Carrier-grade performance on an open platform

The telecommunications industry is undergoing a fundamental change as voice services merge over IP networks with data and multimedia to create the next generation of communication technologies. Telecommunication service providers must be ready today with a scalable, secure, reliable and agile network infrastructure.

The convergence of voice and data brings both opportunities and challenges to established service providers and new market entrants like cable companies and broadband service providers. The IP address infrastructure is being utilized in new ways, adding requirements that make it even more critical to the network architecture. This is in addition to an already growing number of subscribers, increased traffic and service expectations for voice quality.

Reliability under load for resilient network services

Improved network responsiveness with high performance DNS and DHCP services

Help reduce operational costs through simplified management and server consolidation

A scalable foundation for next generation communication services

• The Domain Name System (DNS), used for web and e-mail directory services, is being extended to route Voice over IP (VoIP) calls, as well as short and multimedia messaging services (SMS and MMS). Service providers’ DNS servers must be scalable, reliable, and easy to manage.

• DHCP services, initially designed to simplify network administration and conserve IP addresses, now connect a growing numbers of mobile and handheld devices to networks, instantly and transparently. Performance and availability are critical.

Telecommunication service providers are increasingly requiring a secure, robust and scalable DNS and DHCP infrastructure that enables “always-on” networked services. Challenged by malicious Internet activity such as “denial of service” (DoS) attacks, increasingly demanding web applications, “triple play” services including VoIP and the explosive growth of Internet usage. These same service providers need a reliable, secure and On Demand infrastructure to be successful in this converging, competitive environment.
When combined with the IBM BladeCenter platform, the Nominum Foundation Caching Name Server (CNS), the Foundation Authoritative Name Server (ANS) and the Foundation Dynamic Configuration Server (DCS) create a solution that enhances DNS and DHCP capacity, provides robust protection for end-users and helps reduce overall operating and capital costs.

The BladeCenter: A Scalable Platform for Next Generation Networks

The IBM BladeCenter and BladeCenter T server platforms are the embodiment of open standards, offering power and performance for IP-based, next-generation networks. The IBM BladeCenter T is NEBS3/ETSI compliant for reliable operations under environmental extremes typical of a telecom central office.

The BladeCenter is a Linux-based server cluster platform that supports up to 80 CPUs and brims with features such as integrated servers, storage and networking, fault-tolerance, optional hot-swappable redundant power supplies and cooling, and built-in system management resources. The BladeCenter enables the integration of servers, storage and I/O with the Linux operating system and software applications. This helps carriers create an IP-based, scalable network platform on which they can quickly develop, deploy and activate new services at reduced overall costs.

Nominum DNS Servers: Fast and Reliable DNS Servers

Open source DNS servers were not built to handle the demands of today’s network traffic, much less the demands of the converging, next-generation networks.

Nominum offers one of the industry’s fastest and most scalable DNS servers in the market today. ANS provides authoritative name services (making your services available to the world at large), while CNS handles caching DNS services (connecting subscribers to the services they want to use).

Because Nominum’s CNS can handle many times the load of many DNS servers, companies can reduce operational costs by consolidating servers while maintaining enough performance “headroom” to withstand “denial of service” attacks or unexpected traffic peaks.

“From IP telephony to multimedia messaging and Triple Play, next generation communication services rely on the Domain Name System to navigate networks and connect resources. When DNS servers are slow, services are slow. Without DNS, the network does not work.”

– Paul Mockapetris, Chairman & Chief Scientist, Nominum
IBM BladeCenter and Nominum Software
With the IBM BladeCenter and Nominum Foundation software, service providers can:

- **Build trust with resilient operations**
  Nominum’s software shares no known vulnerabilities with open-source implementations, and provides built-in resilience from “denial of service” attacks through its highly scalable performance.
  IBM’s high performance, fault-tolerant platform and Nominum’s high performance software, service providers can help deliver on committed service level agreements.

“We teamed with IBM because it has a powerful platform. The BladeCenter and BladeCenter T servers are setting the pace for carrier-grade infrastructure. Carriers are migrating to this platform to reduce cost and to be more competitive.”

– Tom Tovar, Vice President Business Development, Nominum

Nominum DHCP: Agile and Highly Available DHCP Services
DHCP servers assign users IP addresses when they connect to the network. Nominum DCS provides highly flexible and available DHCP services to support large numbers of mobile subscribers.

Nominum DCS offers failover capabilities, to help keep DHCP service available to subscribers. Open interfaces support integration with provisioning systems, and DCS can be configured to handle specific equipment requirements or differentiated service levels.

Nominum Management Center: Flexible and Scalable Management
Today, most organizations use a combination of spreadsheets, text files, databases and custom scripts to manage IP addresses and domain names. This approach is slow, error-prone and costly in a competitive and dynamic market.

Nominum’s advanced IP address management solution, Foundation Management Center (FMC), simplifies the process of managing and maintaining the IP address infrastructure, enabling centralized administration and automation for complex, global IP networks.
• **Reduce operational costs**
  Running Nominum Foundation software on the IBM BladeCenter helps provide superior DNS and DHCP throughput – helping reduce costs by consolidating servers without sacrificing performance. Integrating IP name and address information configuration with provisioning systems reduces administrative costs.

  “Telecommunications companies are realizing the importance of providing highly available and scalable IP infrastructure services like DNS and DHCP,” said Tom Tovar, vice president of business development at Nominum. “Given the need for improved performance and availability with reduced costs, Nominum’s Foundation solutions are a natural fit with the IBM BladeCenter platform – giving service providers a flexible platform to meet their growing network demands.”

**For more information**
Learn how IBM can help your company achieve more revenue and reduce your costs, while helping you keep your profitable customers.

Have questions? Contact the IBM Telecommunications team today on how we can help you take advantage of our extensive industry expertise.
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Research Triangle Park, NC
U.S.A., 27709
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10-06
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