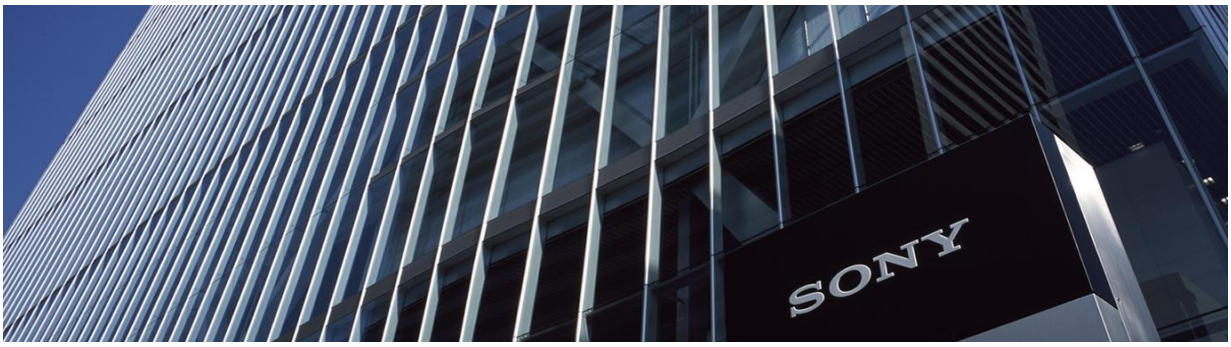
Sony Adopts Cisco Solution for Global IPv6 Project



Sony aims to accelerate global collaboration and business across business units to realize goal of "One Sony."

EXECUTIVE SUMMARY

Customer Name: Sony Corporation

Industry: Consumer electronics products and services; music, pictures, computer entertainment; and financial business.

Location: Headquartered in Tokyo, Japan; 700+ total network sites worldwide (60+ in country)

Global network users: 146,000

BUSINESS CHALLENGES

- Network expansion required much time due to complexity of enterprise network
- TCO had continually increased
- Numerous constraints on communications impeding communication between companies in Sony Group

NETWORK SOLUTION

- Cisco Enterprise IPv6 Solutions

BUSINESS RESULTS

- More versatile network, increasing business agility in response to changes in the business environment
- Reduced network TCO
- Network without communications constraints, supporting "One Sony" through information systems

Business Challenges

Sony Corporation, based in Tokyo, Japan, is one of the largest and most comprehensive consumer electronics and entertainment companies in the world.

“In early 2007, Sony began to respond to the challenges presented by the increasing complexity of its enterprise network.

The corporation had undergone a global expansion of its business and a rapid increase of its lineup of products, content, and services produced. It urgently needed to increase collaboration aimed at creating synergies between business units and group companies. However, Sony’s complex enterprise network based on IPv4 threatened to impede further growth of the business.

At the time, Sony was concerned about expanding its enterprise network to accompany the large-scale business expansion that it had carried out. Due to continual mergers and acquisitions and joint ventures, its enterprise network had begun to present challenges. In many cases, Sony Group companies that had developed independently used the same IP addresses, and routing conflicts that arose in communication with these acquired network systems impeded communication between the companies. Furthermore, because the companies each had independent networks, many difficulties arose when introducing cloud services. Toshio Hiraga, Senior Manager, Distinguished Engineer, Network Service Department of Sony Global Solutions Inc. says, "Designing, troubleshooting and resolving these situations took an enormous amount of Sony IT staff time."

The situation also severely limited Sony's employee communication options, which, in turn, affected productivity. Hiraga says, "While demand for collaboration between group companies and in expanded business areas increased dramatically, some of advanced collaboration such as file sharing and real-time communication was not possible."

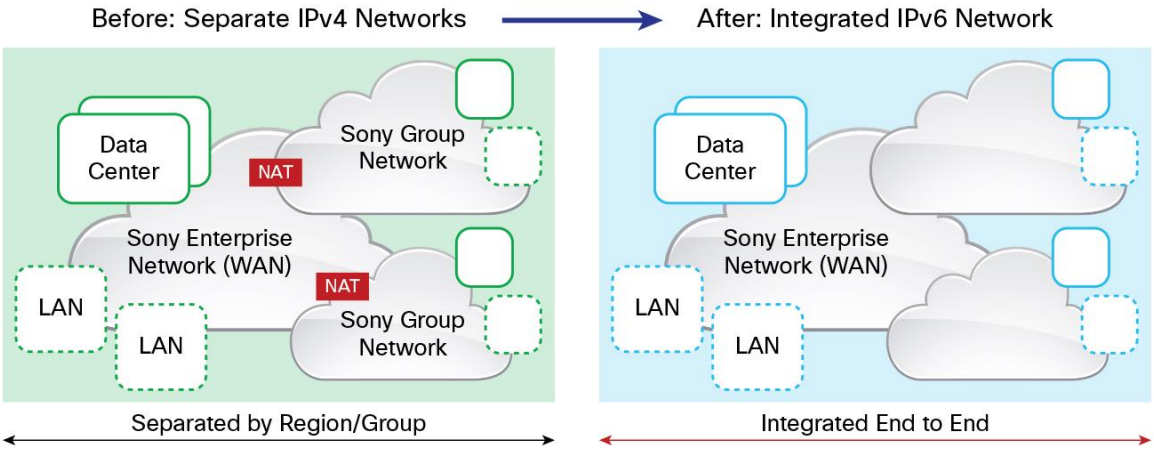
The complexity of the enterprise network was one of serious roadblocks to Sony's efforts such as collaboration between business units and group companies, smooth mergers and acquisitions, promotion of productive collaboration, and utilization of cloud services.

As a means of fundamentally resolving these issues, Sony decided that an early migration to IPv6 made the most strategic sense. With its virtually unlimited network address pool, IPv6 would clearly be able to support Sony's long-term, next-generation ICT infrastructure strategy and solve their growing business productivity and collaboration challenges.

Network Solution

As shown in Figure 1, Sony needed to migrate from its separately isolated IPv4 network architecture to an integrated, end-to-end IPv6 network architecture. Like many large global enterprises, Sony had employed Network Address Translation (NAT) to maintain connectivity by converting overlapping IPv4 addresses.

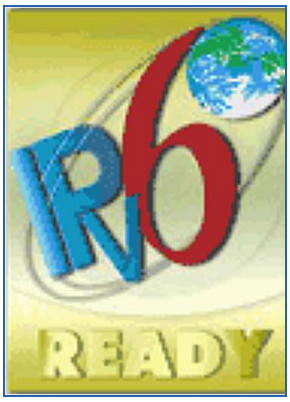
Figure 1. Sony IPv4 to IPv6 Migration Plan



Sony faced an enormous undertaking with its IPv6 migration: the project involved 700 sites, hundreds of thousands of networking devices, and hundreds of thousands of network users spread around the globe. During the transition from IPv4 to IPv6, it is necessary to support both protocols. Sony's enterprise IP network was built on a legacy of diverse networks and devices, and some devices and applications only supported the IPv4 protocol stack, with no IPv6 support in the foreseeable future. Therefore, Sony faced the serious challenge of forming a plan to coexist with current IPv4 networks and eventually completely migrate to IPv6.

Hiraga and his team considered a variety of solutions including one from Cisco to address their IPv4 to IPv6 migration needs, and ultimately positioned Cisco as a key strategic partner. Sony had countless discussions with Cisco engineers in the United States and Japan regarding their IPv6 product design features and implementations over the course of the multiyear project. Another major factor in its decision to make Cisco a key partner was the maturity of the Cisco® IPv6 technology. The Cisco IPv6 support timeline for many products, including its flagship routers and switches, coincided with Sony's project timeline.

As a pioneer in IPv6 technology, Cisco has been a driving force in developing IPv6 standards with standards bodies such as the Internet Engineering Task Force (IETF) since the 1990s. In fact, back in 2001, Cisco released the first commercial version of its Cisco IOS® Software with IPv6 support.



Today, all Cisco next-generation routing and switching platforms have embedded IPv6 support and have successfully passed a battery of interoperability and conformance tests to earn the internationally recognized IPv6 Ready logo.

Cisco offered a wide array of migration technology options to choose from (using established techniques such as dual-stack address translation and/or tunneling) depending on the priorities of various business applications that Sony had to manage and operate.

Using the Cisco IPv6 Solution to Power Sony's IPv6 Network

Sony began its phased six-year IPv6 migration project design, testing, and implementation project at its corporate headquarters in Tokyo.

Sony aimed to create an IPv6-ready end-to-end network in its office completed in Tokyo in March 2011. Cisco products (Cisco Catalyst® Series Switches, Cisco Wireless LAN Controllers, Cisco Access Points, etc.) were used to create a completely dual-stack network, which envisioned future implementation of IPv6 including local area networks and wireless networks.

> "Cisco, which has an excellent track record in network solutions, committed to our timeline, and we were able to resolve difficult challenges in the project thanks to the enormous support provided by Cisco engineers. We were able to start implementing IPv6 ahead of other companies, and feel that this is a significant result contributing to Sony's business."
>
> **— Toshio Hiraga, Senior Manager, Distinguished Engineer Network Service Department, Sony Global Solutions Inc.**

In the network integration project with Sony Group companies, Sony achieved IPv6 interconnectivity in a short period by implementing scalable and highly reliable Cisco ASR 1000 Series Aggregated Services Routers. The integrated network has been used by Sony as infrastructure for product development.

Cisco ISR G2 Integrated Services Routers are deployed at branch sites. Sony also upgraded its Cisco switches at the corporate data center, campuses, and remote offices to handle concurrent IPv4 and IPv6 traffic.

In this way, while the majority of network routing and switching devices at Japanese sites are IPv6-ready, in many of areas of the world, such as Africa and the Middle East, the infrastructure is not yet able to support the demands of IPv6, hence the ongoing requirement for dual IPv4 and IPv6 support. Another example of the critical dual-support need is with its manufacturing sites. Hiraga says, “Many of our networked manufacturing systems run on IPv4, and we must be able to support and integrate them through their useful life.”

Business Results

Hiraga and his IT team are achieving some impressive results as the company aims to reach its business goal of One Sony.

Supporting "One Sony" through Information Systems

The scalable address system of IPv6 eliminates the issue of conflicting IP addresses. Sony employees in all divisions can take advantage of the productivity benefits of real-time collaboration applications.

This approach also allows Sony to eliminate the majority of its NAT devices and their time-consuming manual configuration. In addition, the lead time required for connecting a new group to the enterprise network has been reduced from several years to several months thanks to the implementation of IPv6.

Although the IPv6 migration project started as part of Sony's long-term next-generation information and communications technology (ICT) infrastructure strategy, the enterprise network has become a highly versatile network without constraints on communications. This achievement has reduced network TCO, while adapting to expanding business and collaboration needs, enabling information systems to provide support for "One Sony." Hiraga says, "The effects of the project have emerged in a variety of areas. In the network integration with group companies, it has enabled us to quickly build IPv6. Because of this, it has contributed to improvement of productivity on a working level, including development and design, and also the rapid launch of businesses."

"I think we were able to start implementing IPv6 ahead of other companies because Cisco, which has an excellent track record in the development of products supporting IPv6, committed to our timeline and enabled us to resolve difficult challenges in the project. I feel that the ultimate result of Cisco's advice based on Sony's internal network architecture was a network that did not conflict with our current level of technology and also presented little burden in operation. Sony is promoting 'One Sony' with the aim of collaborating across the boundaries of countries, companies, and business categories. The IPv6 implementation is positioned as a key measure for supporting 'One Sony' from the perspective of information systems.”
— Fumiaki Sakai, Corporate Executive, Senior Vice President and CIO of Sony Corporation.

PRODUCT LIST

Routing and Switching Products

- Cisco ASR 1000 Series Aggregated Services Routers
- Cisco ASR 9000 Series Aggregated Services Routers
- Cisco ISR G2 3900/2900/1900/890 Integrated Services Routers
- Cisco Catalyst 6500, 3750, and 2960 Series Switches
- Cisco Nexus® 7000, 5000, 2000 Series Switches
- Cisco WLC5500 Series Wireless LAN Controllers
- Cisco 3500 Series Access Points

Data Center Security and Integration Products

- Cisco ASA 5500 Series Adaptive Security Appliances

Unified Computing Virtual Server Products

- Cisco Unified Computing System™ (UCS®) B series blade servers and C series rack servers

New Generation of Connected Things Will Fuel Internet Growth

Estimates vary, but one industry analyst calculated that the number of global Internet users reached 2.4 billion in June 2012, a dramatic rise from 938 million in June 2005, when Sony first began its IPv6 initiative (Internet World Stats). Cisco estimates that by 2016, total Internet users will be about 3.4 billion, more than 45 percent of the world's projected population (Cisco Visual Networking Index, 2012-2016).

For more on the future of our globally connected world, see Cisco's **Internet of Everything** videos on YouTube, http://www.youtube.com/user/Cisco/videos/.

For More Information

For more information about IPv6: http://www.cisco.com/jp/go/ipv6/.

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