

# NTT-ME XePhion Achieves Internet Reliability and Massive Backbone Capacity With Force10 E600

## Customer PROFILE

**Customer**  
NTT-ME Corporation

**Industry**  
Telecommunications  
Service Provider

**NTTME**



**Applications**  
Core Aggregation

**Highlights**  
Force10 Networks' proven line-rate performance and high-availability features enable NTT-ME to cost-effectively upgrade its core network in preparation for increased traffic and advanced IP services.

*With the increase of IP phone and streaming services, ISP preferences and standards are changing rapidly. Cost and speed are becoming more important factors than ever, balanced by the ongoing need to maintain stable connections and predictable service levels. As traffic continues to increase, it's clear that service providers all over the world are facing new challenges in adding affordable speed to their networks while maintaining the switching performance necessary to achieve customer satisfaction.*

These are the reasons NTT-ME selected the Force10 Networks E-Series E600 resilient switch/router. The E600 achieves a 10 Gigabits-per-second (Gbps) line rate, as well as non-blocking performance on all ports for all packet sizes, including jumbo frames. The result is zero packet loss hitless forwarding in a redundant configuration, with security, reliability and speed that now makes it possible to provide customers with very high levels of performance and satisfaction.

### **Handling Increased Traffic Without Sacrificing Availability**

In making its switch/router choice, NTT-ME established a number of criteria necessary for creating a differentiable service offering and gaining a competitive advantage. These included:

- Correspondence to traffic—which increases by two fold every six months
- Leading-edge performance capable of achieving 10 Gbps line rate and non-blocking performance on all ports, for all packet sizes
- 99.999% service uptime to maintain and improve customer satisfaction
- Hitless forwarding with no packet loss; capable of switching instantly in a redundant configuration

ゼフィオン  
**XePhion**

フロードバンド・プロバイダ



### **The Backbone: High Capacity and Reliability**

By integrating the Force10 Networks E600 switch/router, NTT-ME now offers large business enterprises a total solution brand. Known as the Xephion, the NTT-ME solution offers a massive 10 Gigabit class backbone and Internet connectivity exceeding 7 Gigabits. And with availability rated at 99.999%, more than 600 customers can now place their trust in the system.

NTT-ME provides a broad range of services to meet customer needs, taking advantage of a huge capacity and highly reliable backbone. The XePhion Internet VPN is one such service. It achieves affordable intracompany networking for up to thousands of points, with high-speed performance and outstanding reliability. At the same time, NTT-ME provides unitary outsourcing services ranging from construction to maintenance and operation. NTT-ME also provides networks corresponding to various customer needs by selecting from an abundance of optional services that include VPN and VoIP hybrids, combining L2/L3 services.

"We utilize the backbone broadly and provide many Internet access services for ISPs and carriers as a total solution," said Mr. Toshiaki Imai, NTT-ME's Internet Solution Division Manager at XePhion Project Headquarters.



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"These include ISP projects for consumers such as second-level provider, CATV Internet, Internet-ready apartment, wireless LAN spot or iDC. By dealing with such projects broadly, we can flexibly respond to various company needs — not only in the business-to-business and business-to-consumer arenas, but also extending to business-to-business-to-consumer as well."

### Speed, Security and Stability

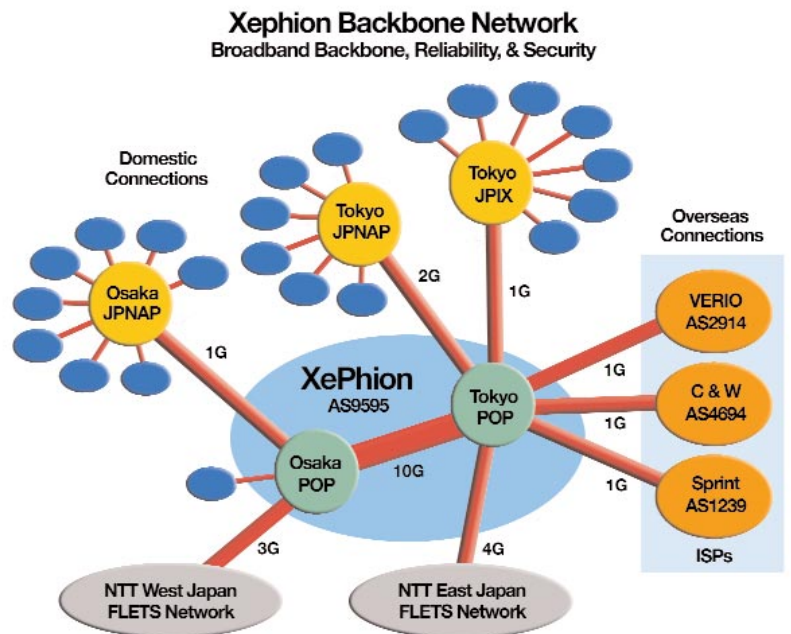
NTT-ME's consumer-oriented Internet access service that shares and provides the backbone network for XePhion is known as WAKWAK—which has consistently obtained superior results in provider research compiled by various business magazines.\* The most critical requirements are reliability and consistent speed—regardless of the amount or type of traffic on the network. In response to this requirement, NTT-ME has been trying to reinforce WAKWAK's capacity as much as possible, corresponding to customer growth.

"Although we haven't implemented such a large-scale expansion in advertising, the number of our customers is increasing steadily," said Mr. Masafumi Hayashi, assigned to strategy development for WAKWAK. "The quality connection service has spread by word-of-mouth. It seems that we're being chosen by customers who are able to notice the difference in quality."

In the spring of 2003, further reinforcement of the band of a backbone network became necessary when traffic doubled in the Internet field within six months. Although the network was then configured with devices centering on the 1 Gigabit level, the increase in traffic required the network to have a 10 Gigabit base. Two sets of core switches were set as the target for replacement, at a time when switch/routers supporting 10 Gigabit were being introduced to the market. At that point, NTT-ME started to review offerings from various vendors.

"We utilize the backbone broadly and provide many Internet access services for ISPs and carriers as a total solution."

**Mr. Toshiaki Imai**  
NTT-ME's Internet Solution  
Division Manager,  
XePhion Project Headquarters



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**Mr. Kazuomi Kurai**  
WAKWAK Company,  
Backbone Technical Engineer  
Deputy Chief

### The Point of Choice: Guaranteed Line Rate

After engaging in device demonstrations, charging the expected load and carefully repeating verification, NTT-ME chose the Force10 E600 switch/router. "The point of choice was a guaranteed line rate," said WAKWAK backbone technical engineer Mr. Taichi Igarashi. "Although there were several vendors who had announced 10 Gigabits in their catalog specifications, we discovered that if the load was charged, performance fell significantly. In that respect I was sure the Force10 E600 could maintain the stable capacity and fully respond to rapid increases in traffic."

The E600 has a per-slot capacity of 56 Gigabits/second. In addition, when the interface is subsequently supported from 40 to 100 Gigabits, line rate can be realized without exchanging the chassis, thereby eliminating the need for reinvestment. This is due to Force10's patented fully passive copper backplane, which has been tested to support 5 Terabytes-per-second (Tbps) speeds.

The Force10 solution's excellent reliability was valued — particularly since core switching is used not only for WAKWAK, but also for Internet connectivity in serving NTT-ME's corporate customers. "If an IP phone and streaming are carried out, hits will affect quality," said backbone technical engineer and deputy chief Mr. Kazuomi Kurai. "But given the redundant configuration of the E600, even if one side stops, it switches instantly. This hitless forwarding was a function that was indispensable to WAKWAK."

### Easy Operability and Outstanding Availability

In March of 2004, NTT-ME shifted its focus to preparing for installation requirements, as well as setup/adjustment operation after the model selection. Operation began just three months later. "The outstanding support and operability of the E600 were appealing," said Mr. Akihiro Koyama, the backbone technical engineer in charge of the operation. "In cooperation with the distributor, Force10's engineers responded immediately to our needs. It was easy to memorize the operating instructions, and shifting from the conventional model and implementing the corresponding patch went well."

The E600 is equipped with the functionality and architecture of a router, enabling it to be used as a switch that provides excellent redundancy and performance. "In this case we applied the E600 as the core switch, but if it can be approved for use as an access router or a border router by several verifications, we want to apply it. We've been achieving an availability rate of 99.999% or more. It's very attractive that bandwidth and reliability can be reinforced with excellent cost/performance," said Mr. Igarashi.

"In the world of the Internet, new technologies appear quickly, one after another," Mr. Imai concluded. "NTT-ME participates in experiments such as Ubiquitous and IPv6, which enable us to lead the industry. Through a wealth of technology and a quality network, we seek to continue to provide customers with services that ensure high satisfaction. And Force10 Networks is helping us to do that."

\* The first-place provider in ability ranking, speed satisfaction level, and the second-place comprehensive ranking in the Nikkei click (July, 2004)

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