

CloudShield and IBM BladeCenter – protecting critical DNS infrastructure



Highlights

- **CloudShield DNS Defender™ protects NGN services by ensuring DNS availability**
- **Faster DNS look-ups through caching and filtering**
- **Improves performance through the utilization of the high performance IBM BladeCenter PN41**
- **Helps reduce power and cooling requirements by reducing appliance sprawl**
- **IBM BladeCenter family provides a scalable, open standards based platform for next generation network applications**

As more telecommunications networks migrate to a converged, IP-based, Next-Generation Network (NGN), the underlying NGN services like the Domain Name System (DNS) that operate the network become even more essential and require increasing levels of critical security applications.

DNS protection is synonymous to protecting the “digital” dial tone of the NGN network. DNS servers represent a potential “make or break” failure point that service providers can ill afford compromise. When attacked from autonomous botnets, a vulnerable DNS server farm can collapse from the excessive network traffic rendering all services inoperable — no phone, no internet, no IPTV.

DNS attacks represent a malicious and costly threat to NGN networks. A single successful DNS attack will severely limit or prevent access to thousands of commercial, government or educational Web sites. Even well-equipped networks that utilize firewalls, load balancers, and an advanced array of security devices, can be vulnerable to DDoS attacks. The worst types of attacks appear as valid DNS requests flooding DNS servers with up to 100 times their originally provisioned traffic thereby rendering all services unavailable.

CloudShield DNS Defender

The CloudShield DNS Defender™ is an application that runs on the newly introduced IBM BladeCenter PN41 and helps detect and discard malicious traffic while passing on valid requests for processing through a series of comprehensive protocol filters and other techniques. Leveraging the DPI-focused architecture of the IBM BladeCenter PN41, CloudShield’s DNS Defender makes use of advanced caching features that can dramatically accelerate DNS lookups.

Typically deployed either in front of a DNS server farm or at the peering point between two service providers’ networks, the CloudShield DNS Defender acts as a series of intelligent filters which receive raw Internet traffic and provide clean DNS traffic out.

“We have seen some of the most aggressive DNS attacks occur during the past few months and expect this behavior to continue. Service providers can now significantly improve their security by leveraging the advanced security capabilities of the IBM BladeCenter.”

— Matt Jones
President and CEO
CloudShield

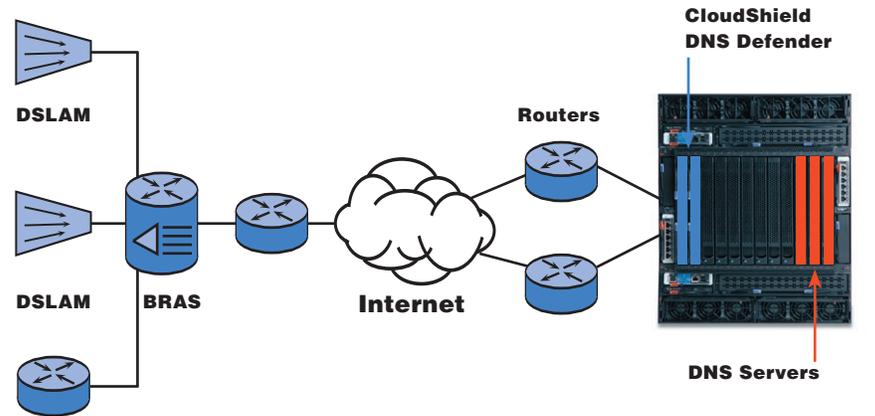
Capabilities include:

- Protocol filters to permit only valid DNS traffic
- Source & Destination filters to prevent illegitimate requests
- Attack filters to drop all traffic from known DNS attack vectors (including cache poisoning)
- Validation filters to ensure valid requests that conform to RFC standards
- Type filters provides flexible policy control over DNS request, requestor and respond types
- Advanced DNS caching enables line speed throughput

Deep Packet Inspection

The IBM BladeCenter PN41 blade is a high performance blade that can deliver Deep Packet Inspection (DPI) of real-time network traffic. This blade looks beyond addresses & ports into packets to deliver unprecedented visibility, service control and security of network traffic. The PN41 blade is specifically designed for high speed IP-based NGN networks and can support up to 20 Gbps throughput per blade on the IBM BladeCenter H and HT chassis. The IBM BladeCenter PN41 can be used in various applications to help secure and protect critical elements of the NGN network infrastructure.

Sample configuration of DNS Server Farm using CloudShield DNS Defender with the IBM BladeCenter HT



Access Network

DNS Server Farm

BRAS = Broadband Remote Access Server
DSLAM = Digital Subscriber Line Access Multiplexer

Source: CloudShield

**IBM BladeCenter family —
the IT and network convergence platform**

The IBM BladeCenter T chassis provides hardware redundancy (power supply, I/O modules, management modules, L2 switching, mid-plane, etc.) thereby reducing potential points of failure in the solution.

The IBM BladeCenter is an advanced blade system which integrates servers, storage and networking into a single chassis — yielding significant simplification, improved density and potential TCO savings. A single family of common server blades, storage, I/O, switches and networking modules are fully supported and interchangeable across the family of BladeCenter chassis. The IBM BladeCenter chassis is designed as the ideal solution for data center deployments. The IBM BladeCenter H is for high performance computing platform, while the IBM BladeCenter T chassis is specifically designed for telecom central office deployments.

The new, IBM BladeCenter HT — a new, telecom optimized version of the BladeCenter H — opens new market opportunities with a new and powerful NGN platform ideally suited for telecom equipment and service providers.

The IBM BladeCenter T and BladeCenter HT deliver rich telecommunications features and functionality, including fault-tolerant capabilities, hot-swappable redundant DC or AC power supplies and cooling, and built-in systems management resources. The rigorous Network Equipment Building System (NEBS) Level 3 and European Telecommunications Standard Institute (ETSI) outline requirements typical of telecom central office environments in the areas of electromagnetic compatibility, thermal robustness, fire resistance, earthquake and office vibration resistance, transportation and handling durability, acoustics and illumination, and airborne contaminant resistance. The IBM BladeCenter T and BladeCenter HT chassis meet the NEBS Level 3 / ETSI requirements¹.



**CloudShield and IBM:
a powerful combination**

The combination of CloudShield's DNS Defender and the IBM BladeCenter family delivers the performance, reliability and affordability demanded by mission critical telecommunications applications. The IBM BladeCenter is the ideal platform for the deployment of these services providing a single platform to help reduce operating costs and complexity.

For more information

Learn how IBM Systems 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. Please visit us on the web at:

ibm.com/telecom/systems

For more information about CloudShield, visit:

cloudshield.com

© Copyright IBM Corporation 2008

IBM Systems and Technology Group
Department XVXA
3039 Cornwallis Road
Research Triangle Park, NC
U.S.A., 27709

November 2008
All Rights Reserved.

BladeCenter, IBM, and the IBM logo are trademarks of International Business Machines Corporation in the United States, other countries or both.

Intel and Xeon are trademarks of Intel Corporation in the United States, other countries or both.

Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

Other company product and service names may be trademarks or service marks of others.

References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply. For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203.

The information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

[1] For additional details, please refer to Underwriter's Laboratory (UL) certified NEBS Level 3 / ETSI test report.

♻️ Printed in the United States of America on recycled paper containing 10% recovered post-consumer fiber.