Managing Microsoft DNS/DHCP Infrastructure

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Summary: Infoblox is a Microsoft Gold Datacenter partner, providing an overlay DDI solution that is 100 percent compatible with Microsoft. Seamless and agentless implementation requires no change to Microsoft Active Directory (AD) or existing applications. Infoblox IPAM for Microsoft solutions represents the next generation of IPAM systems for Microsoft environments, providing powerful IP address management capabilities for Microsoft DNS/DHCP services, enabling IT administrators to quickly and easily replace spreadsheets, manual processes, and home-grown tools with a cost-effective, purpose-built solution while protecting current investments in Microsoft infrastructure.

Take Back Control and Add IPAM to Your Windows-based DNS/DHCP Environment

Microsoft DNS and DHCP services are deployed by enterprises and service providers around the world. Included with Microsoft Windows server, these critical services are the foundation for network connectivity and applications. All IP devices need addresses, and DHCP is the most efficient way to provide them; and essentially all network applications, from web services to email to Microsoft AD, depend on DNS/DHCP. But increasingly, the management of these services is a challenge as networks continue to add devices and applications at an unprecedented rate.

Managing the growing volume of DNS/DHCP information with existing tools is cumbersome, forcing many network administrators to update spreadsheets manually and employ labor-intensive, error-prone processes to manage their IP addresses. Additionally, these tools provide no ability to delegate administrative authority over just a portion of the resources on a Microsoft DNS/DHCP server, resulting in poor visibility, inefficient operations, compromised security, and an inability to meet audit requirements for compliance. Addressing these problems requires replacing manual spreadsheets and processes with a dedicated IPAM solution.

Infoblox IPAM for Microsoft represents the next generation of IPAM systems for Microsoft environments. IPAM for Microsoft provides powerful IP address management capabilities for Microsoft DNS/DHCP services, enabling IT administrators to quickly and easily replace spreadsheets, manual processes, and home-grown tools with a cost-effective, purpose-built solution, while protecting current investments in Microsoft infrastructure. Companies can now manage their IP environments and IP address data across the enterprise, delivering unified management, monitoring, and administration with centralized auditing and reporting. The solution enables compliance with regulatory requirements, such as Sarbanes-Oxley (SOX), that mandate policy-based retention of IP-related information, and also provides tangible business benefits, including a compelling return on investment.

Managing IP Address Space on Microsoft Platforms is Expensive, Error Prone, and Slow

Manual management of Microsoft server-based DNS/DHCP services is a resource drain. The tasks are repetitive and involve several steps to complete. Since there is no effective way to allow other team members or junior staff to manage these changes without significant security implications, senior administration staff have to get involved in servicing every request. One simple example is servicing a request for a new static IP address for a printer, as shown in the table below.

Common Task	Steps	Work Time	Elapsed Time
IP Address Provisioning	8	30 minutes	1 – 2 days
DNS/DHCP Change	7	20 minutes	2 – 4 hours
IP Address Reclamation	8	60 minutes	1 week
Network Provisioning	9	60 minutes	2 – 4 days

Table 1: Time and effort requirements for manually managing IP address space to service a request for a new static IP address for a printer

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Typically, an IP address map is maintained in spreadsheets or other database programs owned by a few senior employees. Every request for a new IP assignment requires these IP database owners to find the spreadsheet, do a manual network scan to ensure IP availability, update the spreadsheet, and finally send the IP address to the requestor. And the burden of keeping the IP assignment data updated by periodically reclaiming unused IP addresses, creating new subnets, and updating DNS/DHCP records per requests from applications teams keeps the senior staff busy keeping the lights on instead of working on strategic planning, where their skills are more critical.

Manual configuration of DNS/DHCP combined with spreadsheet-based IP address management is error prone, and even small configuration errors can result in major outages. A lack of key error-prevention features in current management tools, exacerbated by the high number of steps required to complete even simple tasks, adds outage risks to the IP address management process. This situation is further exacerbated when there is no centralized management and therefore configuration changes need to be made on each server separately.

What Is Really Needed

DNS/DHCP management tools do not provide detailed visibility into several aspects of these two core services. Specifically, Microsoft server-management tools lack the capabilities described in the following sections.

Centralization and Automation of DNS/DHCP and IPAM Management

A key first step in reducing DDI management burdens is to centralize management. The current management model requires making configuration changes separately on each server. Since DDI tasks sometimes span multiple servers, repetitive steps are required to service those tasks, requiring more management resources and increasing configuration error risks. For example, installation of a new server requires consulting the IP space data in the spreadsheet, making changes to the appropriate DHCP server to mark the static address, and then creating DNS/DHCP records, likely on a separate server.

IP address management (IPAM) refers to the management of allocation, administration, reporting, and tracking of public and private IP space, IP devices, and associated data. Typically spreadsheets and processes that interact with the DNS and DHCP infrastructure are deployed to provide IPAM capabilities. The system must provide a replacement for spreadsheet-based IP address management and must automate and simplify tasks associated with IP assignment, reclamation, subnet allocation, and IP and subnet usage reporting. The system must keep the network device data current through automated discovery rather than depending on manual data.

Effective Distribution of DDI Management Responsibility across and within Teams

Since DDI operations touch several teams and it is sometimes desirable to distribute tasks based on responsibilities and expertise of teams and individuals, it should be possible to securely delegate DDI tasks to different administrators without affecting the current management practice for the rest of the Windows server functions. As an example, the server team can delegate management of DNS/DHCP and IPAM functions to the network team while keeping control of the rest of the Windows server functionality. Network teams, in turn, can divide the responsibilities based on the region or expertise within the group and delegate even simpler tasks (e.g. new IP assignment) to helpdesk operators.

Granular role-based administrative control is required to ensure that management tasks can be delegated securely.

Reporting and Alerts for Outage Avoidance, Troubleshooting, and Compliance

MS server-based DNS/DHCP management solutions must provide detailed graphical reporting of IP address space and subnet usage as well as information about IP conflicts and other discovered device data for troubleshooting.

DDI systems should enable the administrator of the system to monitor IP address allocation so they can report on total usage of the address space across the enterprise as well as in specific locations of that enterprise. The system should deliver a holistic view of all assets under management so the administrator has a single, unified view of all of the components of the network.

The systems or network administrators need the ability to search their IPAM data set and report on specific items easily. For example, they may wish to report all devices that are printers with fixed addresses or generate a report on all addresses not currently in the DNS/DHCP database. IT administrators need full audit logs of all DDI changes to meet regulatory and audit requirements and ensure compliance. Each change to the DDI infrastructure should be logged internally to the IPAM infrastructure as well as to a centralized reporting infrastructure.

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Infoblox Solution for Microsoft DNS/DHCP Management

Infoblox IPAM for Microsoft allows network administrators to centrally manage their entire Infoblox and Microsoft server-based DNS/DHCP infrastructures with minimal disruption, enabling them to easily manage ever-larger and more complex networks. With IPAM for Microsoft a team can:

- **Gain visibility and control** of subnet and IP usage in their existing Microsoft DNS/DHCP server-based infrastructure
- **Reduce management effort and configuration errors** by centrally managing Microsoft-based DNS/DHCP configuration
- **Reduce operational costs** through delegation of provisioning and troubleshooting tasks to local administrators and helpdesk
- **Enforce security** by controlling user permissions, logging changes in audit logs, checking configuration syntax, and disallowing root access to the appliance. Infoblox IPAM for Microsoft extends the Infoblox DDI management capability to include management of Windows-based DNS/DHCP infrastructure.

Add IPAM to Your Existing Microsoft Infrastructure

Infoblox IPAM for Microsoft automates and simplifies IP address management, reducing network operating costs and eliminating configuration errors and associated downtime. Advanced visual functions such as network maps, IP maps, and smart folders provide visibility into the usage and configuration of IP resources.

Automate and Centrally Manage Entire DDI Infrastructures

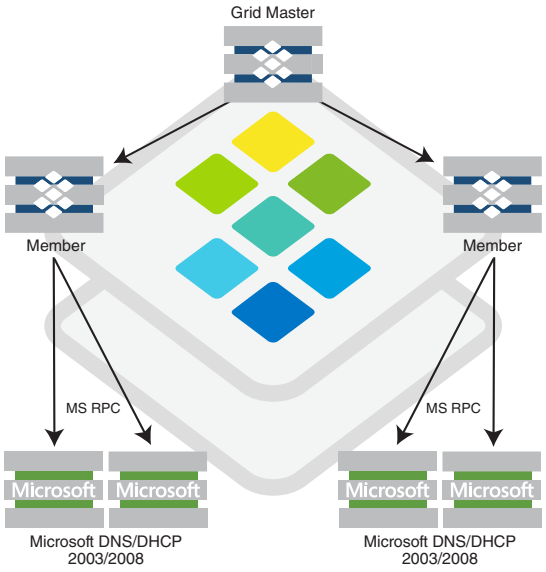
With IPAM for Microsoft, your entire DDI infrastructure, including Microsoft servers and Infoblox appliances, can be managed from one web-based management console. The Infoblox DDI solution provides high levels of management automation to reduce administrative effort and eliminate errors and downtime using a graphical user interface, template-based configuration, automated error prevention, and comprehensive, real-time visibility and reporting.

Securely Delegate Management of DDI Based on Roles

Infoblox NIOS software allows creation of administrative roles and assignment of different administrators to these roles. An administrative role can be defined based on flexible criteria, e.g., "DNS/DHCP administrators in the Phoenix data center," or "printer administrators worldwide." Once the role has been defined, administrator accounts can be added to specific roles.

Seamless Integration Into Existing Microsoft Server-based Infrastructure

Infoblox is a Microsoft Gold Datacenter partner. The Infoblox solution uses Microsoft RPC and does not require installation of any agents or software on Microsoft servers being managed. In addition, no specific configuration of Microsoft servers is required. Infoblox solutions can coexist with existing tools and practices, and Microsoft administrators can continue to use the Microsoft Management Console to manage the servers if required.



Next Steps

Contact us to find out more about Infoblox and Microsoft solutions.

About Infoblox

Infoblox delivers critical network services that protect Domain Name System (DNS) infrastructure, automate cloud deployments, and increase the reliability of enterprise and service provider networks around the world. As the industry leader in DNS, DHCP, and IP address management, the category known as DDI, Infoblox (www.infoblox.com) reduces the risk and complexity of networking.

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