

Sony Builds an IPv6 Network to Fortify Competitive Edge

SONY'S RAPID BUSINESS GROWTH

In the early 2000s, Sony Corporation had been engaged in strategic mergers and acquisitions to strengthen itself against intensifying competition. By 2007 Sony's enterprise network (internal network) had become too complex and incapable



Figure 4.2 Sony Corporation overview.

TABLE 4.1 Opening Case Overview

Company	Sony Corporation, Sony.com
Location	Headquartered in Tokyo, Japan. Over 700 total network sites worldwide.
Industries	One of the largest consumer electronics and entertainment companies in the world, including audio/video equipment, semiconductors, computers, and video games. Also engaged in production and distribution of recorded music, motion picture, and video.
Business challenges	<ul style="list-style-type: none"> • Network expansion required too much time due to complexity of enterprise network. • Networking TCO (total cost of ownership) was continually increasing. • Numerous constraints on networks obstructing communication between companies in Sony Group.
Network technology solution	<p>Integrated its IPv4 networks with new IPv6 solutions from Cisco. The integrated IPv4/IPv6 network has been used by Sony as infrastructure for the development of new products and enterprise-wide collaboration.</p> <p>Sony also upgraded its Cisco switches at the corporate data center, campuses, and remote offices to handle concurrent IPv4 and IPv6 traffic.</p>

of supporting communication, operations, and further business growth. The enterprise network was based on IPv4. A serious limitation was that the IPv4 network could not provide real time collaboration among business units and group companies.

Expansion efforts were taking too long because of the complicated structure of the network, and total cost of ownership (TCO) was increasing. Also, a number of technical limitations were blocking internal communications.

Many of the Sony Group companies had developed independently – and had independent networks. Devices connected to the independent networks were using the same IP addresses. That situation is comparable to users having duplicate telephone numbers – making it impossible to know which phone was being called. Also, phones with the same number could not call each other.

Once these networks were integrated, the duplicate IP address caused traffic routing conflicts. Routing conflicts, in turn, led to the following problems:

1. Sony's employee communication options were severely limited, which harmed productivity.
2. File sharing and real time communication were not possible.
3. Introducing cloud services was difficult and time-consuming.

IPv6

To eliminate these limitations, Sony decided to invest in IPv6-based networks in 2006; it then launched a full-scale effort in 2008. With its virtually unlimited number of IP addresses, **IPv6** would support Sony's long-term, next-generation **information and communications technology (ICT)** infrastructure strategy and improve collaboration and productivity.

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Migrating from IPv4 to IPv6 involved 700 sites, hundreds of thousands of networking devices, and hundreds of thousands of network users spread around the globe. During the transition, Sony realized that it was necessary to support both IP protocols. That is, the IPv6 would supplement and coexist with the existing enterprise IPv4 network, rather than replace it. Running both protocols on the same network at the same time was necessary because Sony's legacy devices and apps only worked on IPv4.

Sony selected Cisco as a key partner in the migration and integration of IPv4 and IPv6 traffic because of the maturity of its IPv6 technology. The integrated network has been used by Sony as infrastructure for product development. Sony also upgraded its Cisco network switches at the corporate data center, campuses, and remote offices to handle concurrent IPv4 and IPv6 traffic.

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The use of IPv6 eliminated the issue of conflicting IP addresses, enabling Sony employees in all divisions to take advantage of the productivity benefits of real time collaboration applications. Other business improvements are:

- Flexibility to launch new businesses quickly
- Reduced TCO of enterprise network
- Network without communications constraints, supporting "One Sony" through information systems

Sources: Compiled from Cisco (2014a; 2014b), Khedekar (2012), and AT&T (2012).

Questions

1. Why might IPv6 be a business continuity issue for organizations?
2. Explain how Sony's IPv4 enterprise network was restricting the productivity of its workers.
3. What problems did duplicate IP addresses cause at Sony? Give an analogy.
4. Why did Sony need to run both protocols on its network instead of replacing IPv4 with IPv6?
5. Describe the strategic benefit of Sony's IPv6 implementation.
6. Do research to determine the accuracy of this prediction: "Today, almost everything on the Internet is reachable over IPv4. In a few years, both IPv4 and IPv6 will be required for universal access."