Building the Best Pathway to the Cloud

A Network Built to Deliver Enterprise Success in the Cloud

Multinational enterprises across practically all vertical sectors have in common five basic objectives: increase productivity, operate more efficiently, reduce costs, accelerate time to market, and strengthen profitability. To help achieve these objectives, more and more enterprises now incorporate cloud computing as an integral part of their IT infrastructures. In fact, half of enterprises responding to Frost & Sullivan's 2014 Cloud Survey stated they use cloud services. Revenues in the global Infrastructure as a Service (IaaS) market reached US$7 billion in 2013 and will surpass traditional data center services revenues in 2015. Such revenue growth, according to the survey report, "speaks to the acceptance of the hosted, on-demand model for creating and delivering IT resources."

Today, most enterprises take a hybrid approach to cloud computing, which gives them the flexibility to accommodate the various security, regulatory and performance requirements of specific applications. For example, they initially chose to move only applications such as Web hosting and e-mail to the cloud while keeping mission-critical, proprietary applications, such as enterprise resource planning (ERP), in their on-premises data centers. Now, however, as the industry addresses previous concerns about security, regulatory compliance and performance, enterprises increasingly are moving their mission-critical applications to the cloud as well.

Regardless of which applications they move to the cloud, IT executives understand the performance of those applications is only as good as the performance of the network that connects the enterprise to the cloud. Consequently, IT executives want a cloud-networking solution that is ultra-reliable, highly-secure, scalable, predictable and controllable.

GTT has built its private network, which is based on Ethernet and MPLS-based IP VPNs, to deliver precisely what IT executives want. Backed by strong SLAs, the GTT network gives enterprise IT executives, users and cloud-service providers visibility into and control over the network's performance so they, in turn, can ensure the highest-possible performance of their mission-critical applications and services.

An All-Juniper Network Delivers Major Advantages to Enterprise Clients

When evaluating a potential cloud-networking solution, enterprise IT executives want to determine whether the network architecture is sufficiently robust and scalable to deliver the capacity their organizations need, when and where they need it.

With these enterprise requirements in mind, GTT has built a network which combines aggregated 10G and 100G fiber links, all of which terminate in the core on MX Series routers from Juniper Networks. A 100-percent Juniper IP/MPLS core network allows the GTT network to provide significant advantages to enterprise clients.

High-Density Routing and Switching – First, the Juniper platform delivers extremely dense, high-performance routing and switching capacity, with a single chassis unit providing both 1-Gbps and 10-Gbps ports. As a result, GTT can minimize the number of routers required in each co-location and point of presence (PoP), and that smaller footprint reduces the overall physical-space, power and heating/cooling requirements in each location. Because of the cost-efficiencies flowing from the Juniper platform, GTT can offer cloud-networking solutions to enterprise clients at very competitive price points.

High Performance – A second major advantage of the all-Juniper platform is its Junos operating system, which enables the GTT network to provide superior optimization and routing performance for each enterprise client. A reliable, high-performance and very scalable network operating system for routing, switching and security, the Junos operating system can handle packets much more efficiently and at higher capacities than other platforms. As a Tier-1 global operator, GTT must have that efficient, high-capacity performance to move nine terabytes of enterprise clients' traffic across the GTT network on any given day with simplicity, speed and agility.

Scalability – The all-Juniper, fiber-based GTT network guarantees the scalability – up and down – that a multinational enterprise requires among its global locations. Capable of scaling bandwidth to whatever capacity a particular enterprise location needs at any given time, the GTT network offers enterprise clients the option of deploying ports on a per-location basis, for example, in sizes varying from 10 Mbps to 300 Mbps to 1G to 10G, depending on each location's network-capacity requirements. This on-demand, burstable bandwidth option allows each enterprise location to connect to the GTT network via a port that is larger than the location's committed data rate (CDR) but also to burst up to the port's maximum capacity whenever an application's performance requires additional bandwidth. Alternatively, the enterprise client can choose a single, aggregated CDR that covers all its locations, rather than a CDR for each location, and simply burst capacity at individual locations whenever necessary.

Global Reach – Within local markets, network-to-network interfaces (NNIs) connect the GTT network with thousands of last-mile network providers around the world. Juniper MX and EX metro edge routers tie back into the entire GTT global core network, making the GTT network one of the most interconnected global infrastructures in the industry.
The ability to tie together all the architectural components into one large, robust network gives GTT and its enterprise clients an enormous competitive advantage: the truly global reach necessary to connect to any location in the world and with any application in the cloud.

Resiliency – The fully-meshed IP/MPLS topology of the GTT network means that every single GTT location is connected to every other GTT location. With every router able to talk to every other router within the IP/MPLS core and every network path having a backup path, the ultra-efficient GTT network offers enterprise clients a very high level of resiliency at the core level.

Enhancing the resiliency of GTT's all-Juniper network is GTT's ability to monitor enterprise clients' end-to-end services. First, the Juniper platform's operations, administration and maintenance (OAM) function enables GTT to look end to end at Layer-2 services throughout the network environment. Because an enterprise client's point-to-point service may span four routers and two or three PoPs, this granular visibility allows GTT to isolate and resolve faults quickly.

In addition, GTT has a direct application programming interface (API) into the routers. Network-monitoring software often will not detect a dropped packet as traffic moves between two different blades in the router chassis. However, with the API interface, GTT can extract every single type of information or component on that router. As a result, GTT can expand and accelerate its fault-isolation capabilities, which improves the mean time to repair (MTR) and thereby enhances the enterprise application's reliability.

Security – The fully-meshed network allows GTT to provide enterprise clients with yet another critical advantage: their private-WAN traffic can move between their sites without any packets exiting the GTT network. By keeping private-WAN traffic on-net, the GTT network adds another layer of security and privatization; neither GTT nor its enterprise clients are at the mercy of whatever may happen in another provider's network. As a result, enterprise clients enjoy much better performance of their applications over an optimized private wide-area network (WAN).

Flexible Access to the GTT Network – The GTT network is designed to offer enterprise clients the flexibility to use many different types of access media or methods, including broadband cable-modem connections. Regardless of the access method(s) any enterprise location may prefer, the GTT network can incorporate that location into a single, private, managed WAN for a multinational enterprise client. Such access flexibility also enables enterprise clients to protect their existing investments in their preferred access methods.

For instance, a multinational enterprise client may have 50 to 100 different types of locations around the world with varying bandwidth requirements. Its data centers need gigabit connectivity; the headquarters location and large offices may need 100-Mbps service; regional offices and some smaller sites may only require 10-Mbps connections. However, for some specific sites, such as a regional satellite sales office where only one or two employees work, the most cost-effective connection may be a broadband connection. Similarly, a multinational enterprise client may have one or two sites for which the local provider may offer only traditional T1-type access.

Because the GTT network is access-agnostic, GTT can leverage its partnerships with local service providers to bring the enterprise client and its various access methods onto the GTT network. In the case of a broadband connection, which may not be able to come onto the GTT network, GTT would use its Ethernet-tunneling technology to bring that connection back into the private WAN.

To simplify our clients' ability in doing business with GTT, the company implements industry-standard protocols for its network. For example, if an enterprise client already has an existing network with another provider and manages its own equipment, the GTT network likely uses the same industry-standard protocols. Consequently, the enterprise client's cut-over to the GTT network is a straightforward, efficient process. Again, the GTT network protects the enterprise client's existing access investments, and there is no need for the enterprise to train its employees in the use of different protocols.

GTT Network Gives Enterprise Clients a Competitive Edge

In today's competitive, global marketplace, multinational enterprises want cloud-networking solutions that are not only cost-effective but also highly reliable. Because enterprise IT executives need their cloud-based applications and services to work well all the time, they are looking for a cloud-networking solution specifically designed to deliver reliability and resiliency.

GTT's all-Juniper network spans more than 100 nations and 300 markets with 99.999 percent reliability. That level of network uptime enables GTT to satisfy the most stringent service-level agreement (SLA) for enterprise clients. Further, the fact that the GTT network core is an all-Juniper infrastructure means GTT achieves operational efficiencies which, as mentioned earlier, speed up repair times and strengthen application performance.

In addition, because the GTT core network is an all-Juniper infrastructure, enterprise clients enjoy a much better convergence time, which is a measurement of how long it takes the entire network to converge on a new path in the event of a problem. The Juniper core ensures dynamic re-routing of traffic around a problem and onto a new path, with no worries about multi-vendor interoperability or technician-training issues. Simply put, GTT's all-Juniper network enables GTT to deliver with simplicity, speed and agility, the cloud-networking services enterprise clients must have to compete effectively in today's marketplace.

A Cloud Network Should Evolve to Deliver Even Better Performance

GTT continuously seeks ways to improve the cloud network for multinational enterprise clients. For example, GTT's vast, fully-meshed IP/MPLS core has thousands of different paths in the network. To monitor and modify the load on these label-switched paths (LSPs), GTT uses dynamic fault-tolerance, load-balancing and bandwidth-optimization tools, which are essential when a network is very large. However, there's still a slight need for some manual intervention.

As a result, GTT is evaluating software-driven technology that constantly takes a snapshot of all these LSP tunnels to understand the traffic flows, the queues and the backup paths. Through a new Juniper interface, the technology would then make any required modifications quickly and dynamically, thereby giving enterprise clients much better route optimization and much faster convergence when paths need to fail over.

GTT's objective is to continually improve the network to the point that enterprise clients never notice even a small slowdown or never see an hourglass spinning for four seconds on an application because something had to move in the background. The more a system can handle these tasks and the more dynamic that system is, the better the GTT network is at responding so quickly that for enterprise clients, network events are completely invisible.

An Outstanding Cloud Network Enables Enterprise Clients to Stand Out

The GTT network, through its differentiation from other cloud-network solutions, gives multinational enterprise clients what they need to outpace their competitors. GTT's all-Juniper network offers multiple services on a single circuit over any loop medium anywhere in the world. In other words, if an enterprise needs a transit service, a private MPLS service and a private Layer-2 VLAN service, the GTT network can deliver all of those over a single circuit that GTT installs at the enterprise location. Because enterprise IT executives no longer have to lease separate services, they can reduce their costs and their operational expenses.

The GTT network can also deliver those multiple services over any loop medium. Whether it's a T1, SONET, fiber, copper or broadband connection, the GTT network can bring it into the private enterprise WAN, anywhere in the world.

By leveraging the advantages of an all-Juniper network, GTT has built and continues to evolve a cloud network that enables multinational enterprises to achieve their cloud-computing objectives: increase productivity; operate more efficiently; reduce costs; accelerate time to market; and strengthen profitability. For both GTT and its enterprise clients, the GTT network is an asset on which they can build long-term cloud-computing success.

About GTT

GTT provides multinationals with a better way to reach the cloud through its suite of cloud networking services, including wide area networking, Internet, managed services and voice services. The company's Tier 1 IP network, ranked in the top five worldwide, connects clients to any location in the world and any application in the cloud. GTT delivers an outstanding client experience by living its core values of simplicity, speed and agility. For more information on how GTT is redefining global communications, please visit www.gtt.net.

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