

Force10 Networks E600 Enables Sakura Internet to Provide Japan's Fastest Network Backbone

Customer PROFILE

Customer
Sakura Internet, Inc.

Industry
Telecommunications
Service Provider



Applications
Core aggregation routing and Distributed Internet Exchange (DIX) capabilities

Highlights
The Force10 Networks E-Series 10 Gbps line rate, non-blocking packet forwarding and excellent reliability enable Sakura Internet to meet the challenges of rapidly increasing Internet traffic and pave the way for expanded IP services.

Quality Service From Japan's Internet Leader

Sakura Internet, Inc. of Japan provides an array of Internet access services that include data centers, dedicated servers, hosting and Distributed Internet Exchange (DIX) capabilities. The company began providing services in 1997, and since then has consistently led the Japanese domestic Internet market. Its initial connection service provided 200 Megabit-per-second (Mbps) speeds, combining 100 Mbps in Osaka and 100 Mbps in Tokyo. At that time, 1.5 Mbps speeds were advertised as "high capacity," so Sakura's 200 Mbps offering represented a quantum leap forward for broadband service.

In 1999, Sakura enhanced its external connection speeds to 650 Mbps, and in 2000, a 1 Gigabit per second (Gbps) connection to JPIX was established, along with a 100 Mbps connection to CWIDC. In 2003, all 100 Mbps external connections were eliminated and replaced with connections offering speeds in excess of 1 Gbps.

Based on this high-capacity backbone, Sakura offers two "pillar" services to Japanese customers: the Data Center Enterprise and the Content Service. In the former case, the customer's server is accommodated in world-class facilities that feature an unmatched array of network equipment, including a large-scale co-location service of 1,000 racks. Sakura's Content Service, includes a high-performance hosting service where two or more members share a single server, and a dedicated server offering in which each member is provided with its own dedicated server.

"Although it's a very high quality service with a high capacity backbone, the distinguishing feature of the Sakura Internet is that our service is provided at the lowest price in Japan," said Mr. Ken Washikita, manager of the engineering

department for Sakura Internet. For example, the price of a dedicated server until recently was approximately 9,800 yen/month (or \$90 US/month) per unit, at which time the company enhanced its lineup with the introduction of a new service for just 6,800 yen/month (or \$60 US /month).

The Challenge: Timely Response to Increased Traffic

As the Internet has proliferated, the amount of traffic Sakura must accommodate has doubled annually. This growth has compelled the company to continuously look for ways to enhance its backbone and provide broadband capabilities so it can offer newer and better services.

In order to provide a structure that is connectable throughout Japan for content delivery in the emerging age of broadband, Sakura is now developing a new service—the DIX (Distributed Internet Exchange) enterprise—to handle local ISP network activity. This effort is well underway and is rapidly taking shape as the company's third pillar of business. In addition, Sakura will also provide the FLETS roaming service of NTT East/West for local ISP operations. Because it supplants a conventional ISP, this service gives end-user members connected to FLETS a way of outsourcing the ISP for best service. The integration and control of these lines requires maximum router capacity instead of an L3 switch, protection against unauthorized access and very high availability to provide for the Data Center Enterprise or Content Service.

Sakura started monitoring its backbone enhancements in mid-2003, and began selecting the appropriate solutions for implementation at the end of the year. Said Mr. Washikita, "Speed is a major premise of our enhancement efforts. Although the capacity of 10 Gbps was secured with the switch we were then using, we

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discovered that performance could drop drastically if a significant load was applied. Therefore, a product that could guarantee a consistent line-rate performance of 10 Gbps under highly variable traffic loads was indispensable."

The Force10 E600: Performance, Capacity and Reliability

Sakura ultimately chose the Force10 Networks E-Series E600 switch/router to meet the challenge of rapidly increasing traffic and pave the way for expanded services. The decision was based on three key attributes of the Force10 solution: the E600's 10 Gbps line rate, its non-blocking packet forwarding which provides maximum router capacity, and its excellent reliability. The E600 provides forwarding at line rate, and also implements real-time Layer 2 and Layer 3 access control of traffic, Quality of Service (QoS) for priority control, and BGP/OSPF routing. High reliability is achieved through the E600's design, which leverages the combination of distributed hardware, modular software and a 3-CPU architecture in the Route Processor Module (RPM).

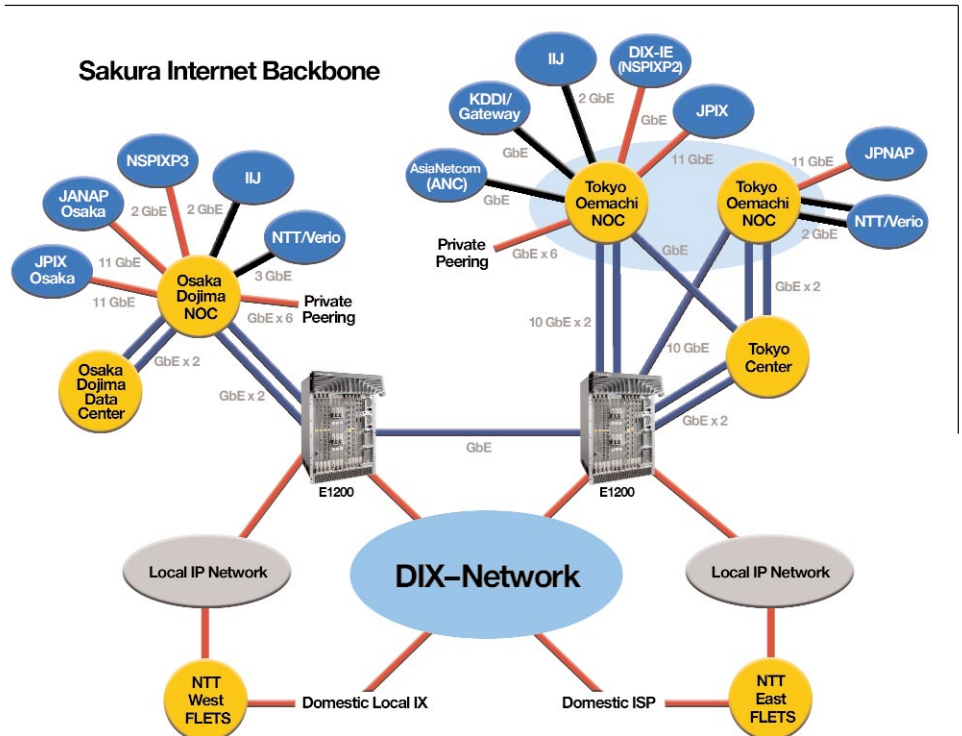
"Since conventional L3 switching could not perform filtering and provide stable service, the introduction of the Force10 E600 was significant. The filter function prevents unauthorized access and attack, eliminating any performance degradation during periods of heavy traffic."

Mr. Ken Washikita
Engineering Department Manager
Sakura Internet, Inc.

Sakura introduced the E600 to its customers in early 2004, shortly after making its design choice. "Implementation went more smoothly than I could have imagined," said Mr. Washikita. "Although unexpected problems usually accompany the initial implementation of a new device, there was no such trouble. The system's operations are standards-based, and I think it's very easy to use."

The Fastest Backbone in Japan

Sakura has enhanced capacity from 18 Gbps to 27 Gbps by upgrading the connection with its JPIX customer to 10 Gbps. The company also upgraded the connection with JPNAP to 10 Gbps, enabling it to achieve a backbone of 36 Gbps — currently the fastest in all of Japan. And all of this was achieved without sacrificing stability and security. "The E600's filter function can prevent unauthorized access and attack, so there's no fear of a drop in performance during times of extremely high traffic," said Mr. Washikita. "Since a conventional L3 switch could not perform filtering and still provide stable and



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predictable service levels, I believe our introduction of the E600 has been significant. Moreover, the Force10 E-Series ensures security while updating access control lists in real time, so that it can be used conveniently and with great confidence."

In the past, several seconds would pass during the process of updating access control lists, creating a temporary hole in security. The E600's Hot-Lock™ access control list technology prevents this, effectively avoiding security holes and traffic interruptions. Accordingly, overall network security and reliability have been enhanced, without sacrificing availability. In fact, Sakura Internet has not experienced any problems with the E600 since the start of full-scale operation.

Higher Expectations Ahead

Sakura introduced the E600 into Tokyo and Osaka, and since then, the Force10 solution has played an active role in the external connection and integration of the B FLETS network, providing stable and predictable performance through its replication capabilities. Soon after completing the high-capacity backbone of 36 Gbps, Sakura immediately began looking at Force10's E300 — a small, six-slot 10 Gbps switch/router that can accommodate six ports for 10 Gbps and 72 ports for 1 Gbps. The E300's low cost, small form factor and power supply make it ideal for ISP operation in Japan.

"A new enhancement will probably be needed next year, so we have to start considering that," said Mr. Washikita. "Although we are not ready to deploy the E300 yet, shipments have already started, and we're very interested in testing it. Force10 Networks has been a real factor in supporting our backbone enhancement efforts, and we look forward to continuing our relationship with them."

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