

Identity Driven Networks- Challenges and Solutions for Education



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Agenda



- **Vendor Disclosure**
- **Identity Driven Networks**
- **Challenges**
- **Solutions**
- **Case Studies**
- **Last thoughts**

Infoblox Background



- Infoblox **network identity appliances** deliver DNS, DHCP, IPAM, RADIUS, and other essential services for reliable, scalable, manageable, and secure identity-driven networks (IDNs)
 - World's first DNS/DHCP appliance (1999)
 - World's first RADIUS appliance (2004)
- **200+ employees with headquarters in Sunnyvale, CA**
- **Experienced management team and investors**
 - Robert Thomas, CEO, formerly CEO of NetScreen
 - Sequoia Capital - initial investor in Cisco, NetScreen, and others
- **More than 6,000 units shipped to 1,000+ customers**



Infoblox Technology is Used by Over 1,000 Organizations



Universities and Colleges

- | | |
|---------------------------------------|---------------------------------|
| ▪ Brigham Young University | ▪ State University Of New York |
| ▪ Brock University | ▪ Stony Brook University |
| ▪ Brown University | ▪ University of California |
| ▪ City University | ▪ University of Guelph |
| ▪ Curtin University | ▪ University of Hawaii |
| ▪ Edith Cowan University | ▪ University of Iowa |
| ▪ Georgia Institute of Technology | ▪ University of Michigan |
| ▪ Miami University of Ohio | ▪ University of North Dakota |
| ▪ Northern Illinois University | ▪ University of Pennsylvania |
| ▪ Northwestern University | ▪ Washington and Lee University |
| ▪ Oakwood College | ▪ Wayne State University |
| ▪ Ohio State University | ▪ Wheelock College |
| ▪ Queensland University of Technology | |
| ▪ Rockefeller University | |

PROPRIETARY AND CONFIDENTIAL

WHERE WE ARE TODAY

Anonymous Networks

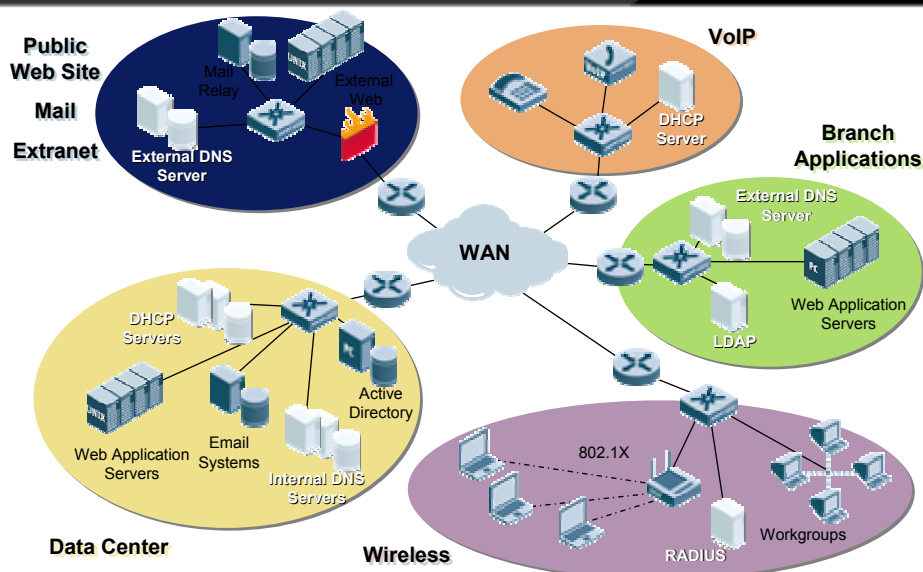
- Who (or what) has IP address 10.26.3.11 now?
- When and how did they get it?
- What are they able to do, and what have they done?

WHERE WE NEED TO BE

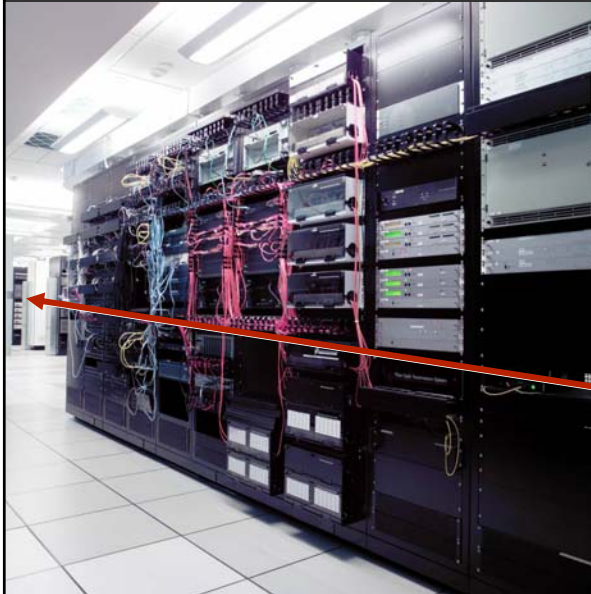
Identity-Driven Networks (IDNs)

- Control which users & devices get on the network
- Limit what they can do based on policy
- Provide complete, real-time visibility, reporting, and unified management across services
- Deliver identity services nonstop

All IP Based Applications Rely on Network Identity Infrastructure



The Fastest Way to Bring Down a Network



The failure of one key element can bring your network, and business, to a halt

DNS

~~email~~ ~~www~~ ~~intranet~~
~~CRM~~ ~~ERP~~ ~~ecommerce~~

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Conventional Solutions (Software on Servers) Have Reliability and Security Flaws



“Errors in DNS and DHCP management are the major sources of downtime in IP networks.”



“DNS servers are a popular target for attackers...

...an excessive number of outdated, mis configured and/or vulnerable servers still remain in production.”

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- *The Measurement Factory, April 2005, **July 2005

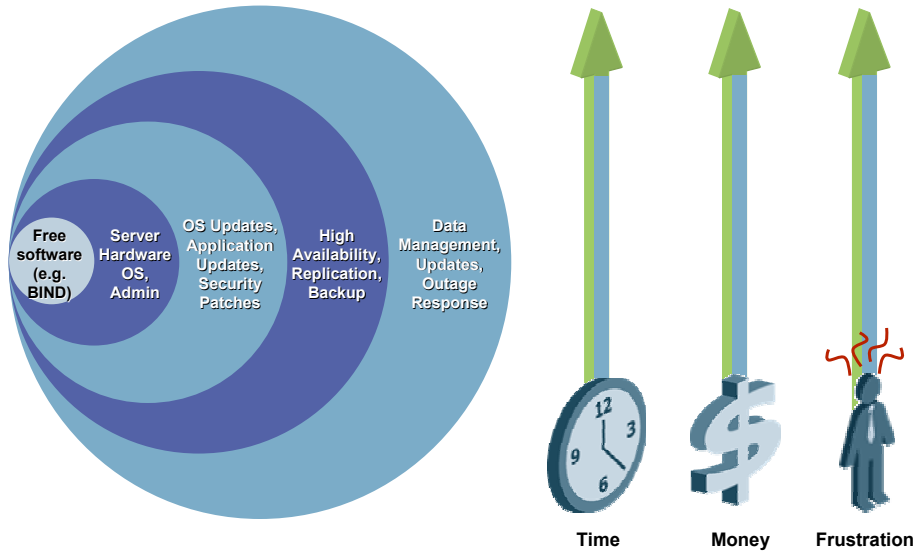
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Source: www.isc.org/index.pl?/sw/bind/bind-security.php

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Conventional “Free” Approaches are Hard to Secure, Manage, and Scale



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Microsoft DNS and DHCP Services Have Key Limitations



	Microsoft Challenge
Operating System	Vulnerable
Patching	Frequent, disruptive
Management	One server at a time, DNS & DHCP on 2 separate consoles
DHCP Administrators	Only 1
DNS update latency	15 minutes to 1 hour
Logging	None
DNS vulnerabilities	Pharming, phishing, DoS, etc.
High-availability DHCP	Not supported
Support for non-Microsoft clients	Limited

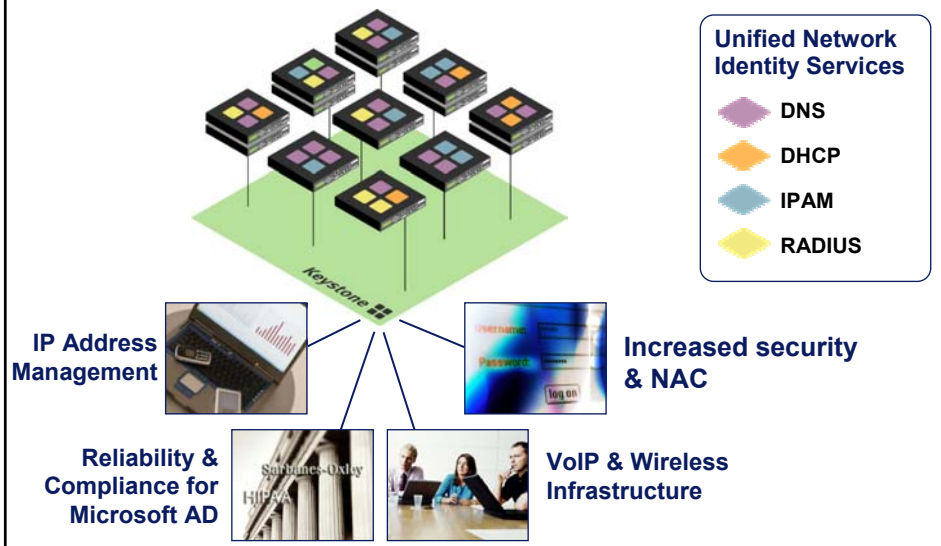
Users describe major shortcomings in Windows DNS/DHCP’s ability to meet business and regulatory compliance needs.”



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Our Vision: Infoblox Products Provide Unified Network Identity Services in Every Network



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IP Address Management (IPAM) Handles the Explosion in IP Based Devices



IP Address Management (IPAM)



“Overlooking the importance of getting a handle on IP addresses can prove disastrous.”



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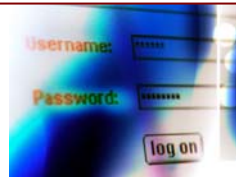
Network Access Control (NAC) Provides Enhanced Security and Enables Compliance



Network Access Control (NAC)

"Done right, network quarantine – the dynamic restriction of client systems' access to networks based on their compliance with policy – lays the foundation for enterprises to build an end-to-end, virtualized security framework..."

FORRESTER



NAC Promises Improved Security, but Deployment is a Challenge



- **Goal of NAC:**
Keep unauthorized users and non-compliant devices off the network
- **NAC solutions from network vendors (Cisco, Juniper, etc.) can be costly**
 - Major equipment upgrades (802.1x)
 - Client software
- **Requires integration of multiple components**
 - User directories
 - Endpoint scanning & remediation
 - Enforcement systems
- **All approaches depend on robust, reliable DHCP services**
 - All devices require an IP address



Robust Network Identity Services for Microsoft Active Directory



Reliability & Compliance for Microsoft AD



"Many organizations are willing to pass on Microsoft's 'free' DNS and DHCP and invest in a robust appliance-based DNS/DHCP infrastructure as part of their AD rollout."



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Infoblox Provides Native AD support



- **Integrating with Active Directory simplified:**
 - Simply enable AD support within a zone
 - Define existing Domain Controllers
 - Auto create Microsoft '_' zones
 - Point DC's DNS settings to the Infoblox appliance and you're done!

"Infoblox easily serves as the DNS server in an AD environment... it's much better at handling dynamic DNS scavenging than is Microsoft's DNS server."



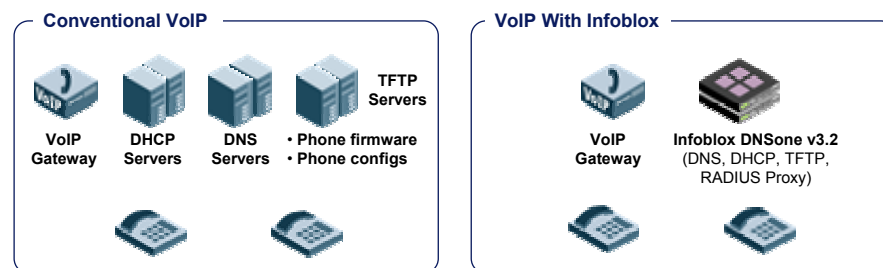
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Infoblox Solution Provides “Dial Tone Reliability” of DNS, DHCP & TFTP for VoIP



- High-availability DHCP for assigning IPs to phones
- High-availability TFTP for phone configuration files
- Centralized management and distribution of address and files
- RADIUS Proxy supports 802.1x authentication for phones
- Ensures local survivability for branch VoIP services



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University of California- Office President



- **Profile**
 - State-wide network of Universities
 - 120,000 faculty and staff
 - 100,000 admission applications per year
- **Challenge**
 - Network reliability - IBM AIX with BIND not meeting 24x7 expectations
 - Management - manual and error prone
 - Scalability
- **Solution**
 - Infoblox DNSone with Keystone centralized management and updates
 - 2 HA pairs
 - DR site
 - IPAM and DHCP planned



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- **Profile**
 - Private university
 - 24,000 students
 - 4,200 faculty and staff
- **Challenge**
 - Used DHCP services on routers
 - Lacked control get access to an IP address
 - Looking for higher resiliency and management
- **Solution**
 - Use 6 DNSone appliances
 - Implemented DHCP and DNS
 - Now rolling-out ID Aware for end-point management based on Authenticated DHCP



- **Profile**
 - University research and teaching hospital
 - 700 Physicians, 6,000 employees
 - Dozen centers and area hospitals
- **Challenge**
 - 24x7 network access to serve patients and students
 - Scalable and reliable DNS and DHCP
 - Eliminate single points of failure
 - Prevention of security vulnerabilities
- **Solution**
 - Infoblox DNSone with Keystone centralized management and updates
 - DNS and DHCP
 - HA pairs



Appliances are the Proven Best Way to Deliver Key Network Services



YESTERDAY

Routing software on Unix boxes

TODAY



Multi-protocol Routers

File storage on standard servers



Storage Appliances

Security software on standard servers



Firewall Appliances

DNS/DHCP/IPAM on standard servers



Network Identity Appliances

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Thank You

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