



DNS, DHCP, IP Address Management Time to get serious!

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Who are we?

- 28 years combined experience with DNS, DHCP and IPAM technologies
- Many large deployments across all verticals

Paul assessed and balanced a set of very complex technical dependencies and steered the project to successful completion.

BT Global Services

Paul completed an installation of a DNS & DHCP management solution and it will be a pleasure to work with him in the future.

Heineken

Kier provided the Lloyds Integration programme with sound advice and is a trusted member of the team.

Lloyds Banking Group

Providing outstanding customer service to all, Paul is both motivated and customer focused.

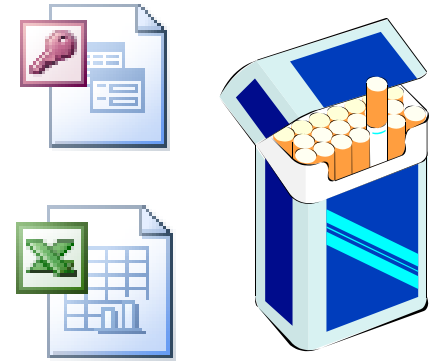
HSBC

Paul was always on hand to resolve any issues with good humour. The cutover was handled so professionally that the users were unaware that the work had been completed.

Orange

What IPAM solution are you using today?

- Excel spreadsheet(s)
- Open source
- In-house custom system
- Feature of another product
- Another solution



Existing DNS environment?

- Are you using BIND on Linux
 - ...and Microsoft DNS, due to Active Directory?
- Keeping BIND updated can be a challenge
 - Constant security vulnerabilities
 - How do you patch?
 - Install latest binaries with yum/apt-get or rpm/dpkg?
 - Download sources and compile with gcc?
 - Enter #dependencyhell
- Do you integrate BIND and AD?



DNS support & resilience

- Can you count on a vendor for support?
- Have you configured any kind of resilience?
 - E.g. CARP/VRRP VIPs or Windows/Linux Cluster
 - RAID 1 to combat HDD failure?
 - Dual PSU?
- Are you doing any monitoring?

DNS zone file maintenance

- How are you updating zone files?
 - vi is fine for small changes, provided you know what you are doing
 - But do others?
 - Is all the knowledge in one persons head?
- How are zones synchronised?
 - Zone transfer? Multi-master?
 - What about named.conf?
 - Any discrepancies sneaking in?
 - What about audit an trail? Or role-based access?

- Linux and/or Microsoft?
 - Microsoft – Windows 2012 now supports failover
 - Linux – has supported failover for some time
 - However, are you monitoring it?
 - How are you synchronising the configs?
 - Have you tested it recently?
- Support/management/monitoring
- How do you document static allocations?

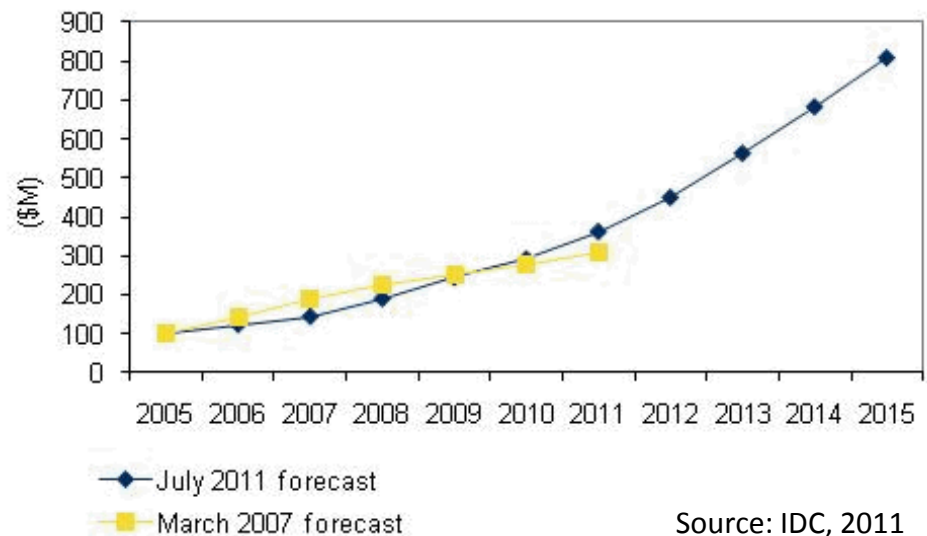


Management headaches

- Microsoft DNS/DHCP use separate MMC consoles
 - And you have to know which server to connect to
- Linux is primarily command line driven
- IPAM normally done elsewhere
- No integrated management or global view
 - Can lead to errors

The DDI market is growing

- Gartner coined the term DDI for their first MarketScope report in 2009
- Both Gartner and IDC predict annual growth > 20% per annum





How does this relate to the education sector?

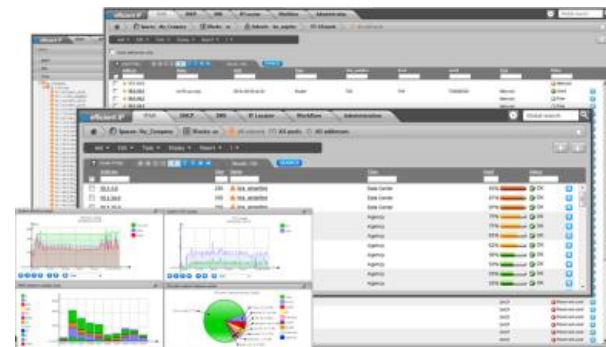
- Student fees have increased
 - Students now expect/demand a commercial grade service
- Explosion in number of devices
 - IP addresses
 - Wireless AP's
 - Subnet/VLAN partitioning
- Adoption of new (well, old really) technology such as IPv6

Introducing a DDI solution

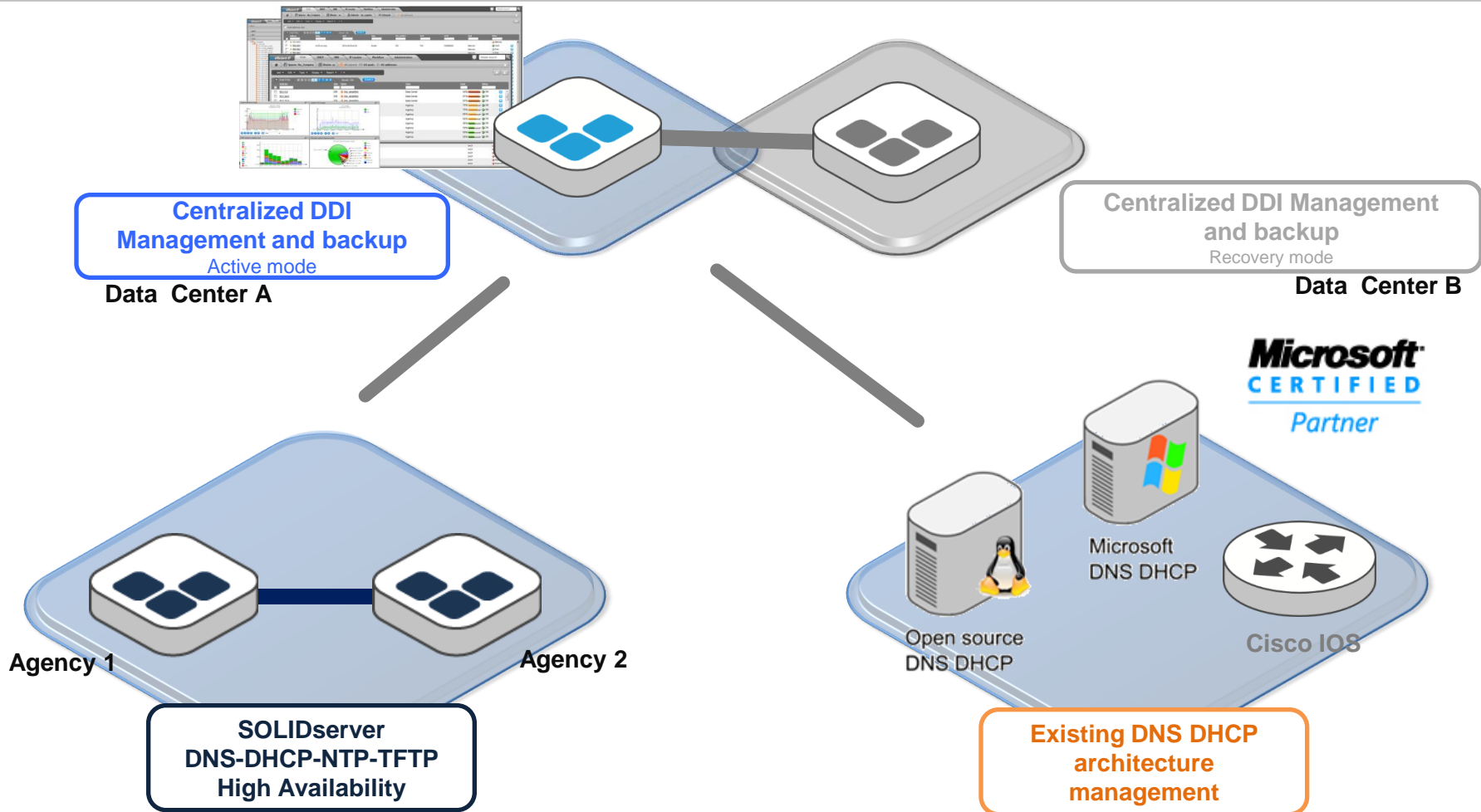
SOLIDTM
s e r v e r



- IP address plan management
- Integrated network services engines: DNS-DHCP-NTP-TFTP
- Multi-vendor DNS & DHCP services management
 - Microsoft – ISC – Cisco – SOLIDServerTM
- Active IP address tracking with IPLocator module
- Built-in work flow
- Unified system management
 - Integrated zero admin database
 - Hardened OS with embedded stateful firewall
 - Simplified upgrades, backups and disaster recovery



Multi-vendor/heterogeneous support



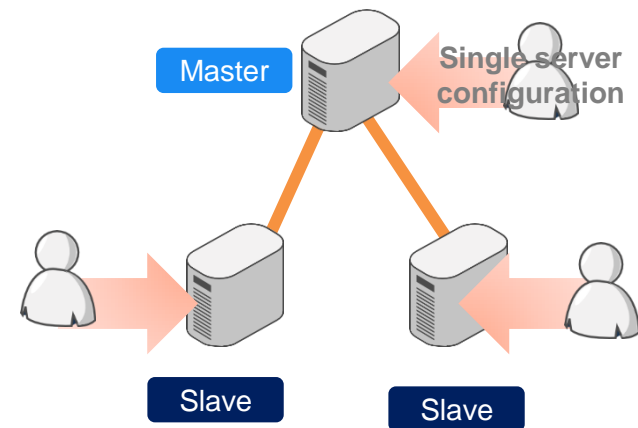


Resilience and support options

- Built-in database replication to hot standby
- Network link aggregation/failover
- Single or multiple VIPs
- DHCP Failover (one-to-one or star)
- 24 x 7 support option
 - 4 hour on-site advanced replacement service available

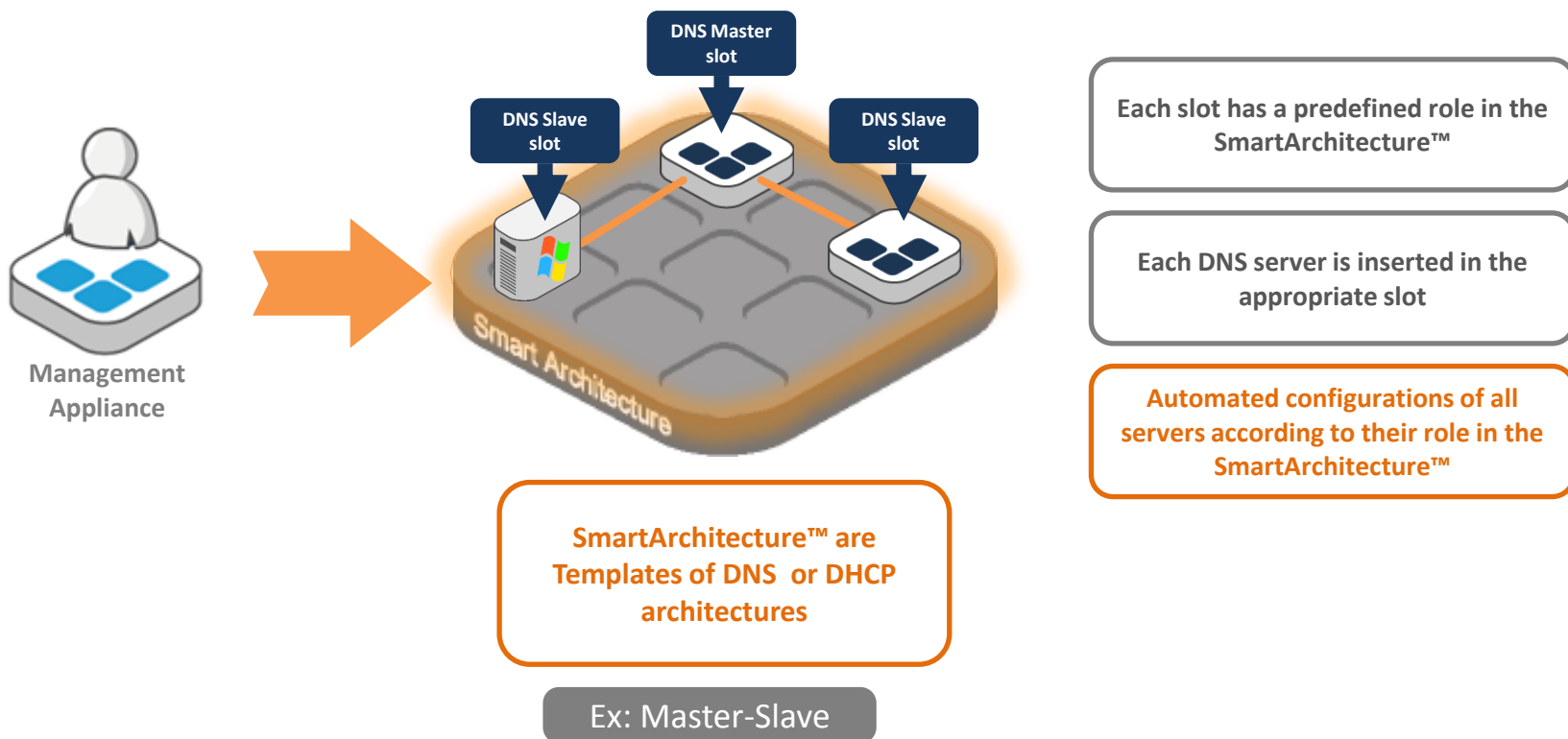
SMART Architectures™: Changing DNS-DHCP Deployments

- Classic deployment process of DNS-DHCP architectures
 - Each server is individually configured to build an architecture
 - Deployment of 10 zones on one master and 3 slave servers = Multiple repetitive tasks !
 - No embedded architecture concept
 - Complexity of architecture deployment
 - High risk of misconfiguration
 - No Embedded Best Practices
 - Difficult and risky architecture modification
 - Add/remove a server
 - Change the architecture type : Master/slave to DNS stealth



Classic Model
Per server administration
to build an architecture

SMART Architectures™: DNS-DHCP Architecture Management

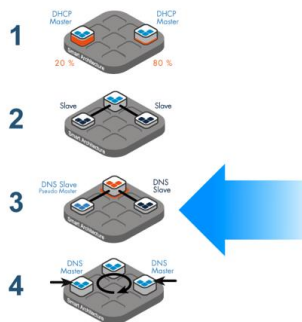


SMART Architectures™: Automated Architecture Deployment

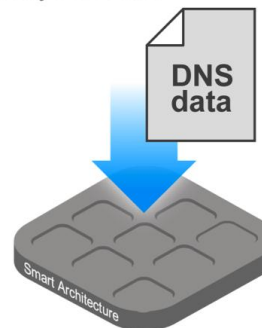
Management Appliance



Step1 Select your Architecture

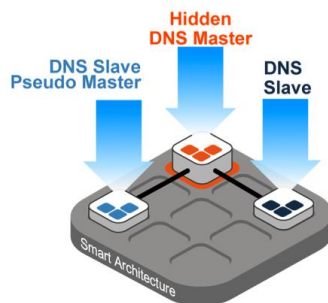


Step2 Import your Data

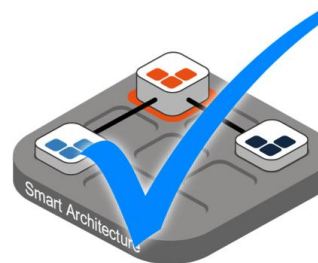


Management of the SmartArchitecture as one "Virtual server"

Step3 Insert your Servers



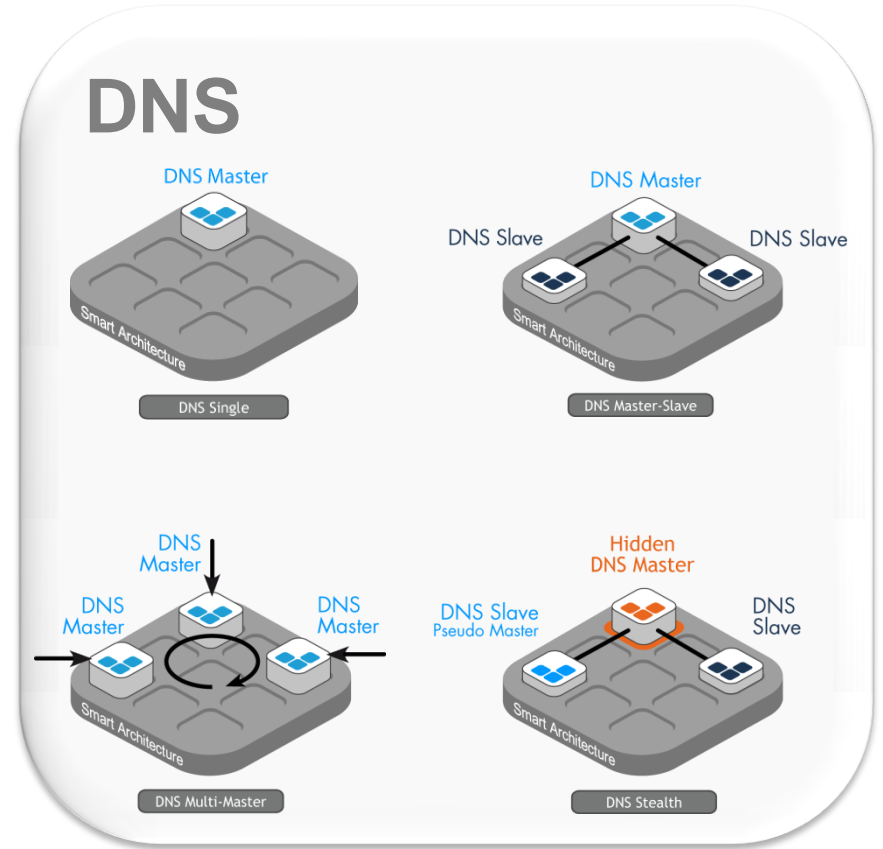
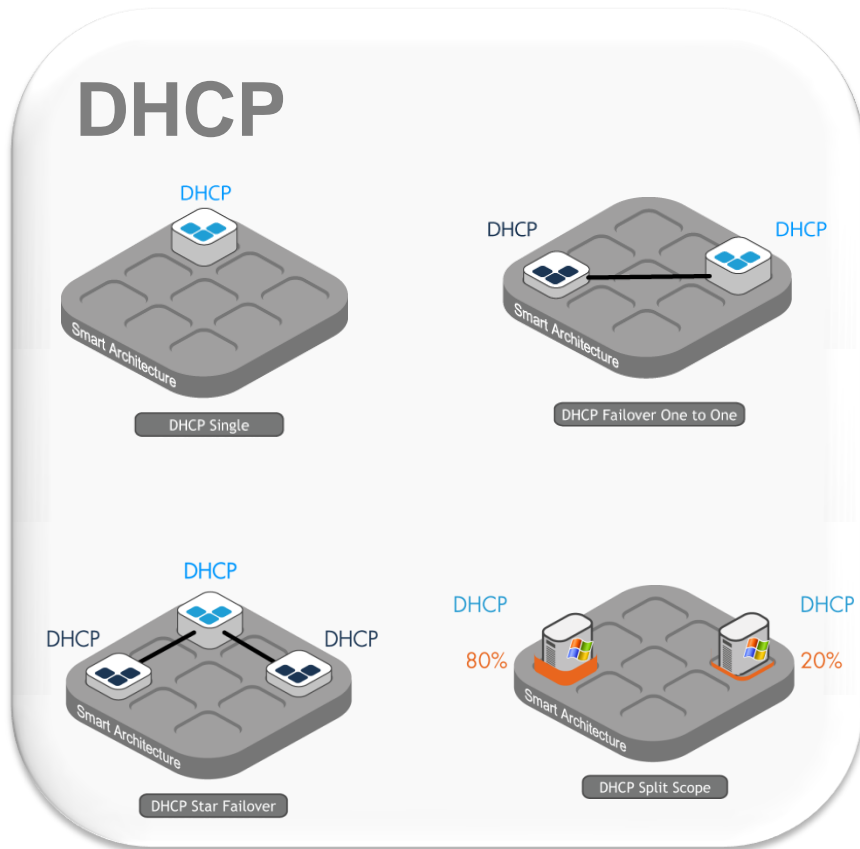
Done! Your Architecture is Deployed and Operating



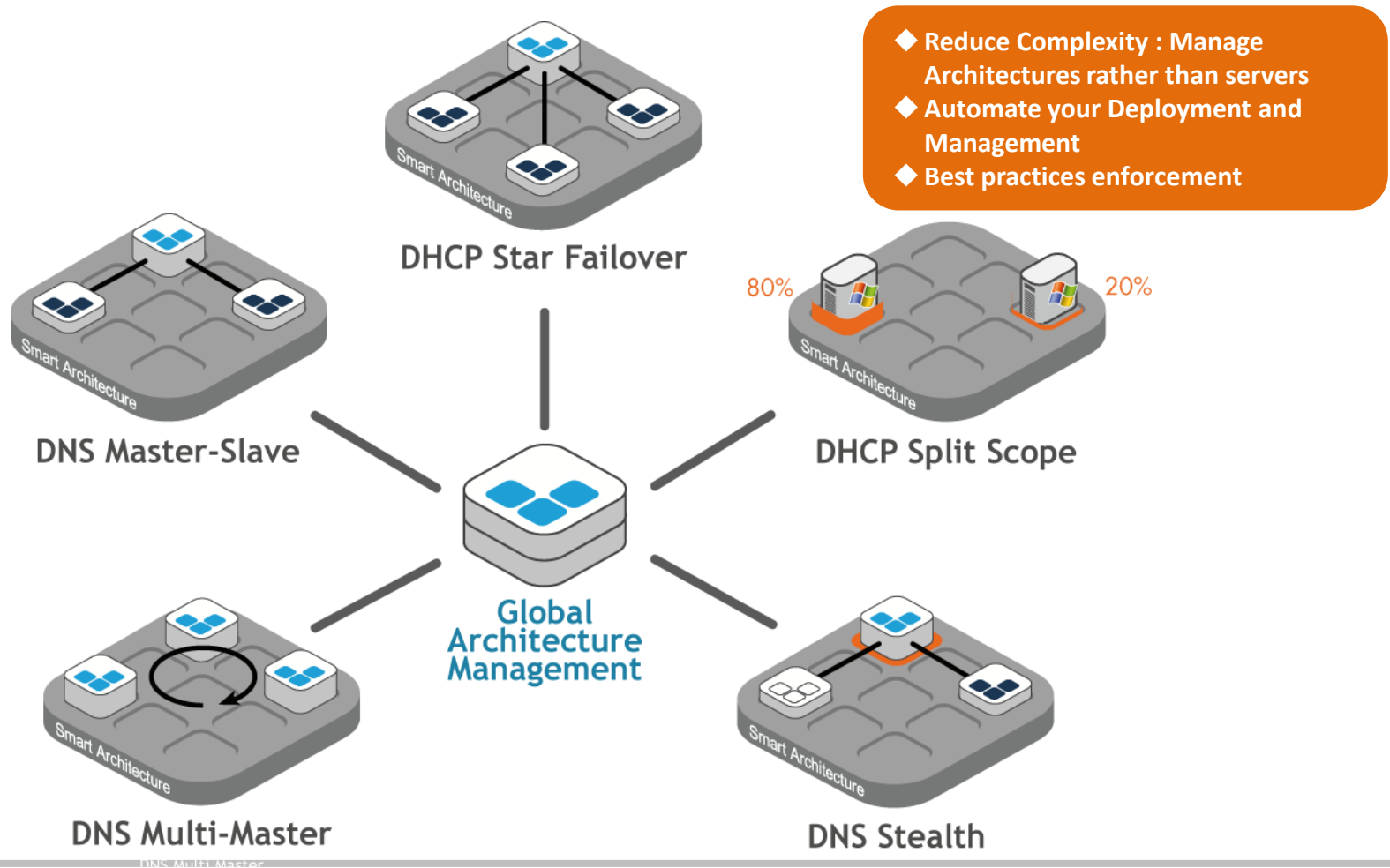
Management appliance configures all servers automatically

SMART Architectures™: Architecture Management

- Smart Architecture™ Library

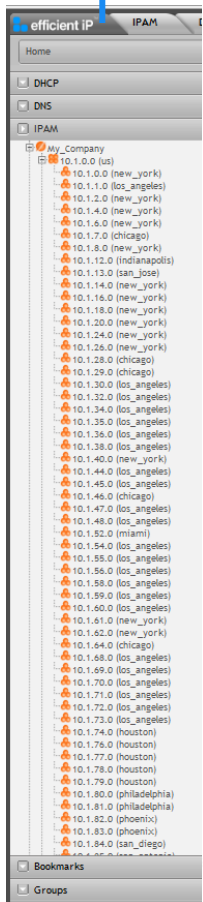


SMART Architectures™: Move to Architecture Management

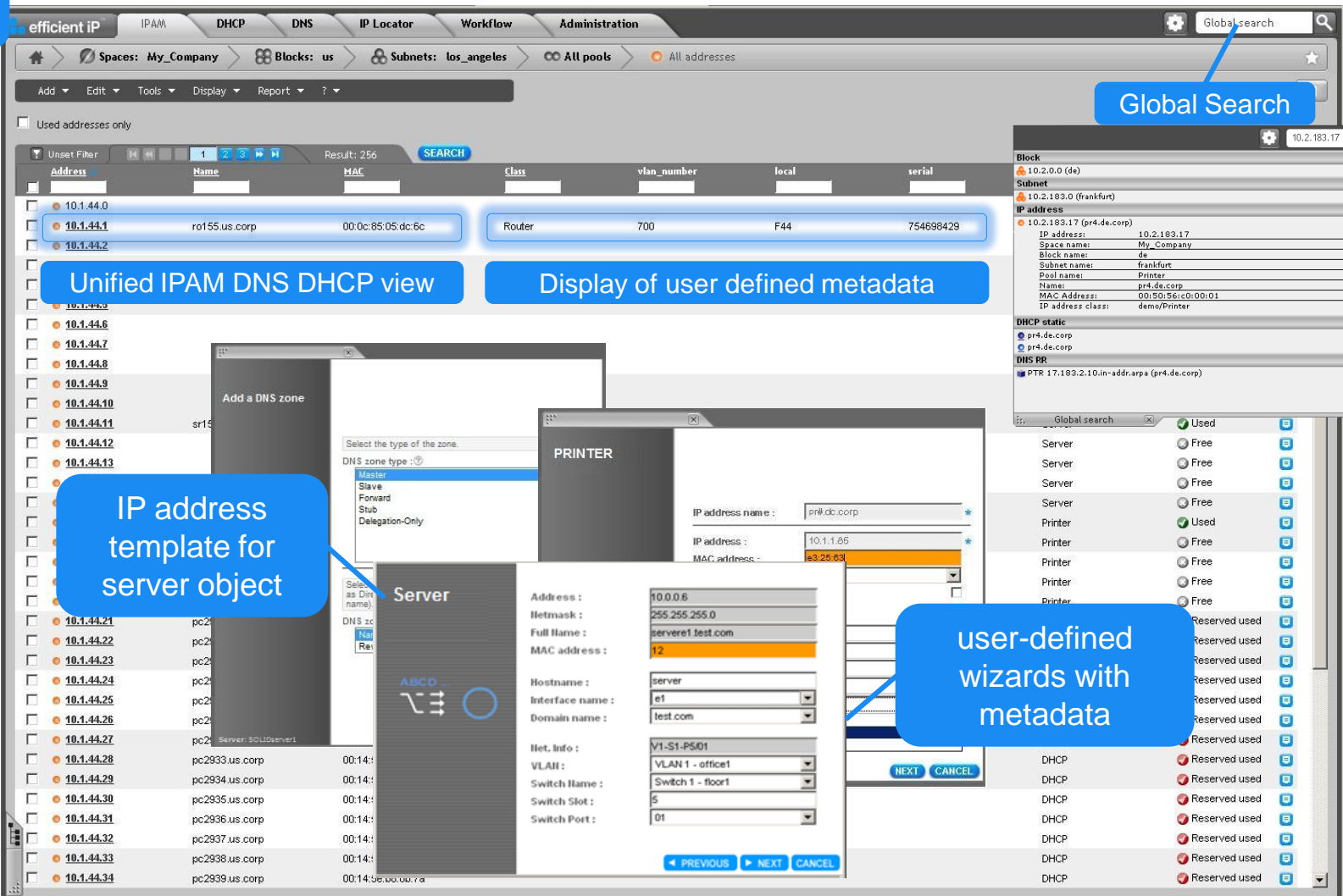


Intuitive full function UI

Navigation Tree



- My_Company
 - 10.1.0.0 (us)
 - 10.1.1.0 (new_york)
 - 10.1.1.0 (los_angeles)
 - 10.1.2.0 (new_york)
 - 10.1.4.0 (new_york)
 - 10.1.5.0 (new_york)
 - 10.1.7.0 (chicago)
 - 10.1.8.0 (new_york)
 - 10.1.12.0 (indianapolis)
 - 10.1.13.0 (san_jose)
 - 10.1.14.0 (new_york)
 - 10.1.16.0 (new_york)
 - 10.1.18.0 (new_york)
 - 10.1.20.0 (new_york)
 - 10.1.24.0 (new_york)
 - 10.1.25.0 (new_york)
 - 10.1.28.0 (chicago)
 - 10.1.29.0 (chicago)
 - 10.1.30.0 (los_angeles)
 - 10.1.32.0 (los_angeles)
 - 10.1.34.0 (los_angeles)
 - 10.1.35.0 (los_angeles)
 - 10.1.36.0 (los_angeles)
 - 10.1.40.0 (new_york)
 - 10.1.45.0 (los_angeles)
 - 10.1.46.0 (chicago)
 - 10.1.47.0 (los_angeles)
 - 10.1.48.0 (los_angeles)
 - 10.1.52.0 (miami)
 - 10.1.54.0 (los_angeles)
 - 10.1.55.0 (los_angeles)
 - 10.1.56.0 (los_angeles)
 - 10.1.58.0 (los_angeles)
 - 10.1.59.0 (los_angeles)
 - 10.1.60.0 (los_angeles)
 - 10.1.61.0 (new_york)
 - 10.1.62.0 (new_york)
 - 10.1.64.0 (chicago)
 - 10.1.68.0 (los_angeles)
 - 10.1.69.0 (los_angeles)
 - 10.1.70.0 (los_angeles)
 - 10.1.71.0 (los_angeles)
 - 10.1.72.0 (los_angeles)
 - 10.1.73.0 (los_angeles)
 - 10.1.74.0 (houston)
 - 10.1.76.0 (houston)
 - 10.1.77.0 (houston)
 - 10.1.78.0 (houston)
 - 10.1.79.0 (houston)
 - 10.1.80.0 (philadelphia)
 - 10.1.81.0 (philadelphia)
 - 10.1.82.0 (phoenix)
 - 10.1.83.0 (phoenix)
 - 10.1.84.0 (san_diego)



efficient IP | IPAM | DHCP | DNS | IP Locator | Workflow | Administration

Spaces: My_Company | Blocks: us | Subnets: los_angeles | All pools | All addresses

Global search

Address	Name	MAC	Class	vlan_number	local	serial
10.1.44.0						
10.1.44.1	ro155.us.corp	00:0c:85:05:dc:6c	Router	700	F44	754698429
10.1.44.2						
10.1.44.3						
10.1.44.4						
10.1.44.5						
10.1.44.6						
10.1.44.7						
10.1.44.8						
10.1.44.9						
10.1.44.10						
10.1.44.11						
10.1.44.12						
10.1.44.13						
10.1.44.21	pc21					
10.1.44.22	pc22					
10.1.44.23	pc23					
10.1.44.24	pc24					
10.1.44.25	pc25					
10.1.44.26	pc26					
10.1.44.27	pc27					
10.1.44.28	pc28					
10.1.44.29	pc29					
10.1.44.30	pc210					
10.1.44.31	pc2936.us.corp	00:14:3e:00:00:7a				
10.1.44.32	pc2937.us.corp					
10.1.44.33	pc2938.us.corp					
10.1.44.34	pc2939.us.corp					

Block details for 10.2.183.17 (pr4.de.corp):

- IP address: 10.2.183.17
- Space name: My_Company
- Block name: de
- Subnet name: frankfurt
- Pool name: Printer
- Name: pr4.de.corp
- MAC Address: 00:15:56:0:0:0:01
- IP address class: demo/Printer

Global search results:

- Server (Free)
- Printer (Used)
- DHCP (Reserved used)

Global Search

Unified IPAM DNS DHCP view

Display of user defined metadata

IP address template for server object

user-defined wizards with metadata

User defined home pages

The screenshot shows the Efficient IP SOLIDserver dashboard with several widgets and annotations:

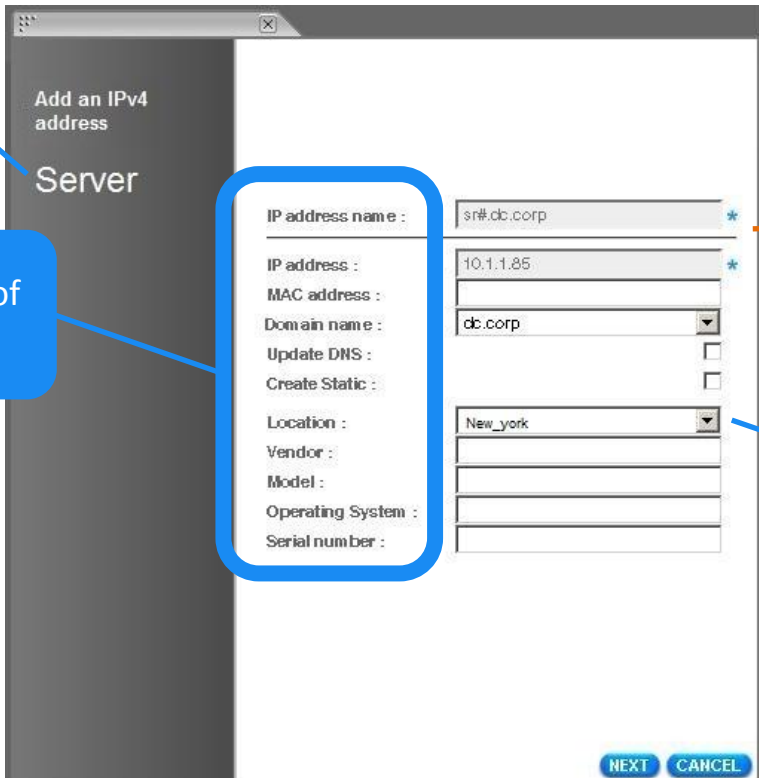
- System Informations:** Shows connection details for ipadmin, version 4.0.1, and license information.
- Bookmark:** Lists saved filters like IPAM: Addresses, PTR RR, Cisco Switches, Berlin HQ, 3%, subnets >3 %, and sebn - berlin >1%.
- Top 10 List : Alerts:** Shows an alert for 'ipadmin just deleted GBLX space !!!'.
- QuickWizard:** Offers actions like 'Create Firewall VLAN 42 in My_Company, Sub' and 'Create A DNS WWW'.
- IPlocator network devices vendor:** A pie chart showing vendor distribution: Cisco (77.3%), Extreme (3.0%), Alcatel (1.9%), Lucent (1.7%), Netscreen (0.2%), and Other (2) (0.4%).
- Site and VLAN repartition:** A stacked bar chart showing distribution across sites (London, Munich, Paris, Helsinki) and VLANs (105, 104).
- Subnet repartition by Location:** A pie chart showing subnet distribution by location: London (45.5%), Munich (27.3%), Helsinki (18.2%), and Paris (9.1%).
- Subnet repartition by VLAN:** A pie chart showing subnet distribution by VLAN: 42 (63.6%), 104 (18.2%), and 105 (18.2%).
- Quick Search : VLAN/Location Search:** A search interface with fields for 'Class param: Site location:' and 'Class param: VLAN number:'.
- Top 5 List : Most used DHCP ranges:** A table listing DHCP ranges, sizes, start addresses, and usage status.

Annotations in blue boxes highlight specific features:

- Customized Bookmarks:** Points to the Bookmark widget.
- Customized Alerts:** Points to the Top 10 List : Alerts widget.
- Customized Quick wizard:** Points to the QuickWizard widget.
- Customized Quick searches:** Points to the Quick Search : VLAN/Location Search widget.
- Customized Top lists:** Points to the Top 5 List : Most used DHCP ranges widget.
- User-defined pies and graphs based on Metadata:** Points to the Site and VLAN repartition, Subnet repartition by Location, and Subnet repartition by VLAN charts.

Conformity Management

- User-defined templates enable you to enforce policies
 - e.g. device templates, custom fields, naming conventions etc.



IP address template for server

User-defined list of Metadata fields

Naming conventions

User-defined Metadata field type

Add an IPv4 address

Server

IP address name : \$r#.db.corp *

IP address : 10.1.1.85 *

MAC address :

Domain name : db.corp

Update DNS :

Create Static :

Location : New_york

Vendor :

Model :

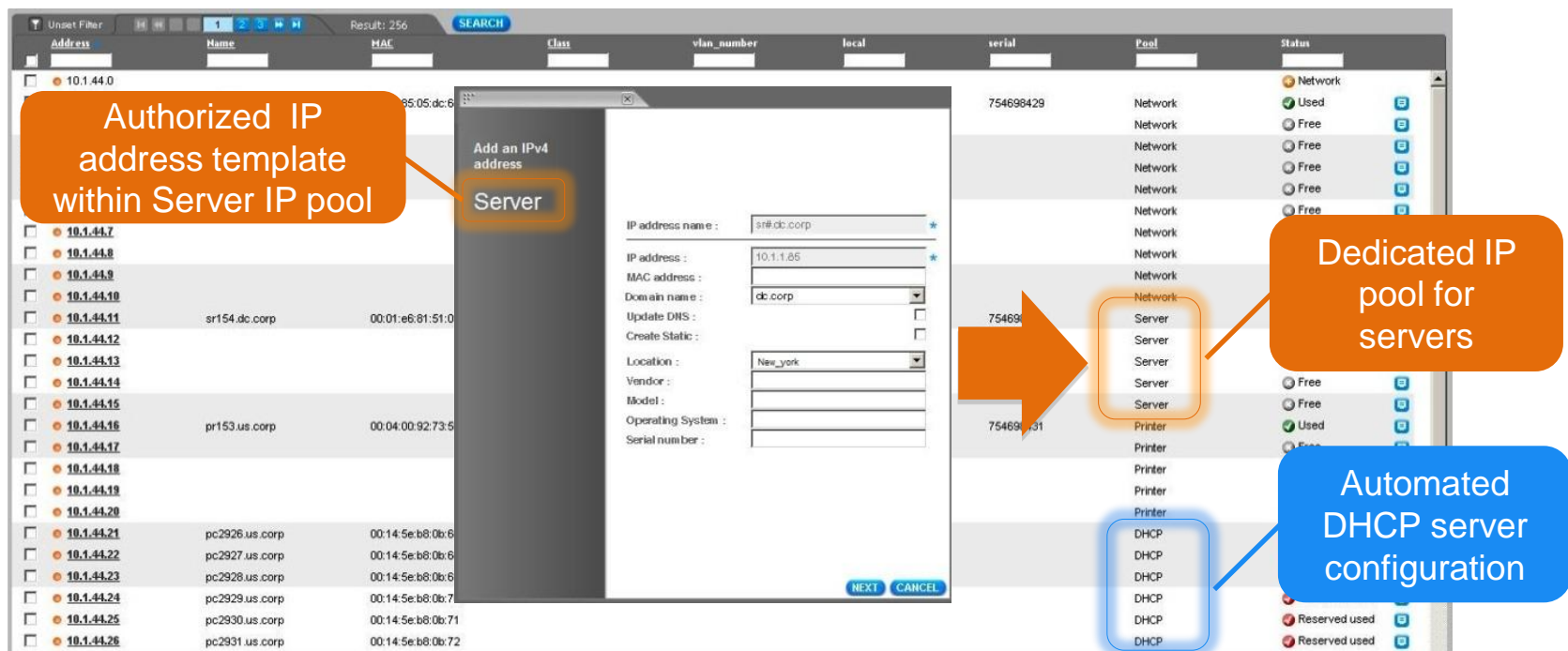
Operating System :

Serial number :

NEXT CANCEL

Conformity Management

- Streamline DDI resource deployment
 - Subnet templates: Automate subnet splitting into dedicated IP pools (printer, server, DHCP)



The screenshot displays the Calleva Conformity Management interface. On the left, a table lists IP address templates with columns for Address, Name, MAC, Class, vlan_number, local, serial, Pool, and Status. An orange callout box points to the 'Server' template, stating: "Authorized IP address template within Server IP pool".

In the center, a modal window titled "Add an IPv4 address" is open, showing configuration fields for:

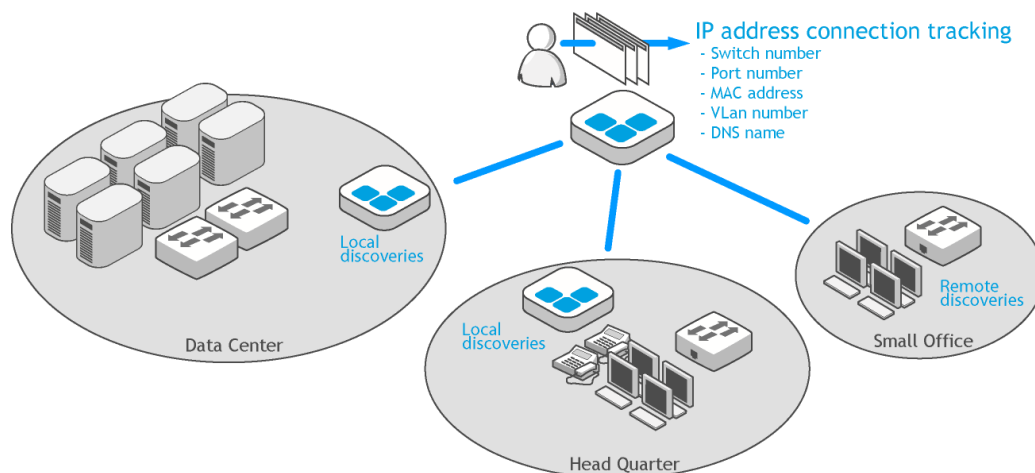
- IP address name: sr#dc.corp
- IP address: 10.1.1.85
- MAC address: [empty]
- Domain name: dc.corp
- Update DNS: [checkbox]
- Create Static: [checkbox]
- Location: New_york
- Vendor: [empty]
- Model: [empty]
- Operating System: [empty]
- Serial number: [empty]

 An orange callout box points to the "Server" label in the modal, and another orange callout box points to the "Server" entries in the Pool column of the table, stating: "Dedicated IP pool for servers".

At the bottom of the table, several DHCP entries are visible. A blue callout box points to these entries, stating: "Automated DHCP server configuration".

DDI Reconciliation

- Active IP address tracking with IPLocator
 - Identify IP/MAC address connections on the network
 - Identify associated switch and switch port



DDI Reconciliation

Switch, port, Vlan, name information discovered with IP/MAC addresses

MAC address	IP Address	MAC vendor	DNS name	Network device	Port name
00:00:0c:05:1b:25	10.2.144.1	CISCO SYSTEMS, INC.	ro2.de.corp	Device_106	FastEthernet0/1
00:00:0c:05:1b:26	10.2.172.1	CISCO SYSTEMS, INC.	ro5.de.corp	Device_356	GigabitEthernet2/7 - Ethernet 1Gbps LH-Fiber
00:00:0c:05:1b:26	10.2.172.1	CISCO SYSTEMS, INC.	ro5.de.corp	Device_197	Port 1/1 - 10/100Mbps RJ45 cat5
00:00:0c:05:1b:26	10.2.172.1	CISCO SYSTEMS, INC.	ro5.de.corp	Device_191	
00:00:0c:59:0e:31	10.4.180.1	CISCO SYSTEMS, INC.			
00:00:0c:59:0e:34	10.4.181.1	CISCO SYSTEMS, INC.			
00:00:0c:59:0e:3a	10.4.190.1	CISCO SYSTEMS, INC.			
00:00:0c:59:0e:3d	10.3.125.1	CISCO SYSTEMS, INC.	ro17.es.corp	Device_112	
00:00:0c:59:0e:40	10.2.182.1	CISCO SYSTEMS, INC.	ro20.de.corp	Device_112	
00:00:48:93:a6:13	10.2.144.16	SEIKO EPSON	pr0.de.corp	Device_182	
00:00:48:99:bd:9d	10.2.172.16	SEIKO EPSON	pr3.de.corp	Device_121	
00:00:48:9b:b0:b6	10.4.180.16	SEIKO EPSON	pr6.fr.corp	Device_150	
00:00:48:9d:39:92	10.4.181.16	SEIKO EPSON	pr9.fr.corp	Device_48	
00:00:48:ab:54:a6	10.4.190.16	SEIKO EPSON	pr12.fr.corp	Device_146	

Network device statistics

Ports status

- up: 7219 (41.0%)
- disabled: 881 (5.0%)
- lowerLayerDown
- dormant: 1 (0.0%)

Network devices vendor

- Cisco: 362 (77.0%)
- 3Com: 29 (6.2%)
- Nortel: 27 (5.7%)
- HP: 18 (3.8%)
- Extreme: 15
- Lucent: 8 (1.7%)
- Alcatel: 8 (1.7%)
- Unknown: 1
- Other (2): 2 (0.4%)

IP Locator port statistics FastEthernet 0/19

- In octets
- Out octets

Port activity monitoring

Hardware/Software Appliance Suite

- A range of hardware appliances to suit
- Software Appliance
 - Appliance image on a CD or download
- “Boot and Run” appliance technology
 - Auto-install appliance image on industry standard hardware or Virtual server
- Benefits
 - Get appliance benefits without hardware constraints
 - No dedicated spare platforms required
 - Added value of appliance combined with world wide hardware vendor’s service





What else do we do?

- DNS Managed Service
- Agentless NAC
- Stratum 1 NTP Servers
- Wi-Fi design and implementation



Thank you

Come and see us on Efficient IP's stand EH23

Paul Roberts

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