



The bridge to possible

6 Ways to Conquer the Cloud, AI and Security Skills Gap

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Cisco Webex App

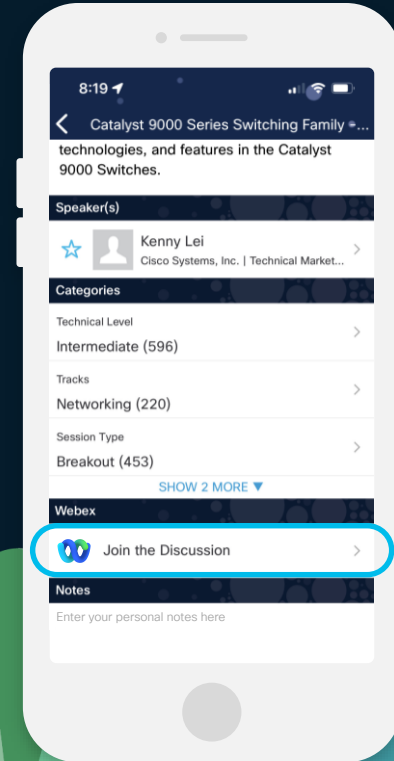
Questions?

Use Cisco Webex App to chat with the speaker after the session

How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
- 3 Install the Webex App or go directly to the Webex space
- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until June 7, 2024.





Agenda

- Introductions
- IDC facts about training and certification investment
- Top Skills for AI
- Top Skills for Cloud & Security
- Q&A

Hello! My Name is



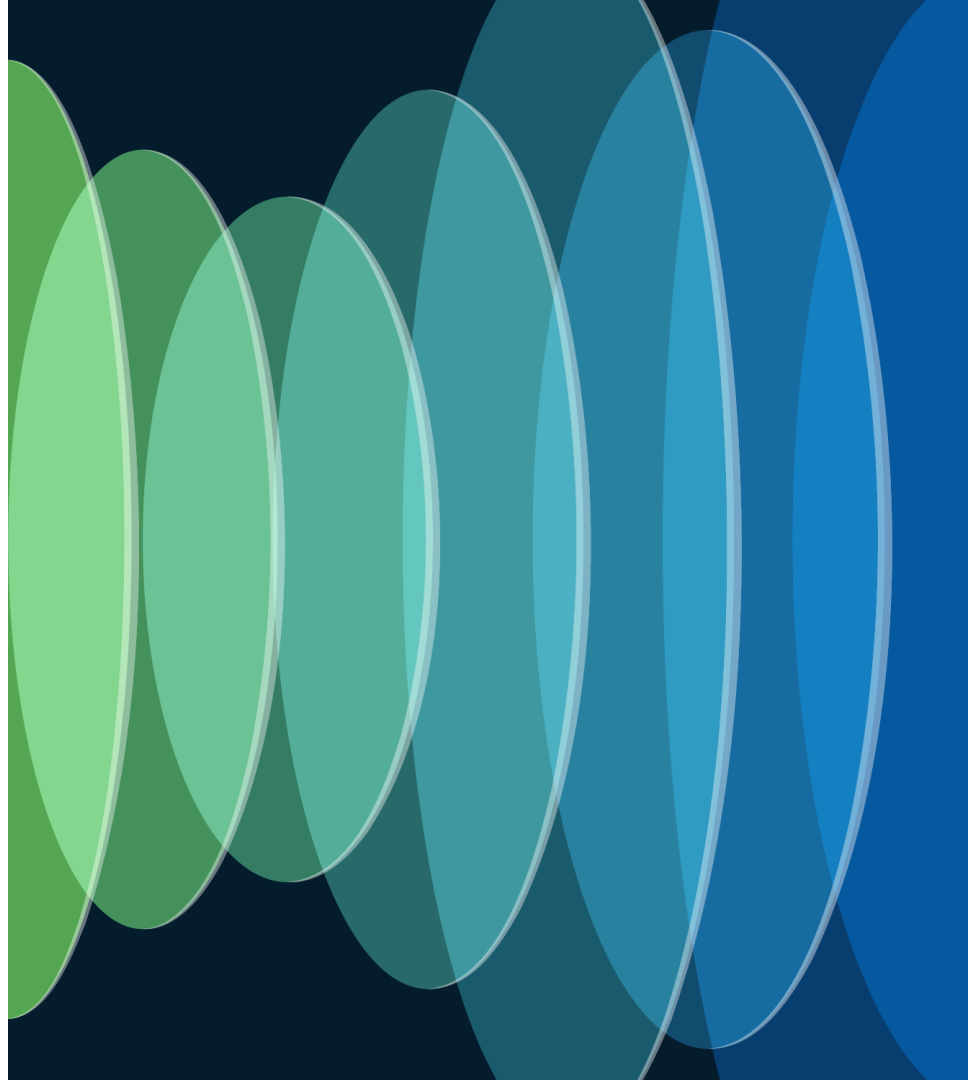
Lacey Caldwell
Director of Marketing



Kareem Iskander
Lead Technical
Advocate



Some facts – from IDC



71% *of IT leaders note skills development is a fundamental part of organizational culture and drives business growth*

Source: IDC Infographic, sponsored by Cisco, Building Skills for the Era of AI-Enabled Work, IDC Document # US52127524, May** 2024



But top talent is hard to find.

According to a recent study from IDC:

- 76% Shortage of talent with the right skills
- 48% Shortage of internal talent who can be upskilled
- 42% Lack of budget for new hires

Source: IDC Infographic, sponsored by Cisco, Building Skills for the Era of AI-Enabled Work, IDC Document # US52127524, May** 2024

Why?

That's an excellent question and we have some answers:

- **43%** low employee engagement and participation
- **42%** lack of budget
- **42%** lack of awareness on ROI of employee skills development
- **42%** Lack of visibility or existence of needed training
- **35%** Low valuation of skills development

Source: IDC Infographic, sponsored by Cisco, Building Skills for the Era of AI-Enabled Work, IDC Document # US52127524, May** 2024

Skills Development Pays Off

There are benefits to upskilling:

- 72% productivity
- 55% innovation
- 55% attraction and retain top talent.

Source: IDC Infographic, sponsored by Cisco, Building Skills for the Era of AI-Enabled Work, IDC Document # US52127524, May** 2024

But it takes time:

89% of respondents said it takes over 4 weeks to build skill proficiency

Source: IDC Infographic, sponsored by Cisco, Building Skills for the Era of AI-Enabled Work, IDC Document # US52127524, May** 2024



Luckily we can help

Because certifications and training are the answer:

Certification is a key area where skills development is a priority.

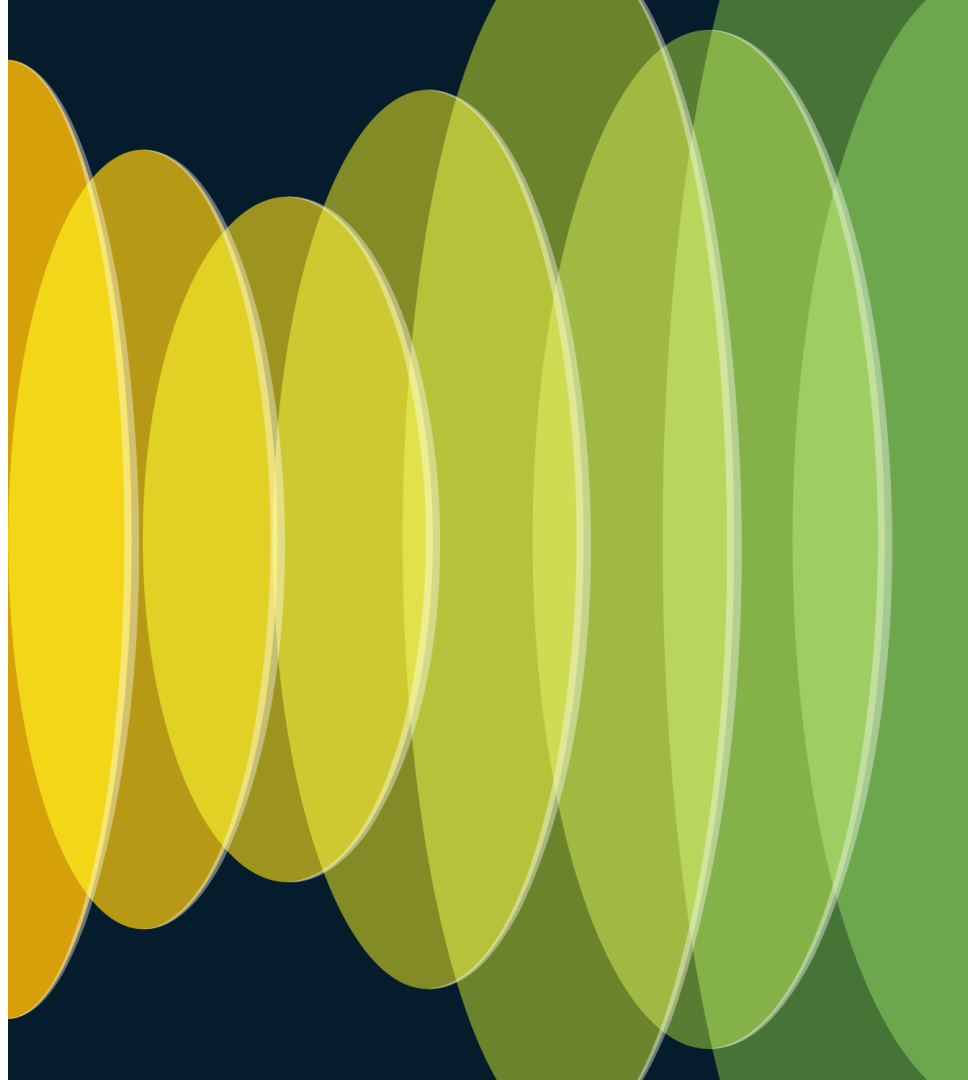
- 52% see industry certification for professional career development as valued.
- 37% see certifications as essential for career development and growth.

Certification and job requirements

- 75% said certifications are required or strongly recommended.

Source: IDC Infographic, sponsored by Cisco, Building Skills for the Era of AI-Enabled Work, IDC Document # US52127524, May** 2024

AI - Skills



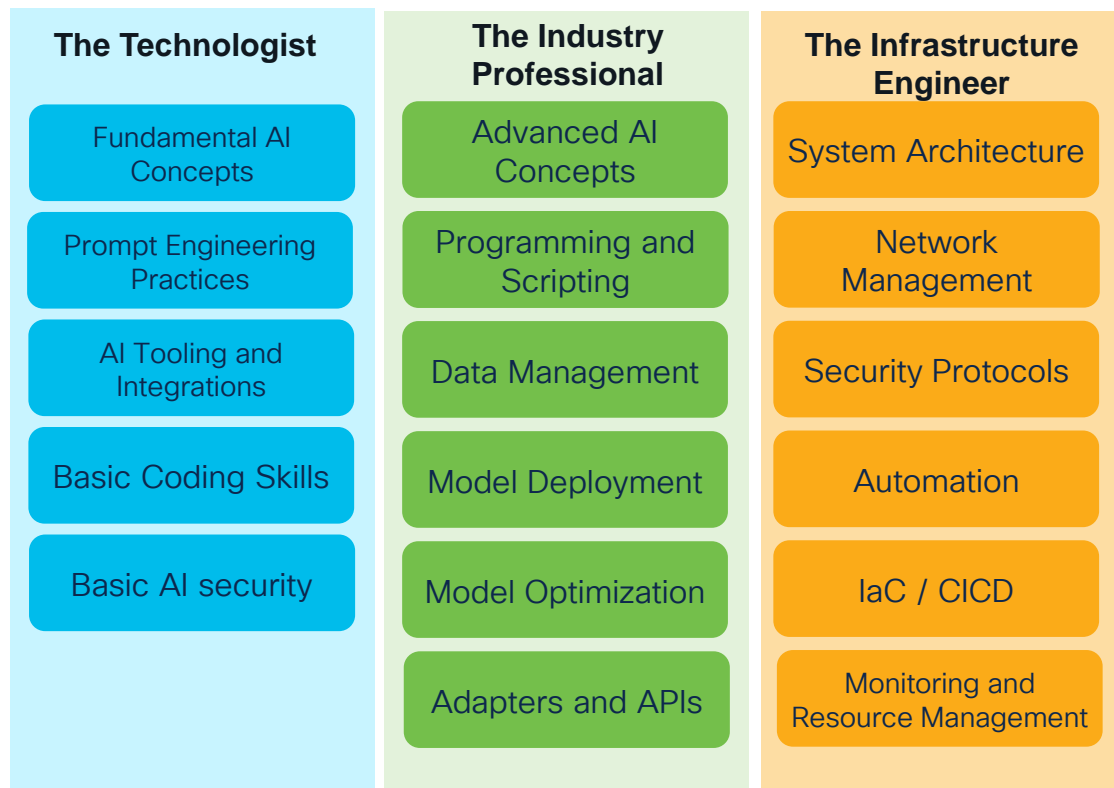
About AI...

AI **ON**
Cisco Products

AI **IN**
Cisco Products



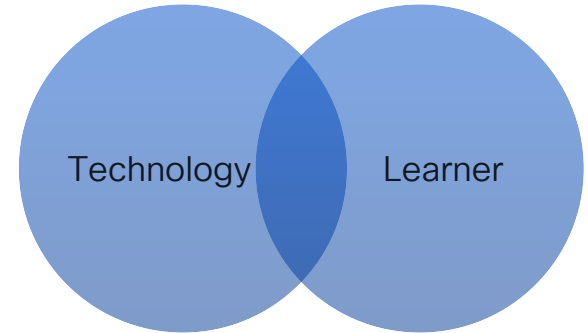
Top Skills for AI



Okay, but like...why does that matter?



Common skills and knowledge



The Technologist

Understanding GenAI vs. Predictive AI

- **Generative AI:** These models are designed to generate new content based on the patterns and data they have learned from. They can create text, images, music, code, etc. Examples include GPT (text), DALL-E (images), and StyleGAN (images).
- **Predictive AI:** These models predict outcomes based on input data. They are typically used for classifications (e.g., spam vs. non-spam) or regression tasks (e.g., predicting prices or quantities). Predictive models often use structured data and are common in traditional machine learning tasks.

Basic Concepts in AI and Machine Learning

- **Machine Learning Basics:** Understand supervised, unsupervised, and reinforcement learning.
- **Deep Learning:** Dive into neural networks, especially recurrent neural networks (RNNs) and transformers, which are pivotal in NLP and generative tasks.
- **Evaluation Metrics:** Learn how to evaluate different types of AI models. For GenAI, this might include creativity or novelty, whereas predictive models focus on accuracy, precision, recall, etc.

Prompt Engineering for Generative AI

- **What is Prompt Engineering?:** This is the practice of crafting inputs (prompts) to effectively communicate with AI models to elicit the best possible outputs.
- **Techniques:** Learn different techniques for formulating prompts to guide the AI in generating desired results, like using specific instructions, incorporating style hints, or constraining outputs.

Tools and Technologies

- **Platforms:** Familiarize yourself with AI platforms that offer access to generative models, like OpenAI, Google AI, or Hugging Face.

The Industry Professional

Machine Learning and AI Frameworks

TensorFlow and Keras: Popular for building and training deep learning models, including LLMs.

PyTorch: Favored in the research community and industry for its flexibility and dynamic computing graph.

Hugging Face Transformers: Provides a collection of pre-trained models which can be fine-tuned for various tasks.

Data Handling and Processing

Pandas and NumPy: Essential for data manipulation and numerical processing in Python.

Apache Spark: Useful for handling big data processing in a distributed manner, mainly if you're dealing with large datasets for training.

Databases: Knowledge of SQL, NoSQL, and Vector databases

Natural Language Processing (NLP)

NLTK, spaCy: Libraries for text preprocessing, tokenization, and linguistic analysis.

Gensim: Useful for building document or word vector models.

Cloud and Deployment Technologies

AWS, Google Cloud, Azure: Knowledge of cloud services is crucial for deploying models, accessing computational resources, and using specific AI services.

Docker, Kubernetes: For containerization and orchestration, helping to deploy and scale applications

The Infrastructure Engineer

Introduction to AI/ML workloads and their infrastructure requirements.

Core technologies: GPU-accelerated computing, high-density server setups.

Overview of Cisco Nexus 9000 series switches and their role in AI/ML infrastructures. (Intersight)

- Building a Shared 100Gbps Network
- Building a 400Gbps Back-End Network

Basic configurations for high-performance computing (HPC) and AI applications.

Understanding of RDMA, RoCEv2, and their importance in AI data transfers.

Deep dive into network design principles for AI/ML, including spine-leaf architectures and non-blocking fabric designs.

Advanced configurations for Cisco Nexus switches focus on features supporting AI/ML applications.

- Priority Flow Control (PFC)
- Explicit Congestion Notification (ECN)

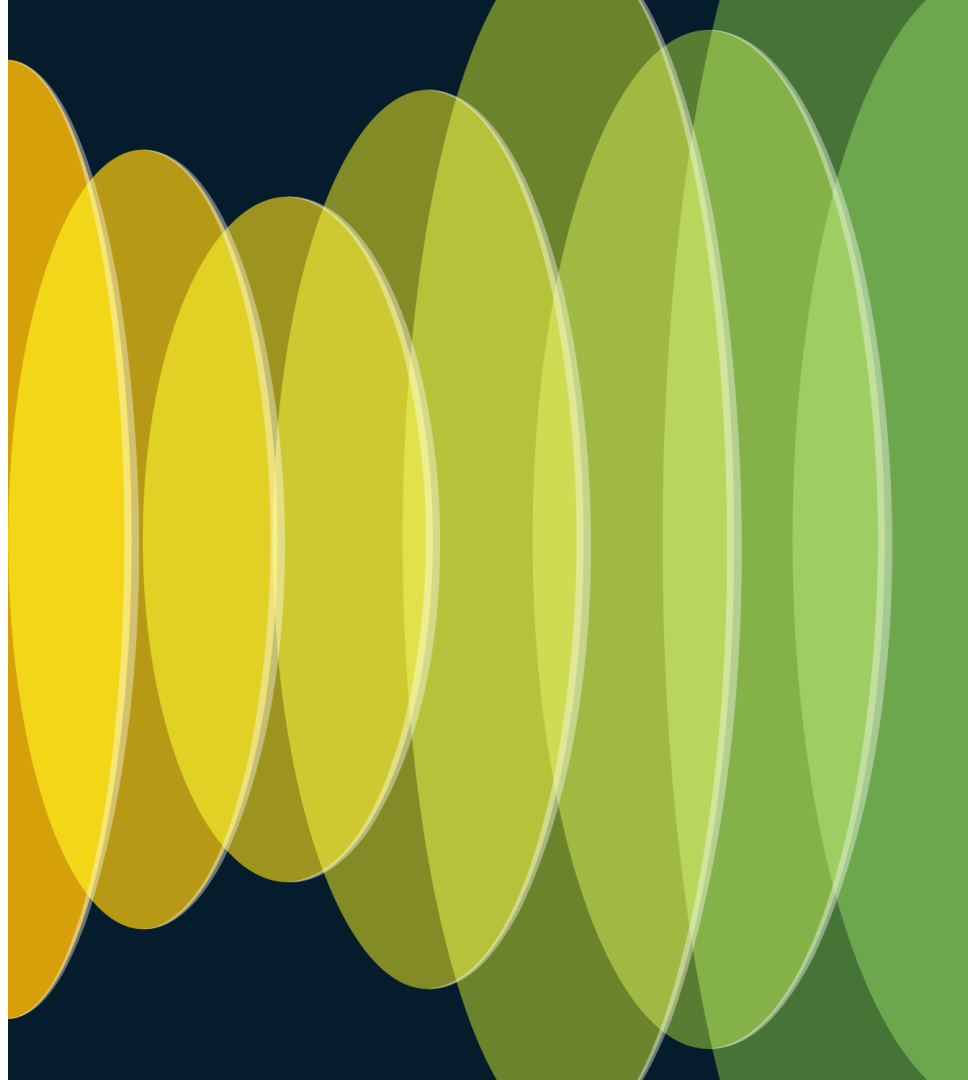
Managing congestion and ensuring lossless Ethernet with RoCEv2 and GPUDirect RDMA.

Automation and orchestration of network settings using tools like Cisco Nexus Dashboard Fabric Controller and Nexus Dashboard Insights. (Ansible)

Advanced network telemetry, visibility, and predictive analytics for maintaining and tuning AI/ML environments.

- Nexus Dashboard Insights


Ways to Up Skill on AI




1. Cisco U. Tutorials

From beginner to advanced



TUTORIAL

**Kareem Iskander**



Understanding AI and LLMs as a Network Engineer


Are you curious about the buzz around AI and LLMs? This tutorial will provide theory, background, and use cases for AI and LLMs over the course of a network engineer's day-to-day tasks.




Beginner 55m

Created April 17, 2024



TUTORIAL | NEW

**Jason Belk**



Hands-On ChatGPT: Building Infrastructure as Code


In this tutorial, you'll learn several ChatGPT-related features, such as managing CSV files and using the Assistants API, as well as some advanced prompting techniques.




Beginner 45m

Created May 16, 2024



TUTORIAL | NEW

**Jason Belk**



Hands-On ChatGPT: Exploring the ChatGPT API


This tutorial will show you how to use the ChatGPT API and try out the temperature and top_p values with networking examples.




Beginner 45m

Created May 16, 2024




LEARNING PATH






Foundations of Generative AI


Explore strategies that help leverage the power of generative AI to reshape your organization.



Beginner 2h 40m v1.0




LEARNING PATH





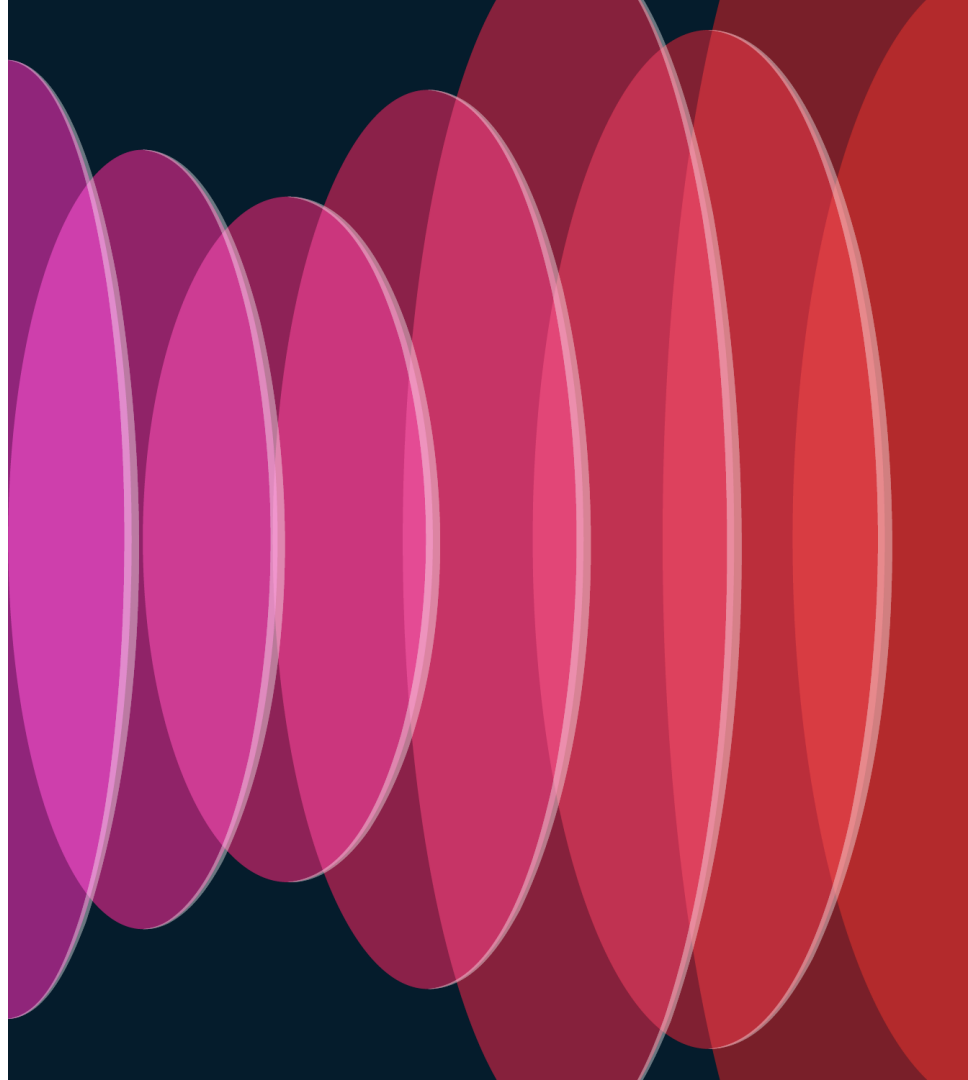
Leveraging Generative AI APIs

Explore how generative AI APIs transform tech with automated content, enhanced chatbots, and creative tools for developers.

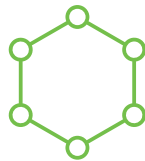


Beginner 10h 17m v1.0

Cloud - Skills



About Multicloud



Designing and Implementing
Cloud Connectivity (ENCC).

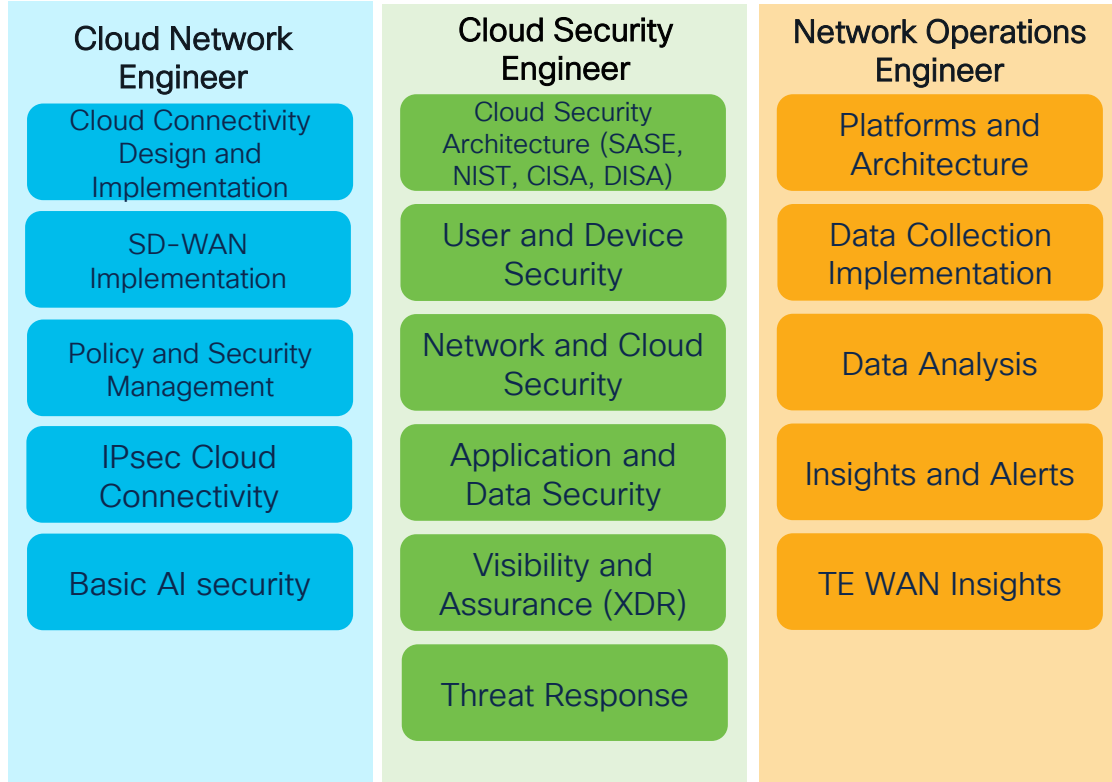


Designing and Implementing
Secure Cloud Access for Users and
Endpoints (SCAZT)

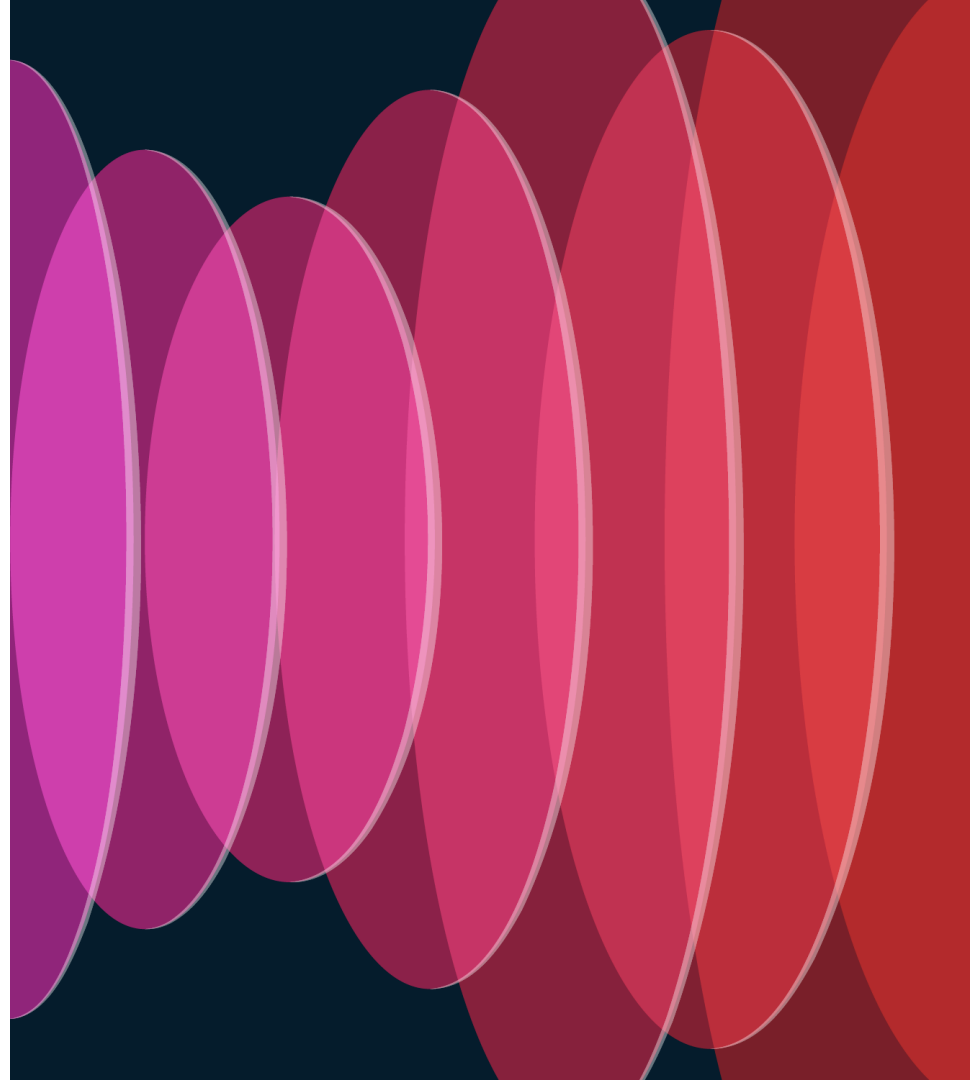


Designing and Implementing
Enterprise Network Assurance
(ENNA)

Top Skills for Cloud




Ways to Up Skill on Cloud & Security



1. Cisco U. – Tutorials – ENCC



TUTORIAL



Kareem
Iskander


ENCC: Create And Configure VPC Components in AWS

Cloud networking is a fundamental building block of cloud computing. In this tutorial, you will learn how to create a VPC, subnets, and route tables. You will also learn how to configure security groups and netwo...



Intermediate 1h Created August 1, 2023



TUTORIAL



Quinn
Snyder


ENCC: Configuring IPsec VPN from Cisco IOS XE to Microsoft Azure

Part of the blueprint within the ENCC exam requires a test-taker to properly configure an IPsec VPN from a Cisco IOS XE device to a cloud provider. In this tutorial, we'll cover the steps required to successfully...



Intermediate 35m Created October 8, 2023



TUTORIAL



Quinn
Snyder


ENCC: Configuring IPsec VPN from Cisco IOS XE to AWS

Part of the blueprint within the ENCC exam requires a test-taker to properly configure an IPsec VPN from a Cisco IOS XE device to a cloud provider. In this tutorial, we'll cover the steps required to successfully...



Intermediate 45m Created August 13, 2023



TUTORIAL



Patrick
Gargano

ENCC: Deploying Cisco Catalyst SD-WAN Cloud OnRamp for Multicloud with AWS


This tutorial will demonstrate how to deploy public cloud connectivity over internet-based transports using Cisco Catalyst SD-WAN Cloud OnRamp for Multicloud.



Intermediate 35m Created January 28, 2024

Cisco U. – Tutorials – SCAZT



TUTORIAL



Jason
Belk

SCAZT: SD-WAN Security


Learn how Cisco Catalyst SD-WAN can help secure your network with integrated security services.



Intermediate25m

Created January 23, 2024



TUTORIAL



Jason
Belk

SCAZT: ISE Endpoint Compliance Services


Learn to implement endpoint posture policies for user access to resources using Cisco ISE to prepare for the SCAZT exam.



Intermediate15m

Created January 22, 2024



TUTORIAL



Jason
Belk

SCAZT: Implementing Multifactor Authentication with Cisco Duo on Your GitHub Account


The new SCAZT cloud certification is here! Multifactor authentication is part of that exam, and in this tutorial, we will dive into setting up MFA using Cisco Duo on your GitHub account.



Beginner15m

Created December 17, 2023



TUTORIAL



Patrick
Lao

SCAZT: Using Cisco XDR Investigate to Deter Cybersecurity Threats


In this tutorial, you'll learn how Cisco XDR simplifies security operations by empowering SOC teams with AI-driven threat detection and response capabilities, using a single platform and interface.



Intermediate20m

Created February 12, 2024



TUTORIAL



Jason
Belk

SCAZT: Integrating Cisco Catalyst SD-WAN Branch Site with Cisco Umbrella

In this tutorial, you will integrate the Catalyst SD-WAN deployment with Cisco Umbrella SIG and deploy policies to route internet-bound traffic through the security services in the Umbrella cloud.



Intermediate25m

Created January 23, 2024

Cisco U. Tutorials – ENNA

TUTORIAL



Jason
Belk

ENNA: Cisco Catalyst Center Assurance

In this tutorial, you will examine the overall network health dashboard and troubleshoot network devices using Cisco Catalyst Center Assurance.



Intermediate



15m

Created March 13, 2024

TUTORIAL



Jason
Belk

ENNA: Examine Cisco Meraki Insight

In this tutorial, you will examine Meraki Insight WAN Health functionality, which provides network administrators with a comprehensive tool to monitor and analyze the performance of their WAN connections.



Intermediate



15m

Created March 13, 2024

TUTORIAL



Abdiel
Hernandez

API Monitoring with Cisco *ThousandEyes*

This tutorial will show you the steps to create a ThousandEyes test and monitor an API that requires bearer tokens to authenticate.



Intermediate



47m

Created February 14, 2024

TUTORIAL



Abdiel
Hernandez

Deploy a Cisco *ThousandEyes* Enterprise Agent in AWS

In this tutorial, you will be working on the Amazon Web Services CLI to create an EC2 instance and a ThousandEyes Enterprise Agent with one command.



Intermediate

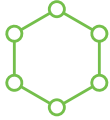


20m

Created January 30, 2024

Cisco Multicloud Specialist Certifications

Skills and Knowledge for Today's IT Professional



Designing and Implementing Cloud Connectivity (ENCC 300-440) 1.0

Focus Areas:

- Understanding paradigms of on-prem and hybrid cloud connectivity.
- Public cloud connectivity strategies.
- Utilizing Cisco technology for network connectivity and security.



Designing and Implementing Secure Cloud Access for Users and Endpoints (SCAZT 300-740) 1.0

Focus Areas:

- Ensuring network policies remain consistent for remote, on-site, and home office scenarios.
- Skillset for policy installation and recommendations to organizations.
- Employee cloud-centric solutions to recognize and mitigate threats.





Designing and Implementing Enterprise Network Assurance (300-445 ENNA) 1.0

Focus Areas:

- Platforms and Architecture: Examine agent types and locations, integrate ThousandEyes WAN Insights.
- Data Collection Implementation
- Data Analysis: Diagnose network, web application performance,
- Insights and Alerts: Configure alert rules based on network conditions





2. Cisco U. – Official Certification Training

LEARNING PATH 





Designing *and* Implementing Cloud Connectivity | [ENCC](#)

Develop the skills required to design and implement enterprise cloud connectivity solutions.







Intermediate 23h 35m 32 Credits v1.0

LEARNING PATH 





Designing *and* Implementing Secure Cloud Access for Users *and* Endpoints | [SCAZT](#)

Gain skills for designing and implementing cloud security architecture while you prepare to take the 300-740 SCAZT exam.







Intermediate 47h 40m 40 Credits v1.0

LEARNING PATH 



Designing *and* Implementing Enterprise Network Assurance | [ENNA](#)

Expand your knowledge of enterprise network assurance and management while you prepare to take the 300-445 ENNA v1.0 exam.



Intermediate 27h 20m 32 Credits v1.0

Aspire. Prepare. Excel now.

Network Assurance Prep

Get the guidance you need to get Cisco Certified in Enterprise Network Assurance for free. **Study resources include:**

- ✓ **EXCLUSIVE ACCESS** to new Self-Study Prep Guide
- ✓ **TIME WITH SMEs** – Cisco Learning & Certifications and ThousandEyes experts are ready to answer your questions
- ✓ **FIVE WEBINARS** – each focused on reviewing a specific exam topic domain



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We've got your back.

Log in to Cisco Learning Network and access ThousandEyes tools, video, tutorials, and more.

cisco.com/go/netassurance



SPECIAL ANNOUNCEMENT

Upskill 2024: Multicloud lead the way in the tech evolution.

Earn a Multicloud Specialist cert before December 31, 2024, to secure your place at the forefront of networking and unlock **exclusive perks**.



Distinguish yourself within the IT community

NEW – Upskill 2024: Multicloud badge

PLUS – Coveted Cisco ThousandEyes badge (Enterprise Network Assurance Specialists only)

AND – Special L&C Celebration at Cisco Live 2025



Get free access to powerful network virtualization and orchestration platform

Annual subscription to Cisco Modeling Labs – Personal



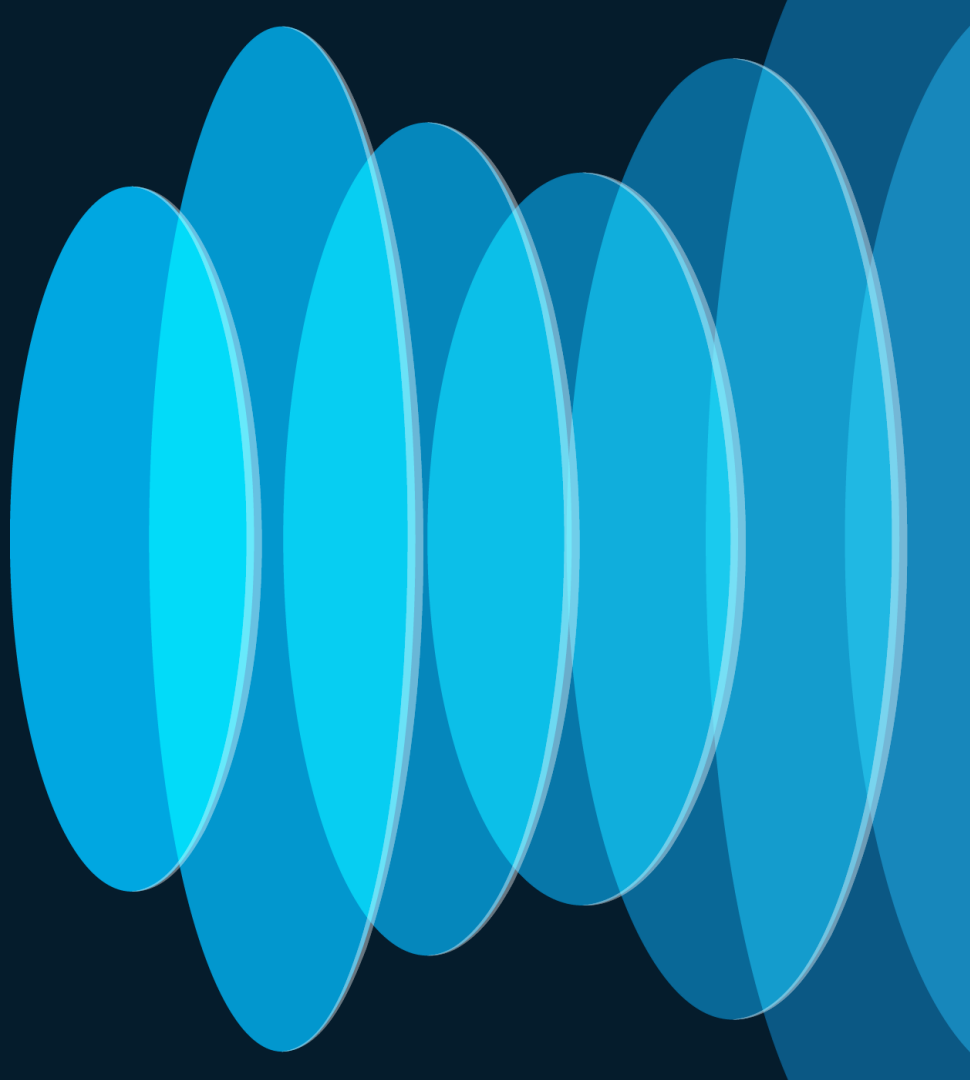
Stand out and be ready for anything

Demonstrate your initiative to embrace and conquer cutting-edge cloud technologies



cs.co/upskill-2024

Q&A



Complete Your Session Evaluations



Complete a minimum of 4 session surveys and the Overall Event Survey to be entered in a drawing to **win 1 of 5 full conference passes** to Cisco Live 2025.



Earn 100 points per survey completed and compete on the Cisco Live Challenge leaderboard.



Level up and earn **exclusive prizes!**



Complete your surveys in the **Cisco Live mobile app**.

Continue your education

- Visit the Cisco Showcase for related demos
- Book your one-on-one Meet the Engineer meeting
- Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs
- Visit the On-Demand Library for more sessions at www.CiscoLive.com/on-demand



The bridge to possible

Thank you

CISCO *Live!*

#CiscoLive