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NetApp IPv6 Capabilities

Introduction

Internet Protocol version 6 (IPv6) is the newest version of the Internet Protocol (IP) offering a number of improvements over the existing IP version 4 (IPv4). Most importantly, having IPv6 in our products is required for conformance to U.S. Government regulations. IPv6 also provides enough new IP addresses to allow for every country, region and organization to have an abundance of them to meet their current and future IP networking needs. The IPv4 address pool is projected to reach exhaustion sometime in the 2011 timeframe at the current rate of address consumption.

IPv6 is expected to coexist with IPv4 in a “dual stack mode” for a considerable period of time, perhaps for decades. The exhaustion of the IPv4 address pool is a major constraint for the deployment of new networks and applications, such as new cloud based computing and storage services. The lack of addresses may also impact existing IPv4 based services that need more addresses to increase capacity. With the improved and expanded addressing capacity, more efficient routing and the Mobile IP features, IPv6 is a significant improvement over the IPv4 protocol.

U.S. Government Regulations

In May 2005, the U.S. Government Accountability Office issued a report to congress identifying the need to plan for the transition to IPv6. This triggered additional government considerations and in the end resulted in the creation of two (2) sets of new regulations:

- USGv6 - for Civilian, Intelligence, GSA & NASA agencies
- Unified Capabilities Requirements (UCR) - for military branches

USGv6

On August 2, 2005, the Office of Management and Budget (OMB) issued memorandum M-05-22 that directed the National Institute of Standards and Technology (NIST) to develop the technical infrastructure for standards and testing necessary to support wide scale adoption of IPv6 in the USG. In response, NIST developed a technical standards profile for U.S. Government acquisition of IPv6 (USGv6) entitled “[A Profile for IPv6 in the U.S Government – Version 1.0](#)”

On December 10, 2009, the OMB issued the final ruling of [Federal Acquisition Regulation \(FAR\) case 2005-041, Internet Protocol Version6 \(IPv6\)](#) and it became Federal law. Effective July 1, 2010, the FAR requires all representatives of IT network equipment vendors to provide an USGv6 Supplier Declaration of Conformity (SDOC), and all procurement specialists, agents, and officers



in Civilian, Intelligence, GSA and NASA agencies to use the SDOC process as defined in USGv6 to obtain information about the IPv6 networking capabilities in all IT networking products.

UCR

The USG military branches have their IPv6 networking requirements defined in [Unified Capabilities Requirements 2008 \(UCR 2008\)](#). UCR 2008 does not contain specific requirements for data storage controller systems and will be made obsolete when [UCR 2010](#) is published in January 2011. NetApp participated in the writing of the requirements for data storage controller systems in UCR 2010 at the request of the Office of the Secretary of Defense (OSD) and is working towards listing our products on the [UCR 2010 Approved Product List \(APL\)](#) during CY 2011.

NetApp's Support for IPv6

NetApp's planning for IPv6 began in 2004 when we created the business plans for implementing it in our product portfolio. NetApp recognized that our enterprise and service provider customers needed continued support for both their existing IPv4 infrastructures and for their transitions to IPv6.

In considering the migration to IPv6, NetApp recommends these principles:

- Use of IPv6 is inevitable and offers many long term benefits
- IPv4 address exhaustion is within the planning horizon for large projects
- Deployments of IPv6 have begun and will be incremental; initial emphasis will be placed on customer-driven demands – especially the U.S. Government agencies, military branches and international enterprises of all sizes
- Full migration to IPv6 will occur in multi-year programs
- New products and services must include IPv6 support from the beginning to avoid IPv6 transition costs in the future
- IPv6 be included as part of normal IT hardware and software refresh cycles
- The “killer application” for IPv6 is the Internet itself and its continued growth

Conclusions

IPv6 facilitates the new development of applications and services based on end-to-end communication models. NetApp recognizes the potential of IPv6 as an advanced technology to enable delivery of new services and is committed to implementing and maintaining full support for IPv6 in our entire product portfolio.