Program Updates

Cisco Networking Academy

November 2017 - November 2018

#NetAcadIPD

Secure Assessment pilot

Situation

- "Answers to NetAcad assessments are all over the Internet!"

- "Is there any value in using them?"

- Currently 1+ million students take assessments at 10,000+ academies in 180 countries

- Steps taken to maintain integrity of NetAcad assessments:
  - Isomorphs and Variants
  - Multiple Balanced Forms of Final Exams, and Randomization of Questions
  - Quarterly Refresh of Exams
  - Flexible Activation Controls and Creation of Personalized Assessments

- Use NetAcad assessments to gauge student performance during the learning process rather just a final evaluation tool at the end-of-course

Community Best Practices:
Mitigate Impact of Exposed Assessments

- Change the weighting in the gradebook to emphasize skills assessments and labs

- Modify quizzes or design new quizzes and set them up as graded items in the gradebook

- Create personalized Cisco Packet Tracer activities as assignments

- Use open-ended item types such as essays and short answer questions

- Share question banks with other instructors through the import/export tool

- Engage students in discussions that allow them to demonstrate their knowledge with the peer review feature under Assignments and Discussions

New Assessment Features for pilot

- Dynamic Forms – Expand pool of Chapter & Final exam questions

- Secure Assessment Environment

  - "**Restricted Views**": Restrict ability to view summative exam (i.e. final exam) items while preserving personalized feedback

  - "**Secured Activation**": two attempts per Final exam, automatic re-enable incomplete attempts by default.

Dynamic Forms

- Deliver randomly selected balanced exam forms for Chapter & Final exams generated from a large pool of exam questions

- For each form, present items randomly.

Questions are selected from the pool

Determines the content coverage
Balance the difficulty level

Students receive different set of questions with same content coverage and similar difficulty level

Secure Assessment Environment

Current

Secured Activation

Instructor-Activated Assessment Launcher

Introduction to Networks (Version 6.00) - ITN Final Exam

Create Default Activation
Create default activations for the assessment

Create Advanced Activation
Create advanced activations for the assessment

Manage Activations
Manage the activations for the assessment

Assessment Viewer
View the questions for the assessment

Bulk Deactivation
Disregard incomplete attempts and deactivate available activations for the assessment

Student Performance Summary
View the Student Performance Summary for the assessment

Email Final Exam Scores
Email the student grades for the assessment

View All Attempts
View all the attempts for the assessment

Secured Assessment Launcher

Introduction to Networks (Version 6.00) - ITN Final Exam Beta

Create Secured Activation
Create secured activations for the assessment

Manage Activations
Manage the activations for the assessment

Bulk Deactivation
Disregard incomplete attempts and deactivate available activations for the assessment

Email Final Exam Scores
Email the student grades for the assessment

View All Attempts
View all the attempts for the assessment

More Risk

Less Risk

Pilot Operation

Scope
- Course - CCNA R&S ITN, English

Instructors
- Pilot open to all CCNA R&S instructors (up to Dec 2018)
- Create new pilot CCNA R&S ITN classes to try out new assessment features

Classes
- Pilot classes can be run in parallel with normal CCNA R&S ITN class
- Instructors will see the new features in Chapter exam and Final exams
- **Instructors and students fill out survey in the pilot course**

3 steps to join the pilot

Create Course

Choose Course — Specify Details

Language & Version: Select One ▾ *

| English - 6.00 - Assessment Pilot |
| English - 6.00 |
| Arabic - 6.00 |
| Chinese-Simplified - 6.00 |

Academy
Cisco Staff Sandbox - CA

Cisco Course Name
CCNA R&S: Introduction to Networks

Continue

Step 1: create a class and enroll your students

⋮ ▾ Chapter 1: Explore the Network

⋮ 📄 Launch Chapter 1

⋮ 📄 Chapter 1 Terms and Concepts Practice

⋮ 🚀 Chapter 1 Quiz
32 pts

⋮ 📝 Chapter 1 Exam
100 pts

⋮ 📝 Chapter 1 Exam Beta
100 pts

⋮ ▾ Final Exam

⋮ 📝 Final Exam - Beta
100 pts

Step 2: take the exam

Step 3: Complete the survey

⋮ ▾ Feedback on Beta Exams

⋮ 🔗 Beta Exam Feedback (Student)

⋮ 🔗 Beta Exam Feedback (Instructor)

CCNA R&S PPTs

Updated CCNA R&S Instructor PPT slides Now available!

- Content Enhancement

- Better instructional flow

- New 16:9 template
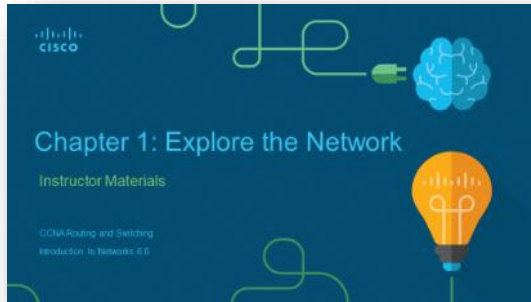
Special Thanks:
Frank Torres
Bernadette O'Brien
Elaine Horn
Bob Vachon
Cheryl Schmidt
Joni Johnson
Milt Camille

Download Now!

https://www.netacad.com/group/resources/ccna-rs-itn/6.0
https://www.netacad.com/group/resources/ccna-rs-rse/6.0
https://www.netacad.com/group/resources/ccna-rs-scaling/6.0
https://www.netacad.com/group/resources/ccna-rs-connect/6.0

NetSpace - Homepage

Course Resources

Course Resources

Networking Courses
Networking Essentials
Mobility Fundamentals
CCNA R&S: Intro to Networks 6.0 | older versions 5.1 5.0
CCNA R&S: Routing and Switching Essentials 6.0 | older versions 5.0
CCNA R&S: Scaling Networks 6.0 | older versions 5.0
CCNA R&S: Connecting Networks 6.0 | older versions 5.0
CCNA R&S: Bridging
CCNP Routing & Switching 7.1

Security Courses
Introduction to Cybersecurity 2.0 | older versions 1.1
Cybersecurity Essentials
CCNA Security 2.0 | older versions 1.2

IoT Courses
Introduction to IoT
IoT Fundamentals: Connecting Things
IoT Fundamentals: Big Data & Analytics
IoT Fundamentals: Hackathon Playbook

OS and IT Courses
IT Essentials 6.0 | older versions 5.0
NDG Linux Unhatched
NDG Linux Essentials
NDG Linux I & II

Programming Courses
Programming C++ (CPA and CPP)
CLA: Programming Essentials in C

Other Courses
Be Your Own Boss
Entrepreneurship
Get Connected
Introduction to Packet Tracer

Additional Instructor Resources

Packet Tracer Resources
General Assessment Resources
Instructor Professional Development
FAQs for Instructors
Academy Orientation course

Latest News

Webinar Replay: Introduction to Coding
August 30, 2017

Support Desk Changes Planned
August 18, 2017

Packet Tracer 7.1 Now Available
August 04, 2017

Celebrating 20 Years Together!
Juli 21, 2017

Teach Essential Networking Concepts
Juni 21, 2017

go to news & events

Equipment Updates

1941 ISR Router End of Life Announcement

- The 1941 will continue to be **sold until September 29, 2018**

- Cisco will continue to support the 1941 (including IOS downloads) for **five years** after the End of Sale date

- The **End of Support date is September 30, 2023** - IOS downloads will be available on the Cisco site and through Cisco NetAcad Maintenance until this date

- Replacement option ISR4221

Updated Equipment Lists Includes ISR 4221
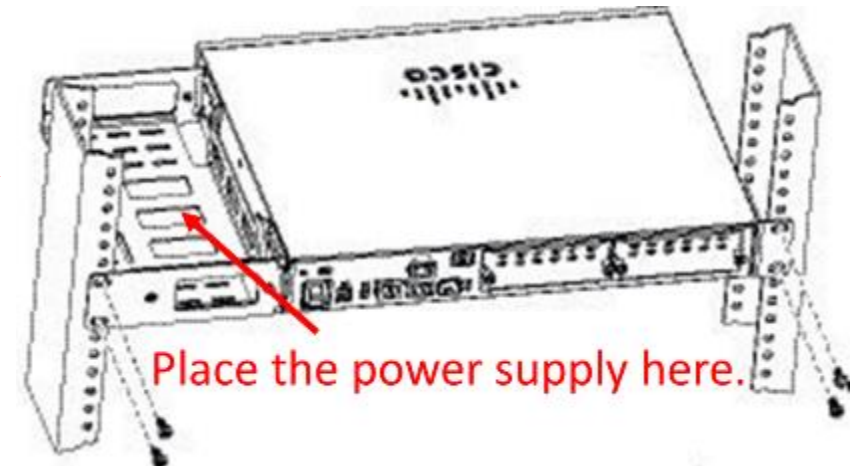
Equipment List (Option 1)

The Cisco 4221 router shown in Option 1 uses the newer IOS XE software. Regression testing information is available from the netacad.com Equipment Information>Equipment Lists by Curriculum section to assist the academy in determining which option would be the best fit for their specific curriculum delivery audience and budget.

Qty	Product Number	Description	Notes
3	ISR4221/K9	Cisco ISR 4221 (2GE, 2NIM, 8G FLASH, 4G DRAM,IPB)	1,2
3	NIM-2T=	2-Port Serial WAN Interface card	7
3	CAB-SS-V35MT=	V.35 Cable, DTE Male to Smart Serial, 10 Feet	
3	CAB-SS-V35FC=	V.35 Cable, DCE Female to Smart Serial, 10 Feet	
3	WS-C2960+24TC-L	Catalyst 2960 24 10/100 + 2 1000BT LAN Base Image	1, 2
2	Wireless Router	Wireless N-Router (b/g/n Wi-Fi) with Simultaneous Dual-Band, MIMO antenna array for expanded high speed coverage and reliability, 4 Gigabit Ethernet Ports, support for IPv6, WPA2 encryption and SPI Firewall, Quality of Service (QoS). **(Note: CCNA Routing & Switching version 6 does not require wireless router)**	10

Optional Products

Router Options (router models that may be substituted for the router/s in the Standard Equipment List above)	
ISR4331/K9	Cisco ISR 4331 (3GE 2NIM 1SM 4G FLASH 4G DRAM,IPB)
ACS-4220-RM-19=	19 inch rack mount kit for Cisco ISR 4220
NIM-2T=	2-Port Serial WAN Interface card

For 4221 rack mount options, suggest purchase special rack mount kit

Place the power supply here.

Added ISR4331 as Optional Router

- Instructor concerns about the size and management of the 4321 power brick in rack mount situations

- Requests to add a model with internal power supply

- Added ISR4331 to updated equipment lists

- NOTE – 4331 is an optional router, higher cost compared to 4321

Optional Products		
Router Options (router models that may be substituted for the router/s in the Standard Equipment List above)		
ISR4331/K9	Cisco ISR 4331 (3GE,2NIM,1SM,4G FLASH,4G DRAM,IPB)	11
ACS-4220-RM-19=	19 inch rack mount kit for Cisco ISR 4220	
NIM-2T=	2-Port Serial WAN Interface card	7

Router Power

ISR4221

- External Power Brick
- Ability to purchase rack mount kit with space for power brick next to router

ISR4321

- External Power Brick
- Special rack mount kit NOT an option due to router width

ISR4331

- Internal Power Supply

Cisco 4000 Series Integrated Services Router Data Sheet -
https://www.cisco.com/c/en/us/products/collateral/routers/4000-series-integrated-services-routers-isr/datasheet-c78-732542.html

4321 Router Power Brick Placement Ideas

Regression Testing Documentation

Regression Testing of Cisco 4221

Last updated May 30, 2018

Cisco Systems has announced the end of the life for Cisco 1921 and 1941 routers. To replace these routers in the standard equipment bundle, the Cisco 4221 router using the isr4200-universalk9_ias.16.07.01.SPA.bin with the Security Technology package enabled was tested for its compatibility with the current NetAcad curricula: CCNA R&S and CCNA Security v2.0.

Three Cisco 4221 routers were installed in Netlab+ for testing. The Cisco 4221 routers can support the current curricula with some caveats. The eHWIC serial modules used in Cisco 1921 and 1941 are not compatible in Cisco 4221. These routers only have NIM slots and use NIM modules for the serial interfaces. The naming conventions for the serial and Ethernet ports on the Cisco 4221 are different from the curricula lab instructions. Furthermore, there are several commands that are either no longer available or modified from the curricula lab instructions. The Cisco 4221 routers cannot support Intrusion Prevention System (IPS) commands in a CCNA Security v2.0 lab. The table below lists the commands that are affected when Cisco 4221 routers are used to perform the labs in the current curricula.

Summary of Changes

Hardware / Commands	Cisco 4221
Expansion Slots	2 NIM slots (No eHWIC slots)
Clock rate	Choose a different clock rate than the instructions in the labs
Stateful DHCP	The command "**address prefix** *prefix/length*" is not available
Serial Ports in NIM slot 1	S0/1/0 and S0/1/1
Gigabit Ethernet ports	G0/0/0 and G0/0/1

Located in equipment resources:

https://www.netacad.com/group/resources/equipment-information → Equipment Lists by Curriculum
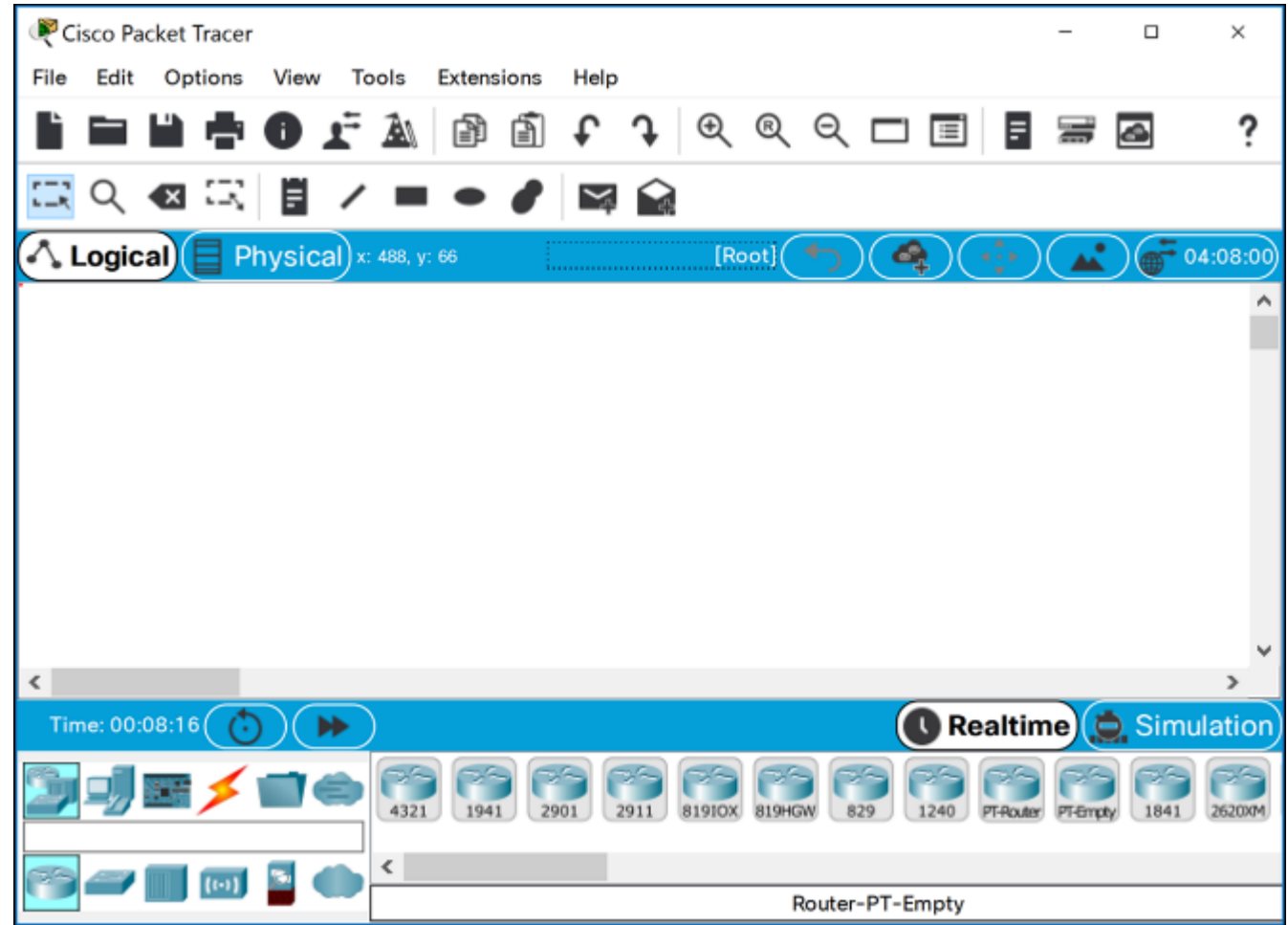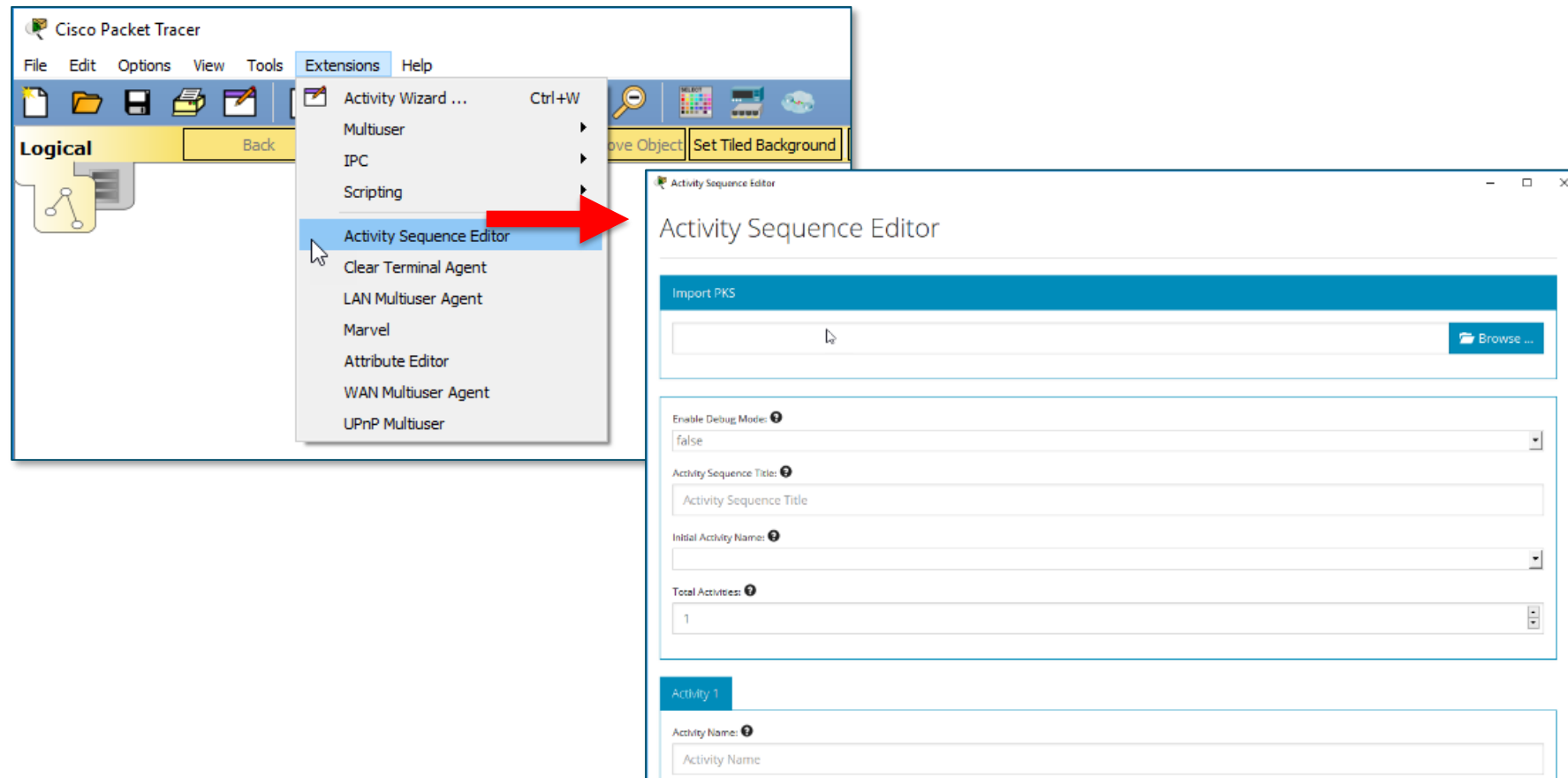
Packet Tracer 7.2 Overview

- New UI, icons, colors

- Accessibility enhancements

- Metrics enhancements

- PTSA work-around

- ASA5506-X

- Modern Home Router
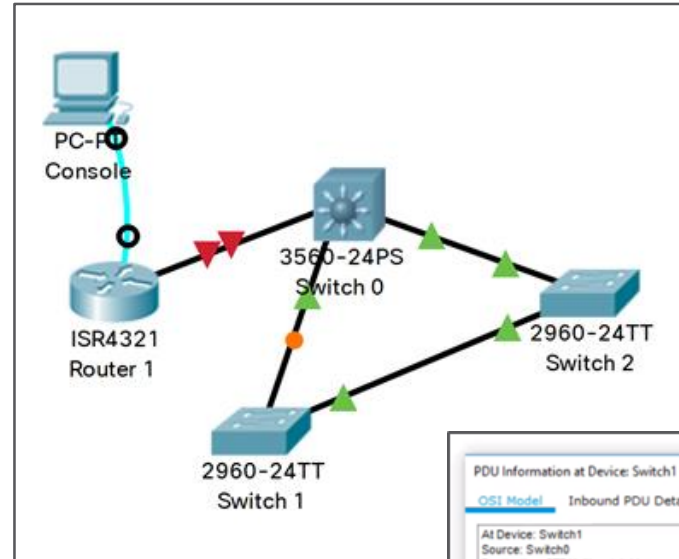
- Meraki MX65W

- Over 700 existing bugs resolved

Packet Tracer Activity Sequencer

Link multiple PKAs together – PT 7.1

For Cisco Networking Academy Use Only.

Accessibility Enhancements

- Screen reader support

- Visual link status

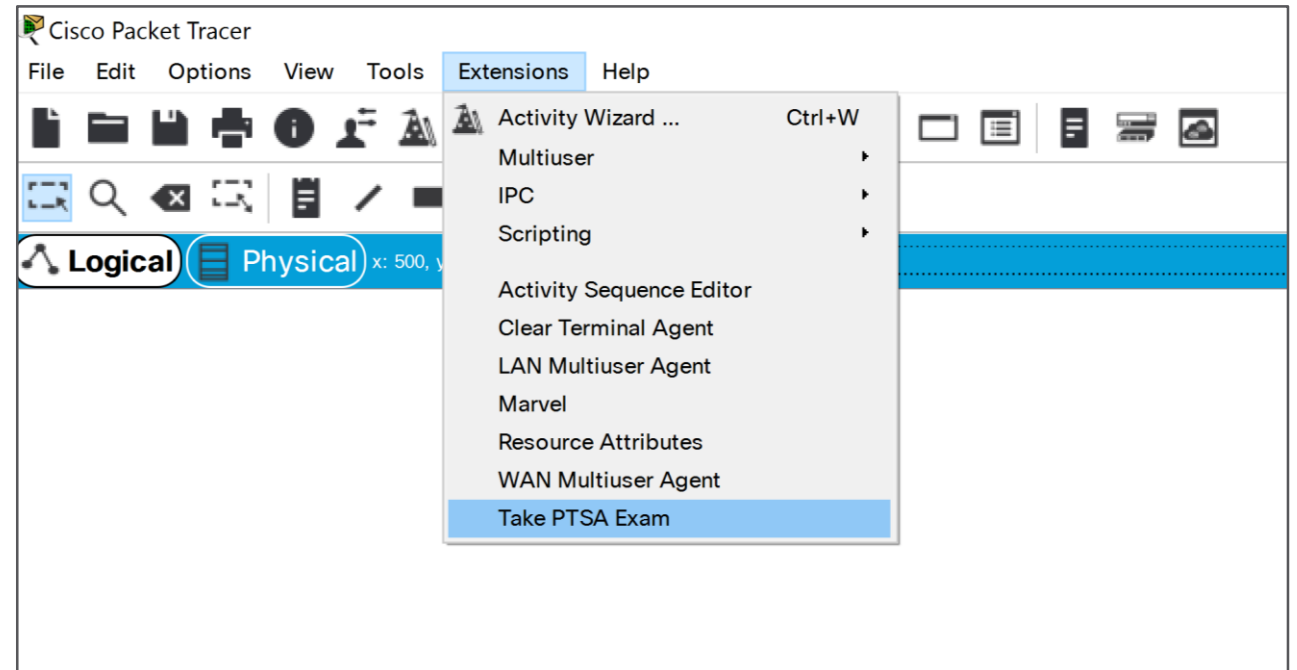- Keyboard navigation

PTSA Work Around

- ## Problems reported
  - Issues with launching, executing and completing PTSAs

- ## Probable cause
  - Regular self-updating Java of the desktops

- ## Solution
  - PTSA Work Around with Packet Tracer 7.2

PTSA Work Around with Packet Tracer 7.2

1) Select <u>Take PTSA</u> Exam under the <u>Extensions</u> menu

2) Packet Tracer embedded browser will be launched in another window

3) Users need to re-logon to NetAcad.com in the PT browser window

4) Users launch PTSA in the PT browser window

PT 7.2 for translated courses

Instructors using translated courses have experienced Packet Tracer version 7.2 crashing in multiple scenarios. Engineering has validated the root cause:

- During the translation process, some device names were not translated in PKA, PTMO and PTSA
- Packet Tracer version 7.2 detects but is unable to gracefully bypass the untranslated device names

For the interim, use Packet Tracer version 7.1.1 for all translated courses. Updates will be provided as they become available.

Assessment Scoring with Packet Tracer 7.2

- Assessment scoring errors with Packet Tracer version 7.2 on PTSAs.

- We recommend instructors use Packet Tracer version 7.1.1 if they want to continue to score and weigh these assessments in the gradebook.

- Updates will be provided as they become available.

Certification Updates

Certification updates

LPI Released updates to LPIC-1 and Linux Essentials Certifications (Announcement)

- New exams released October 29th 2018.

- Old versions will be available until July 1st, 2019

- Linux Essentials, Linux I and Linux II courses are under revision and versions 2.0 will be released during the first half of 2019

CompTIA announced new A+ Exams 220-1001 & 220-1002 (Core 1 & Core 2)

- New exams will be available January 15, 2019

- 220-901 and 220-902 will retire July 31, 2019

- IT Essentials course is under revision and a new version planned for the first half of 2019

Voucher Eligibility

Voucher Validity Period Extension

- Available Now!

- For Students, Instructors and Instructor Trainers

- Voucher candidates will have an additional 3 months to use Cisco Certification Vouchers giving a **total of 6 months** to take the certification exam w/a voucher.

- **Candidates must still request the voucher within 3 months of becoming eligible.**

ICND1 Vouchers for Instructors

- Available Now! ICND1 & ICND2 discount vouchers available to newly qualified Instructors and to our Instructor Trainer community.

  - Newly qualified Instructors with a 75% or higher on their first attempt of the final exam and marked as "passed" in the gradebook for Routing and Switching Essentials will be offered an ICND1 discount voucher.

  - Newly qualified Instructors with a 75% or higher on their first attempt of the final exam and marked as "passed" in the gradebook for Connecting Networks will be offered a choice of either a voucher for CCNA R&S or vouchers for ICND1 and ICND2 exams.

- In addition, ICND1 and ICND2 Instructor Discount vouchers will be available via various Cisco Networking Academy award programs.

- We hope the availability of these new discount vouchers for Instructors and Instructor Trainers will enable increased certification among our NetAcad educators.

A NetAcad Discount….

- is
  generated by Pearson VUE and delivered via NetAcad.com to eligible students and instructors.

- can be used
  to pay a for entry-level Cisco Certification exams administered by Pearson VUE.

- generated
  and may not be transferred or sold.

TWO Factor Authentication....

With little if any impact to NetAcad voucher recipients, **this real-time validation of individual voucher recipients** is seamlessly integrated into existing Voucher Request Process.

My NetAcad

Request Voucher

Mobile phone number will be used for authentication purposes

Enter mobile phone number including country code * :

Re-Enter mobile phone number including country code * :

Example: 11234567890 (1 USA country code, 1234567890 USA mobile phone number)
Format: Country Code + Phone Number

Don't have a mobile phone? Click here

Get Authentication Code

Authentication Code

Enter authentication code received on your mobile phone

Authentication Code * :   Resend Code

If you did not receive authentication code, Click here

Cancel   Submit

How It Works:

1. When a NetAcad Candidate becomes voucher eligible they are prompted to "Request their Voucher." Currently they are asked to complete a short form prior to clicking "Submit."

2. User Authentication is now a pre-cursor to this Request form. The user is now prompted to enter their Mobile number into the form and click "Get Authorization Code." A code will be sent instantly via SMS to their mobile phone.

3. The NetAcad user will then enter this code into the form and proceed to request their voucher. The "Submit" voucher request button is not activated until the authentication code is entered.

For Cisco Networking Academy Use Only.

User Support

While we believe that this will be a **seamless integration of familiar technology to the user** in the vast majority of cases, we anticipate that there may be scenarios where support is needed.

If a **user does not own a mobile phone.**
There is a button on the page prompting the user to "click here" if you do not own a mobile phone. A support ticket will be opened and the user will be verified off line.

If a **user does not receive the code.**
*After entering their mobile number into the form and clicking "Get Authorization Code", the user may not get the code. In these cases the **user will be prompted** via a button on the page to contact the **NetAcad Support Desk** will be able to provide resolution.*

IPD Week

IPD Week
26-30 November

- **Program Updates**
  - Catch up on the latest strategies and products from Cisco Networking Academy!

- **Technical Session Topics Include:**
  - Wireshark Tips & Tricks Part 2
  - Attacking Networks using Kali Linux
  - Hands-on for Model-driven Programmability
  - SDN: an Open Source Demo
  - NetAcad Equipment Deep Dive
  - CCNA Cyber Ops Game
  - & Many More

German GIPD Sessions

Thema	Zeit und Datum	Sprecher	Registrieren
Programm Updates Informieren Sie sich über die neuesten Strategien und Produkte der Cisco Networking Academy	Datum: 29 November Zeit: **14:00 Berlin**	Thomas Meuser	Registrieren ↵
Cyberangriffe – was tun? Durch die fortschreitende Digitalisierung und zunehmende Vernetzung von Dingen des täglichen Gebrauchs nimmt die Kriminalität im Cyberraum massiv zu. Die intensive Nutzung von mobilen und vernetzten Endgeräte erhöht die Anfälligkeit für Hackerangriffe; jeder kann davon betroffen sein. Das ist Grund genug, sich mit den wichtigsten Maßnahmen gegen solche Vorfälle auseinander zu setzen! Dieses Webinar bietet Non-Profits ein fundamentales Verständnis für Abläufe und grundsätzliche Schutzmaßnahmen gegen Cyberkriminalität.	Datum: 29 November Zeit: **11:00 Berlin**	Michael Zeisberger	Registrieren ↵ (open session)

Deutsch

Archives

Verdienen ein Zertifikat der Anwesenheit

Find us on: facebook.

IPD

Cisco is pleased to confirm

Awesome Instructor

has attended 6 hours of continuing education by participating in

IPD Week, November 2018

hosted by the Technical Field Engagement Team
26 – 30 November 2018

Recordings and PPTs Available –

http://cs.co/GIPD19

Cisco Networking Academy Portfolio

Aligns to Certification

Instructor Training required

Self-paced

* Available within 12 months

	Exploratory	Foundational	Career-Ready
Networking		Networking Essentials Mobility Fundamentals Emerging Tech Workshop: Network Programmability Using Cisco APIC-EM	CCNA R&S: Introduction to Networks, R&S Essentials, Scaling Networks, Connecting Networks CCNP R&S: Switch, Route, TShoot
Security	Introduction to Cybersecurity	Cybersecurity Essentials	CCNA Security CCNA Cyber Ops
IoT & Analytics	Introduction to IoT	IoT Fundamentals: Connecting Things, Big Data & Analytics, IoT Security* Hackathon Playbook	
OS & IT	NDG Linux Unhatched	NDG Linux Essentials IT Essentials	NDG Linux I NDG Linux II
Programming	C*	CLA: Programming Essentials in C CPA: Programming Essentials in C++ PCAP: Programming Essentials in Python Emerging Tech Workshop: Experimenting with REST APIs using Cisco Spark	CLP: Advanced Programming in C* CPP: Advanced Programming in C++

Curriculum and Product Releases

Insecure Link - Affects

My NetAcad

Alert! Emergency Update for CCNA R&S ITN 6.0   View Details

- Issue Identified Oct 24 with external link in CCNA R&S: Introduction to Networks lab 8.2.1.5 and Appendices

- Online curriculum link corrected for all languages

- PDF Lab documents updated for all languages – please download updated files

- Web Alert Posted Thu Oct 25

- Still working to updating the downloadable ITN curriculum

Releases

Course	Language	Availability
CCNA R&S Introduction to Networks	Italian Hebrew	November 2017 February 2018
CCNA R&S Connecting Networks	Russian French Spanish, Simplified Chinese, Arabic	February 2018 January 2018 December 2017
IT Essentials 6.0	Dutch Kazakh	February 2018
IoT Fund: Connecting Things IoT Fund: Hackathon Playbook	Spanish, German Spanish	January 2018
IoT Fund: Big Data & Analytics 2.0.1 IoT Fund: Connecting Things 2.0.1	English, Chinese Simplified English, Chinese Simplified	November 2017, February 2018 October 2017, February 2018

Releases

Course	Language	Availability
Academy Orientation Course 7.0	English	November 2017
PT 7.2		June 2018
Programming Essentials in Python	English	December 2017
Introduction to Cybersecurity 2.1	English	December 2017
CCNA Cybersecurity Operations	English	January 2018

Academy Orientation 7.0

✓ New course GUI

✓ Course Updates

- New Netacad.com UX
- Offerings
- Services
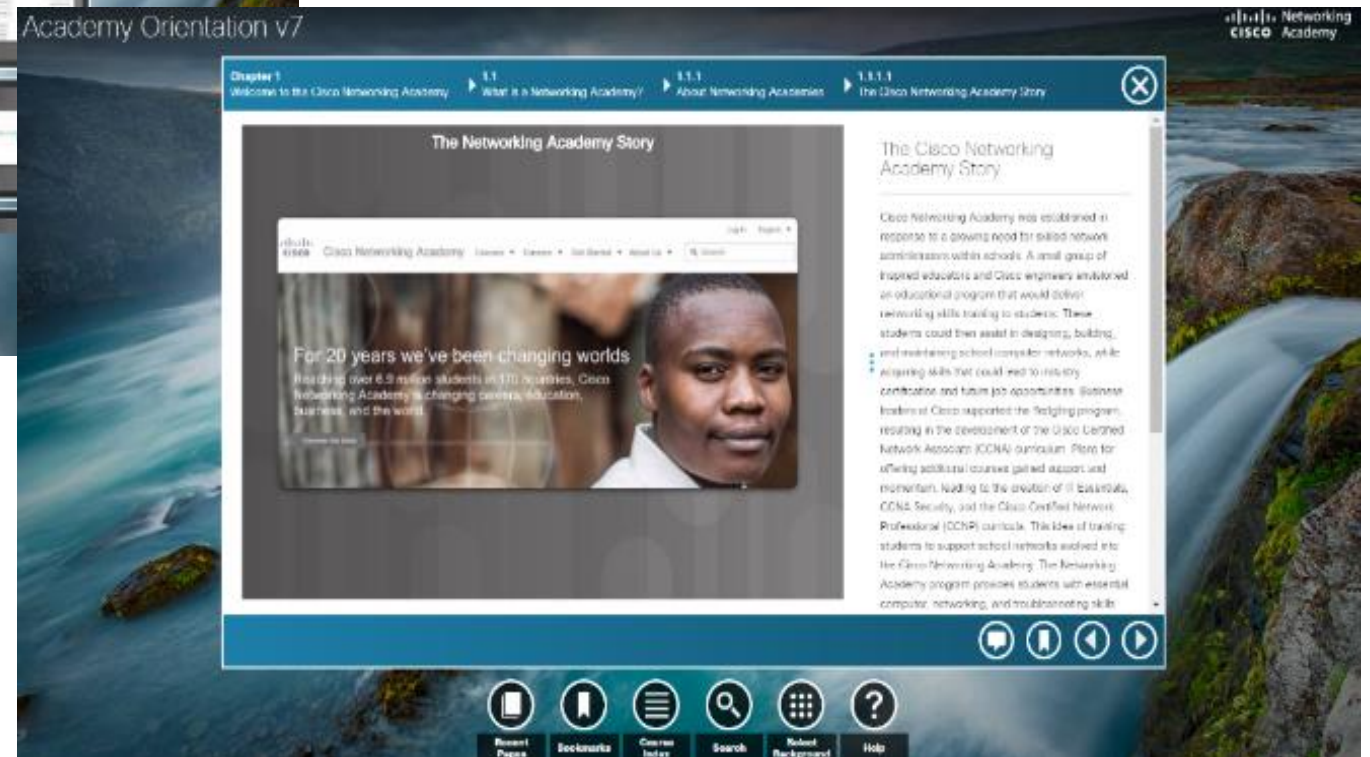
New Orientation Course v7.0

Includes these topics and more

- Program, history, roles and rules

- Courses, Offering and Services

- Instructors and Instructional approach

- Use of Netacad.com

- How to teach and manage your class

- How to develop your students and your self

New Orientation Course v7.0

Course facts

- 10 chapters

- No Labs, no Packet Tracer required

- Estimated time to complete 2-3 hours

- End of course Quiz and Feedback

- Certificate of course completion

Corporate
Social
Responsibility

Cisco Networking Academy

Certificate of Course Completion

Academy Orientation

The student **Semyon Ovsyannikov** has successfully completed the Cisco Networking Academy Orientation course. The student demonstrated the ability to explain the following:

- Understand the purpose and goals of Cisco Networking Academy program.
- Know how to use basic features of Cisco NetAcad.
- Understand the roles and responsibilities of NetAcad Instructor, NetAcad Contact, and NetAcad Success Lead.
- Be familiar with the Cisco Networking Academy learning offerings and services.

- Understand your roles and responsibilities in the Cisco Networking Academy program.
- Be familiar with the Cisco Networking Academy partnership model and the roles of Academies, ASCs, and ITCs.
- Understand the certification exam and discount voucher process.

Harbrinder Kang
VP, Cisco Networking Academy

Oct 24, 2018
Date

New Orientation Course v7.0

Access and Rules

- All **new** non-students users are **automatically** enrolled

- All **new** instructors **must** complete Orientation course

- ASC staff **should** complete Orientation course

- ASC **must** provide access to a program orientation for new administrators and instructors

- ASCs can create this course and it supports Self-Enroll page

New Orientation Course v7.0

Teilnahmebestätigung

- unter Profile (Name)

- Certificate drucken

CCNA Cyber Ops Skills Challenge

- Available in CCNA Cyber Ops v1.1 October 29, 2018 (If you created a course before that date you can get resources on Course Resource page)

- Optional skills game after Chapter 13

- Use and practice cyber operations knowledge in a fun environment

- Race against others to answer cyber operations questions and complete tasks to win points

- Questions drawn from cyber operations skills and knowledge learned throughout the course
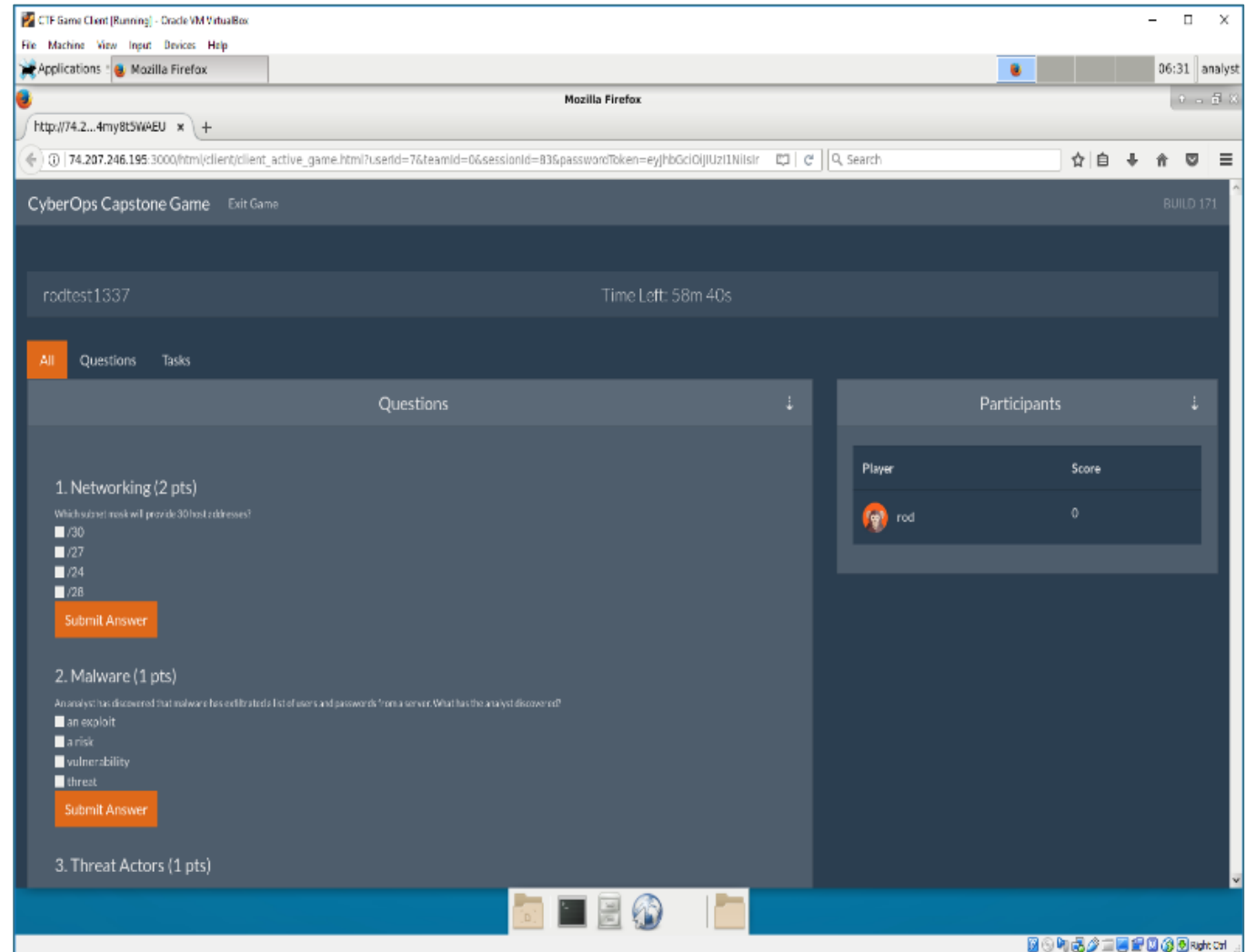
Scoring Items

Questions

- 46 Questions
- Types
  - Multiple choice
  - True/False
  - Blank fill
- One attempt
- Question removed from list after attempt
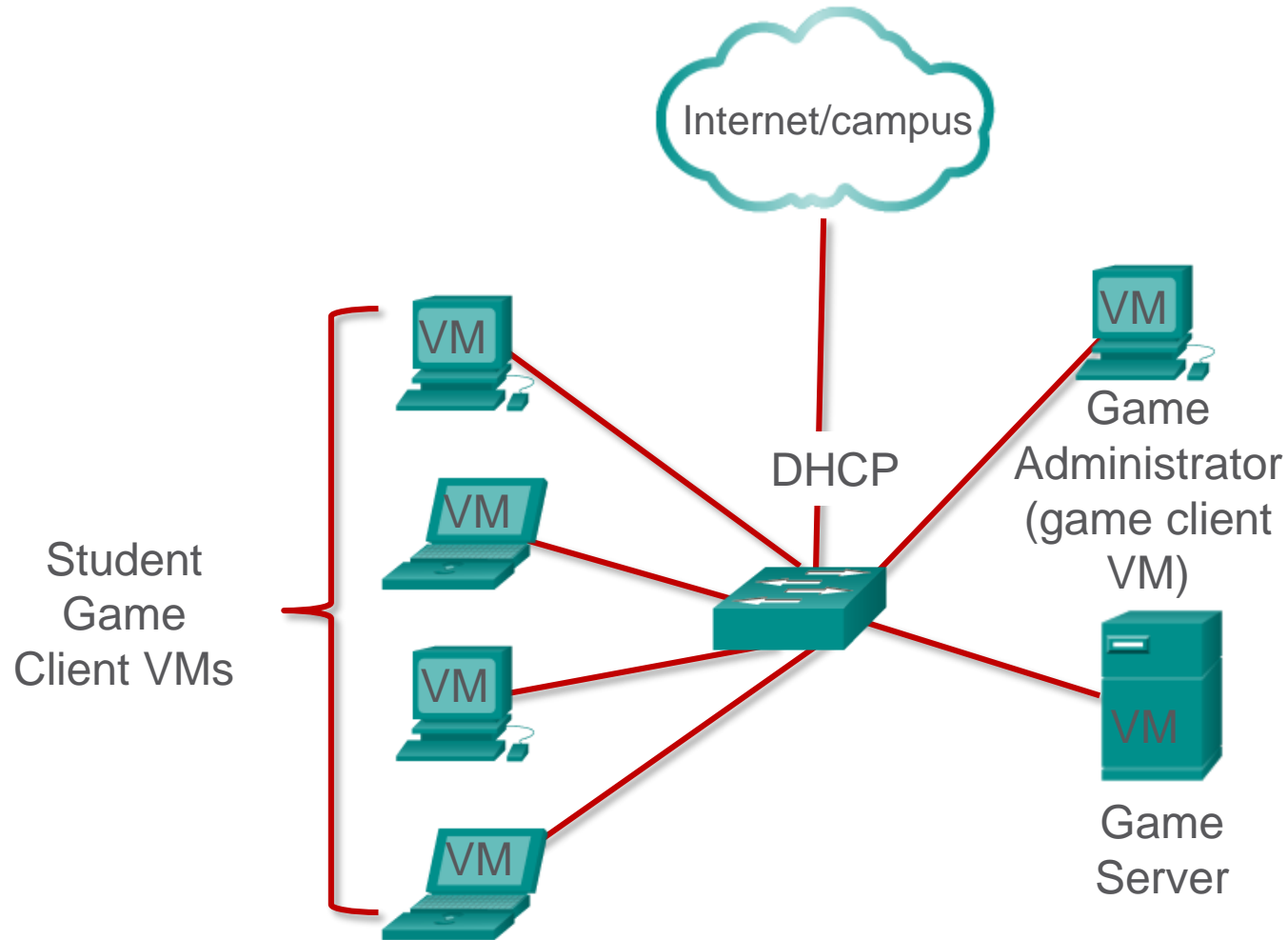
Tasks

- 10 Tasks
- Linux file management operations
- Install and update packages, determine package version

Example Topology

- DHCP or static addressing
- Internet access for research

CCNA Cyber Ops Game Technical Session
- Thursday, Nov 29th
- Game details
- Demo the game

CCNA Cyber Ops Course Resources

CCNA Cybersecurity Operations

Version 1.1 | Released July 2018 Release Notes & Versions

Course Overview

The CCNA Cybersecurity Operations curriculum provides an introduction to the knowledge and skills needed for a Security Analyst working with a Security Operations Center team. It teaches core security skills needed for monitoring, detecting, investigating, analyzing and responding to security events, thus protecting systems and organizations from cybersecurity risks, threats and vulnerabilities.

attack

Webex: Understanding an attack using Security Onion

Webex: CCNA Cyber Ops Course Deep Dive

Webex: Best Practices in teaching CCNA Cyber Ops course

Curriculum Enhancements:

Hot topics you can add to increase engagement

NEW Workshop! Network Programmability

Mobility Fundamentals

Cyber Ops Skills Challenge Game

The Cyber Ops Skills Challenge game is an optional activity that allows students to use their skills and knowledge to compete with other students. It consists of two VMs. A classroom server VM and a client VM for game players and game administration. Instructions for installing and administering the game are provided in the Instructor Guide.

Instructions for playing the game are included in the Student Guide.

Server VM

Client VM

Instructor Guide

Student Guide

For Cisco Networking Academy Use Only.

Instructor Home Page Game Resources

Instructor Home
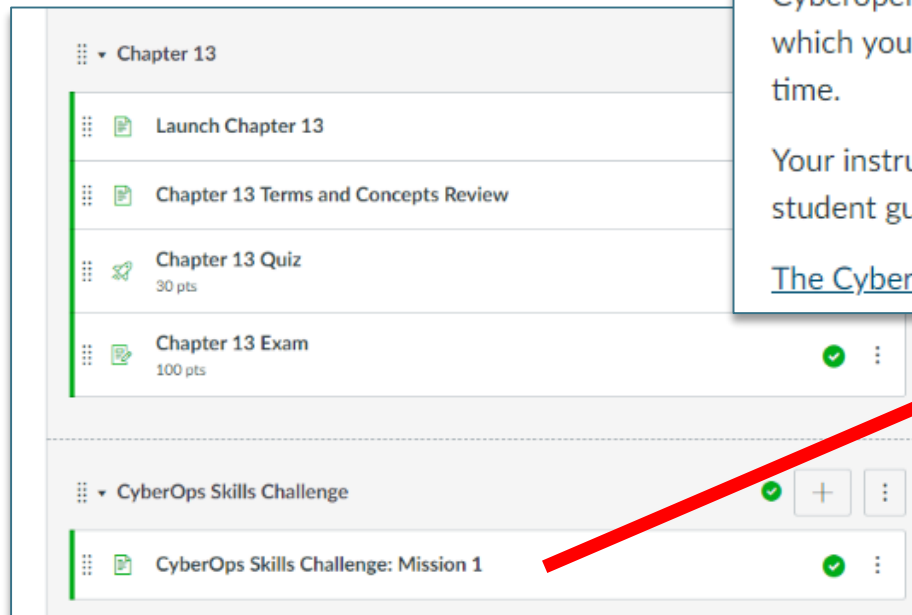
Downloadable Resources

Instructor Resources	Access the Instructor Resources page to find resources for this course: • Curricula informational materials (ex. Scope & Sequence) • Assessment resources • Source materials
FAQ	virtual machine lab environment.
Cyber Ops Skills Challenge Game: Server VM ↗ Client VM ↗ Documentation: Instructor Guide Student Guide	The Cyber Ops Skills Challenge game is an optional activity that allows students to use their skills and knowledge to compete with other students. It consists of two VMs. A classroom server VM and a client VM for game players and game administration. Instructions for installing and administering the game are provided in the Instructor Guide. Instructions for playing the game are included in the Student Guide.

New published page after Chapter 13 in Modules

Forces of Digital Disruption…

…enable digital transformation in every industry

Everything becomes connected

Everything becomes programmable

Everything generates data

Everything can be automated

Everything needs to be secured
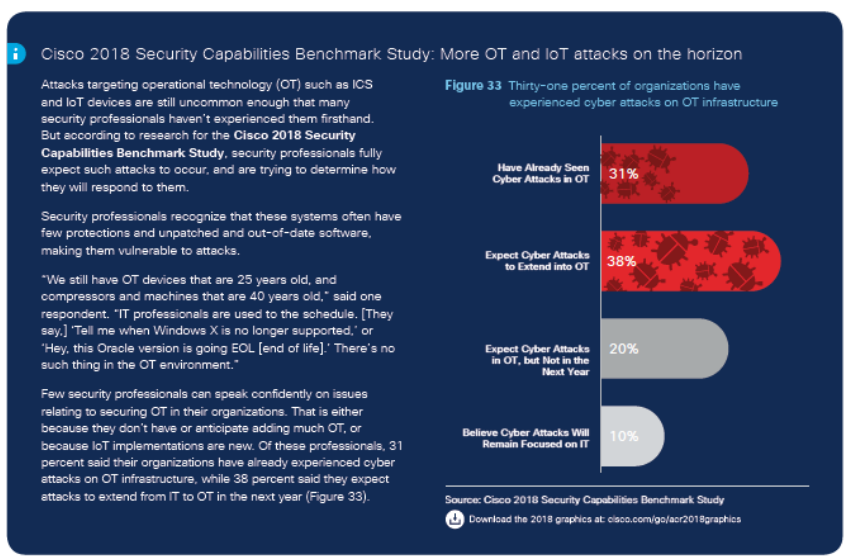
Safe Harbor Statement

**This presentation contains "forward-looking" statements
that might change in the final, generally available version of the course.
Please consider this to be an early information about the course.**
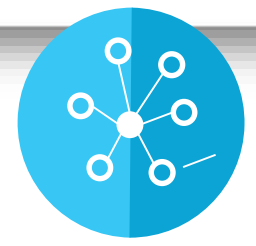
IoT Fundamentals: IoT Security
Early information about the course

Digital Disruption and Security Go Hand-in-hand

Cisco 2018 Security Capabilities Benchmark Study: More OT and IoT attacks on the horizon

Attacks targeting operational technology (OT) such as ICS and IoT devices are still uncommon enough that many security professionals haven't experienced them firsthand. But according to research for the **Cisco 2018 Security Capabilities Benchmark Study**, security professionals fully expect such attacks to occur, and are trying to determine how they will respond to them.

Security professionals recognize that these systems often have few protections and unpatched and out-of-date software, making them vulnerable to attacks.

"We still have OT devices that are 25 years old, and compressors and machines that are 40 years old," said one respondent. "IT professionals are used to the schedule. [They say,] 'Tell me when Windows X is no longer supported,' or 'Hey, this Oracle version is going EOL [end of life].' There's no such thing in the OT environment."

Few security professionals can speak confidently on issues relating to securing OT in their organizations. That is either because they don't have or anticipate adding much OT, or because IoT implementations are new. Of these professionals, 31 percent said their organizations have already experienced cyber attacks on OT infrastructure, while 38 percent said they expect attacks to extend from IT to OT in the next year (Figure 33).

Figure 33 Thirty-one percent of organizations have experienced cyber attacks on OT infrastructure

- Have Already Seen Cyber Attacks in OT: 31%
- Expect Cyber Attacks to Extend into OT: 38%
- Expect Cyber Attacks in OT, but Not in the Next Year: 20%
- Believe Cyber Attacks Will Remain Focused on IT: 10%

Source: Cisco 2018 Security Capabilities Benchmark Study

Download the 2018 graphics at: cisco.com/go/acr2018graphics

Cisco 2018 Security report: almost 70% of OT companies have experienced or expect an attack to the IoT in next year.

Everything becomes **connected**

Everything needs to be **secured**

IoTF:IoT Security

Course Overview

The enormous increase of connected IoT devices is not only enabling the digitization of industries, but also increases the landscape of possible security threats. This course provides the learner with introductory skills to perform Vulnerability and Risk Assessments on IoT solutions in a specific business context. Students who complete the IoT Security course will be able to assess, research, and provide risk mitigation strategies for common security vulnerabilities in IoT systems.

Benefits

Students seeking a career in the rapidly growing IoT and Security domains with will learn practical tools for evaluating security vulnerabilities in IoT solutions, perform threat modeling, and use risk management frameworks to recommend threat mitigation measures.

Learning Components

- 6 chapters, chapter quizzes and a final exam.
  - Real-world penetration and vulnerability testing tools (Kali Linux)

Features

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

Prerequisites:
- Connecting Things
- Networking and security knowledge equivalent of Networking Essentials and Cybersecurity Essentials

Languages: English

Course Delivery: Instructor-led

Estimated Time to Complete: 50 hours

Introduction to the Internet of Things 2.0

Introduction to IoT

Course Overview

Students learn about the Internet of Things and how it enables the Digital Transformation along with emerging technologies such as data analytics, artificial intelligence and the increased attention to cybersecurity. The course also introduces the importance of the new Intent Based Networking that uses a software-driven approach and machine learning to be able to connect and secure tens of billions of new devices with ease.

Benefits

Student will have a comprehensive view of how these emerging technologies are shaping the digital business. They also have the opportunity to explore career opportunities in this new landscape.

Learning Outcomes

- Explain the meaning and impact by digital transformation. of Digital Transformation.
- Apply basic programming to support IoT devices.
- Explain how data provides value to Digital Business and Society.
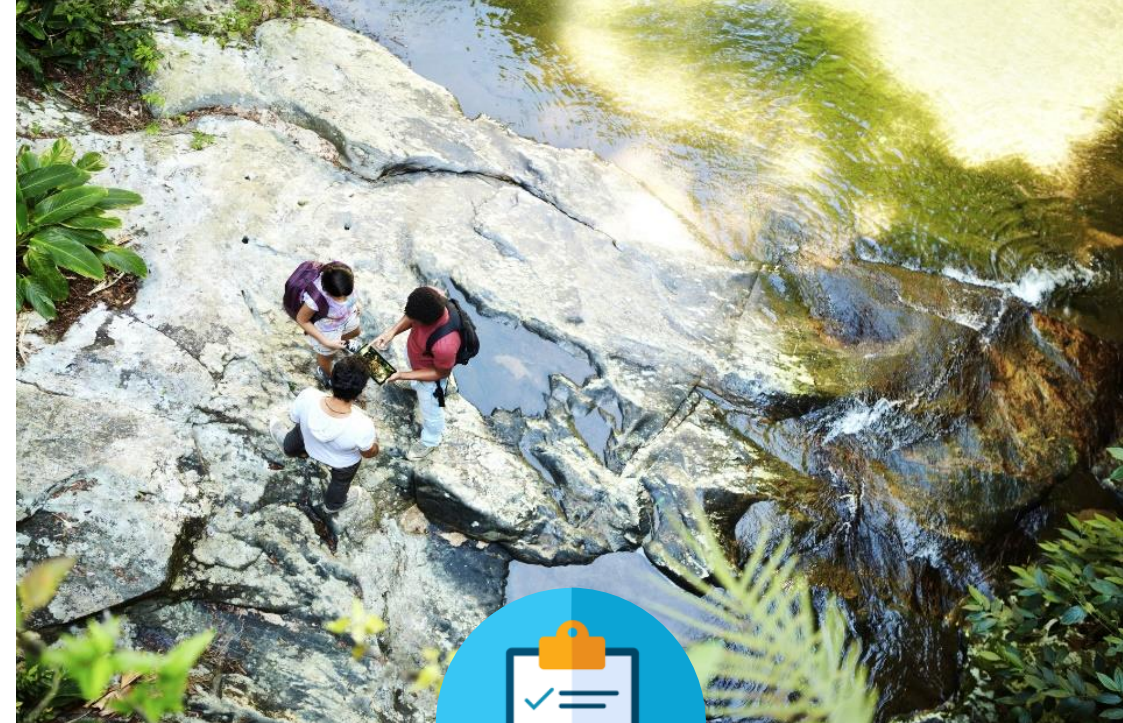
Features

Target Audience: Secondary, Vocational, 2-year College, General audience

Prerequisites: None

Languages: English (translations use v1.x until v2.0 available)

Course Delivery: Self-paced and Instructor-led

Estimated Time to Complete: 20 hours

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

Instructor Training: Not required

Instructor Resources

https://www.netacad.com/group/resources/intro-to-iot/2.0
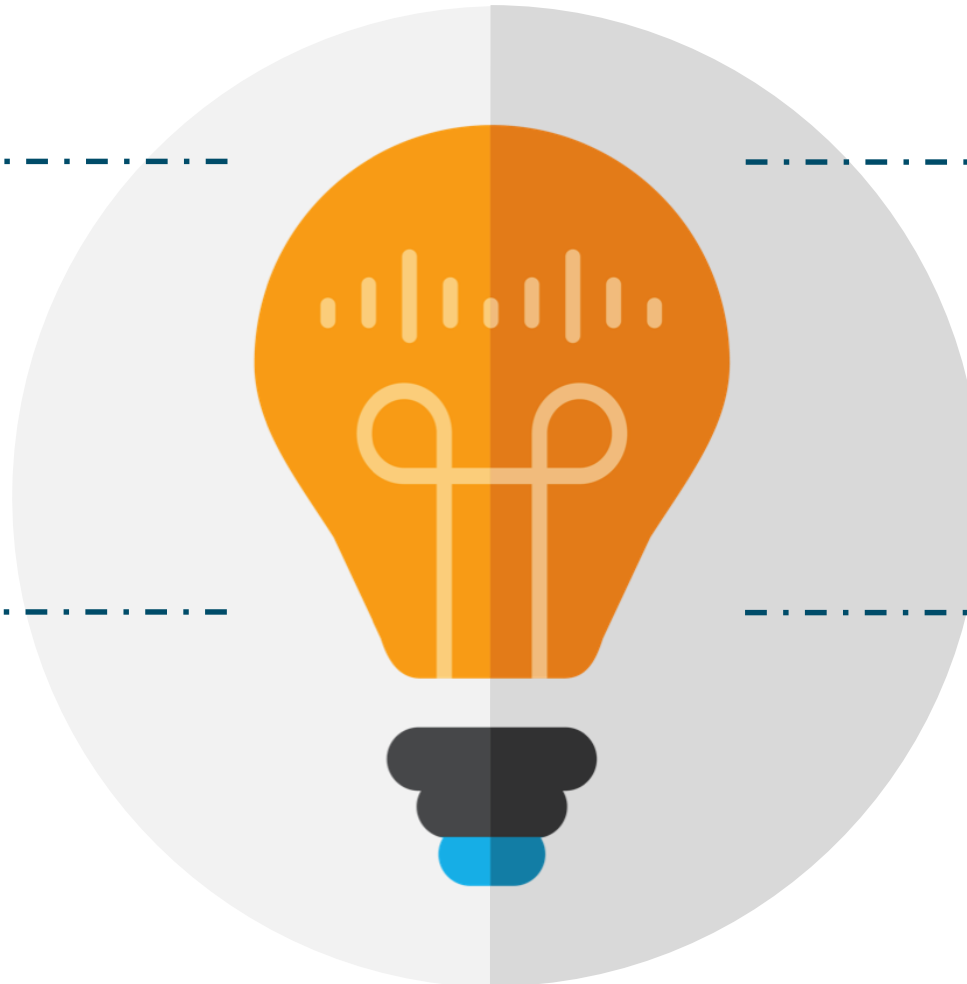
PPT
Instructor Powerpoints
Course Overview

S&S
Scope & Sequence
Document

FAQ
Frequently Asked
Questions

Plus
Additional information &
resources

Emerging Technologies Workshops

Emerging Technologies Workshops

Flexibly Add Foundational Emerging Skills into Existing Career Pathways

Emerging Technologies Workshops

- Networking
- Security
- IoT & Data Analytics
- OS & IT
- Programming

Job Family Specialization

Apply Skills

Foundational

Career-Ready

Collaborate for Impact

For Cisco Networking Academy Use Only.
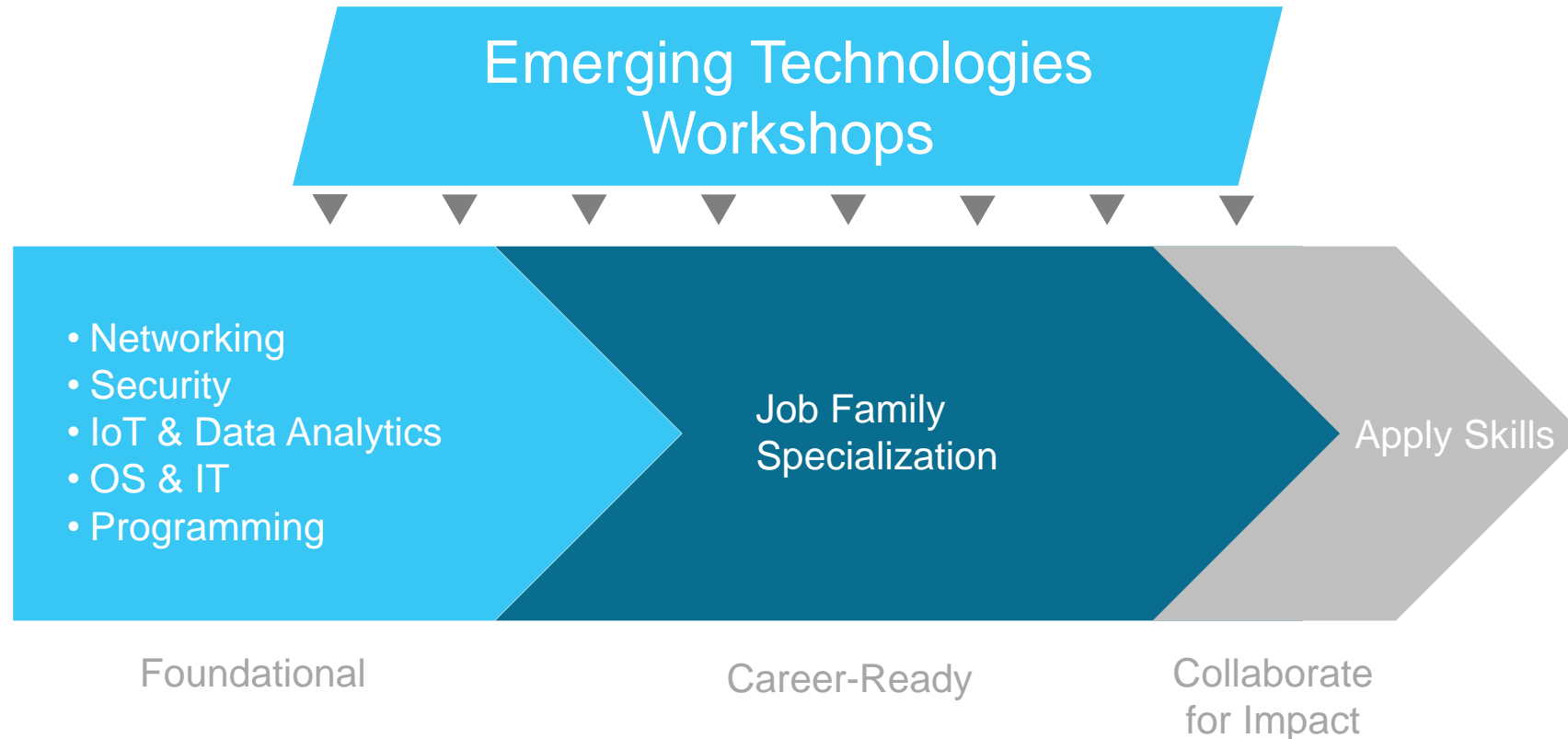
Sample Pathways with Workshops

Network Developer Professional Track

Foundational Courses

Intro to Cybersecurity → **A+ Certification** ✓ IT Essentials

Computer Technician

Intro to IoT → Programming in Python ✓

REST APIs

Cisco CCENT
CCNA R&S (1+2) ✓

Network Programmability

Cisco CCNA R&S
CCNA R&S (3+4) ✓

Network Technician

Security Analyst Track

Foundational Courses

Intro to Cybersecurity → Intro to IoT → Programming in Python → Networking Essentials → **A+ Certification** ✓ IT Essentials → Cybersecurity Essentials →

REST APIs

Cisco CCNA Cyber Ops
CCNA Cyber Ops ✓

Security Analyst

✓ Certification

Emerging Technologies Workshops
- Suggested pathway insertion point
- Can also augment courses later in pathway

Instructor Resources

https://www.netacad.com/group/resources/emerging-tech-workshops/1.0

PPT
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Document

FAQ
Frequently Asked
Questions

Plus
Quick Start Guide
Additional information &
resources
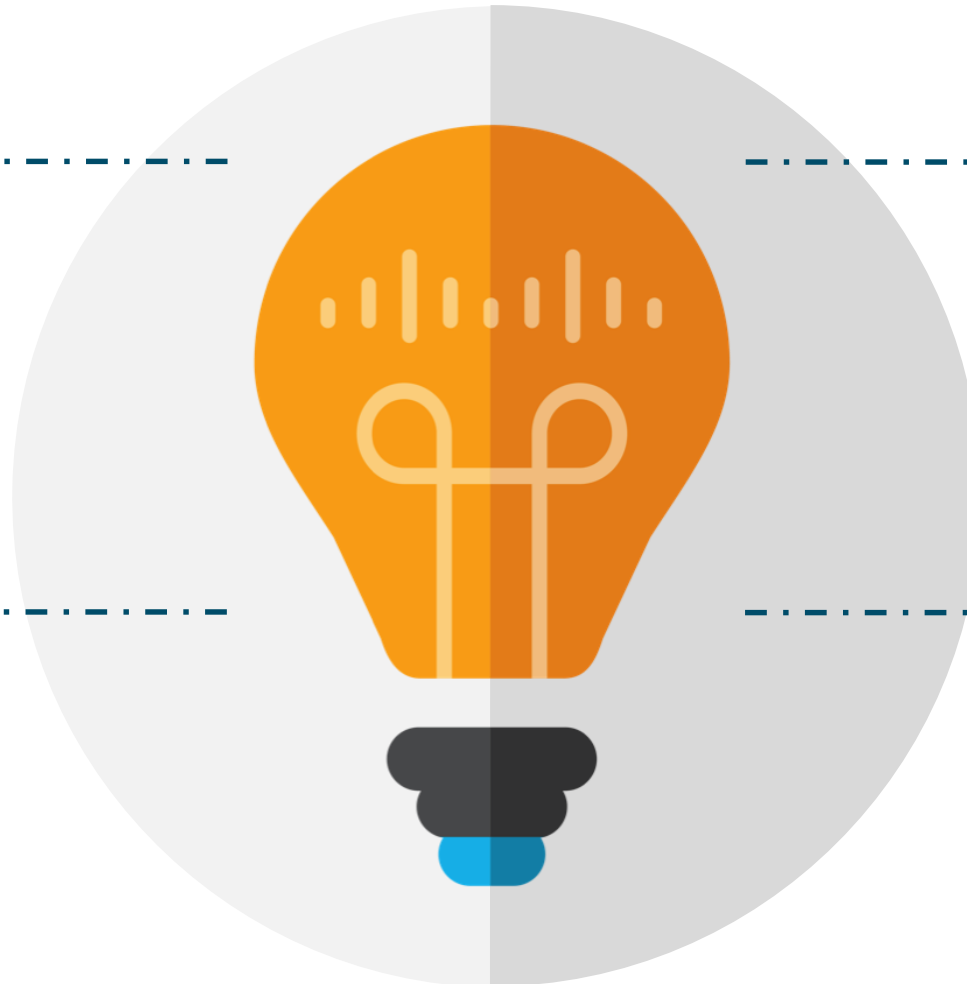
What's New?

Enhanced Instructor Resources
- Instructor Powerpoints
- Video tutorials on building new attack scenarios for SBA and activities

VM files updates
- 64-bits OS architecture aligned to current trend

Drag-n-Drop exam Items

Accessibility enhancements
- All Word, PDF Lab and PT documents are WCAG 2.0 AA 508 Compliant

Bug fixes

Enhanced in V1.1

Enhanced Instructor Resources

Aligns to new CCNA standard for Powerpoints

Instructor Materials – Chapter 7 Planning Guide

- This PowerPoint deck is divided in two parts:
- Instructor Planning Guide
  - Information to help you become familiar with the chapter
  - Teaching aids
- Instructor Class Presentation
  - Optional slides that you can use in the classroom
  - Begins on slide # 9

- **Note**: Remove the Planning Guide from this presentation before sharing with anyone.

Chapter 7: Best Practices

Prior to teaching Chapter 7, the instructor should:

- Successfully Complete Chapter 7, "Assessment."

- Complete the Chapter 7 Lab Activities.

- Emphasize the following Network Attack concepts:
  - Networks need to be monitored for attacks.
  - Attacks target the foundation through network protocols.
  - Attacks target services, applications, and databases.

Chapter 7 - Sections & Objectives

- 7.1 Network Monitoring and Tools
  - Explain network traffic monitoring.
    - Explain the importance of network monitoring.
    - Explain how network monitoring is conducted.
- 7.2 Attacking the Foundation
  - Explain how TCP/IP vulnerabilities enable network attacks.
    - Explain how IP vulnerabilities enable network attacks.
    - Explain how TCP and UDP vulnerabilities enable network attacks.
- 7.3 Attacking What We Do
  - Explain how common network applications and services are vulnerable to attack.
    - Explain IP vulnerabilities.
    - Explain how network application vulnerabilities enable network attacks.

Introduction to Network Monitoring

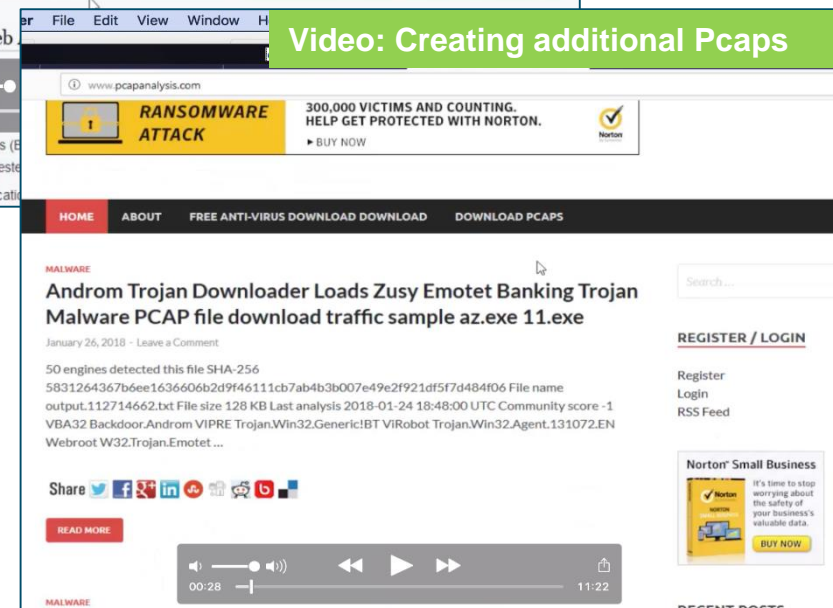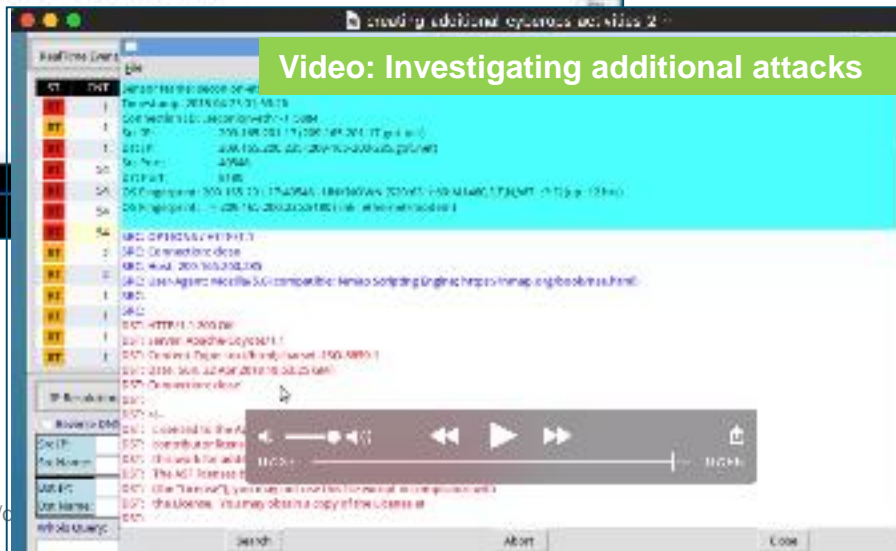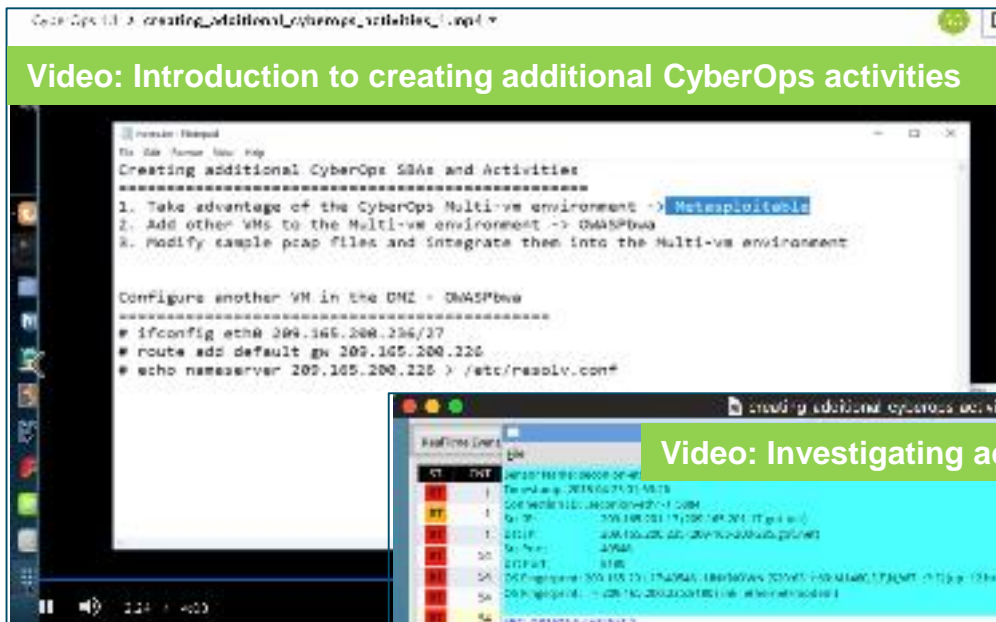## Network Monitoring Methods

- Tools used to help discover normal network behavior include IDS, packet analyzers, SNMP, NetFlow, and others.

- Traffic information capture methods:
  - **Network TAPs** – Network test access points that forward all traffic including physical layer errors to an analysis device.
  - **Port mirroring** – enables a switch to copy frames of one or more ports to a Switch Port Analyzer (SPAN) port connected to an analysis device.

Build Your Own Activities and SBA

For instructors only

- 4 Instructor video tutorials on how to build **new attack scenarios for SBA**
- **Flexibility** for instructor to build dynamic activities and practices for students
- Instructor Course Resources Page, under '**Assessment Resources**' section

Video: Introduction to creating additional CyberOps activities

Video: Creating additional VMs

Video: Investigating additional attacks

Video: Creating additional Pcaps

CCNA Cyber Ops

Curriculum requirements: 1 student Personal Computer (Desktop/Notebook) per student (recommended), at most 2 students per PC

Platform	Description
Desktop PC	• OS: Windows 7, 8, or 10, MAC OSX • Processor: 64-bit processor with Virtualization Support , see https://www.computerhope.com/issues/ch001121.htm to determine if computer has a 64-bit processor • Memory: 8 gigabyte (GB) RAM (standard) or 4 GB (alternate option) • Display Adapter: PCI, PCIe (recommended), or AGP video card (DirectX 9 graphics device with WDDM driver) • Disk: 45 GB hard drive. See table in the next slide for details. • Network: 1 Ethernet Card or 1 Wireless Ethernet Card
Web Browser	The most recent version of Microsoft Internet Explorer, Google Chrome, or Mozilla Firefox with the most recent versions of Java and Flash Player installed.
Oracle VirtualBox	The latest version. http://www.oracle.com/technetwork/server-storage/virtualbox/downloads/index.html
Windows Experience Index (WEI)	6.5 (recommended)
Packet Tracer	Minimum version 7.0

Programming Courses

CLP: Advanced Programming in C

- Curriculum developed by Open EDG (C++ Institute)

- Course free of charge to students, instructors and academies

- Instructor-led online curriculum

- Aligns with C Certified Professional Programmer (CLP) certification

- Targeted to entry-level to mid IT professionals

- Pre-requisites: CLA course or equivalent C knowledge required

C Pathway

CLA
Programming
Essentials in C

CLP
Advanced
Programming in C

CLP: Advanced Programming in C
Course Design

- Easy-to-navigate graphical user interface

- 8 chapters, with quiz and exam per chapter

- Welcome and exit surveys

- 35 practice labs with online tool

- 1 final practice and 1 final exam

- Certificate of Completion (Statement of Achievement)

- Certification Exam Voucher (51% discount)

For Cisco Networking Academy Use Only.

CLP: Advanced Programming in C
Course Outline

Chapter 1	Evolution of C – from past to eternity
Chapter 2	Handling variable number of parameters (<stdarg.h>)
Chapter 3	Low level IO (<unistd.h>)
Chapter 4	Memory and strings (<string.h> et al.)
Chapter 5	Processes and threads
Chapter 6	Floats and ints once again (<math.h>, <fenv.h>, <inttypes.h> et al.)
Chapter 7	Network sockets – absolute basics
Chapter 8	Miscellaneous

Instructor training requirements

- No instructor training or skill test is required to teach the C++ Institute courses.

- Recommendations
  - Academic institutions provide quality instructors and facilities
  - Instructors study the course material
  - Take the CPP – C++ Certified Professional Programmer certification prior to teaching the class so that they become familiar with the exam structure and know how to prepare their students for it.