



Cisco Network Assurance Engine: The Power to Predict

Always-on Network Assurance

The Cisco® Network Assurance Engine solution provides continuous verification and analysis of the entire data center network, giving operators confidence that their network is operating consistent with intent. It combines mathematically accurate network models with codified Cisco domain knowledge to generate “smart events” that pinpoint deviations from intent and offer remediation recommendations.

Using the most comprehensive analysis spanning operator intent, controller policy, switch configurations, and data-plane state, Cisco Network Assurance Engine helps operators proactively detect network outages and security policy vulnerabilities before they impact business, reduce risk by predicting change impact, and rapidly find the root cause of problems. With a unified network repository and compliance rules, Network Assurance Engine simplifies audits and ensures compliance.

Delivered in a lightweight, software-only form factor, Cisco Network Assurance Engine typically takes less than 30 minutes to deploy and is offered with a free, 30-day, no-commitment trial.

Solution overview

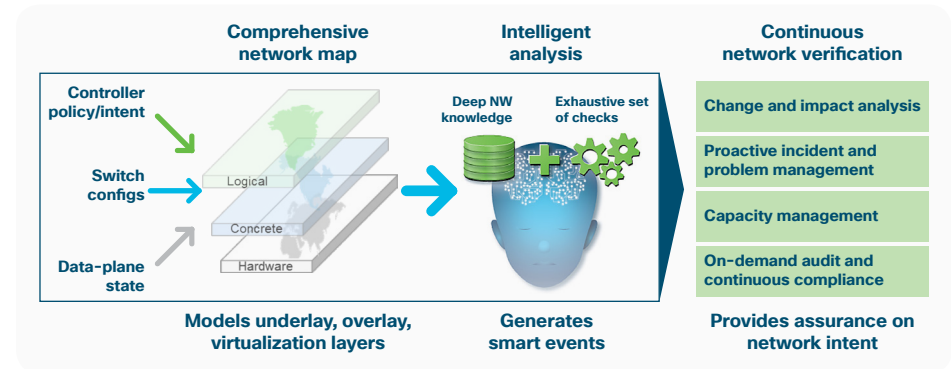
Cisco Network Assurance Engine is the critical Intent Assurance pillar of Cisco's vision for intent-based data center networks. Built on Cisco's patented network verification technology, Network Assurance Engine is a comprehensive intent-assurance solution that mathematically verifies the entire data center network for correctness. It gives operators the confidence that their network is always operating consistently with their intent, even as it changes dynamically.

With Cisco Network Assurance Engine operators can:

- **Predict the impact of changes:** Proactively verify changes for correctness to drive increased change agility while significantly reducing risk of human error-induced network failures.
- **Verify network-wide behavior:** Continuously analyze and verify the dynamic state of the network against intent and policy to ensure connectivity and eliminate potential network outages and vulnerabilities before any business impact occurs.
- **Assure network security policy and compliance:** Assure network security policies and check for compliance against business rules to reduce security risk and achieve provable continuous compliance by policy and state.

Cisco Network Assurance Engine achieves all of the above by reading the entire policy, every configuration, and the network-wide state, along with the operator intent, and building from these comprehensive and mathematically accurate models of network behavior. It then combines these models with Cisco's more than 30 years of operational domain knowledge of networking. The result is automatically generated smart events that instantly pinpoint any deviations from intended behavior and suggest expert-level remediation recommendations. By providing this continuous verification and validation of the entire data center network, Cisco Network Assurance Engine fundamentally transforms the operations paradigm from reactive to proactive (Figure 1).

Figure 1. Cisco Network Assurance Engine: How it works



Cisco Network Assurance Engine innovation

As the industry's most comprehensive intent-assurance suite, Cisco Network Assurance Engine ushers in an operational paradigm that promises to bring to networking the advantages of verification-driven, agile, proactive change management for network operations. Cisco Network Assurance Engine brings together unique capabilities, including:

- **The most complete vision for intent-based networks in the industry:** Network Assurance Engine has been architected from the ground up for seamless integration with the Cisco Application Centric Infrastructure (Cisco ACI™) solution to deliver on the vision of closed-loop intent-based networks for data centers.
- **Codified Cisco domain knowledge:** The initial version includes 5000+ built-in failure scenarios, powering smart events with remediation steps.
- **Deep policy controller integration:** Integration helps assure controller policy and configurations, correlating with dynamic network state.
- **Comprehensive analysis:** Network Assurance Engine captures, analyzes, and correlates the entire network's state: switch configurations plus hardware data-plane state.

Business benefits

- **Increase change agility:** Exhaustive verification-driven methodology to drive faster change approvals and elimination of human error
- **Avoid lost revenue and improve Service-Level Agreements (SLAs):** Deep, continuous fabric analysis and visibility to reduce outages and dramatically lower issues' mean time to repair
- **Ensure network security:** Complete network security policy analysis and visualization, detailed Ternary Content Addressable Memory (TCAM) optimization, and ability to check for compliance against business intent
- **Accelerate migrations:** Day-zero configuration analysis and accelerated learning curve of the software-driven networking paradigm to reduce uncertainty in migration timelines
- **Enhance operational maturity:** Detailed runbooks to empower tier 1 and 2 network operations center teams and reduce escalations

Initial solution form factor and licensing model

The first version of Cisco Network Assurance Engine is delivered in a lightweight, software-only virtual form factor that runs on three virtual machines, with specifications depending on the scale of the network fabric. The product is nonintrusive, requiring only fabric credentials without any need to deploy sensors. Network Assurance Engine typically takes less than an hour to deploy, install, and begin delivering detailed analysis results for the fabric.

The product is licensed as an annual subscription with a 1-, 3-, and 5-year term options. The pricing is structured as a pay-as-you-scale, with licenses for the base appliance and for each node assured. Cisco Network Assurance Engine is offered with a free, 30-day, no-commitment trial.

Cisco Services for Network Assurance Engine

Accelerate implementation and adoption, gain network insight, speed remediation, and reduce risk with Cisco Implementation Service and Solution Support for Cisco Network Assurance Engine. Through knowledge sharing and experienced guidance, network operators can realize the full benefits of their product investment. Cisco Services experts focus on quick installation, discovery of the most important network and configuration smart events, and analysis of top vulnerabilities, and provide strategic recommendations for remediation. By leveraging unique insights and expertise gained from many Cisco ACI deployments, Cisco Services can help identify and analyze the real impact of Cisco Network Assurance Engine to enhance and assure data center reliability.

Available now, Cisco Network Assurance Engine is in production with customers globally across verticals spanning cloud service providers, manufacturing, financial services, healthcare, information technology, and retail, among others.

For more information

Please contact your account team to request your free trial and additional information.

To learn more about Cisco Network Assurance Engine please visit <https://www.cisco.com/c/en/us/products/data-center-analytics/network-assurance-engine/index.html>

Customer anecdotes

“Using the change verification process, we see Cisco Network Assurance Engine as a way to achieve higher levels of automation with increased certainty, allowing us to confidently move at a faster pace.”

- **Tania Mazza, Director, Network Engineering for West Corporation (United States)**

“Cisco Network Assurance Engine’s approach of ‘always-on assurance’ for our network and services will make our operating model more proactive and enable us to remain as the best-in-class service provider to our customers.”

- **Erik Sohlman, Senior Manager and CTO, Axians Nordic (Sweden)**

“Cisco Network Assurance Engine enables a new level of quality for our application migrations. With a detailed understanding of the policy model and proactive verification of all changes, this technology can help us greatly reduce the risk of production outages and accelerate our timelines.”

- **Jan Holzmann, Team Lead, Data Center Network Operations, Robert Bosch GmbH (Germany)**

“In our trial of Cisco Network Assurance Engine, we were able to analyze tens of thousands of network security policies to immediately identify compliance violations in our policies, find opportunities to significantly optimize hardware resource utilization, and give a clear understanding of our entire policy space so we can make changes faster and with more confidence.”

- **Job van Wees and Johnmar Mulder-Wolswijk, Senior Network Specialists, DICTU (Netherlands)**

“With Cisco Network Assurance Engine, we have a technology that promises the ability to proactively avoid any disruption to our manufacturing line, ensuring we meet and exceed the uptime SLAs. As we expand globally, having Network Assurance Engine will enable us to bring new data centers online quickly, with confidence, and allow our core business to move at a faster pace.”

- **Facundo Velurtas, Network Engineer, Tenaris (Argentina)**