IP FABRIC
AUTOMATED NETWORK ASSURANCE PLATFORM

IP Fabric | Red Hat

**Red Hat are automation superheroes
Network Assurance is their superpower**

Red Hat's Network Ecosystem

Red Hat is an open-source software provider offering forward-thinking solutions for enterprises. With a focus on automation using Ansible, network assurance closes the loop on many of their projects and processes by offering unprecedented visibility into and validation of their network state.

Red Hat was looking for a tool that could offer a holistic view of the entire network, so any inconsistencies could be easily spotted and rectified. The overall goal was to improve the network infrastructure and limit the chance of localized issues.

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> IP Fabric is a tool that pulls the data that you need from every device in your network for quick analysis; it doesn't stop at letting you analyze the data easily, but actually allows you to plug it into your processes and workflow. That can be applied to anything - automation, troubleshooting, hardware refresh planning - and it gives you that contextualized insight into your network, both from a high level and down to the details. It also gives teams without deep network knowledge the tools to understand how traffic flows through the network, and what may hinder that flow. For new engineers, their understanding of the network is massively accelerated, and they can get started with troubleshooting almost immediately.
>
> — **Martin Moucka**
> *IT Network Manager*

What Red Hat loves about IP Fabric :

- Easy integration with other tools via API
- Historical Troubleshooting
- Enables asynchronous work and self-service processes
- Flexibility in choosing which data is shared
- Not just provision of data, but analysis too
- Source of Truth & network state validation

Network Hardware Refresh

Challenge

Network refresh planning requires a lot of time and focus from the Principal Network Engineer. When determining the likely hundreds of devices that would have to be updated in upcoming months, they would have to manually collect a list of all the platforms in the network, and then check the End Of Life date with each vendor. This manual process is not only time intensive, but also introduces the risk of human error in collecting this information.

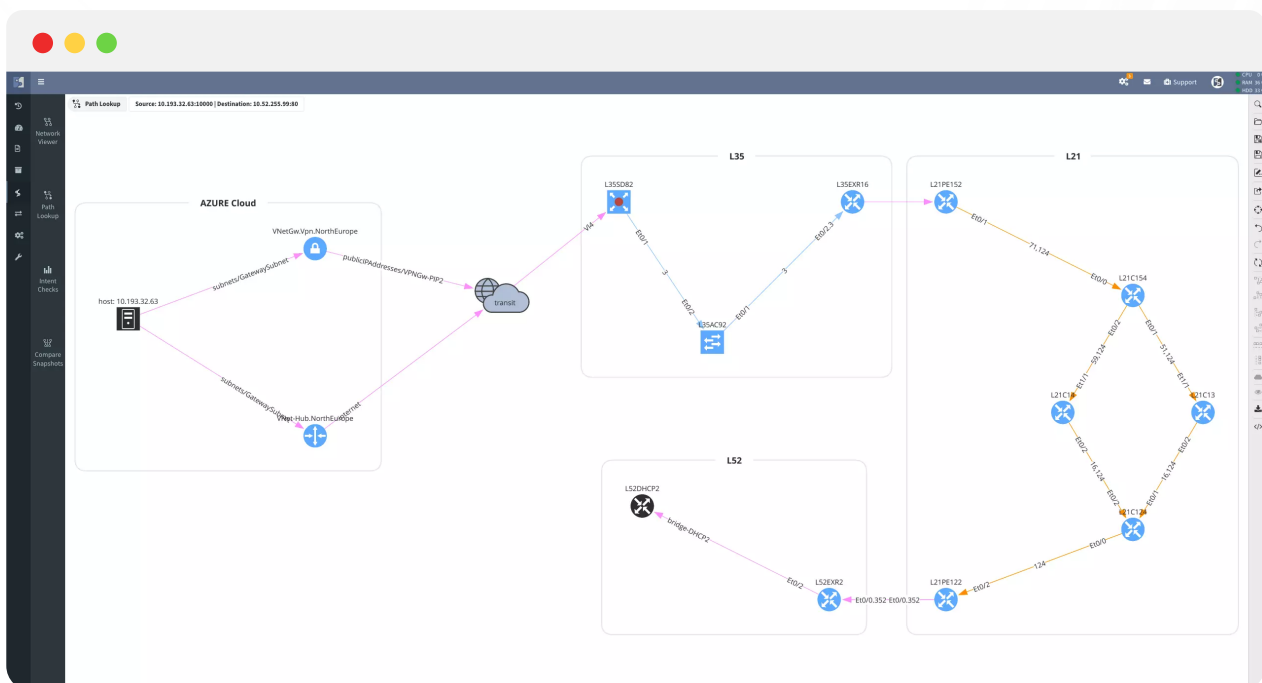## Our Solution

• Automated Discovery

IP Fabric ensures that every device and path, configuration, and security policy in the Red Hat network is automatically discovered and the relevant documentation updated. From a high-level overview to the granular details, true insight into the network is a click away for Red Hat's network teams.

• Pull Data Flexibly

When planning, Red Hat's team can pick and choose what part of the network they want visualized as they please. This flexibility turns a usually tedious task into smooth sailing. IP Fabric gives you options.

Benefits

→ IP Fabric took the process of collecting information about EOL of network devices from days to hours.

→ The network manager has flexibility regarding the data they wish to find.

→ No devices reaching EOL will ever be overlooked.

→ The planning process is streamlined and accurate.

Self-service Troubleshooting

Challenge

Red Hat has built their own policy validation tool that they use to ensure policies are configured as intended.

However, this tool only shows the firewall rules, which was lacking the context needed when troubleshooting security policy issues.

Further, manual processes – such as fact-finding missions - were necessary for teams to properly find the cause of issues, resulting in bottlenecks for different teams. Not only is this inefficient, but it can lead to strain between teams due to the pull of focus and time.

Our Solution

Red Hat integrated IP Fabric's end-to-end path lookup capabilities with their internal tool and easily shares the path visualization with the teams that need it.

By enhancing their internal processes with this valuable data from IP Fabric, they've added a self-service element to troubleshooting. Teams no longer have to rely on a particular engineer's availability or be blocked by a lack of access to information.

Benefits

→ Streamlined processes

→ Eliminate bottlenecks

→ Eliminate team silos

→ Happier teams across the organization

→ Enable asynchronous work

Validating Source of Truth

Challenge

With an automation focus, and much of the network already automated, a network source of truth that can be continuously validated against their intent became essential for the Red Hat team. This contains the serial numbers of all the devices in the network, for instance.

An incomplete "source of truth" – missing serial numbers - would cause issues when making network changes.

Our Solution

A foundational part of IP Fabric is the validation of your actual network state as it looks at a specified point in time through a network snapshot.

Using this, Red Hat is able to automatically ensure that all the serial numbers of devices in the network are accounted for, preventing an incomplete or inaccurate source of truth.

Benefits

→ A safer and more reliable change process

→ Increase the pace of automation

→ Increased trust in your network source of truth

IP Fabric's automated network assurance has also helped Red Hat to:

→ Maintain operational excellence when moving to an agile workflow

→ Add a proactive element to Red Hat's issue tracking

→ Identified potentially unknown dependencies on an NTP server before decommissioning a data center

→ Aligned actual network state with devices in Red Hat's monitoring tool to ensure all devices were being monitored

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