



Welcome

思科網路學會教室應用 與未來發展（高中職專案）

Iris Chang

張正芬

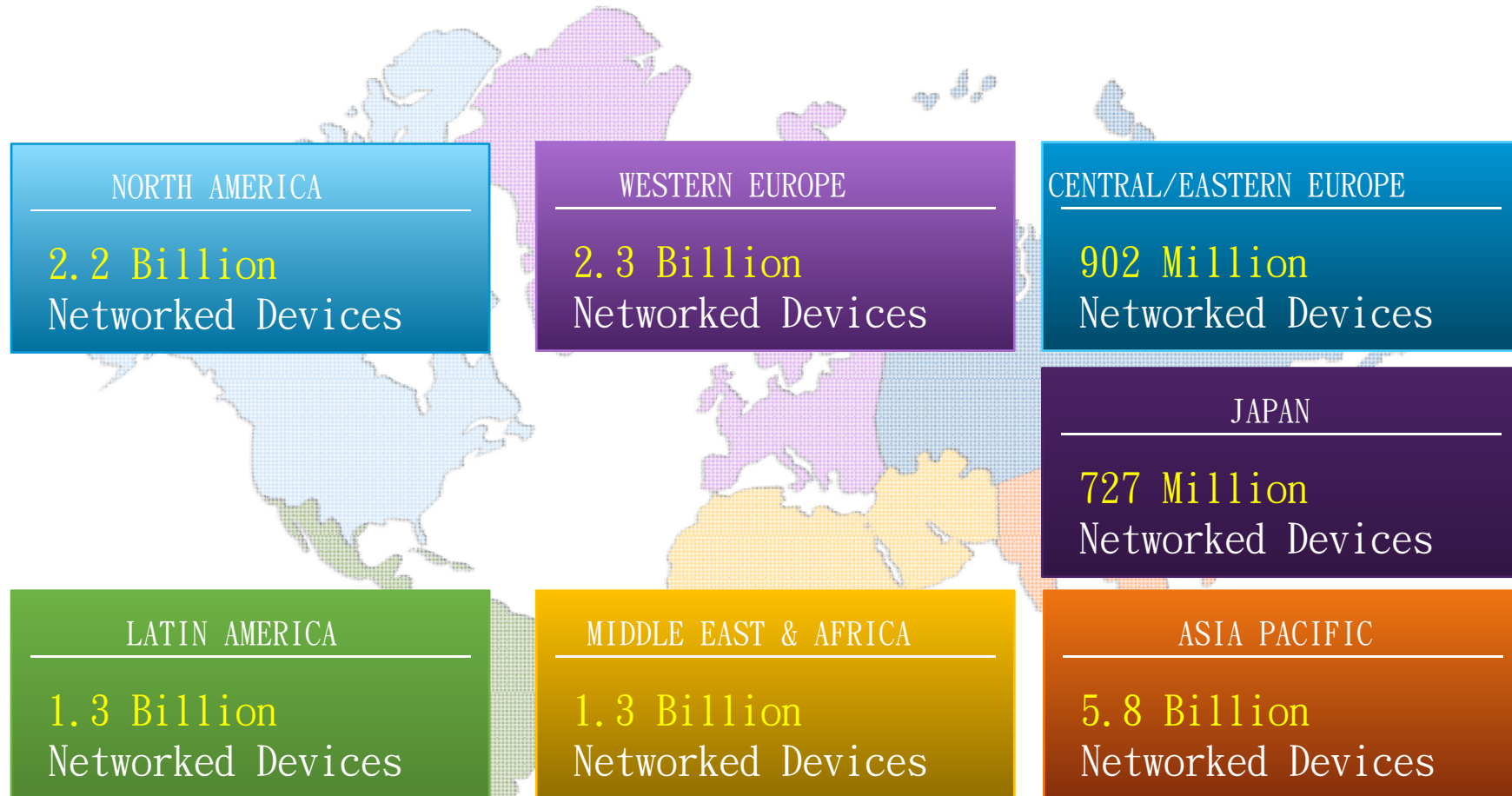
lrchang@cisco.com

September 2012





By 2015: Nearly 15B Network Connections



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015



you + networks =

impact^x

Agenda

企業社會責任



思科課程體系
戰略指南



高中職教師
培訓計畫



企業社會責任

We do CSR
the same
way we do
business

- 
- Technology
 - Expertise
 - Partnerships

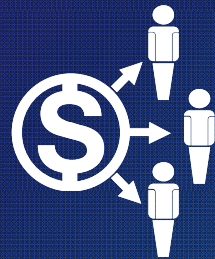
OUR FIVE PILLARS OF CSR



Cisco's Investment in Building Thriving Communities Around the World



education



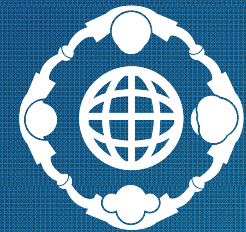
economic
empowerment



healthcare



critical
human need



employee
volunteering



SOCIETY_Cisco Networking Academy

Industries around the world struggle to find qualified individuals to manage their computer networks, people seek more and better job opportunities

Cisco Academy Program:

思科課程體系戰略指南 Comprehensive Learning Experience





Innovations in Teaching and Learning



Entrepreneurial Skills

Passport21 to Entrepreneurship provides entrepreneurship education through a series of case studies, and Cisco Packet Tracer activities that expose students to critical business and financial skills



Gaming in Education

The **Cisco Aspire** game integrates virtual worlds, levels, competition, and scoring into the curriculum to help students learn while they are having fun



Social Media as a Learning Tool

By connecting with others using Facebook, Twitter, and Academy NetSpace, students continue learning outside of the classroom.



Online Assessments

Online assessments provide immediate, interactive feedback on students' strengths and weaknesses while collecting data from academies worldwide for analysis and improvements



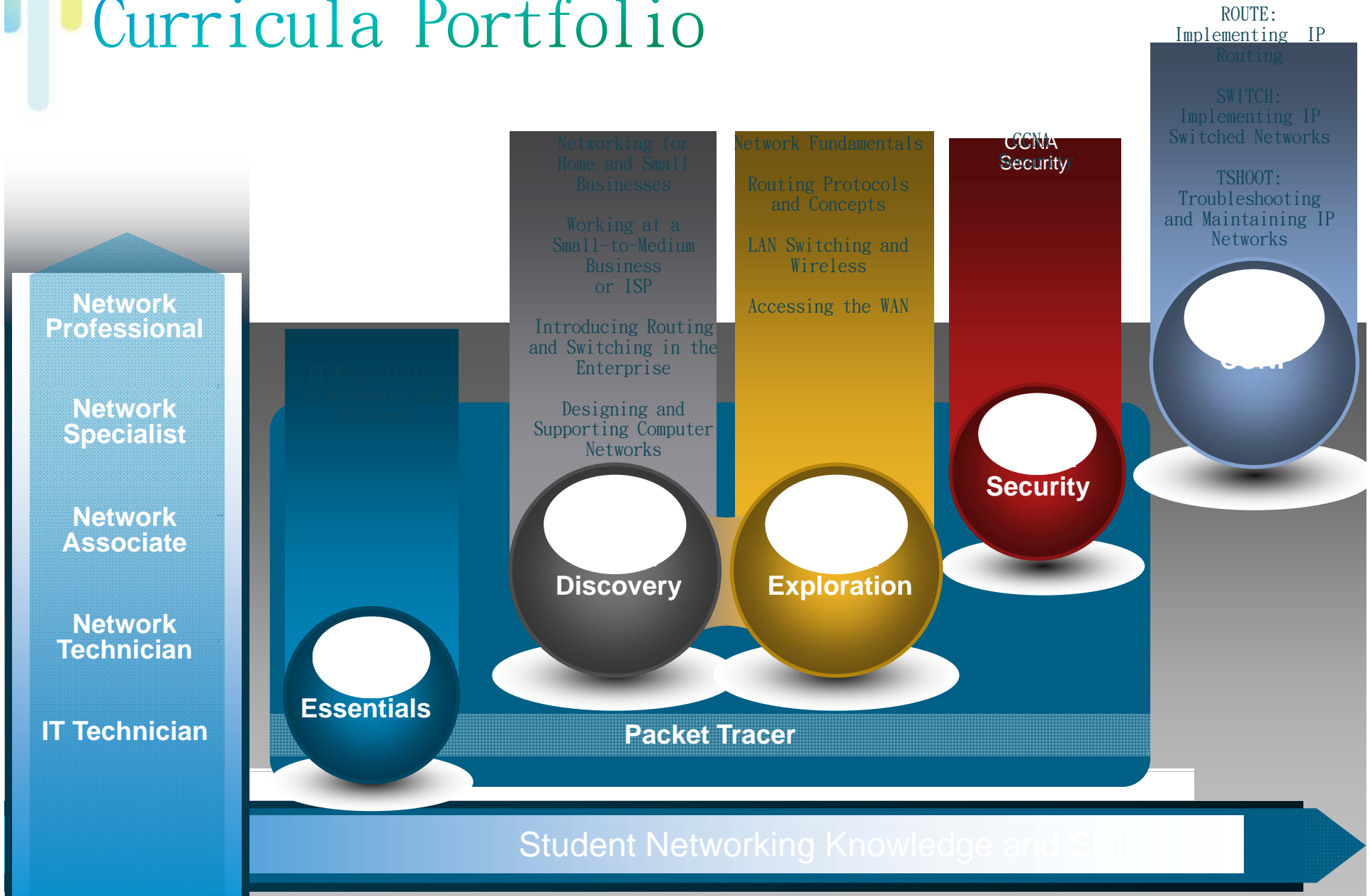
Simulation-Based Learning

Cisco Packet Tracer provides a simulation-based learning environment that supplements physical equipment with virtual networks, and helps students develop critical 21st century

skills



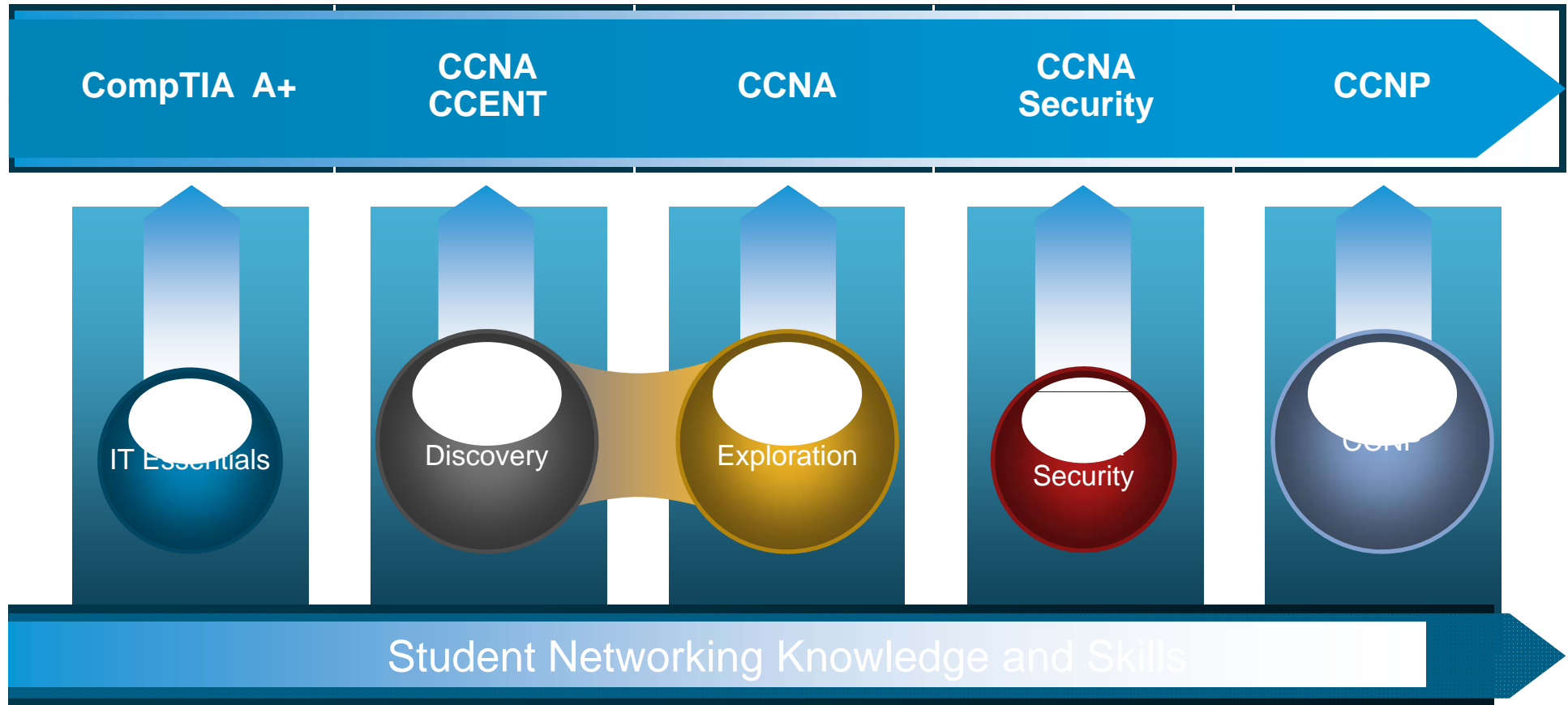
Curricula Portfolio





Alignment to Industry Certifications

Curricula aligns with globally recognized certifications





SOCIETY_Cisco Networking Academy



impact 



4+ Million

students since inception



300,000

Facebook fans, growing daily



110 Million

online assessments since inception
with 1 million monthly assessments

Statistics as of January 2012



Online Curricula

- Course content **and** embedded rich media learning activities

C:\CISCO_CCNA\Exploration3_English_BETA\theme\cheetah.html - Microsoft Internet Explorer provided by Cisco Systems, Inc.

3 VLANs
3.2 VLAN Trunking
3.2.2 Trunking Operation

CCNA Exploration
LAN Switching and Wireless

A Trunk in Action
You have learned how a switch handles untagged traffic on a trunk link. You now know that frames traversing a trunk are tagged with the VLAN ID of the access port the frame arrived on. In the figure, PC1 on VLAN 10 and PC3 on VLAN 30 send broadcast frames to switch S2. Switch S2 tags these frames with the appropriate VLAN ID and then forwards the frames over the trunk to switch S1. Switch S1 reads the VLAN ID on the frames and broadcasts them to each port configured to support VLAN 10 and VLAN 30. Switch S3 receives these frames and strips off the VLAN IDs and forwards them as untagged frames to PC4 on VLAN 10 and PC6 on VLAN 30.

Click Play on the animation toolbar in the figure.

Trunking Operation

The S2 and S1 switches send the tagged frames out all ports configured for VLANs 10 and 30.

Faculty 172.17.10.21
Student 172.17.20.22
Guest 172.17.30.23

Faculty 172.17.10.24
Student 172.17.20.25
Guest 172.17.30.25

Play

Click Play to view the animation.

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C:\CISCO_CCNA\Exploration1\theme\cheetah.html - Microsoft Internet Explorer provided by Cisco Systems, Inc.

Network Fundamentals
Following Data Through an Internetwork

1 2 3

Data Link layer puts data onto the media

The frame also indicates the upper layer protocol of IPv4 with a value of 0800 in the Type field. The frame begins with a Preamble and Start of Frame (SOF) indicator and ends with a cyclic redundancy check (CRC) in the Frame Check Sequence at the end of the frame for the error detection. It then uses CSMA/CD to control the placing of the frame onto the media.

Ethernet II Frame
L2 L3 L4 L7 Data L2

Protocol (LLC/MAC): 802.2/802.3
Media Access Control: CSMA/CD
Source Address: 00-05-9A-3C-78-00
Destination Address: 00-00-A3-D0-CE-04
Upper Layer (Type): 0800 (IPv4)

Protocol (MAC): 802.3
FCS: (CRC calculation)
Frame Check Sequence

Type: 0800 (IPv4)
Start of Frame

Preamble: 10101010 (7 times)

MAC address: 00-05-9A-3C-78-00
MAC address: 00-08-A3-B6-CE-04

Router A Router B Fa0/0

Source
7 Application
6 Presentation
5 Session
4 Transport
3 Network
2 Data Link
1 Physical

Click to see the steps.

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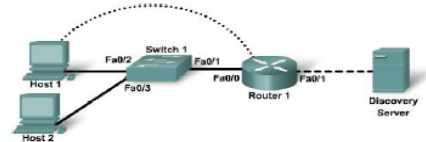


Hands-On Labs and Interactive Activities

- Practical application of learned skills
- Integrated into the online curriculum

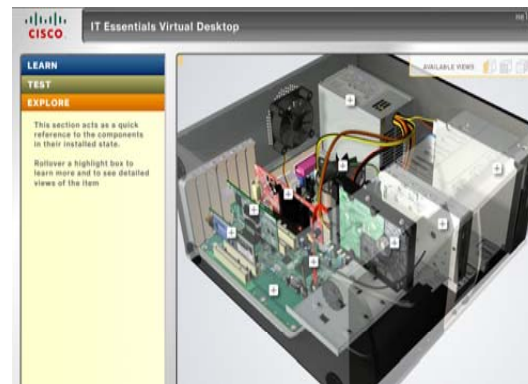


Lab 1.3.4 Creating an ACL



Straight-through cable
Serial cable
Console (Rollover)
Crossover cable

Device	Host Name	Address	Subnet Mask
Discovery Server	Server	172.17.1.1	255.255.0.0
R1	PC-CPE-1	Fa0/1 172.17.0.1 Fa0/0 10.0.0.1	255.255.0.0 255.255.255.0
S1	PC-ABN-1	—	—
Host1	PC1	10.0.0.10	255.255.255.0
Host2	PC2	10.0.0.201	255.255.255.0



Existing Wireless APs

Planned Wireless APs

Click the buttons to view existing and planned wireless AP locations.





Innovative Assessments

Assessments for 21st Century Learning

seems like a lot on this slide,
possible to simplify (narrow to key edu
care abouts)?

- Research based design
- Complex activities, simulations, and question based assessments
- Comprehensive assessment and learning architecture
- Rich feedback supporting students, instructors and curriculum
- Data driven
- Ongoing process and quality monitoring
- Scalable, online delivery system available 24/7
- Globally available and multilingual
- Tools to enable instructors to create their own complex, performance based assessments



台灣思科網路學會優勢

領先業界的學習人數



- 台灣每年以超過**14,000名**學生數成長, 至今累積超過**70,000名**學習人數
- 台灣會員學校達**80間**以上, 擁有**160名**以上專業講師群
- 全球超過**165個**國家, 每年有超過**100萬名**在線學習學生採用相同學習平台, 業界第一

專業完整的課程規劃



- 提供完整的**繁體中文版互動教材**, 包含線上題庫, **Lab模擬軟體 (Packet Tracer)**, **遊戲軟體 (Aspire Game)**, 案例評估 (**Skill-base Assessment**), 情境練習及學員學習成果分析
- 課程涵蓋範圍從基礎網路課程(ITE, **CCNA, CCNA Security**)至高階課程(CCNP), 共**13門**專業課程提供

政府企業的專案經驗



- 豐富的政府企業網路培訓規劃, 包括行政院研考會, 行政院勞委會 (**WorldSkill Comp**), 教育部, 國防部, 台北市政府, 北市府教育局, 縣市區網中心, 鴻海集團, 中研院, 國家高速網路中心, 資策會等單位皆長期採用學會計畫培訓相關人員

遍佈全台的培訓管道



- 由國立交通大學協助擔任全台網路學會支持中心, 並由中興大學, 銘傳大學, 文化大學, 萬能科大, 修屏科大, 聖約翰科大**全球認證思科網路學會專業講師培訓團隊**
- 另有全省超過**200**家思科認可之考試中心, 提供給每年超過**5,000名**的學員專業的網路學習服務

開放交流的學習平台



- 擁有超過**20名**國內大專院校資深教授參與台灣思科網路學會議評會
- 全球, 亞太, 大陸, 香港等同語言之學術交流平台 (**One-Stop-Shop**)

Cisco Academy Program:

高中職教師培訓計畫

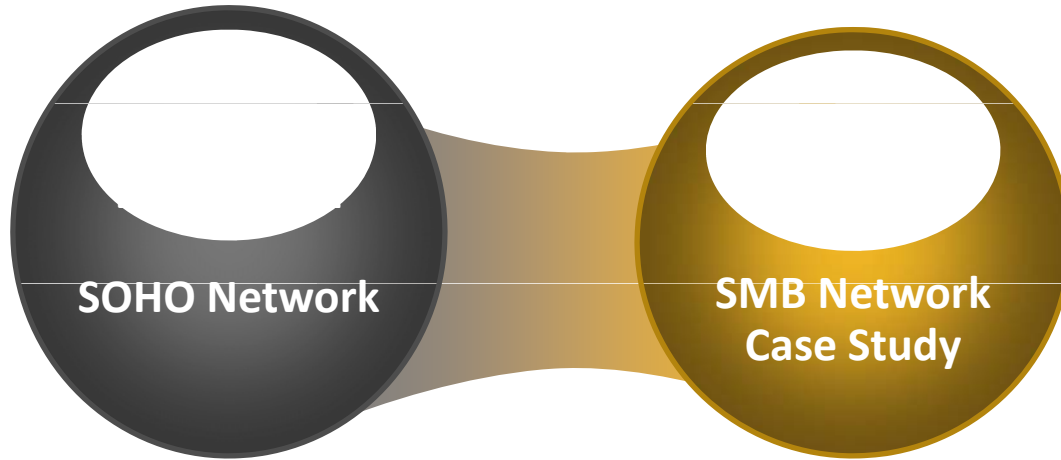




7 天 48 小時 課程規劃

36小時

12小時



IT Networking Knowledge and Skills

CCNA Discovery:

Designing and Supporting Computer Networks

Chapter	Objectives
1. Introducing Network Design Concepts	Describe the Benefits of a Hierarchical Network Design and Explain Design Considerations for Specific Areas of the Network
2. Gathering Network Requirements	Describe the Six Phases of PPDIOO Model and Based on Business Goals Determine Technical Requirements for a Network Upgrade
3. Characterizing the Existing Network	Develop a Detailed Network Design Requirements Document Based on Existing Network Implementation and Technical Requirements
4. Identifying Application Impacts on Network Design	Describe the Characteristics of Various Network Applications and How Incorporating Those Applications Affects Network Design
5. Creating the Network Design	Design the Core, Distribution, and Access Layers for a Campus Network and Incorporate WAN and Remote Worker Connectivity
6. Using IP Addressing in the Network Design	Select a Hierarchical IP Addressing Scheme, Routing Protocol, and Naming Structure for a Campus Network
7. Prototyping the Campus Network	Develop a Test Plan and Based on Results, Identify Risks and Weaknesses in the Network Design
8. Prototyping the WAN	Describe and Configure WAN Connectivity for Remote Sites and Remote Workers
9. Preparing the Proposal	Develop and Present a Network Upgrade Proposal to Include an Implementation Schedule and Cost Summary

我們在全球講師專業培訓及進修三大重點

Instructor professional development

能更好的幫助您提升技術和知識

DHCP, NAT, IPv6, PT Competition, Instructor Forums, Conferences, etc.
Learning Opportunities: **23** (18 Virtual + 5 In Person event)
Participants: **2042** (1786 Virtual + 256 In person) **Q2Q +41%**
Resources Access: **12,151+**Total WebEx view **Q2Q +270%**
Rating: **4.75**



+41%
+270%

Instructor Trainer Qualification

思科網路學會全球專業講師培訓團隊 – 台灣



思科網路學會專業講師培訓團隊
- 銘傳大學 陳建伯 老師



思科網路學會專業講師培訓團隊
- 萬能科大 楊瑞倫 老師



思科網路學會專業講師培訓團隊
- 修平科大 陳淑肅 老師



思科網路學會專業講師培訓團隊
- 文化大學推廣部 王信富 老師



思科網路學會專業講師培訓團隊
- 文化大學推廣部 林芃君 老師



思科網路學會專業講師培訓團隊
- 聖約翰科大 蕭志明 老師



思科網路學會專業講師培訓團隊
- 大仁科大 陳宜昌 老師



Technical Excellence

Supporting conferences and student events

- Sichuan Instructor Community - Form Instructors group to help the Instructor Community
- Complete AC navigation and CCNA E4,CCNA Security slides
- 來自台灣的作品 - Aspire Game新手攻略指南
- Korea translation of CCNA Exploration curricula



1 Program Update

Teaching Resources Design Competition is completed and the material is available for

Packet Tracer Activity Design Competition

Innovate by Instructors for instructors

[> Learn More](#)

Teaching Resource Design Competition

Created by Instructors for instructors

[> Learn More](#)

APJC Instructor Forum Moodle Course

<http://lms.netacad.net/course/view.php?id=2061>

- [NetAcad Maintenance Learning Opportunity](#)
- [Teaching Resource Design Competition Website](#)
- [Teaching Resource Design Competition \(December Update\)](#)
- [Teaching Resource Design Competition \(December Update\) \(9m\)](#)
- [Teaching Resource Design Competition Result Announcement](#)
- [Packet Tracer SBA Update](#)
- [Packet Tracer SBA Update \(13m\)](#)

Troubleshooting Series

Starting from December, we introduce a new learning series called **Troubleshooting Series**. In this series, we will go through with you some troubleshooting skills in CCNA courses. We will do troubleshooting together with participants in the live session using WebEx.

Wireshark Learning Opportunities

Go deep into packet discovery

[> Learn More](#)

NetAcad Maintenance

Supports ISR-G2

[> Learn More](#)

One Stop Shop

together we create the world's largest classroom.

CISCO

Cisco | Networking Academy®
Mind Wide Open™

At a glance | TA Recommended | Routing Protocols and Concepts | LAN Switching and Wireless | Accessing the WAN | Others | Win Prize

WILL YOU PARTICIPATE?

E3-5. STP

- Spanning Tree - Understanding how it cuts the loop
- Spanning Tree - Understanding how it cuts the loop
- Customizing STP Topology
- Customizing STP Topology
- Speeding up STP convergence

E3-5. STP

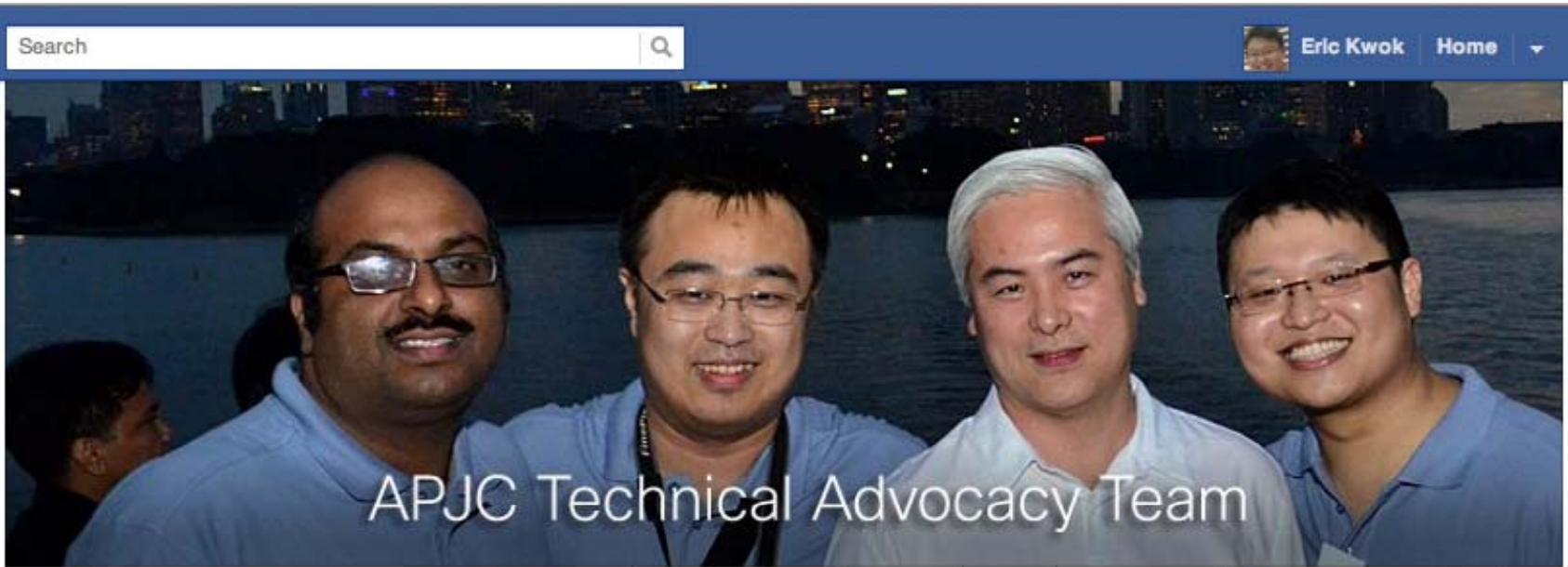
- From xFast to Rapid
- From xFast to Rapid
- Expanding STP to cover multiple VLANs
- Expanding STP to cover multiple VLANs
- Expanding STP to cover multiple VLANs

E3-6. Inter-VLAN Routing

- How to make VLANs talk to each other
- How to make VLANs talk to each other (Multi Layer Switching - init conf)
- How to make VLANs talk to each other (Multi Layer Switching - Completed)

E3-7. Basic Wireless Concepts and Configuration

- Configuring Enterprise Wireless Security with Linksys Router
- Configuring Enterprise Wireless Security with Linksys Router
- Configuring Enterprise Wireless Security with Linksys Router (Step by Step Doc)



WILL YOU PARTICIPATE?

Eric Kwok
Sharks are swimming in the packet sea



Unlike · Comment · Unfollow Post · 15 hours ago near Kuala Lumpur, Wilayah Persekutuan

You and Kang Liu like this.

Kang Liu Download the troubleshooting tickets here!
<http://lms.netacad.net/course/view.php?id=1501>

What should people post in this group?
Add a Description

Suggested Members Hide

	Iris Chang	Add ×
	Harry Wang	Add ×
	杨功元	Add ×
	Ling Teng	Add ×

Technical Excellence

Supporting conferences and student events





Learning can be fun and active!



Deep Appreciations for all Taiwan Council Members



you + networks =

impact^x