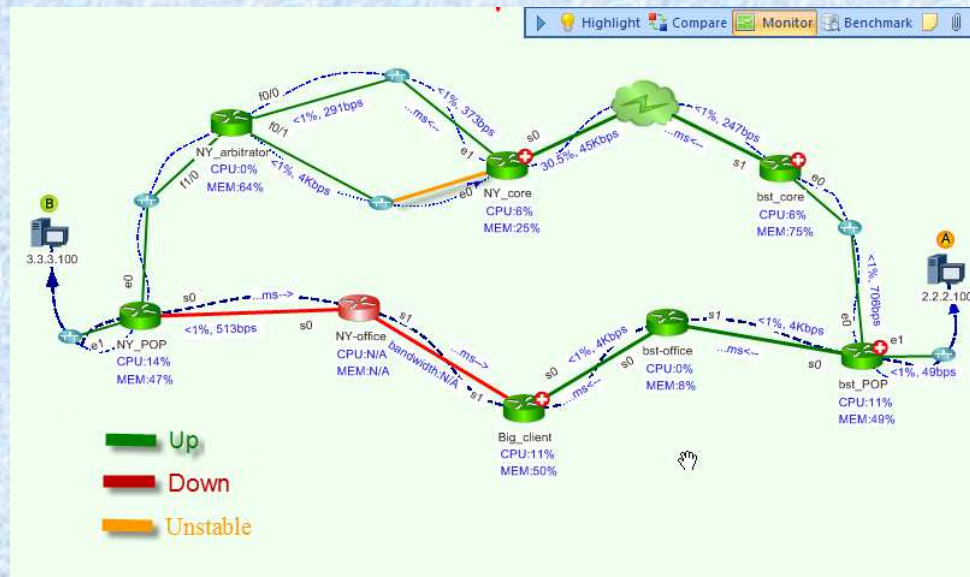


NetBrain OE v5.0

Advanced Training

For Administrators

Updated March 30, 2013



Introduction

Introduce yourself

- ✓ Name, title, role, etc.
- ✓ How long have you used NetBrain?



Training Agenda

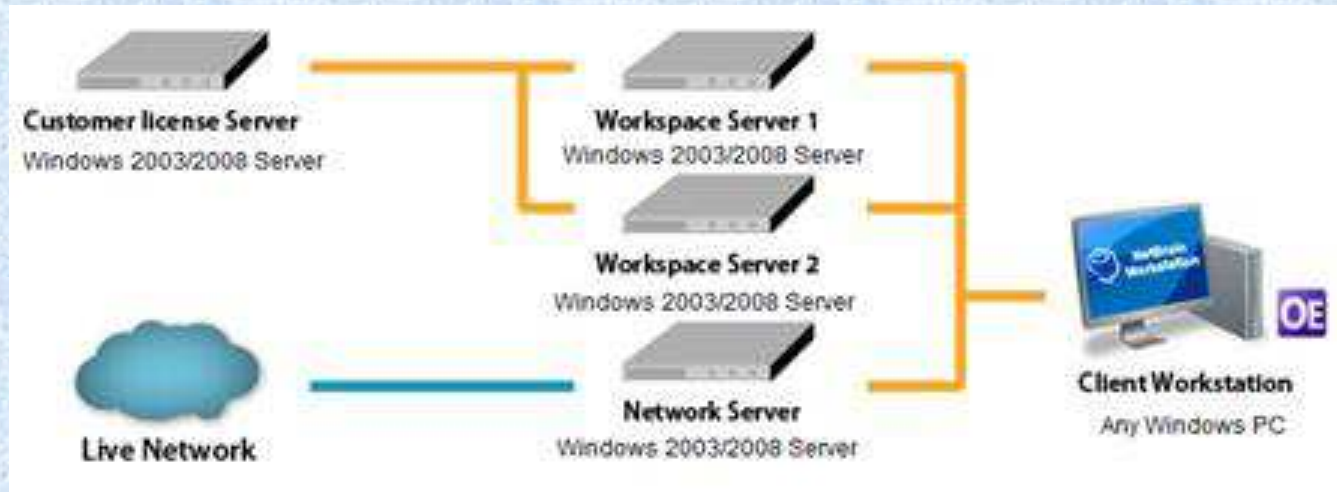
- Set of Slides: NetBrain concepts, features, and use cases
- Demonstration using the OE system: Follow the reference book
- Q&A
- 10 minutes break time

Topics

1. **NetBrain Overview**
2. Setup the Workspace
3. Manage the Workspace
4. Troubleshooting

NetBrain OE Deployment

NetBrain Operator Edition (OE) includes two components: Enterprise Server and Workstation (client).



- **License Server** – Manage the license, user accounts and workspaces
- **Workspace Server** – Manage all data for the shared workspace
- **Network Server** - Collect the data from the live network

System Spec

| | CPU | Memory | Hard Disk | Operating System |
|---------------------------------------|--|----------------------------------|-------------------------------------|--|
| Customer License Server (CLS) | 2 GHZ Dual Core | 4GB (preferred) 2GB (minimum) | 10GB free space | Windows 2003(SP2+) or Windows 2008 32-bit/64-bit, with IIS pre-installed. VMware is supported. |
| Workspace Server (WSS) | 2 GHZ Dual Core (Quad Core for 5000+ nodes) | 8GB (preferred) 4GB (minimum) | 100GB (preferred) 10GB (minimum) | Windows 2003(SP2+) or Windows 2008 32-bit/64-bit, with IIS pre-installed. VMware is supported. Can coexist with Customer License Server. |
| Network Server (NS) | 2 GHZ | 4GB (preferred) 2GB (minimum) | 10GB free space | Windows 2003(SP2+) or Windows 2008. Can coexist with Customer License Server and/or Workspace Server. |
| All-in-one Server (CLS/WSS/NS) | 2 GHZ Quad Core (Eight Core for 5000+ nodes) | 8GB (preferred) 4GB (minimum) | 100GB free space | Windows 2003(SP2+) or Windows 2008 32-bit/64-bit, with IIS pre-installed. VMware is supported. |
| Workstation Client | 1GHZ | 4GB (preferred) 2GB (minimum) | 10GB free space | Windows XP, Windows Vista, Windows 7, Windows 2003/2008 |

Note: all servers can be installed on the virtual machine (VM).

Network Connectivity Requirements

| | |
|--------------------------------|--|
| Customer License Server | Accessible by Workspace Server via HTTP or HTTPS |
| Workspace Server | Accessible by Workstation and Network Server via HTTP or HTTPS |
| Network Server | <ul style="list-style-type: none">● Access live network via SNMP, ICMP and telnet/SSH● Accessible by Workspace Server at TCP port 7813● Accessible by Workstation at TCP port 9099 |
| Workstation Client | <ul style="list-style-type: none">● Access Workspace Server via HTTP or HTTPS● Access Network Server via TCP port 9099 |

Install Customer License Server and Workspace Server

- ❑ Both servers can be installed on the same machine. For Enterprise customers, the servers are usually installed on one machine.
- ❑ After running the NetBrain setup file, select the servers you want to install. By default, both CLS and WSS are selected.
- ❑ The built-in PostGRES database will be automatically installed. While installing, keep the default port “54321” and default username “postgres”. Enter a password. Later you need this password to login to the database admin client.
- ❑ Enter URL <http://<License Server IP>/netbrain> to open the License Server web page. The default username/password is **admin/admin**.
- ❑ If the Workspace Server is installed on another machine, you need to register the Workspace Server in the License Server web page. Under the **Workspace Server** tab, click the **Add** button and enter IP address/Port number of the Workspace Server.

Install Network Servers and Client Workstations

❑ Install Network Servers

- ❖ Download the network server setup file from the License Server web page.
- ❖ After installation, you need to add the Network Server (IP address) to the system using the License Server interface.
- ❖ You can monitor the services of network servers from the License Server web page.

❑ Install Client Workstations

- ❖ Download the workstation setup file from the License Server web page.

About NetBrain License

❑ NetBrain license defines

- ❖ **The maximum device count.** Only the devices NetBrain has full support are included: router, switch, firewall, WAP, WLC, and Call Manager. IP Phones and end systems are excluded.
- ❖ **The number of concurrent Workstations users.**

❑ Activate the license

- ❖ Click the **Start > NetBrain > NetBrain License Tool** option. Click the **Activate** button.
- ❖ Fill in the License ID and Password.
- ❖ *Note: If you buy more Workstation seats or device nodes, you do not need to reactivate the license. Just open the License Server web page and click the Refresh button.*

❑ View the license

- ❖ Click the **System > License** tag on the License Server web page.
- ❖ Click the **Refresh** button if the license is not updated automatically. You may need to set the Internet Proxy.

Create Shared Workspaces

- A default shared workspace (Workspace 1) will be automatically created. Enterprise customers can just use this shared workspace.
- Multiple shared workspaces can reside in one Workspace Server. Shared workspaces are created from the Network Server. Launch the **Create Shared Workspace** tool from the program **NetBrain > NetBrain Enterprise Server > Add Shared Workspace**.
- Assign nodes and seats to shared workspaces from the License Server web page.
- The sum of nodes of all shared workspaces cannot exceed the node number of the license.

Administrate NetBrain System

Install and upgrade the system

- ❖ NetBrain releases a major version every half year or one year.
- ❖ NetBrain will notify you after each major release and send you upgrade instructions.

Manage the license and users

- ❖ Create user accounts from the License Server web page.
- ❖ You can force a user to logout.

Setup and maintain the workspace

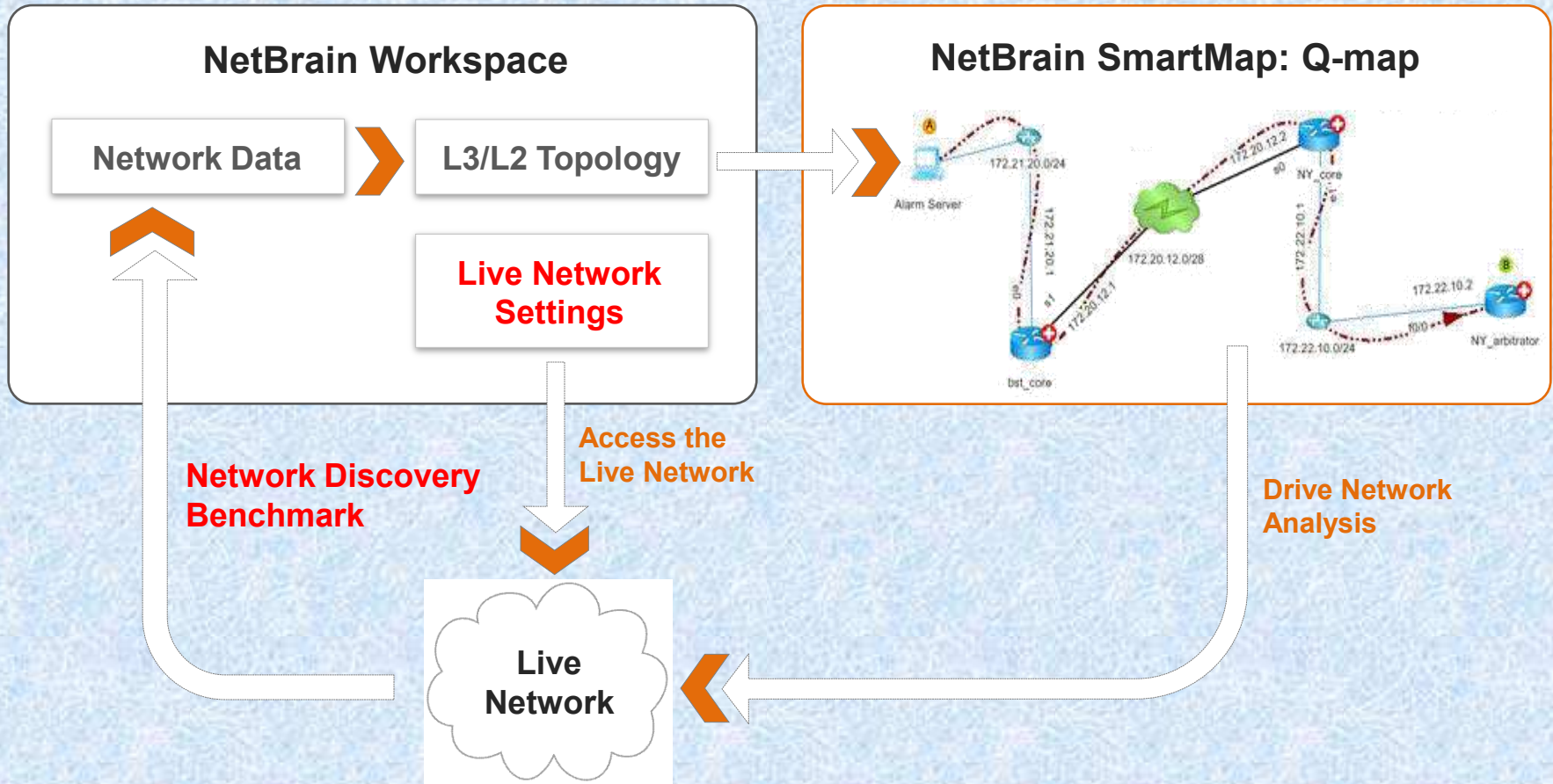
- ❖ Enter live access credentials and discover the network (Topic 2).
- ❖ Schedule the benchmark and maintain the historical data (Topic 2).
- ❖ Maintain the workspace (Topic 3).

Troubleshoot NetBrain issues (Topic 4)

Topics

1. NetBrain Overview
2. **Setup the Workspace**
3. Manage the Workspace
4. Troubleshooting

NetBrain Workflow



Workspace Data

| Data Type | Usage | Data Source |
|--|--|---|
| Live Network Settings: Username/password, SNMP RO | Live discovery to find devices | User input |
| Current Baseline Data: Configuration, Route table L2 data and inventory | Build L3/L2 topology, calculate the current path, inventory report | Automatically updated in the discovery and benchmark processes |
| Network Model | Create L3/L2 Q-maps | Automatically created by the system from the current baseline data |
| Benchmarked Data: Configuration, Route table, L2 data and show command results | Historical comparison | Retrieved from the live network through the benchmark process. The data is version controlled. |

Live Network Settings

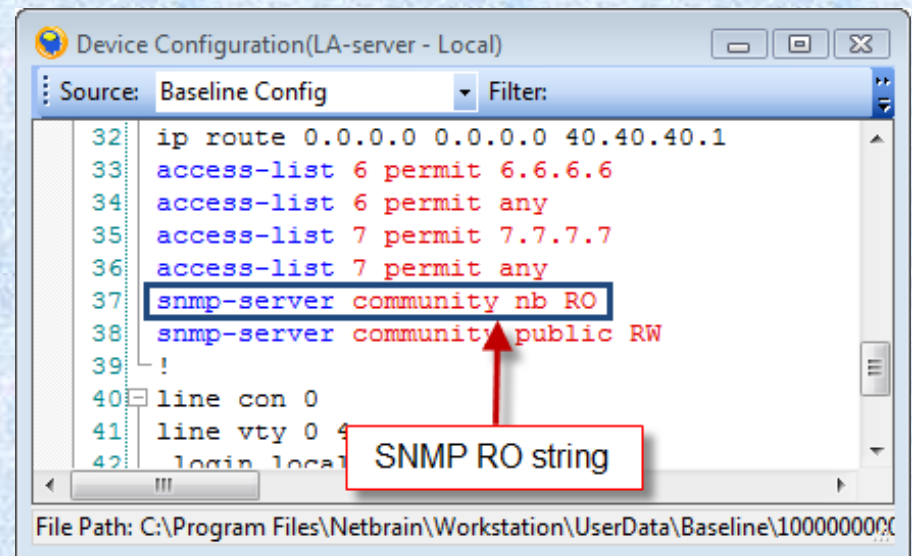
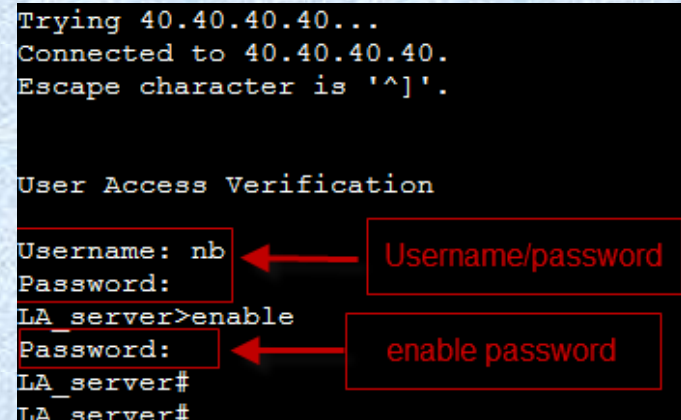
Live network settings include username/password pairs, enable passwords, SNMP RO strings, Jumpboxes and Network Servers.

- ❖ Username/password pairs and enable passwords are used to Telnet/SSH to devices and retrieve live data.
- ❖ SNMP RO strings are used to access devices via SNMP. Monitoring devices requires SNMP RO strings.
- ❖ If NetBrain Workstation can access devices locally, then you do not need Jumpboxes. Otherwise, you will need a Jumpbox for Telnet/SSH access.

```
Trying 40.40.40.40...
Connected to 40.40.40.40.
Escape character is '^]'.

User Access Verification

Username: nb
Password:
LA_server>enable
Password:
LA_server#
LA_server#
```



```
Device Configuration(LA-server - Local)
Source: Baseline Config Filter:
32 ip route 0.0.0.0 0.0.0.0 40.40.40.1
33 access-list 6 permit 6.6.6.6
34 access-list 6 permit any
35 access-list 7 permit 7.7.7.7
36 access-list 7 permit any
37 snmp-server community nb RO
38 snmp-server community public RW
39 !
40 line con 0
41 line vty 0 4
42 login local
```

File Path: C:\Program Files\Netbrain\Workstation\UserData\Baseline\1000000000

Live Network Discovery

- ❑ Two ways to discover a live network:
 - ❖ From a seed device: NetBrain's efficient neighbor walking algorithm discovers neighbor devices from routing and CDP tables.
 - ❖ Scan IP ranges: Use it to discover certain devices.
- ❑ The system retrieves device info by SNMP and collects data such as configurations and routing table via CLI show commands.

Select the discovery method

Discover via Seed Routers Scan IP Range

192.168.1.10

Discovered devices

| IP Address | Discover from | Ping | SNMP | Hostname | Device Type | Vendor | Model | Telnet/SSH |
|---------------|------------------|-----------|------|-------------------|----------------|--------|----------------|------------|
| 192.168.1.251 | Discover via ... | Succeeded | nb | labIosSwitch2 | Cisco IOS S... | Cisco | catalyst2912XL | Succeeded |
| 192.168.1.252 | Discover via ... | Succeeded | nb | labIosSwitch3 | Cisco IOS S... | Cisco | catalyst2912XL | Succeeded |
| 3.3.3.3 | Discover via ... | Succeeded | nb | NY_POP | Cisco Router | Cisco | 2514 | Succeeded |
| 172.21.20.1 | Discover via ... | Succeeded | nb1 | bst_core | Cisco Router | Cisco | 2514 | Succeeded |
| 172.21.20.3 | Discover via ... | Succeeded | nb | bst_POP | Cisco Router | Cisco | 2514 | Succeeded |
| 173.1.5.1 | Discover via ... | Succeeded | nb | Big_client | Cisco Router | Cisco | 2514 | Succeeded |
| 174.1.1.2 | Discover via ... | Succeeded | nb | bst_Internet | Cisco Router | Cisco | 2514 | Succeeded |
| 2.2.2.2 | Discover via ... | Succeeded | nb | bst_POP | Cisco Router | Cisco | 2514 | Succeeded |
| 174.1.1.1 | Discover via ... | Succeeded | nb1 | bst_core | Cisco Router | Cisco | 2514 | Succeeded |
| 173.1.5.2 | Discover via ... | Succeeded | nb | Big_client-server | Cisco Router | Cisco | 1604 | Succeeded |
| 172.22.10.1 | Discover via ... | Succeeded | nb | NY_core | Cisco Router | Cisco | 2514 | Succeeded |
| 172.22.10.2 | Discover via ... | Succeeded | nb | NY_arbitrator | Cisco Router | Cisco | 3620 | Succeeded |

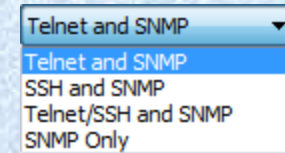
Return from Device:[bst_netman#]
Sending "show run" command
Sending "exit" command
Telnet to [192.168.1.10] Disconnected
SNMP get device interface and IP successfully via Network Server (173.48.226.121) , time:2.22 second(s)
Add bst_netman successfully,(16ms)
Retrieve cdp neighbor via SNMP successfully.
Discovery of 192.168.1.10 complete

Discover Live Network Elapsed time: 00:00:56

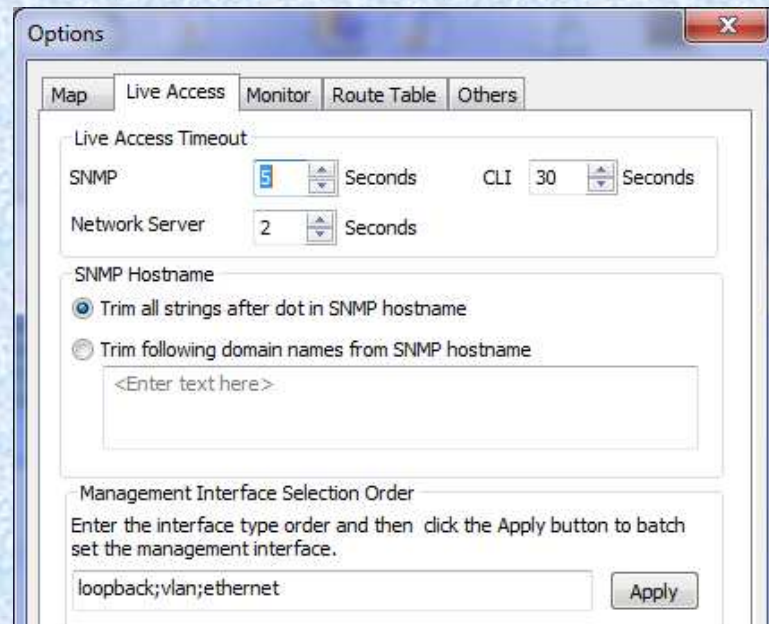
Discovering [172.16.3.3]; discovered 42 IP Address(es), found 31 device(s) within 00:00:56.
Successfully discovered: Cisco IOS Switch:8, Cisco Router:21, Foundry Switch:2

Live Discovery Options: Live Access

- ❑ Select the method to retrieve data from a device:
 - ❖ Telnet and SNMP
 - ❖ SSH and SNMP
 - ❖ Telnet/SSH and SNMP
 - ❖ SNMP only (select this option will get incomplete configurations. Some functions such as configuration analysis and L2 topology may not work well).
- ❑ If a device is not accessible via SNMP, the system will not treat the device as a Cisco router and issue IOS show commands to retrieve the data



- ❑ Change the SNMP/CLI timeout
- ❑ You can select to keep the domain name
- ❑ Enter the order of the type of interfaces to be used as the management interface



Live Discovery Options: Discovery Process

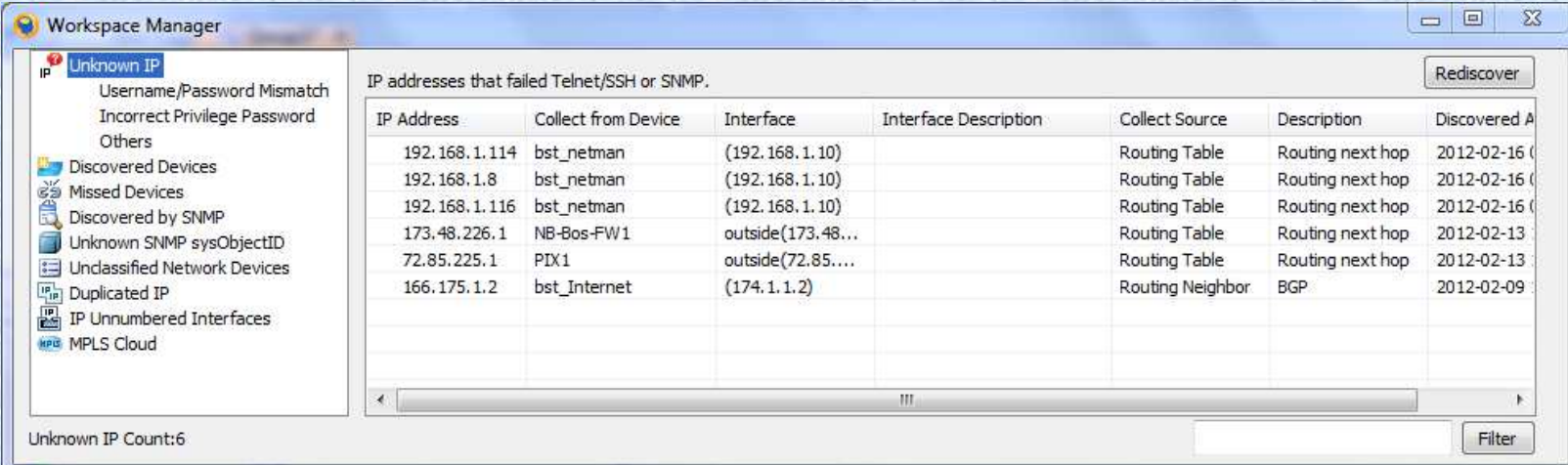
- ❑ The discovery technology: check all in most cases.
- ❑ Discovery depth: define how deep you want to discover (starting from the seed devices, how many level of neighbors to try).
- ❑ Scan subnets after discovery via seed devices is done.
 - ❖ Scan destination subnets: the destination subnets in the route table.
 - ❖ Scan all connected subnets: the subnet directly connected to the device interfaces.
 - ❖ This can be really time consuming if the subnet includes a large number of IP addresses. You can define the minimum mask to narrow it down. For example, 30.
- ❑ Define Do-NOT-Scan IP or device types such as IP phones.



Tune Live Discovery Results

The discovery report is displayed in the **Workspace Manager**. Pay attention to the following:

- ❑ **Unknown IP**
 - ❖ Username Password mismatch: add more username/password pairs in the live network settings and then rediscover these IP.
 - ❖ Incorrect Privileged Password: add more privileged passwords and rediscover them.
 - ❖ Others: make sure that these IP can be accessed by NetBrain Network Server. Quite possibly the Network Server IP is not in the ACL permission of these devices.
- ❑ **Missed Devices**: remove them if they are not in your network any more.
- ❑ **Discovered by SNMP**: these devices are not accessible by CLI. Edit the live network settings and rediscover them.
- ❑ **Unknown SNMP sysObjectID**: add the system object ID into the vendor/model and rediscover these devices.



Workspace Manager

Unknown IP

- Username/Password Mismatch
- Incorrect Privilege Password
- Others
- Discovered Devices
- Missed Devices
- Discovered by SNMP
- Unknown SNMP sysObjectID
- Unclassified Network Devices
- Duplicated IP
- IP Unnumbered Interfaces
- MPLS Cloud

IP addresses that failed Telnet/SSH or SNMP. Rediscover

| IP Address | Collect from Device | Interface | Interface Description | Collect Source | Description | Discovered A |
|---------------|---------------------|-------------------|-----------------------|------------------|------------------|--------------|
| 192.168.1.114 | bst_netman | (192.168.1.10) | | Routing Table | Routing next hop | 2012-02-16 (|
| 192.168.1.8 | bst_netman | (192.168.1.10) | | Routing Table | Routing next hop | 2012-02-16 (|
| 192.168.1.116 | bst_netman | (192.168.1.10) | | Routing Table | Routing next hop | 2012-02-16 (|
| 173.48.226.1 | NB-Bos-FW 1 | outside(173.48... | | Routing Table | Routing next hop | 2012-02-13 |
| 72.85.225.1 | PIX1 | outside(72.85.... | | Routing Table | Routing next hop | 2012-02-13 |
| 166.175.1.2 | bst_Internet | (174.1.1.2) | | Routing Neighbor | BGP | 2012-02-09 |

Unknown IP Count:6 Filter

Device Setting

- ❑ Device setting is used to access the live network (e.g. retrieve live data and telnet/SSH).
 - ❖ Shared device settings: the settings used by Network Servers to access the live network. They are automatically set by the discovery process.
 - ❖ Telnet/SSH CLI settings: the settings used only by the Workstation to telnet/SSH to devices.

Shared Device Setting:BST-CORE

Management IP: 172.16.5.1 Live Status: Up Ping

Telnet/SSH Credential for benchmark and execute show commands

Username: netbrain Password:

Telnet/SSH Parameters

Access Mode: Telnet SSH Port: 23

Enable Password: ..

Non-privilege Prompt: BST-CORE>

Privilege Prompt: BST-CORE#

Login Prompt: username:

Password Prompt: password:

Enable Password Prompt: password:

SNMP Community Strings

Version: V1 V2c V3 Port: 161

RO: nb2

RW: netbrain2

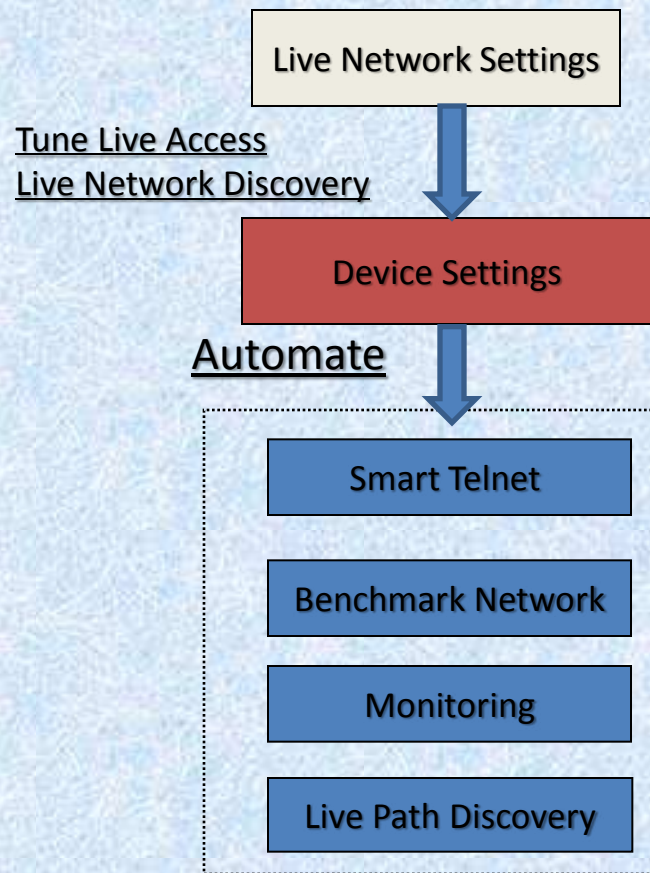
Access Method

Network Server: NS1-ext

Server Jumpbox: None

Apply above settings to device group --All Devices--

Tune Advanced OK Cancel Apply



System Benchmark

❑ The difference between benchmark and live discovery

- ❖ Live discovery process discovers new devices in your system. The devices are automatically added into the workspace.
- ❖ Benchmark process collects live data for all network devices in the workspace. Baseline data is updated as well as the L2/L3 topology.

❑ What data is benchmarked?

- ❖ Configuration files
- ❖ Route tables
- ❖ L2 data, ARP/CDP/MAC tables
- ❖ STP table
- ❖ Inventory data of device/module/interface
- ❖ Customized show commands

❑ Why benchmark?

- ❖ Benchmarked data is used to build or update L3 and L2 topology so that you can keep your workspace update-to-date.
- ❖ Benchmarked data is a snapshot of the network at a specific point in time and you can find out what changes were made during troubleshooting or design.
- ❖ Auto update maps.

Schedule System Benchmark

- ❑ The benchmark task can be scheduled. The frequency depends on how often the network changes. For example, once a week.
- ❑ The L2 topology and dynamic device group/link group can be auto updated.
- ❑ The benchmark includes three steps: retrieve live data, build L3 topology and build L2 topology. The status can be viewed from the Workspace Server web page.

Device Device Group System Benchmark Show Command Benchmark DataFolder

Last Benchmark: Finished at 2011-09-05 19:46 (28 minutes) View Log
Destination DataFolder : 2011-09-05

Next Benchmark: The benchmark task was not defined. Disable Benchmark Start Benchmark Now

Schedule task: Start day: Start time:
Once 2011-09-05 19:17:44

Live Data

- Configuration File
- ARP Table
- Route Table
- MAC Table
- CDP Table
- STP Table
- Inventory Information of Device/Module/Interface (Very time consuming)

Options

- Auto build L3 network topology after live data retrieved
- Auto build L2 network topology after live data retrieved
- Recalculate Dynamic Device Groups
- Recalculate Link Groups

Submit

Now see this in action...

Topics

1. NetBrain Overview
2. Setup the Workspace
- 3. Manage the Workspace**
4. Troubleshooting

Manage Workspace

- ❑ Manage network devices
 - ❖ Tune live access
 - ❖ Add new devices
 - ❖ Remove devices
 - ❖ Organize devices: device groups, link groups and sites

- ❑ Manage L3 topology
 - ❖ Duplicate IP addresses
 - ❖ MPLS clouds
 - ❖ Unnumbered IP interfaces

- ❑ Manage L2 topology
 - ❖ Build L2 topology for a LAN segment

- ❑ Manage the data
 - ❖ Remove old benchmarked and L2 data

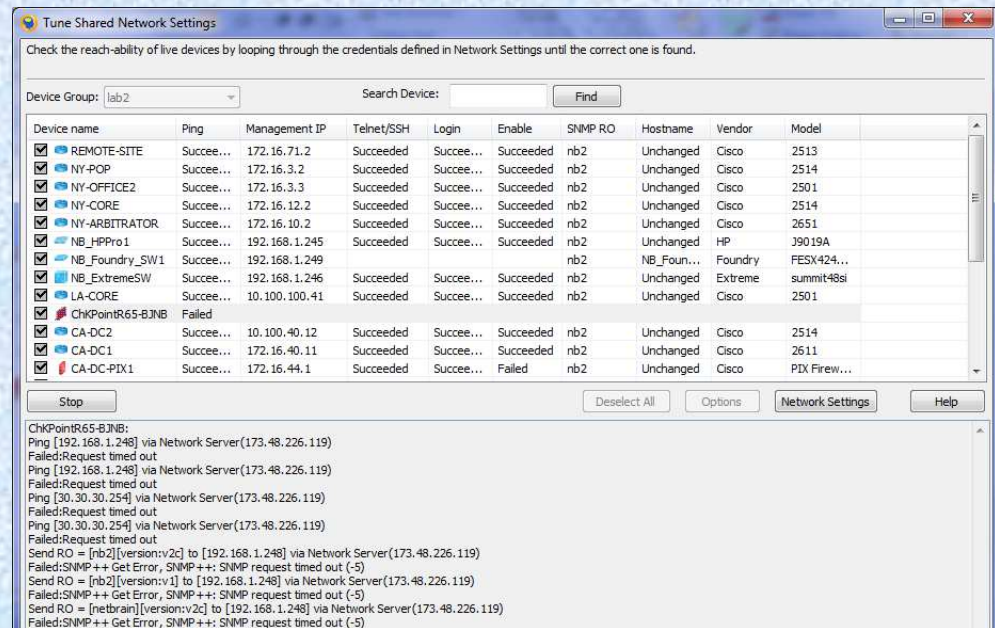
Tune Live Access

Use Case:

- ❖ The credentials to access the device (username/password/enable password/SNMP) changes.
- ❖ The hostname or other inventory data changes.
- ❖ The device is added to the workspace by importing configurations and device setting is not created yet.

Objective:

- ❖ Tune live access to check/reset the device setting, hostname or other inventory data.
- ❖ Remove devices with hostname changes.
- ❖ Check the log of devices which the system failed to ping or telnet. Remove the devices from the workspace if they no longer exist in your network.



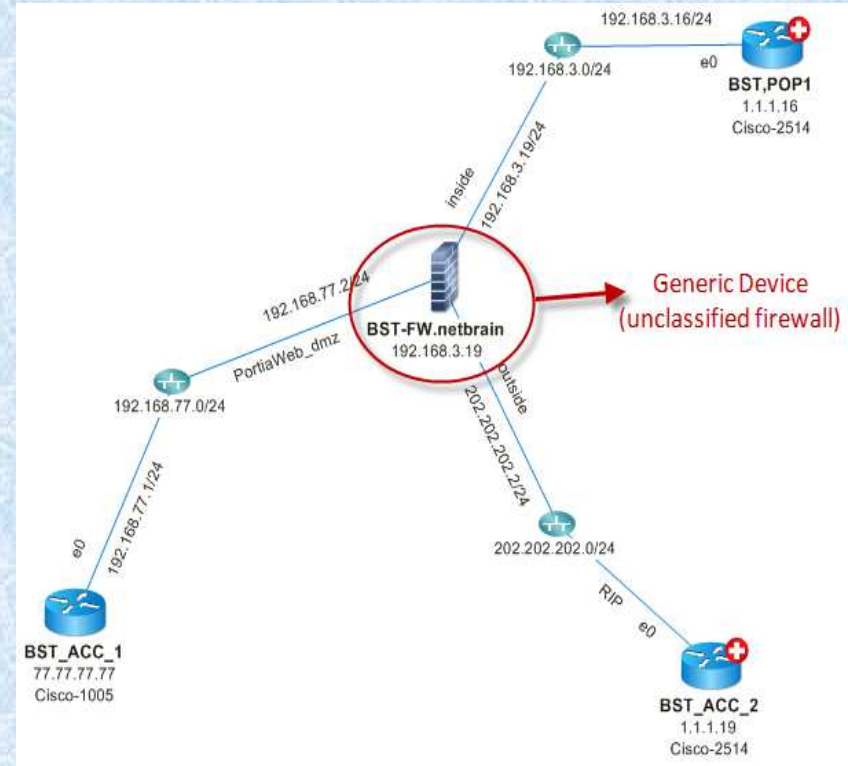
Add New Devices into Workspace

Use Case:

- ❖ The network devices in your network are not in the workspace.

Objective:

- ❖ Rediscover your network using all devices in the workspace as the seed devices. (For a constant changing network, you can schedule rediscovery of your network).
- ❖ Discover certain devices via scan IP ranges.
- ❖ Import configurations to the workspace. (Note: Drag-and-drop configuration files into NetBrain does not add devices to the shared workspace permanently. You need to start Import Configurations from the menu.)
- ❖ Add a generic device for devices not accessible by NetBrain or those cannot be discovered for any reason.



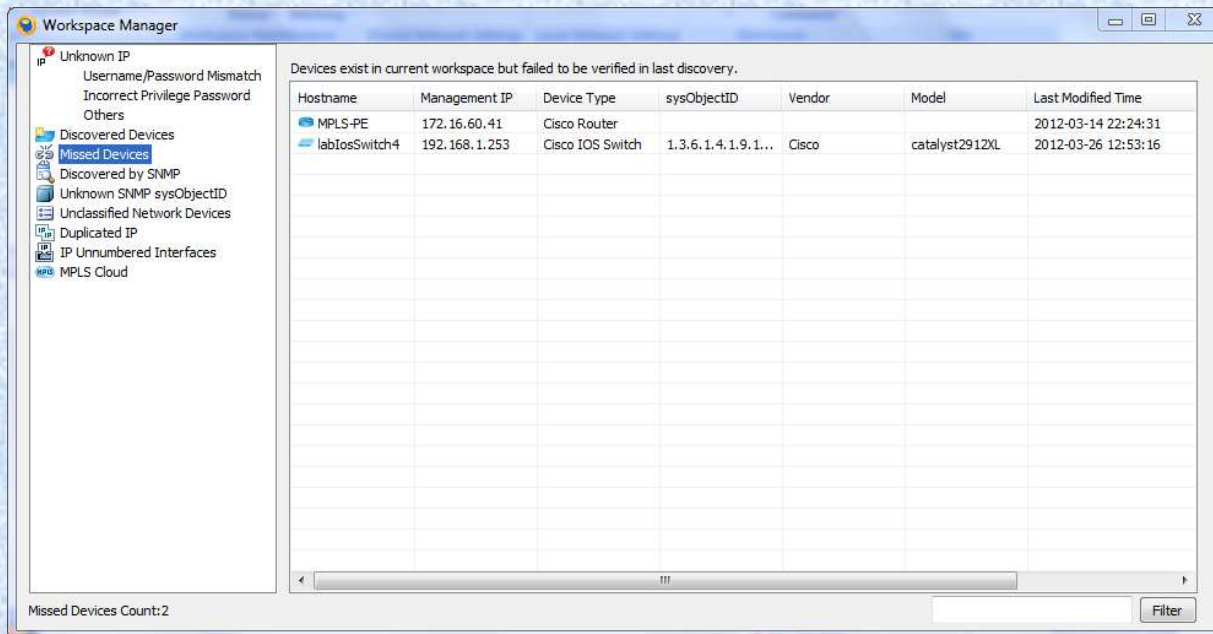
Remove Devices from Workspace

Use Case:

- ❖ The network devices in the workspace are no longer in your network.

Objective:

- ❖ Remove the devices no longer in your network from the workspace (from the Workspace Pane or Workspace Server web page).
- ❖ Run the live discovery using all devices in the workspace as seed devices (you can set the discover depth as 1 so that only the current devices and their neighbors are discovered). Devices not in your network are reported in the Missing Devices section of Workspace Manager. You can remove these devices from the workspace.



The screenshot shows the Workspace Manager application window. The left sidebar contains a tree view with categories like 'Unknown IP', 'Discovered Devices', and 'Missed Devices'. The 'Missed Devices' category is selected. The main area displays a table titled 'Devices exist in current workspace but failed to be verified in last discovery.' with columns for Hostname, Management IP, Device Type, sysObjectID, Vendor, Model, and Last Modified Time. Two devices are listed: 'MPLS-PE' and 'labIosSwitch4'.

| Hostname | Management IP | Device Type | sysObjectID | Vendor | Model | Last Modified Time |
|---------------|---------------|------------------|--------------------|--------|----------------|---------------------|
| MPLS-PE | 172.16.60.41 | Cisco Router | | | | 2012-03-14 22:24:31 |
| labIosSwitch4 | 192.168.1.253 | Cisco IOS Switch | 1.3.6.1.4.1.9.1... | Cisco | catalyst2912XL | 2012-03-26 12:53:16 |

Define Dynamic Device Group/Link Group

Use Case:

- ❖ Organize a large number of devices into manageable sub groups.
- ❖ Share and auto update maps for device groups and link groups.

Objective:

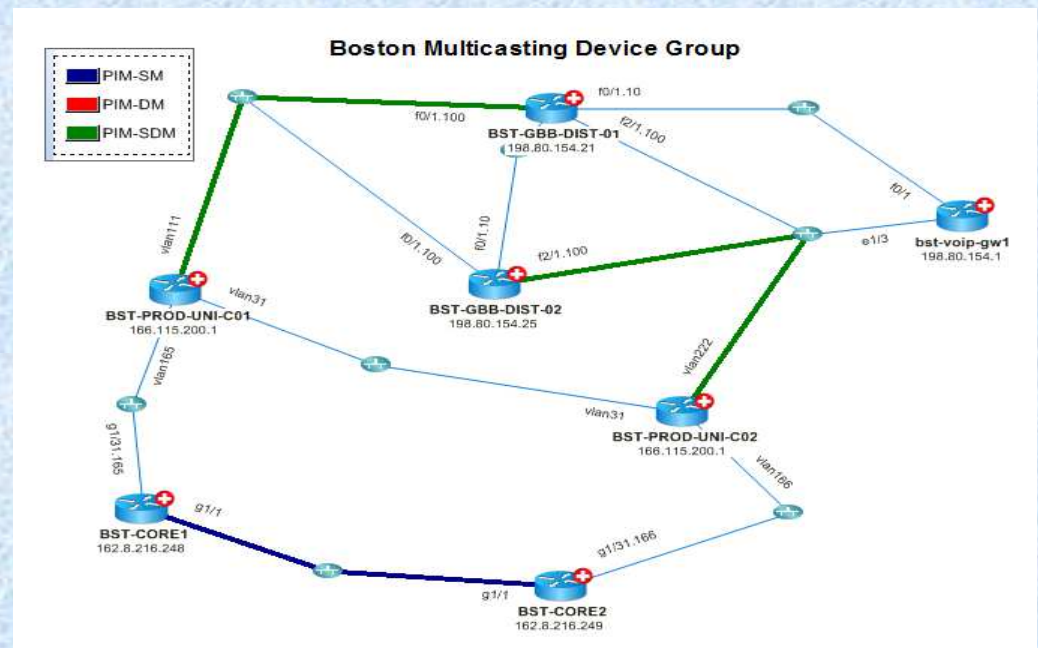
- ❖ Define the shared device groups (link groups) using device hostname, IP address, configurations, vendor, etc.
- ❖ Define the shared link group using interface IP, VRF, routing protocol, multicasting mode, etc.

Note:

➤ While the link groups are mainly used to group the interfaces, it's also fine to include all interfaces in a link group.

➤ The NetBrain system automatically defines and creates some commonly used dynamic device/link groups.

➤ An admin can use variables to define a link group (e.g., #VRF_name). End-users can enter the variable value while mapping the link group.



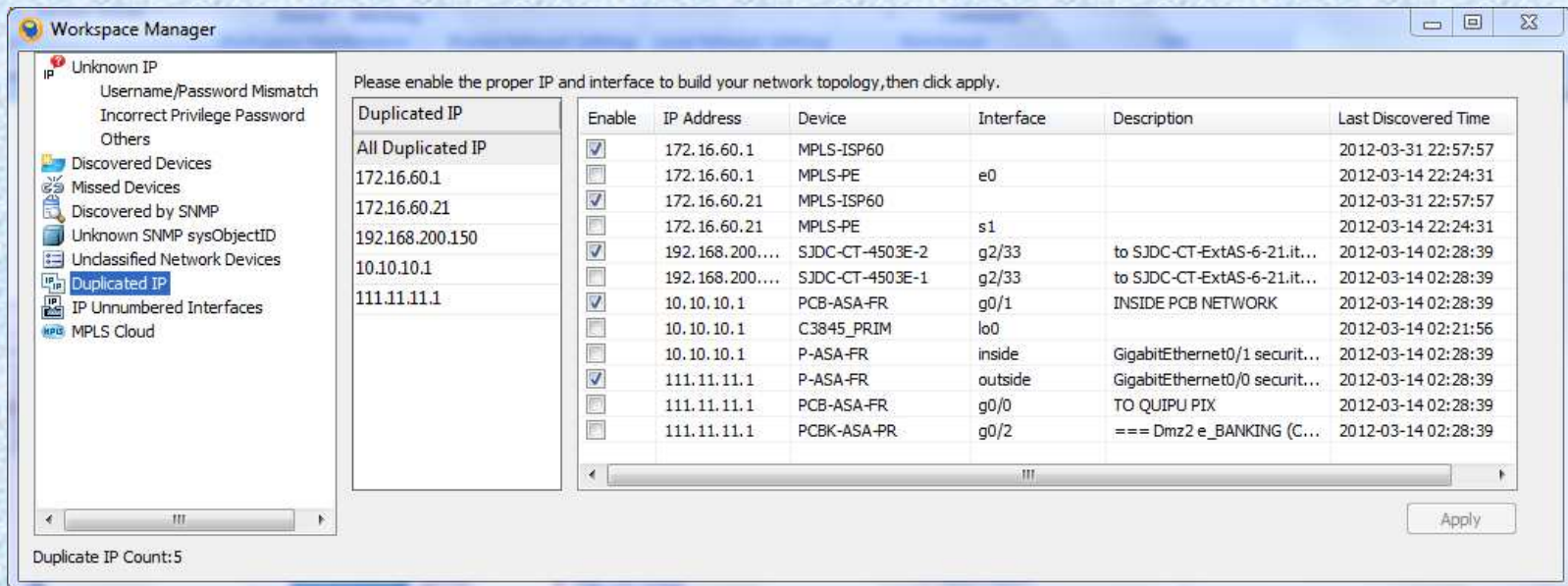
Manage Duplicate IP Addresses

Use Case:

- ❖ There are duplicate IP addresses in your network.
- ❖ Two devices with different hostnames but pointing to the same device in the workspace. This can be caused by hostname change.

Objective:

- ❖ Check the duplicate IP addresses and select a device for which you want to enable the interface.
- ❖ Remove the outdated devices with duplicate IP addresses from the workspace .



The screenshot shows the 'Workspace Manager' application window. On the left, a navigation pane lists various categories, with 'Duplicate IP' selected. The main area displays a message: 'Please enable the proper IP and interface to build your network topology, then click apply.' Below this message is a table of 'Duplicated IP' addresses. The table has columns for 'Enable', 'IP Address', 'Device', 'Interface', 'Description', and 'Last Discovered Time'. The 'Duplicate IP Count' is shown as 5 at the bottom left.

| Enable | IP Address | Device | Interface | Description | Last Discovered Time |
|-------------------------------------|-----------------|-----------------|-----------|-------------------------------|----------------------|
| <input checked="" type="checkbox"/> | 172.16.60.1 | MPLS-ISP60 | | | 2012-03-31 22:57:57 |
| <input type="checkbox"/> | 172.16.60.1 | MPLS-PE | e0 | | 2012-03-14 22:24:31 |
| <input checked="" type="checkbox"/> | 172.16.60.21 | MPLS-ISP60 | | | 2012-03-31 22:57:57 |
| <input type="checkbox"/> | 172.16.60.21 | MPLS-PE | s1 | | 2012-03-14 22:24:31 |
| <input checked="" type="checkbox"/> | 192.168.200.150 | SJDC-CT-4503E-2 | g2/33 | to SJDC-CT-ExtAS-6-21.it... | 2012-03-14 02:28:39 |
| <input type="checkbox"/> | 192.168.200.150 | SJDC-CT-4503E-1 | g2/33 | to SJDC-CT-ExtAS-6-21.it... | 2012-03-14 02:28:39 |
| <input checked="" type="checkbox"/> | 10.10.10.1 | PCB-ASA-FR | g0/1 | INSIDE PCB NETWORK | 2012-03-14 02:28:39 |
| <input type="checkbox"/> | 10.10.10.1 | C3845_PRIM | lo0 | | 2012-03-14 02:21:56 |
| <input type="checkbox"/> | 10.10.10.1 | P-ASA-FR | inside | GigabitEthernet0/1 securit... | 2012-03-14 02:28:39 |
| <input checked="" type="checkbox"/> | 111.11.11.1 | P-ASA-FR | outside | GigabitEthernet0/0 securit... | 2012-03-14 02:28:39 |
| <input type="checkbox"/> | 111.11.11.1 | PCB-ASA-FR | g0/0 | TO QUIPU PIX | 2012-03-14 02:28:39 |
| <input type="checkbox"/> | 111.11.11.1 | PCBK-ASA-PR | g0/2 | === Dmz2 e_BANKING (C... | 2012-03-14 02:28:39 |

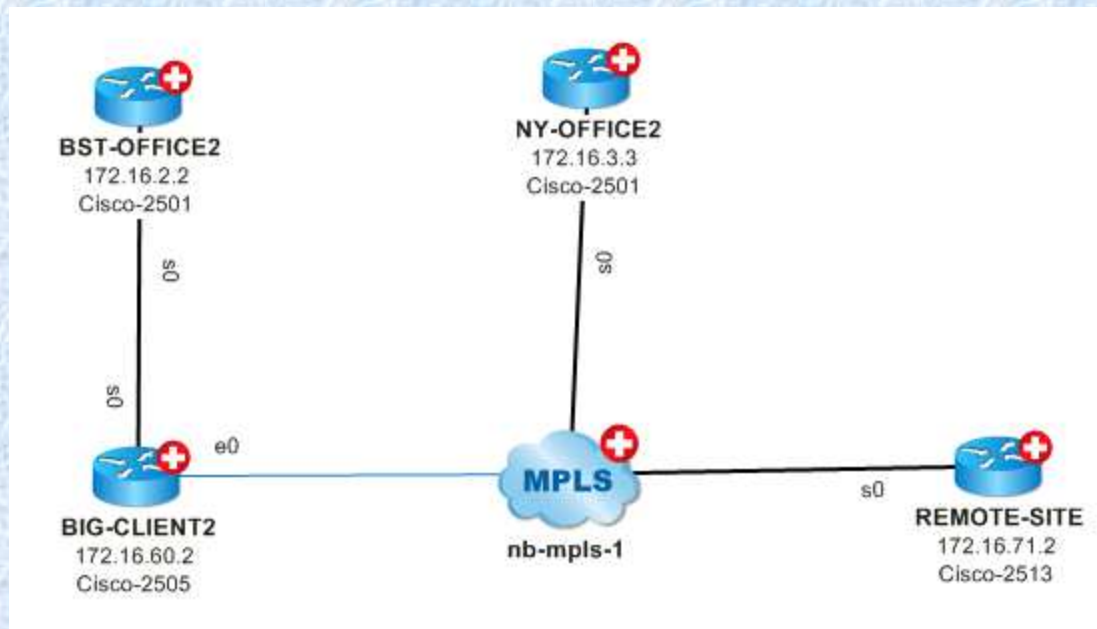
Define MPLS Cloud

Use Case:

- ❖ There are multiple CE sites connected via ISP managed **MPLS cloud**.
- ❖ If you have PE router configurations, NetBrain can auto map CE & PE without MPLS cloud.

Objective:

- ❖ Manually define MPLS cloud and automatically add CE devices based on remote BGP AS#.
- ❖ Create the virtual routing table of MPLS cloud from CE routing tables.



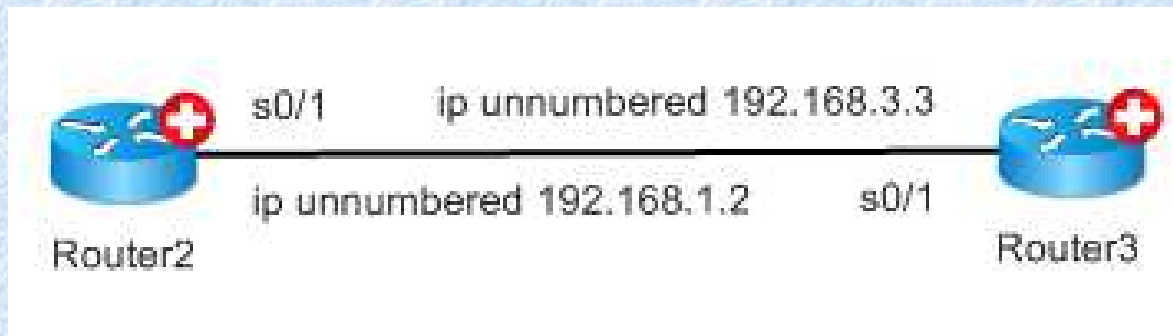
Connect IP Unnumbered Interfaces

Use Case:

- ❖ The IP unnumbered-configured interfaces are disconnected from each other.

Objective:

- ❖ Connect the IP unnumbered interfaces via CDP or manually.



Build L2 Topology for a LAN Segment

Use Case:

- ❖ The L2 topology automatically built after the benchmark process is outdated and you do not want to wait for the next benchmark process.

Objective:

- ❖ Discover L2 topology for certain LAN segments.

Discover L2 Topology of LAN

Input LAN Segment(s)
192.168.1.0/24

Import LANs

e.g. 192.168.1.0/24 or 10.1.1.0/24;172.16.0.0/24

Start Discovery Save Options... Close

| Switch Name | Port Name | Switch Name | Port Name |
|---------------|-----------|---------------|-----------|
| lablosSwitch3 | f0/10 | lablosSwitch1 | f0/24 |
| lablosSwitch3 | f0/1 | lablosSwitch1 | f0/9 |
| lablosSwitch2 | f0/6 | lablosSwitch4 | f0/1 |
| lablosSwitch2 | f0/12 | lablosSwitch3 | f0/12 |
| lablosSwitch2 | f0/1 | lablosSwitch1 | f0/10 |
| 3500XL | f0/10 | 2900XL-2 | f0/2 |
| 2900XL-1 | f0/5 | lablosSwitch3 | f0/3 |
| 2900XL-1 | f0/22 | 3500XL | f0/12 |

Completed to discover L2 Topology of all LANs.

Progress Log: Completed to discover 192.168.1.0/24

--Discovery 192.168.1.0/24 Completed!--

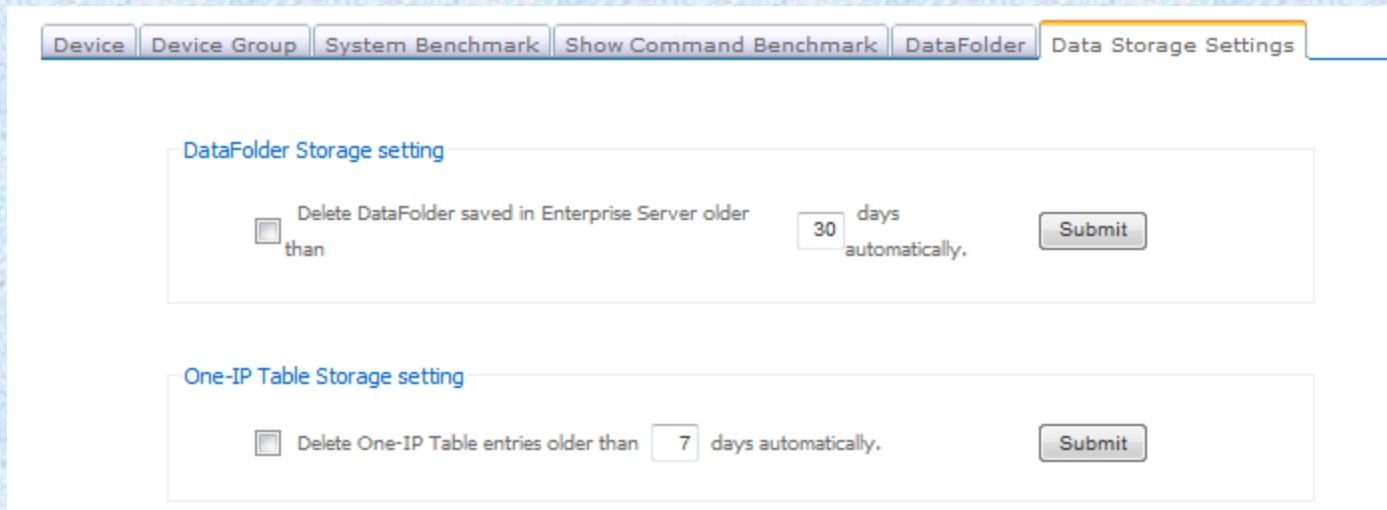
Manage Historical Data

Use Case:

- ❖ The benchmarked data is not useful any more.
- ❖ DHCP is used in your network and you want to remove old entries of One-IP table.

Objective:

- ❖ From the Workspace Server web page check on the setting to let the system delete the benchmarked data or One-IP table entries older than a certain number of days.



The screenshot shows a web interface with a navigation bar at the top containing tabs: Device, Device Group, System Benchmark, Show Command Benchmark, DataFolder, and Data Storage Settings. The 'Data Storage Settings' tab is selected and highlighted. Below the navigation bar, there are two main sections for configuration:

- DataFolder Storage setting:** This section contains a checkbox, the text "Delete DataFolder saved in Enterprise Server older than", a text input field with the value "30", the text "days automatically.", and a "Submit" button.
- One-IP Table Storage setting:** This section contains a checkbox, the text "Delete One-IP Table entries older than", a text input field with the value "7", the text "days automatically.", and a "Submit" button.

Now see this in action...

Topics

1. NetBrain Overview
2. Setup the Workspace
3. Manage the Workspace
4. **Troubleshooting**

General System Issues

| Issue | Action |
|--|--|
| Cannot login to the License or Workspace Server Web Page | <ul style="list-style-type: none">❖ Restart WWW services (which will restart NetBrain License Server).❖ Submit a ticket to NetBrain.❖ Zip all files under <NetBrain Install Dir>\Enterprise Server\WebServer\log and send it to support@netbraintech.com . |
| The Network Server is down or cannot connect to the Network Server | <ul style="list-style-type: none">❖ Confirm that the Workspace Server can telnet to port 7813 of Network Server and Workstation can telnet to 9099 of Network Server.❖ Restart the NetBrain Benchmark Service and nbproxyservice services in Network Server.❖ Submit a ticket and zip all files under <Network Server Install Dir>\Network Server\Log to support@netbraintech.com. |
| The Workstation data is not synchronized with the server | <ul style="list-style-type: none">❖ Refresh the workspace in Workstation❖ Sometimes some old data from the earlier version may not get synchronized. Remove all files under <NetBrain Workstation Installation Dir>/userdata/baseline/<unique name> . |
| The Workstation crashed | <ul style="list-style-type: none">❖ Create the tech support log from Workstation and send it to support@netbraintech.com❖ Submit a ticket to NetBrain |

Failed to Discover Some Devices

Issue:

- ❖ Some devices were not discovered by the live discovery process.

Action:

- ❖ Click an entry in the discovery window to view the detailed discovery log. The log provides some hints as to why the system did not discover the device.
- ❖ The discovery results are displayed in the Workspace Manager. You can take actions there, e.g., add a login credential and rediscover devices; add the vendor/model for a system Object ID; etc.
- ❖ If your network uses non-standard show commands to retrieve data, you can customize them in the Device Spec table.
- ❖ Discover IPs and IP subnets via scan IP range.

The screenshot shows the 'Live Network Discovery' window. At the top, it says 'Select the discovery method' and 'Discover via Seed Routers'. Below that, there's a text input field with '192.168.1.10' and buttons for 'Select Device' and 'Import IP List'. There are also buttons for 'Stop', 'Telnet and SNMP', 'Network Settings', and 'Options'. The main part of the window is a table of discovered devices. A red arrow points to the entry for IP 173.1.5.2, with the text 'Click an entry to view its log' overlaid. Below the table, there is a log area showing the output of 'show ip redirects' and 'show cdp neighbor detail' commands.

| IP Address | Discover from | Ping | SNMP | Hostname | Device Type | Vendor | Model | Telnet/SSH | Configuration | sysObjectID |
|---------------|------------------|-----------|------|-------------------|----------------|---------|-----------------|------------|---------------|----------------------|
| 192.168.1.5 | Discover via ... | Succeeded | | | | | | Succeeded | Succeeded | 1.3.6.1.4.1.1991... |
| 192.168.1.249 | Discover via ... | Succeeded | nb2 | NE_FoundFEV424_01 | Foundry Swi... | Foundry | FESX424Router | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.4... |
| 192.168.1.139 | Discover via ... | Succeeded | nb | labIosSwitch1 | Cisco IOS S... | Cisco | catalyst2950... | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.2... |
| 192.168.1.253 | Discover via ... | Succeeded | nb | labIosSwitch4 | Cisco IOS S... | Cisco | catalyst2912XL | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.2... |
| 172.21.20.1 | Discover via ... | Succeeded | nb1 | bat_core | Cisco Router | Cisco | 2514 | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.3... |
| 192.168.1.251 | Discover via ... | Succeeded | nb | labIosSwitch2 | Cisco IOS S... | Cisco | catalyst2912XL | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.2... |
| 173.1.5.2 | Discover via ... | Succeeded | nb | Big_client | Cisco Router | Cisco | 1604 | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.1... |
| 173.1.5.1 | Discover via ... | Succeeded | nb | Big_client | Cisco Router | Cisco | 2514 | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.3... |
| 174.1.1.2 | Discover via ... | Succeeded | nb | bat_Internet | Cisco Router | Cisco | 2514 | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.3... |
| 3.3.3.3 | Discover via ... | Succeeded | nb | NY_POP | Cisco Router | Cisco | 2514 | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.3... |
| 192.168.1.252 | Discover via ... | Succeeded | nb | labIosSwitch3 | Cisco IOS S... | Cisco | catalyst2912XL | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.2... |
| 172.22.10.2 | Discover via ... | Succeeded | nb | NY_arbitrator | Cisco Router | Cisco | 3620 | Succeeded | Succeeded | 1.3.6.1.4.1.9.1.1... |

Sending "show ip redirects" command
Received:labIosSwitch4->show ip redirects
Default gateway is 192.168.1.10

Sending "show cdp neighbor detail" command
Received:labIosSwitch4->show cdp neighbor detail
.....
Device ID: bat_Internet

Discover Live Network
Elapsed time: 00:01:47
Discovering [40, 40, 40]; discovered 47 IP Address(es), found 39 device(s) within 00:01:47.
Successfully discovered: Cisco IOS Switch:8, Cisco PIX Firewall:1, Cisco Router:28, Foundry Switch:1, Juniper Router:1

Failed to Retrieve Data

Issue:

- ❖ The system failed to retrieve data from the live network.
- ❖ The system failed to retrieve data in the monitoring process.

Action:

- ❖ Tune the shared device setting for the device. If it succeeds, retrieve the data again. (If credentials have changed for a large number of devices, run the tune live access for the whole workspace).
- ❖ Confirm that you are able to telnet/SSH to the device from the Network Server. All data retrieval operations are done through the Network Server.
- ❖ If your network uses non-standard show commands to retrieve data, customize them in the Device Spec table.
- ❖ In case that the system failed to retrieve the CPU/Memory data in the monitoring process, you can try modifying the SNMP OID to retrieve these data in the Device Spec table.

L3 Connections are not Accurate

Issue:

- ❖ Devices in the same subnet are not connected on the L3 map.

Action:

- ❖ Check the current baseline configuration files of the involved devices. NetBrain builds L3 topology from the baseline configurations (which is usually the latest benchmarked data). Confirm that the data is accurate and up-to-date. NetBrain may fail to retrieve data in the benchmark process if the device settings are not properly set. Check the device settings.
- ❖ Check the duplicate IP manager. If there are two devices with duplicate IP addresses, NetBrain picks one interface and discards other interfaces. You can select the interface for a duplicate IP address.
- ❖ The devices connected to MPLS cloud are not connected: you need to manually add a MPLS cloud to connect all CE devices together.
- ❖ If there are unnumbered interfaces, NetBrain will not connect them since we build L3 topology based on IP. You can manually connect unnumbered interfaces.
- ❖ If none of the above applies, submit a support ticket at <http://www.netbraintech.com/netbrain-support/submit-a-ticket.php>. Create a map to include all devices and run local benchmark for all devices on the map (click Benchmark > Retrieve Live Data from the map floating menu) and then send the map file to support@netbraintech.com.

L2 Connections are not Accurate

Issue:

- ❖ The L2 connections are missing or inaccurate.

Action:

- ❖ Check the current baseline L2 data (CDP/MAC/ARP table) of the involved devices. NetBrain builds L2 topology from the baseline data (which is usually the latest benchmarked data). Confirm that the L2 data is accurate and up-to-date. NetBrain may fail to retrieve L2 data in the benchmark process if the device settings are not properly set. Check the device settings.
- ❖ If the switch between the involved devices is not in the workspace, the L2 topology may not be accurate. Discover the switch and build L2 topology again.
- ❖ Try LAN discovery for the LAN segment from the Workstation.
- ❖ If none of the above works, submit a support ticket at <http://www.netbraintech.com/netbrain-support/submit-a-ticket.php>. Create a map to include all devices and run local benchmark for all devices on the map (click Benchmark > Retrieve Live Data from the map floating menu) and then send the map file to support@netbraintech.com.