

Cisco Crosswork Network Automation

Introduction

The move toward 5G networks, the continued adoption of connected devices, digitization of everyday activities, and the emerging hybrid workplace will all lead to an increase in both the volume of traffic and types of services that need to be delivered securely and at scale over the internet.

Most tools Communications Service Providers (CSPs) and other network operators use today to deliver and manage services are non-standards based and manually-intensive.

Not only do these tools create siloes and inefficiencies in service lifecycle management and operations that contribute to high business costs, but also negatively impact customer experiences.

The need for automation and a unified approach to operations as the network continues to evolve and grow in complexity, is no longer an option. This is where “intent-based networking” has come into play where operators can combine virtualization, SDN programmability and

orchestration with advanced analytics and AI/ machine learning to build end-to-end networks that can proactively respond to changing demands and services in near real-time.

While many operators have begun the journey into modernizing their networks and operations, Cisco understands that there are still significant investments involved and transformation is a journey that will take time. The Cisco Network Automation is designed to help facilitate this journey.

The basics

Crosswork Network Automation is a comprehensive software platform that simplifies and modernizes operations to meet the explosive demands for dynamic digital services across today's increasingly complex networks.

The portfolio is built around three functional pillars for advanced automation:

Visibility	Establishing ground truth regarding what is happening in the network, a view of the current state of devices and ability to verify customer experience
Insights	Apply analytics to gathered data to identify trends and patterns both for planning and problem resolution
Action	Automate operational processes, provide programmatic control of infrastructure, and reduce the latency of end-to-end workflows

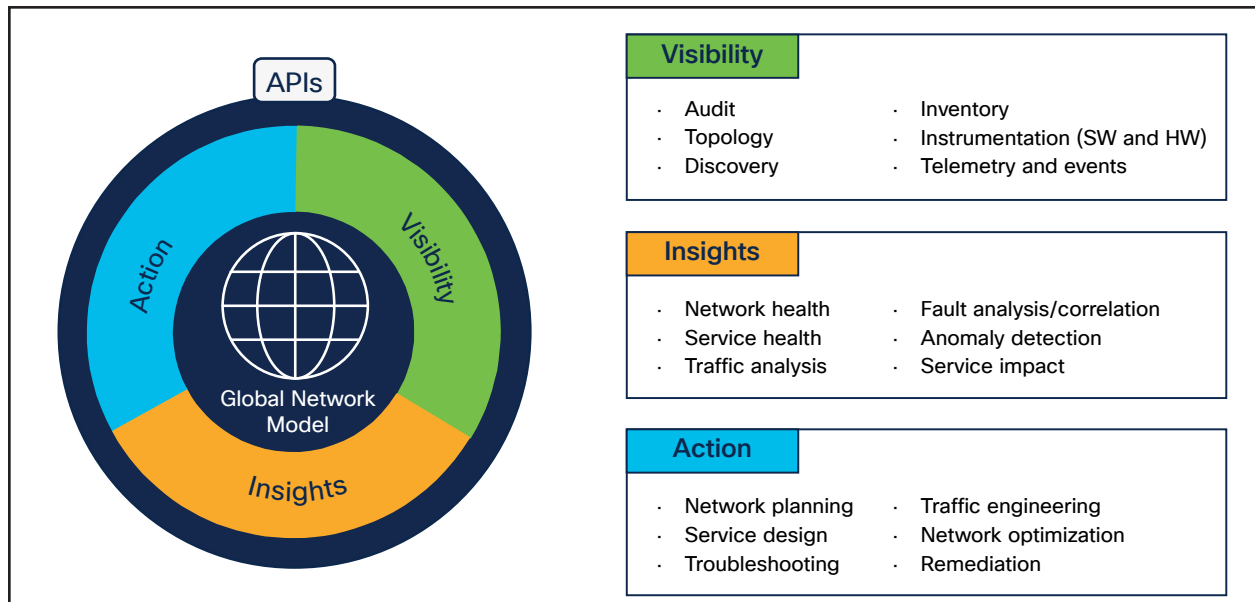


Figure 1. Crosswork Network Automation

Crosswork is designed with modern low/no-touch operations in mind. It is multi-vendor and multi-domain, centered on both programmatic infrastructure control and access to operational and state data, and spans both cloud/SaaS and on-prem tools. The platform enables automatic, closed-loop operational control, and helps execute the complete service lifecycle management and operations with speed, precision, and accuracy. This spans planning, design, implementation, and ongoing monitoring and assurance of services. AI and machine-learning along with human oversight are important parts of the process to ensure both scalable, intelligent automation and operational integrity.

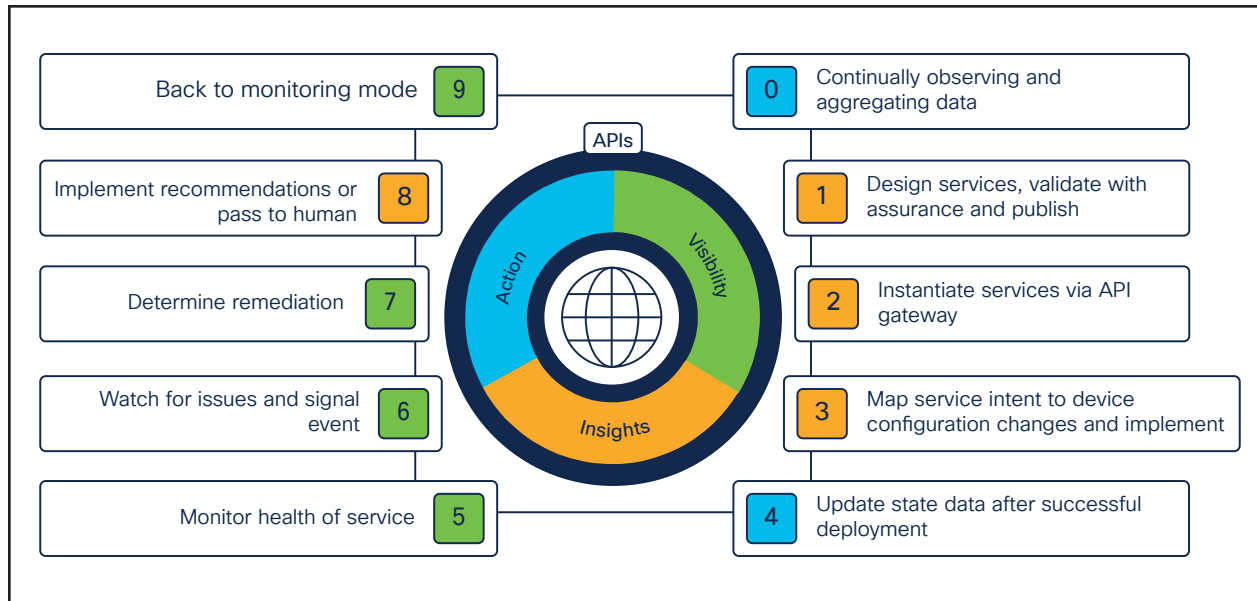


Figure 2. Full-lifecycle, closed-loop operations

As an example, a service designer can create a service template for a VPN. Someone can then use that template to request an instance of the service. The high level of programmatic control that Crosswork provides means that the operations staff might not need to be involved at all—a customer could make a request via a customer-facing portal which then directly routes the request to the automation tooling. Crosswork is intent-based, so it will take the service intent (the customer request to turn up a VPN) and convert that to a set of configuration changes on the underlying infrastructure and

implement the changes automatically. Once the changes are successfully made, state and configuration information are updated. If for some reason the update fails, Crosswork can perform a rollback to the prior state and route an error message to the appropriate destination. Once the service is active, assurance and analytics services will monitor the service and gather operational data.

The goal of Crosswork Network Automation is to allow both humans and machines do what each does best to improve the customer experience. In the prior example, the human does the skilled

work of designing the service, the automation tooling replicates it quickly and flawlessly on-demand. The sum of these efforts is an expert design efficiently delivered with high quality at machine speed.

Crosswork tools help protect customer experience, even once the service is live. In the event of an issue, because every instance of the VPN is configured the same way, it simplifies the task of troubleshooting, but the benefits of Crosswork go well beyond uniform implementation. Because of the on-going collection and analytics, Crosswork tools can provide operational insights that shorten the time to root cause analysis and even be used for auto-remediation.

Crossworks predictive analytics capability can be used to spot service impacting trends well before they become an issue and configuration changes can be vetted before they are implemented to help identify unintended outcomes.

The tenets highlighted in figure 3 guide the composition of Crosswork, both for tools and ecosystem partnerships. These underlying principles knit the elements of the platform together. The north star for Crosswork Network Automation is fully autonomous, zero-touch operations.

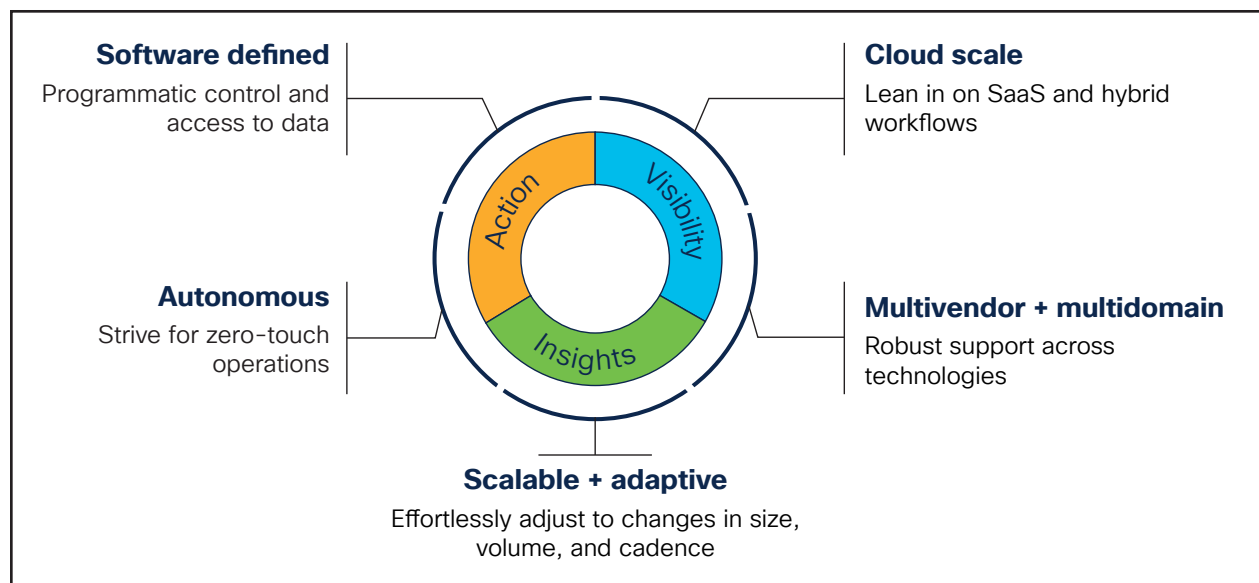


Figure 3. Tenets of the Crosswork Portfolio

This might be a distant goal for you, or it might not be a goal at all—regardless, the Crosswork Network Automation is built to meet your needs, regardless of where you are on the journey (see figure 4). Network automation seldom exists in a vacuum. While network operations teams might use Crosswork as standalone tools, in most instances Crosswork will exist as part of a larger service automation or business automation toolchain. With that in mind, Crosswork was built with a rich set of software interfaces to allow programmatic control and simplify toolchain integration. Network automation teams are also

seldom working in a single-vendor environment, so Crosswork offers some of the strongest third-party support available—in fact, Crosswork can serve to normalize service and operations across different vendor environments. As most customers are embracing an all-of-the-above approach to cloud and on-site infrastructure, we took a similar approach with Crosswork, putting functionality where we think it makes the most sense. Finally, as noted earlier, Crosswork can address your needs wherever you are on your automation journey. You can start with simple use cases

(and be surprised how impactful that can be) and then move on to large and more complex automation as your needs and your view of the possibilities grow.

Business outcomes

The business benefits Crosswork Network Automation can be viewed through two different lenses. From a strategic perspective, the speed achieved through automation allows companies to run their businesses more quickly. The analytics and operational agility Crosswork provides allows you to spot trends and respond to them quickly. The services you do deploy are built around a much leaner cost structure which gives you either greater pricing power or improved profitability. Finally, the increased speed and accuracy of service turn-up improves customer experience and customer stickiness, as do the tools Crosswork provides to reduce or eliminate service disruptions.

From an empirical perspective, companies that have deployed Crosswork have realized measurable benefits including 60 percent improved capital efficiency, 66 percent better operating expense utilization, and 81 percent reduction in time to deploy a service.

Learn more

Service providers will find great value in Crosswork Network Automation, so we encourage you to visit the website or contact your Cisco sales representative to schedule a demonstration.

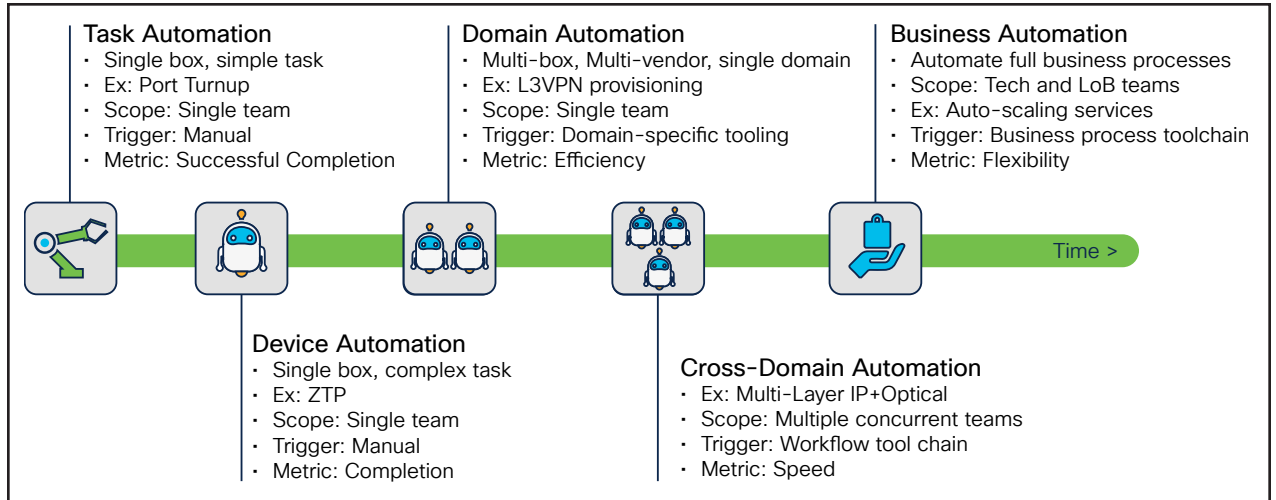


Figure 4. The Automation Journey

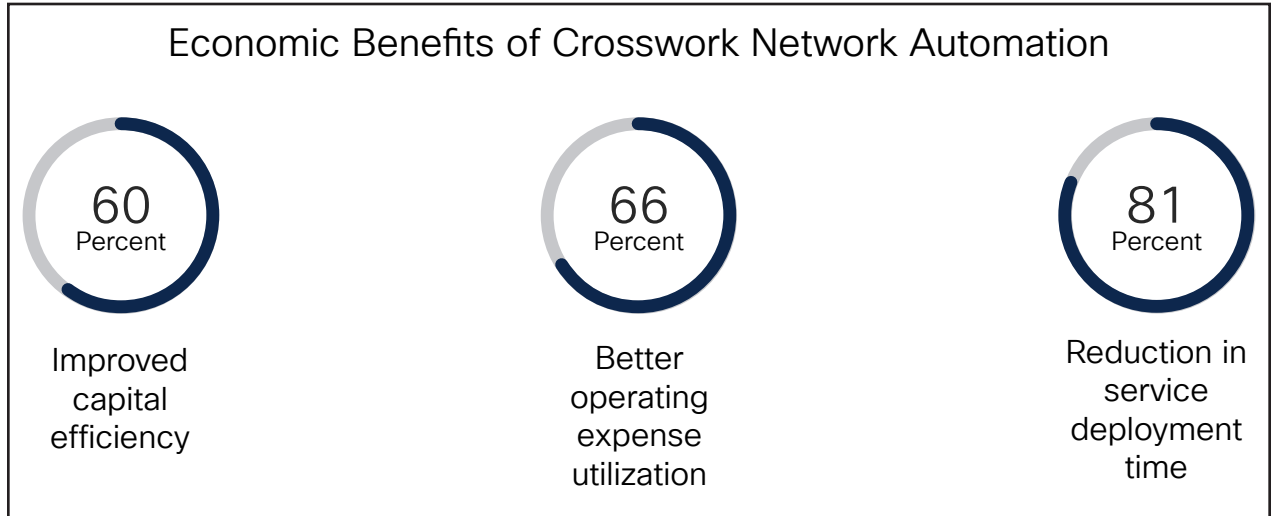


Figure 5. Business outcomes