MARKET OVERVIEW

June 18, 2004

IP Address Management

by Thomas Mendel

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A Market Still Waiting To Happen

by Thomas Mendel
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EXECUTIVE SUMMARY

With 55% of $1 billion-plus companies not using any automated IP address management systems, the market should be growing at a healthy pace. This has not happened so far, and Forrester does not expect strong growth for the next year. The key reasons for this? IP address management solutions suffer from a still-depressed market on the service-provider side and a failure to clearly communicate the benefits of IP address management to senior IT decision-makers on the enterprise side. By 2005, however, the need to roll out new converged services quickly on the service-provider side and the realization on the enterprise side that true companywide end-to-end service delivery requires automated IP handling will create a much more positive investment climate, leading to mainstream adoption of IP address management. These trends will revitalize the IP address management vendor landscape and, in conjunction with general trends toward automation and Organic IT, will elevate the importance of the whole space.

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NOTES & RESOURCES

As part of its ongoing research process, Forrester spoke with enterprises and service providers using IPAM technology. We also surveyed 19 vendors and systems integrators, including: AMJ Technologies, Cisco Systems, Crypton Computers, efficient iP, Incognito, Infoblox, Lucent Technologies, MetaInfo, Nixu, Nominum, and Vaticor.

Related Research Documents

"DNS Sourcing Options"
October 28, 2003, Report

"Market Overview 2003: IP Address Management"
March 6, 2003, Report

THERE IS A GOOD BUSINESS CASE FOR IP ADDRESS MANAGEMENT

Based on client inquiries during the past 12 months and ongoing conversations with both vendors and users of IP address management (IPAM) technology, Forrester estimates that 10% of $1 billion-plus companies don't have any IPAM solution, 45% use a spreadsheet and a manual update process, 25% use an internally developed application, and only 20% use a fully fledged IPAM product. But there is a real case for companies to deploy IPAM technologies, due to the:

- **Increased complexity of managing dynamic corporate environments.** With 55% of $1 billion-plus companies still untapped, the market opportunity, at first glance, seems obvious. The combination of the Internet protocol (IP), dynamic host configuration protocol (DHCP), domain name services (DNS), and various enterprise directories — and the resulting complexity of managing the dynamic corporate environment — will push network administrators to discard the manual handling of IP addresses and implement IPAMs, particularly in proliferating wireless local area network (WLAN) environments.

- **Delivery of global applications out of centralized data centers.** The trend toward global application delivery out of centralized data centers will additionally fuel demand on the enterprise side. The need to keep pace with the increasing number of IP addresses that have to be controlled is even more pressing for service providers, which are now starting to offer differentiated services to, for example, digital subscriber line (DSL) and broadband cable subscribers.

- **Huge return on investment achieved by IPAM.** Many return-on-investment (ROI) studies performed by IPAM vendors, systems integrators, and analysts have confirmed the huge benefits — typically between 150% and 500% over three years — of going from the manual handling of IP and DNS to an automated solution.[1] We would, therefore, expect a fast-growth market as companies rush to implement IPAM solutions on a broad scale. However, this has not happened. There was a phase of accelerated growth between 1997 and 2000 as virtually all service providers and telcos implemented IPAM products. But since 2000, the market has grown only marginally. What are the reasons for this obvious mismatch?

IPAM Is Still Not A No. 1 Priority

When we talk to our clients about the reasons for the failure of IPAM products to achieve higher market penetration, these are the most common answers:

- **There's an awareness problem.** Successful IPAM projects on the enterprise side are typically bundled with other initiatives like centralization and consolidation or new

application rollouts. Despite positive ROI, potential IPAM projects have to compete with all the other projects struggling to get resources — both funds and people — and are often not tightly linked to business concerns. With the current focus on providing business value, the fairly low-level IPAM projects are often perceived as too "techie" — even by IT managers.

- **ROI comes mainly through efficiency gains.** As good as efficiency gains may sound, the problem is that you have to actually go through with it all the way and reduce your IT staff in order to see any bottom-line savings. Few companies, so far, have managed to do that.

- **If you don't know it's broken, you can't fix it.** On average, 15% of overall downtime in enterprises is caused by network problems.[2] It is a common misconception that this is mainly due to networking hardware failures. In fact, manual errors in configuring and changing DNS and DHCP account for the majority of that 15%. However, IT decision-makers aren't usually aware of this — and the people doing the work are unlikely to make this public.

- **It's hard to implement.**[3] A number of IPAM solutions that have been in the market for a long time were designed for large networked environments, without much focus on quick implementation times: Scalability and functionality were considered much more important. Vendors now find it hard to re-architect the solutions from scratch to cater to clients' need to roll out the products very rapidly. Therefore, we still hear frequent complaints about long implementation and update times.

- **IP-address-based pricing continues to be an issue.** Many IPAM vendors still like to license their products via managed IP nodes. With a geometrical increase in the number of managed IP addresses, this quickly becomes price-prohibitive; it also doesn't reflect the way enterprise IT departments like to budget their investments. $1 billion-plus companies are becoming increasingly vocal about their dissatisfaction.

- **The Microsoft factor.** Companies also report that Microsoft's entrance into the DNS market with Active Directory has created a perception in the enterprise marketplace that Microsoft's DNS and DHCP is a competitive match to fully fledged IPAM systems.[4] This is not the case, but it has certainly stalled many IPAM projects in the pipeline.

- **The service provider market is still in limbo.** Last, but not least, the service-provider side of the market will take time to come back from saturation. Virtually all service providers have IPAM solutions in place. New investment will only come from new services that service providers are now starting to offer to their clients.

The Situation Is Not Going To Change Any Time Soon

Forrester sees no indication of significant change in 2004. The market will continue to grow at a modest rate (see Figure 1). Changes are not going to kick in before 2005, when a revitalized service-provider market will drive a new wave of adoption of additional functionality and enterprise IT departments will have realized the critical role of IPAM in their centralization and automation initiatives.[5]

How Is the Market Doing?

The IPAM market is not a homogenous one but consists of two quite distinct, major parts: a commercial one for fully fledged IPAM systems and a related one for free or bundled products.

- **The commercial IPAM market with fully fledged IPAM systems.** This typically includes the following services: IP management; DNS/dynamic DNS management — including incremental/real-time DDNS updates; DHCP management — including failover/redundancy; Windows Internet Naming Service (WINS), NetBIOS, and RADIUS support; and Active Directory and lightweight directory access protocol (LDAP) support.

- **The market for free or bundled products.** The open source distributions of Linux contain DHCP and DNS services, as do Novell's eDirectory and Microsoft's Windows server. These systems do not include the full range of services found in fully fledged IPAM systems. Despite these drawbacks, many companies perceive them as viable alternatives for enterprises that want to achieve rudimentary IPAM capabilities.

WHICH ARE THE KEY VENDORS IN THE IPAM MARKET?

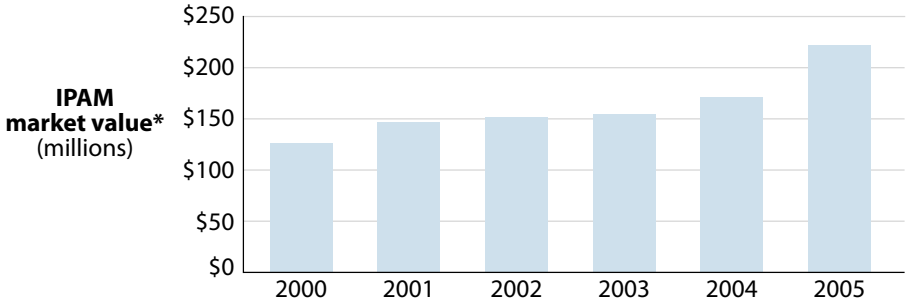
On the commercial side of the market, Forrester further distinguishes between tier one players, tier two players, and the rest. Tier one players have a substantial market share — 15% or more. The market share of tier two players is less than 15%, but, according to Forrester's research and conversations with clients, these companies have gained significant traction during the past 12 months.

Tier One Vendors: Cisco Systems, Lucent Technologies, And MetaInfo

Combined, the three tier one IPAM solutions vendors own around 75% of the market:

- **Cisco is the market leader.** Cisco was able to take advantage of its strong brand in 2002 and 2003 and is now the leader in the space. However, it still needs to improve complex implementation and update processes, provide additional IP management functionality, and reduce prices to stay ahead in the long term.

Figure 1 IPAM Market Growth Expectations For 2005



*The market figures include license and maintenance revenues.

Source: Forrester Research, Inc.

- **Lucent's market share loss has halted.** Lucent was once the undisputed leader in IPAM solutions, with a strong focus on the service-provider side of the market, but it saw its market share fall substantially between 2001 and 2003. This erosion seems to have come to a halt in 2004, placing Lucent still firmly as a tier one player. Despite few innovations in the past few years, Lucent's solution is one of the most robust, scalable, and feature-rich in the market. But, as with Cisco, Lucent needs to look at the issues around complex implementation and update processes and perceived high prices.

- **MetaInfo is the rising star — again.** MetaInfo was the big winner of 2003. After steady decline in recent years, the reverse spinoff from Check Point — repositioning it as a separate entity of Check Point Software Technologies — has revitalized not only the company, but also the buyer side. MetaInfo is still in a good position to leverage Check Point's sales force as well as its own. The company is also actively pursuing partnership activities with systems integrators. The company's secure addressing foundation extensions for DHCP (SAFE DHCP) show great promise for controlling DHCP access, a big security problem in corporate environments and particularly for WLAN. SAFE DHCP enables an evaluation of the client before granting an IP address, without changes to the client; this is a big differentiator for the company at the moment. MetaInfo is now also offering an appliance-type solution to take advantage of increasing demand on the enterprise side: Most of MetaInfo's customers are midsize implementations on the enterprise side of the market. MetaInfo needs to address the perceived lack of scalability to large service-provider environments or it will run the risk of not being able to attract more large corporations.

Tier Two Vendors: Incognito, Infoblox, Nixu/ApplianSys, and Nominum

The tier two vendor space includes the following:

- **Incognito.** Incognito's origins are in IP provisioning and DNS management. The company has a stronghold in the broadband service-provider market in North America. Despite this market still being depressed, Forrester has noticed a number of successes in large enterprises during the past nine months, which puts Incognito in a good position to weather the drought on the service-provider side and to gain market share when the market picks up in 2005.

- **Infoblox.** Infoblox, originally a DNS appliance vendor, has gained a lot of traction recently because its appliance approach to IPAM resonates well with enterprise clients looking for plug-and-play type solutions; it now has around 250 customers. The market momentum around identity management and related RADIUS and LDAP solutions has further improved market awareness. The company experienced strong growth particularly in small to midsize IPAM implementations, where the still-basic IP management functionality offers a good-enough solution. Forrester expects Infoblox to continue to be successful in this particular market niche.

- **Nixu and ApplianSys.** Nixu and ApplianSys, through a strong partnership that leverages their complementary offerings, are hot on the heels of Infoblox as far as the appliance-oriented approach is concerned. Nixu's product is used in around a third of GPRS mobile networks. Forrester believes that a merger of the two companies would be the most logical next step to convince the market of their long-term viability.

- **Nominum.** Nominum's strong overall expertise in this space continues to impress Forrester. Keep in mind that this is the company that developed BIND 9 and ISC DHCP under contract from the Internet Systems Consortium. Nominum also continues to provide support services for these open source implementations of DNS and DHCP. Its strength in DNS and DHCP management is undoubted. The company achieved 25% growth in 2003, well ahead of the market's overall development, and it is well positioned for future success — provided it can expand its still-basic IP management functionality with additional features before Q3 2004.

Other Vendors Worth Mentioning

- **efficient iP.** A fairly recent entrant in the IPAM market, France-based efficient iP launched its product in 2003. The company quickly started to appear on requests for proposals (RFPs) and gained a number of early successes. When Forrester started to dig into this, we found that its strong IP management functionality, open architecture, out-of-the-box SNMP integration, ease of deployment, flexible configuration options,

and service-based pricing model were key differentiating factors that impressed clients. If the firm can overcome issues around its internationalization in 2004, Forrester sees the potential for efficient iP to become a tier two player by 2005.

- **Nortel Networks.** The outlook for Nortel Networks last year was quite different. MetaSolv Software's acquisition of its service-provider-oriented assets in 2002 led to substantial confusion on the client side. Additional doubts about Nortel's long-term viability in the IPAM market led to a substantial decline in market share through 2003. However, its market share seems to have stabilized now; if Nortel manages to more aggressively address enterprise needs in future versions, Forrester believes that there is the potential for a comeback.

- **Crypton Computers.** Crypton, a UK-based firm with around 70 customers, originally experienced success in the service-provider sector. Today, Crypton is doing quite well in the nonprofit sector (e.g., government), an area of expected rapid growth around IPv6 implementations. We also saw the company succeed in a series of deals with European-based multinationals.

- **AMJ Technologies and Threshold Networks.** AMJ Technologies and Threshold Networks appear on RFPs from time to time. However, Forrester does not see the two companies gaining significant traction and doesn't believe that they offer real competitive differentiation.

- **SolarWinds.Net.** Last, but not least, SolarWinds.Net offers a low-end IPAM solution best-suited to midsize enterprises; it is not really targeted at $1 billion-plus companies.

Clients still feel that implementing IPAM systems can be hard. Consequently, we see both the vendors — Cisco, in particular — and a number of system integrators — such as IBM, Capgemini, and Vaticor — offering tailored implementation programs for IPAM. Vaticor, in particular, has managed to put together an impressive best-practices-based approach, starting with a needs assessment and moving through implementation and review. Vaticor's assessment includes a benchmark against best-practice standards, risk evaluation, and feature/function comparisons. The company works with all the leading IPAM solutions vendors. Forrester suggests that clients should evaluate Vaticor's capabilities before starting an IPAM project.

How To Choose A Vendor

How should potential clients choose an IPAM vendor? Forrester has assembled a number of best-practice decision criteria derived from real-life RFP processes that we've followed during the past 18 months (see Figure 2).

Figure 2 Best Practices For Choosing An IPAM Vendor

Criteria	Evaluation
IP management	Does the product automate the IPAM life cycle (discovery, provisioning, change)?
DNS management	Does the product automate the DNS life cycle (discovery, provisioning, change) and does it support the integration of different DNS platforms?
DHCP management	Does the product automate the DHCP life cycle (discovery, provisioning, change) and does it support the integration of different DHCP platforms?
Windows and Active Directory support	Does the product support Windows and Active Directory?
Deployment	Ease of implementation; migration from legacy DNS and DHCP systems, and upgrades
Support for centralization	Does the product support centralized IPAM management?
Auditing and reporting with flexible, role-based GUI	Does the product support auditing and reporting with flexible, role-based GuI?
Scalability	Does the product scale to companies' specific needs?
Vendor viability	How likely is the vendor to survive over the next three to five years?
Quality of support	How quickly does the vendor react to support requests, how competent is the support? Does the vendor supply SLAs?
Price	Cost predictability and adjustment to budgeting cycles, flexibility, and contract options

Source: Forrester Research, Inc.

WHAT WILL IT TAKE TO BECOME MAINSTREAM?

This is not a question of "if," but "when." Forrester believes that, by 2005, the following trends will drive adoption into mainstream $1 billion-plus IT departments as IPAM solutions become:

- **Plug-and-play.** The strong focus of all vendors on quick implementation, training, consulting, and partnerships with systems integrators will eventually pay off, making it much easier to get IPAM systems up and running. Most IPAM systems will eventually be able to manage heterogeneous environments — including different versions of BIND, Windows, etc. — already a reality for most large companies today.

- **Part of overall infrastructure management architectures.** Forrester anticipates much stronger links into enterprise management infrastructures like IBM Tivoli, HP OpenView, BMC PATROL, and CA Unicenter, making IPAM part of a company's overall IT service delivery chain.

- **Part of the quest for automation.** Redundancy, business continuity, availability of services, and server and data center consolidation all depend on a mature underlying DNS and DHCP infrastructure. IPAM implementations will become an integral part of these business initiatives, relieving it of its "techie" image.

New Needs Will Fuel New Functionality

In addition to the above-mentioned trends, there are also new demands for functionality that will additionally fuel the expected growth in 2005:

- **Support for IPv6.** IPv6 has been the next big thing for years. Now, we can finally see signs of IPv6 adoption. IPv6 is spreading across Asia, primarily due to an extreme shortage of IP addresses and the exponential growth of Internet connections. Governments and nonprofit organizations around the world are also staring to adopt IPv6. Our research into early adopters also suggests that it is much easier to run mixed IPv4/IPv6 environments than was previously expected.

- **IPAM across enterprise networks and the Internet.** The rise in the number of mobile workers, wireless hotspots, external integration business partners, and increase in mobility will create the need for IPAM systems that look both outside-in and inside-out. Managed IP spaces across enterprise boundaries will have to include IPv4 and IPv6, and static and dynamic and private and public services. Automated reporting into Internet registries — for example, ARIN and RIPE — is already a key concern for service providers. Auto discovery of changes will be a key market differentiator here.

- **Differentiated services.** On the service-provider side of the market, there is one particular concern that vendors have started to address — the need to offer differentiated services to, for example, DSL and broadband cable subscribers and to be able to bill differently for these services. The continuing growth of high-speed data services, VoIP, and Internet telephony, the convergence of voice and data communication, and 3G/GSM mobile network adoption will result in a further explosion in the number of IP addresses needed; this means that carriers will have to manage more than 150 million new IP addresses in North America and Europe alone.

RECOMMENDATIONS

DO THE MATH; YOU'LL BE SURPRISED

- **Looking to reduce your overall IT support costs?** Who isn't? Here's how to do it: Many IT managers are now finally ready to address potential efficiency gains through staff reallocation and reduction. This will play into the hands of IPAM vendors whose ROI calculations can show clear efficiency gains. Weaving IPAM initiatives into other Organic IT or automation initiatives will do the final trick for you. Try it; you'll be surprised.
- **Shortlists for IPAM systems should include at least Cisco, Lucent, and MetaInfo.** Combined, these own more than 75% of the market. Clients should also pay attention to Nominum, Nixu, and Infoblox, as well as smaller players like efficient iP and Incognito.
- **End-to-end service levels need IPAM.** $1 billion-plus companies should be aware that IP address management will be a prerequisite for delivering end-to-end service levels. IT managers should start evaluating the most suitable vendors and develop a staged migration strategy to move away from manual DNS and DHCP management.
- **Service providers should assess vendors' IPAM strategies.** The vast majority of service providers already have an IPAM system in place. For them, the question is not whether to implement one, but how to prepare their infrastructure for the new services that they are likely to offer to their clients in the years to come that will require advanced IPAM features. Therefore, service providers should re-evaluate their existing solution and the vendor's road map in the light of when the vendor is likely to address the issues of mobility, billing, security, and convergence in its new product offerings.

WHAT IT MEANS

IT WILL BE ANOTHER YEAR BEFORE WE SEE HUGE GROWTH

- **IPAM will become fully integrated.** IPAM systems are an important component of any Organic IT initiative. In the long term, IPAM is going to be fully integrated into other infrastructure management architectures, providing fully automated end-to-end service level guarantees to IT users.
- **2005 will become the year of IPAM.** 2005 will be the year when IPAM systems will cross the chasm and will be adopted by the majority of $1 billion-plus companies.

ALTERNATIVE VIEW

SECURITY CONCERNS MAY JUST DO THE TRICK

One key trend that could help elevate this market well above Forrester's predictions would be an increased need for overall DNS and DHCP security, driven by successful hacker attacks on global or corporate DNS and DHCP infrastructures. Forrester has noticed that $1 billion-plus companies have become increasingly aware of DNS-related security threats since 9/11. However, this hasn't yet translated into additional purchases.

SUPPLEMENTAL MATERIAL

Companies Interviewed For This Document

AMJ Technologies
ApplianSys
Cisco Systems
Crypton Computers
efficient iP
Incognito Software
Infoblox
Lucent Technologies
MetaInfo
Nixu
Nominum
Nortel Networks
Vaticor

ENDNOTES

[1] Please be aware that calculating productivity increases has proven to be a tricky matter for most ROI calculations. There is also a more mature way of calculating the value of IT investment decisions. See the March 24, 2004, Best Practices "Key Elements In An IT Business Case."

[2] In IT, change is an engine of progress, as well as a source of doom. End user applications, operational disciplines, and IT vendors are major sources of continuous change. While application software change control is a relatively mature process, many organizations implement infrastructure change manually, relying primarily on the IT staff's knowledge and expertise. This ad hoc process is nearing its limits in today's complex environment, where the risks inherent to changes multiply. Reducing human error through an automated process promises direct and indirect IT savings, as well as a more efficient business support. In the long run, with the emergence of business service management and Organic IT, infrastructure change management helps firms regain control of the infrastructure and take a necessary first step toward data center automation. See the March 25, 2004, Best Practices "Best Practices For Infrastructure Change Management."

[3] An additional factor frequently stated in conjunction with long implementation times is the fact that many companies implement IPAM solutions when introducing standardized global naming conventions for network objects. Such an IP management scheme should incorporate standards for: 1) country and location/site code scheme and naming rules; 2) IP scheme and IP object naming rules; and 3) internal DNS scheme and DNS naming rules.

[4] Microsoft has offered a standalone DHCP server for years.

[5] Organic IT, Forrester's vision for next-generation data center architecture, offers firms massive IT cost savings and business agility — if they can get past the confusion of ideas and offerings. IT executives must deploy technology for virtualization, automation, and self-management, while implementing infrastructure best practices of standardization, abstraction, and integration. Forrester's Organic IT vision now includes new Organic Management capabilities, multiple innovations across five infrastructure categories, and key prerequisites necessary to get to Organic IT. See the May 18, 2004, Trends "Organic IT 2004: Cut IT Costs, Speed Up Business."

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