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Market Guide for DNS, DHCP and IP Address Management (DDI)

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VIEW SUMMARY

DDI solutions improve IT infrastructure availability while reducing opex. I&O leaders should use this research to gain insight into vendor strategies and how to evaluate and select DDI solutions to meet their functional, financial and operational requirements.

Overview

Key Findings

There are 10 primary players in the market, including five that meet a broad range of enterprise DDI requirements (Alcatel-Lucent, BlueCat, BT Diamond, EfficientIP and Infoblox) and five that are typically deployed in a more focused set of usage scenarios (Microsoft, Cisco Systems, SolarWinds, Men & Mice and FusionLayer).

The need for DDI correlates with scale; hence; the greater the number of employees or the larger the network, the greater the benefit a DDI solution will provide.

Usage of a commercial DDI solution can reduce opex and lead to savings of full-time equivalents (FTEs) in larger organizations, particularly those with 10,000 or more employees.

Existing DDI solutions are difficult to upgrade and/or replace. Thus, enterprises don't typically switch vendors; DDI solutions are "sticky."

DDI solutions are becoming an increasingly important aspect of private cloud initiatives because they help automate DNS and Internet Protocol (IP) address management functionalities.

Recommendations

Invest in DDI solutions when management of DNS, Dynamic Host Configuration Protocol (DHCP) or IP addresses is insufficient and/or leading to reduced availability in your environment.

Determine which DDI solutions are aligned with your organization's functional and financial requirements rather than basing the decision on brand name or perceived market leadership.

To narrow down prospective suppliers, focus on price, ease of implementation/migration and integration with your existing infrastructure vendors.

Due to the stickiness of DDI solutions, use a five- to 10-year time horizon when planning investments in DDI.

Invest in DDI to support large Internet Protocol version 6 (IPv6) deployments or to fully automate DNS/DHCP services within private cloud initiatives.

Market Definition

The DDI market is composed of solutions that provide and/or manage internal DNS and DHCP services, along with IP address management (IPAM). DDI helps improve the availability of critical IT infrastructure while reducing operational expenditures. Infrastructure and operations (I&O) personnel responsible for supporting DNS, DHCP and IPAM utilize DDI to improve management and integration between these critical services and to provide a structured workflow for basic network operations (for example, adding printers or servers, allocating IP ranges for new branches, and so on). The market for external DNS services is separate and distinct from the DDI market (see Note 1).

Gartner estimates that usage of a commercial DDI solution can reduce opex related to DNS/DHCP and IP address management by 50% or more, which can lead to savings of FTEs in larger organizations (see Note 2). As a result, we've observed that a majority of organizations with more than 15,000 employees (or 50,000 IP addresses in use) have already deployed a commercial DDI solution (see Evidence 1 and 2). The initial benefit from DDI is directly related to scale. Similarly, most current DDI implementations are within larger-scale environments, such as those found in large enterprises, network operators, and hosting/cloud providers.

Market Direction

Primary Market Drivers

The primary reason that I&O organizations initially invest in DDI is to improve manageability of IP addresses — the conversation typically starts with IPAM. The key benefits that organizations derive from DDI include operational efficiency and agility and improved availability.

Specific benefits of operational efficiency and agility include:

Improved IP address management and workflow, which leads to faster and more accurate provisioning of DNS/DHCP services. This allows for faster service delivery to the business.

Improved capability to deal with a proliferating number of devices attaching to corporate

NOTE 1
EXTERNAL DNS MARKET

The external DNS market consists primarily of Internet service providers (ISPs), Web-hosting providers and managed DNS service vendors (such as Akamai and Verisign) that provide primary and/or secondary authoritative DNS servers with varying degrees of reliability, security and additional features. Although many DNS servers can be used for internal or external DNS, the administrative and operational requirements for internal and external DNS are quite different.

NOTE 2
TYPICAL OPEX SAVINGS DERIVED FROM DDI

This is based on typical usage and administration of DNS, DHCP and IPAM at large global

enterprises and has been validated with clients that have implemented DDI solutions.

Assumptions for this model include:

Rate of change (per month) in the environment: 5% for DNS, 4% for DHCP and 2% for IP subnets/virtual LANs (VLANs).
Typical organizations require three to five IP addresses per user.
Typical organizations utilize three application environments (development/test, quality assurance and production) with multiple data centers and distributed branches.
Manual DNS administration time can be reduced from two to 10 minutes to half a minute to five minutes per change.
Manual DHCP administration time can be reduced from four to 15 minutes to half a minute to five minutes per change.
Manual IP address management administration time can be reduced from 15 to 60 minutes to one to 20 minutes per change.

networks. Per client interactions, Gartner finds that most organizations now require two to five IPs per employee, while organizations surveyed for this research averaged three IPs per employee (see Evidence 1, 2 and 3).

The ability to delegate DNS and/or DHCP administration to less experienced administrators.

The ability to centralize management for critical services and improve visibility and reporting for devices attached to the network.

Support for increased automation as many organizations are being asked to "do more with less" staff.

Support for IPv6, largely due to the difficulties of managing IPv6 addresses. Overall adoption of IPv6 on internal enterprise networks remains limited, but has grown at a consistent rate for several years. Further, most enterprises that are "getting serious" about IPv6 have already deployed a commercial DDI solution. Of organizations surveyed for this research, 6% to 7% of their total IP space was IPv6 (see Evidence 3).

DDI improves availability via:

Improved stability of critical DNS and/or DHCP infrastructure in order to increase overall network availability (see Note 3).

Upgrade or replacement of a DDI solution that is coming to end of life.

Additional Market Drivers

In addition to primary drivers identified above, several additional trends have impacted the market, albeit to a lesser degree, including:

Concerns over the future of Alcatel-Lucent's DDI product, VitalQIP

Increasing price-based competition

Expansion of existing DDI solutions

Adjacent network services

The Future of Alcatel-Lucent's VitalQIP

One of the most common client questions over the past 12 months (see Note 4) was regarding uncertainty over the Alcatel-Lucent (ALU) VitalQIP DDI product. ALU's VitalQIP DDI product is one of the longest-standing on the market, with a number of very large customers. In February 2014, ALU publicly announced the intent to sell off its Enterprise business to Chinese investor China Huaxin. As a result, several large ALU VitalQIP customers expressed concern to Gartner over the pending sale, citing concerns over uncertainty and/or potential Chinese ownership. Organizations strongly affiliated with the U.S. government expressed the highest degree of concern. However, when the deal was finalized, it did not include VitalQIP. The VitalQIP product has remained with Alcatel-Lucent (see Evidence 5).

Increasing Price-Based Competition

In the past 12 to 24 months, the market has become more price-competitive. In smaller enterprises, proliferation of IP addresses is driving increased interest and investment into IPAM and DDI. EfficientIP, Microsoft and SolarWinds are showing up in a greater percentage of deals, with aggressively priced and free options.

Expansion of Existing DDI solutions

We are beginning to see an early-stage trend whereby organizations that have deployed a commercial DDI solution are now looking to expand it. The two primary use cases for this expansion include internal cloud deployments and increased infrastructure security.

Cloud Initiatives

We estimate that roughly 20% to 30% of large enterprises are now deploying on-premises production workloads in a private or hybrid cloud (see Evidence 7). Although cloud management platforms (CMPs) such as VMware, RightScale and OpenStack include rudimentary IP address management capabilities, most organizations require more robust capabilities such as overlapping addresses and dynamic reclamation. Thus, some organizations are replacing the built-in CMP IPAM capabilities with functionality provided by their pre-existing DDI vendor. This helps to further automate service provisioning, including IP address management and DNS. The leading DDI vendors have quickly developed integrations for the primary CMPs and orchestration systems, including VMware, Microsoft, OpenStack, Cisco, BMC Software and others.

Security

Due to recent high-profile attacks, organizations are generally more willing to invest in security solutions. Further, organizations have increasing concerns over protecting DNS, and many DDI vendors now provide DNS-based security. Thus, we see an increased interest from clients in DNS-based security associated with DDI solutions. Security components such as DNS firewalls now exist in roughly 20% to 30% of the client deals that Gartner reviews (see Evidence 1).

Adjacent Network Services

Several DDI vendors offer adjacent network services that are either included or tightly integrated with their core DDI products. Examples of these services include:

Limited or "lightweight" network access control (that is, a captive portal for guest networks)

Limited or lightweight network configuration and change management (that is, a device to switch port tracking)

Device fingerprinting

These peripheral features are typically basic or lightweight capabilities rather than a dedicated solution. However, they can provide a "good enough" solution if there are inadequate funds available for a more fully featured or enterprise-class product in these areas.

Potential Future Drivers

The Internet of Things (IoT) and software-defined networking (SDN) have not substantially driven the market to date, but we anticipate they will impact the market in the two- to three-year time frame.

IoT

Centralized IoT initiatives require management of a very large number of devices (often millions). However, IoT is still in its infancy, and per Gartner's ongoing research with end-user and vendor clients, most IoT deployments have been consumer-focused and decentralized, which doesn't warrant DDI investment. To date, we've only seen a small number of IoT projects that required DDI investment, including a smart-metering project that required 24 million IPv6 endpoints.

SDN

SDN is still in its mainstream infancy and has not impacted the market to date. However, leading vendors are quickly integrating their solutions in the emerging SDN ecosystems, including:

> BlueCat has released an app that runs in HP's App Store that provides DNS security (see "HP's SDN App Store Needs Open Platform to Change the Future of Networking").

> Infoblox is working to integrate its product with both Cisco Application Centric Infrastructure (ACI) and VMware NSX (see Evidence 6). In addition, Infoblox is participating in the Open Networking Lab (ON.Lab) consortium as a contributing member behind the ONOS SDN controller.

Market Analysis

The DDI market is mature, and we estimate global revenue in the $400-million to $450-million range, with a 4% to 10% compound annual growth rate (CAGR) over the next 24 months. Infoblox is the market leader with FY14 revenue of $250 million — and we estimate more than 85% of this revenue is derived from the DDI market. In addition, there is substantial market saturation at the high end; Gartner estimates that more than 85% of the 500 largest global enterprises utilize commercial DDI solutions.

We estimate there are between 12,000 to 15,000 commercial DDI solutions implemented globally, with Infoblox accounting for approximately 50% of the existing installed base, but winning more than 50% of new DDI deals. Outside of Infoblox, the market is quite fragmented, and we estimate that no single vendor accounts for more than 15% of the worldwide DDI installed base, while seven vendors account for roughly 3% to 12% each. As a result, we anticipate market consolidation over the next 36 months.

Vendor Stickiness and Painful Upgrades

Deployed DDI solutions are often difficult to displace as (1) DNS is mission-critical, (2) organizations often wrap organizational process and technology around them (that is, integration into ticketing systems and workflows) and (3) the upgrade process itself is often cumbersome.

Upgrading an existing DDI deployment with the incumbent is markedly easier than switching vendors, but is still often cited as a painful process by clients. As a result, the planning and costs associated with migrating and/or upgrading existing DNS/DHCP services are extremely important to consider when a new DDI solution is being proposed.

Pricing

DDI solutions are typically priced like a networking device, including a one-time initial hardware/software price and a yearly recurring maintenance fee. Price can vary significantly based on several factors, including deal size and volume (that is, number of IP addresses managed), overall topology/architecture, vendor, and negotiated discount rate.

As a result, vendors' list prices typically equate to $1 to $3 per IP address for the initial hardware/software purchase, plus an additional yearly maintenance fee in the range of 15% to 25% of the original hardware/software price.

Within the next two years, we anticipate that opex pricing models will emerge, in conjunction with new cloud-managed delivery models. In this model, DDI will be delivered more like a SaaS offering.

Hardware Versus Software

While there has been slight uptick in software- and virtual-appliance-based DDI deployments, we still see the majority of DDI implementations utilizing hardware-based appliances for delivery of core DNS and DHCP services. Nearly all vendors in this research now offer both software and hardware deployment models. However, while software-based instances are feasible from a performance/capacity perspective, it is typically a cultural decision to keep critical services deployed on physical hardware-based infrastructure. We estimate that more than 75% of DDI appliances shipped in 2014 were hardware-based.

Deployment Modes

DDI solutions are typically deployed via three general methods: management overlay, integrated services and managed services. In addition to these three methods, we anticipate cloud-managed delivery models will emerge within the next 24 months.

Integrated/Bundled Offerings

In a bundled DDI offering, DNS and DHCP services share an integrated database. Bundled solution vendors provide IPAM via two models — as an embedded function or an optional component. Integrating DNS, DHCP and IPAM functions improves workflow tasks and the manageability of the IP address space, and it reduces the risk of human error in largely manual processes. Some vendors have based their solutions on open-source DNS and DHCP, and others have developed their own services.

Management Overlay

DDI overlay-based deployments are meant to complement, not replace, existing DNS and DHCP services. They are simpler to deploy than bundled solutions, which require the integration and/or replacement of the existing DNS/DHCP infrastructure. Overlay solutions provide help in two areas:

> Adding enterprise management capabilities to DNS and DHCP

Adding IP address management functions

The solutions are modular in nature, so enterprises can choose to deploy only IPAM, only DNS/DHCP management or an integrated DDI solution. Gartner estimates 10% to 20% of commercial DDI implementations fall into the management overlay category. There are several use cases that drive clients to deploy in overlay mode, including:

Clients that deploy DDI in a phased approach, starting with the management overlay first (often just IPAM), before moving on to a full-blown bundled implementation.

Organizations that want to maintain their existing DNS or DHCP services (that is, those that prefer Berkeley Internet Name Domain [BIND], for example).

Organizations that want a consistent management interface to support existing DNS and DHCP services.

Managed Services

Managed DDI services are available for organizations that want to "hand off" the day-to-day operations and management of their DNS and DHCP infrastructure. DDI managed service providers typically deploy appliances on their customers' premises and then manage DNS and DHCP services remotely. The managed service model appeals to organizations and midsize businesses that do not have DNS/DHCP expertise in-house, or simply do not have the resources for managing these critical services. Gartner does not see a large installed base for these managed DDI services. This deployment model is typically priced via a single monthly fee for hardware, software, maintenance and managed services.

Table 1. Deployment Modes and DNS/DHCP Services Supported by Vendors

	Deployment Modes Supported	DNS/DHCP Services Supported
Alcatel-Lucent	Integrated, Management Overlay, Managed Services	BIND, Microsoft and self-branded
BlueCat	Integrated, Management Overlay, Managed Services	BIND, Microsoft, Internet Systems Consortium (ISC) DHCP and self-branded
BT	Integrated, Management Overlay, Managed Services	BIND, Microsoft, ISC DHCP, Cisco Network Registrar (CNR) and self-branded
Cisco	Integrated, Management Overlay, Managed Services	BIND, Microsoft, ISC DHCP and self-branded
EfficientIP	Integrated, Management Overlay, Managed Services	Name server daemon (NSD), Unbound, BIND, Microsoft, ISC DHCP, Amazon Web Services (AWS) Route 53 and self-branded
FusionLayer	Integrated, Management Overlay	ApplianSys, BIND, Microsoft, ISC DHCP, Unbound, NSD, Nominum, Secure64 and self-branded
Infoblox	Integrated, Management Overlay, Managed Services	BIND, Microsoft, ISC DHCP, F5 Global Traffic Manager (GTM) and self-branded
Men & Mice	Integrated, Management Overlay	BIND, Microsoft, ISC DHCP, Unbound, Cisco IOS, AWS Route 53 and PowerDNS
Microsoft	Integrated	Microsoft
SolarWinds	Management Overlay	BIND, Microsoft, ISC DHCP and Cisco IOS

Source: Gartner (February 2015)

Representative Vendors

The vendors listed in this Market Guide do not imply an exhaustive list. This section is intended to provide more understanding of the market and its offerings.

Alcatel-Lucent

Website: enterprise.alcatel-lucent.com/?product=VitalQIP

Alcatel-Lucent is a large multinational telecommunications company with nearly $15 billion of revenue in FY14, and their VitalQIP DDI product is one of the longest-standing on the market. ALU sells mostly direct and focuses primarily on very large-scale network deployments, including service providers, governments and very large enterprises (that is, 25,000 employees or more). We estimate this vendor to have 5% to 10% of the current global installed DDI customer base, composed primarily of very large organizations. Given its focus on very large networks, it is not surprising that one of ALU's key differentiators is increased DHCP performance.

ALU is the vendor we most often observe being displaced by competitors, and we estimate it accounts

for only 1% to 2% of new DDI deployments in the market. Further, given its carrier-centricity, we have concerns over the vendor's focus and direction for enterprise DDI capabilities. In addition, enterprise clients have cited difficulties in upgrading to new versions of VitalQIP and a lack of local support resources.

Use Case: Customers looking to refresh an existing ALU DDI installation should consider this vendor.

BT

Website: www.btdiamondip.com

BT Group is a global communications services provider with over $27 billion in total revenue in FY14. Diamond IP is the vendor's DDI offering, and it is available as software and as a physical/virtual appliance. In addition, BT provides Cisco with its IPAM capability via an OEM relationship. Diamond IP is sold primarily to and targeted at enterprise buyers.

Diamond IP is very scalable, which enables BT to sell to service providers (as disclosed by BT, approximately 18% of Diamond IP revenue comes from the service provider market). Diamond IP supports all three deployment modes, and customers cite that the platform is simple and flexible to deploy. Some BT customers have cited challenges integrating the product with virtualization and cloud platforms, particularly noting API limitations. BT has limited brand awareness and a smaller installed base versus leading competitors, and we estimate it accounts for 4% to 5% of the global DDI installed base (measured via customer count).

Use Case: Large enterprises looking to deploy DDI should consider BT, particularly when a managed services deployment model is desired.

BlueCat

Website: www.bluecatnetworks.com

BlueCat is a private company and pure-play DDI vendor based in Toronto, Canada. Gartner estimates it accounts for approximately 10% of the global DDI installed base and is growing above market rates. We typically observe BlueCat having success in larger-scale deployments beyond 100,000 IP addresses. The vendor has a high degree of visibility in the market (second only to Infoblox) and shows up on more than 50% of inbound client shortlists. Key areas of differentiation include the ability to support very large-scale environments, integration with leading cloud/virtualization platforms (VMware, HP, IBM and OpenStack) and deep/broad API capabilities. As a result, BlueCat appeals to DevOps buyers in addition to traditional I&O personnel.

However, BlueCat does not target smaller environments and lacks comprehensive global sales coverage compared with larger DDI competitors. Further, some BlueCat customers cite a need for improved reporting.

Use Case: Large organizations should consider BlueCat for DDI, particularly in environments with significant scale requirements (100,000-plus IP addresses) or that desire significant customization.

Cisco

Website: www.cisco.com

Cisco is one of the largest worldwide IT companies with over $47 billion in total revenue in FY14. Traditionally, most of Cisco's DDI wins have been with service providers, particularly cable operators, which account for the majority of the vendor's DDI installed base. In an effort to further penetrate mainstream enterprise, Cisco released a new package of DDI capabilities called Prime IP Express in April 2014. Prime IP Express is targeted at mainstream enterprise buyers and includes price and feature capabilities more closely aligned with enterprise requirements. Cisco's primary areas of differentiation in the market are centered around DHCP functionality and performance. In addition, clients who select Cisco for DDI often cite the Cisco brand and/or reputation for support as a key differentiator.

Overall, Cisco has limited visibility in the enterprise DDI market, and we've seen limited adoption of the new Prime IP Express enterprise product to date. We estimate an enterprise installed base of less than 300 customers (which does not include network operators). Also, Cisco is dependent on BT for its product road map and development because of an OEM agreement with BT's IPAM software (which is rebranded, sold and supported by Cisco).

Use Case: Organizations that require the highest level of DHCP performance (such as service providers) should consider Cisco for DDI.

EfficientIP

Website: www.efficientip.com

EfficientIP is a small but fast-growing pure-play DDI vendor based in France that is increasing its presence in the global market. EfficientIP is a fast-follower and differentiates primarily on price and performance. Customers cite that EfficientIP's DDI product is flexible and cost-effective. The vendor has shown strong commitment to the DDI market in 2014 via adding support for AWS Route 53 and multiple mechanisms to enhance DNS security.

However, EfficientIP remains one of the smaller vendors in the market and lacks global coverage and brand awareness when compared with leading competitors. We estimate its current installed base to be under 500 organizations, although it has added over 100 in 2014. Thus, before investing, organizations should ensure there is appropriate local vendor and channel support from EfficientIP. Further, some users have noted problems with the vendor's release management process, relating to lack of communications associated with frequent version and patch updates.

Use Case: Enterprises in Europe, Asia/Pacific or the U.S. looking to deploy DDI should consider EfficientIP.

FusionLayer (Formerly Nixu Software)

Website: fusionlayer.com

Based in Finland, Nixu Software publicly announced in January 2015 its change of company name to FusionLayer. Previously a subsidiary of Nixu Group, an IT security consultancy, the new name signals a rebranding strategy triggered by the successful initial public offering (IPO) of Nixu, listed at the First North marketplace of the Nasdaq OMX Helsinki stock exchange in December 2014. The vendor has rebranded the NameSurfer product suite as FusionLayer Infinity.

FusionLayer's core strategy is service providers (we estimate 80% of its 2014 revenue), and its DDI components are available as software appliances, which can be run on the leading hypervisors. FusionLayer's solution enables self-service and automated private cloud capabilities for customers of cloud service providers and managed service providers. FusionLayer customers highlight ease of use as a strength, but FusionLayer has not established a strong direct sales or value-added reseller (VAR) channel, and name recognition and branding are weak in the enterprise.

Use Case: Organizations that act as cloud service providers or management service providers should consider FusionLayer, but should verify that the vendor can provide adequate support outside of EMEA.

Infoblox

Website: www.infoblox.com

Infoblox is a publicly traded company based in Santa Clara with over $250 million in FY14 revenue and is focused primarily on DDI. Infoblox has the highest degree of visibility in the market, shows up on nearly all client shortlists, and is commonly perceived as the market leader. We estimate it has roughly 50% of the current market with a global installed base of over 6,000 DDI customers. Infoblox has a deep and broad product set, and customers report a high degree of satisfaction with its products. Key areas of differentiation include an easy-to-use graphical user interface (GUI), the highest amount of skilled IT administrators familiar with its product, and integration with cloud and virtualization solutions including Microsoft, VMware and OpenStack. In addition, Infoblox is the first DDI vendor to support global load balancing, which was announced in early 2015.

However, Infoblox is typically the premium-priced option in the market. Compared with alternative suppliers, organizations have complained about high costs, shorter refresh cycles and/or the need for more devices. Organizations that cannot afford the investment typically forgo Infoblox for a lower-cost solution. In addition, Gartner clients have reported that migrations from an alternative vendor can be a challenge with Infoblox versus other leading competitors.

Use Case: All organizations looking to deploy DDI should consider Infoblox.

Men & Mice

Website: www.menandmice.com

Men & Mice is a small, privately held pure-play DDI vendor based in Iceland. The vendor sells primarily direct, and its flagship product is a software-based DDI overlay solution that is designed to manage DNS and/or DHCP services from other vendors. In addition to support for popular services like BIND and Microsoft, the vendor supports several less common services that other competitors do not (such as PowerDNS, Cisco, Unbound and AWS Route 53).

Its management overlay solution appeals to organizations looking for a cost-effective enterprise-class solution, but who aren't looking to replace existing DNS/DHCP server instances. The solution scales well and provides consistent administrative controls in heterogeneous environments, and customers cite ease of use as key benefit.

Men & Mice is growing roughly at market rates, but it is a small company with limited resources, and we estimate it accounts for less than 3% of the global DDI installed base. In addition, some customers have cited missing functionality in the vendor's Web-based GUI.

Use Case: Enterprises that prefer an overlay DDI deployment (to maintain their existing DNS/DHCP services) with strong administrative controls should consider Men & Mice.

Microsoft

Website: www.microsoft.com

Microsoft is one of the largest IT vendors, with revenues of over $90 billion in FY14. The vendor has provided DNS and DHCP services for over a decade, which are widely deployed globally. Microsoft introduced IPAM capability in Windows Server 2012 and embeds DDI capability free of charge. Microsoft tightly integrates DDI with Windows Server, Active Directory and System Center Virtual Machine Manager (SCVMM). We anticipate the vendor will continue making strong investments into DDI, given the growing role DDI plays in cloud and virtualization — areas that are strategic for Microsoft.

However, many clients are unaware that Microsoft provides an integrated DDI capability beyond basic DNS and DHCP services. Also, because Microsoft provides DDI for free, it is not surprising that Microsoft's DDI solution lacks the feature depth and breadth of leading competitors. The most critical feature missing from Microsoft's DDI solution is the capability to manage non-Microsoft DNS/DHCP servers.

Use Case: Organizations using exclusively Microsoft-based DNS/DHCP services should consider this vendor.

SolarWinds

Website: www.solarwinds.com

SolarWinds is a publicly traded company with over $428 million in revenue in FY14. It is a longtime and well-known player in the network management space, and we estimate it has over 5,000 paying IPAM customers. The vendor has provided IPAM for many years and recently added the ability to manage DNS and DHCP services. Thus, it now meets our definition as a DDI vendor.

SolarWinds sells primarily direct and differentiates on price, with a cost-effective product that appeals to midmarket organizations lacking the scale and/or budget to warrant a larger investment. Customers cite its speed of acquisition and ease of deployment as key differentiators (that is, download and try and buy).

SolarWinds lacks capabilities of leading DDI competitors and offers only one deployment mode: management overlay. Thus, organizations must maintain separate DNS and DHCP server instances. SolarWinds is a newer entrant into the DDI space, and we estimate the vast majority of its customers are running in IPAM-only mode. Thus, we estimate it has less than 2% of the global DDI installed base (which doesn't include IPAM-only deployments).

Use Case: Midmarket organizations looking for a cost-effective management overlay solution should consider SolarWinds.

IPAM-Centric Solutions

Some organizations desire only IPAM, without the requirement for DNS and DHCP management and/or integration. IPAM-only solutions often address requirements for midmarket organizations with under 1,000 employees. There are multiple IPAM vendor solutions, including:

> All the DDI vendors listed in this research support IPAM-only use cases. For example, Infoblox offers a IPAM Express, which is a freemium IPAM-only version of its commercial software.

> SolarWinds is a well-known, widely-deployed and longtime provider of IPAM software.

Outside of the DDI players, we see organizations using commercial IP address management tools from Incognito (carrier-focused), ManageEngine and Apteriks. Apteriks is a new IPAM vendor that provides free SaaS-based IPAM.

GestioIP (gestioip.net) and phpipam (www.phpipam.net) provide open-source, Web-based IPAM software. These software programs provide a basic set of IPAM capabilities, and we estimate there are several thousand organizations using these open-source tools, mostly within larger IT-centric organizations such as hosting and network service providers.

Market Recommendations

Organizations should invest in DDI solutions to gain operational savings, improved availability or increased agility/management in the following scenarios:

> When instability of DNS/DHCP services, or inadequate IP address management, is leading to reduced availability in your environment.

> When proliferation of devices in your environment is creating operational challenges.

> If you are taking on a large IPv6 deployment or centralized IoT initiative.

> If you are looking to enable automated provisioning of IP addresses and/or DNS within your private cloud deployment.

Focus on price, migration path, implementation ease and integration with existing infrastructure vendors (that is, orchestration and CMP) to differentiate solutions from one another. Given the range of solutions in the marketplace, we recommend:

> Determine which DDI solutions are aligned with your organization's capacity, feature and financial requirements versus basing selection on brand name or perceived market leadership.

> Midmarket organizations with less than 1,000 employees will optimize their expenditure by focusing first on IPAM-centric solutions.

> Organizations with 1,000 to 5,000 employees should look to more cost-effective vendor solutions first, while organizations with over 10,000 employees should look to commercial-grade solutions first.

Finally, DDI solutions are sticky; thus, organizations with an incumbent DDI solution should factor in the operational costs of switching vendors, which are likely to be substantial. Also, when planning DDI investments, use a five- to 10-year time horizon.

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