network base that will meet your business' cloud application needs today and for many years to come. You won't regret the effort.

Tags: Blended Bandwidth, cloud computing, Network

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