Cisco Network Assurance Engine
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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 consistently with their 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.


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 networkwide 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, the networkwide state, and the operator intent’s—and building from these comprehensive and mathematically accurate models of network behavior. It then combines these models with more than 30 years of Cisco’s operational domain knowledge of networking to generate 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 (see Figure 1).
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. Network Assurance Engine brings together unique capabilities, including:

- **Most complete vision for intent-based networks in the industry**: Architected from the ground up for seamless integration with the Cisco Application Centric Infrastructure (Cisco ACI™) solution, delivering on the vision of closed-loop intent-based networks for data centers.

- **Codified Cisco domain knowledge**: 5000+ built-in failure scenarios included in the initial version, powering smart events with remediation steps.

- **Deep policy controller integration**: Assures controller policy and configurations, correlating with dynamic network state.

- **Comprehensive analysis**: Captures, analyzes, and correlates entire network 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 reduce the mean time to repair issues.

- **Enhance operational maturity**: Detailed runbooks to empower tier 1 and 2 network operations center teams and reduce escalations.
• **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.

**Operational Benefits**

• **Operator playbook:** Smart events that precisely convey the diagnosis, cause, impact, and remediation of complex network issues in a context-specific human-readable manner.

• **Codification of knowledge:** Codifies multiple years of Cisco Technical Assistance Center and autonomous system cross-customer domain knowledge.

• **DVR audit trail:** Complete record of historical configuration, state and assurance analysis data that is easily retrievable, searchable, sortable, and filterable.

• **Offline analysis:** Enable customers to do remote on-demand analysis of multiple fabrics.

• **Ease of deployment:** Seamless deployment using controller credentials with no additional sensors; deep linking with Cisco ACI fabric.

**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 with no need to deploy any sensors. It typically takes less than one hour to deploy, install, and begin delivering detailed analysis results for the fabric.

The product is licensed as an annual subscription with 1-, 3-, and 5-year term options, and it is integrated with the Smart Licensing Framework. The pricing is structured using a pay-as-you-scale model, with licenses for the base appliance and for each node assured. 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 then 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.
End-User License Agreements (EULAs)


For More Information

Network Assurance Engine

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

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