You've seen the headlines; "The world is running out of Internet Addresses." Indeed, the traditional IPv4 address space is reaching capacity. What does this mean to you? Is this like the Y2K bug? Is your network at risk to suddenly stop working?

The answer is yes - and no. Yes, this is like the Y2K bug, in that the issue is suddenly getting a lot of attention in the media. But no, we are not going to wake up one day and find everything is broken. The gradual consumption of IPv4 addressing has been tracked for a long time and the industry has prepared technology to ease the transition.

The most immediate impact will be felt by organizations who have not previously acquired an IPv4 Internet domain and address range - or existing organizations that need to expand their existing routable IPv4 space - because they might not be able to get anything but IPv6 addresses.

While IPv4 is not going away anytime soon, and will coexist with IPv6 on public networks for a time, all organizations should plan and prepare to support IPv6 because its adoption is accelerating. This paper will help you do that.

The Primary Issues

As IPv6 is adopted on the Internet, enterprise IT organization must support business requirements to ensure that all external Internet services such as web sites, email and other application services are IPv6 capable. Therefore, you will need to support IPv6 in your external, internet-facing DNS server in your network's DMZ.

Many organizations are choosing not to immediately use IPv6 on their internal networks due the cost and hassle of replacing existing network infrastructure. That's OK. At least for now, through Network Address Translation (NAT) support in edge routers, organizations can continue to use non-routable IPv4 addresses on internal networks.

For DNS, the primary difference between IPv4 and IPv6 is the type of record used to map names to addresses. IPv6 DNS records are called AAAA Records, which are capable of referencing host entries that contain the larger, 128bit address format of IPv6 addresses. In contrast, IPv4 DNS utilizes A Records which contain the traditional 32 bit addresses used in IPv4.

Since IPv4 is not going away any time soon, your external DNS solution must simultaneously support both IPv6 and IPv4. In other words, your external DNS server should run dual IP protocol stacks and support both IPv4 A Records and IPv6 AAAA Records.
**Supporting IPv6 in External DNS Services**

**The Infoblox Solution**

An appliance-based Infoblox DNS solution is a simple and robust platform for IPv6 capable external DNS. Infoblox has dual stack IPv6/IPv4 support and will deliver both IPv4 DNS A records and IPv6 AAAA records to DNS requests from Internet hosts over either protocol. This support, coupled with a dual stack server infrastructure on the other routing equipment, firewalls and web servers in the rest of the DMZ, can guarantee that both IPv4 and IPv6 users will reach an internet-facing web site.

Infoblox appliances provide a hardened system, which protects against privilege escalation and malware attacks, and is ready “out of box” for DMZ deployment. Infoblox appliances support High Availability features such as VRRP redundant hardware failover, and patented Infoblox Grid™ technology, which easily scales to support failover and recovery to a redundant data center.

The Infoblox external DNS solution fully supports IPv4 and IPv6 DNS Security (DNSSEC) that has been tested for interoperability with root name servers and is Joint Interoperability Test Command (JITC) and Office of Management and Budget (OMB) compliant for government and military applications. Infoblox Grid “one-click” technology automates DNSSEC deployment and maintenance features such as certificate acquisition and signing key refresh to take the tedious, manual labor out of the equation when implementing a best-practice external DNS services.

**Summary**

The most pressing step for enterprise organizations preparing an IPv6 transition is to support IPv6 on Internet facing DNS network services. Deploying these services with dual stack support for IPv4 and IPv6 and using a DNS server that supports both IPv4 A records and IPv6 AAAA records will ensure the continued delivery of web services to customers and critical business communications like email available for all.

The Infoblox solution meets these IPv6 requirements, is easy to deploy and maintain, and additionally provides superior DNSSEC support, High Availability, and enterprise Disaster Recovery.