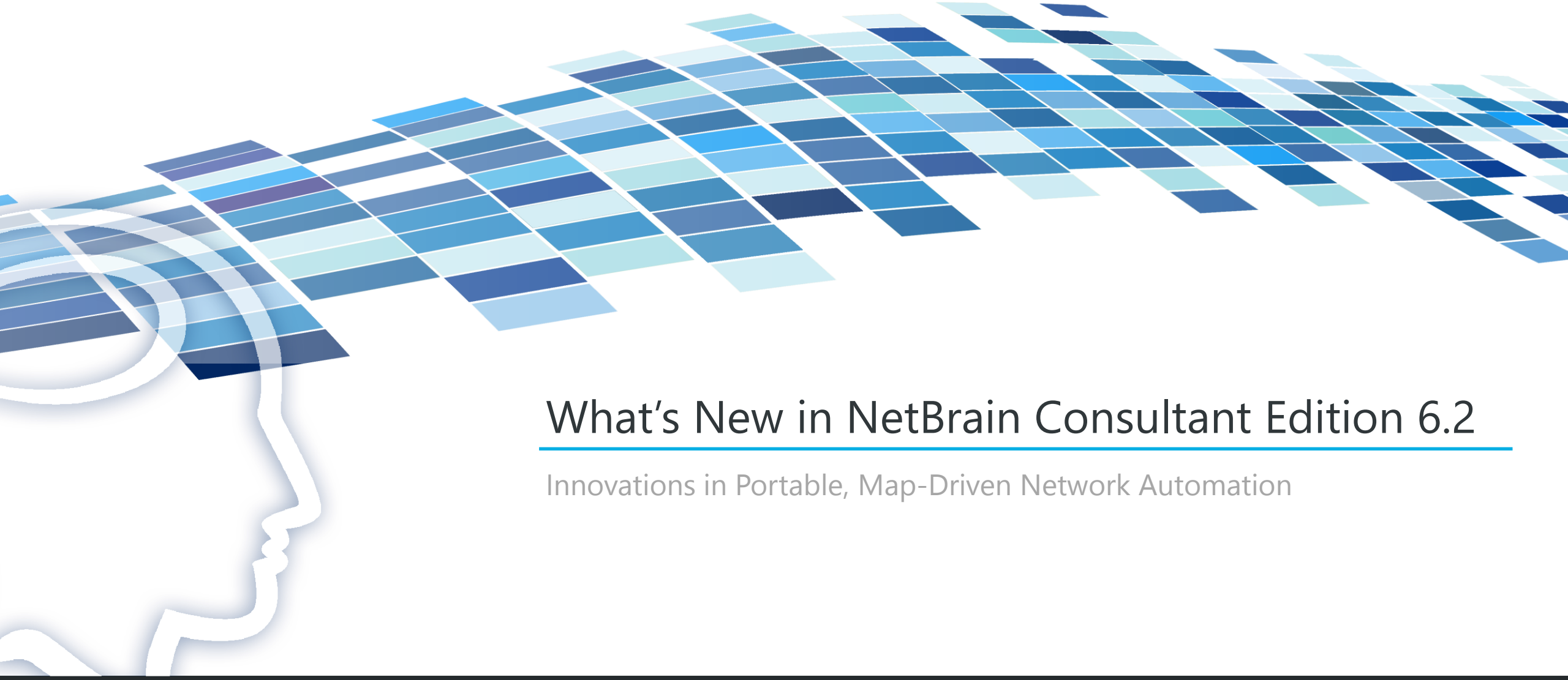

What's New in NetBrain Consultant Edition 6.2

Innovations in Portable, Map-Driven Network Automation

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www.netbraintech.com

NetBrain Network Automation: Enhance Existing Workflows

NetBrain Consultant Edition 6.2 provides fast and accurate **collection**, **visualization**, and **analysis** of critical network data, without the need to write any scripts. Consultant Edition is a **portable solution** that can be installed directly on your laptop and plugged into any network.

Network Documentation

80% of network diagrams are out-of-date. Automation eliminates the need to manually create and update network documentation.

Network Troubleshooting

Data collection and analysis for troubleshooting is a manual process. Automation can streamline network diagnoses.

Design Engineering & Change Management

Network changes are prone to human-error. Automation can ensure safer changes by validating against “golden” design templates.

Cyber-Security & Defense

Foolproof security requires proactive network hardening. Automation can enhance compliance with security checklists.

What's New in Consultant Edition 6.2

1 Executable Runbook

- New! Runbook Automation
- New! Instant Qapp
- New! Qapp Wizard
- New! Parser Library
- Qapp Full Editor

2 Dynamic Map

- Virtualization Support
- Layer 2, Cisco LWAP, & MPLS Cloud Support
- Better Interface Discovery

3 System Administration & Discovery

- License & Group Admin Management
- Node Sharing Mechanism
- Multi-Vendor Support
- New! CLI Command Import
- New! API Integration
- New! Auto Update

4 Other Enhancements

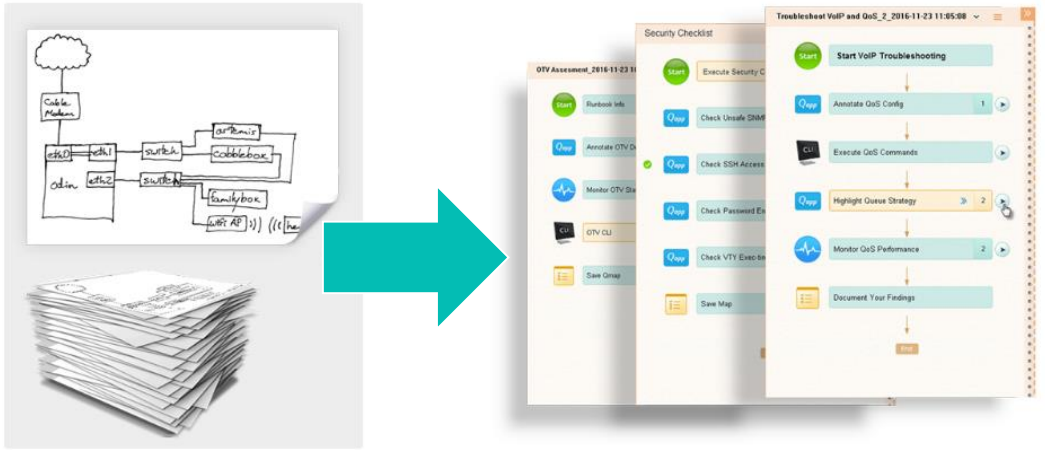
- User Interface Redesign
- Controller/Client Relationships
- Miscellaneous Improvements

Executable Runbook

Automate any network task

Introducing Executable Runbooks

Many organizations use playbooks to capture IT knowledge and guide best practices. NetBrain's Executable Runbook technology enables teams to digitize knowledge, making it executable and repeatable. Each runbook represents an automated workflow which can be customized without scripting.



Static Playbook

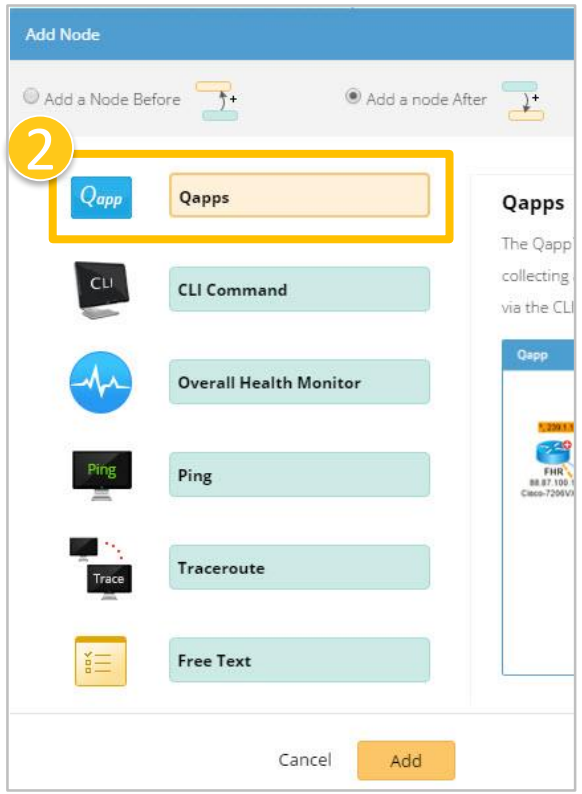
[Learn More about Executable Runbook]

	Static Playbooks	Executable Runbooks
Digitize Knowledge	No	Yes
Track Results	No	Yes
Executable	Yes	Yes
Community-backed	**No**	**Yes**

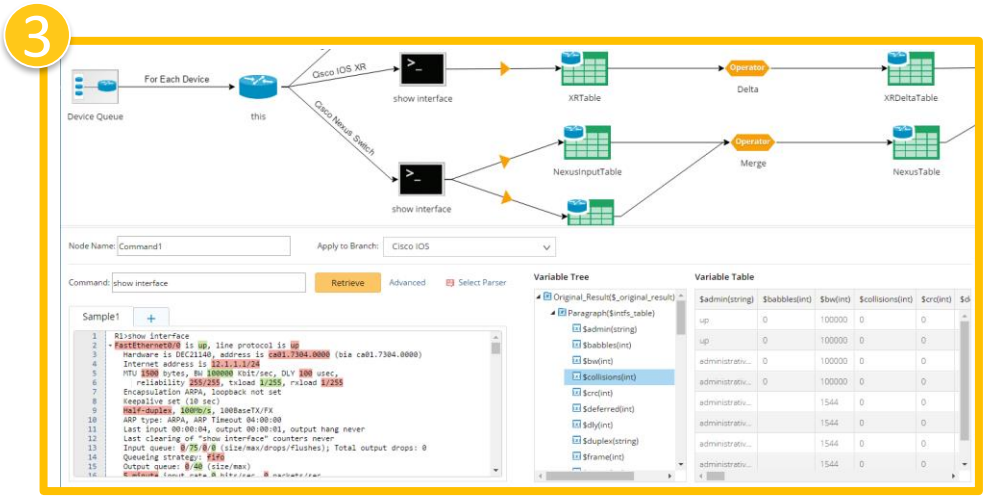
Customize Runbook Automation without Scripting

Consultants can digitize their expert knowledge by creating runbook workflows. Runbooks can be customized to automate any data analysis without scripts. Runbook nodes can be used for basic data collection (CLI command, ping, traceroute) or for advanced data analysis, via Qapp. Simple Qapps can be built with NetBrain's *Instant Qapp* and more advanced Qapps can be built using NetBrain's visual programming environment.

Add runbook node



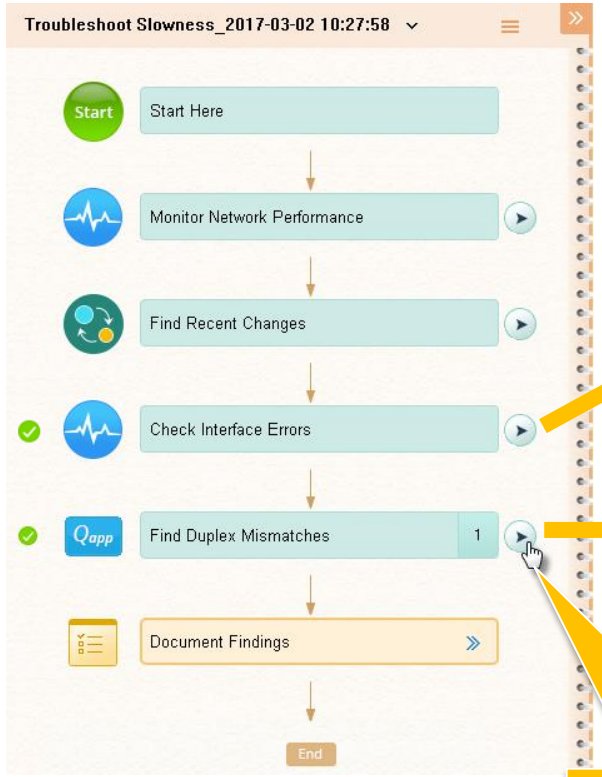
Choose node type

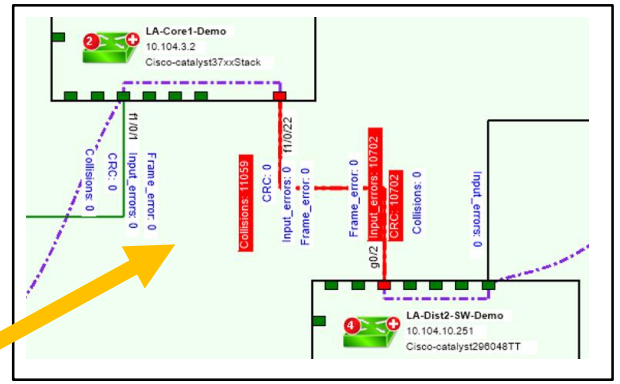


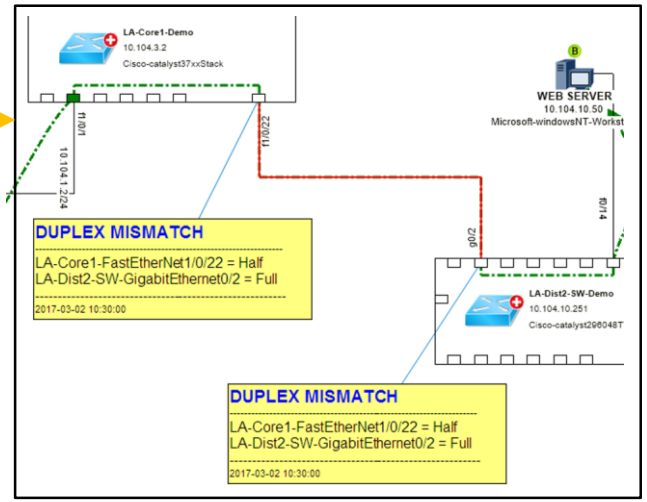
Build advanced automation with visual programming

Runbook Example: Troubleshoot Repetitive Network Issues

Example: A web application is slow. Execute a Runbook workflow to identify common network issues across hundreds of devices and interfaces.





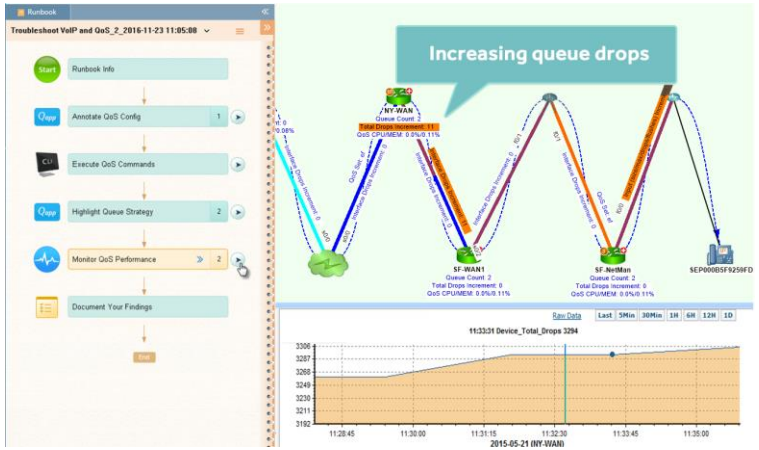


Each step in the Runbook is executable by clicking the play icon.

Use Cases for Executable Runbook

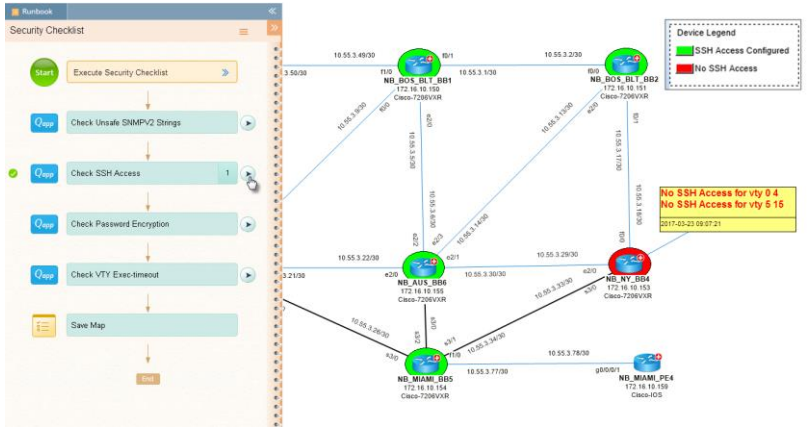
Troubleshoot Complex Technologies

Digitize repetitive tasks and best practices for troubleshooting technologies like QoS



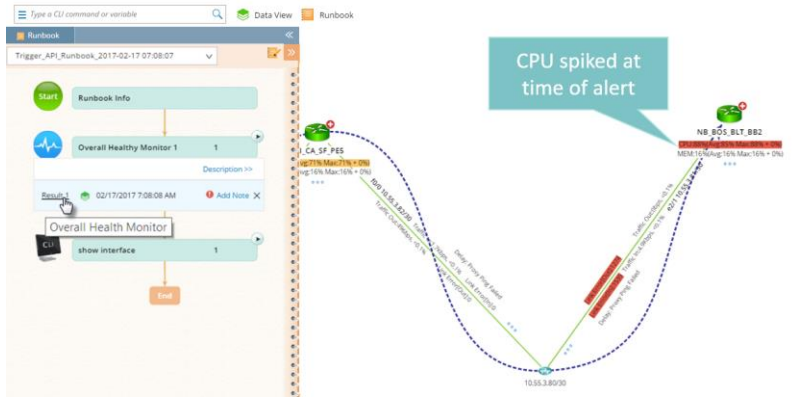
Automate Security Checklists

Validate compliance with frameworks such as NIST, PCI. HIPAA, and SOX



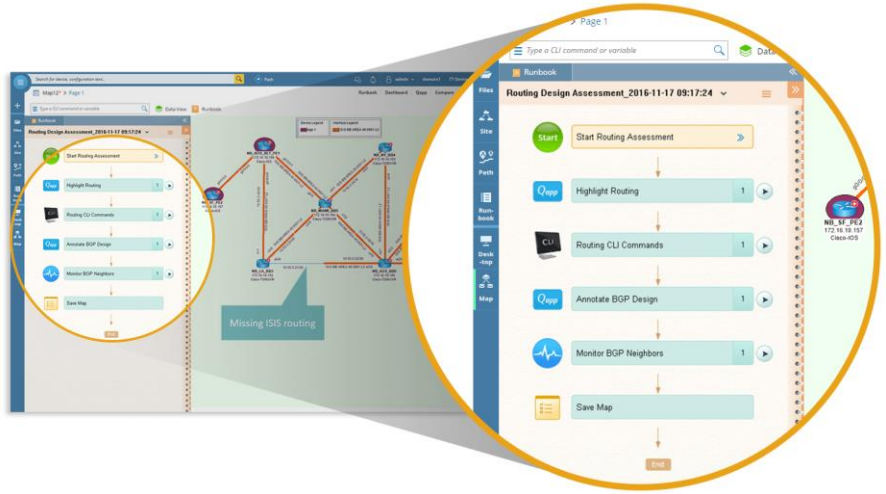
Monitor Performance Hotspots

Periodically check if performance indicators are exceeding thresholds



Mitigate Risk of Changes

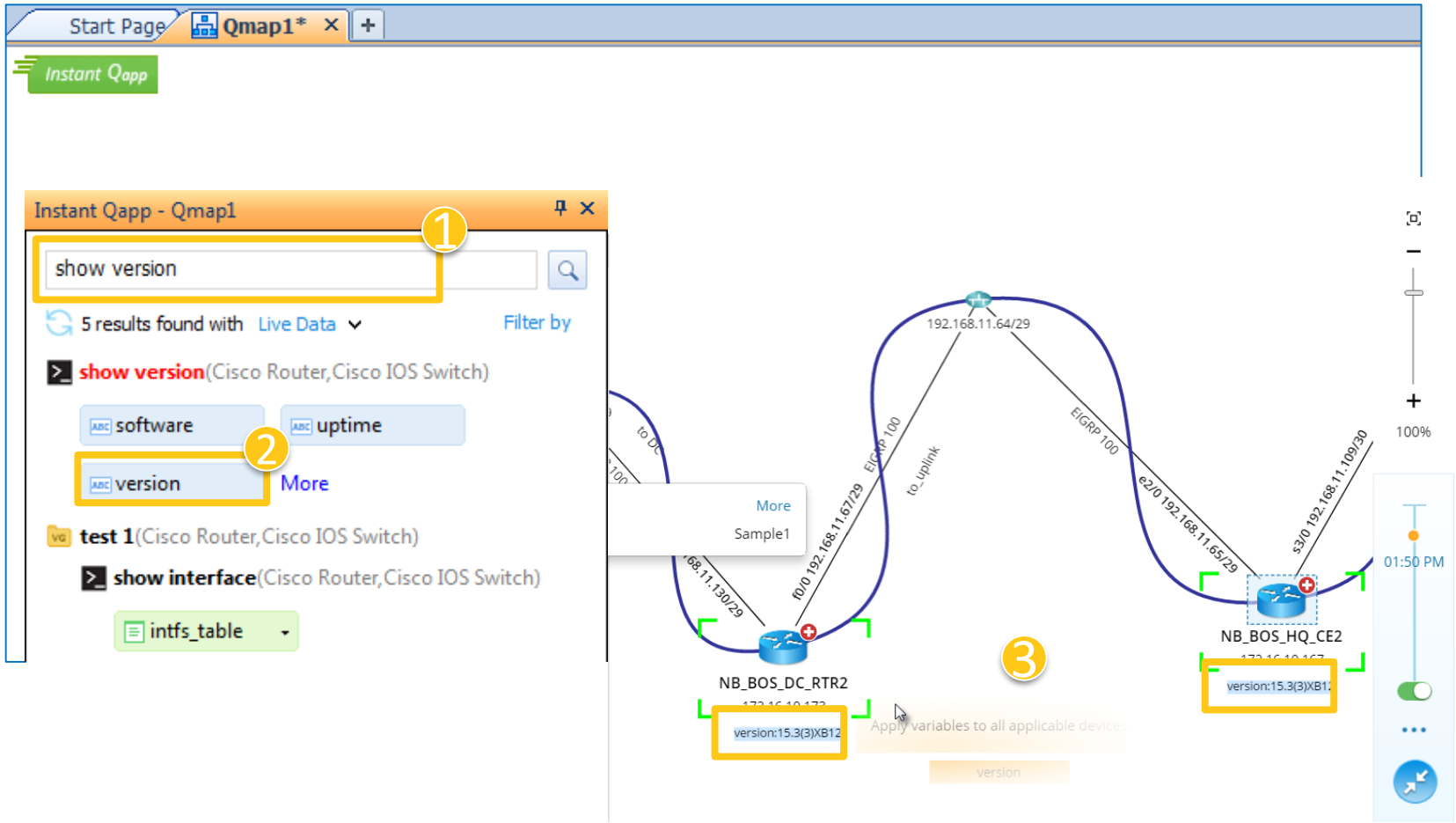
Validate changes against a “golden” template to minimize the risk of a misconfiguration



New “Instant Qapp” Capability

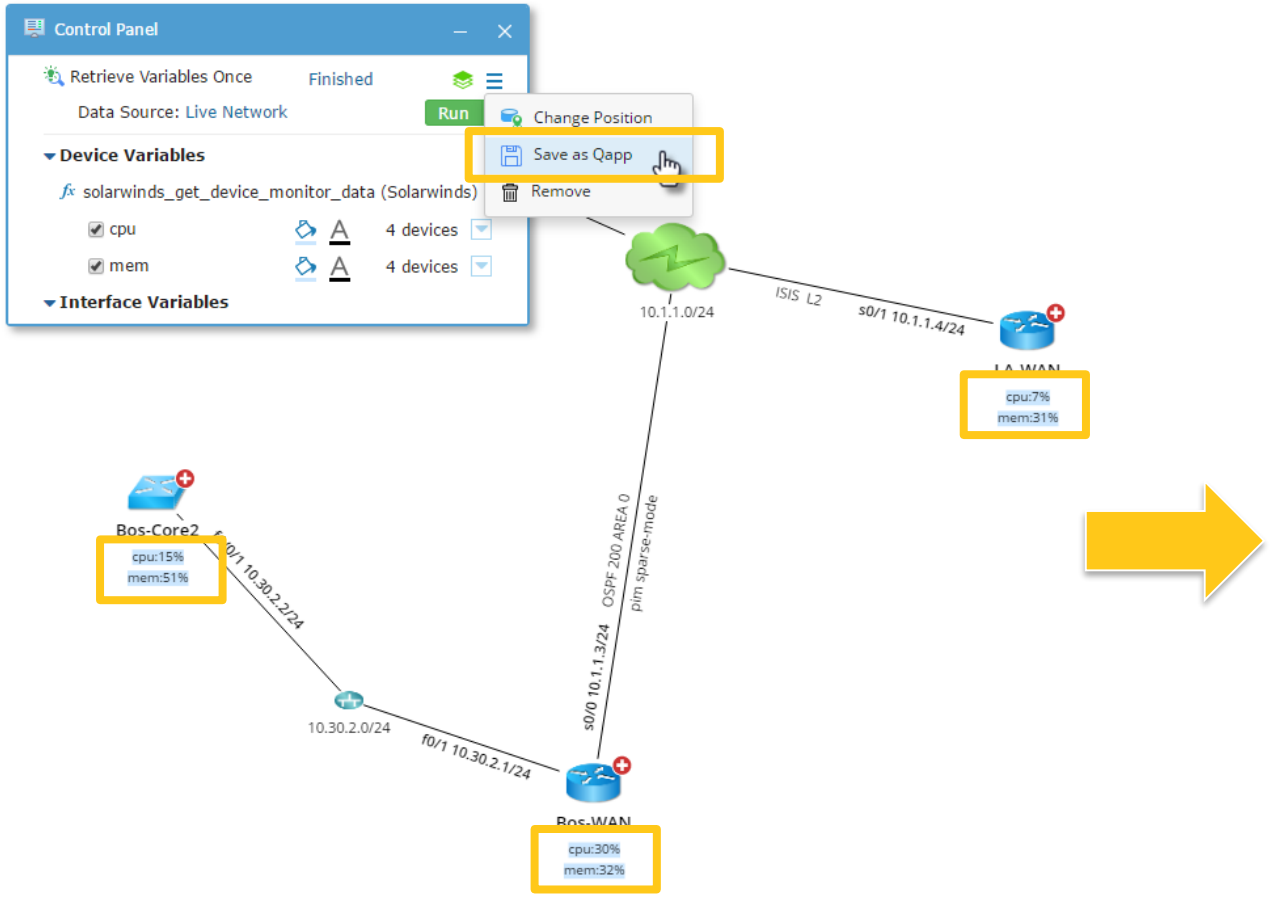
Qapps are “quick applications” that automate CLI commands without the need for extensive scripting. Instant Qapp is a way to automate CLI commands so consultants can spend less time manually collecting data. Users can drag/drop/overlay any CLI data onto the map:

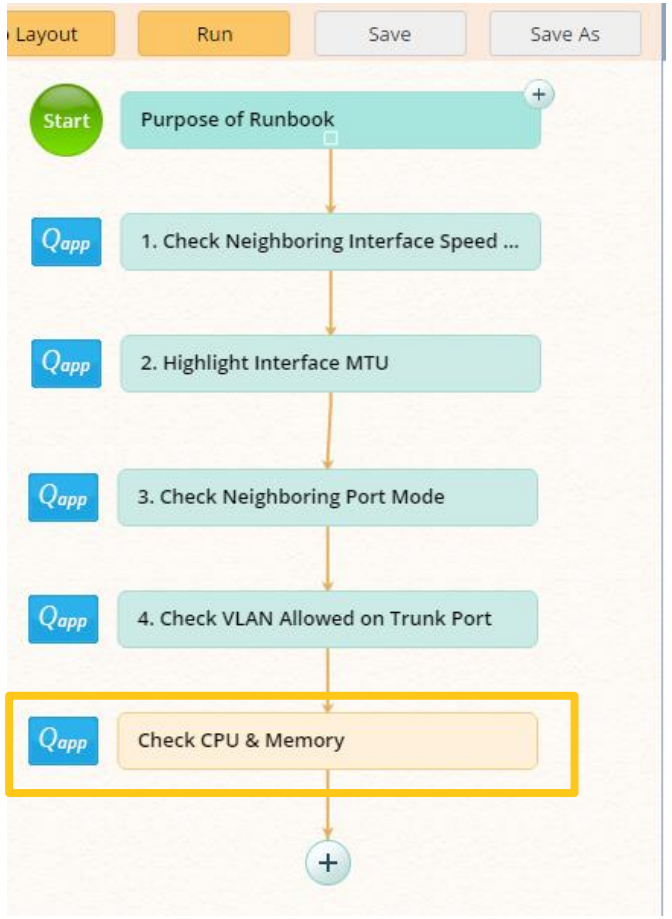
1. Search any CLI data
2. Drag/drop a data type to the map
3. NetBrain will perform the CLI automation:
   a. Log into each device on the map,
   b. Issue the relevant CLI command
   c. Extract the relevant CLI output
   d. Overlay the data on the map



Instant Qapp: Save as Qapp

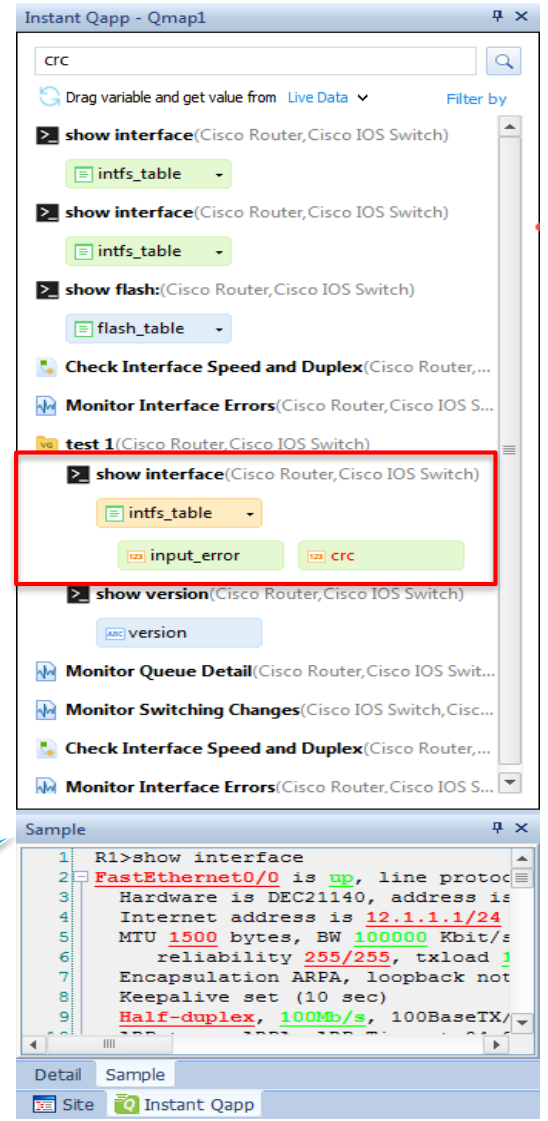
After selecting data to view on the map with Instant Qapp, users can choose to save the task as a Qapp. Once the Qapp has been saved, it can be added as a node to enhance any runbook workflow.





Instant Qapp: Search Results and Runtime Options

- Search results can be filtered based on device types on the map, and result type.
- Data can be pulled from the live network (default) or other data folder.
- Two modes of data collection: 1. Refresh to update data once 2. Monitor to retrieve data in a loop
- Visualization can be enabled or disabled on the map
- Results are visually categorized by type:
  - CLI Parser
  - Configuration Parser
  - Variable Group
  - Device Property
  - Interface Property
  - Monitor Qapp
  - Annotate Qapp



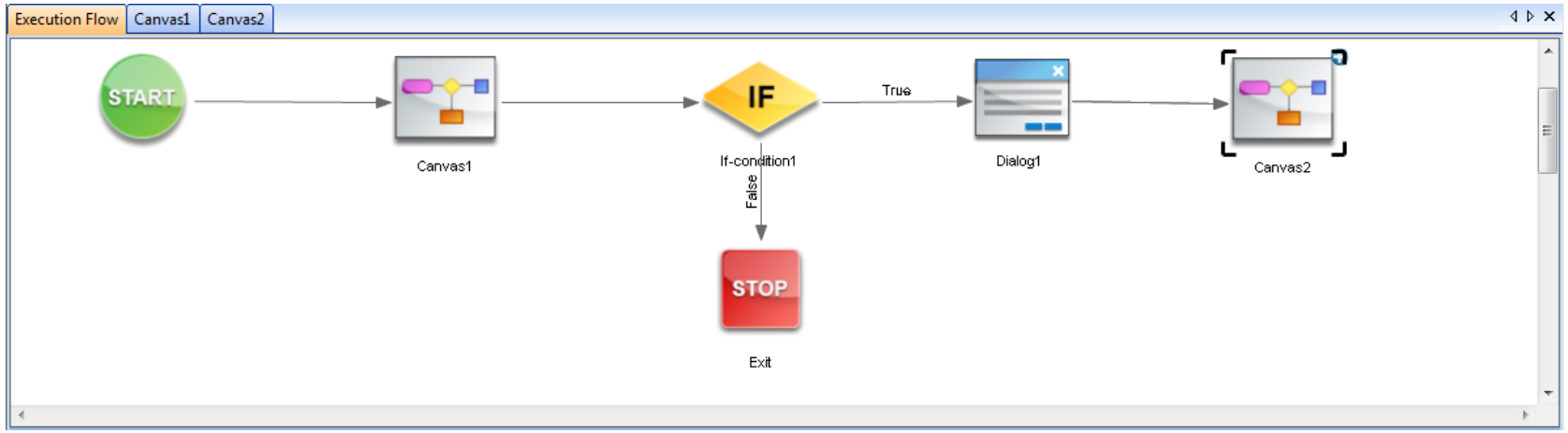
Sample data provided when a result is selected

Review of Qapp Visual Programming

The Qapp Editor allows for more granular control with regards to Qapp data collection and display options.

The Execution Flow shown below defines the execution sequence of nodes within a Qapp as well as the relationships or conditions among the nodes. The overall execution flow consists of the following components:

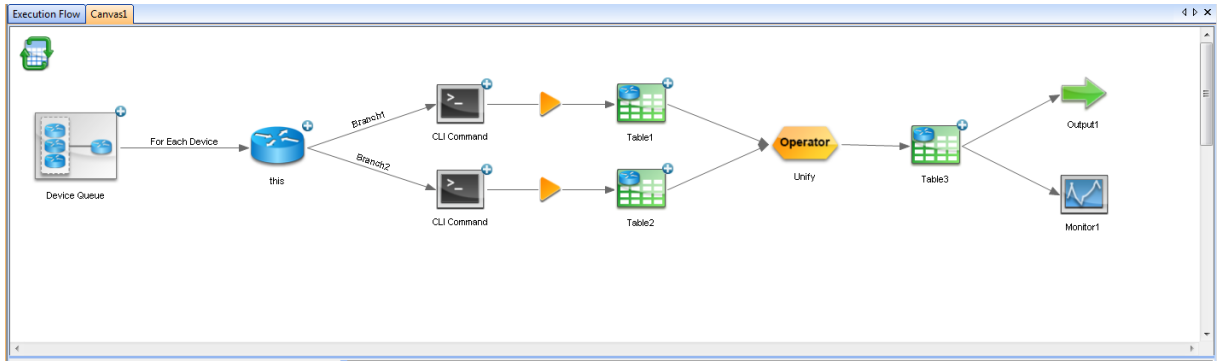
- **Canvas**: A Canvas is a modular piece of logic that serves as one for the elements of the overall Execution Flow. Each Canvas is built for a particular network task. It is where you indicate how to retrieve, parse, and analyze the desired data from the live network.
- **If Condition**: An If Condition is a decision node within the execution logic. It is based on variables from a global data table (retrieved from the Table Input) or from the previous Canvas node.
- **Dialog**: A Dialog is a user input prompt that opens a dialog box during Qapp execution.



Writing a Qapp: Canvas Elements

The Canvas is used to define the primary runtime logic of the Qapp. A Canvas is built from the following components:

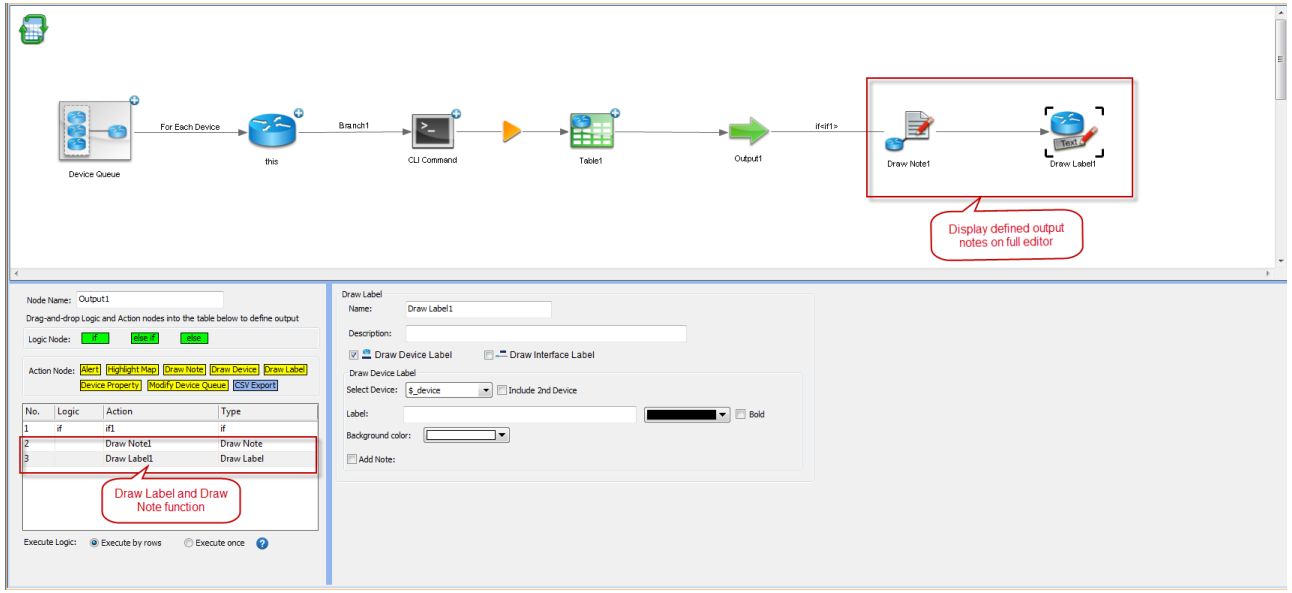
- **Device Queue:** Specifies a group of devices for the Qapp to run on during execution.
- **Device:** Used to define the Command Type (CLI command, Configuration file, Ping, Traceroute , or SNMP). It is also where the Qapp logic branches e.g., to accommodate different commands for different vendor devices.
- **Command and Parser:** Specifies the CLI commands for retrieving data from live devices, the rules to parse the output, and how to convert the output into variables (you can select a pre-built parser from the parser library).
- **Data Table:** The Device Data Table stores the data parsed from a particular device and the Global Data Table stores all device data.
- **Table Operator:** Used to process data from one or more table nodes. For example, you can use the Table Operator to filter or merge data from two Device Data Tables into a single table.
- **Output:** Specifies how to present the Qapp execution results ("Alert Message", "Highlight map", "Monitor Data", etc.)

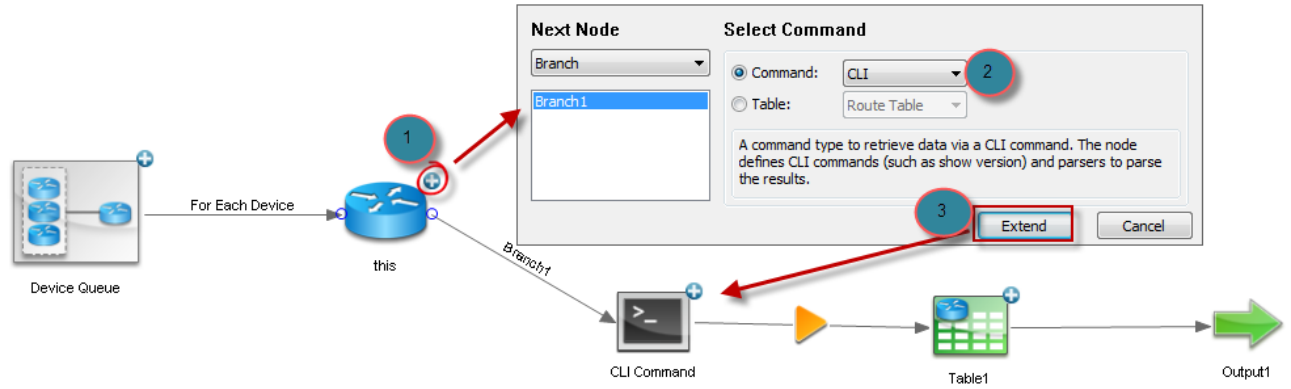


Qapp Full Editor Enhancements

The following enhancements to the Qapp Editor have been made:

- New **Draw Note** and **Draw Label** function (Device Label or Interface Label) in Basic Output.
- New **Unify Table Operator** to unify the Device Data Tables across branches.
- Displays Basic Output nodes in the full editor to better present analysis and output logic.
- New and more flexible node extension method.
- Integrates Device Input into Device Queue.
- Enhances the functions of existing parsers and supports a new Script Parser.

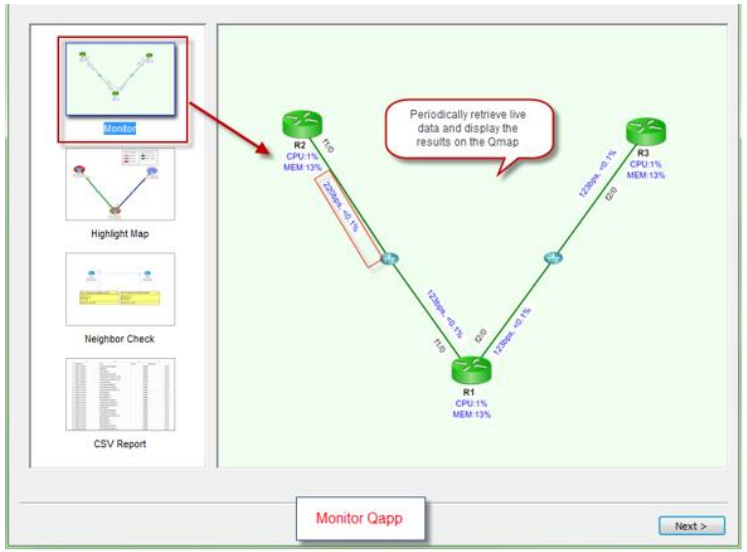


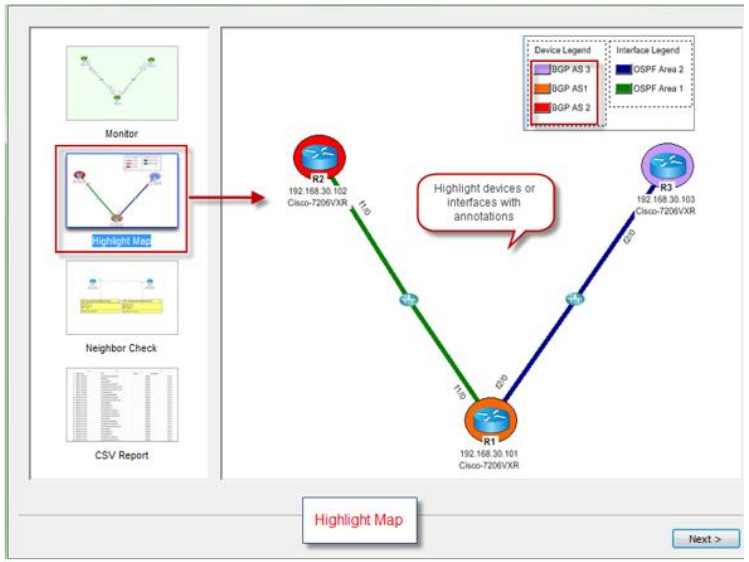


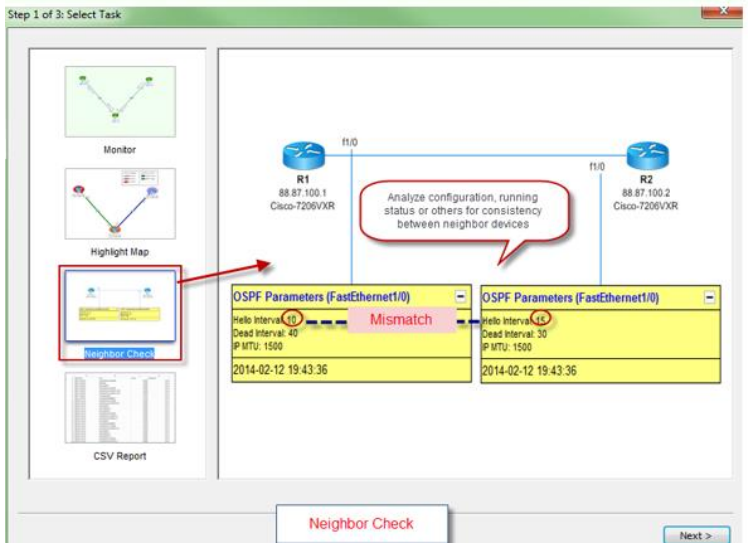
New Qapp Wizard: 4 Types of Tasks

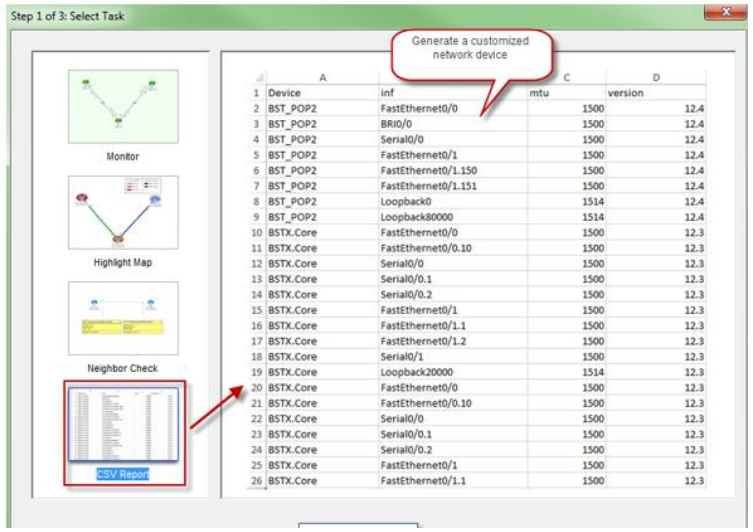
The Qapp Wizard guides the user through a simplified workflow for creating a Qapp for the following tasks:

- **Monitor**: Periodically retrieve live data and display the results on the Qmap.
- **Annotate Map**: Highlight devices or interfaces with annotations according to the analysis result on the Qmap.
- **Neighbor Check**: Analyze configuration, running status or others for consistency between neighbor devices.
- **CSV Report**: Generate a customized network device information report.





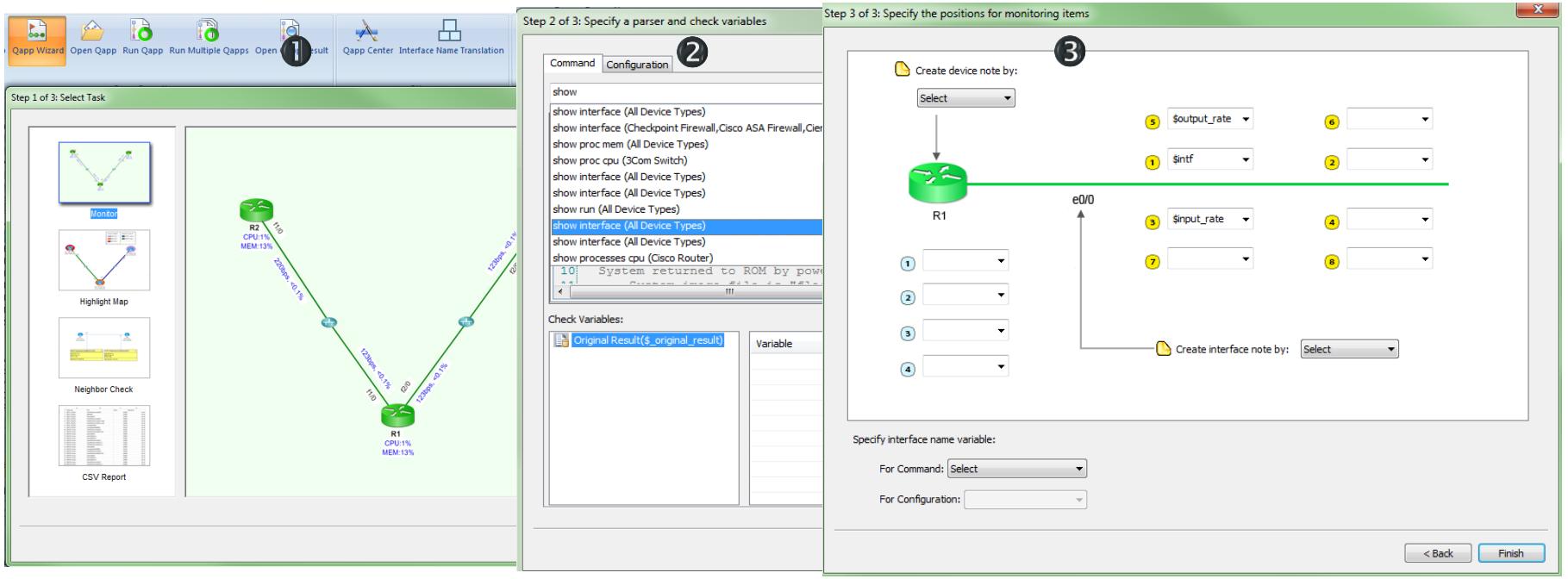




Qapp Wizard: 3 Easy Steps!

Write your first Qapp in 3 easy steps:

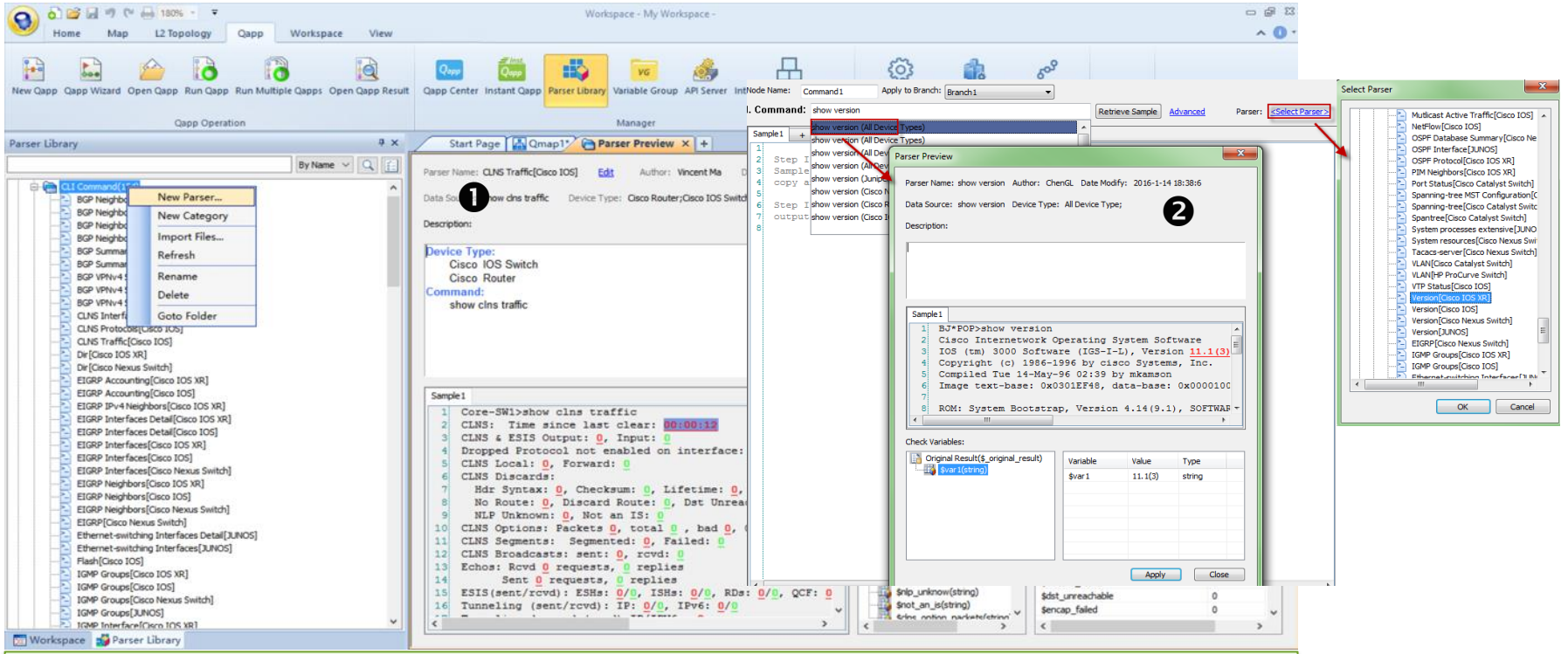
1. Select a task – The wizard offers four different types of tasks you can build a Qapp for: monitor, annotate, neighbor check, and report.
2. Select a parser – Parsers extract important data from the live network e.g. via a configuration file or CLI command. NetBrain CE 6.2 includes a library of pre-built parsers and associated data variables.
3. Define the output – You can specify display positions on the map for the output data, and add interface-level notes and annotations.



Parser Library

CE 6.2 includes a new parser library that stores dozens of built-in parsers and customized parsers. The parser library supplies thousands of data variables, extracted from the output of pre-defined CLI commands and configuration files, that can be used in Qapp logic and data collection.

- Preview, create or edit a parser in Parser library
- Call a parser during Qapp Creation without having to write any regular expressions

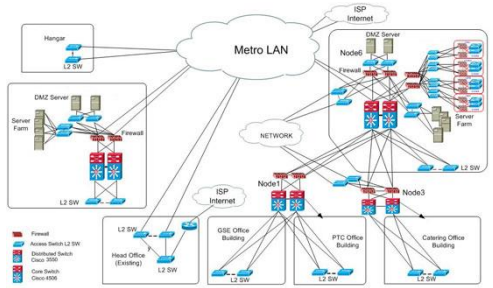


Dynamic Map

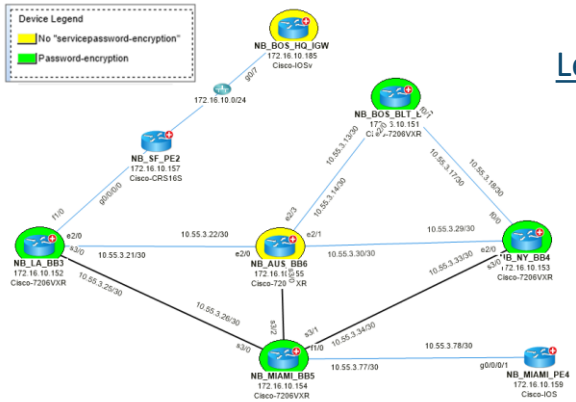
Visualize any network data

Dynamic Map: End-to-End Network Visibility

With NetBrain, a Dynamic Map is the user interface for network automation, providing end-to-end network visibility. A Dynamic Map provides several benefits over traditional 'static' network diagrams:



Static Diagram



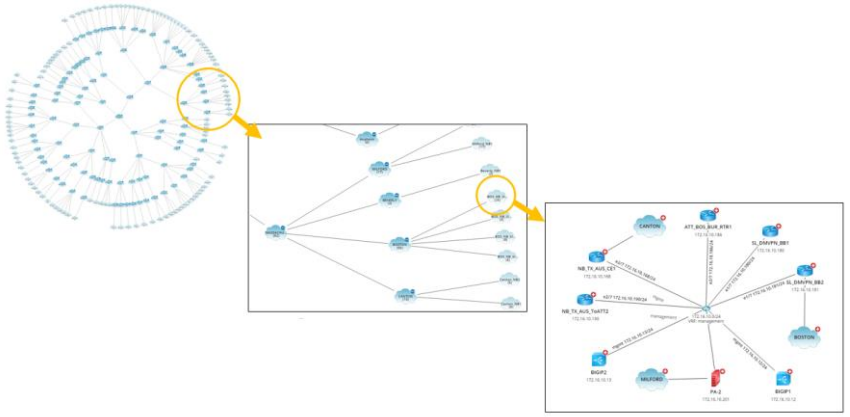
[Learn More about Dynamic Map]

	Static Diagrams	Dynamic Maps
Time to create	Hours	Seconds
Degree of detail	One layer	Infinite
Update method	Manual	Automated
Automated workflows	No	Runbooks
Embedded results	No	Yes

Dynamic Map

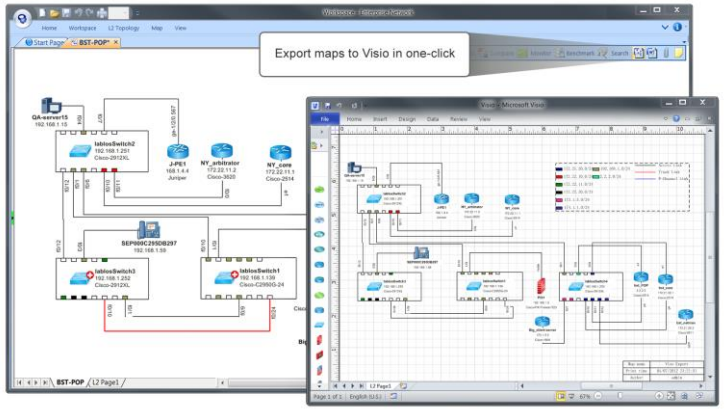
Map 100 Branch Offices in Minutes

Automatically discover, map, and organize hundreds of sites into a single drillable map



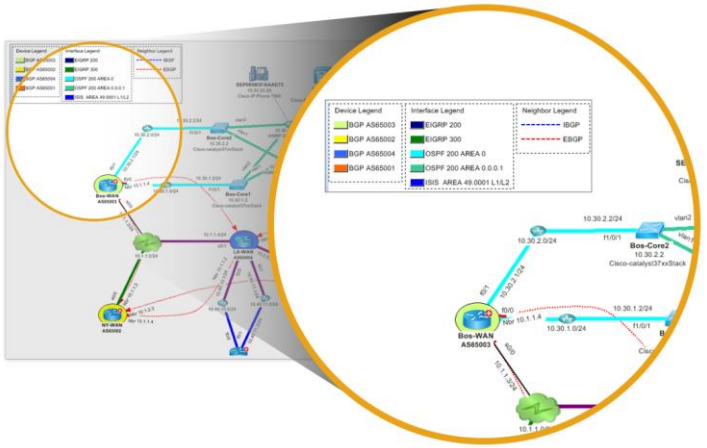
Automate Network Documentation

Automatically produce fully-editable and up-to-date Visio diagrams



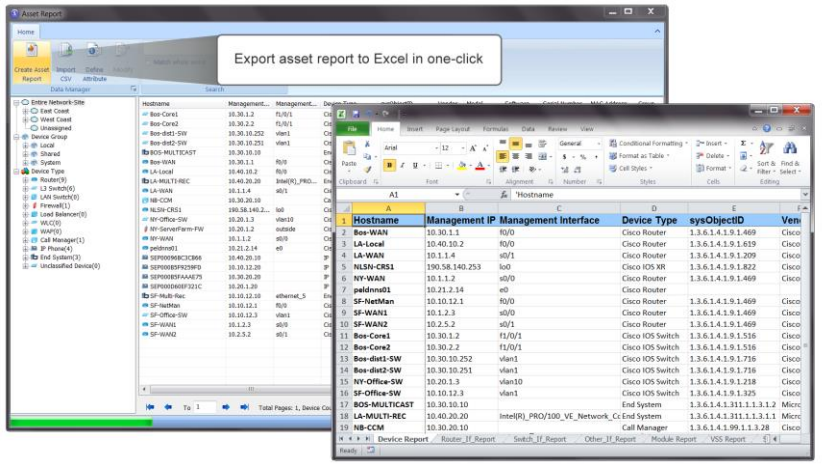
Assess Network Design

Visualize any aspect of the network's underlying design



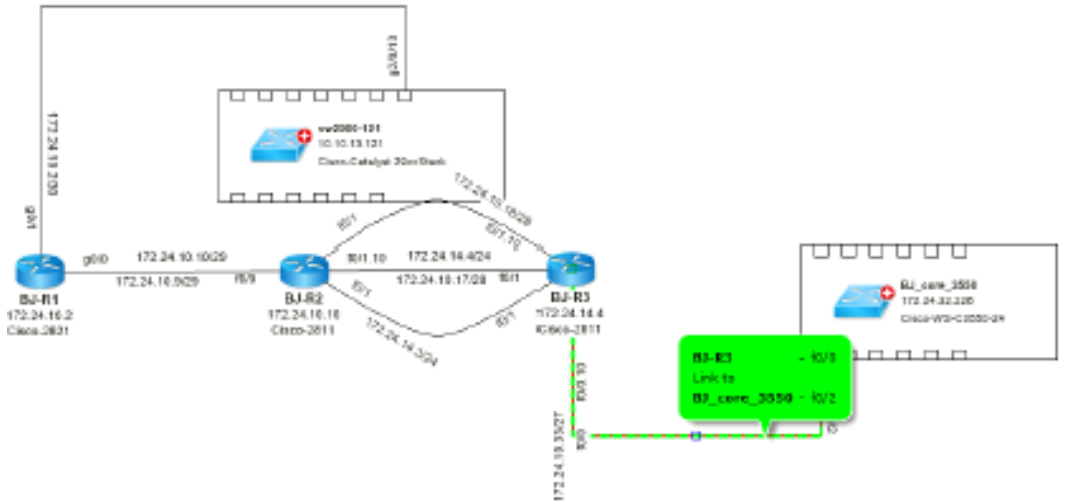
Produce Asset Reports with One Click

Create an inventory report for the whole network, a site, or a device type



Layer 2 Map Improvements

- Improved performance of L2 site map for large networks
  - The Auto Link function will be disabled by default when a site has more than 200 devices. The threshold for device count can be configured to be between 100 and 1000.
  - When extending neighbors for a device with a large number of neighbors, the system will auto rank the neighbor devices based on the built-in priority: **Switch > Router > Firewall > Load Balancer > End System > Others**.
- Additional link detail
  - Click the link between two devices on a Layer 2 map to view hostnames and interface names of the two endpoints



Virtualization Enhancements

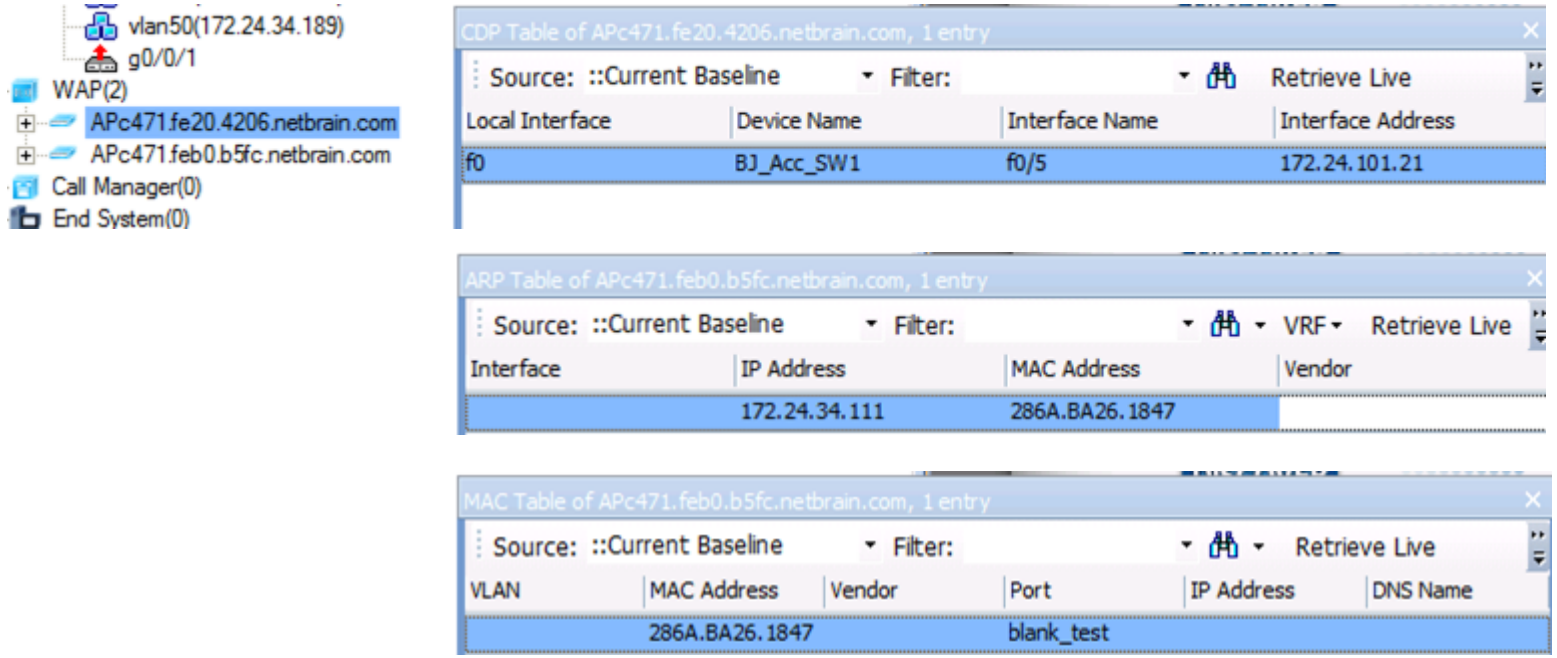
- Improved virtual IP support for the following device types:
  - **F5** – traffic group floating IP
  - **Check Point** – cluster IP
- More efficient communication with devices
  - Retrieve all inventory information for a device (including device, module, and interface data) in a single CLI session
- Improved support for Controller and Client device relationships

Previous versions

New in CE 6.2

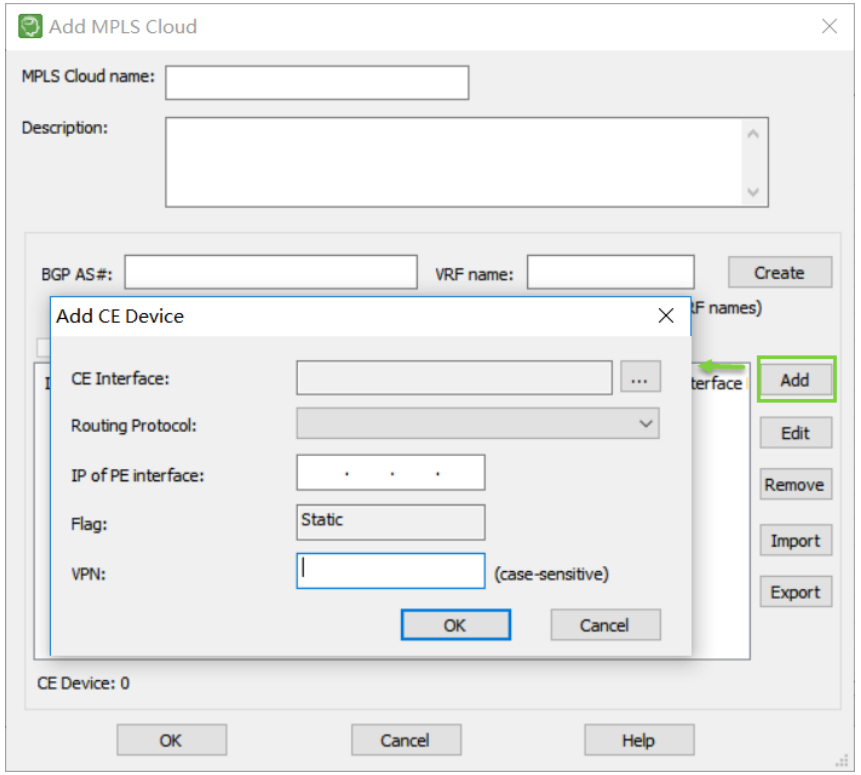
Cisco LWAP and Aruba LWAP

- L2 topology mapping is enabled using the multi-vendor support framework
  - Prior to CE 6.2, support for Cisco LWAP was hardcoded with hostname, IP address, and interface information only, with no support for Aruba LWAP
- The following tables are supported:
  - Cisco LWAP: CDP/ARP/MAC tables
  - Aruba LWAP: LLDP/MAC tables



MPLS Cloud Improvements

- Optimized algorithm for processing parsed route entries on CE devices for MPLS Cloud VRT
- Support for manually adding VPN names for CE devices
  - When calculating VRT, the system will save route entries that belong to the same VPN into one VRT



Improved Interface Support

- **VLAN** - In previous versions, the system could only recognize VLAN interfaces if the interface names were in the VLAN digit format, e.g. VLAN 1. Additional VLAN interfaces can now be recognized, for example, VLAN interfaces on the Extreme switch, which are created by the create vlan vlan_name command. This also enables more efficient discovery of layer 2 topology.

- **Tunnel** - In previous versions, the system could only recognize tunnel interfaces if the names were in the tunnel digit format, e.g. tunnel 1. Additional tunnel interfaces can now be recognized, such as, the GRE Tunnel interfaces on the Fortinet Firewall. This also improves the display of the connections between Fortinet Firewall GRE Tunnel interfaces on a Layer 3 map.

- **Port Channel** - In previous versions, the system could only recognize the port channel interfaces if the names were in the port-channel digit format, e.g. port-channel 1. Additional port channel interface can now be recognized, such as, Eth-Trunk interface on Huawei Switch. This also improves the display of the port channel and its child ports on a Layer 2 map.

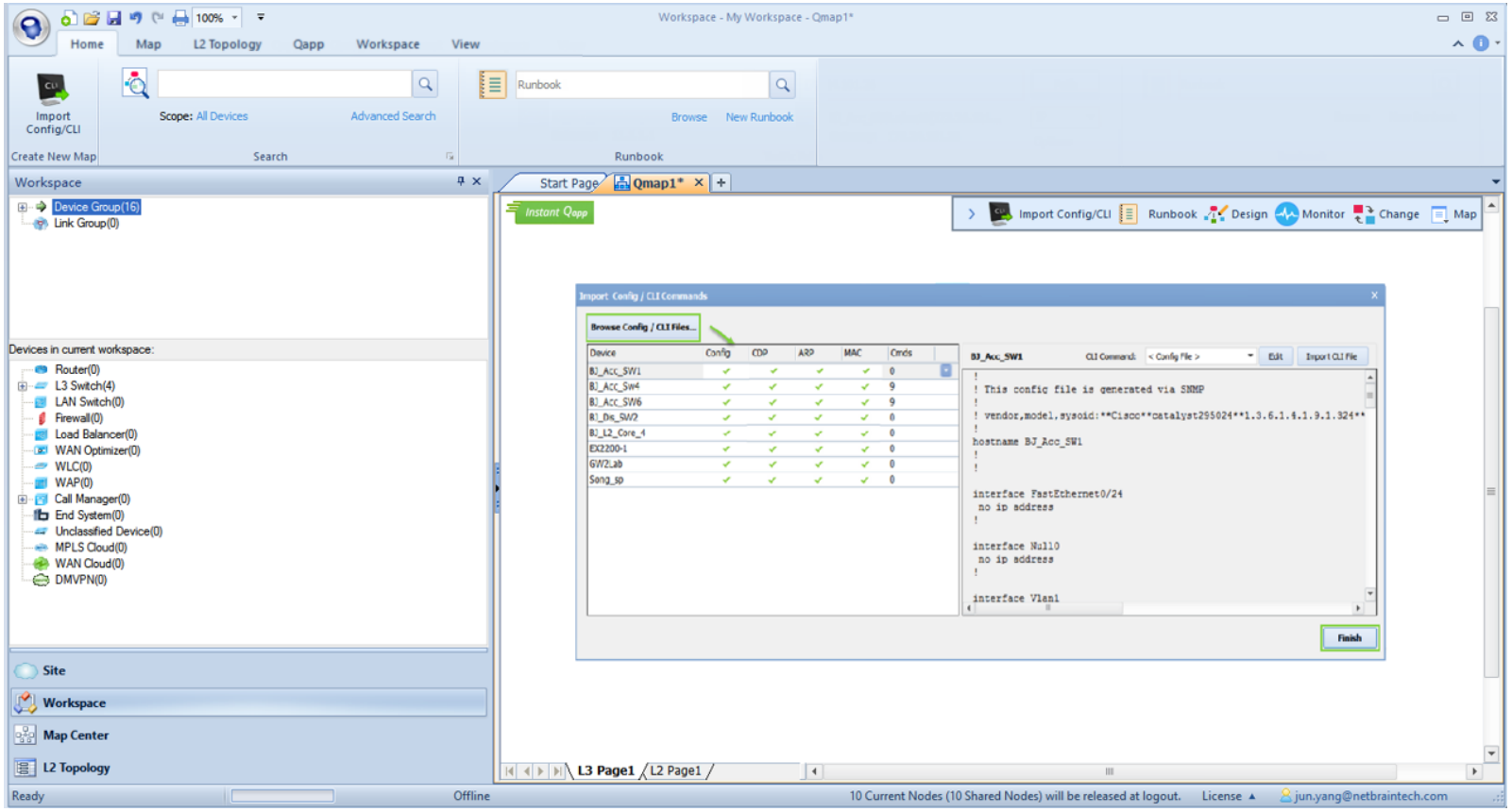
System Administration & Discovery

Improved vendor support and user management

Import Config/CLI Commands

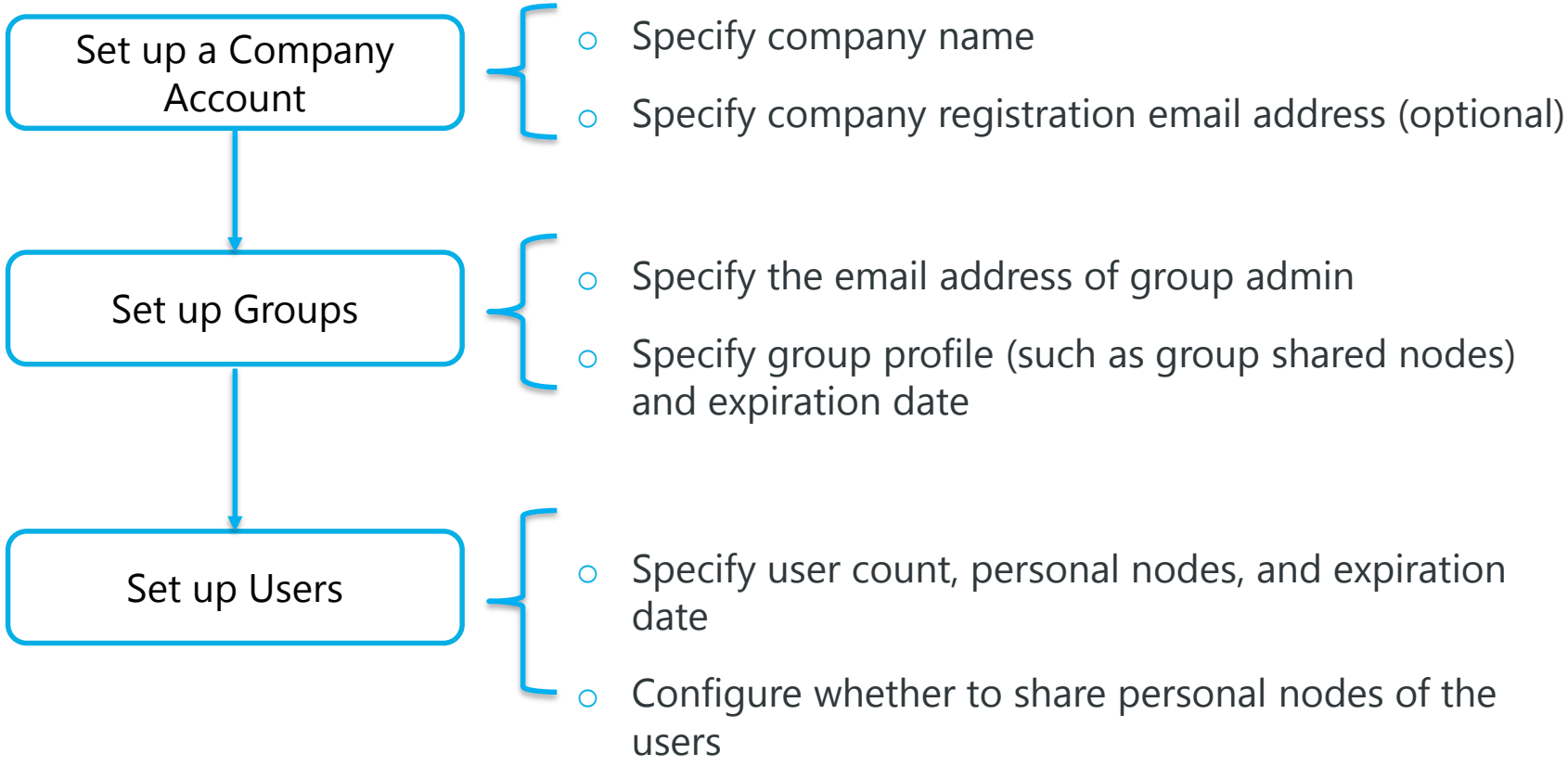
You can import CLI outputs, configuration files and putty logs to:

- ✓ Map devices, and view layer 2/3 topology, device/link properties
- ✓ Parse and split multiple show commands from one command file, e.g. Cisco <show tech> command.



CE License Management

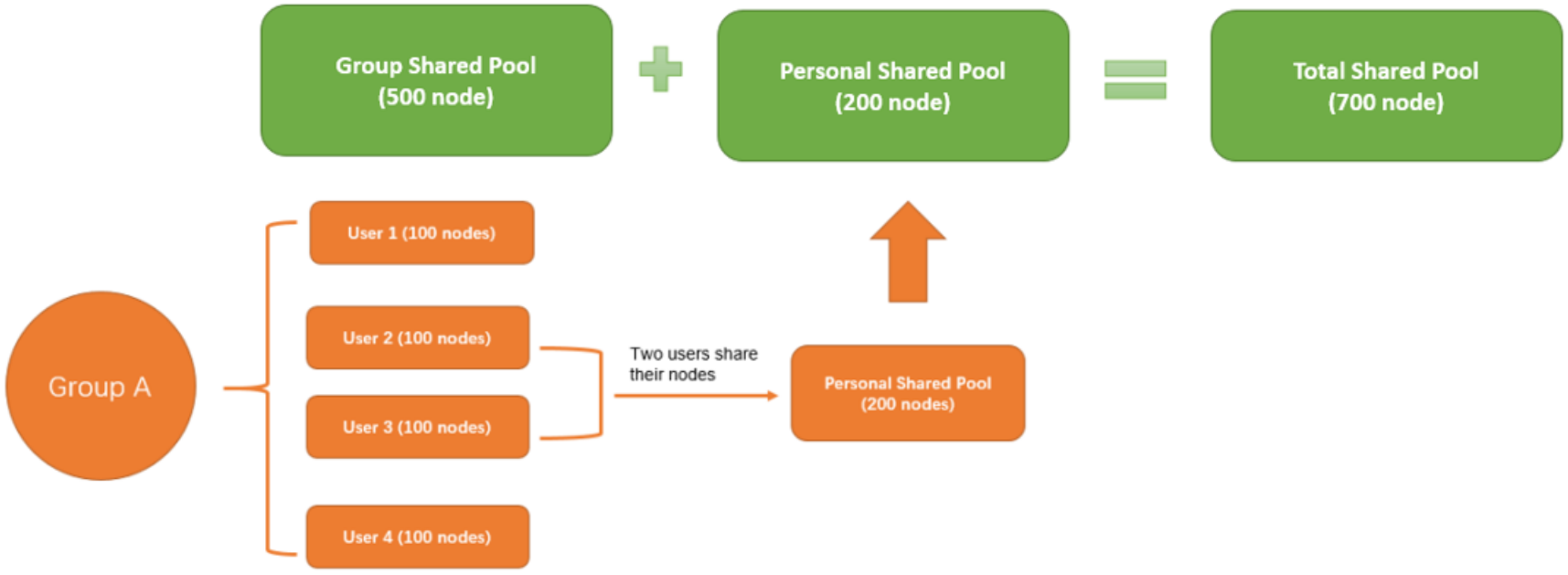
CE License Management is centralized in the server end with flexible licensing options for User and Node Licenses.



Node Sharing Mechanism

The node sharing mechanism makes node management more flexible for collaborative use:

- Group admin can configure whether to share users' personal nodes and add them into the Personal Shared Pool.
- Users can reserve nodes from the Personal Shared Pool or Group Shared Pool (included in group license). Nodes can be released manually one at a time, or when you log out of the Workstation – or on a specified expiration date based on your settings.



Multi-Vendor Support – Newly Supported Vendors

Device Type	Support Tier
Adva Optical Switch	2
Avaya Secure Router	2
Avaya VSP	2
Bluecoat	2
Calix B-Series	2
Calix E-Series	2
Cisco Meraki Cloud Controller	2
Cisco UCS Fabric Interconnects	2
GigaVUE-OS	2
IBM Switch	2
Redback Router	2
Tellabs Router	2
T-Marc 300 Series	1

Key - Support Tiers for Multi-Vendor Support

Tier 1 Support

- Monitoring: NetBrain is able to send SNMP requests for device monitoring.

Tier 2 Support

- L3/L2 topology: NetBrain is able to build L3 topology from device configurations and/or L2 topology from the Layer 2 data.
- Live data retrieval and analysis: NetBrain is able to automatically telnet or SSH to the device and retrieve live data (configuration, route table, MAC table, ARP table and NDP table).

Tier 3 Support

- Design reader: NetBrain is able to parse all configurations and display them in the tip window and design reader pane.
- Special vendor features such as IP SLA, NetFlow and virtualization.

Enhanced Multi-Vendor Support

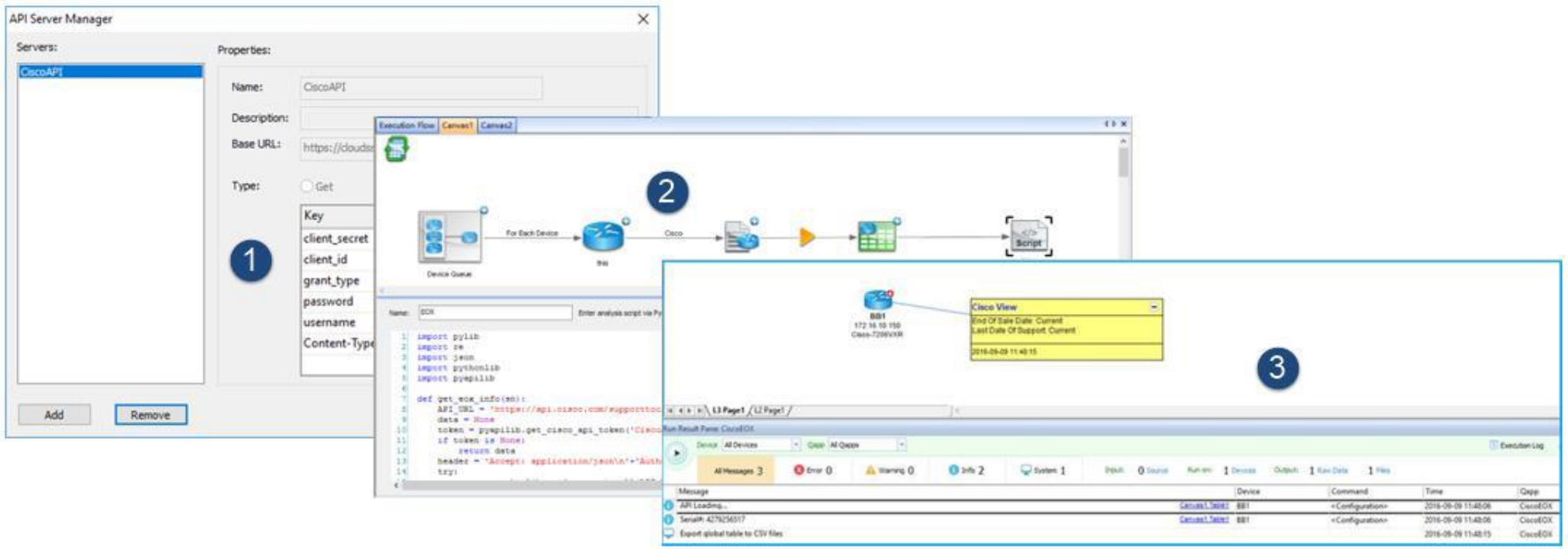
- Enhanced support for VLAN and Port-Channel on F5 Load Balancers
  - VLAN and Port-Channel topology can be displayed on a map more accurately

- 5 additional device types are supported in CE 6.2 for remote access via ping and traceroute

Device Type
Cisco Router
Cisco IOS Switch
Cisco IOS XR
Cisco Nexus Switch
Juniper EX Switch
Juniper Router
Juniper SRX Firewall

API Integration

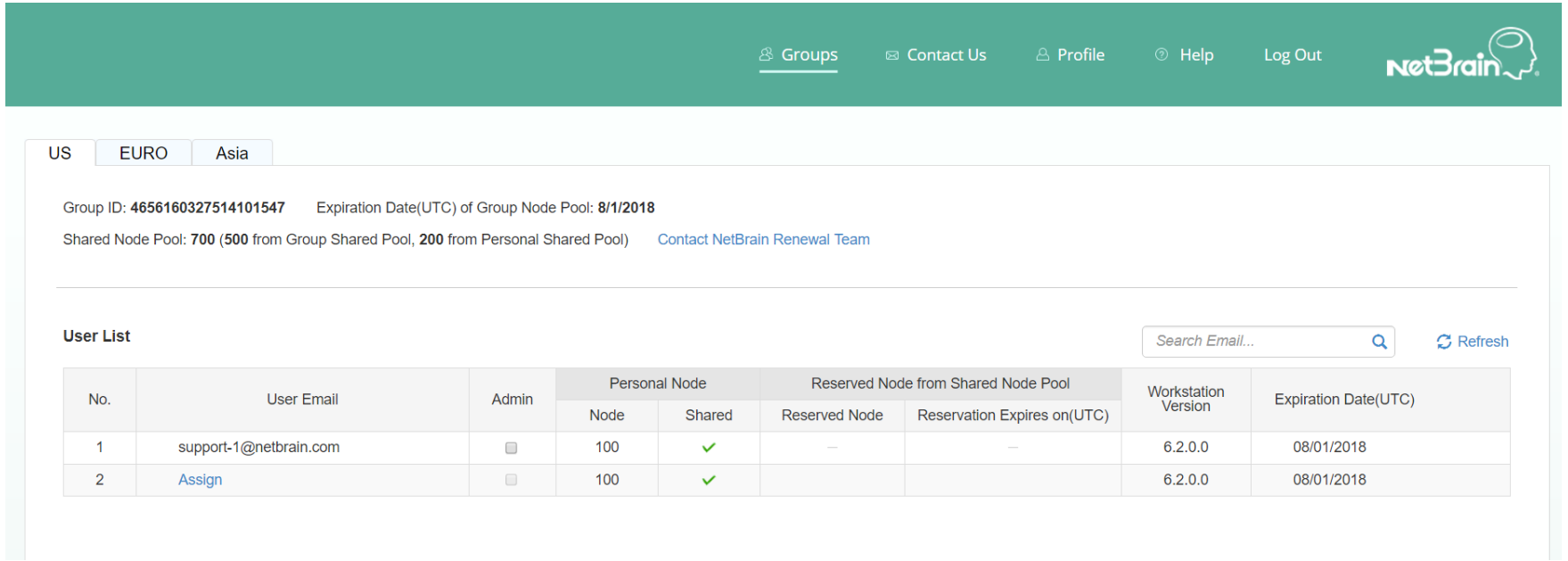
Data can be read from third-party API servers, parsed and analyzed with Qapps, and displayed on a Dynamic Map.



Group Admin Management

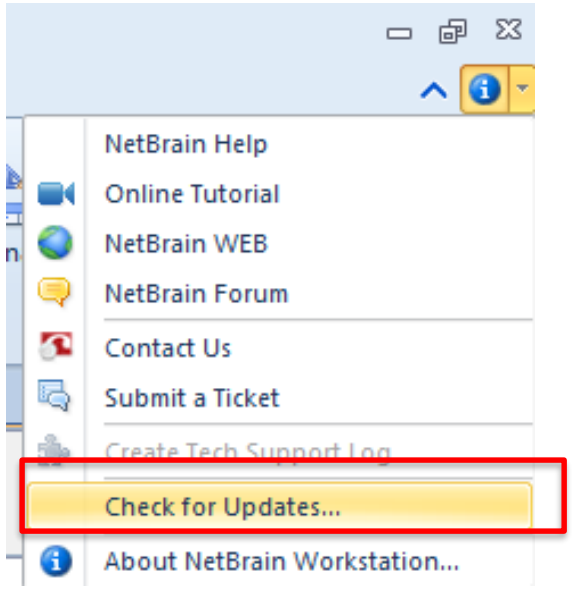
Group Admin can manage user accounts and nodes for individual groups.

- Assign or change email addresses for user accounts
- Enable or disable personal nodes sharing
- Authorize users as Group Admin
- Renew subscription for expired licenses or more nodes



Auto Update

- CE6.2 Workstation can automatically check for updates, making the upgrade process easier and more convenient, especially for patch updates and minor releases.
- You can also check for the lasted version of Workstation and upgrade with one-click.



System Compatibility

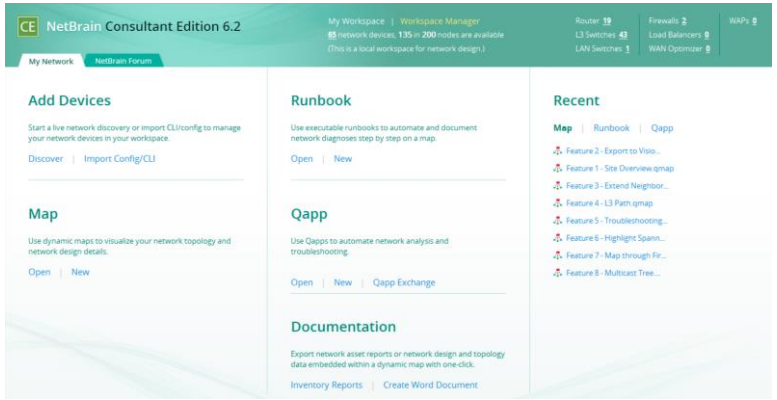
The following data types from Consultant Edition 6.0a are not compatible in the release version.

- Layer 2 topology data (including Switch Groups, One-IP table and Global Switch Connectivity Table)
- Customized entries in Device Type table, Device Driver table, and Vendor Model table
- The settings in map update (including the schedule of map update)
- The settings in LAN discovery
- Customized CLI command templates
- Customized documentation templates
- Customized device icons
- Device NAT tables

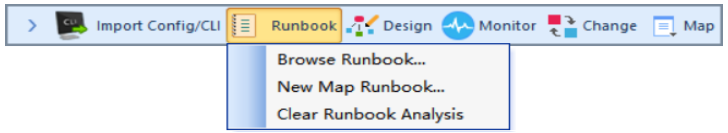
Other Enhancements

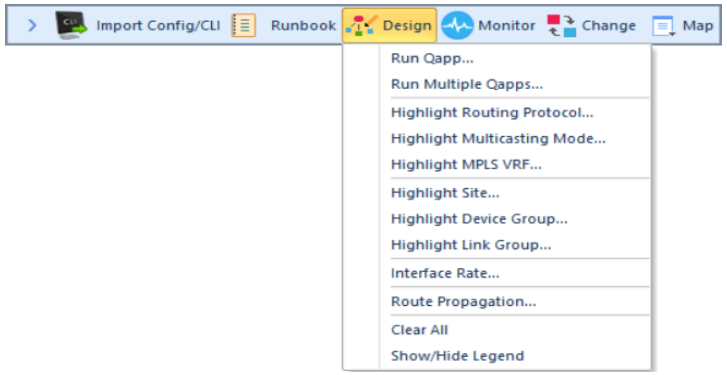
User Interface Enhancements

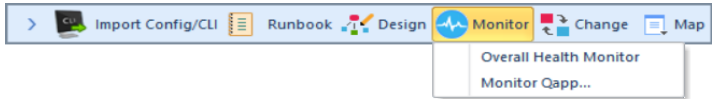
- New color scheme and layout on start page with more quick-access links

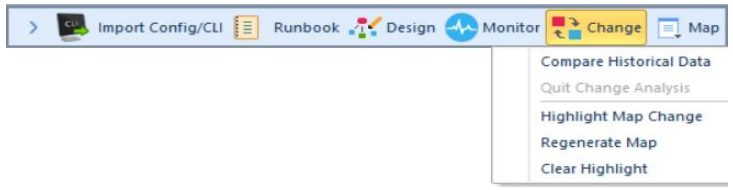


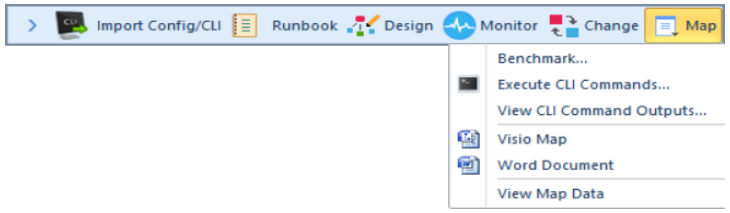
- Reorganized floating menu options





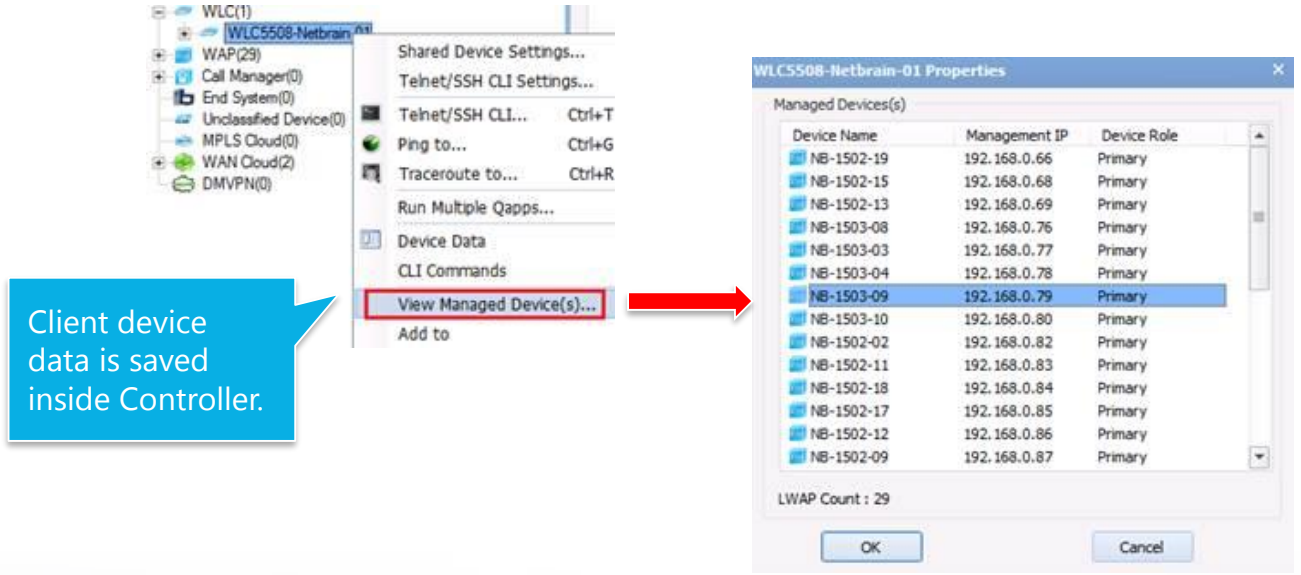


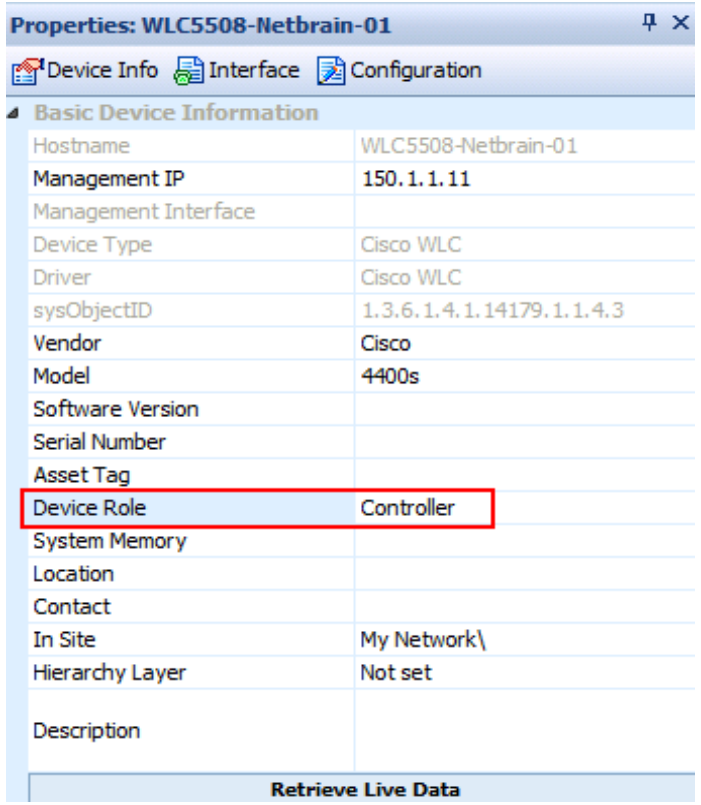




Controller and Client Relationships

- New **Device Role** property records the Controller/Client discovery relationship e.g. Cisco WLC is displayed as Controller when it is used as a seed to discover Cisco LWAP which displays as Client.
- Supported for the following device type pairs:
  - Cisco WLC/Cisco LWAP
  - Aruba WLC/Aruba LWAP
  - Juniper EX Switch/Juniper Qfabric Node
  - Cisco ASA Firewall – Multi Context





Miscellaneous

- Lock device settings in Shared Device Settings to protect management IPs and access credentials from being changed during live access processes.
- Customize access credentials and lock device settings when tuning live access.
- Reset Workstation password.

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