



CASE STUDY

Time for a Hobby, and a Birthday Party with No Interruptions.

They are building the world's first smart workspace, operating a network that supports five hundred million users. Operating that network needs to be smart, too: better and simpler. But these days, everything is smart—and there is too much noise from all these “smarts.” That's true in many workplaces, and in traditional network operations teams. It's noisy, notifications and alerts interrupting your focus. It gets harder to get important things done, because urgent things creep in.

Our customer, one of the largest cloud storage and collaboration tools companies in the world, had done everything right. They built a network from the ground up. They support 500 million users around the world. They used best-in-class equipment, and they upgraded or changed their data center infrastructure when an obviously better choice came along. Why? Because they had to – their network was their business.

Naturally they faced the usual challenges of running a large, multi-vendor network. They had already taken on automated configuration management and succeeded. They documented configurations and put them into a repository. They defined and implemented workflows. They created templates and defined automation pipelines. They automatically verified changes before deploying new devices and monitored the network for any unanticipated changes. Well- defined, repeatable pipelines helped them move fast, stay smart, and keep the network up.

Customer Profile

- Global cloud storage and collaboration tools SaaS
- \$1.5B+ in annual revenue
- 3000+ devices automated
- 50,000+ metrics monitored per second
- Airgap Network AI monitors over 2 million metrics, operating far beyond any human capacity.

And then our customer ran into some challenges, because in networking, getting it right is never easy. And once you do, keeping it right just gets more difficult as you scale.

On the face of it, using automation to build a consistent, well-documented network should eliminate operational problems, but we all know that it doesn't work that way in real life. Sometimes it's the traffic. Sometimes it's the gear. Sometimes it's a carrier or provider. And sometimes it's some new service on a host and the network isn't the problem at all. The fact is that in many ways a large, multi- vendor network operates more like a living thing than a set of binary devices. For that reason, network monitoring has traditionally been a manual operation, and in this case depended heavily on those few individuals who knew both the facts of the situation and the deep background. It's always taken a human brain to sift out the meaningful hints and chase down issues.

Enter the Network Whisperer

You probably know one. In a network like our customer was running—a cloud-based global service, using fabric technology, layer-3 protocols and systems from multiple vendors—there usually aren't more than a few of these folks. They have finely-honed debugging skills, manual inspection capabilities, and solid networking chops, but they also have the ability to look at a wonky device name and know exactly where it is in the network; they remember that a couple years ago the team had to use alternative accessories and that were not quite the same as the standard – and they recognize that the drops are caused by degraded light-levels immediately. These few special people are the secret weapons of network monitoring, and they also have too much work to do. Even the best among them get stressed by constant interruptions and because they are often at the crux of critical issues.

Why not build an automated monitoring solution?

It was the right move. But coming up with an automated network monitoring solution (even if you have the skill set) doesn't necessarily fix the problem. Sometimes it just makes more work. If you build out yet another system that you have to triage and maintain, you have more work, not less. Our customer's team had several different tools in place, including open source and commercial tools. These tools were generating non-standardized alerts and every time they expanded their network or changed systems or used new systems in designs, work was required for each device. The alert semantics, the DIY system, and the changes required for each new device created a solution that only served to compound their workload.

“We had an array of network monitoring tools being used to monitor different things in the network. Our people were getting paged for problems they couldn't really do anything about. And, every time a network engineer had to bring up a new interface or a new device, they also had to touch 3 or 4 different tools to configure monitoring.

Our engineers have their regular operational work and then they had this extra burden of hours to make sure monitoring worked. Recognizing this as a problem, we began looking for a different way of monitoring the network and we knew that automation was the key to managing the complexities we were facing.”

Network Reliability to the rescue

From their aggregate work history at places like Google and Facebook, the team knew that there was a way to automate performance monitoring. They had successfully developed automation pipelines for configuration management, so monitoring was an obvious next step. The team looked at traditional data pollers and network management systems. But they couldn't find the right tools to automate manual operations processes and get the precise root-cause alerts needed for on-call staff to resolve problems quickly. The perfect solution would be cost-effective, serverless, and not dependent on packet recording due to possible compliance issues. And, because the team had strong programming backgrounds, they could see additional uses for monitoring data including topology documentation and capacity planning for their transit and peering connections.

During this investigation, our customer discovered Airgap Network AI and realized that they may have found what they were looking for. Network AI enables web-scale collection of monitoring data both from traditional SNMP sources as well as from next generation streaming telemetry end-points and APIs. The data collected is normalized, put into a network graph, and made available to Network AI applications included in the deployment.

Job one was to do away with the constant, often spurious alerts that were draining the small team and ensure that when alerts do come in, they are actionable.

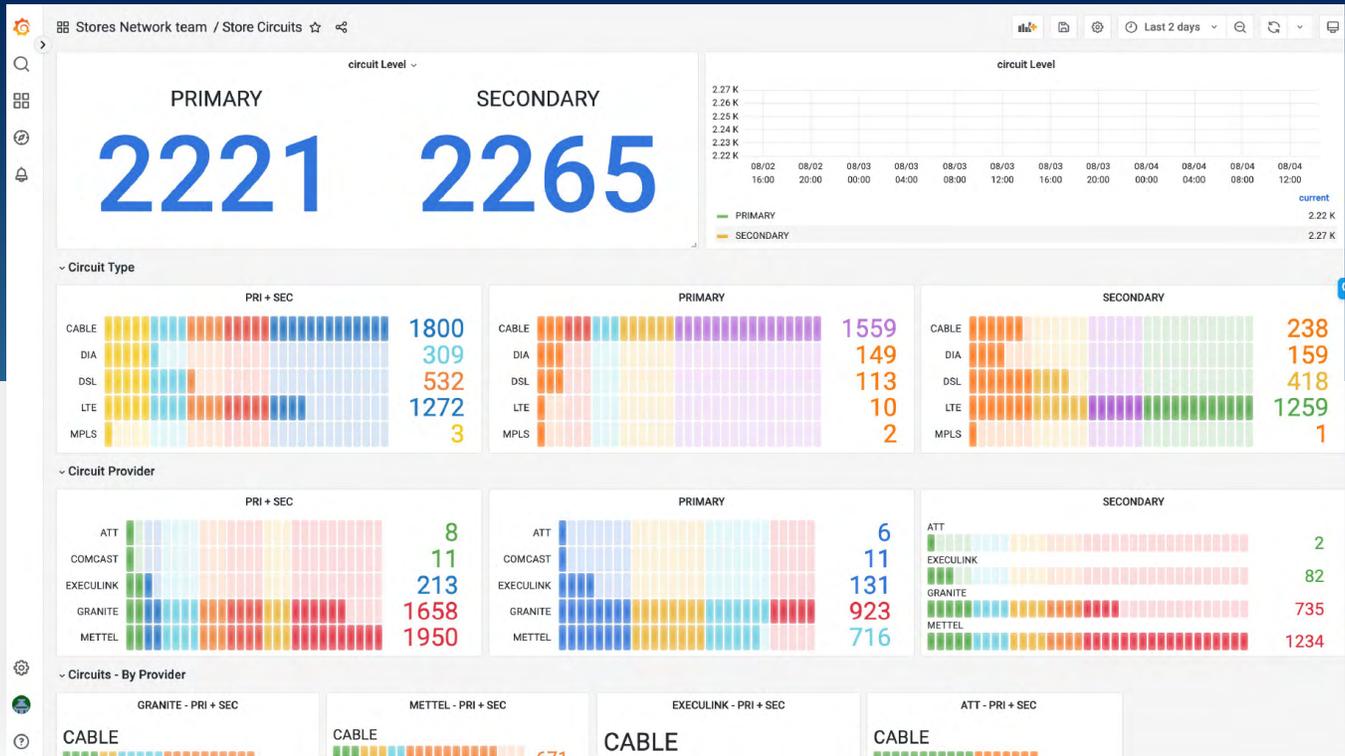
The next item on the list was to use the data generated by Network AI to alleviate everyday time-consuming tasks. One of the most draining jobs faced by any operations team is maintaining a graphical view of the network, particularly if that network is large, multivendor, and managed by a globally dispersed team. That task became automatic once they moved over to Airgap Network AI, as the system generates graphical network topologies, and when there are changes in the network, these dynamic maps update in real-time with live data on them. Once the information is available, it is just one step to adding time-series data to let the past inform future decisions.

Service Orchestrator Smart Inspection

- ✔ Classifier
- ✔ Scheduler
- ✔ Tagger
- ✔ Notifier
- ✔ Topology
- ✔ HA Data Logging
- ✔ Normalizer
- ✔ Load Balancing

“Once we started using Airgap Network AI, it wasn't long before all of our devices were being monitored by it and it also replaced the 3 or 4 alerting tools that we were using. Now, alert fatigue is a thing of the past.”

Airgap Network AI Dashboard



Idle Hands Turn to...Programming?

Thanks to the intelligence delivered by Airgap Network AI, next steps during an incident were clear and consistent and a broader team felt confident handling the on-call workload. Plus, keeping up with topography documentation was handled. Everyone on the team was more effective, happier. They have fewer critical alerts, and spreading the on-call work across a larger cross-section of the team was a real morale booster. The risk of interrupted birthday parties or missed jam sessions was reduced—and there was more time to think about other ways to improve network operations.

Naturally, with some free time, this team conceived of new monitoring automation applications, and because Network AI supports user-supplied Python extensions, they were able to easily leverage programming skills to create applications that every team member can use, all without having to manage a single piece of the system.

Performance Monitoring Automation isn't a hobby or a side job.

The Airgap Network AI service can be a next step or a first step in network automation. If you have already mastered treating configurations as code, then you need to start thinking about how you will build a feedback pipeline. If you're a Network Operations pro making the transition to reliability engineering, even if you're just picking up programming as a day job, Network AI can help you succeed with automation without risking an outage. Because performance monitoring automation doesn't require you to define configuration pipelines, Airgap Network AI can ease into you and your team into the world of network automation and help you to master each phase so it's easy to keep the network up while you consider what's next. You don't actually have to write any Python script to get started, or ever, really, but when you're ready, we find that many customers can think of new ways to use the data that the service generates.

The Network AI SaaS makes performance monitoring automation easy because no additional infrastructure is required. And when you automate performance monitoring successfully, you can think about your own next steps: whether it's driving increasingly automated traffic engineering, sharing more data with the business planning team, or just making sure that a monitoring pipeline makes the response to any incident easier every time. The Network AI SaaS platform delivers the operational source of truth you need to look forward.

Will Performance Monitoring Automation solve your network automation challenges?

Hey, it's easy to find out.

The Network AI QuickStart enables you to try Airgap Network AI for yourself. You can download the Network AI Agent yourself or work with the team to give Performance Monitoring Automation a test drive. It's easy to set up: no hardware required and less than an hour to get rolling.

Getting Started

The Network AI service enables your organization to take a leap forward and adopt NRE practices in large-scale production in just an hour or two. You'll reduce the losses caused by network downtime while improving visibility, creating more effective workflows, and driving analytical insights. For a demo or to get started with the service, contact us today: info@airgap.io

“The Airgap Network AI API enables integration with forward-looking applications from business intelligence to artificial intelligence and advanced network models. Network AI now functions as our main resource for ‘discovered data’ in our Intent-Based Networking implementation. Other pipelines can then pull this discovered data directly from the Airgap Network AI API to accomplish other non-monitoring related tasks that we need to do. Network AI has become our operational source of truth, on top of being a monitoring and alerting automation platform.”

About Airgap Networks

Airgap Network AI simplifies and automates network operations with Performance Monitoring Automation for network infrastructure. If you're tired of the old-fashioned approach to network monitoring and you have a network with more than 500 devices under management, then you're a good candidate for the Airgap Network AI service. Your organization can adopt the emerging practice of network reliability engineering using performance monitoring automation in the style of Google's network and dramatically improve network operations without building new infrastructure.