



Cisco Kunden Webinar

Infoblox Loesungen fuer die
Cisco ISR Router Familie -
noch mehr Service.



Rainer Singer - Infoblox

Wolfgang Meier - Cisco

Ueberblick – ISR-Router

AXP - Allgemein

AXP-Board im Detail

Infoblox on Cisco Summary

Core Network Services

IP Address Management

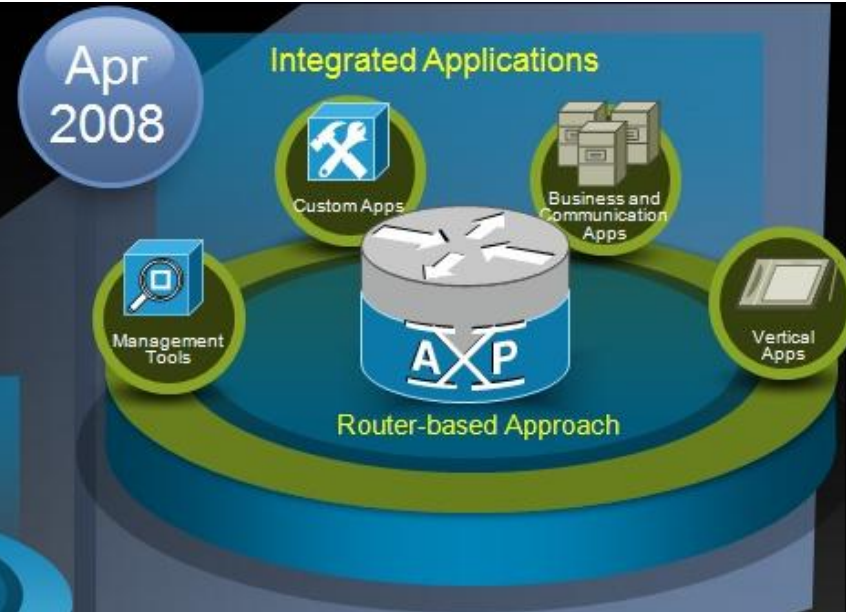
DNS

Cisco's Edge Application Strategy

Operational Efficiency



- Services Integration
- Survivability
- 50–70% lower Opex



- Open applications platform
- Server, Application consolidation
- Increased security, and survivability
- Lowest TCO

Cisco Application Extension Platform (AXP)



AIM-102
256MB, 1GB, Intel Celeron
Light-Weight Applications

SDK and
Development
Portal

AXP
Partner
Program

Complete
Ecosystem

AXP
Developer
Services

AXP
Advanced
Services



NME-302/502/522
512MB-2GB, 80/160GB,
Intel Pentium M
General-Purpose Applications



- Linux-based integration environment with downloadable SDK
- Multi-app support: segment and guarantee CPU, memory, disk
- Extensible Cisco CLI with Cisco IOS APIs
- Cisco ISR 1841, 2800, 3800 series support

AXP Technical Overview

Dedicated Application resources

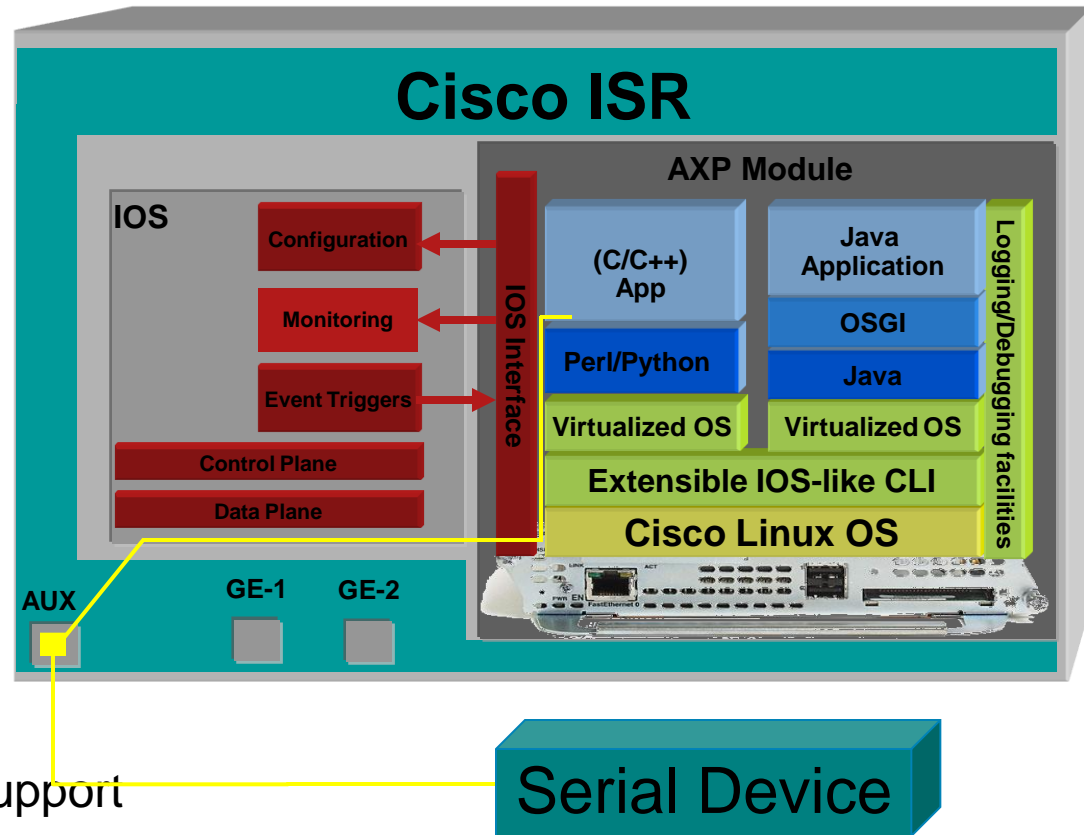
- CPU, Memory, Storage

Standards Based Hosting infrastructure

- Hardened Cisco Linux OS
- Linux Vserver “sandboxing”

Additional Features:

- Standard programming support
- ISR serial port virtualization
- Monitoring, Configuration, and EEM API's



Infoblox on Cisco AXP: Summary



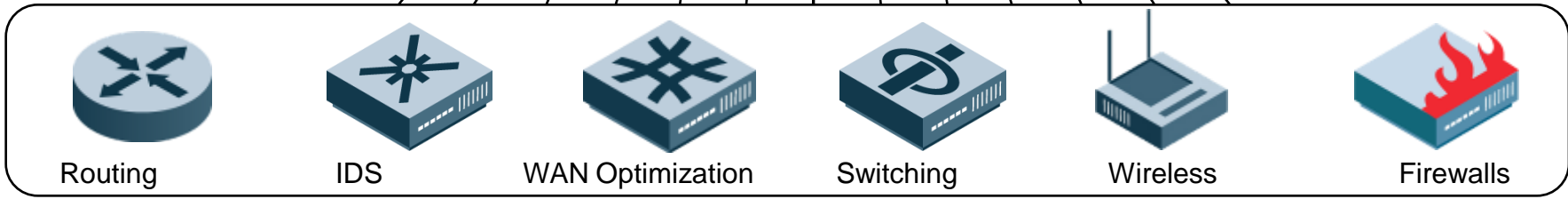
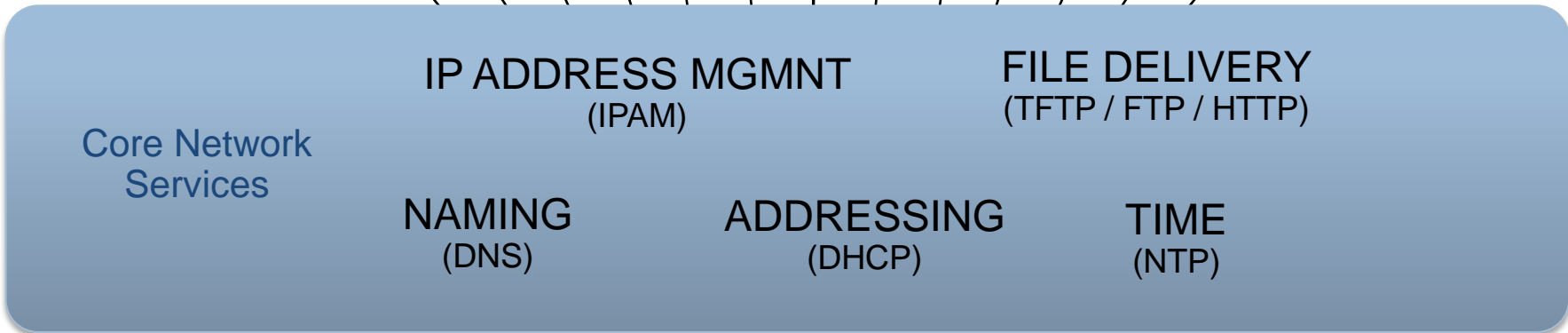
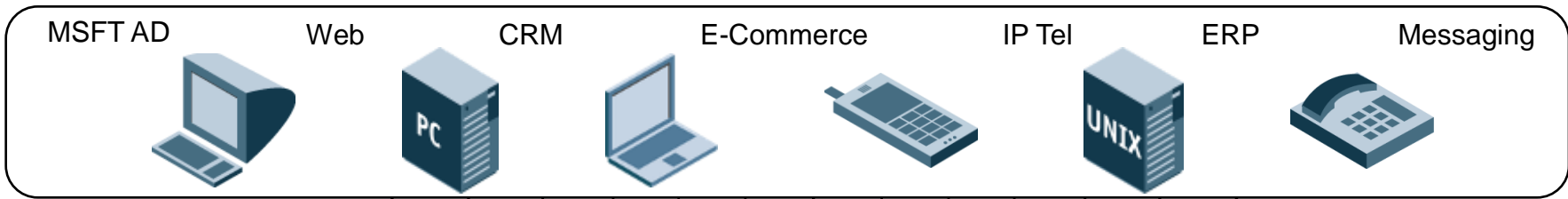
- **Infoblox makes appliances for core network services**
 - Domain Name System (DNS)
 - Addressing (DHCP)
 - Authentication (RADIUS)
 - File Delivery (TFTP, FTP, HTTP)
 - Time (NTP)

- **Infoblox core network services appliance software is available on Cisco branch office routers (ISRs) via the AXP Program**
 - Infoblox vNIOS™ software runs on blades (NMEs) that plug into 28XX and 38XX ISRs
- **This enables core network services to be deployed closer to the edge (branch office deployment)**
 - Higher availability & performance
- **Infoblox grid technology makes it easy to manage hundreds of Infoblox appliances (physical or virtual) as a single system**

- **Infoblox IP Address Management (IPAM) automates labor-intensive, error-prone tasks**
 - Increases uptime and lowers TCO

Core Network Services – The “Glue” Between Networks and Applications

Applications



Network Infrastructure

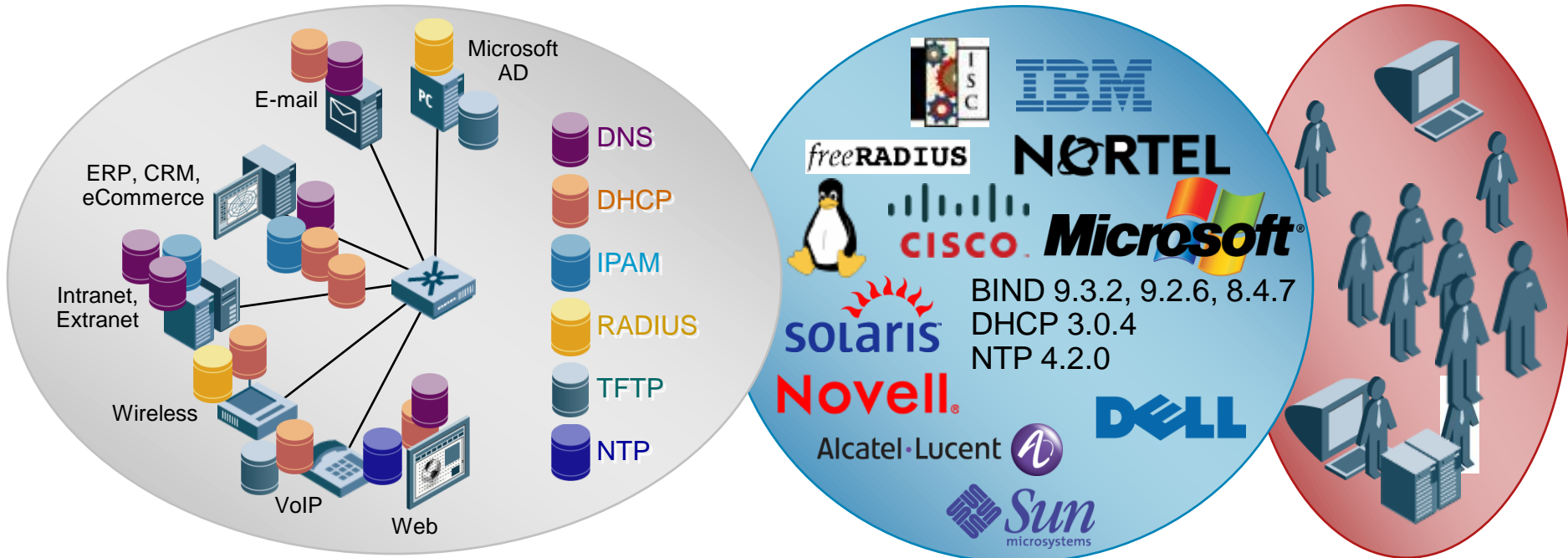
Core Network Services Delivery & Management Today: Complex, Insecure, Brittle

Challenges of *spreadsheet*-IPAM:

- Inconsistencies in IP number plan
- How to share and delegate?
- How to audit and report?

Challenges of legacy *Un*-frastructure:

- Complex to manage and maintain
- Security risks
- No High Availability or Disaster Recovery



Analysts Recognize the Growing Importance of DNS, DHCP and IPAM

April 2007: “DNS and IPAM are not options, they are critical”



May 2007: “To prevent your network from becoming an IT bottleneck, you must transition off commodity hardware to appliances and invest in proper IPAM tools.”

FORRESTER®

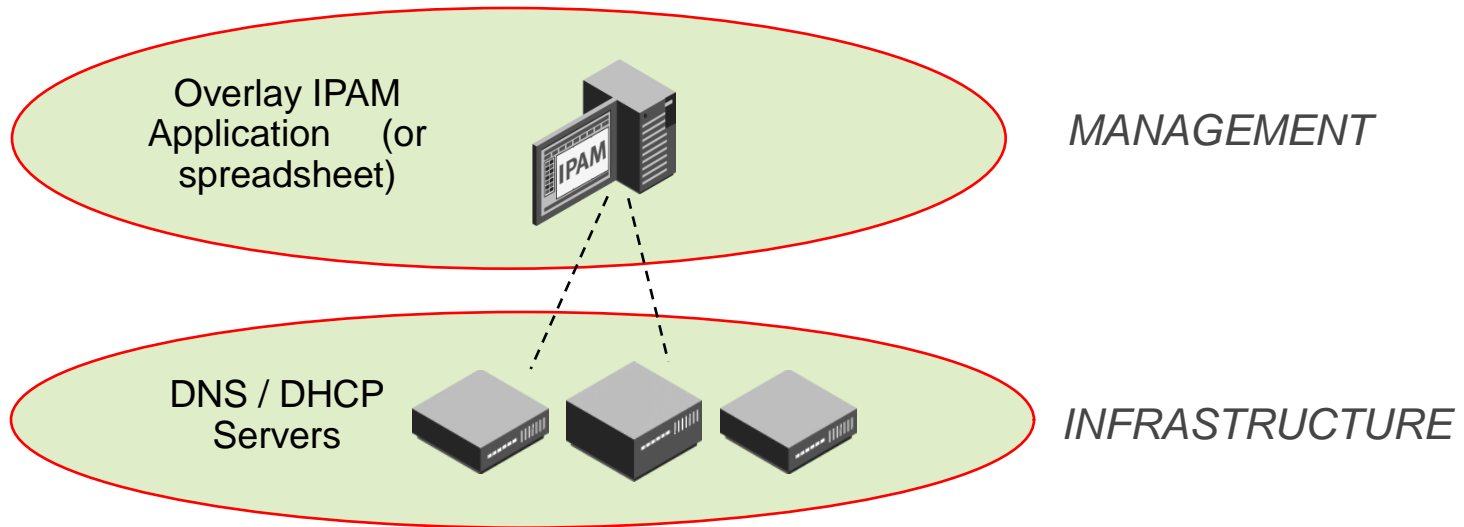
Sept. 2007: “Overarching control and auditing of DNS and DHCP are fundamental requirements.”

Gartner®

Feb 2008: “Third-party DNS solutions offer the best choice [vs. Microsoft] for enterprises that want the highest level of control over and management of their DNS environments.”

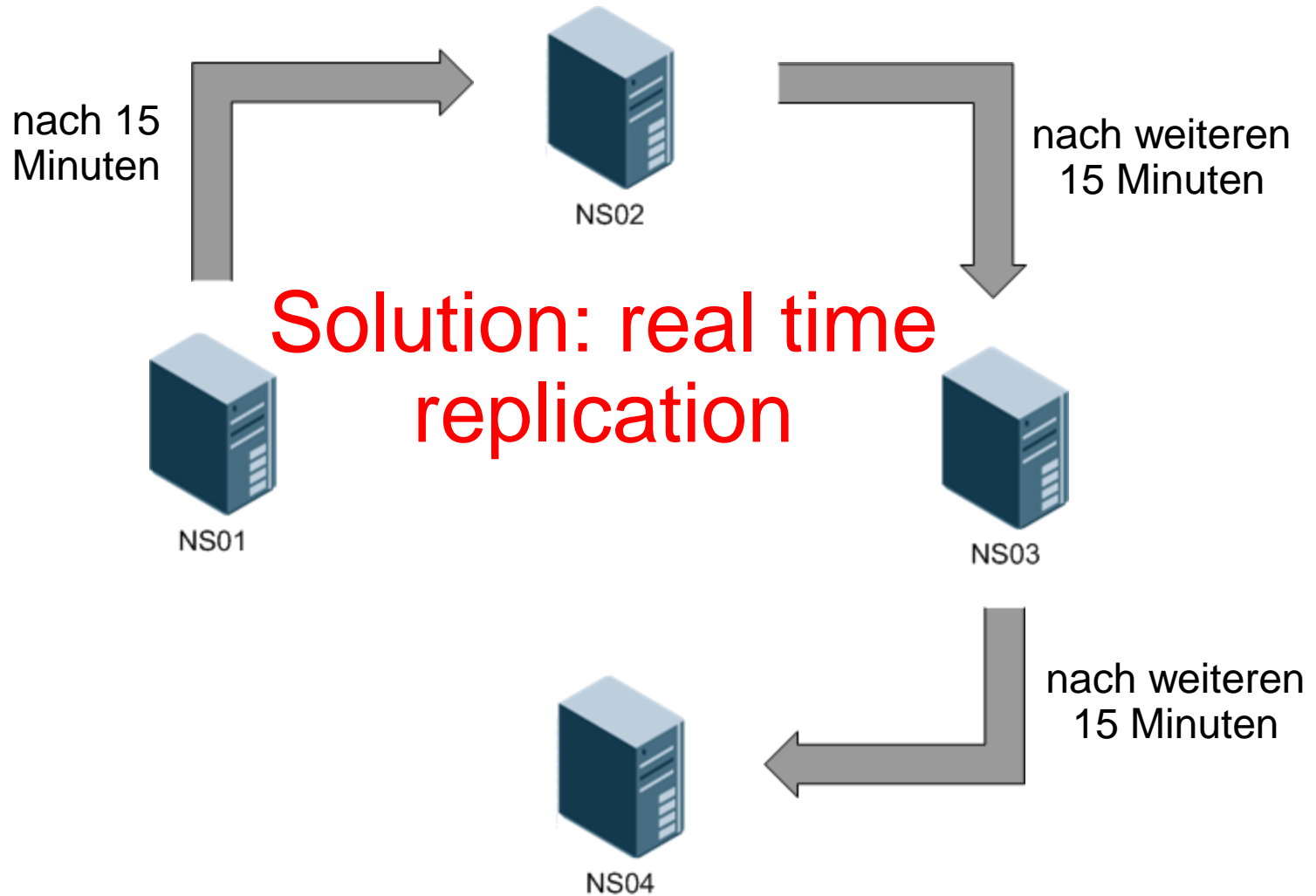
Traditional IPAM Systems Have Significant Limitations

*Legacy IPAM Systems—
A separate application overlaid on the service delivery infrastructure*



- Data in IPAM system out of sync with network (non real-time)
- Admin actions can elude audit controls (direct/root access to DNS/DHCP servers)
- IPAM data & app must be backed-up separately from DNS/DHCP servers
- Difficult to upgrade – numerous error states, no roll-back
- Brittle DR (data at DR site may be old, manual fail back to main site, data loss)
- Many add-on expenses (professional services can more than double costs)
- Difficult to report and audit

AD replication for Windows DNS



Stupid DNS Resolver



Solution: HA Pair for NS01

IP Address Provisioning Example

Problem: Assign static IP address to a device (printer, camera, etc,)

The traditional way – 30 Minutes

- Helpdesk receives a request for a new IP address
- Helpdesk forwards the request to network team
- Network administrator looks up spreadsheet for an available static IP address
- Uses PING or other methods to see if IP address is in use
- Update spreadsheet
- Contact server administrators for updating DNS & DHCP records including reverse zones
- Verify functionality
- Get back to helpdesk upon completion

The Infoblox Way – 2 Minutes

- Helpdesk receives a request for a new IP address
- Helpdesk uses simple Web-based GUI to get next available IP address and assign it to the device

Net savings of approx \$40 per IP assignment – and response in minutes vs. days

Infoblox Benefits

- Helpdesk resolves request, without errors and without involving network team
- Faster response, fewer duplicate IPs, less downtime, reduced load on network team

Infoblox Appliances Provide Robust Infrastructure with Integrated Management

IPAM DNS DHCP RADIUS FTP/TFTP/HTTP NTP MORE...

Microsoft
GOLD CERTIFIED

Partner



- Integrated core network services on hardened appliances
 - Centralized visibility and control
 - Powerful IPAM and service automation

SIMPLER TO
MANAGE

MORE
RESILIENT AND
SECURE

LOWER
COST

Infoblox Grid Technology Provides Availability and Ease of Management

Grid: A collection of *member* appliances, all running the same software, providing one or more services (DNS, DHCP, RADIUS, File Delivery, etc.)

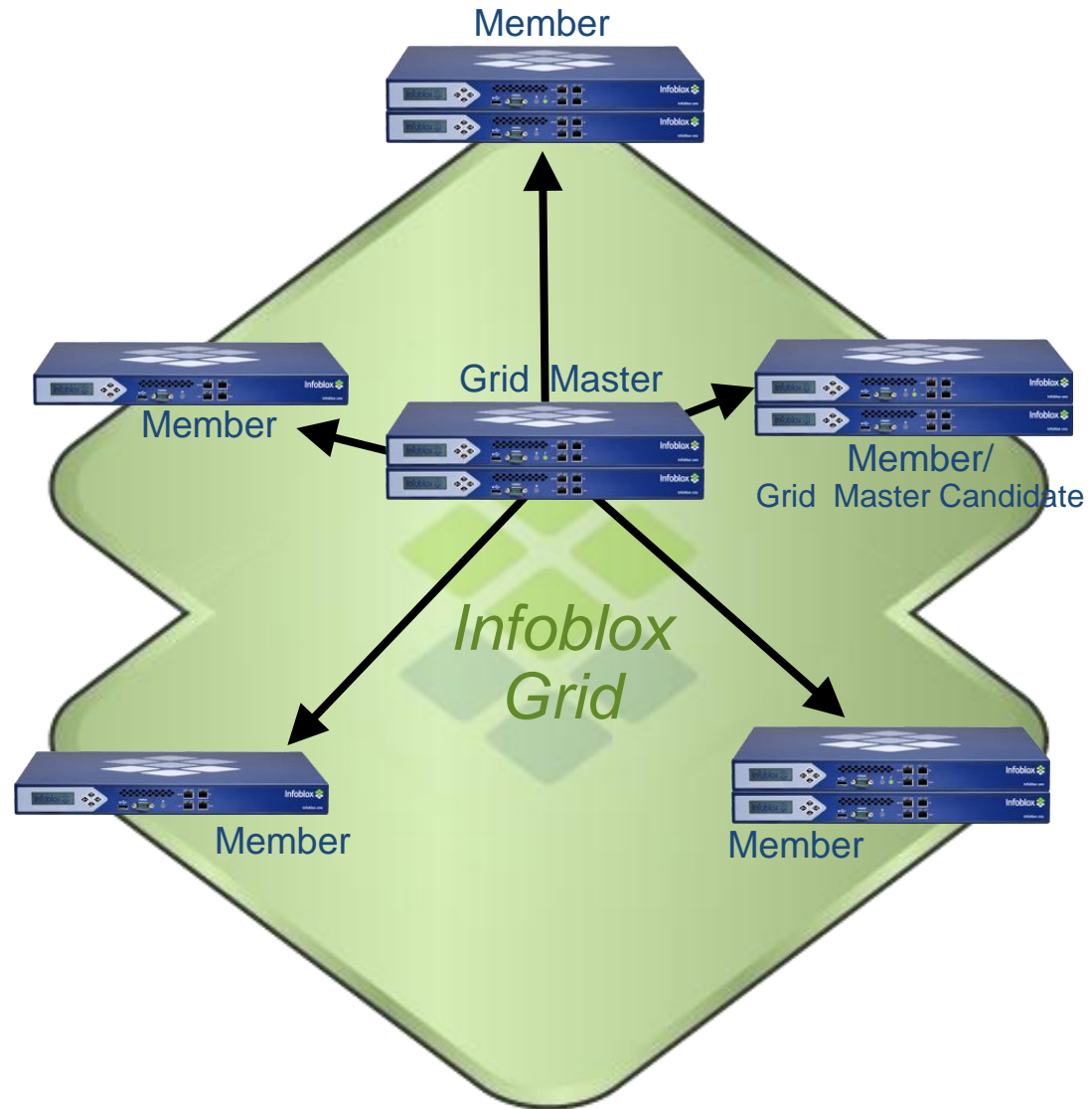
Coordinated by a *grid master*

Sharing a distributed database

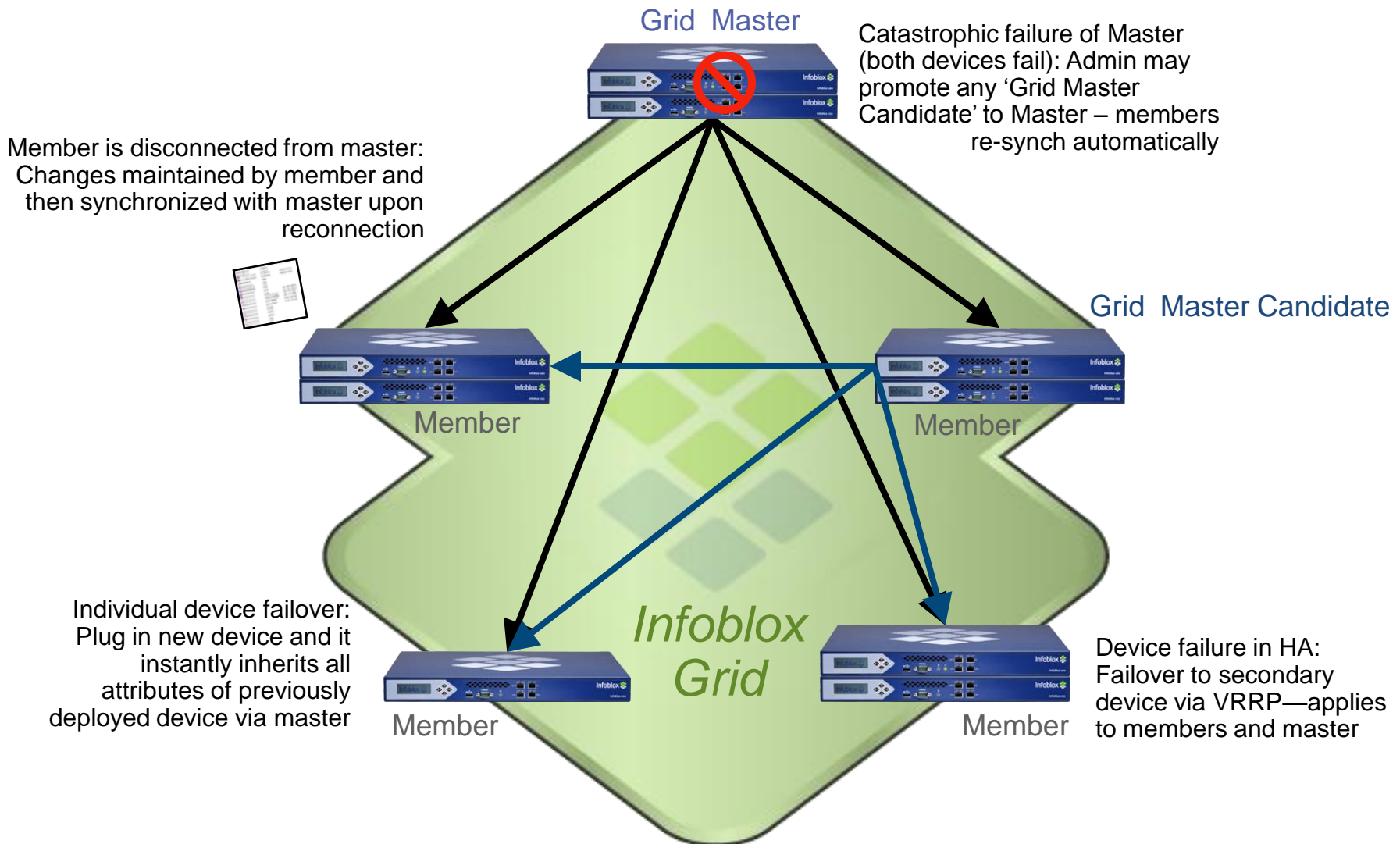
Communicating via an SSL VPN

Provides:

- Centralized visibility and control
 - Real time IPAM
 - Monitoring and reporting
- Failover and disaster recovery for protocols, data & management



Infoblox Grid Provides Unparalleled Availability



You can upgrade a system in production with no downtime!

Patent-Pending Network Map Makes Network Provisioning a Point and Click Exercise

10.0.0.0/8 Network

Net Map List

Go to Go

Start Address: 10.61.0.0
End Address: 10.80.255.255
Number of IP Addresses: 1310720
Largest possible network: 10.64.0.0/12
Number of possible /16 networks: 20
Number of possible /24 networks: 5120

10.0.0.0 - 10.255.255.255

Selected Area
Unused
Network

Network Container

Multiple Networks

Bar graph provides a quick view into capacity within a supernet

Unique ability to visually identify open areas where new networks can be allocated

Easy access to useful information for network provisioning

IP Map Provides Easy Visualization of Individual Networks and IPs

The screenshot displays the IP Map interface for the network 10.10.0.0/24. The main area shows a grid of IP addresses, each represented by a colored square. A legend on the right side explains the colors: Unused (white), Conflict (red), Unmanaged (yellow), Fixed Address / Reservation (purple), DNS Object (blue), Host Not In DNS/DHCP (dark blue), Active Lease (black), Selected IP (green), DHCP Range (light blue), and DHCP Exclusion Range (dark blue with diagonal lines). Below the grid, the details for the selected IP 10.10.0.103 are shown, including its Type (Fixed Address), MAC (00:21:5c:16:9b:0b), Lease State (Free), and Comment. A table of Related Objects is also visible, showing a record for SC-L-LCHU with Type Fixed Address, Last Discovered 2008-12-08 10:54:50 PST, and OS Microsoft. A context menu is open over the table, listing actions: Add Host Record, Add Fixed Address, Add Reservation, Add A Record, and Add PTR Record.

10.10.0.0/24

Network

IP Map List

Go to [] Go

Toggle Basic View

- Unused
- Conflict
- Unmanaged
- Fixed Address / Reservation
- DNS Object
- Host Not In DNS/DHCP
- Active Lease
- Selected IP
- DHCP Range
- DHCP Exclusion Range

10.10.0.103

Type: Fixed Address
MAC: 00:21:5c:16:9b:0b
Lease State: Free
Comment:

NetBIOS Name	Type	Comment	Last Discovered	OS	Name
SC-L-LCHU	Fixed Address		2008-12-08 10:54:50 PST	Microsoft	

- Add Host Record
- Add Fixed Address
- Add Reservation
- Add A Record
- Add PTR Record

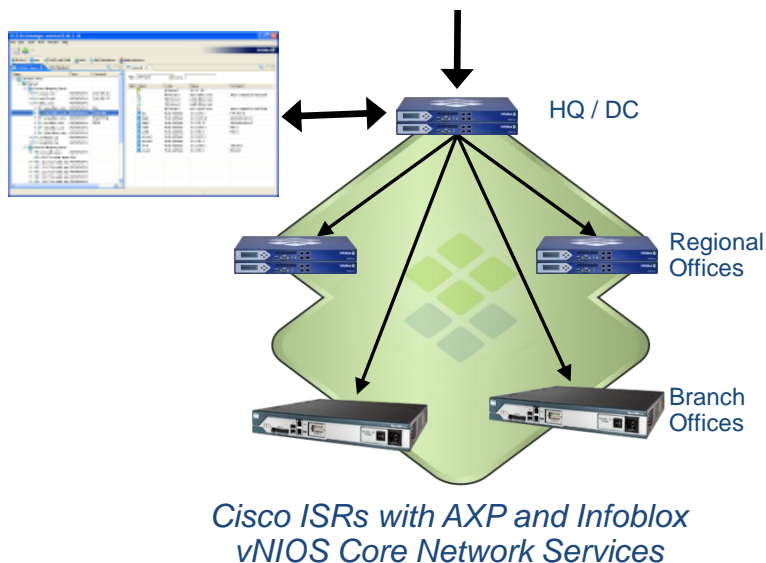
Every IP address in the network is shown with color indicating status

Detailed information is available for the selected IP including audit history

Common tasks can be quickly performed on selected IP address

Infoblox vNIOs Software on Cisco Blades in Cisco ISRs Helps Achieve the “Serverless Branch”

Automation and Resilience
For Consolidated Branch Infrastructure



- Remove servers from remote locations
- Leverage existing Cisco routers
- Gain local survivability and automated failover for core network services
- Centralize monitoring & reporting
- Delegate management of naming & addressing to remote teams, help desk, etc.
- Reduce service latencies (esp. DNS)
- Improve performance for all applications

Why Infoblox on ISR (versus appliance)?

- Today:

 - Save space and power

 - Lower cost vs. physical appliance

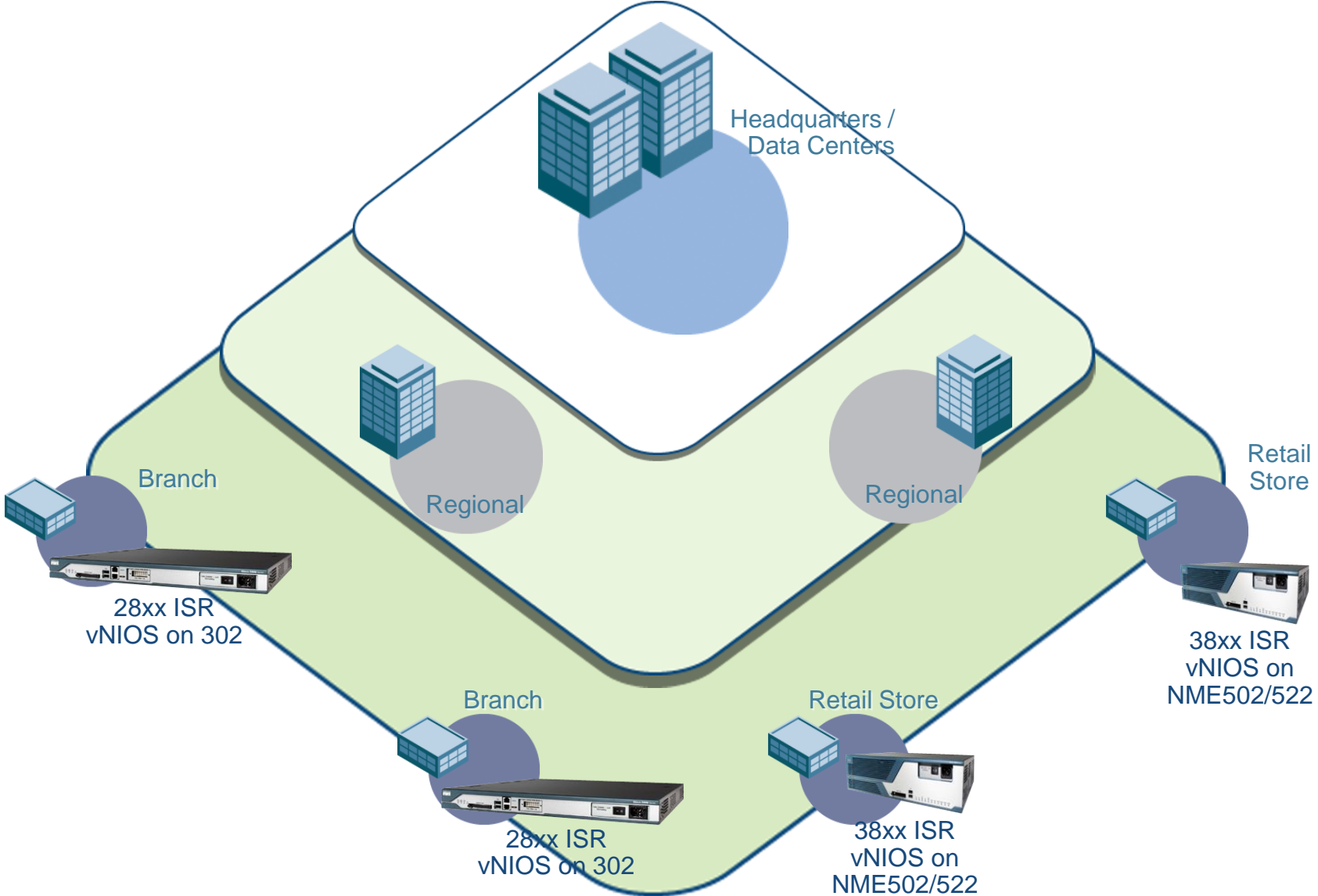
- Ideas

 - APIs provided by AXP enable exciting new applications

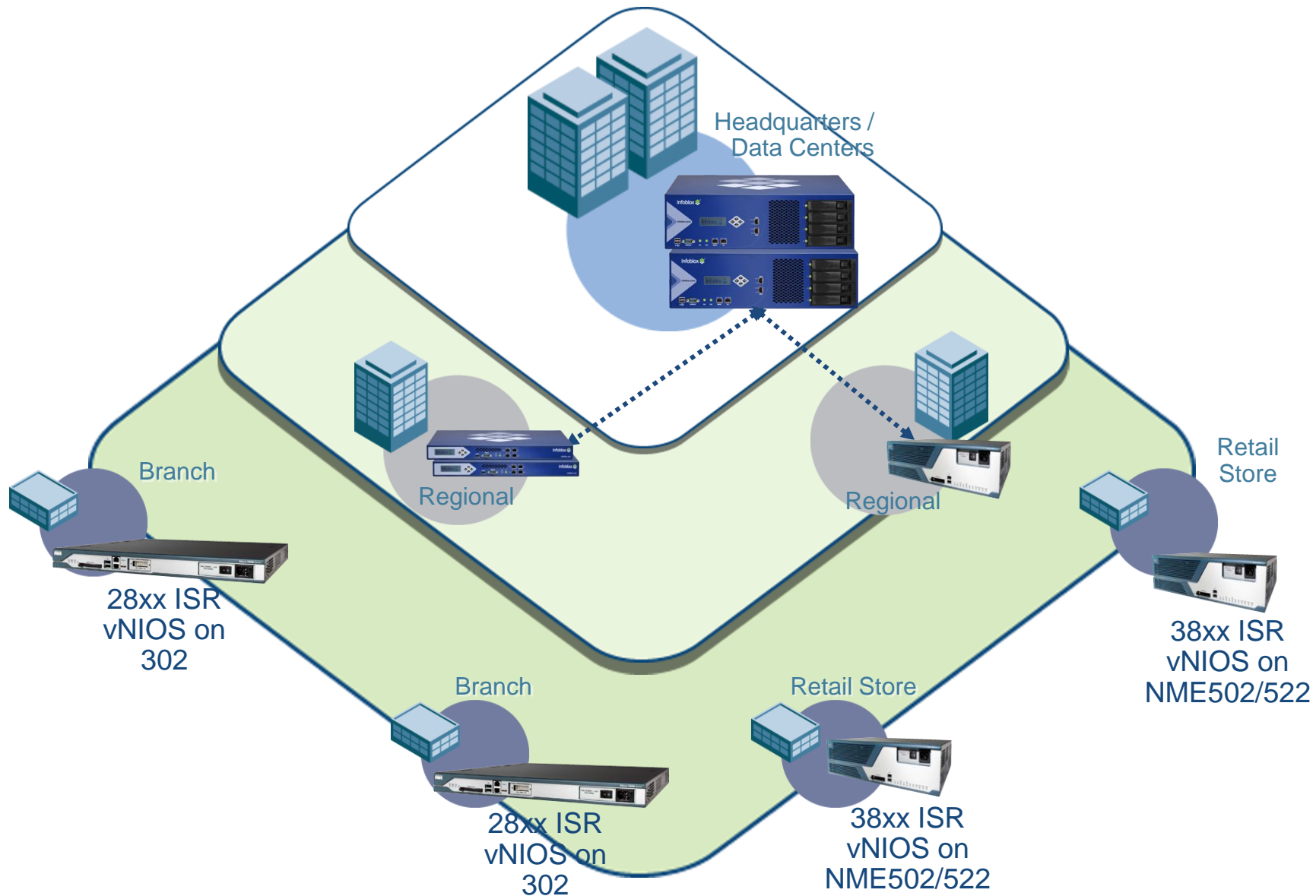
 - Leverage information in the router not available from the outside

 - Infoblox and Cisco are working closely together

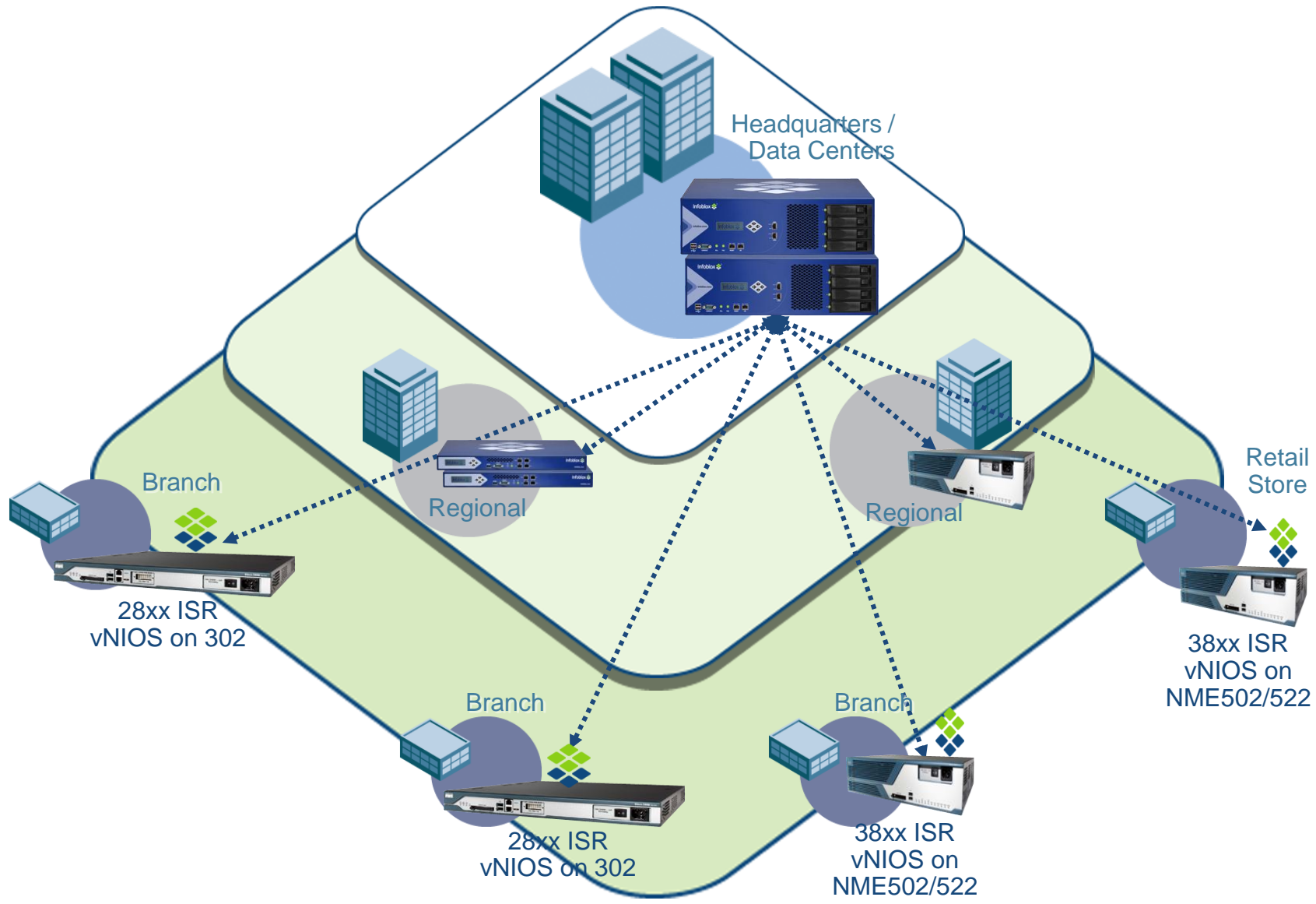
Typical Deployment: ISRs in Branch Offices



Typical Deployment: Infoblox Appliances at HQ/DC (Grid Masters) and Large/Regional Sites



Typical Deployment: Mixed Grid of Physical & Virtual Appliances

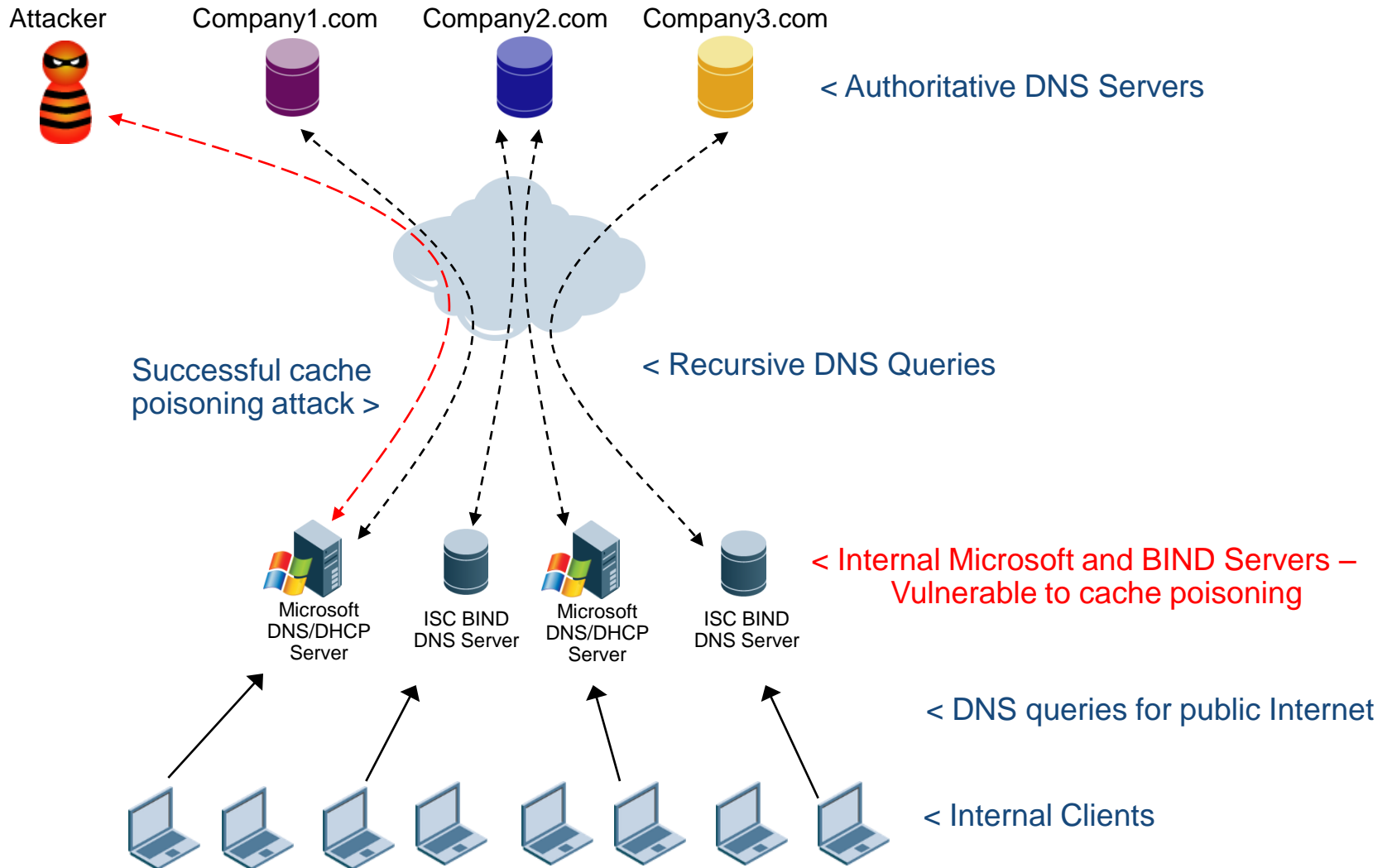


A New DNS Exploit Makes DNS “Cache Poisoning” Much Easier to Do

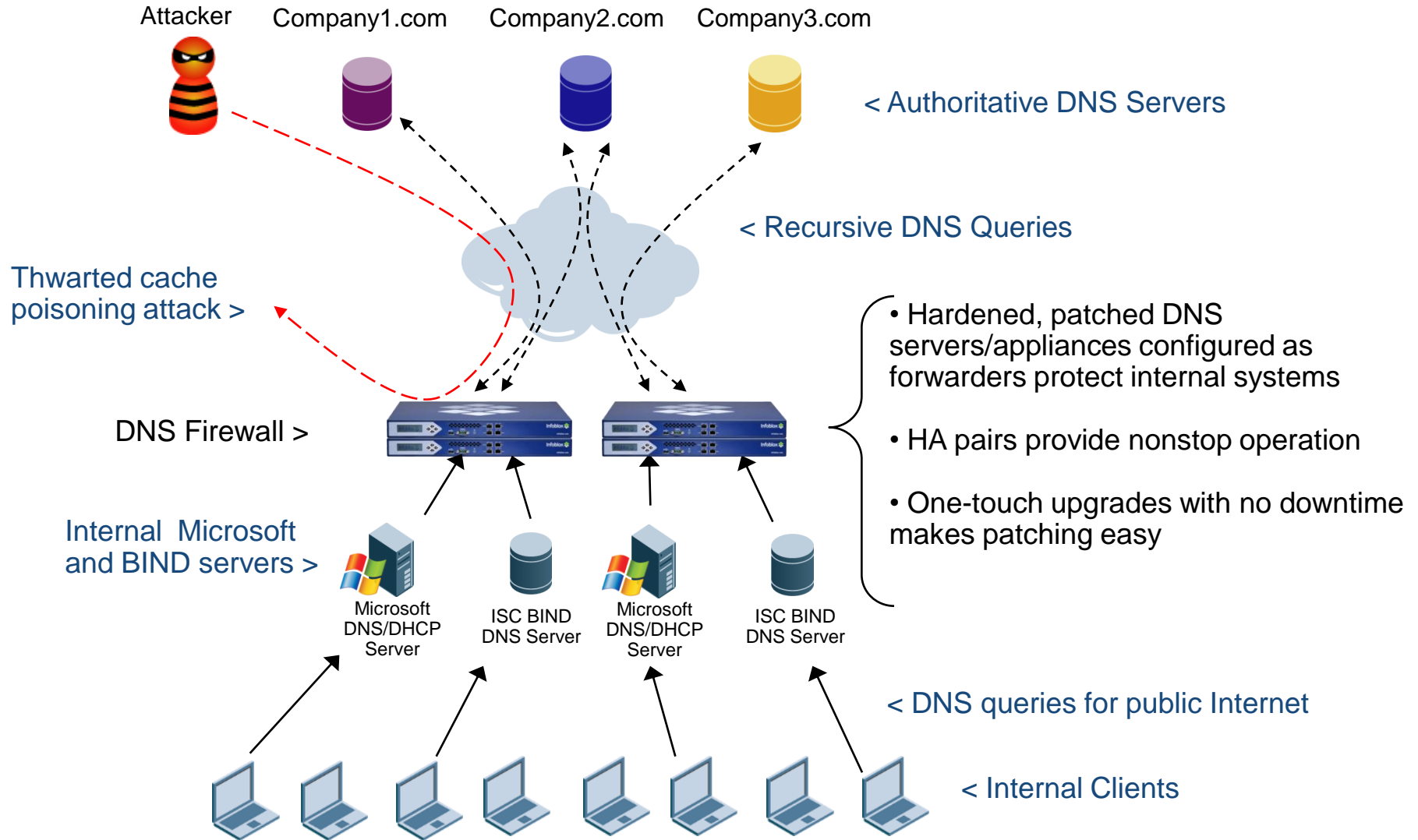
- Cache poisoning inserts bogus data into a DNS server – causes traffic to be redirected



Internal DNS Servers that Send Recursive Queries to the Internet are Vulnerable



Implementing a Hardened Forwarding Tier Provides a “DNS Firewall”, Protecting Internal Servers



Infoblox Grids Are Now More Important Than Ever

- “Serviceability needs to start becoming a more important purchasing metric.
- Serviceability is, ultimately, the measure of software flaw survivability”
 - **Dan Kaminsky, who discovered the new DNS exploit**

- ✓ Infoblox Grid Technology makes upgrading groups of appliances easy, fast and reliable
 - The Ultimate in serviceability

- ✓ Serviceability is the new Security

Gartner®

Emerging technical details have caused Gartner to revise its original view of the potential enterprise impact of this vulnerability and the urgency of the enterprise response to it.” August 8, 2008

Dedicated Blade for Each vNIOS Instance Ensures Performance Levels Shown Below

Network Module	Supported Active IPs	DNS Queries Per Second (QPS)	DHCP Leases Per Second (LPS)
NME-302 (1.0 GHz Intel Pentium, 512 MB, 80 GB)	750	5,000	65
NME-502 (1.0 GHz Intel Pentium, 1 GB, 120 GB)	5,000	6,000	65
NME-522 (1.4 GHz Intel Pentium, 2 GB, 160 GB)	10,000	8,000	70

Partnership with Cisco Continues Infoblox Market Leadership

- **Pioneered Core Network Services Appliances**
World's first DNS, DHCP, IPAM, and RADIUS appliances
- **Market share leader (IDC)**
- **More than 2,700 companies use Infoblox as their core network services platform**
Over 30,000 appliances shipped
- **120 of the Fortune 500 companies depend on Infoblox**



Infoblox on AXP - Summary

- Integrate powerful IP Address management, DNS, DHCP and other core network services in one unified solution.
- Put it on a resilient infrastructure with automated disaster recovery for all aspects
- Centralize management with delegation and automation
- Example: Delegate task of adding printers

Next Steps

- For more information:

Joint Microsite:

www.infoblox.com/cisco

AXP:

www.cisco.com/go/axp

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Thank you!

