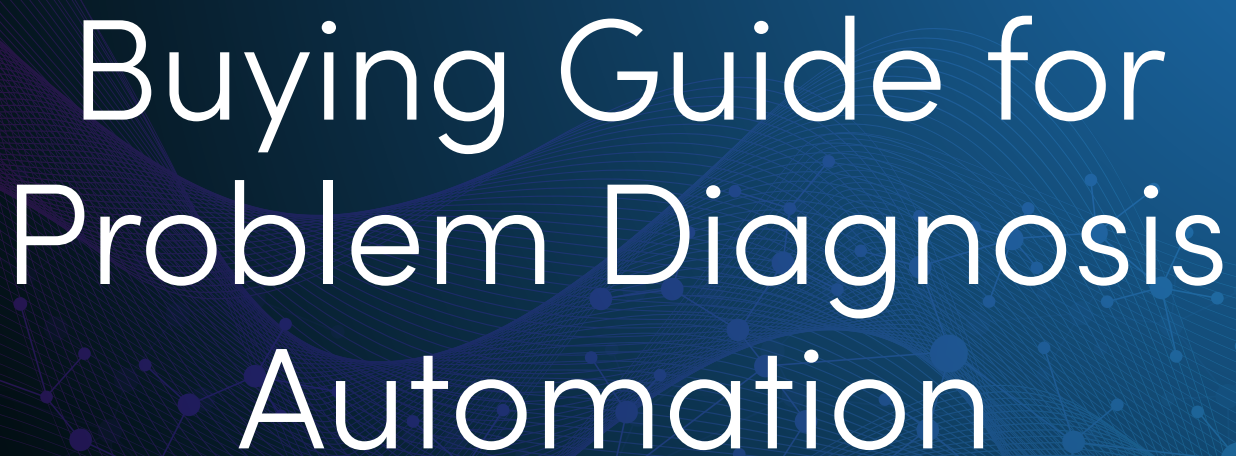


The logo for NetBrain, featuring the word "NetBrain" in a white, sans-serif font. The "3" in "Brain" is stylized with a dot above it. The background is a dark blue space with a glowing Earth and blue energy lines.

NetBrain

The title of the document, "Buying Guide for Problem Diagnosis Automation", is written in a large, white, sans-serif font. It is positioned in the lower half of the page, overlaid on a blue background with a network diagram pattern of nodes and lines.

Buying Guide for
Problem Diagnosis
Automation

While production networks have grown in both scale and complexity over the past 25 years, the means to maintain these networks have largely remained tactical in approach and highly labor-intensive. Additionally, most large enterprises will manage thousands of network service tickets per month to keep their production networks up and running at the level needed by the business. Putting these two facts together, the critical need for an entirely different approach is apparent.

A little-known fact is that while a huge volume of service tickets is generated each month, there are relatively few types of actual problems. If you take the concept of similar – it introduces an innovative approach that you could apply to solving many network problems of the same kind at scale.

And this fact is not lost on the industry analysts. According to Gartner's recent, "Market Guide for Network Automation Tools," they recognize the critical importance of addressing this problem along with the current tactical and inefficient nature of Network Operations by stating, "By 2025, 25% of enterprises will automate more than half of their network activities, an increase from less than 8% of enterprises from early 2022."

Scalable problem diagnosis automation remains the largest unsolved IT challenge today. And the tactical approach to NetOps is not just a philosophical issue, it prevents the business from growing. Truly supporting the business means changing this all-too-common brute-force NetOps paradigm to take a results-oriented and scalable view. While there are many tools that manage individual devices, those still suffer from the same bottoms-up and inefficient approach we have seen for years.

Instead, current buyers should be looking for management solutions that focus on the delivery of network results. By taking a tops-down view of the network, you can verify conditions, diagnosis abnormalities and proactively enforce the production services it delivers. An intent-based management solution can exploit the management of many individual problems by treating them similarly with proper abstraction, network intelligence, and a means to re-use subject matter expertise. A solution like this would provide a concise understanding of how the network delivers 'intents' which are closely aligned with the needs of the business and its applications.

By 2025



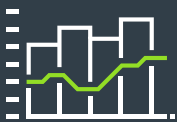
of enterprises will automate more than half of their network activities, an **increase from less than 8% of enterprises from early 2022**



The best way to evaluate a NetOps solution is to qualify and quantify what you have today. Look at your Service Desk and see how the NetOps function is represented along with the volumes of tickets and the kinds of problems being seen. Above all, you need to understand your operational baseline and expectations when evaluating how network automation can help.

Key capabilities to look for in a network automation solution:

- The ability to scale to any infrastructure size, including the edge and public cloud and everything in between
- Provides operational scalability with automation by solving for similar problems across the entire infrastructure
- Captures and shares SME knowledge across the organization
- Allows your experts in each scenario to capture their best practices and make them re-usable
- Has awareness and details of the entire hybrid network infrastructure and knows the parameters for every device. This is in stark contrast to many of the early automation approaches that were unaware of their surroundings.
- Includes a pre-built automation library that can immediately solve your most common network issues out of the box and is extensible without the need for coding
- Takes a proactive approach to automation and continuously assures preservation of network intentions and verifies the infrastructure can support your applications
- The ability to interactively apply stored automation units for remedial purposes when operators and engineers are addressing network issues
- The ability to execute automation in response to external events from third party applications, including ITSM workflow managers and network monitoring consoles
- Support for major public cloud providers, traditional network infrastructures and software defined LAN and WAN. Support for all major vendor components.



Most of these **similar** problems are being addressed individually as if each issue is bespoke, missing the big opportunity to **scale the NetOps function**, share re-usable best practices and become more consistent and predictable for the business

Getting Started: Determine your most commonly occurring problems

The ability for your chosen network automation solution to quickly address your problems in your environment is the key to demonstrating value and gaining support throughout the organization. So, the best place to identify your needs is to start with the most valuable information available: Your own incident and network service ticket data.

Start your investigation by studying your actual incident case data (service tickets) from the last 6-12 months. That data will reveal the kinds of operational work your NetOps teams conduct on a daily, weekly, and monthly basis. Doing this analysis will provide some trends to understand about your operational task workload and help to identify the types of problem situations that occur on a weekly or monthly basis.

You'll realize that voluminous service task workload across your entire NetOps team is best characterized as your precious engineers and operators who are continuously solving network problems which are 'similar' in nature. And less apparent, most of these similar problems are being addressed individually as if each issue is bespoke, missing the big opportunity to scale the NetOps function, share re-usable best practices and become more consistent and predictable for the business.



As NetOps scales in scope and complexity, IT has learned some valuable lessons regarding how to select and implement **network automation** that can be deployed immediately, increases in value over time, and **quantifies ROI**

Lessons Learned: Scaling NetOps and Applying Automation

Automation projects over the last couple of decades have become mired in mis-set expectations, budget overruns, and unclear ROI. As NetOps scales in scope and complexity, IT has learned some valuable lessons regarding how to select and implement network automation that can be deployed immediately, increases in value over time, and quantifies ROI.

Here are common mistakes to avoid and mitigate for a successful problem diagnosis automation experience.

1. Trying to scale NetOps through personnel to match business growth

As infrastructure scope and complexity expand, it is becoming impractical to simply hire more operational staff and train each of them in every network technology. While adding more service personnel is a common and tactical solution to this growing problem, it fails to achieve the desired results of lower operational costs, shorter task duration, and more consistent ticket resolutions. And the varying skill levels of operators and engineers negatively impact the ability to solve problems effectively and rapidly. The most successful IT leaders realize that their operational plan must not continue the labor-intensive model that has been in place for decades, but instead become smarter and transform knowledge into a re-usable asset.

2. Adding Another Tool or Point Solution

We all understand the value of documenting and mapping your network. You can identify where the root cause of the problem is faster, maintain compliance more easily and prepare for audits quickly. And the promise of a fancy new auto-discovery and mapping tool can be exciting. But if you stop there, you're overlooking the big picture. Tools are tactical. What you are really looking to do is change the approach. You are looking to change the workflows associated with Network Operations to re-use knowledge and automate the portions that are similar from ticket to ticket. Buying just another tool does nothing to change the trajectory of the problem.

3. Waiting for AIOps and ML tools

All AIOps and ML solutions take a black-box approach leveraging machine learning or traditional statistics-based AI functions to discover root causes from large amounts of machine data. But for most IT problems, a set of clean data is very hard to come by, on top of many other challenges including a PH. D to operate such a tool. Customers routinely state that AI and ML tools rarely meet the bar for success. These approaches are unaware of the infrastructure details and intents, so the observations they make are more theoretical or academic in nature. As such, they rarely produce results that have a material impact on the biggest challenge, which is solving a small number of similar problems at scale, using re-usable knowledge. And, since it's a really small number of similar problems, gaining the requisite knowledge is not really the NetOps scale issue. It automatically captures and applying automation to solve this set of problems again and again. When selecting a strategic network automation solution, look for solutions with the ability to apply knowledge and experience-based best practices proactively to prevent potential problems from impacting production.



The average network management team spends

3/4

of its time fixing problems, according to Enterprise Management Associates (EMA) research

4. Taking a reactive approach to network operations

Troubleshooting is the singular focus of most enterprise network managers today, and it is a fundamental problem. The average network management team spends three-quarters of its time fixing problems, according to Enterprise Management Associates (EMA) research.

Look for a solution that focuses on top-down, results-oriented management. This type of solution empowers you to spend less time on reactive problem solving and instead focus on making the infrastructure more robust, defensible, and reducing service outage risk. The best results-oriented Network Automation solutions will continuously look for the existence of the normal or expected “good” operating conditions (as defined by your business apps). A solution like this understands the intents of each component and how business applications are designed, and the characteristics of the network services each application requires.

5. Focusing only on Day 0 and Day 1 network operations

According to Enterprise Management Associates, most enterprises focus their automation efforts on Day 0 and Day 1 network operations, such as zero-touch provisioning and change and configuration management. However, addressing Day-0 and Day-1 is just a tiny part of the total operational lifecycle. Addressing Day-0 and Day-1 alone neglects the much larger and longer-term opportunity to automate Day 2 network operations in a defensible fashion. Remember, the solutions needed to manage Day-2 will be used thousands of times per month in a larger organization, so making the right choice of Network Automation that addresses this Day-2 part of the lifecycle will have a much greater impact on the bottom line.

Omitting the Day-2 requirement from your selection process will perpetuate the long-standing struggle for scalable network operations, leaving engineers struggling with operational inefficiency, each having to craft a random portfolio of generic tools, a lack of reliable network documentation, and a litany of on-going design compliance issues.

Day 0
Provisioning

Day 1
Configuration

Day 2 - Day n
Optimizing – Ongoing Operations

6. Personal libraries of generic scripts are not Automation

According to Enterprise Management Associates, many early types of automation are created from the bottom up, with network engineers teaching themselves new scripting and coding languages and building themselves folders of single-use scripts, which may or may never be used again. These folders of scripts may amount to hundreds or thousands of scripts without any structure for re-use. So, while it may be theoretically possible to capture their expertise in these very rigid one-off scripts, there is also no system to leverage these efforts to be applicable to similar problems, nor make their knowledge accessible by a broader group of users with varying skills. The result is the same problem being addressed by two different network engineers will be handled independently, and inconsistently, with varying results.



Along with its available Automation Library service, it addresses more than



of an enterprises service task needs and can even be applied proactively to prevent potential problems before they affect production needs

Out of the Box: select a platform that includes a rich Automation Library

A library of pre-built automation lets any operator troubleshoot the most common problems, giving them a head start. In fact, the best network automation solutions should include entries that can resolve all the most common problems that arise in an enterprise infrastructure. Look for a solution that can also customize automations based on your most common incidents and offers the ability to create new automation without any coding- which is where many automation projects have stalled in the past. The requirement for armies of software developers and the need for rigid functional specifications have stymied this effort in the past. Instead, the chosen solution should provide for a more agile approach, allowing any user to create their own automation and refine it over time as needed.

Choose NetBrain: Network automation the way it was meant to be

NetBrain Problem Diagnosis Automation System (PDAS) is the answer to all these challenges. Along with its available Automation Library service, it addresses more than 95% of an enterprises service task needs and can even be applied proactively to prevent potential problems before they affect production needs.

Examples of common problem diagnosis situations addressed by PDAs and its Automation Library:

Intent-driven NetBrain PDAs Automation Library	
Design-Level Enforcement	Event and Ticket Remediation
Design / Feature / Technology / Security <ul style="list-style-type: none"> • Must-have or forbidden routes • QoS, ACL, or multicast rules • HA/failover/redundancy rules 	Network <ul style="list-style-type: none"> • Access errors • Configuration errors and drift • BGP or OSPF errors
Incident & Feature Agnostic <ul style="list-style-type: none"> • Sufficient CPU, Memory, Power • Link utilization, Latency, Interface status • Device and service reachability 	Device <ul style="list-style-type: none"> • Host or Service Unreachable • Printer/Database Device unavailable • Permission restrictions
Key Applications and Paths <ul style="list-style-type: none"> • Voice, Internet, VPN path availability and performance • DCI Paths performance and quality • Validating key application path availability and quality 	Application <ul style="list-style-type: none"> • Data unavailable • Voice Choppy • Slow App Response Times



Today, over

2500

of the world's largest enterprises and MSPs use NetBrain

PDAS and its continuously expanding library of pre-built expertise-based automation units is ready to use right out of the box. These automation units address the most common scenarios seen in most enterprises for event-driven responses, (such as those reported via a network helpdesk service ticket), as well as for proactive design-level compliance, security, and application performance support verifications.

The NetBrain Automation Library is available exclusively as part of our Managed NetBrain Premium professional services subscription. For the duration of the Premium services contract, customers are entitled to a subscription to the NetBrain Automation Library and assistance from our NetBrain Automation Center of Excellence (COE) to help you select, adapt, and implement the latest in NetBrain automation.

The NetBrain Automation Library is extensible as well. Through no-code mechanisms built into the PDA System, your subject matter experts can create additional situation and site-specific automation routines and add them to the Automation Library. Any network engineer or operator can use the stored automation routines to solve problems quickly and accurately when they re-occur. In effect, subject matter expertise becomes available when the subject matter experts are not!

What the Experts Say

According to Enterprise Management Associates, network teams need to adopt automation tools that have comprehensive awareness of the underlying network itself and provides automation for these hybrid networks, edge to cloud. The days of maintaining individual siloed tools for individual tasks are over. Network operations teams must look for ways to combine automation tasks which span data centers, LANs, WANs, and the cloud. They should adopt automation platforms with visibility into the intent and the state of the network to minimize manual data gathering. Look for automation solutions that are focused on the net-result of delivering the IT services needed by the business, rather than maintaining device-level health. The selected automation platform should capture the knowledge of the network team's experts without software development nor programming, to make it available to the entire network team.

Get Started Today

NetBrain's fourth-generation Problem Diagnosis Automation System is the industry's only smart network automation & visibility platform for managing every hybrid network from the top-down using network design intents as its foundation. While other solutions force users to interact with every network device, NetBrain describes and manages a set of network design intents. Tight integration with major ITSM systems automates and accelerates the resolutions of more than 95% of all network service tickets and prevents more than 50% of all network problems before they impact production. Today, over 2,500 of the world's largest enterprises and MSPs use NetBrain.

[Get started today](#)

EMA Source: https://www.netbraintech.com/wp-content/uploads/2022/02/NBT002b_NetBrain-WP_Final.pdf

² EMA: https://info.netbraintech.com/rs/943-NGR-529/images/White-Paper_The%20Future_of_Network_Operations.pdf

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.