

Programmable Infrastructure

With Cisco DevNet Associate

Informatikai Oktatási Konferencia

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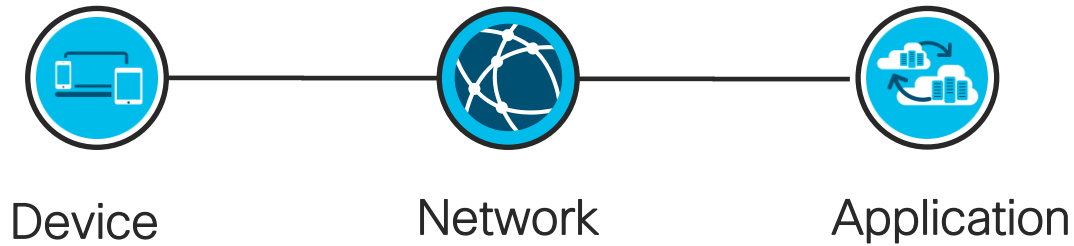
Agenda

- Software is Eating the World
- The DevNet Associate Course
- Course & Labs Demo
- Additional Resources

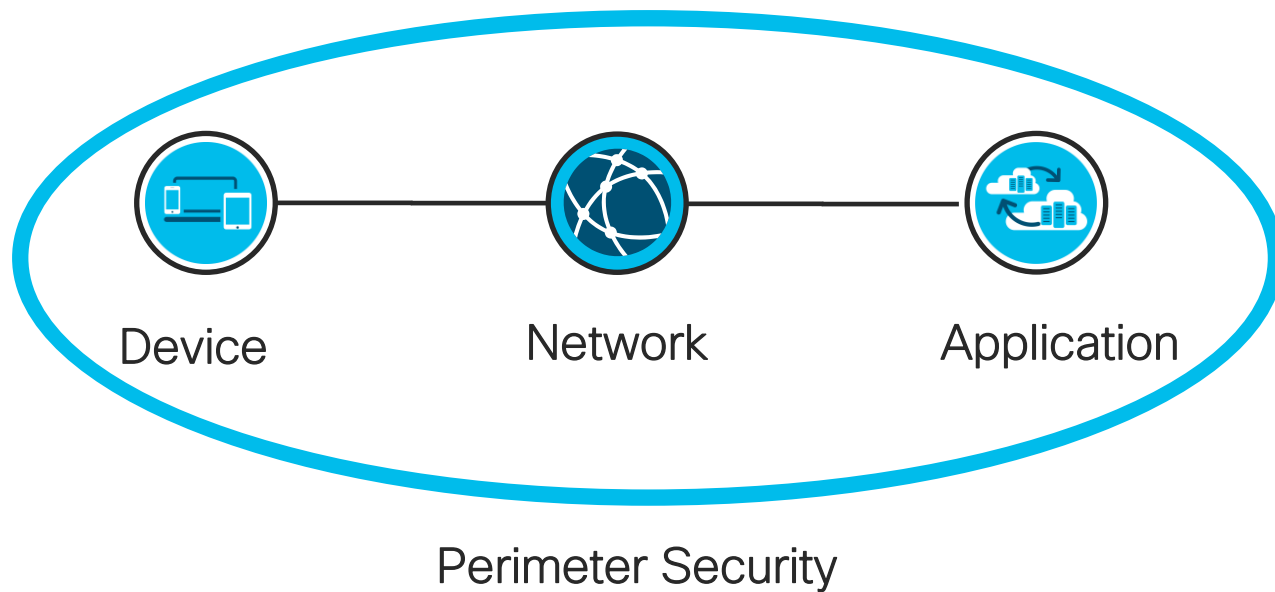
Software is eating the world



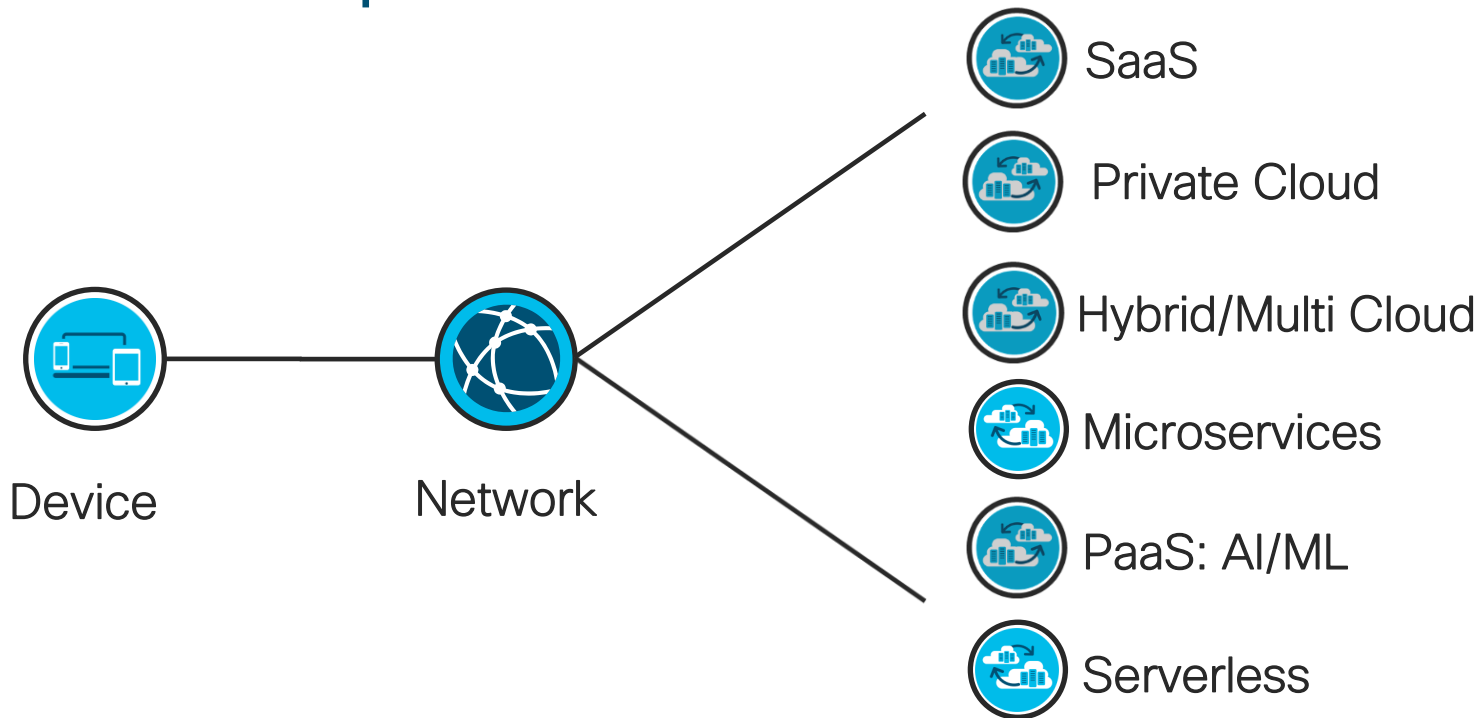
Traditional ICT Infrastructure



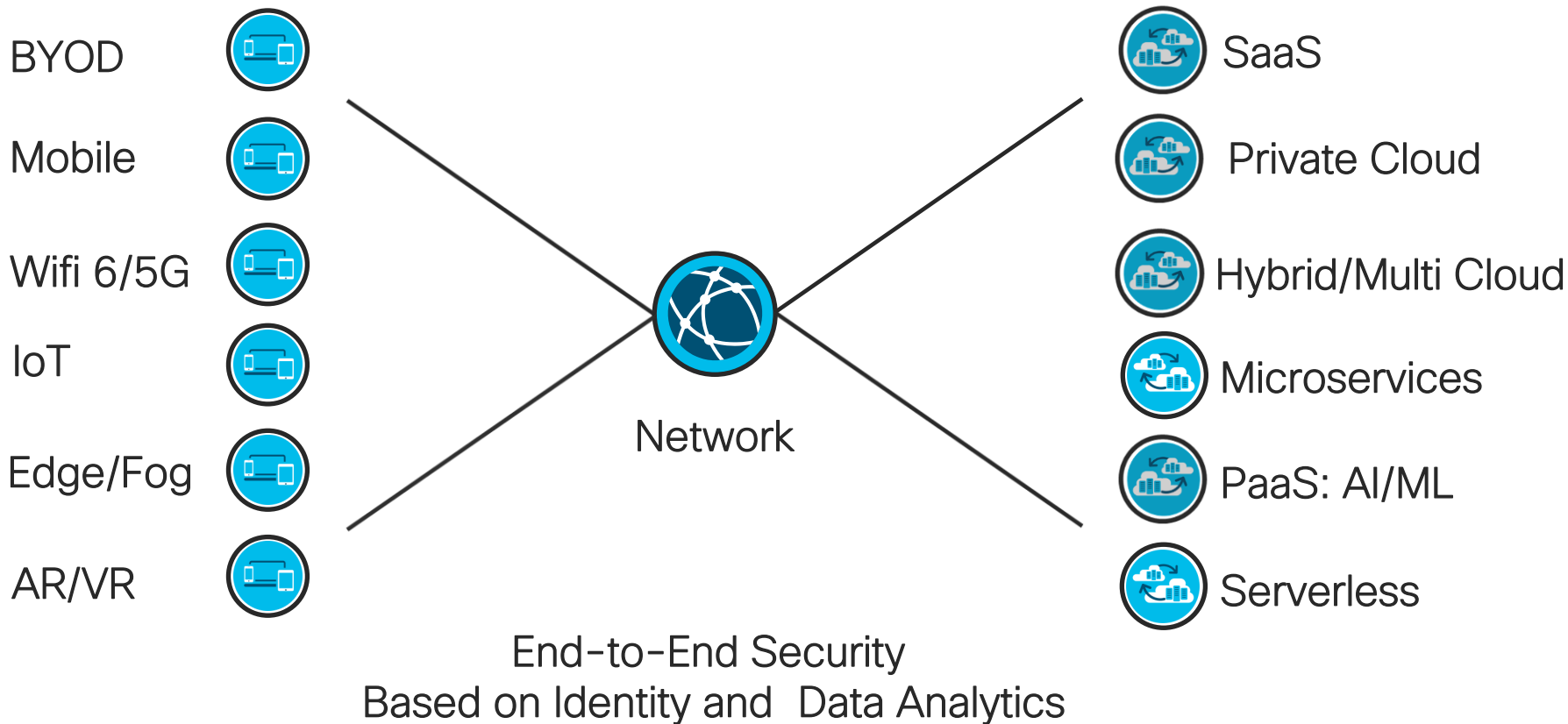
Traditional ICT Infrastructure



Cloud revolution impact



Mobile, IoT & VR impact



The Network Faces its Biggest Transformation

Connectivity-driven network (1983-2020)

Reactive
Device Management
Centralized Compute
Fixed Wired Access
Perimeter Security

Business outcomes enabler (2020+)

Proactive
Policy-based Automation
Multicloud
Wireless 5G + WiFi6
Zero Trust

Predictive
Intent-based
Cloud / Edge
Ubiquitous Roaming
Self-Defending

Response to Digital Disruption

Changing What We Teach

The IT Team of the Future

World of
**Network
Engineers**



World of
**Security
Professionals**



World of
**Software
Developers**

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



DevNet Associate

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



Infrastructure Automation

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](#)

Digital Badge & Certification Discount Voucher



www.youracclaim.com/org/cisco/badge/devnet-associate



Course Outline

	Module Title	Objectives
1	Course Introduction	<ul style="list-style-type: none">• Setup the lab environment• Review Python programming and Linux skills
2	The DevNet Developer Environment	<ul style="list-style-type: none">• Explore and get familiar with DevNet Resources
3	Software Development and Design	<ul style="list-style-type: none">• Use best practices from software development and design with Python
4	Understanding and Using APIs	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Explain the features and functions of common network devices• Troubleshoot basic network connectivity issues
6	Application Deployment and Security	<ul style="list-style-type: none">• Use current technologies to deploy and secure applications and data in a local or cloud environments
7	Infrastructure and Automation	<ul style="list-style-type: none">• Explore software testing and deployment methods in automation and simulation environments and use DevOps tools for infrastructure automation
8	Cisco Platforms and Development	<ul style="list-style-type: none">• Compare Cisco platforms used for collaboration, infrastructure management, and automation• Use APIs to interact with and automate Cisco platforms

Course Demo



DevNet Associate course demo



Welcome to DevNet Associate 1.0 (DEVASC)



Use the course navigation links to access all of the content, assessments, practice activities and resources for this course.

Activities

- Assignments
- External tools
- Resources

Find answers to many of your Networking Academy questions:

NetAcad Virtual Assistant

Upcoming events

There are no upcoming events

[Go to calendar...](#)

Module 1



Module 1: Course Introduction Content

Restricted Available until end of 29 September 2021



Module 1: Course Introduction Exam

Module 1



Module 1: Course Introduction Content

Restricted

Available until end of **29 September 2021**



Module 1: Course Introduction Exam

Restricted

Available until end of **29 September 2021**



Module 2



Module 2: The DevNet Developer Environment Content

Restricted

Available until end of **29 September 2021**



Module 2: The DevNet Developer Environment Exam

Restricted

Available until end of **29 September 2021**



Module 3



Module 3: Software Development and Design Content

Restricted

Available until end of **29 September 2021**



Module 3: Software Development and Design Exam

Restricted

Available until end of **29 September 2021**



Module 4



Module 4: Understanding and Using APIs Content

Restricted

Available until end of **29 September 2021**



Module 4: Understanding and Using APIs Exam

Restricted

Available until end of **29 September 2021**



Module 5



Module 5: Network Fundamentals Content



Course: DevNet Associate course x DevNet Associate - DevNet Devel x +

lms.netacad.com/course/view.php?id=149351

Incognito

Module 8: Cisco Platforms and Development Content

Restricted Available until end of 29 September 2021

Module 8: Cisco Platforms and Development Exam

Restricted Available until end of 29 September 2021

Skills Exam

DEVASC Final Skills Assessment

Practice Exams

Practice Final Exam

Restricted Available until end of 29 September 2021

Course Feedback

End of Course Feedback

Restricted Available until end of 29 September 2021

Final Exam

Final Exam

Restricted Available until end of 29 September 2021

Certification Practice Exam

Certification Practice Exam

Restricted Available until end of 29 September 2021

Share Idea

Course: DevNet Associate course

DevNet Associate -DevNet Devel

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External tools
Resources

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Upcoming events
There are no upcoming events

Go to calendar...


Assessment Center

View as student

Messages


Calendar

Welcome to DevNet Associate 1.0 (DEVASC)




Use the course navigation links to access all of the content, assessments, practice activities and resources for this course.

Module 1


 Module 1: Course Introduction Content

Restricted Available until end of 29 September 2021


 Module 1: Course Introduction Exam

Restricted Available until end of 29 September 2021

Module 2

 Module 2: The DevNet Developer Environment Content

Restricted Available until end of 29 September 2021

 Module 2: The DevNet Developer Environment Exam

Restricted Available until end of 29 September 2021

Share Idea

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1.0.5	What Will I Learn to Do in this Module?	
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Introduction

1.0.1

First Time in This Course



Welcome to the DevNet Associate (DEVASC) course. The DEVASC course is designed for people who want to learn the knowledge and skills they need to work in network programming and automation. In addition to learning basic coding and

Course: DevNet Associate course

DevNet Associate -Your Lab Envi

contenthub.netacad.com/devnet/1.1.1

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CISCO

DevNet Associate

v1.0

1Course Introduction

1.1Your Lab Environment

1.1.1Set Up Your Lab Environment

1.1.2Lab - Install the Virtual Lab Environment

1.2Linux

1.3Python

1.4Course Introduction Summary

2The DevNet Developer Environment

3Software Development and Design

4Understanding and Using APIs

5Network Fundamentals

6Application Deployment and Security

7Infrastructure and Automation

Your Lab Environment

1.1.1Set Up Your Lab Environment

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Install the Virtual Machine Lab Environment

Open in New Window

Lab - Install the Virtual Machine Lab Environment

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Lab - Install the Virtual Machine Lab Environment

Objectives

- Part 1: Prepare a Computer for Virtualization
- Part 2: Explore the DEVASC VM GUI
- Part 3: Create Lab Environment Accounts
- Part 4: Install Webex Teams on your Device

Background / Scenario

In this lab, you will install the DEVASC virtual machine (DEVASC VM) in Oracle VirtualBox. After completing the installation, you will explore the GUI interface. You will then create the necessary accounts for the services that you will use throughout the labs. Finally, you will install Webex Teams in the lab environment for communication with the other students in your class, and for use in later labs.

Required Resources

- Host computer with at least 4 GB of RAM and 15 GB of free disk space
- High-speed internet access to download Oracle VirtualBox and the DEVASC VM

Instructions

Part 1: Prepare a Computer for Virtualization

In this Part, you will download and install desktop virtualization software and the DEVASC VM. Your instructor



1	Course Introduction	^
1.3	Python	^
1.3.1	The Power of Code	
1.3.2	Python Programming	
1.3.3	Lab - Python Programming Review	
1.3.4	Quiz - Python Review	
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1.3.4 Quiz - Python Review

1. A student is learning Python using the interactive interpreter mode. The student issues the commands:

```
>>> routers=[]
>>> switches=[]
>>> devices=["RT1", "RT2", "RT3", "SW1", "SW2", "SW3"]
>>> devices=devices + ["RT4", "SW4"]
>>> for i in devices:
>>>     if "R" in i:
>>>         routers.append(i)
>>>     else: switches.append(i)
>>> switches
```

What is the result?

- ☐ ['SW4']
- ☐ ['SW1', 'SW2', 'SW3']
- ☐ ['SW1', 'SW2', 'SW3', 'SW4']
- ☐ ['SW4', 'SW3', 'SW2', 'SW1']
- ☐ ['SW4', 'SW1', 'SW2', 'SW3']

2. A student is learning Python in the interactive interpreter mode. The student issues the commands:

```
>>> devicenames=["RT1", "RT2", "SW1", "SW2"]
>>> devicenames[-1]
```

What is the result?

DevNet Associate Course

DevNet Associate - DevNet Devel

contenthub.netacad.com/devnet/2.3.5

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DevNet Associate

1

Course Introduction

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2

The DevNet Developer Environment

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2.0

Introduction

▼

2.1

DevNet Overview

▼

2.2

Exploring DevNet Online Resources

▼

2.3

DevNet Developer Environment Summary

▲

2.3.1

What did I learn in this module?

2.3.2

Module 2: The DevNet Developer Environment Quiz

2.3.3

Want more?

2.3.4

DEVASC Project - Introduction

2.3.5

Project Activity 1: Team Formation

3

Software Development and Design

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4

Understanding and Using APIs

▼

2.3.5

Project Activity 1: Team Formation

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In this activity, you will complete the following tasks:

- Choose a facilitator and a recorder.
- Conduct an ice-breaker activity.
- Discuss effective teamwork.
- Choose a role for each team member.

1. Choose Facilitator and Recorder

There are several methods of forming teams. Although there are some differences, most agree that the first step in forming a successful team involves a period of getting acquainted.

To begin, you will select two people to help facilitate the team formation process. These people will only have these roles for this activity. Later, you will choose new roles as part of an agile team.

Choose two team formation roles:

- A **facilitator** to make sure everyone has a chance to speak and contribute during this process, and that no one person is dominating the discussions.
- A **recorder** to take notes and summarize this process in the rubric.

Take a few minutes as a team to review the **DEVASC Project Rubric** for this activity. Rubric documents will be used throughout the project to help you record your process and prepare for your presentations. The recorder will document this information in the rubric sheet for this activity.

The role of the facilitator is to lead the team during the following parts of the activity:

1. Asking the ice-breaker questions
2. Discussing the requirements of the project
3. Discussing teamwork
4. Highlighting each person's skills and background

Note: The facilitator and recorder should participate in the activities with the other team members.

Lab Equipment

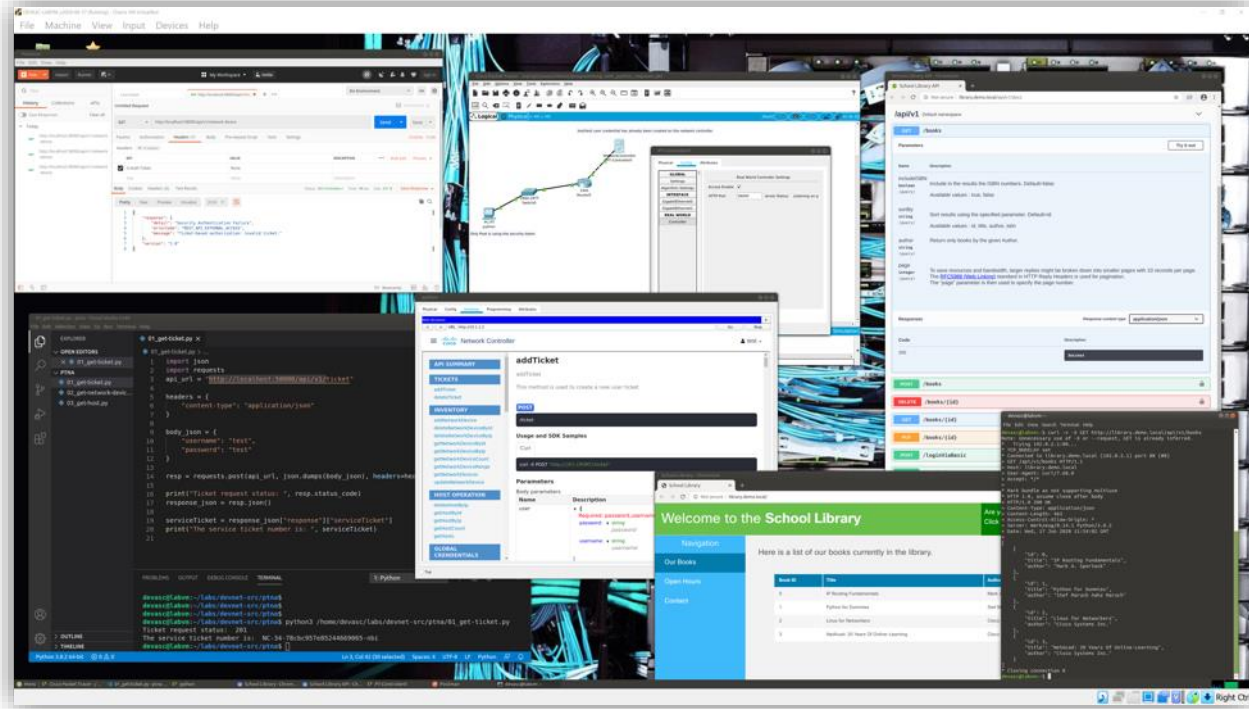
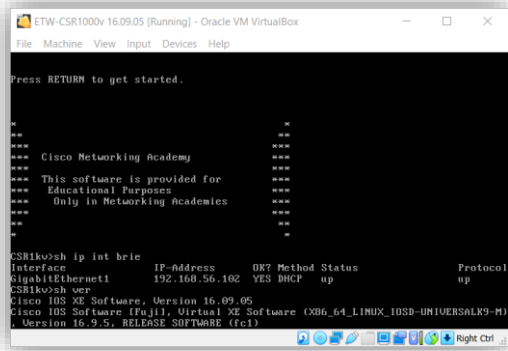




Lab Equipment

2 Virtual Machines

- DEVASC Lab VM
- Cisco CSR1000v VM



Labs Demo



Instructor Training





Instructor Training 2-Prong Approach

Option 1:

Novice
instructors

ITC-based Value-Add Course

Best in class training by a Cisco Qualified Instructor Trainers

Opportunity to obtain:

- ✓ Accreditation to Teach
- ✓ Certificate of Course Completion
- ✓ Letter of Merit
- ✓ Learning Badge
- ✓ Certification Voucher



Option 2:

DevNet Experienced
instructors

Online Self-Paced
Training-only
Course

Flexible solution for
DevNet, SDN, APIs and
coding experienced instructors

Accreditation
Option 2a

ITC Remote Proctored
Final Exam

Opportunity to obtain:

- ✓ Accreditation to Teach
- ✓ Certificate of Course Completion
- ✓ Letter of Merit
- ✓ Learning Badge

OR

Accreditation
Option 2b

DEVASC Certified

Opportunity to obtain:

- ✓ Accreditation to Teach

Course Resources

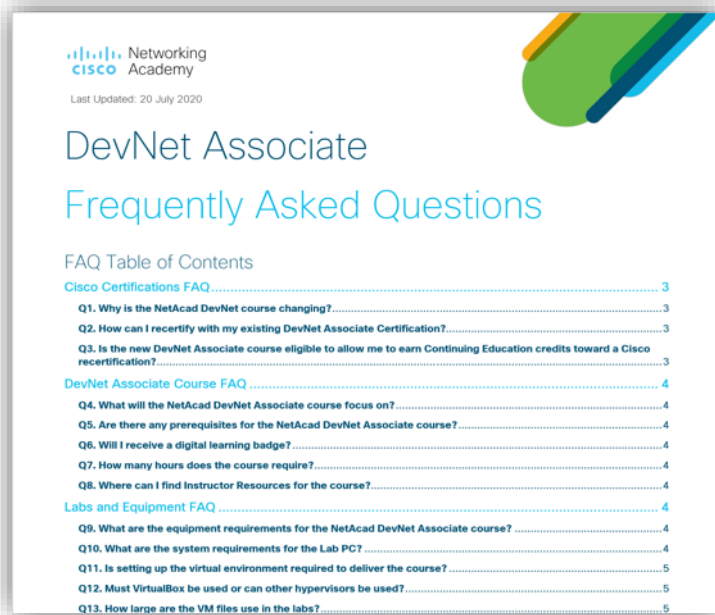




Course Resources

<https://netacad.com/portal/resources/course-resources/devnet-associate>

- Scope and Sequence
- Release Notes
- Instructor Planning Guides (includes Instructor PPTs)
- Instructor Lab Source Files
- Instructor Packet Tracer Source Files
- Packet Tracer Activity Source Files
- Student Lab Source Files
- Student Packet Tracer Source Files
- Exam Design Documents
- Course & VMs FAQs



The image shows the cover of a document titled "DevNet Associate Frequently Asked Questions". At the top left is the Cisco Academy logo with the text "Networking CISCO Academy" and "Last Updated: 20 July 2020". At the top right is a decorative graphic of overlapping green, blue, and orange shapes. The title "DevNet Associate" is in a large, dark blue font, and "Frequently Asked Questions" is in a smaller, light blue font. Below the title is a section "FAQ Table of Contents" followed by a list of questions and their corresponding page numbers.

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Q9. What are the equipment requirements for the NetAcad DevNet Associate course?	4
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Q12. Must VirtualBox be used or can other hypervisors be used?	5
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