Networking Academy

Cloud and DevOps curriculums

At Netacad.com and SkilsForAll.com

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Technical Manager Europe
13 May 2022

Skills for All

with Cisco Networking Academy

Creating a Hybrid Learning Environment

Expanding Cisco Networking Academy with Skills for All

Free, flexible, mobile-friendly, self-paced learning experiences

For All

SkillsForAll.com

NetAcad.com

Instructor-Led experiences for in-class, blended or 100% distance learning

For Academies

More course delivery options for instructors to meet students where they are in their learning journeys.

What is the Instructor-Guided Learner Experience?

Your opportunity to leverage the power of the innovative online learning experience on Skills for All.

Academy instructors can open free, mobile-friendly, online courses and monitor student progress.

Guide learners through engaging content, pre-built with gamification, interactive activities, videos, practice labs, and more.

Early access – be one of our first educators and help shape the experience.

Networking Academy Instructors have options

The Instructor-guided Learner Experience on Skills for All expands course delivery options and tools for teaching. See if it might be right for you.

NetAcad.com

Choose existing self-paced courses for:

- Localized self-paced courses
- Course customizations
- Class management
- Student messaging
- Live support agent
- Other student enrollment options

SkillsForAll.com

Choose new instructor-guided courses for:

- Easy course creation
- Easier learner onboarding
- Single Sign On
- Use self-enrollment links to register students
- Gamification
- Mobile-first
- Monitor student progress

How Skills for All helps Academies

Create a pipeline

Use Skills for All courses to create a pipeline to additional certification-aligned courses that instructors are already teaching

Reach more students

By attracting learners earlier in their learning journey

Stay relevant

By offering innovative curriculum and certification-aligned courses that prepare students to succeed in the changing landscape of IT

Save instructors' time

Without skimping on quality by leveraging engaging, ready-made online content – featuring videos, gamification, practice labs, and more - plus, metrics for academies.

Networking Academy Curriculum Portfolio

04.26.2022

Explore

Introduction to exciting opportunities in technology.

- ▲ Get Connected
- ▲ NDG Linux Unhatched
- ▲ Introduction to Cybersecurity
- ▲ Introduction to IoT and Digital Transformation
- ▲ Getting Started with Cisco Packet Tracer
- ▲ Exploring Networking with Cisco Packet Tracer
- ▲ Exploring IoT with Cisco Packet Tracer

Career

Preparation for entry level positions.

Digital Essentials

- ★ ● IT Essentials
- ● ▲ NDG Linux Essentials
- ▲ Networking Essentials
- ▲ Cybersecurity Essentials
- ● ▲ PCAP: Programming Essentials in Python

Networking

CCNA:

- ★ ● ■ Introduction to Networks
- ★ ● ■ Switching, Routing, & Wireless Essentials
- ★ ● ■ Enterprise Networking, Security & Automation

CCNP Enterprise:

- ★ ● ■ Core Networking (ENCOR)
- ★ ● ■ Advanced Routing (ENARSI)

Programmable Infrastructure

- ● ▲ Python Essentials 1
- ★ ● ■ DevNet Associate
- Workshop: Experimenting with REST APIs
- Workshop: Model-Driven Programmability

Cybersecurity

- ● ▲ Endpoint Security
- ● ▲ Network Defense
- ● ▲ Cyber Threat Management
- ● ▲ Cybersecurity Pathway
- ★ ● ■ CyberOps Associate
- ★ ■ Network Security
- ● ▲ Cloud Security

Practice

Develop skills with interactive tools & experiences

Cisco Packet Tracer | Gaming | Virtual Labs | Assessments | Physical Equipment

Complementary Offerings

Additional offerings available from Partners.

NDG

- ● ▲ NDG Linux I
- ● ▲ NDG Linux II
- NDG NETLAB+
- NDG CyberOps Lab

OPENEDG

- ● ▲ JavaScript Essentials 1 (JSE)
- ● CLA: Programming Essentials in C
- ● CLP: Advanced Programming in C
- ● CPA: Programming Essentials in C++
- ● CPP: Advanced Programming in C++

○ Aligns to Certification/Certificate

□ Instructor Training Required

△ Self-paced

☆ ASC Alignment Required

Includes courses on NetAcad.com and SkillsForAll.com

Introduction to IoT and Digital Transformation

Course Overview

The course provides learners with an engaging, exploratory view of the Internet of Things and highlights how Digital Transformation impacts organizations, businesses, governments, industries, and our daily lives.

Benefits

Learners discover how IoT, along with emerging technologies such as data analytics, artificial intelligence and cybersecurity, are digitally transforming industries and expanding career opportunities. Learners understand the importance of Intent-Based Networking using a software-driven approach and machine learning to be able to connect and secure tens of billions of new devices with ease.

Explores Opportunities in Technology

- ✓ Develops digital basics
- ✓ Explores career opportunities in the new emerging technologies landscape

Course Details

Target Audience: Secondary and 2-Year college students, general audience

Estimated Time to Completion: 6 hours

Prerequisites: None

Course Delivery: Instructor-guided or Self-paced

Learning Component Highlights:

- ✓ 6 modules
- ✓ 16 practice lab activities
- ✓ 7 Cisco Packet Tracer activities
- ✓ 12 videos
- ✓ Knowledge checks and module quizzes
- ✓ Final exam

Course Recognitions: Digital Badge

Recommended Insertion Points: A great start for any learning path, and a way to introduce digital transformation before or during any Career course.

Requirements

- ASC Alignment Required: No
- Instructor Training Required: No
- Physical Equipment Required: No

View Course

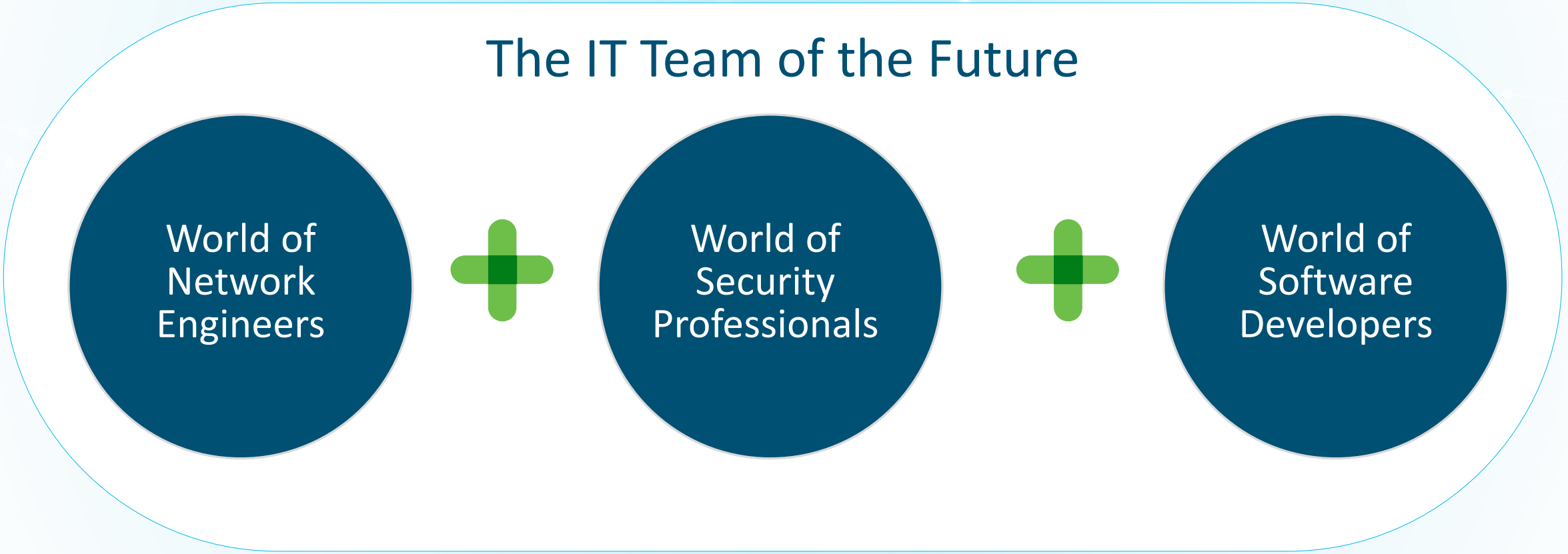
Skills for All

Quick Demo

DevNet Associate Course

Response to Digital Disruption

Changing What We Teach



DevNet Associate Certification

Knowledge Domains
• Understanding and Securely Using APIs • Software Development and Design • Application Deployment and Security • Infrastructure and Automation • Network Fundamentals

DevNet Associate 1.0

Course Overview

This course introduces the methodologies and tools of modern software development, applied to the IT and Network operations. It covers a 360 view of the domain including microservices, testing, containers and DevOps, as well as securely automating infrastructures with Application Programming Interfaces (APIs).

Benefits

Gain practical, relevant, hands-on lab experience, including programming in Python, using GIT and common data formats (JSON, XML and YAML), deploying applications as containers, using Continuous Integration/Continuous Deployment (CI/CD) pipelines and automating infrastructure using code.

Prepare for Careers

- ✓ Develop skills for entry-level software development and infrastructure automation jobs
- ✓ Prepare for DevNet Associate certification exam

Course Details

Target Audience: Secondary vocational students, 2-year and 4-year college students and participants of coding bootcamps

Estimated Time to Completion: 70 hours

Recommended Preparation:
Coding skills, equivalent to:
PCAP: Programming Essentials in Python
Fundamental skills of networking, equivalent to:
CCNA: Introduction to Networks

Course Delivery: Instructor-led

Learning Component Highlights:
- ✓ 8 Modules with 6 Videos, 23 Hands-on Labs and 5 Cisco Packet Tracer Activities
- ✓ 8 Quizzes, 8 Module Exam, Practice Final Exam, Final Exam, Skills Based Assessment
- ✓ Practice Exam for DEVASC Certification

Course Recognitions: Certificate of Completion, Letter of Merit, Digital Badge, Cert Voucher

Recommended Next Course:
CCNA, CCNP or CyberOps Associate

Requirements & Resources

- **ASC Alignment Required:** Yes
- **Instructor Training Required:** Yes
- **Physical Equipment Required:** No, only using Virtual Machines on the student's computer
- **Voucher Availability:** Yes

Certification Aligned
Cisco Certified DevNet Associate

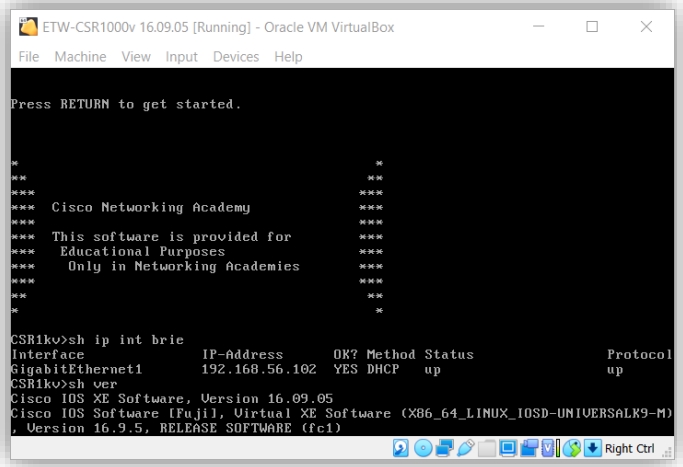
Course Outline

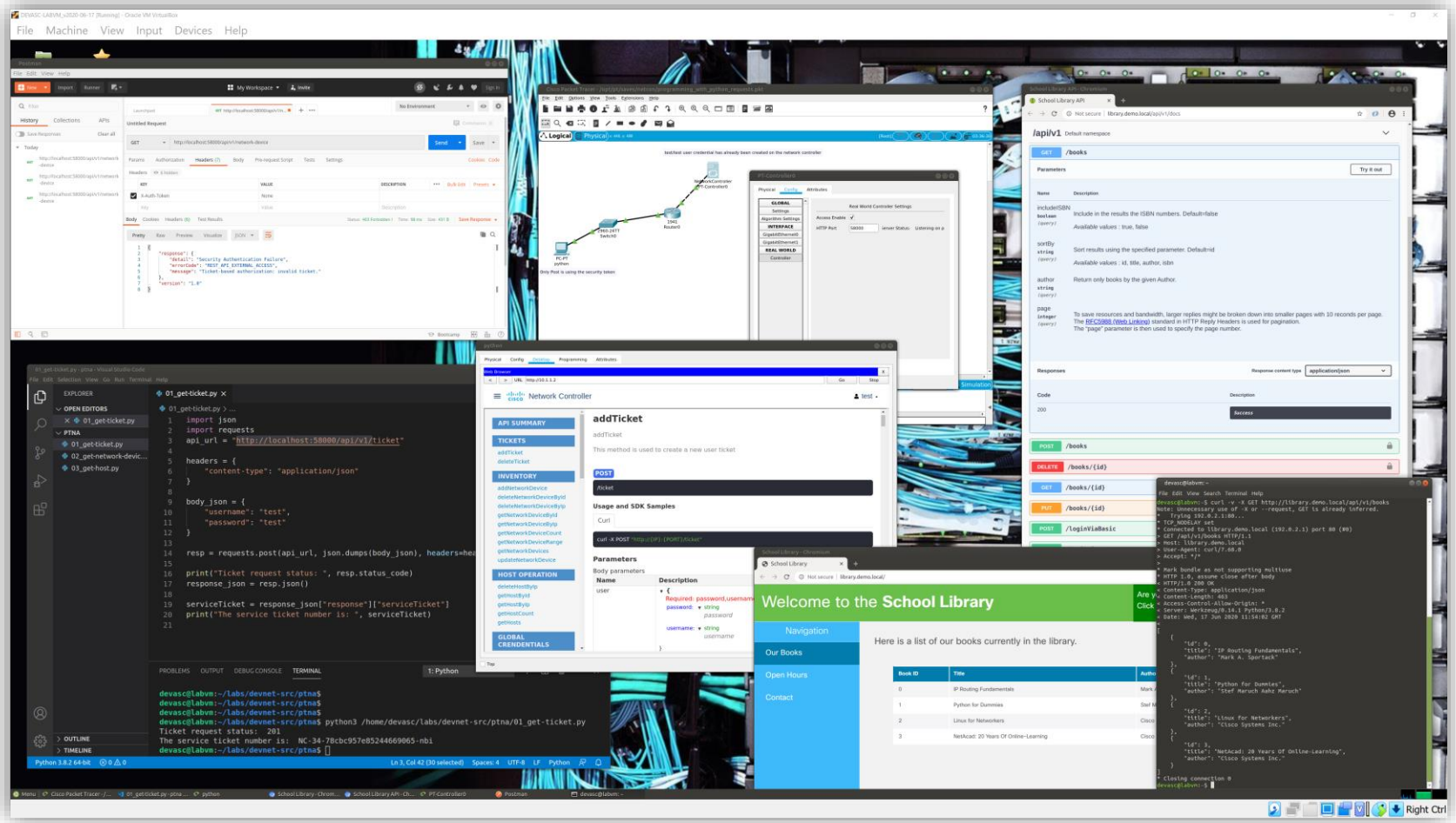
	Module Title	Objectives
1	Course Introduction	• Setup the lab environment • Review Python programming and Linux skills
2	The DevNet Developer Environment	• Explore and get familiar with DevNet Resources
3	Software Development and Design	• Use best practices from software development and design with Python
4	Understanding and Using APIs	• Discover API Design and Architecture styles and Advanced uses of REST APIs • Interact with REST APIs using command line, graphical tools and Python code
5	Network Fundamentals	• Explain the features and functions of common network devices • Troubleshoot basic network connectivity issues
6	Application Deployment and Security	• Use current technologies to deploy and secure applications and data in a local or cloud environments
7	Infrastructure and Automation	• Explore software testing and deployment methods in automation and simulation environments and use DevOps tools for infrastructure automation
8	Cisco Platforms and Development	• Compare Cisco platforms used for collaboration, infrastructure management, and automation • Use APIs to interact with and automate Cisco platforms

Lab Equipment

2 Virtual Machines

- DEVASC Lab VM
- Cisco CSR1000v VM

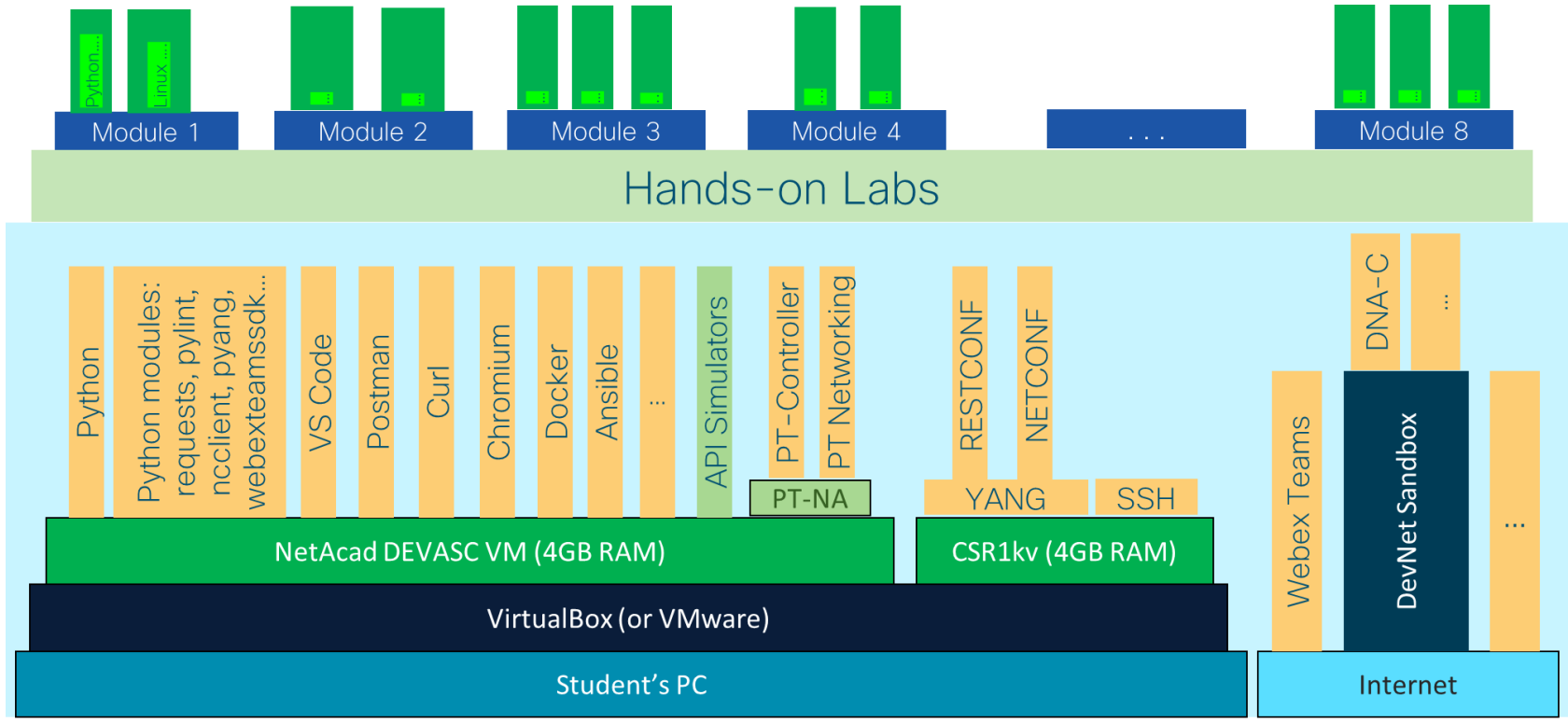




Lab Equipment

2 Virtual Machines

- **DEVASC Lab VM**:
  - All software tools bundled in a single Virtual Machine
  - No need to install, setup, or configure any tools
  - All students have the same consistent experience
  - Built-in REST API Simulator
  - Includes Packet Tracer for Network Automation
- Cisco CSR1000v VM



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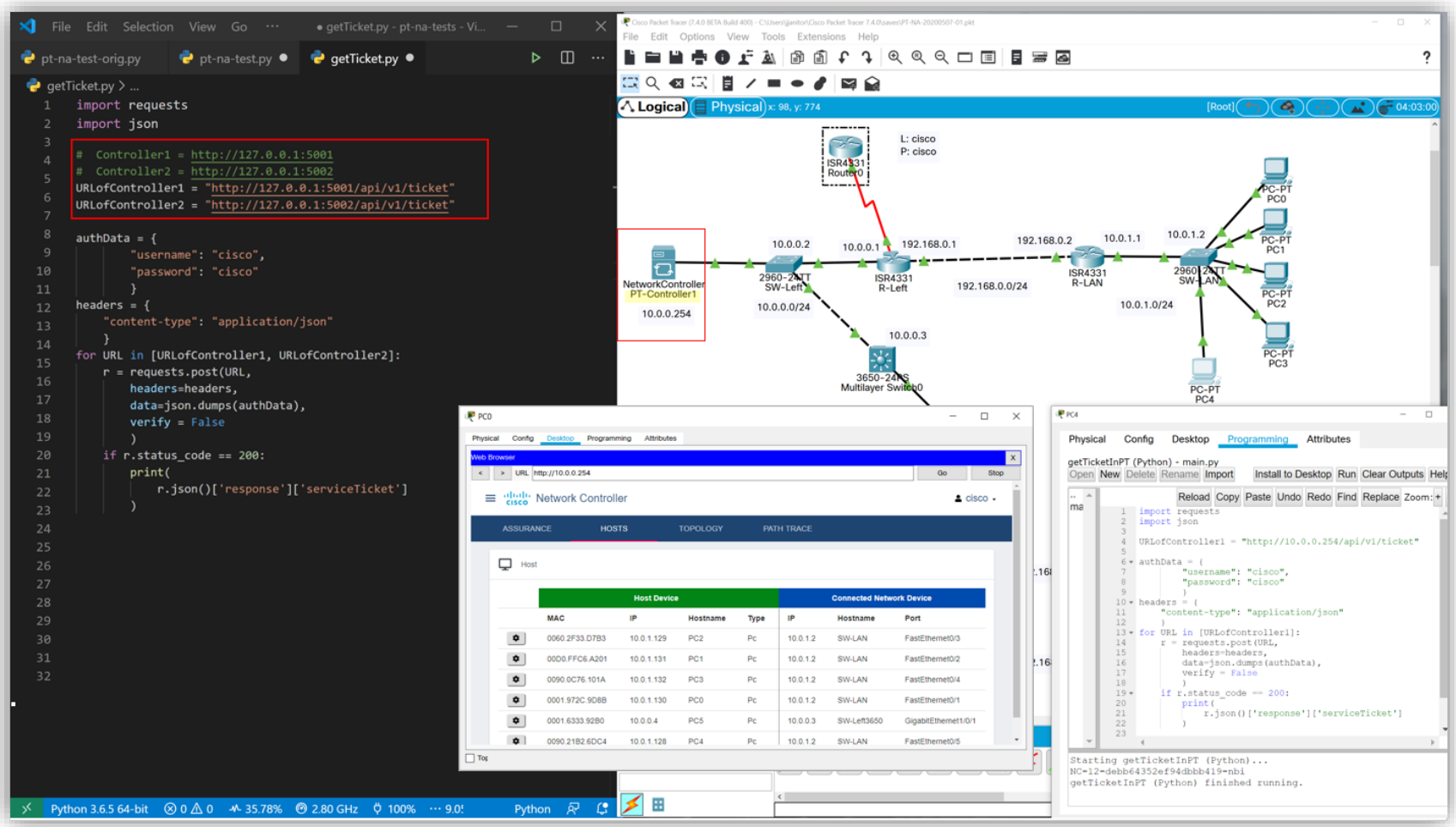


Emerging Technology Workshops

Emerging Technologies Workshop

Experimenting with REST APIs using Webex Teams

Workshop Overview

The Experimenting with REST APIs using Webex Teams workshop introduces you to the basic competencies needed to create applications and automate tasks using REST APIs, the most popular architecture for software integration in IT.

Benefits

In one day students will learn and practice Python programming skills and tools, culminating in live interactions with the APIs on Cisco collaboration software using the Webex Teams online platform.

Learning Outcomes

- Understand value, set-up and use the most prevalent software language (Python) and tools for network programmability (JSON, Postman).
- Understand the importance of participating in professional communities of practice when doing work in the software domain.
- Join and engage in 3 professional communities of practice: GitHub, Stack Overflow and Cisco DevNet.
- Describe the relevance of REST APIs architecture and perform basic software integration and automation using real-world APIs on an enterprise collaboration platform (Webex Teams).

Features

Target Audience: Vocational, 2-year and 4-year College, 4-Year University students

Prerequisites: Basic programming

Languages: English

Course Delivery: Instructor-led

Equipment: FREE! Uses free online software tools

Estimated Time to Complete: 8 hours

Recommended Insertion Points: PCAP Programming Essentials in Python, Connecting Things

Other Insertion Points: IT Essentials, CCNA: ITN

Instructor Training: Required, self-paced options available

Emerging Technologies Workshop

Model-Driven Programmability

Workshop Overview

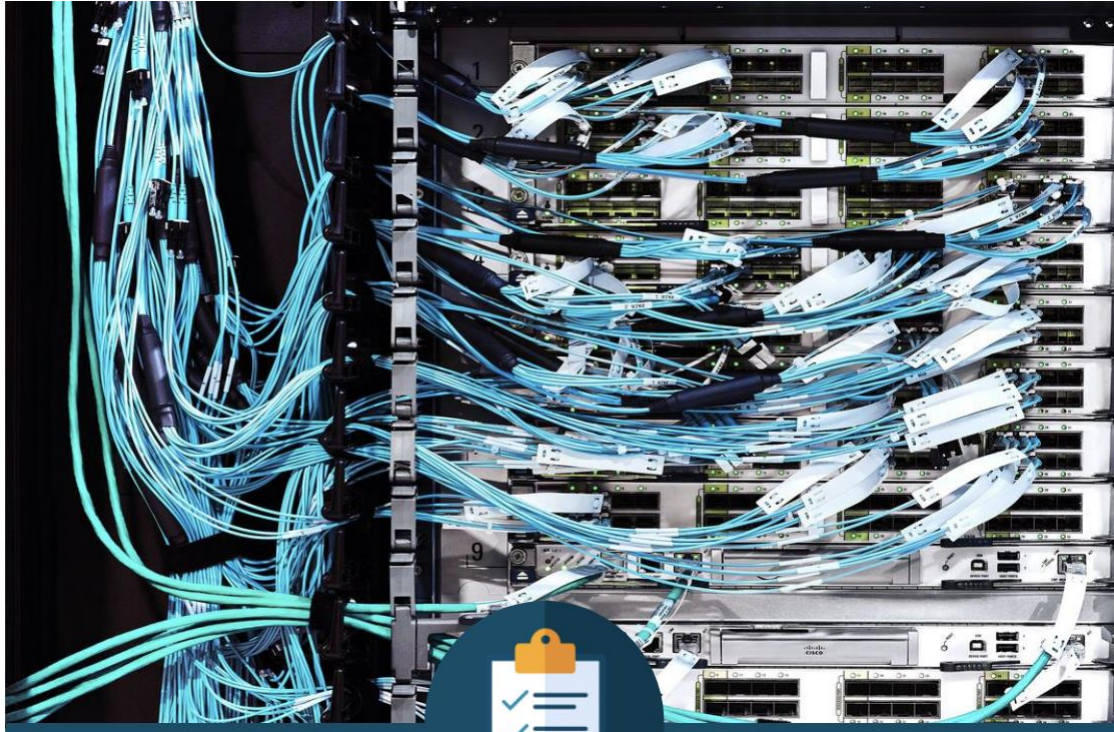
With the increasing size of the modern network and the frequency of changes required by the business, managing and automating networks via a Command Line Interface (CLI) is ineffective and error prone. A new approach, using Model Driven Programmability, enables transactional changes, by defining standardized device models and APIs. This workshop introduces students to device level programmability competencies, to automate configuration and management tasks using standardized YANG device models and using the RESTCONF and NETCONF device level APIs.

Benefits

Every networking student will benefit in grasping the importance of YANG, as language to “model” a networking device, combined with the robustness of the RESTCONF and NETCONF device level programmability APIs. Students will also experiment and develop Python scripts to manage networking devices at scale, using the Model Driven Programmability approach.

Learning Outcomes

- Understand the value, set-up and use of software concepts and tools relevant to network programmability (Python scripting, Git, JSON, Postman, APIs).
- Describe a different approach to software-defined networking (SDN), including central application policy control.
- Use Python with combination of RESTCONF and NETCONF APIs to retrieve and update the device's configuration
- Understand the value of joining professional communities of practice to working in the network programmability domain. Participate in Cisco DevNet, GitHub, and Stack Overflow.



Features

Target Audience: Vocational, 2-year and 4-year College, 4-year University students

Prerequisites: Basic programming, CCNA: SRWE level networking skills

Languages: English

Course Delivery: Instructor-led

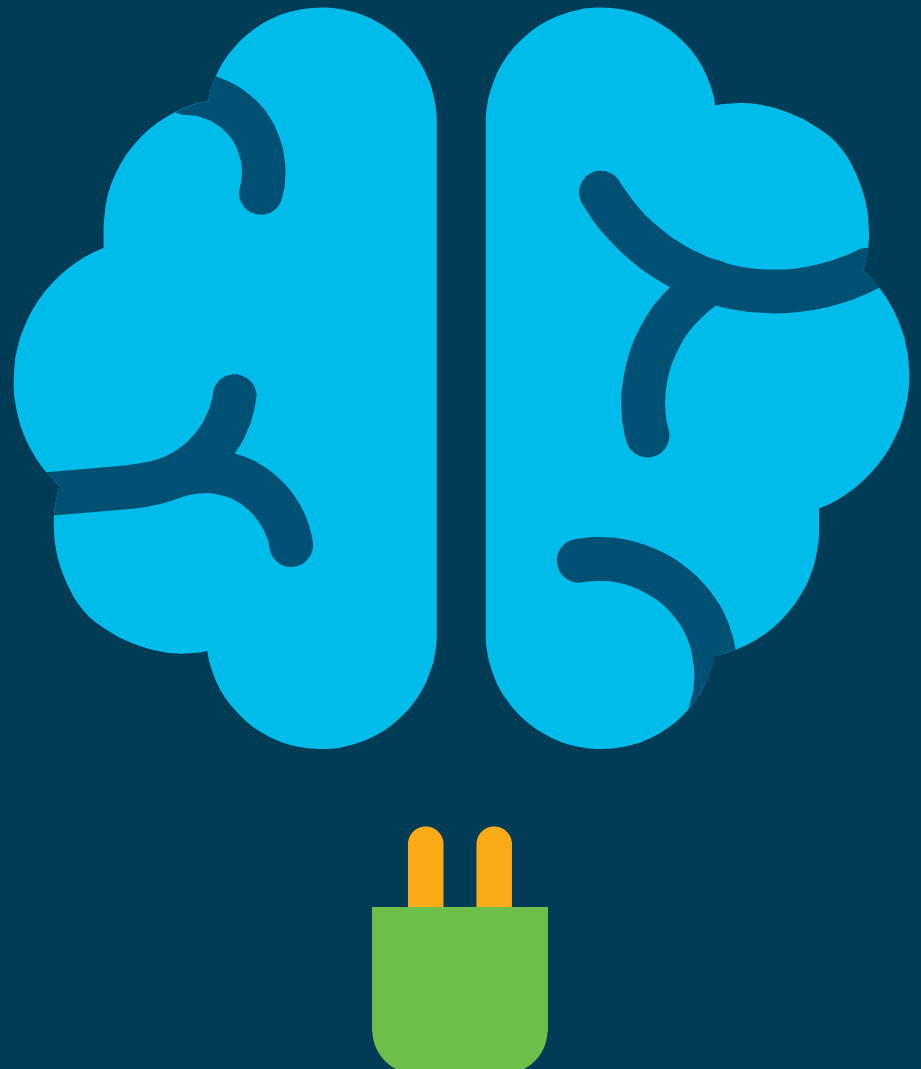
Equipment: Virtual Cisco SW Router, DevNet Sandbox, or Real Equipment with Cisco ISR4k routers

Estimated Time to Complete: 8 hours

Recommended Insertion Points: After CCNA: SRWE, with CCNA Security or CCNP ENCOR

Instructor Training: Required, self-paced option available

Cloud Security Course



NetAcad Cloud Security Course

This course gives a broad overview of cloud security and allows students to gain critical insights into issues such as data security, key management, and identity and access management.

Target Audience

- Learners enrolled in technology degree programs at higher education institutions
- Learners who want to reskill for a career in Cloud Security

Instructor Mentored

- Learners sign up through “Find an Academy”
- Exclusively for the NetAcad community
- At NO cost to our academies. (~~500 USD per learner~~)

Prerequisites: None

Recommended preparation

- Introduction to Cybersecurity
- Cybersecurity Essentials

NetAcad Cloud Security Course

35 Hours

Pursue a career in cloud security, an in-demand, exciting new area that spans all industries

Online Self Paced

- **No Physical Equipment**
- **Certificate of Attendance**

No instructor training

- **No ASC Alignment Required**
- **CCSK Exam Discount Available for Networking Academy learners**

Aligned to CCSK

Prepares students to take the Certificate of Cloud Security Knowledge (CCSK) exam

Course Objectives

- Spark interest in cloud security
- Familiarize with the universal concepts of cloud computing
- Provide a base of knowledge on cloud computing security theory
- Acquaint with security threats and best practices for securing the cloud
- Assist in taking the CCSK exam.

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Course Structure

- ✓6 modules
- ✓20+ videos
- ✓10 interactive activities
- ✓37 quizzes
- ✓1 Practice exam

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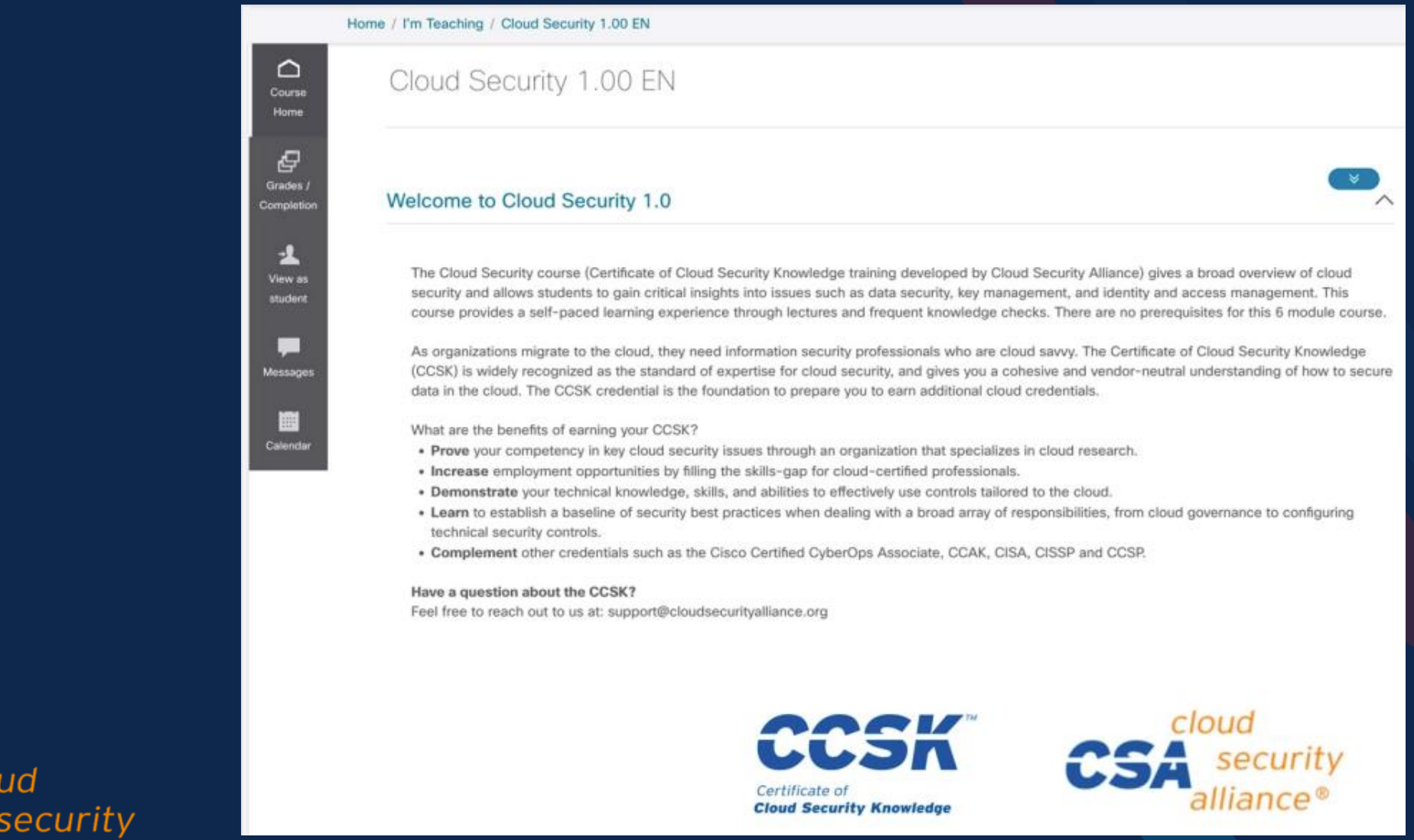
Online Learning Environment



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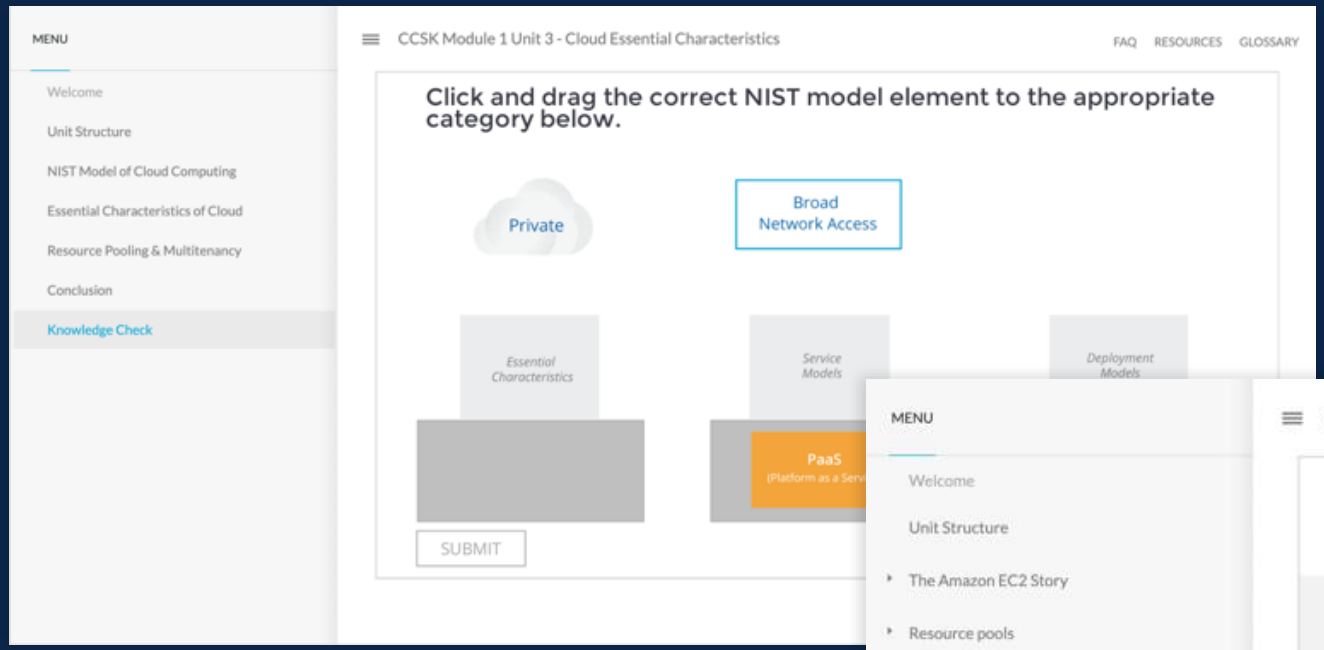
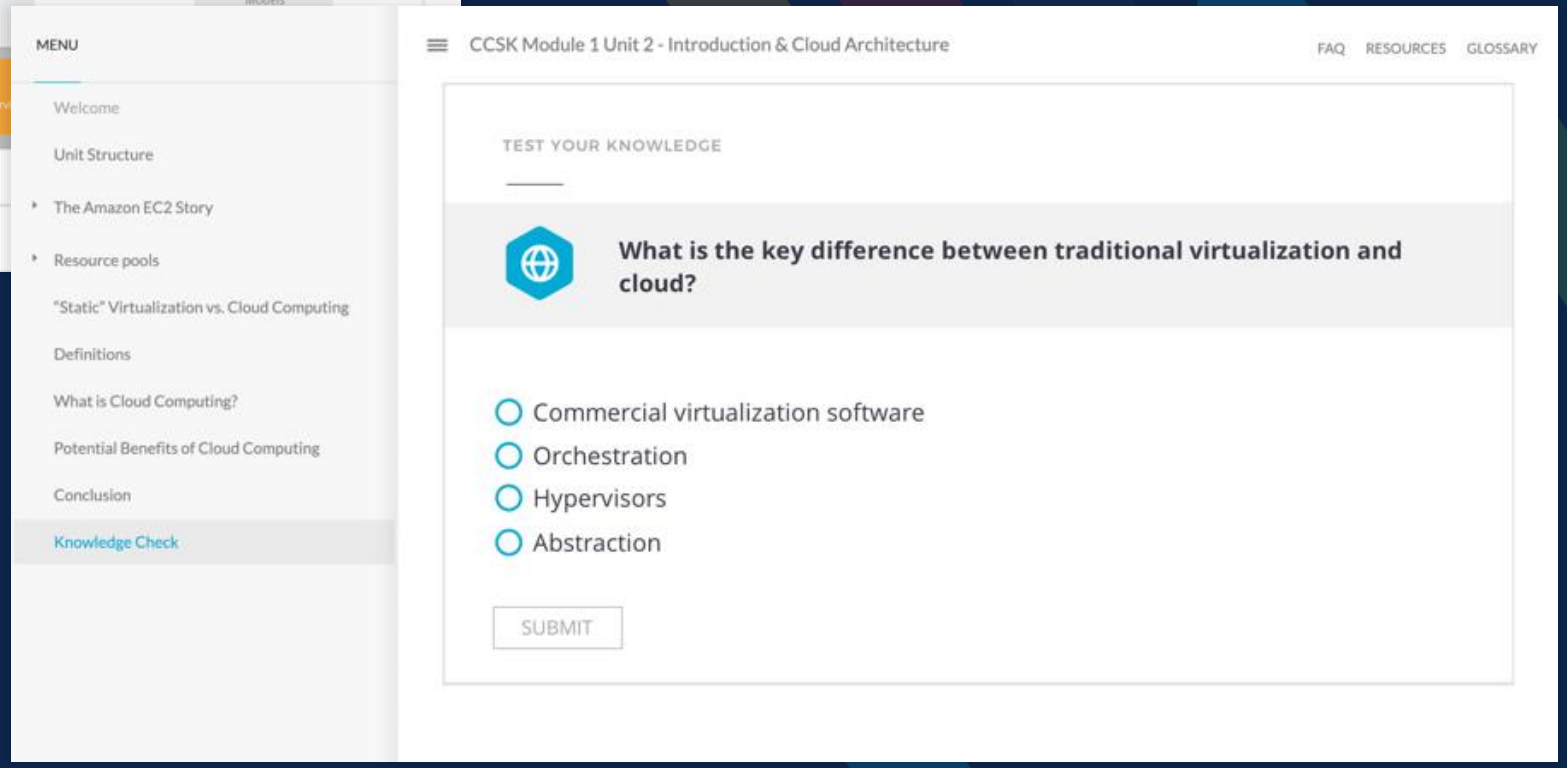
Knowledge Checks





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Topics Covered

Cloud Computing Fundamentals

The fundamentals of cloud computing, cloud architectures, service, delivery, and deployment models and the role of virtualization.

Data Security for Cloud Computing

The Data Security Lifecycle, data security issues with different delivery models, and managing encryption in the cloud.

Infrastructure Security for Cloud Computing

Securing the core infrastructure for cloud computing, networks, management interfaces and administrator credentials.

Application Security and Identity Management for Cloud Computing

Federated identity, different IAM applications, secure development, and managing application security in and for the cloud.

Managing Cloud Security and Risk

Risk assessment, governance, and key legal and compliance issues in the cloud such as discovery requirements.

Cloud Security Operations

Key considerations for evaluating, selecting, and managing cloud computing providers, Security as a Service, and incident response.

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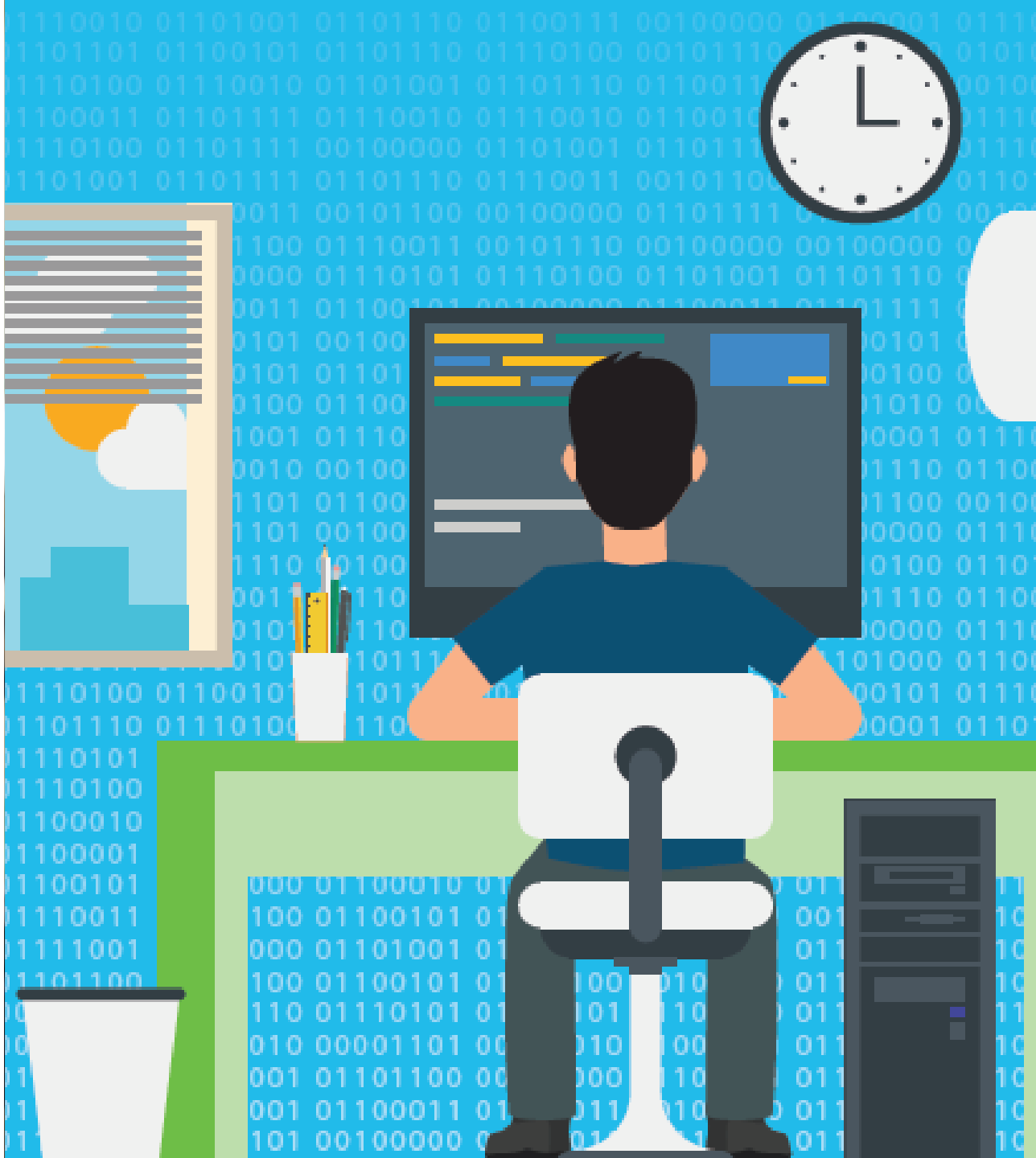
IPD Week – 1000 Ways to use Packet Tracer

1. What is Cisco Packet Tracer
2. **Case 1**: Network Simulation
3. **Case 2**: Physical Layer
4. **Case 3**: My own custom lab
5. **Case 4**: Games and competitions
6. **Case 5**: IoT World
7. **Case 6**: Network automation
8. **Case 7**: Tutored activities



More IPD Week – past sessions

- 17 sessions on DevNet Associate and API
- Network telemetry
- Network programmability
- Network infrastructure as a code
- SDN Clustering
- Streaming telemetry for network infrastructure
- Many other sessions in IPD Week Archive

Did you miss an IPD session?

We have many great sessions in the IPD Week Archive available in multiple languages:

English Spanish All other languages

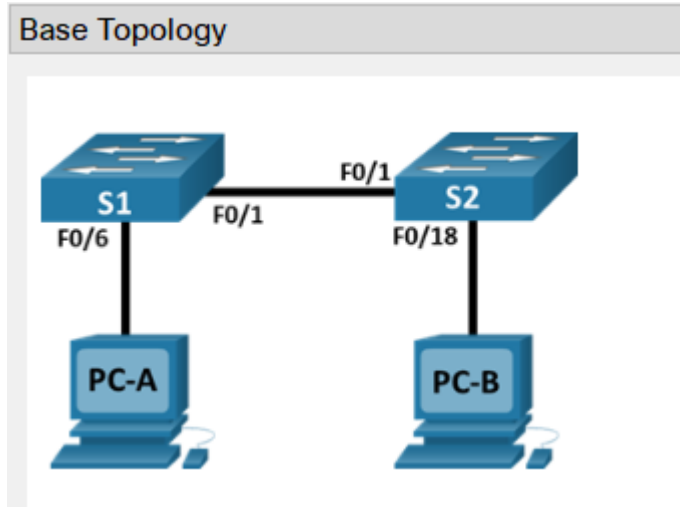
ARCHIVE

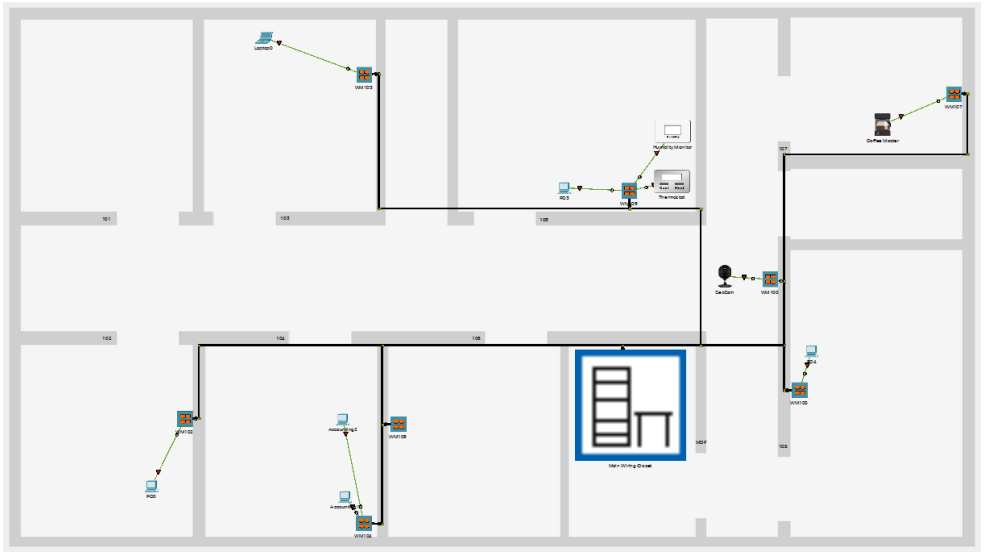
https://www.netacad.com/portal/resources/professional-development/ipd-week

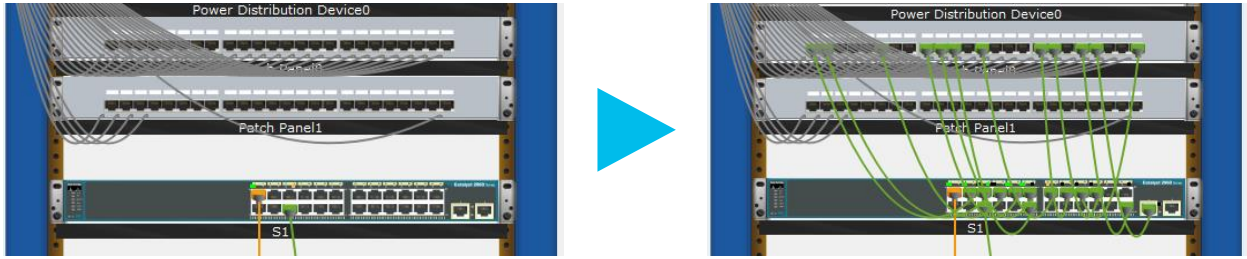
Teaser for the PT Layer 1 and Network Automation Workshop

PT8 Physical Cabling Workshop

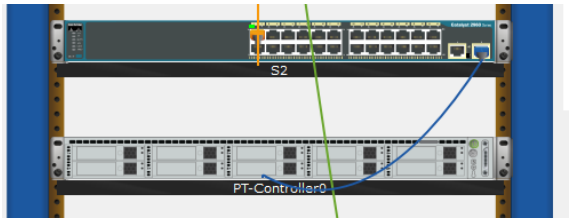
- Based on a simple rack and stack PTPM activity, first step is to build a simple two-switch network
- Extended with office structured cabling and hosts scattered around the office
- Hosts are patched to wall mounts, but patch panel cabling is missing
- Cabling to be complete based on provided Structured Cabling and Patch Cabling sheets







Progress Tracking




```
71  def main():
72
73      hostCount = 0
74
75      while True:
76          lo = workspace.getLogicalObject()
77          name = lo.getName()
78
79          newHostCount = getHostCount()
80
81          print ("%s - %d"%(name,newHostCount))
82
83          if newHostCount != hostCount:
84
```

eugenebot 9:15

Host count for **Turbo** is now **3**. That's a good start!

Host count for **Turbo** is now **4**

Host count for **Turbo** is now **5**

Host count for **Turbo** is now **6**. Way to go!

Host count for **Turbo** is now **7**

Host count for **Turbo** is now **8**

Host count for **Turbo** is now **9**

Host count for **Turbo** is now **10**. Almost done!

Host count for **Turbo** is now **11**

Host count for **Turbo** is now **12**. Activity complete,

Congratulations, Turbo!!

- There is a Network Controller connected to the network and set up to monitor hosts reachability
- One of the PCs continuously polls the Controller via the API
- A message is sent to Webex space when the number of reachable hosts increases


Networking
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