What’s New in NetBrain 7.1

Visibility and automation for any workflow
# What’s New in NetBrain 7.1

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<td>Customizable views to help better contextualize your network devices</td>
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<td>Customizable templates to better organize device positions on a map</td>
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<td>More flexible, more powerful, easier to write.</td>
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**Better Visibility**

**Advanced Automation**
Better Visibility
Review: Top Use Cases for Dynamic Map

Map a Slow App

Map a DoS Attack

Use Map as a Single Pane of Glass

Map 100 Branch Offices in Minutes
Dynamic Map Enhancement #1
Organize the network... your way
Network Context

Different views to organize and contextualize your network devices.

By device type (built-in)

By routing protocol (built-in)

Some ways to customize your own

Multicast

QoS
Network Context

Get more context around a particular device

Built-in Context Maps

- IPv4 L3 neighbor topology
- IPv6 L3 neighbor topology
- L2 neighbor topology
- Site Map which device belongs to
- Device Group which device belongs to
Dynamic Map Enhancement #2
Organize map layouts... your way
Template-Based Auto-Layout

Customizable templates to organize device positions on a map.
Template-Based Auto-Layout

Apply customized layouts to a map
Template-Based Auto-Layout

1. Assign tags to devices
   - Assign Tags
   - Layout Tags
   - Devices Found:
     - PVST-Core-SW1: Core
     - PVST-Distribute-SW2: Distribution
     - PVST-Distribute-SW3: Distribution
     - PVST-Distribute-SW4: Distribution
   - Device Name: PVST-Core-SW1
   - Layout Tags: Core
   - Device Name: PVST-Distribute-SW2
   - Layout Tags: Distribution
   - Device Name: PVST-Distribute-SW3
   - Layout Tags: Distribution
   - Device Name: PVST-Distribute-SW4
   - Layout Tags: Distribution
   - Device Name: PVST-Access-SW1
   - Layout Tags: Access
   - Device Name: PVST-Access-SW2
   - Layout Tags: Access
   - Device Name: PVST-Access-SW3
   - Layout Tags: Access
   - Device Name: PVST-Access-SW4
   - Layout Tags: Access
   - Device Name: PVST-Access-SW5
   - Layout Tags: Access

2. Divide map into layers
   - Layer 1: Core
   - Layer 2: Distribution
   - Layer 3: Access

3. Use tags to assign devices to each layer
   - Add Layer
   - Layer 1: Core
   - Layer 2: Distribution
   - Layer 3: Access
Template-Based Auto-Layout

Apply Auto-Layout to Sites in a Batch

After finishing a layout, save it as a sample. Power users can associate the sample with several sites.
Visibility for SDN and Hybrid Networks

End-to-end visibility across infrastructures with Cisco ACI
Visibility for SDN and Hybrid Networks

**Map:** Visualize SDN constructs alongside legacy networks, including logical and physical connection.

**Path:** End to end path for the entire application traversing through both legacy networks and SDN fabric.

**Runbook Automation:** Helps to codify SDN knowledge and equips users with automated troubleshooting capabilities.
Visibility for SDN and Hybrid Networks

How it Works

NetBrain

Discovery & Modelling Engine

REST APIs

Hybrid Map

End-to-End Path

Runbook Automation

Mapping & Automation

Hybrid Network

Legacy Network

Cisco ACI Fabric
Advanced Automation
Review: Top Runbook & Automation Use Cases

Share Knowledge About New Designs

Collaborate During Troubleshooting Escalation

Automate Repetitive & Manual Tasks

1. Ticketing system alert
2. API triggered diagnosis

Trigger a “Level-0” Diagnosis From an Event
Automation Enhancement #1
Multistage Automation with “Gapp”
Gapp: A tool to narrow down a problem scope by grouping multiple Qapps together. With Gapp, devices and data are transferred between Qapps. Qapp output impacts downstream Qapp input.

**Example:** Identify root cause of OSPF neighbor issue, based on common checks

![Diagram of Gapp workflow](image-url)
**Example:** Identify root cause of OSPF neighbor issue, based on common checks

**Step 1:** Start with all devices in the problem scope. Triage diagnosis based on detected neighbor state.

**Step 2:** If Qapp detects neighbors in *Init* state, pass device and *Init* neighbors to downstream Qapp. Next Qapp will check whether network types match.

**Step 3:** If network types match, continue diagnosis... Next Qapp will check OSPF authentication...

Etc...
Multistage Automation with **Gapp**

**Two ways to run a Gapp:**

- **Run from any map**
- **Schedule to run on a set of devices**
Automation Enhancement #2
Problem-Based Monitoring with Qapp Scheduler
Problem-based Monitoring with **Qapp Scheduler**

**Scenario #1**

Last month: **25 hours of outages** based on 3 problems

- **Total Outage**: 9 hrs  
  Root Cause: Wrong ACL on ASA Failover

- **Slow App**: 10 hrs  
  Root Cause: Duplex Mismatch

- **Choppy Call Quality**: 6 hrs  
  Root Cause: Misconfigured queue strategy

How can you minimize the impact next time?

**Example 1: Monitor ASA Firewalls for Failover**
Problem-based Monitoring with **Qapp Scheduler**

**Continuously Enforce Best Practices**

**Scenario #2**
A recent compliance audit found 3 policy violations

- **Unsafe SNMP Community String**
- **Unencrypted Passwords**
- **Vulnerable Access-List on HSRP Failover**

How can you enforce these so your next audit is better?

**Example 1: Verify Consistent ACL on HSRP Routers**
Problem-based Monitoring with **Qapp Scheduler**

Schedule to run a Qapp or Gapp:

**Step 1:** Target devices in a potential problem area

**Step 2:** Schedule automation based on previous known problems

**Step 3:** Customize schedule and frequency
Problem-based Monitoring with **Qapp Scheduler**

**Flexible Scheduling**
- ✓ Schedule any time
- ✓ Customizable frequency
- ✓ Schedule once or ongoing

E.g. Run every 10 minutes, from 01:00AM to 04:00AM, daily.

**Flexible Device Scope**
- ✓ Add devices one-by-one
- ✓ Add sites or device groups
- ✓ Add devices along a path

E.g. Schedule monitor on devices along application path

Alert when path changes or fails
Automation Enhancement #3
Runbook Improvements
Runbook Improvements

Streamlined runbook interface
Runbook Enhancements

Two new actions integrated into runbook
Runbook: Improve Collaboration During an Event

1. Improve data sharing & communication

2. Improve knowledge documentation & sharing
Create Runbooks Automatically

Automatically document every action inside a runbook, to easily share workflows and knowledge.
Runbook: Improved Data Sharing & Communication

When you collaborate during an event, it’s easier to share insights and ask for help.

@Mention alerts users

#Mention calls device or map
Automation Enhancement #4
Change Management Improvements
Change Management

PPDIOO
Lifecycle Management

Integrate with your existing workflow

Prepare
Plan
Design
Implement
Operate
Optimize

Validate Network Change

Before
Approve Change
Execute
Benchmark After
Validate

Before

After
Enhancements to Change Management

Integrate with your existing workflow

- Target devices
- Commands
- Rollback commands

- One at a time
- Sequential
- Simultaneous

- Config files
- Show commands
- Route tables
Enhancements to Change Management

Request and approve changes inside NetBrain

1. Design engineer requests change approval

2. Approver receives notification

3. Approver approves or rejects change
Enhancements to Change Management

Request and approve changes via external service management system

Legend

ServiceNow
NetBrain

Create ServiceNow ticket
Link runbook and ServiceNow ticket ID
Approve?

Set runbook as rejected (via API call)
Set runbook as approved (via API call)

Create NetBrain runbook
Define ➔ Execute ➔ Compare

Execute change

Fill runbook ID in ticket
## Enhancements to Change Management

### Privilege Levels

<table>
<thead>
<tr>
<th>Privilege</th>
<th>Description</th>
<th>User Level (default)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create</td>
<td>Create and edit a network change task</td>
<td>Domain admins and power users</td>
</tr>
<tr>
<td>Approve</td>
<td>Approve a network change task</td>
<td>Domain admins</td>
</tr>
<tr>
<td>Execute</td>
<td>Execute a network change task</td>
<td>Domain admins and power users</td>
</tr>
<tr>
<td>View</td>
<td>View network change task (cannot open or edit)</td>
<td>Domain admins and power users</td>
</tr>
</tbody>
</table>
Enhancements to Change Management

Schedule a Change Task

![Diagram showing the process of scheduling a change task]

- **Execute**
  - Save as Network Change Template
  - Share Network Change
  - Duplicate
  - Delete
  - Define Change
  - Benchmark Before

**Schedule**

- Network Change: New Network Change1

- Execution time: 04/19/2018 2:23 PM

- Do Not Execute After: 04/19/2018 6:23 PM

There might be a system delay due to the backlog of tasks. In the event of a system delay, please enter the time you want to abort the execution.

Note: This Network Change will be locked after it is scheduled.
Enhancements to Change Management

Other Enhancements

Save frequently used configurations as a Configuration template

Save a runbook for reuse as Network Change Template
Automation Enhancement #5
Qapp Improvements
## Qapp Enhancements

### Run Qapp Against Historical Data Sources

<table>
<thead>
<tr>
<th>Data Analysis Type</th>
<th>Data Source Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical</td>
<td>Current Baseline</td>
<td>Use the latest device data saved in the database.</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>Select a Time Point <strong>NEW</strong></td>
<td>Use the saved data, which is nearest to the specified time point.</td>
</tr>
<tr>
<td></td>
<td>Select a Time Period <strong>NEW</strong></td>
<td>Use the saved data between the specified time points.</td>
</tr>
<tr>
<td>Live Data Analysis</td>
<td>Pull Live Data Once</td>
<td>Log on to the device instantly to retrieve live data for once.</td>
</tr>
<tr>
<td></td>
<td>Pull Live Data Regularly</td>
<td>Log on to the device to retrieve live data regularly based on the customized frequency.</td>
</tr>
</tbody>
</table>
Qapp Enhancements

Qapp Input Variables

Some Qapps may require user input at execution time. The *Input Variables* node defines the parameters which require manual input. This will automatically generate a GUI for parameter input when the Qapp is executed.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>The name of the variable</td>
</tr>
<tr>
<td>type</td>
<td>The value type of the variable. The supported type includes string, int, bool and double. The variable in the bool type is displayed as checkbox at the GUI.</td>
</tr>
<tr>
<td>label</td>
<td>The display name of the variable at the GUI generated at the Qapp start.</td>
</tr>
<tr>
<td>value</td>
<td>The default value of the variable. This property is optional. The value of a variable in the bool type is <em>false</em> or <em>true</em>.</td>
</tr>
<tr>
<td>items</td>
<td>Displayed as a drop-down list with candidate values.</td>
</tr>
</tbody>
</table>
Qapp Enhancements

Variable Mapping of Qapp commands for different vendors and device types

✓ More Extensive Multivendor Support
After running a Qapp, add new parser variable mappings to fulfill the missing records for the required vendor model.

✓ Integrated data sources
Add multiple access methods (CLI/SNMP/API) for a vendor model. Data sources can be consolidated and prioritized.

✓ Writing a Qapp is easier.
Qapp authors can write a Qapp for a single vendor without worrying how to expand it for more device types.
Other Enhancements

One-IP Table

- Search
- Map
- Data View
- Qapp/Instant Qapp
- Cloud Deployment
THANK YOU!