SOLUTION BRIEF

Automate Network Change Management with Intent

In today's fast-paced world, change is inevitable. In the networking business, advances in technologies causes new devices to replace older ones, software updates continuously occur for nearly every component, new applications are introduced to support the business, companies merge, and corporate sites are added or removed as business plans change. All of this results in hybrid network infrastructures that are more expansive and complex than ever before and even the smallest change can have unforeseen and, in some cases, disastrous effects.

Add to this the pace at which IT now operates and it's no surprise that the demand for robust, bet-your-business change management has grown dramatically over the last few years. Change windows are short and making changes to anything in an infrastructure is now a mission-critical process. Even successful device-level changes using traditional approaches can result in unintended consequences. The result is usually extended periods of unplanned downtime.

According to Uptime Institute, more than 70% of all data center outages are caused by human error; either incorrectly applied changes, or changes that were applied correctly but for some reason not what was intended. This is in contrast to what most people assume is the main cause of outages - hardware or software failures.

NetBrain keeps you highly informed on how your changes will impact the production network, reducing risk and cost through intent-based network automation. Intents allow you to verify network changes with network design and policies both before and after you execute every change.
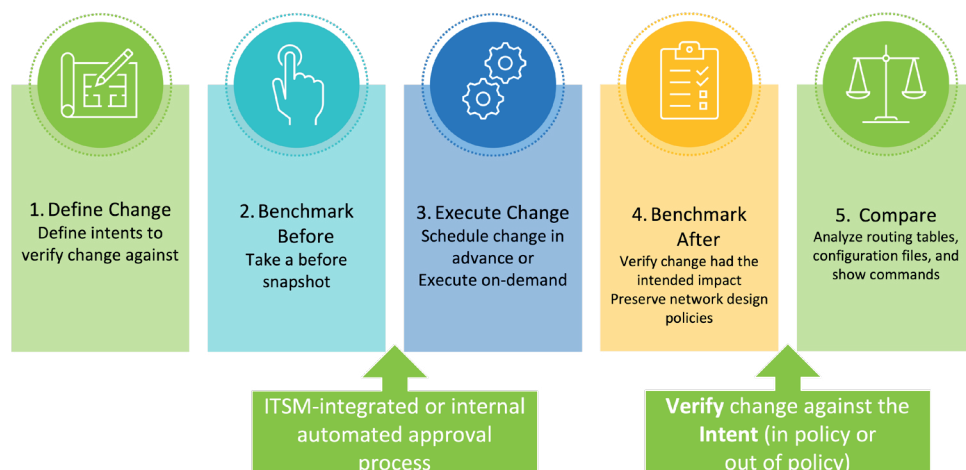
NetBrain PDAS Change Management

Part of its PDA System, NetBrain's Intent-Based Change Management capabilities go far beyond traditional change management solutions by focusing on the performance of the network caused by changing individual devices.

NetBrain change management encompasses 5 stages that ensure network changes don't negatively impact the network, its supported applications, or cause other outages.

1. Define the desired change and the network intents
2. Benchmark/Baseline the network based on the intended performance goals
3. Execute the change and verify it has been completed
4. Benchmark the performance and verify design compliance to network intents
5. Compare the resulting performance versus the original benchmark to support acceptance

Even if changes to devices are successful, the unintended consequences of that change on the network and its apps could still result in an outage or service degradation.

1. Define Change
Define intents to verify change against

2. Benchmark Before
Take a before snapshot

3. Execute Change
Schedule change in advance or Execute on-demand

4. Benchmark After
Verify change had the intended impact
Preserve network design policies

5. Compare
Analyze routing tables, configuration files, and show commands

ITSM-integrated or internal automated approval process

Verify change against the **Intent** (in policy or out of policy)

Feature Highlights

Change management automation

Change Management should not be a CLI command or a script of multiple commands. It should be a highly defendable process that executes changes with confidence, can scale over an enterprise infrastructure and is defendable over the long term.

NetBrain's Change Management enables you to automate the entire change management process including visualization of the live network with maps, documenting and executing changes, approvals, verification of the change and against the design intent, and resulting performance. By leveraging intent-based automation, NetBrain allows you to create and execute changes across your entire network while preserving the network's design intentions. Engineers can formulate and apply configuration changes by defining the Intents they want to achieve, including the desired benchmarks expected after making the change.

In addition, NetBrain integrates with third-party ticketing systems (e.g., ServiceNow) to trigger approvals for network changes, linking the original service tickets directly to NetBrain and updating the ticket as its status changes.

Intent-based automatic change management verification

Even with the best intentions, changes can have a ripple effect across the hybrid network which may be hard to predict unless carefully architected in the context of the entire infrastructure and precisely executed. Even the smallest of errant changes on a single component can wreak havoc on an enterprise and its applications.

NetBrain allows you to avoid the consequences (including costly outages) that result in downtime by verifying changes with network design intents to preserve and assure application traffic flows. Network engineers can quickly identify any change's impact on an infrastructure by enabling the capturing of before and after snapshots to benchmark and analyze comparisons of performance. And changes must be supportable, so with just a couple of clicks, NetBrain allows you to document the work that was performed and share additional operational notes with other operators and engineers.

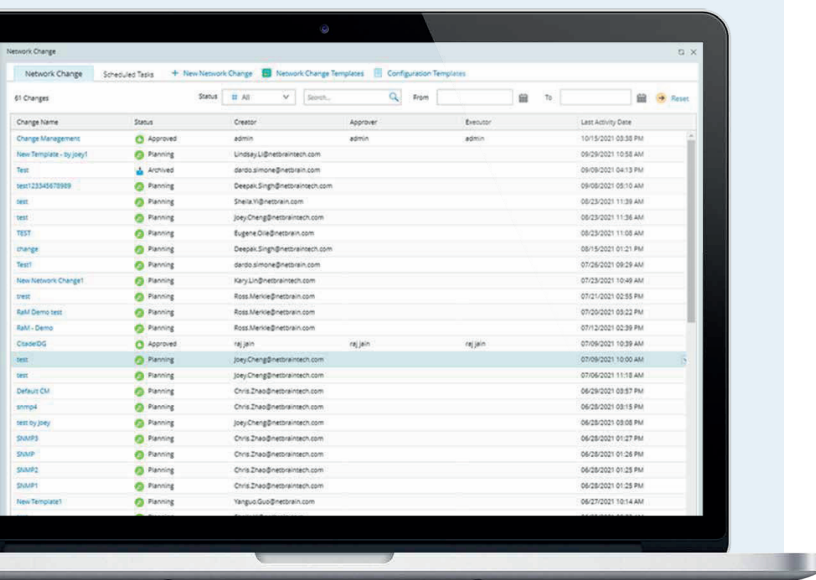### Rollback unintended network changes

Enforce design intentions for network device changes and the resulting connectivity changes.

And whether the change is executed correctly or incorrectly, it's the application performance that matters, so NetBrain allows you to have your rollback process locked and loaded, ready to execute — all at once, device by device or line by line - to quickly restore any previous configuration.

Automatic audit documentation

Automatically record all changes for future audit - every detail (including who made the changes, what was the desired change, and when the change was executed). All data is referenceable including impacted devices, execution logs, and benchmark data and adherent to existing business approval processes. Document a network change task, including definition, device data and results, and export every detail to Microsoft Word.


Change archive

NetBrain improves existing network change management procedures by creating detailed documentation of every change made through NetBrain with a single click. Then, attach this documentation to other change management records in other systems if needed. NetBrain also maintains a complete history of change online, so subsequent users can interactively query the NetBrain system to review changes that had been made. Engineers can reference archived impacted devices, execution logs, benchmark data, and more and when reviewing a change.

Benefits

Make network changes without fear of disruption

Take before and after snapshots to verify the impact and to ensure no adverse conditions occurred. See all changes highlighted in a side-by-side intelligent comparison of "before" and "after" snapshots of config files, routing tables, MAC/ARP tables or any specific CLI commands. Verify existing application and traffic flows with network intents, run diagnostics, and leave notes for other operators and engineers. And NetBrain's award-winning real-time Dynamic Maps show you exactly what's going on immediately. Quickly see results, including any unexpected impacts resulting from any change.
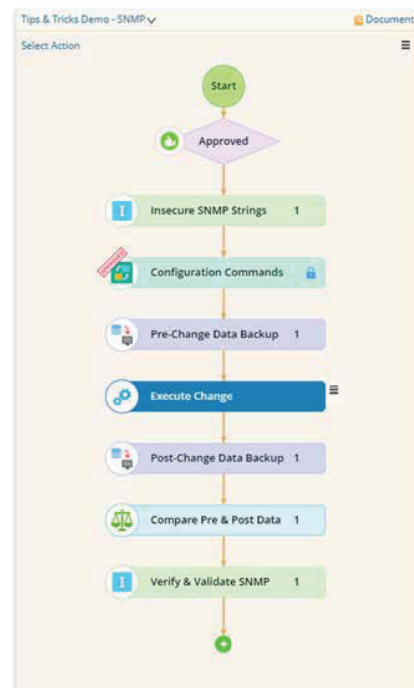

Safeguard the network from human error

In cases of conflict, easily revert changes that may adversely affect the network and its applications. NetBrain helps you keep track of every change detail in perpetuity. And, if you need to roll back a change, it stores all rollback processes and commands so you can quickly undo any unintended changes.

Maintain design compliance with ease

NetBrain helps you maintain design compliance of the entire production hybrid network. Proactively guard against misconfiguration by triggering automatic validation of network changes against "golden baselines." Automatically run a series of security compliance steps to ensure that changes haven't caused "compliance drift."

Speed configuration updates

Historically, once the change window closes, nobody takes the time to go back and document exactly what was done. Now, you can execute script-less device commands in real-time which are fully documented. Quickly visualize any change's impact on the network and execute the change across all devices. Templates allow you to save frequently used network changes tasks for standardization and to quickly create other network change tasks.
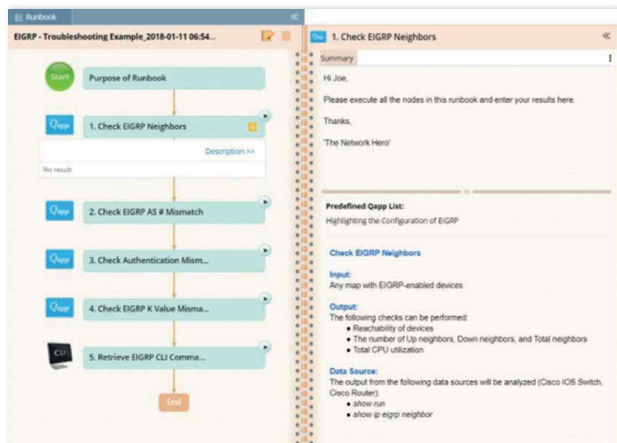
Intent-Based Change Management

Whether you want to schedule a configuration change during your maintenance window or execute it on-demand, NetBrain Change Management uses intent-based automation to maintain your network design by leveraging network intents to preserve application availability while safeguarding network from human or design errors. NetBrain's intent-based change management is different in that it understands what change is expected to accomplish and verifies that the resulting infrastructure conforms to those desired goals. NetBrain's intent-based change management allows you to prevent costly outages from impacting your organization, ensuring maximum uptime and improving operational efficiency and productivity.

NetBrain's revolutionary automated change management solution assures that your hybrid network is fully compliant with your enterprise architects' application and design intents.

About NetBrain Technologies

Founded in 2004, NetBrain is the market leader for NetOps automation, providing network operators and engineers with dynamic visibility across their hybrid networks and low-code/no-code automation for key tasks across IT workflows. Today, more than 2,500 of the world's largest enterprises and managed service providers use NetBrain to automate network problem diagnosis, generate real-time documentation, accelerate troubleshooting, and enforce enterprise architectural rules.

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