RESOLVE

TRAPPED IN TIME

## 3 NetOps Practices to Modernize ASAP

Looking Back to Move Ahead

While network technology continues to evolve at a blistering pace, the approach to network management has not kept up. As a result, Infrastructure & Operations (I&O) teams often struggle to manage all of their enterprise's network testing, provisioning, and incident resolution requirements.

If you think things will get easier on their own, think again: next-generation technologies like NFV, SD-WAN, IPv6, and 5G will spread the network wider—and I&O teams thinner. The time to take a modern approach to network management is now.

In this eBook, we'll look at the past and future of network management to help you understand how to incorporate network automation to keep pace with today's technologies.
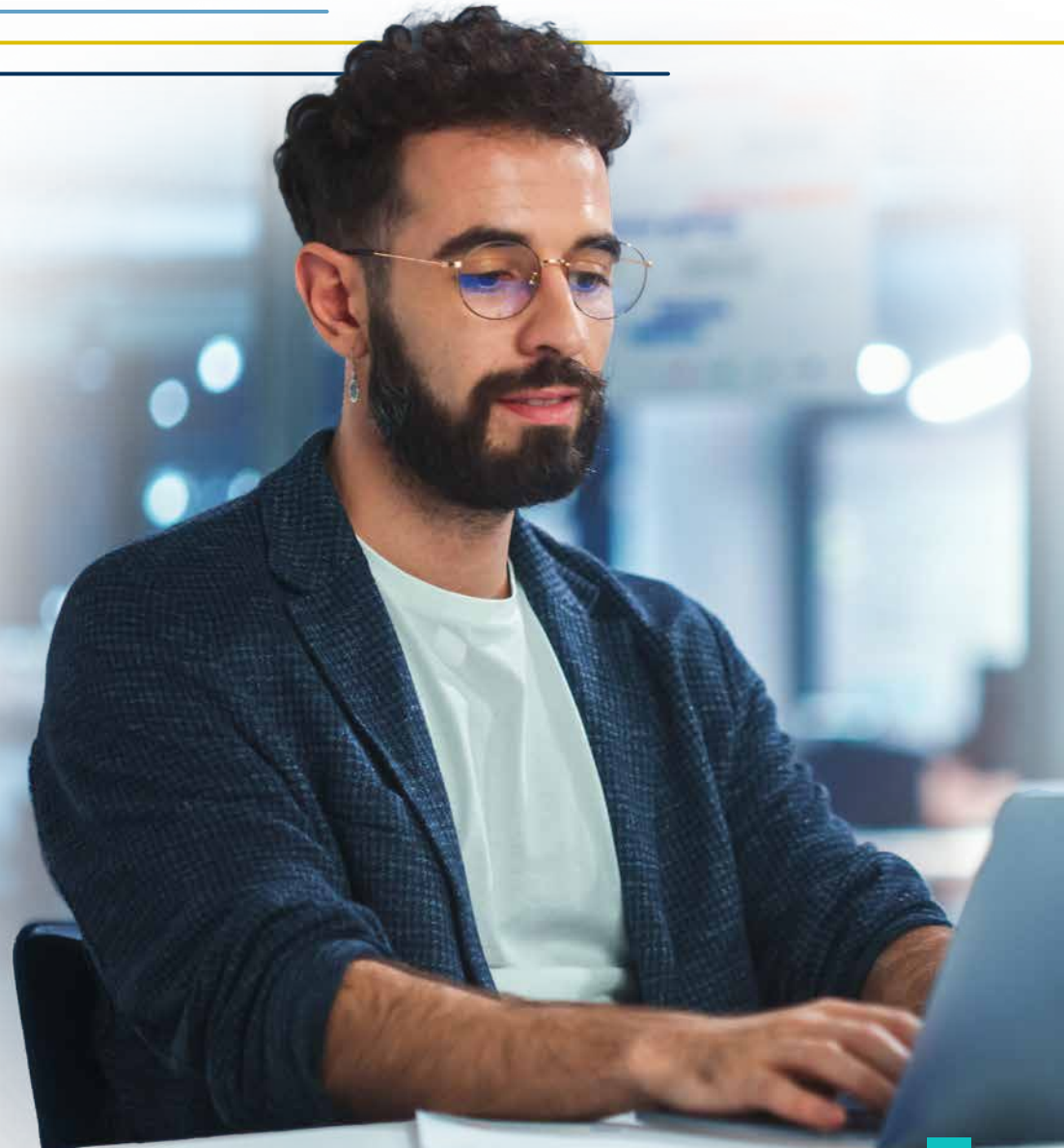
Manual NetOps No Longer Cuts It

The difference between the network technology of today and from a few decades ago is the same as the difference between telegraph lines and 5G cellular networks: they both serve to get information from Point A to Point B, but that's about where the similarity ends.

Despite the evolution in network technology, network management processes remain painfully in the past, with I&O teams manually installing hardware, changing configurations, and troubleshooting outages. What is the impact of the outdated, manual NetOps approach that many teams still employ?

A slowdown in operations as provisioning and incident resolution create bottlenecks

A lack of resilience due to a patchwork of homegrown scripts that are over reliant on specific vendors or technologies

**Poor collaboration** with other IT teams, creating lengthy resolution times for business-critical IT incidents

Inability to scale due to a legacy, monolithic, and proprietary network infrastructure that lacks an automation surface area

A struggle to adapt as multi-vendor networks often require specialized SMEs or skill sets

Not only does a manual NetOps approach increase daily operational complexity, it makes it almost impossible to react effectively when an outage hits.

50%
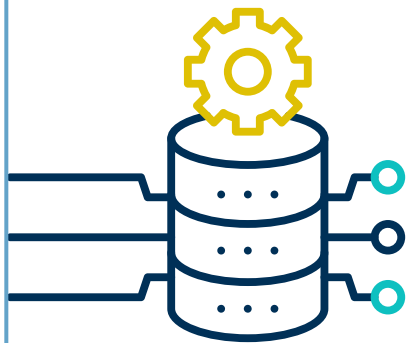
of Cloudfare's web traffic was impacted due to an outage, making Shopify, Dropbox, and OKCupid inaccessible for 30 minutes

And in a digital world where connectivity is a necessity, even an outage of a few minutes can be costly:

1

An outage at Facebook brought down the global backbone network that the company relies on to connect all its computing facilities together, causing a total loss of access to Facebook, Instagram, and Whatsapp for billions of global users for more than five hours.[1]

2

When the cloud-computing company Fastly experienced a network outage, it also caused outages for the major media companies that rely on its Content Delivery Network services, including Reddit, Twitch, Hulu, and the New York Times.[2]

3

A configuration error in Cloudflare's backbone network created an outage that impacted 50% of the web traffic it manages, resulting in sites like Shopify, Dropbox, and OKCupid from being accessible for nearly 30 minutes.[3]

[1] New York Times, Gone In Minutes, Out for Hours: Outage Shakes Facebook

[2] New York Times, What is Fastly, the company behind the worldwide internet outage?

[3] New York Times, A Failure Here, Damaged Fiber There and a Day of Internet Glitches.

Is Your NetOps Stuck In the Past?

As businesses demand more and more support for DevOps, cloud, and microservices, I&O teams have a lot to do in very little time. That's where network automation comes in.

Network automation is one of the fastest-growing sectors across I&O, with the network automation market projected to grow from $2.9 billion in 2020 to $8.9 billion by 2025.[4] Network automation is the future, with 77% of organizations stating that network automation is a high priority.[5]

However, it is still not the present for most organizations, with 65% of enterprise networking activities still performed manually.[6] Not only that, but 41% of organizations have automated less than 10% of network activities, while 31% have only automated between 11-25%. Just 10% have automated more than 50% of network activities, demonstrating the room that your organization likely has in growing your network automation efforts.[7]

This lack of network automation in the vast majority of enterprises creates provisioning and incident resolution bottlenecks while increasing the odds that someone makes a mistake.

Meanwhile, homegrown scripts and single-vendor technologies are still the most used path to network automation, which creates limitations into how, where, and how far automation can be applied.

Before we look at how network automation can empower the modern network, it pays to look at how I&O teams have approached network management in the past—and often still do so in the present.

41%
of organizations automate less than

10%
of network activities

[4]https://www.marketsandmarkets.com/Market-Reports/network-automation-market-156261086.html

[5]EMA, Enterprise Network Automation for 2020 and Beyond.

[6]Gartner, 2022 Gartner Market Guide for Network Automation Tools.

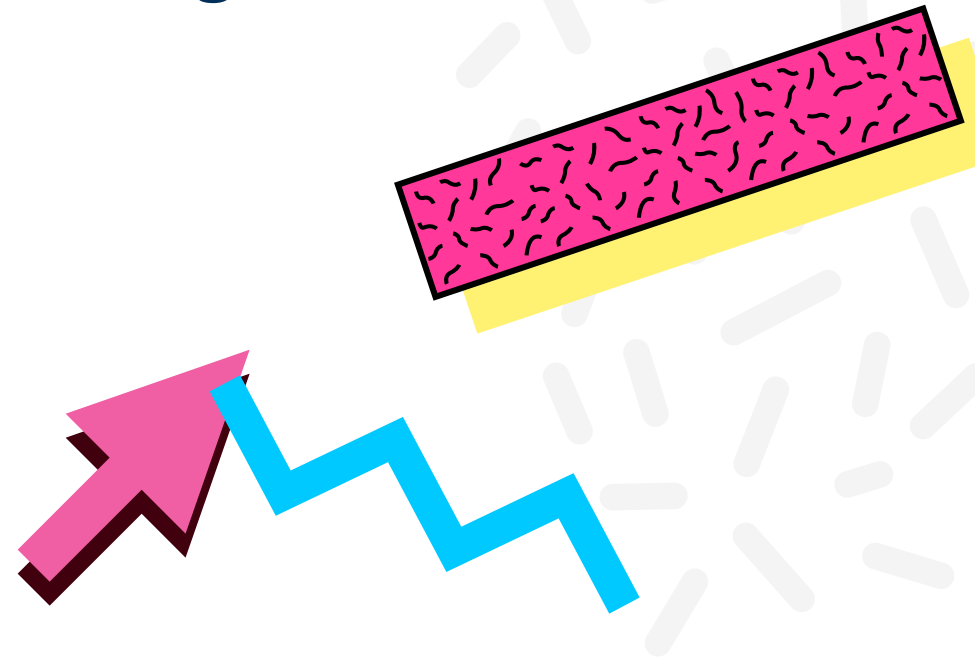[7]Gartner, The State of Network Automation in 2022.

The 1990s Way

The Era of Manual Troubleshooting

In the 1990s, network administration was a hands-on job. Admins spent the vast majority of their time troubleshooting network outages by manually seeking out and isolating problems one painful step at a time. This could include submitting tickets, waiting for responses, calling up network engineers to perform config tests, performing diagnostics, implementing changes, and validating fixes.

Too many enterprise IT teams still take this approach today, which significantly increases the time to resolution and wastes time for both the admin and the business users waiting to get back to work. Let's look at how many organizations still use a manual process to deal with something as common place as an alarm.
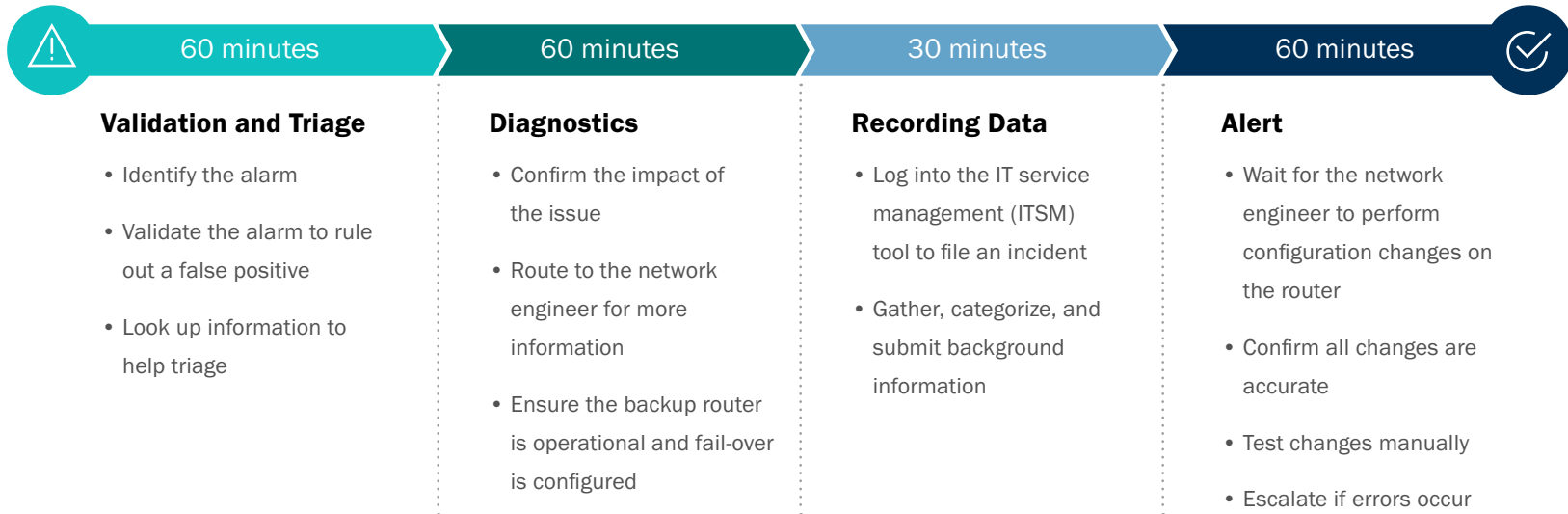
Trapped in the 90s
The Manual Troubleshooting Approach

3.5 Hours

60 minutes	60 minutes	30 minutes	60 minutes
Validation and Triage	**Diagnostics**	**Recording Data**	**Alert**
• Identify the alarm	• Confirm the impact of the issue	• Log into the IT service management (ITSM) tool to file an incident	• Wait for the network engineer to perform configuration changes on the router
• Validate the alarm to rule out a false positive	• Route to the network engineer for more information	• Gather, categorize, and submit background information	• Confirm all changes are accurate
• Look up information to help triage	• Ensure the backup router is operational and fail-over is configured		• Test changes manually
			• Escalate if errors occur

THE NETWORK AUTOMATION ADVANTAGE:
Speed

As you can see, that's nearly half a day wasted—and that's assuming everything goes right. With network automation, each stage can be automatically executed without the need for manual intervention, cutting a typical troubleshooting event from hours to a few minutes.
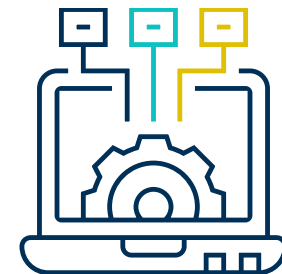
The 2000s Way

The Rise of ClickOps

By the 2000s, network administration evolved, but to a 'ClickOps' approach.

Though there was some automation in the form of a web console, it still required IT to click through a series of screens and buttons in each individual vendor's proprietary management platform in order to provision or perform ongoing maintenance of their network infrastructure. This also saw the increase in "SMEs"—specialists extremely well-versed in a type of technology.

While ClickOps made life better than the server room trips and the Command Line Interface (CLI) commands, it still goes against the principles of efficiency. Procedures were not documented, therefore not auditable and a scramble to rollback in case anything went wrong. Get the picture?
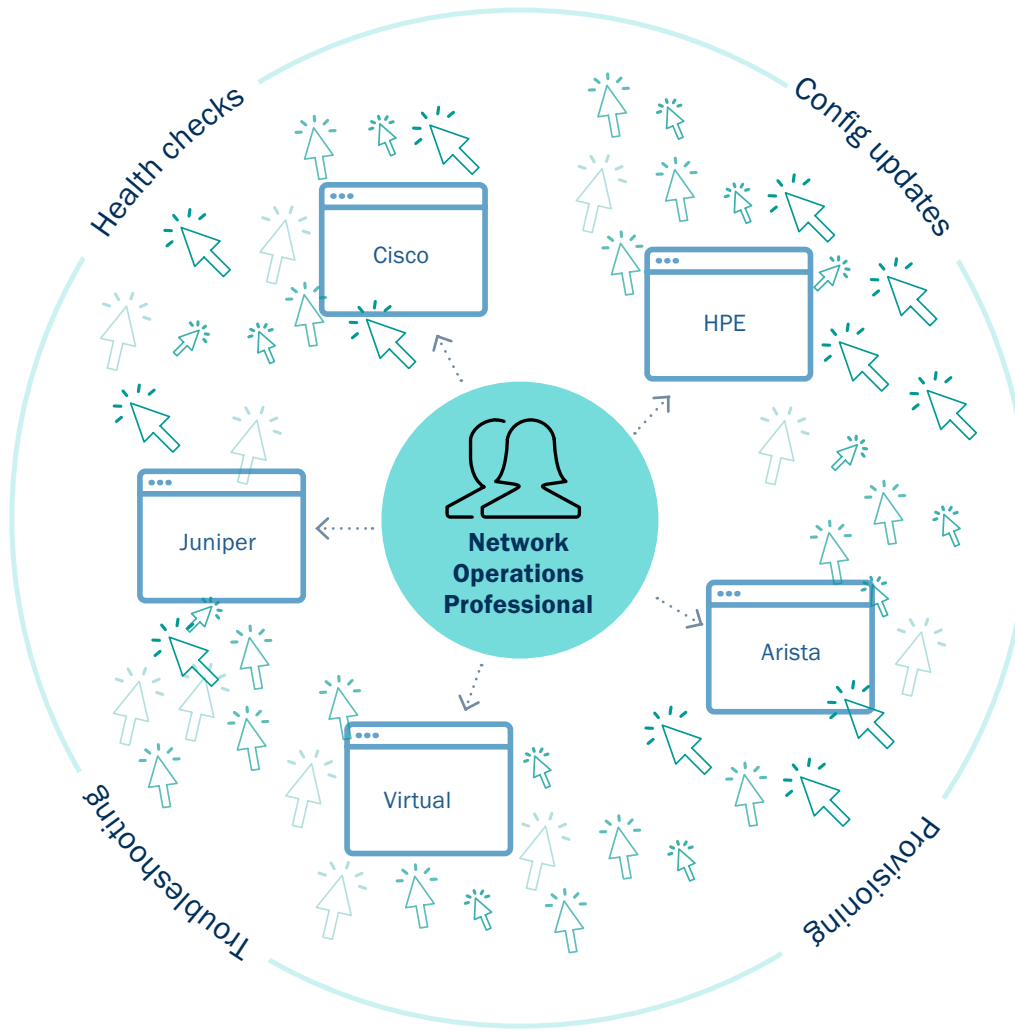
We can and should do better.

Most organizations now employ equal-cost multipath (ECMP) as a routing strategy and use multi-vendor endpoints. While this helps ensure resiliency and best-in-class functionality, it requires a Network Ops engineer to either be highly skilled in multiple technologies and toolsets, or an I&O team to support multiple SMEs to manage each one.

✕ Trapped in the OOs
The ClickOps Management Approach

Health checks · **Config updates** · **Provisioning** · **Troubleshooting**

- Cisco
- HPE
- Juniper
- Arista
- Virtual

Network Operations Professional

THE NETWORK AUTOMATION ADVANTAGE:
Simplicity

Business drivers such as agility, business continuity, and efficiency has increased the need for faster resolutions and proactive management. With network automation, you can use APIs to connect and collect all of your network technologies and processes in one pane of glass. Not only can automation take care of keeping the lights on with SME approved, tested, and well documented runbooks, but it can allow proactive management of network devices to prevent outages and downtimes.

The 2010s Way

The Deluge of Alarms

The 2010s found the cloud, DevOps practices, and CI/CD in full swing, bringing new complexity to the day-to-day life of Network Ops engineers. With data spread far and wide across on-premises datacenters, and private, public, and hybrid clouds, networks became not only more complex, but more dynamic. Tools evolved to allow monitoring of every IT endpoint, but the result was more and more alarms, and less time to address them.

A cacophony of alarms is the reality for almost every NetOps professional today. As applications become business-critical, IT moves its focus to being more proactive; every endpoint is closely monitored to avoid poor network visibility, network downtime, and degraded performance.

With more and more alarms coming in, it can be a full-time job just weeding out the false positives from the real issues. If IT has to have any chance in truly benefitting from all of the alarms, they need to find that needle in the haystack—the few that need more attention. Once that is done, NetOps teams often have to manually validate, triage, and remediate alarms as quickly as possible to avoid an outage.

Trapped in the 10s
The Manual Alarms Approach
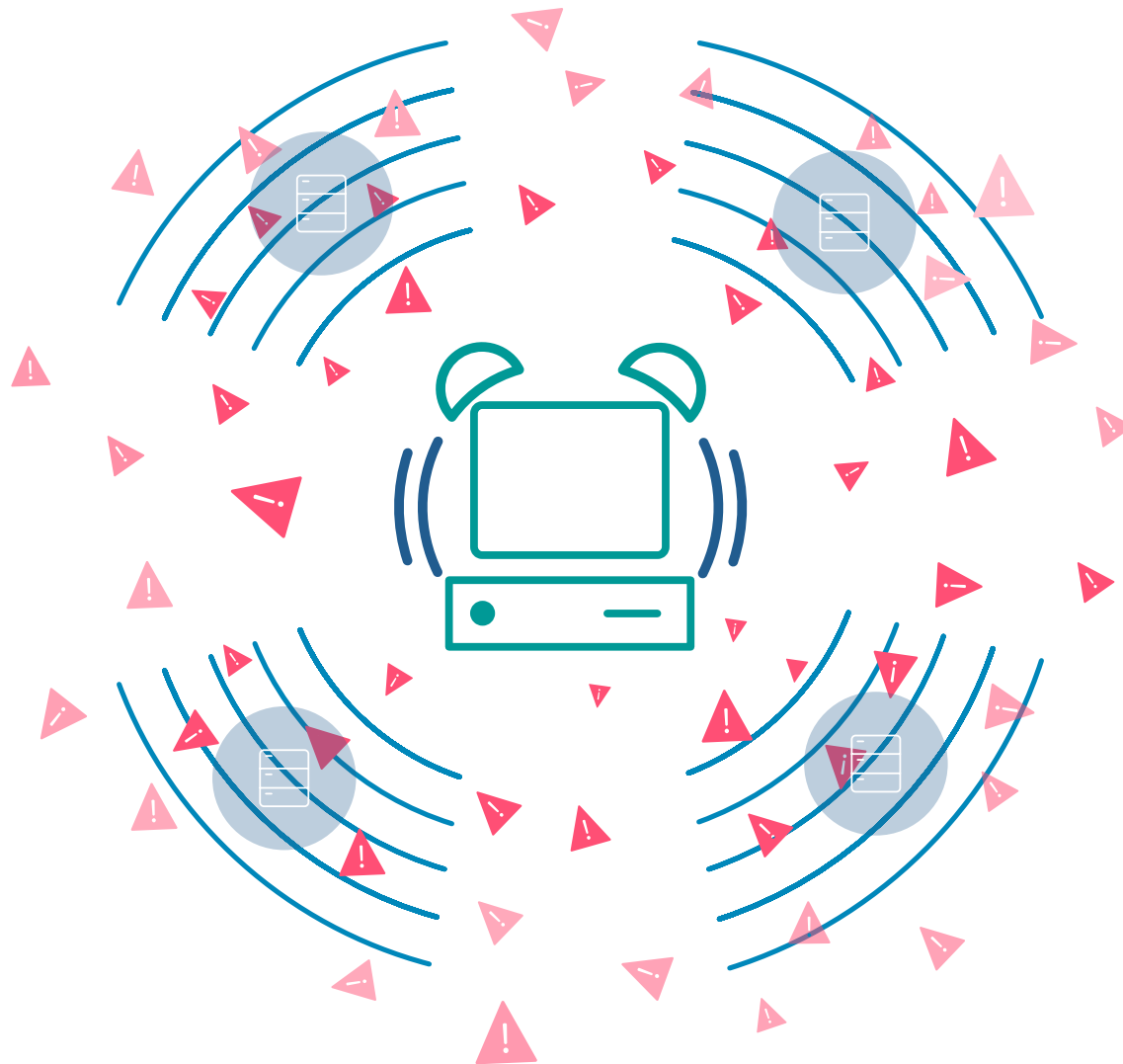
Auto-remediation

Network automation makes it simple to manage all your alarms at scale. **By using automation to weed out the false positives, NetOps teams can spend more of their time focused on the real issues.** In addition, automation can take on almost all triage, diagnosis, and remediation tasks, which means that an admin will only get alerted when something needs their attention.

The 2020s Way

The Era of Network Automation

To meet the needs of a modern network, along with the expectations of business leaders, business users, and customers, I&O teams need to embrace an autonomous network management approach. **With network automation you can:**

Manage increasing IT complexity: Build robust capacity across IT functions by automating routine manual tasks.

Predict and prevent outages: Enable proactive detection and diagnosis to take action on looming problems before they can create delays, disruption, and revenue loss.

Reduce Mean Time to Recovery: Respond and resolve issues faster, spanning from simple service requests to complex, self-healing processes.

Improve IT operational efficiency: Eliminate the need for staff to spend time doing repetitive tasks while ensuring common tasks are completed using a standardized process.

Gain real-time visibility into your dynamic infrastructure: Understand and manage your changing network infrastructure to diagnose and resolve issues faster.

Eliminate alarm noise: Eliminate false positives and leverage event clustering to uncover the true source of an issue.

Increase compliance while reducing risk: Eliminate inadvertent human errors while enforcing security and regulatory compliance.

Taking a Holistic Approach to Automation

When getting started with network automation, it's often tempting to seek out solutions for specific use cases. However, as networks become both more complex and more intertwined, this can lead to automation silos as tools struggle to communicate with each other.

Instead of specific tools, I&O teams should seek out a network automation platform. In doing so, you can integrate any existing automation investments together to ensure you're working with a single source of data. By taking a platform approach, teams can also automate high-value use cases as needed, knowing they can then automate additional processes down the road without having to worry about how to integrate disparate tools.

The right network automation platform can help you integrate automation easily into the rest of your I&O processes by helping you automate the specific use case that takes up the most time or could provide the most value for your business. Because you're using an automation platform, not just a specific tool targeted to a single use case, this solution can help you leverage those use cases as the foundation for greater automation across your network management operations. The more comfortable your team gets, the more you can automate.

To achieve the greatest value at the fastest rate, you'll want to focus your efforts on the key automation initiatives proven time and again to deliver the highest ROI from the beginning.

Here's where to start.
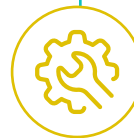
Provisioning and configuration: Day 0 – Day n automation for keeping the lights on. Deliver and scale new services instantly, saving hours of manual work while ensuring best practices and policies are strictly followed.

Incident response with auto-remediation: Close the IT incident resolution loop with automated remediation of alarms. Automatically trigger an SME approved workflow, create an IT ticket, and execute the complete resolution process, to eliminate false positives and keep up with incoming alarms.

Proactive network testing: Avoid unexpected and costly downtime with automation. Automate network testing and health checks to be proactive instead of reactive. In addition, surface real-time insights into your network service quality at scale, enabling you to focus your service improvement investments.

Accelerate Your Journey to Network Automation with **Resolve**

As one of the leading network automation platforms on the market, Resolve delivers everything you need to achieve network automation at scale.

By automating everything from the simplest task to the most complex process, you can save hundreds or even thousands of I&O hours a year that can then be deployed toward innovation and high-value tasks.

Our platform uses an intuitive drag-and-drop interface and out-of-the-box accelerator packs to help you quickly build complex decision trees in minutes. You can also easily integrate existing automations using hundreds of pre-built integrations to make the most out of your current investments.

Automate network provision, network configuration tasks, post-configuration checks, remediation tasks, and more—if it's a process, we can help you do it faster, smarter, more accurately, and at a lower cost.

Ready to see Resolve in action?

SCHEDULE A DEMO TODAY >

What Can You Achieve with Resolve?

According to a Forrester analysis, Resolve helps customers achieve:

A payback period of just one month

Cost avoidance savings of $7.7 million[8]

MTTR reduction from 1,889 minutes to 1 minute

248% ROI

[8]Forrester, The Total Economic Impact of Resolve's Automation Solution.

RESOLVE

Resolve Systems helps enterprise technology teams worldwide achieve agile, autonomous operations with an industry-leading intelligent IT automation platform. With more than a decade of automation expertise, Resolve's solutions are purpose-built to address challenges posed by increasing IT complexity. Resolve enables organizations to maximize operational efficiency, overcome labor shortages, reduce costs, quickly troubleshoot and fix problems, and accelerate service delivery. Resolve is majority-owned by Insight Partners, a leading global venture capital and private equity firm investing in high-growth technology and software companies.