NTT Com's Michael Wheeler Discusses Global IP Networks

GENBAND CEO David Walsh:
Real Time Communications Without Boundaries

Nokia's President of Mobile Networks Samih Elhage:
Creating Scale and Scope

TIA CEO Scott Belcher:
Bringing Key Individuals Together

To support rapid growth in Internet traffic, NTT Communications (NTT Com) has been continuously upgrading its global Tier-1 IP backbone with increased bandwidth and direct connections to major ISPs in the Americas, Asia, Europe and Oceania. NTT Com's Global IP Network is consistently ranked as one of the top three IP networks worldwide and currently boasts the industry's largest dedicated Trans-Pacific Internet bandwidth managed under one single autonomous system number (AS 2914) with industry-leading SLAs.

NTT Com has been an IPv6 service provider leader since setting up the largest test lab of its kind in 1996. In 2001, the company started converting its IP backbone to dual stack IPv4/IPv6, and in 2004 it launched the world's first global dual stack service. Since that time NTT Com has kept driving IPv6 adoption through new services, innovative technologies and continued industry advocacy.

Telecom Review recently visited with NTT Com's Michael Wheeler in

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order to give our readers a unique overview of one of the largest IP networks in the world. Michael is the Executive Vice President of the Global IP Network (GIN) business unit at NTT America, a subsidiary of NTT Communications. He is responsible for all financial, engineering, operational and customer relationship activities for the GIN business unit. The following are some of the discussion questions and answers.

Michael, can you please tell us more about the NTT Com's Global IP Network and how it is used in the Americas? What is your role in the growth of the network?
Our network is unique in certain ways in that we focus on providing global IP services using a single AS number. The same service is available around the world with a consistent network operations center (NOC) experience for all customers.

My role is to lead the network business unit where 70-75% of all the employees are located in the US and they in turn work with the rest of our staff around the world. All of us together operate as one global team. We want a consistent experience for all of our end customers around the world.

100G has been deployed in the NTT Com network since 2013. Can you please tell us how that is progressing and the customer use of 100G?
We began the deployment of 100G in 2013 in our backbone between Washington DC and New York. Once that was deployed we started rolling out 100G in the rest of the country and the US has now been 100G for over a year. We began the Atlantic rollout last fall and Europe will be completed at the end of this summer.

We sold the first 100G capacity to customers in 2014 and have been continually growing that business since then. Many of these customers are adding 100G and still keeping their 10G circuits.

We started using database driven routing 17 plus years ago in what

was the precursor to SDN. Efficiency and accuracy are the main reasons for SDN in the network, as it helps minimize errors and increase productivity.

As a global network provider the subject of providing for OTT traffic must be a big part of your plans. Can you please tell us about the economics and logistics of planning for this growth in your network?
Many large bandwidth customers may not fit the OTT category description but their video transmission is a large contributor to network growth so they are certainly a part of this ecosystem.

Many carriers have had an adversarial mindset when it comes to the OTT customers. However, that is not the case with NTT Com. We have always had a different mindset as the internet needs their content to grow! With their massive amounts of data we take a collaborative approach and work with these clients to grow their business. For instance, last year we saw a large percentage of traffic growth in Europe that brought the need for more capacity.

The relationship between OTT players and carriers in North America, as throughout the world, can be mutually beneficial. As a leading wholesale IP provider, NTT Com has the scale and resources to offer content providers and other Internet-centric businesses the capacity and global footprint their customers demand. With an extensive IP backbone ranked as one of the world's largest and most reliable, NTT Com is uniquely positioned to address the market needs and challenges in every region.

Network security is a big issue for network providers. Can you please tell the Telecom Review readers how NTT Com addresses these issues?
We look at security as protecting our network and the network of our customers. DDOS attacks are among the most serious threats that we see and we continually look to contain these issues. NTT Com offers DDoS

> As demand for bandwidth continues to grow exponentially, global carriers must plan strategically to continue delivering high-quality IP services. "There can be no compromise in quality and reliability,"
> Michael Wheeler, EVP, NTT Com

protection and mitigation services that help stabilize the situation in the event of a DDoS attack, identify root causes and filter traffic until the threat subsides.

On the network side we have a dedicated network security team with an average tenure of ten plus years so we have the expertise to handle these attacks. We also have the infrastructure to mitigate and scrub the attacks but like all operators they do keep coming.

NTT Com also offers Selective Blackholing services. This provides the ability to limit the scope of the blackholing to certain geographic locations, allowing a more strategic application of the blackhole service.

NTT Com has a large presence in Latin America, with a Point of Presence in Sao Paulo and some other markets under consideration. Can you please tell us more?
In the last few years we have seen consistent progress in the telecommunications sector across Latin America and we expect it to continue this year. There needs

to be a concerted effort among governments, operators, regulatory entities, equipment manufacturers and other involved parties to maintain a stable environment that encourages investments, drives innovation and improves services for businesses and consumers.

NTT Com has the high-capacity infrastructure as well as the global reach, financial resources and industry expertise to help meet this growing demand for IP access in the region.

Even before establishing a Point-of-Presence (PoP) in Sao Paulo in 2011, NTT Com was actively working with regional Latin American ISPs, ICPs and Internet-centric businesses offering connectivity to international markets through our global network. In Sao Paulo we have a large focus on ISPs, although content companies have also become customers and they now can get a more direct path to the end users.

How do you prepare your network to handle the huge video and content demands for big global events such as the World Cup and the Rio Olympics?
The 2014 World Cup generated unprecedented volumes of data and video content and the Olympic Games are expected to even surpass those record numbers. The role of international carriers will once again be crucial in helping to meet this event's connectivity needs. As the world will be watching, there can be no compromise in quality and reliability.

We already manage traffic spikes and can handle those issues. We do have many global customers such as TV stations in Japan that are very latency sensitive so we work closely with them to make sure their video transmissions have the highest quality and reliability.

In the case of the 2020 Olympics in Japan, that will be more complicated as NTT is the incumbent carrier and we will provide local network as well as global network connectivity. We have already begun the planning process and will be ready.

NTT Com is obviously a huge player in the IP world. In 2016 and beyond how do you stay ahead and maintain your lead in the IP network world?
We have been in this business for quite some time so we definitely plan our growth accordingly. One way to do this is to always look out three years and plan our growth. One of the tools we use is also looking back three years and see what fundamentals have changed in our business. It gives insight into what one has done well and what one could have improved.

One example is the rollout of 100G where we used lessons learned in the rollout of 10G. We used history to guide the future! The biggest shift we anticipate will be on the hardware and software side and getting away from the one or two vendor model. This is seen today in the datacenters of the large content providers.

We always place infrastructure where it will provide the right return from a business perspective. This will always make sure we are in a good position to manage our growth. **TR**