BACKBOX

Network Engineer Buyer’s Guide for Automation Solutions

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Introduction

The network automation buyer's journey is not for the faint of heart. While Intelligent Network Automation solutions can deliver sweeping value to network operations in the form of enhanced security and availability, the marketplace is filled with options... and no small amount of hype. Making the right choice requires assembling the right expertise within the enterprise – a buying team with the technical and operational knowledge to evaluate each solution for its suitability in meeting an organization's specific needs and business objectives.

Network engineers play a critical role in this process of doing the homework – knowing the benefits and limitations of each option, what features to look for, what questions to ask, and what pitfalls to avoid. This guide will help the technical buyer navigate all these considerations, with real world examples to illustrate how network automation solutions should ideally work within the enterprise. Our goal is to support decision-making and empower the buyer to confidently choose the network automation solution that best suits the needs of the organization.

> **"While there is no single formula for choosing the right network automation solution, it is possible to isolate key criteria for your toolkit to ensure maximum efficiency, security and value for the organization.**

Five Questions Network Administrators Should Ask When Assessing Current Systems

Making the right choices in network automation requires asking the right questions up front about your current systems. These five questions can help baseline existing capabilities – and clarify how best to evolve them with network automation.

1 What network automation tools do you currently have in place?

Do you have legacy tools sitting around that were bought to automate network changes but have fallen out of use? Do you have home grown automation tools that could be updated to handle new requirements? Do your cloud teams leverage a cloud automation tool that could be connected to your network automation strategy? Inventorying the building blocks that you have in place is a great place to get started.

2 What other tools are in your network operations stack?

Do you need to integrate your network automation capabilities with the rest of your NetOps tech stack? Will you need to integrate with a service desk tool? Are there NetOps-oriented automation use cases within the scope of this automation project?

3 How ready is your team?

Are you overstaffed or understaffed? Is there someone on the team with deep Python skills and extra time on their hands, or do you need this to be as turnkey as possible? Has someone been specifically selected and trained to become the network automation expert or to act as a lead for the team?

4 Have you defined and assessed the management scope?

Which parts of the network will this automation project touch? Are all of those parts routable from a single location? What kinds of devices are present? Which versions of TCP/IP are in use? Do you have a current inventory of all your network devices? How standard are configurations today? Questions like these can help define and narrow scope, an important step in any successful network automation strategy.

5 Do you leverage any of the vendor-provided configuration management tools?

In some cases, working with the tools provided by your hardware vendors can offer significant value. If your team highly leverages these types of tools, then understanding how they can be integrated within your overall network automation strategy is a key part of building requirements for a successful project.

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> **Look for solutions that enable automated backups of all the devices on the network, and can automatically verify backup processes.**

Kicking The Tires: Key Criteria for Evaluating Network Automation Options

Because the network automation marketplace offers countless choices, buyers must do their homework on capabilities, performance and how to avoid solutioning more (or less) than what they really need. As mentioned above, a large enterprise may have thousands of tasks or use cases ripe for network automation. How do you ensure you’re solving the problems you need to solve without over or under-buying?

While there is no single formula for choosing the right network automation solution, it is possible to isolate key criteria – some must-haves in your network automation to ensure maximum efficiency, security and value for the organization. Here are four core capabilities to assess, including industry-relevant examples, when evaluating the merits of a network automation solution:

Automated Backup, Recovery and Verification

Superior network automation solutions should provide hassle-free, automated backup that includes seamless disaster recovery procedures and automatic verification procedures. This should be the case regardless of how many multi-tenant sites and service providers are involved. Look for solutions that enable automated backups of all the devices on the network, can schedule and store any number of configuration backups for as long as needed, and can automatically verify backup processes.

Your goal is to eliminate the need for manual or scripted backup procedures, pulling all the configuration files required for recovery and storing them in a central and secure location. This enables the automated backup and storage of device configurations, single-click recovery, real-time inventory management, custom task automation, and pre-emptive health checks for all your critical devices.

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> Tasks quickly become unmanageable in scenarios where you need to push a configuration to a large number of multi-vendor devices.

Industry Example: Backup and Recovery

Challenge:
A large, global manufacturing company needed a platform that provided consistent, scheduled backups that could reliably be used to recover devices when they failed or when unwanted configurations were made to devices.

What they did:
The company set up a list of requirements and found several vendors that matched their requirements.

Outcome:
The company was able to run through a proof of concept in their lab environment, develop a test plan of their scenarios, and work with a proven vendor that showed them the value of an open platform that integrates securely in their environment.

Task Automation

Strong task automation is a must-have for any Intelligent Network Automation solution worth its salt. This is a requirement that becomes especially critical at scale. A task may be as simple as adding or removing an administrator from devices, or as elaborate as performing complex automated upgrades or hotfixes to multiple devices with the single click of a mouse. Look for solutions that offer a set of pre-configured tasks that can alter configuration settings on multiple devices.

Tasks quickly become unmanageable in scenarios where you need to push a configuration to a large number of multi-vendor devices. Your solution should be able to adjust operating system level parameters, access lists, policy changes, routing, and many other common configurations seamlessly, across numerous devices at one time. Also seek out options that can build custom chains of automation to complete either routine or complex tasks – for example, upgrading IOS while including post and pre checks – to simplify and make the process much more effective.

Industry Example: Task Automation

Challenge:
A regional bank was faced with constant, unapproved changes to device configurations that were causing service impacts to their customers and users.

What they did:
The bank implemented a platform that can take snapshots of configurations from acentral, virtual machine – allowing visual display comparisons of configuration files,by device and by file, to identify specific daily changes to configuration files.

Outcome:
The tool was able to save valuable time-to-recovery by providing a daily report of only the devices on which configuration changes were made in a specified time frame. The configuration could be quickly and confidently reverted and applied to restore the device to its prior working state.

Network Visualization

Network visualization is much more than just a snapshot of assets that make up your network. Your network automation solution should allow a level of visibility and control that enables robust, flexible asset management. Look for dynamic visualization options with automation strong enough to support a granular, real-time understanding of the life cycle of customer devices – with constantly updated inventory and accessible knowledge on hardware, software, and configuration data of customer devices.

> “The best solutions come with a predefined signature set that can check the health of your systems and ensure uniformity and consistency of your device configuration.

35%

According to Gartner, as of 2022 less than 35 percent of network activities are automated.

Choose solutions that can automatically grab network information, such as routing and IP data, and draw a network map based on it. Such maps can give users real-time, full visibility into the network without the need to use manual drawings or conduct specific, limited scanning. From this map, the user can track routes across network assets, see backup status of devices, and even open a terminal window to the devices appearing in the map.

Industry Example: Network Visualization

Challenge:
A global telecommunications service provider needed a solution that could help position the organization to win services business in competitive bids across unknown network environments.

What they did:
They needed a vendor that not only had a rich set of features for common device types, like device backup and recovery, but also a feature that could make sense of the network and map it.

Outcome:
They selected a vendor that had an out-of-the-box feature set that showed a network map so they could propose services that saved their customers time and money. As a result, they were able to move more quickly to win business.

> **The right solution can save time, facilitate scalability, and free up human resources to focus on more strategic tasks and decision points.**

Operational and Security Audits

The right Intelligent Network Automation solution can support preemptive health checks on the network to prevent problems and verify proper operations before an issue affects the network. It's important that any measurable data that is taken during these checks can be collected, saved and reviewed over time. This will streamline ongoing device management needs such as upgrades, replacements, or even just routine configuration changes.

The best solutions come with a predefined signature set that can check the health of your systems and ensure uniformity and consistency of your device configuration. They should have predefined signatures for operational checks that can help you comply with company or industry policy standards, as well as auto-remediate nonstandard configuration. And make sure your solution choice can perform checks on the application level, since this allows for much deeper intelligence than would otherwise be available.

Industry Example: Preemptive Network Health Checks

Challenge:
A large global service company needed out-of-the-box functionality to satisfy requirements for replacing a legacy solution, and building a set of network health check signatures for one of their large customers running a variety of network devices.

$300,000

According to Gartner, IT system downtime causes an average loss of $300,000 per hour

What they did:
They went through their current vendor list, identified shortcomings, and put together a request for proposal with a checklist of device connections.

Outcome:
They selected a vendor that was able to satisfy most of the functionality out-of-the-box and was willing to provide training for them on how to build the functionality they needed using their tools.

Additional Considerations

This is just a partial list of some key capabilities that define a superior solution. Generally speaking, your network automation solution should not be difficult to implement, and you shouldn't have to wait very long to start seeing the benefits.

It's important to vet each network automation solution for how well it solves the challenge organizations face in minimizing the human element in infrastructure management. The right solution can save time, facilitate scalability, and free up human resources to focus on more strategic tasks and decision points. With automation, IT staff can devote more quality time to strategic activities like R&D or growth-related initiatives, instead of administrative work like updating configurations with manual laborious scripts.

Inventory management remains critical. Your solution should be able to regularly pull necessary asset information for a dynamic list of devices associated with the network – generating custom workflows and reports that are automatically populated and updated with each backup. Related to this is the need to standardize procedures and streamline knowledge transfer to avoid "homegrown scripts" and other bottlenecks from excessively manual processes.

The networking automation solution itself should stand up to the scrutiny of industry standards and methodologies for security and compliance. This will ensure that, as your solution goes to work in your IT environment, the integrity of your information assets is maintained, your business risks are reduced, and data remains protected.

Finally, look to reduce the number of vendors in your tech stack and hold your vendor products accountable when it comes to reducing complexity. After all, the reason you're buying a network automation solution to begin with is to reduce the hassle of staying efficient, secure and agile in the face of changing business circumstances. This includes eliminating compliance headaches; look for vendors who have auto-generated verification and reporting to ensure an automation task was successful; this is especially key for quality assurance and regulatory compliance.

Navigate The Marketplace With These 10 Vendor Questions

Here is a cheat sheet of 10 questions to ask vendors to help cut through the hype and zero in on the value for your enterprise.

1 What types of vendors do you support?

Be sure to steer clear of solutions that give you narrow options for vendor integration. The best network automation solutions will be technology agnostic and support a best-of-breed ecosystem comprised of devices from hundreds of vendors.

2 What are the types of automation you support?

Avoid being hemmed in by solutions that require lots of setup to solve only a precise problem that locks you into their product, processes and way of thinking.
A large enterprise may have literally thousands of potential automations; find a solution that has out-of-the-box, preconfigured automation for the vast majority of them.

3 Does the solution have verification steps to confirm an automation was successful?

Go with a solution provider that offers this capability – with outputs, visualizations, and reports to ensure both quality and compliance in your operation.

4 What is the process for adding or customizing automations?

Do you have to go to the vendor for every little tweak or to add a new automation use case? If the answer is yes, move on to another prospect. The best solutions empower your business users to customize automation tasks, or even invent new ones, in a low code or no code environment.

5 What level of customer support do you offer?

Is your vendor knowledgeable and easy to reach? Are they versed in multiple, best-of-breed technologies to help you optimize and troubleshoot their solution within your broader network apparatus? Do they offer flexibility for any non-supported device or vendor to be added on the fly? The answer to all these questions should be yes.

6 What about automated patch and upgrade management?

Does the solution save time and help ensure a hardened network infrastructure by automating the implementation of patches and upgrades?
The answer should be yes, ideally in a process that can automatically implement patches and upgrades across your entire network in minutes.

7 How flexible is your licensing model?

Look for options that afford flexibility in licensing, including options for perpetual or subscription-based licensing; multiple expiration dates within a license file; and if needed, separate licenses for network and security devices such as routers, switches and firewalls.

8 Which environments and third-party integrations can your solution support?

Make sure you're not falling for a network automation solution that boxes you in to a limited or closed ecosystem. Your solutions should work in multi-cloud environments and on-premises with any type of VM, VMware, Hyper-V, Virtual Box, or other platform. And it should offer REST API code examples to incorporate with third-party solutions and ticketing systems.

9 Can your system support centralized device management?

Look for solutions that can push configuration to multiple devices, onboard devices to the network, and keep them up to date. Capabilities should include real-time dynamic inventory information and reports for all devices.

10 How does your platform enforce security and compliance policies?

Your network automation solution should help simplify compliance with industry, vendor or regulatory policies. It should rapidly identify issues before they impact network and data integrity. And it should generate multiple types of reports including user reports, schedules configured, backup job configured, backup status, device inventory and more.

BACKBOX

About BackBox

BackBox is dedicated to empowering our customers to continuously enhance the health, performance, and security of their network infrastructure through intelligent, security-minded automation. We believe that network automation should be easy, attainable, and provide our customers with unprecedented time savings and reduced risk.

Built on an open API structure, BackBox readily integrates with other tools employed by network administrators, cybersecurity infrastructure teams, and cloud or data center operations teams. With the quick installation and integration of its web-based centralized management dashboard, BackBox delivers the time-to-value that is essential in today's budget-sensitive environment.

BackBox integrates with more than 180 network and security devices around the world, with additional vendors and device support continually being added. Add-on capabilities such as Intellichecks (to verify an operation before it affects the network) and Access Auditing are also available for more control and visibility.

BackBox is deceptively powerful for such an easy-to-use tool. With it in your stack, you're able to automate any action that can be performed remotely on a device. It's why we have a customer satisfaction rating of 94 percent.
To learn more, visit www.backbox.com.