



# Network Automation in an “Intelligent” World

How AI Affects Network Automation Engineers

And How To Make The Most Of It

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# Agenda

- AI's Effect on IT Job Roles and Skillsets
- Getting the Right Skills
- Network Automation and AI

# AI is Transforming IT Job Roles and Skillsets

Networking Professionals must upskill and reskill to succeed



As AI reshapes jobs, skills like AI ethics, prompt engineering, and AI literacy will become more important, while traditional skills like basic programming and data management may decline.

# 92%

of ICT jobs are expected to undergo significant changes due to AI advancements.

Entry-level and mid-level ICT roles will see the most transformation, with

**40% of mid-level and 37% of entry-level positions highly affected.**



Foundational AI skills, such as AI literacy, data analytics, and prompt engineering, will be essential across all ICT roles.

**ICT: Information and communication technology**

Source: The Transformational Opportunity of AI on ICT Jobs, published by the AI-Enabled ICT Workforce Consortium, led by Cisco in collaboration with tech companies like Google, Microsoft, and IBM, April 2024

# Network engineer skills affected by AI

	Senior level	Mid-level	Entry-level
<p>New skills</p> 	<ul style="list-style-type: none"><li>• AI driven software development</li><li>• AI ethics and responsible AI</li><li>• AI literacy</li><li>• AI security</li></ul>	<ul style="list-style-type: none"><li>• AI ethics and responsible AI</li><li>• AI literacy</li><li>• LLM architecture</li><li>• Natural language processing</li><li>• Prompt engineering</li></ul>	<ul style="list-style-type: none"><li>• AI ethics and responsible AI</li><li>• AI literacy</li><li>• AI integration and optimization</li><li>• AI model development</li><li>• LLM architecture</li><li>• TensorFlow</li></ul>
<p>Skills with increasing relevance</p> 	<ul style="list-style-type: none"><li>• AI integration in code generation</li><li>• Object oriented design</li><li>• Software design patterns</li><li>• Scrum, project management</li><li>• Test automation</li><li>• Web services</li></ul>	<ul style="list-style-type: none"><li>• Code review</li><li>• DevOps</li><li>• Prototyping</li><li>• Software modeling</li><li>• Testing methodologies</li></ul>	<ul style="list-style-type: none"><li>• Agile methodology</li><li>• Debugging</li><li>• JavaScript and ReactJS</li><li>• Kubernetes and docker</li><li>• System architecture</li><li>• Test automation</li><li>• Web development</li></ul>
<p>Skills with decreasing relevance</p> 	<ul style="list-style-type: none"><li>• Basic programming</li><li>• Data engineering</li><li>• Documentation maintenance</li><li>• XML, Perl, Shell scripting</li></ul>		

# AI on and in the network requires new capabilities



Enhanced Network  
Design



Automated Network  
Configuration and  
Management



Proactive Fault  
Detection and  
Resolution



Dynamic Resource  
Allocation



AI Enhanced  
Security



Traffic Analysis and  
Prediction

“

*AI is fundamentally changing how we work and live, and history has shown that a shift of this magnitude is going to require enterprises to rethink and re-architect their infrastructures.*

Chuck Robbins, Chair and CEO, Cisco

# Cisco's Initial Approach

Available on Cisco's Learning Platform, Cisco U.



## Skillsoft AI Learning Paths

Use cases: Chatbot, Virtual Assistant,  
Code Generation

- Foundations of Generative AI
- Leveraging Generative AI APIs
- Prompt Engineering with Gen AI Tools
- Prompt Engineering and Ethical Implications



## Free Cisco Technical Tutorials on AI

Use cases: Infra for AI workloads  
(data prep, training, inferencing)

- Understanding AI and LLMs as a Network Engineer
- Leveling Up Your Network Engineering GPT Prompts
- A Practical Guide to Networking Prompt Templating
- A Coding Guide for Network Engineers Uncomfortable with Python
- Hands-on ChatGPT: Troubleshooting PC Connectivity
- Hands-on ChatGPT: Exploring the ChatGPT API
- Hands-on AI: Generating Documentation from Technical Sources
- Hands-on AI: Building Infrastructure as Code
- Hands-on AI: Cisco pyATS and Genie



## Cisco certifications and training with **Generative AI**

CCNA certification



CCIE Datacenter certification



CCDE AI Infrastructure Specialist

CCDE AI training and tutorials  
from Cisco U.



Launching February 2025

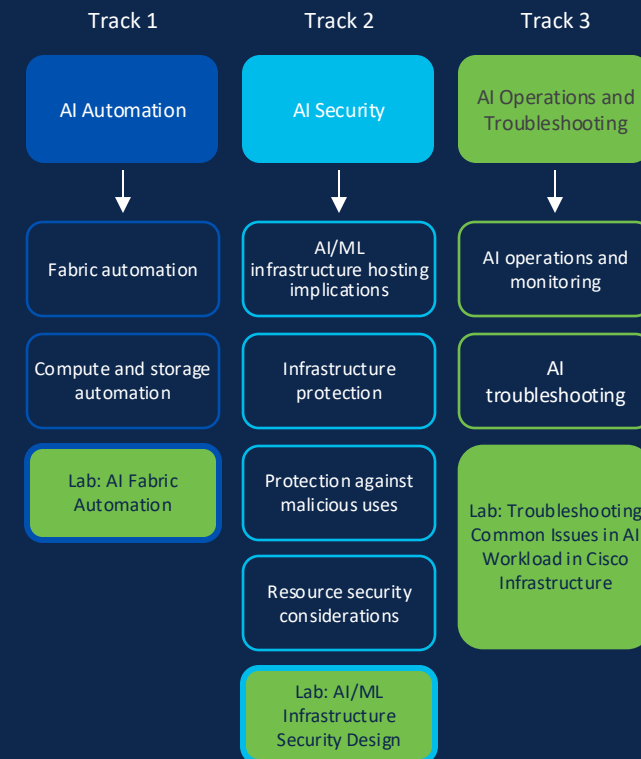


# A Holistic Approach: AI Essentials & Advanced Learning Paths

## AI Solutions on Cisco Infrastructure Essentials Q1FY25 (planned)



## AI Solutions on Cisco Infrastructure Advanced Q2FY25 (planned)



# Network Automation + AI

Augment the automation you're doing today with AI



## Crawl

Use GenAI to document existing automation scripts, playbooks, etc.



## Walk

Use AI to validate scripts and workflows to check for intent or functional errors



## Run

Use AI to build test cases and introduce chaos to ensure end-to-end functionality



## Fly

Closing the loop with certain tasks with in-band human oversight

# Documenting The Complex

New features including Cisco data, suggested prompts, and prompt level feedback are now available in BridgeIT! [Learn more.](#)



Brought to you by **Cisco IT**

## How can I help you?

Public internet data

Cisco data

Public internet data (GPT-4o) | [Choose Source](#)

You are a network automation expert. Explain, in detail, the intent of the following.



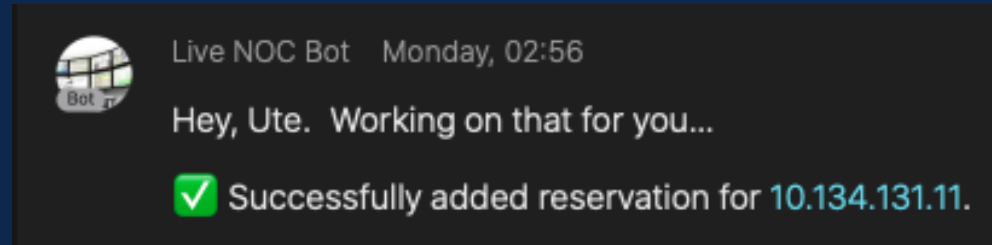
BridgeIT may produce inaccurate information about people, places, or facts. Your use of BridgeIT must be consistent with [Cisco's Generative AI Policy](#). [?](#)

Give Feedback

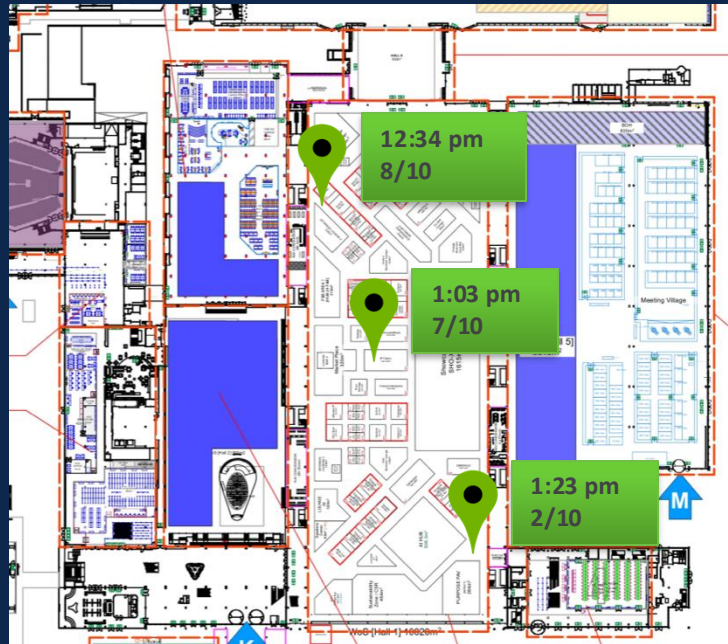


# ChatN.O.C.

Reserve address 10.134.131.11

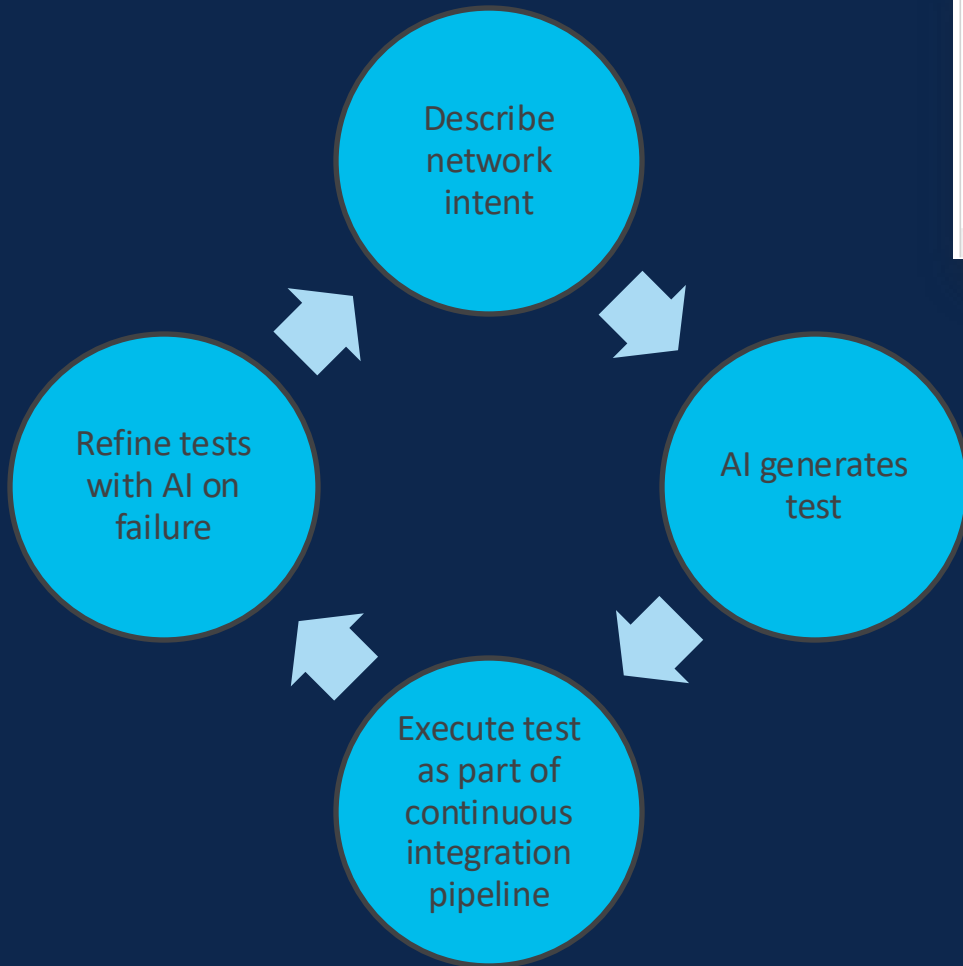


Map out where Daniel Noorus has been for the last hour showing wireless health at each location.

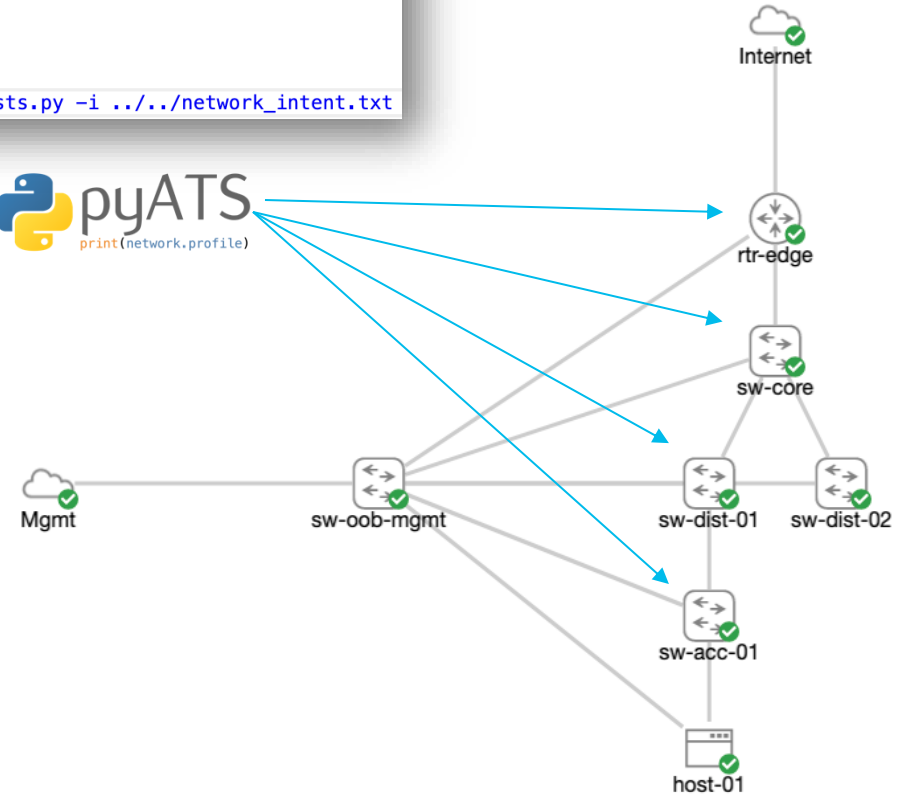


- Active Directory
- Catalyst Center
- Meraki Dashboard
- Source of Truth
- ...

# Iterative Automated Testing



```
test_vlan_fabric:
  stage: test:fabric
  needs:
  - config_test
  except:
  - main
  when: delayed
  start_in: 1 minute
  script:
  - python run_ai_tests.py -i ../../network_intent.txt
```





# Automate Safely



Consider where your data is going



Review AI code like a you would a teammate's (maybe more)



Don't short-circuit your testing pipeline

# The “Intelligent” World Is Here



AI is transforming the role of the network engineer



Now is the time to start building the right AI skills and understand how and where AI fits



Use AI as a tool to enrich and enhance your network automation

