



CCIE Routing and Switching Labtorial

LTRCCIE-3001

Follow us on Twitter for real time updates of the event:
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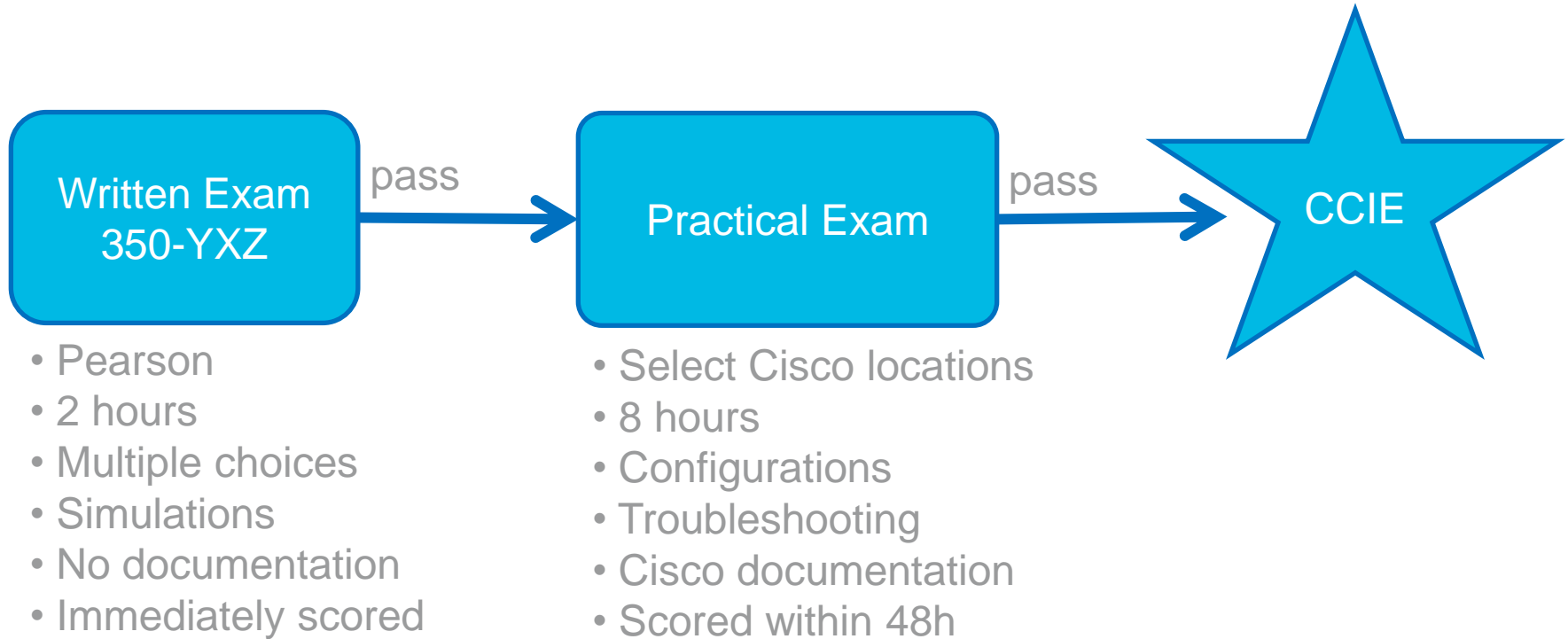
Housekeeping

- We value your feedback- don't forget to complete your online session evaluations after each session & the Overall Conference Evaluation which will be available online from Thursday
- Visit the World of Solutions and Meet the Engineer
- Visit the Cisco Store to purchase your recommended readings
- Please switch off your mobile phones
- After the event don't forget to visit Cisco Live Virtual:
www.ciscolivevirtual.com
- Follow us on Twitter for real time updates of the event:
@ciscoliveeurope, #CLEUR

Agenda

Section 1	CCIE Program Update
Section 2	CCIE Routing and Switching LAB exam
Section 3	Hands-On Lab
Section 4	Debriefing

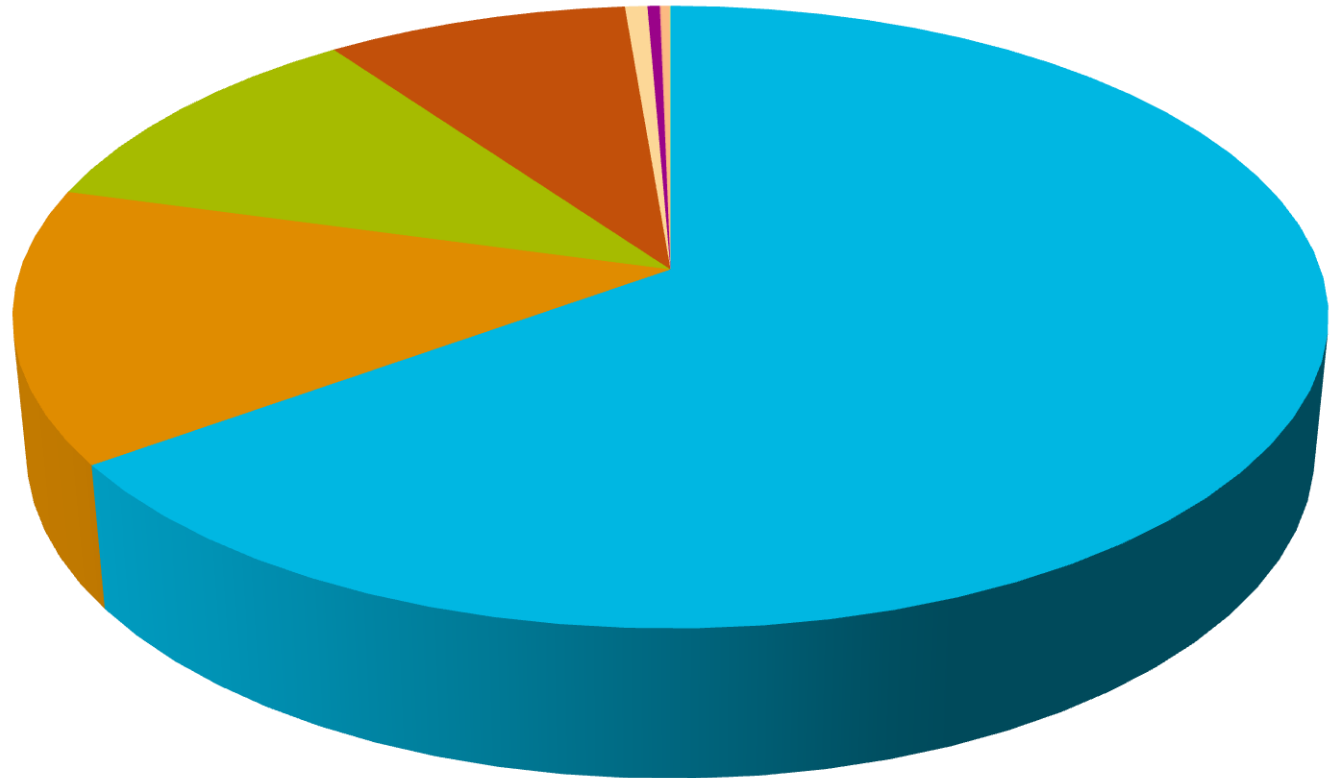
Certification Process



CCIE Information World Wide

Total	26634*
RS	17,320
Security	3,794
SP	2,885
Voice	2,291
SAN	170
Wireless	93
CCDE	63
SP Ops	11
CCAr	7

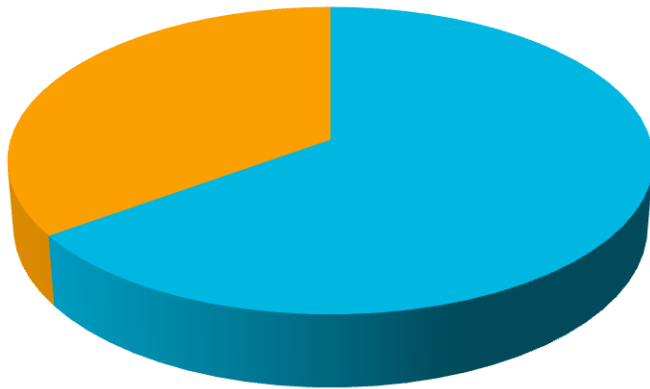
Certified or Re-certified
* Updated on 01/09/2012



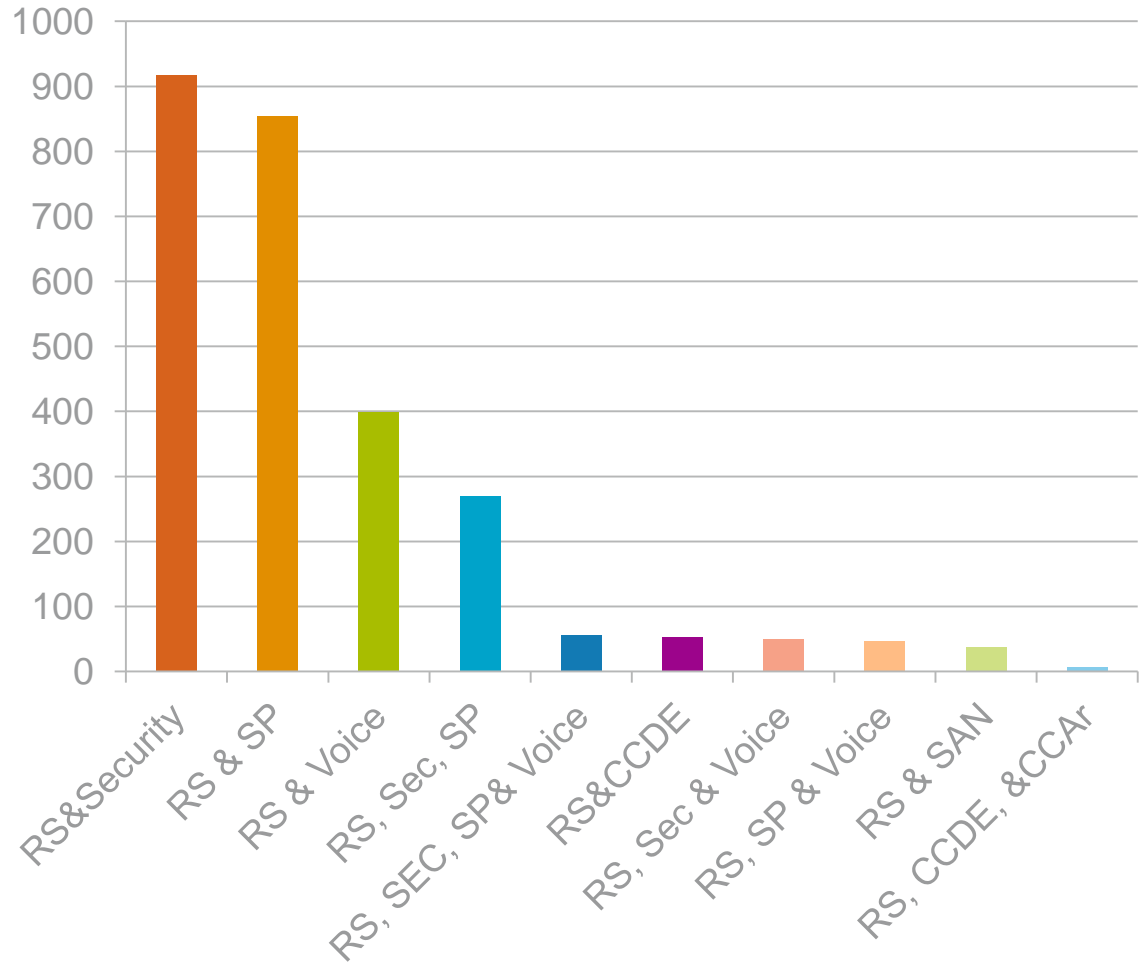
■ RS ■ Security ■ SP ■ Voice ■ SAN ■ Wireless ■ SP OPS ■ CCDE ■ CCAr

CCIE Information World Wide

CCIE R&S vs all other tracks



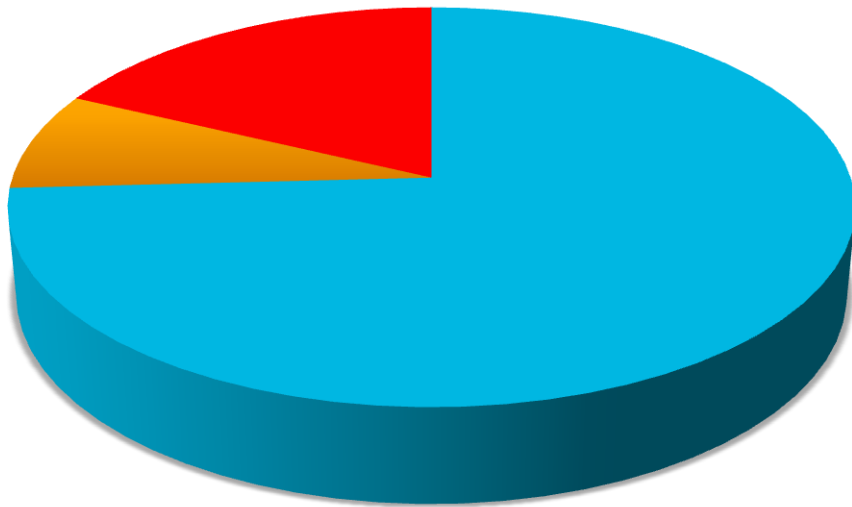
■ RS ■ All Others



Updated on 01/09/2012

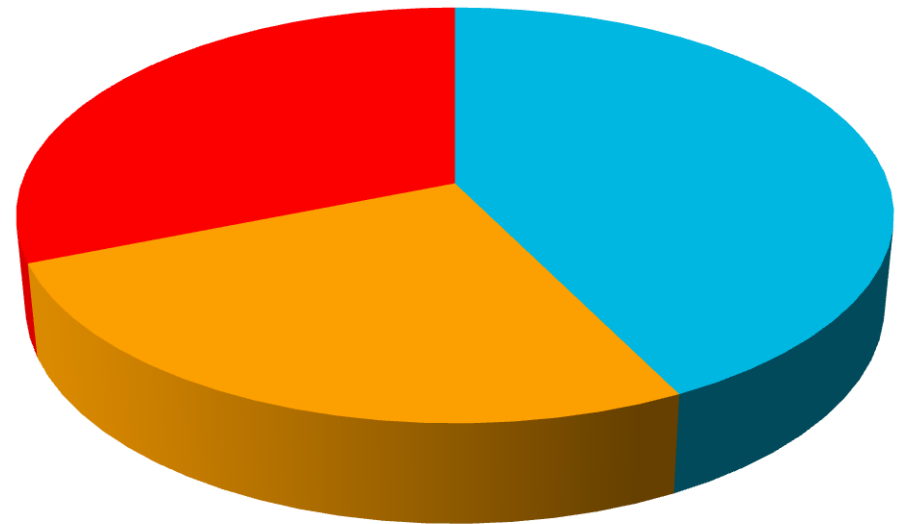
CCIE Information World Wide

Worldwide CCIE per status



■ Active ■ Suspended ■ Inactive

Total CCIE per region

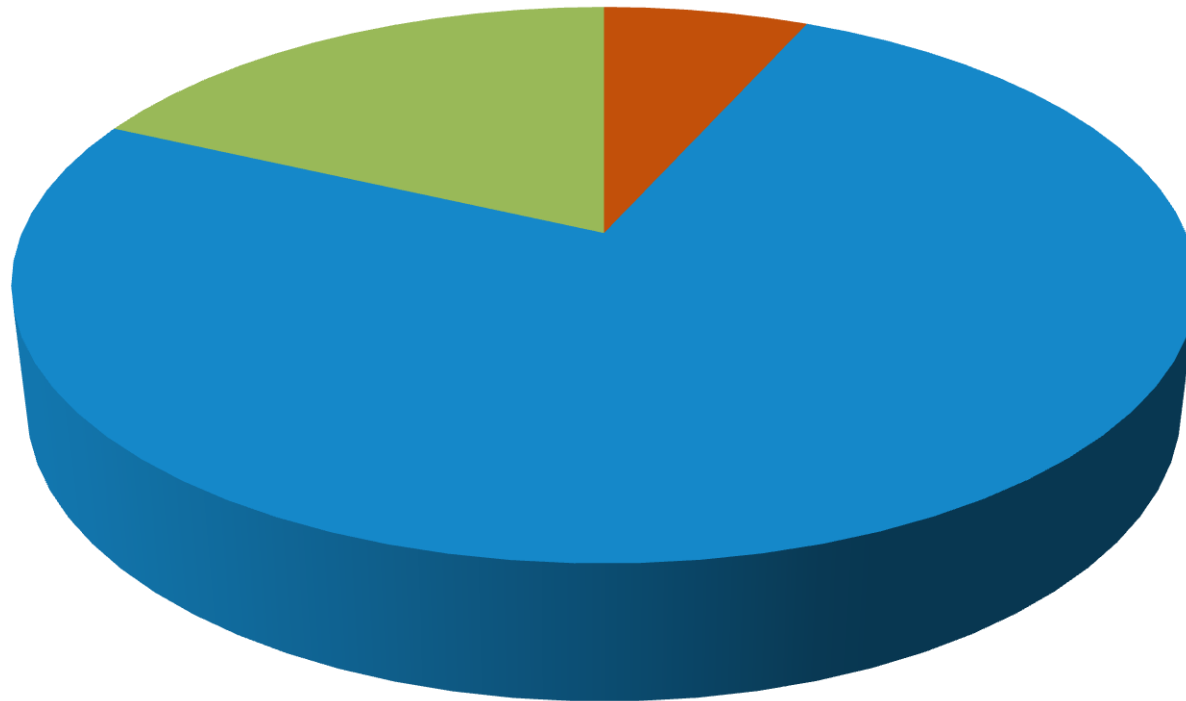


■ Pacific Rim ■ EMEA ■ Americas

Updated on 01/09/2012

CCIE Information World Wide

Total EMEA CCIEs by Region



■ Africa ■ Europe ■ Middle East

Updated on 01/09/2012

Agenda

Section 1	CCIE Program Overview
Section 2	CCIE Routing and Switching Version 4
Section 3	Hands-On Lab
Section 4	Debriefing

CCIE Routing and Switching Version 4

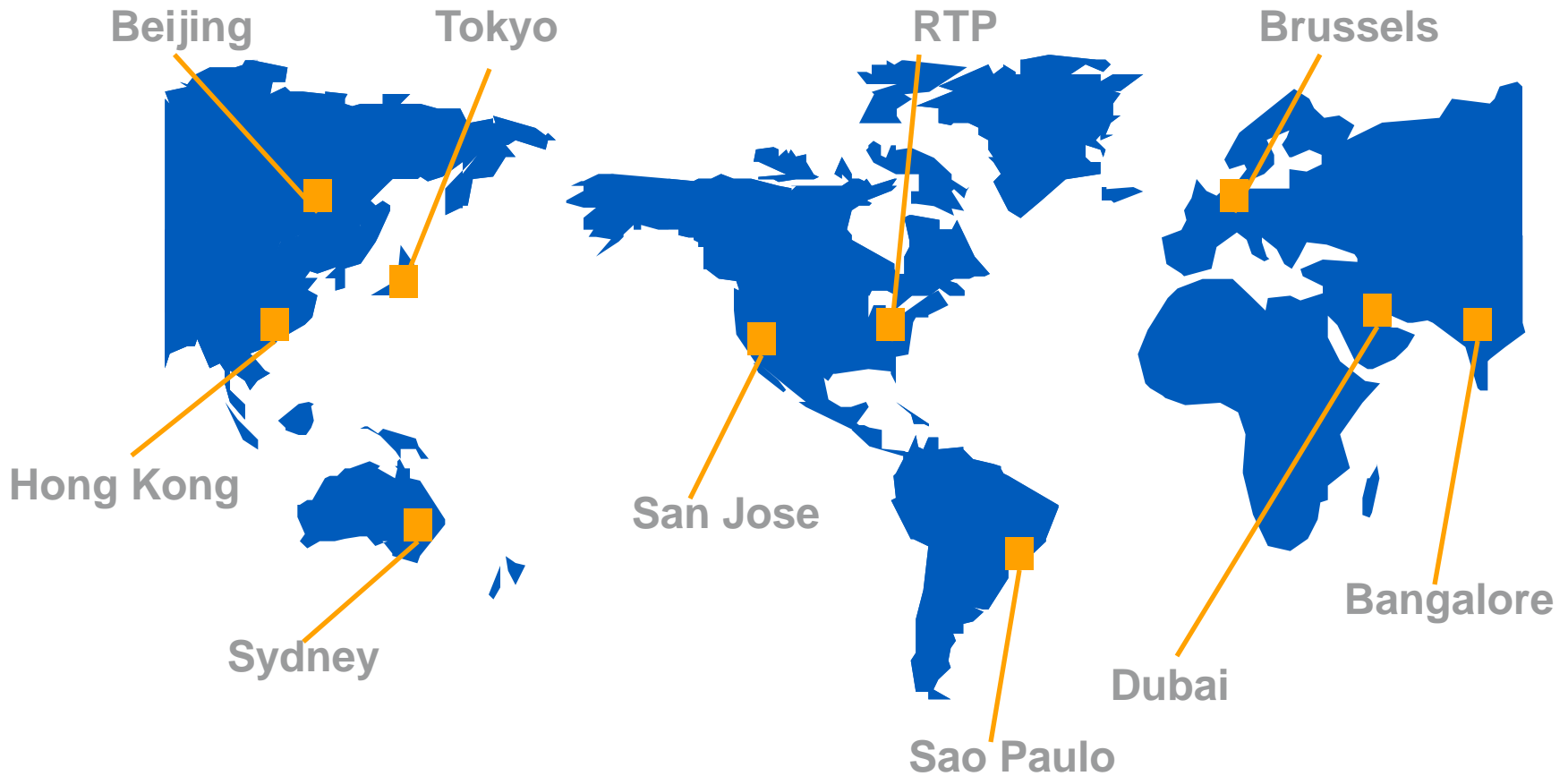
- Expert-level knowledge of LAN and WAN **interfaces**, **Routing Protocols**, and variety of routers and switches
- Expert-level in **troubleshooting** to solve complex connectivity problems and apply solutions to **increase** bandwidth, **improve** response times, **maximize** performance, improve security, and support global applications

PPD**I**OO

CCIE Routing and Switching Version 4

- V4.0 blueprint released May 5, 2009
- V4.0 exams released October 18, 2009
- Written and lab exams refreshed with new questions
- Added coverage of MPLS and VPN
- Written exam added simulations (flash based items)
- Lab exam added hands-on troubleshooting
- Exam durations and pricing remained same

CCIE R&S: Permanent Lab Locations



CCIE R&S: Mobile Labs 2012

Note: Dates with an "R" Status are confirmed events with location information. These events are available for open registration.

Lab Locations	2012 Dates	Status	Lab
Bangkok, Thailand	Jan 30 -Feb 3	R	Routing & Switching, Security
Riyadh, Saudi Arabia	Feb 4 - 8	R	Routing & Switching, Security
Sao Paulo, Brazil	Feb 13 - 17	R	Routing & Switching, Security
Cairo, Egypt	Feb 19 - 23	R	Routing & Switching, Security
Buenos Aires, Argentina	Mar 5 - 9	R	Routing & Switching, Security and Voice
Moscow, Russia	Mar 19 - 23	R	Routing & Switching, Security
Seoul, South Korea	Mar 19 - 23	R	Routing & Switching, Security and Voice
Mexico City, Mexico	Apr 2 - 6	R	Routing & Switching, Security and Voice
Istanbul, Turkey	Apr 16 - 20	R	Routing & Switching, Security
Lagos, Nigeria	Apr 30 - May 4	R	Routing & Switching, Security
Moscow, Russia	May 14 - 18	R	Routing & Switching, Security
Johannesburg, South Africa	May 28 - Jun 1	R	Routing & Switching, Security
Singapore, Singapore	Jun 4 - 8	R	Routing & Switching, Security and Voice
Rio de Janeiro, Brazil	Jun 11 - 15	R	Routing & Switching, Security
Toronto, Canada	Jun 18-22	R	Routing & Switching, Security and Voice
Warsaw, Poland	Jun 25 - 29	R	Routing & Switching, Security
Shanghai, PR China	Jul 23 - 27	R	Routing & Switching, Security

Status Legend

N = New date and location, event is not confirmed

R = Confirmed events and are available for open registration, it does not indicate availability. You must Login to the CCIE Database to view availability and register for lab exams.

P = Postponed

C = Canceled, due to low enrollment

Dates for 2012 available at: <https://learningnetwork.cisco.com/docs/DOC-3224>

CCIE R&Sv4: Exam Philosophy

- The routing and switching exam tests your ability to apply configuration knowledge, troubleshoot and resolve issues, and react to new and unusual situations;
- It is **not a design test!**
- Nor is it always a test of “**best practices**” for use in the field!

CCIE R&Sv4: Minimally Qualified Candidate

“The minimally qualified Routing and Switching CCIE can **abstract** functional elements of a complex network environment, **understand** how infrastructure components **interoperate**, grasp **subtle issues**, **perceive** problem areas, and quickly **resolve** problems.

The expert’s fluency makes them ideally suited for **configuring** and **validating** implementations, **troubleshooting** critical network issues, and participating in network **design** teams. ”



CCIE R&Sv4: Exam Topics

- **Implement Layer 2 Technologies**
- **Implement IPv4 – includes BGP**
- **Implement IPv6**
- **Implement MPLS Layer 3 VPNs**
- **Implement IP Multicast**
- **Implement Network Services**
- **Implement Quality of Service**
- **Implement Network Security**
- **Troubleshoot a Network**
- **Optimize the Network**
- **Evaluate proposed changes to a Network** (only in written exam)

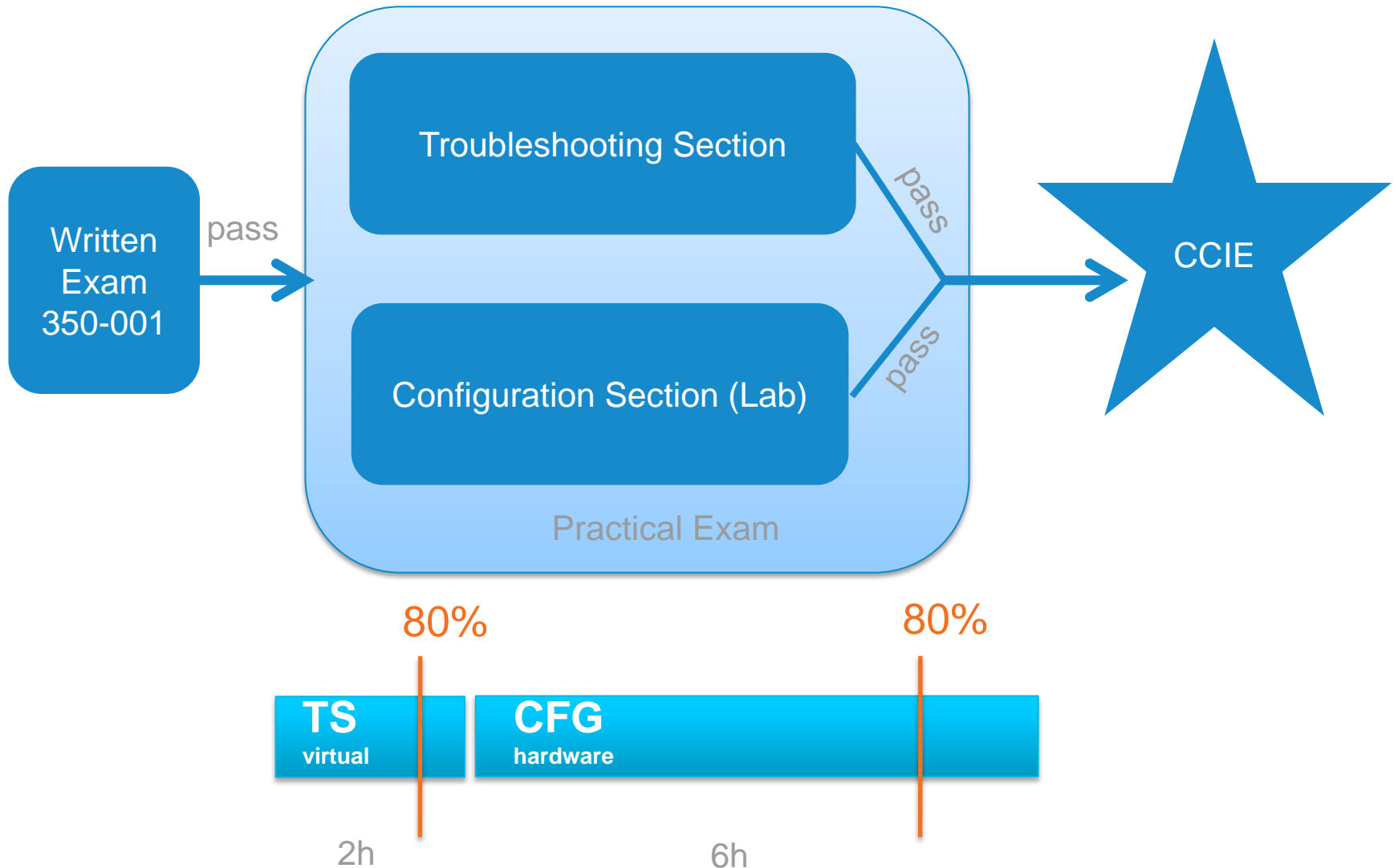
R&S Lab Exam Overview

- Candidates build a network to a series of supplied specifications
- The point values for each question are shown on the exam
- Some questions depend upon completion of previous parts of the network
- Each candidate has his/her own PC and dedicated rack of equipment, which may or may not be located in lab

R&S Lab Exam Overview

- Equipment should not require hardware configuration or cabling.
- Contact proctor if you discover a problem requiring intervention of this kind
- **Report any suspected equipment issues to the proctor as soon as possible; adjustments cannot be made once the exam is over!**

CCIE R&Sv4: Certification Process



CCIE R&Sv4: Lab Delivery System

- Web GUI delivering all the exam content (questions, diagrams, guidelines, access to devices, documentation)
- Transparent servers backend managing the user sessions and sharing load of running the IOU instances for each users
- Benefits:
 - Flexibility in content delivery format
 - Content updates effective globally immediately
 - Consistent experience for candidates
- No printed exam workbook

CCIE R&Sv4: Lab Delivery System

LDS: Example of TS session

The screenshot displays the Cisco Lab Delivery System (LDS) interface. At the top, there is a navigation bar with the Cisco logo and a yellow button labeled "CLICK HERE TO START - Background Info". Below this, there are tabs for "Questions & Diagrams", "All Questions", "Troubleshooting Guidelines", "Manage Devices" (which is circled in orange), "Help", and "End Section".

The main area shows a detailed network diagram. Key components include:

- EIGRP AS 200:** Contains routers R19, R17, R18, and R16. R19 is connected to R17 and R18. R17 and R18 are connected to R16. R16 is connected to R15 in AS 101.
- AS 101:** Contains routers R15, R3, and R4. R15 is connected to R3 and R4. R3 is connected to R4.
- OSPF Area 0:** Contains routers R24, R25, R21, and R20. R24 and R25 are connected to R21. R21 is connected to R20.
- OSPF Area 1:** Contains routers R26, R27, and R22. R26 and R27 are connected to R22.
- VPN Site-B1:** Contains router R15 and a CE router.
- VPN Site-A2:** Contains router R20 and a CE router.
- Networks:** Various networks are defined, such as 172.16.10.x/29, 172.16.14.x/30, 172.16.13.x/29, 172.16.11.x/30, and 192.168.10.x/30.
- Services:** Includes DHCP servers (R17, R18), NTP servers (R16, R15), and a FR Switch.

On the right side, a terminal window is open, showing the command prompt for router R1. The terminal output is as follows:

```
R1>  
R1>en  
Password:  
R1#sh ver | i IOS  
Cisco IOS Software, Solaris Software (UNIX-A3JS-M), Version 12.4(15)T9, DEVELOPM  
ENT TEST SOFTWARE  
System image file is "file:///iou_root/iou_images/Cisco-IOS/Enterprise-12.4.15.T  
9"
```

CCIE R&Sv4: Lab Delivery System

LDS: Example of CFG session

The screenshot displays the Cisco Systems, Inc - CCIE interface. At the top, there is a navigation bar with tabs for "Questions & Diagrams", "All Questions", "Configuration Guidelines", "Help", and "End Session". The "Help" tab is highlighted with an orange circle. Below the navigation bar is a network diagram. The diagram shows three routers: R5, R4, and Sw1. R5 and R4 are connected via their Fa0/0 interfaces (IPs .254.1/24 and .254.2/24) and run EIGRP 10. R5 is connected to Sw1 via its Fa0/10 interface (IP 150.1.YY.1/24). R4 is connected to Sw1 via its Fa0/0 interface (IP .128.130/27). Sw1 has a Sales SVI (IP .0.98/27) and an ISP51 SVI (IP .0.129/27). A BB1 interface is also connected to Sw1. The diagram is divided into OSPF Area 51 (green lines) and ISPBB (red lines). A CommServer is also shown connected to R4. Below the diagram, a question titled "1.1 Troubleshoot Layer 2 Switching" is displayed. The question text is: "Two faults have been injected into the pre-configurations. These issues may impede a working solution for certain portions of this lab exam, and these issues can affect any lab exam section. You must verify that all of your configurations work as expected. If something is not working as expected, then you must fix the underlying problem. Points will be awarded for solving each problem. However, if you fail to solve a particular problem and the injected fault prevents you from having a working solution in any section of this lab, then you will lose points for the fault and the scenario that is not working. NOTE: There are no physical faults. All hardware is in working order, and you do not need to physically touch any device or cable to solve a problem." The question is worth 2 points for solving one fault and 4 points for solving two faults. The question is titled "1.1 Troubleshoot Layer 2 Switching" and is part of a section titled "1.2 Provisioning a robust layer2 Core".

Section 2 of 2 - zeitgeist -

Questions & Diagrams All Questions Configuration Guidelines Help End Session

EIGRP 10

ISPBB

CommServer

OSPF Area 51

ISP51

BB1

Sw1

Sales

1.1 Troubleshoot Layer 2 Switching

Two faults have been injected into the pre-configurations. These issues may impede a working solution for certain portions of this lab exam, and these issues can affect any lab exam section. You must verify that all of your configurations work as expected. If something is not working as expected, then you must fix the underlying problem.

Points will be awarded for solving each problem. However, if you fail to solve a particular problem and the injected fault prevents you from having a working solution in any section of this lab, then you will lose points for the fault and the scenario that is not working.

NOTE: There are no physical faults. All hardware is in working order, and you do not need to physically touch any device or cable to solve a problem.

Solve one fault: Score 2 points
Solve two faults: Score 4 points

1.2 Provisioning a robust layer2 Core

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Lab Access

- Lab Access:

URL: <http://lds-prod-fe-1-api.cisco.com/users/login>

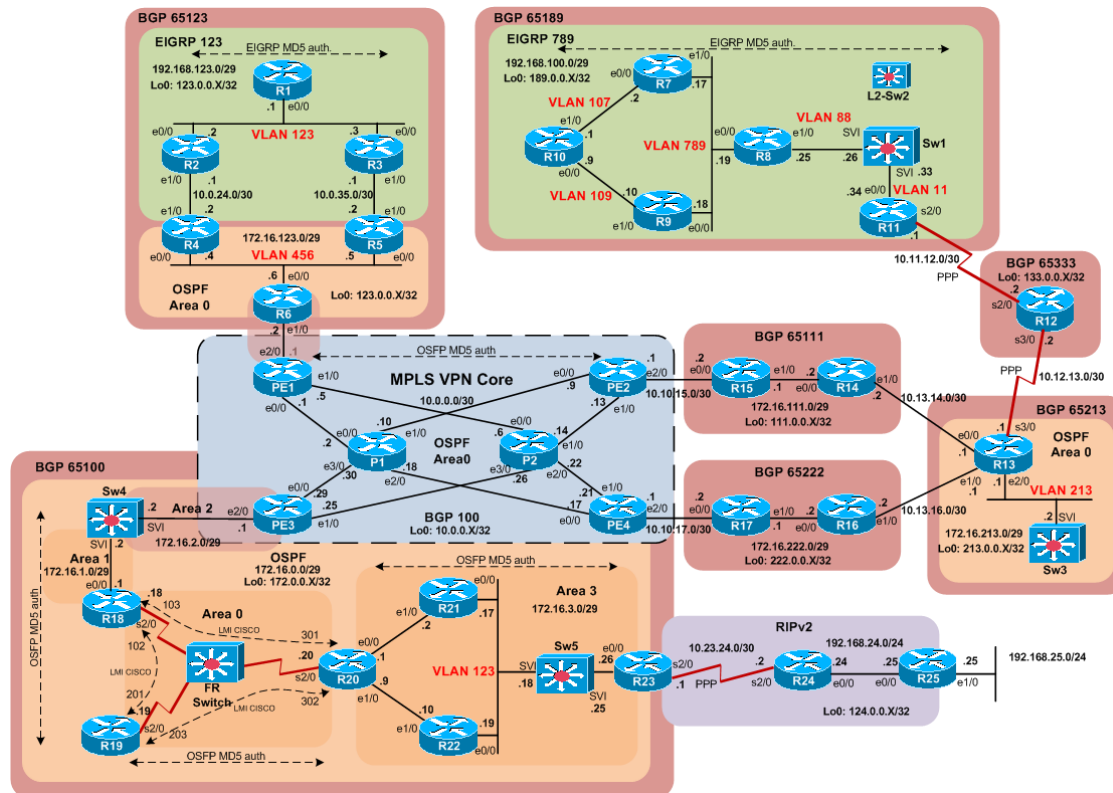
User: [Instructor Provided]

- Timing:

Introduction	30min
Troubleshooting section: 1h max (auto-logout)	1h
Configuration section: until 15h30	➔3:30pm
Debriefing	➔5:00pm

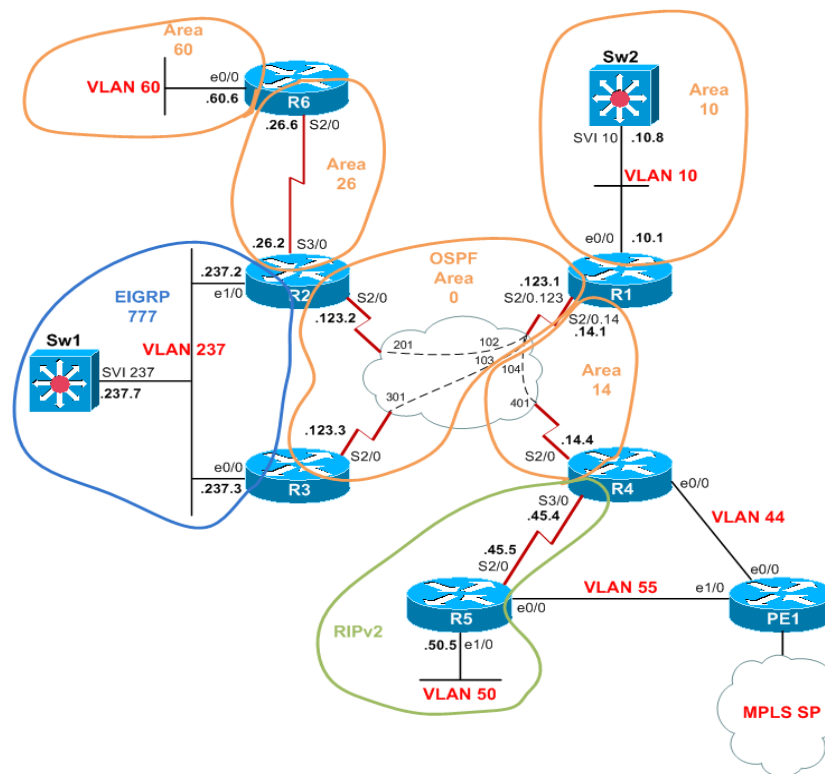
TS Topology

- Virtual devices (IOU + L2IOU)
- Web session will automatically close after 1h! Be aware!
- **READ THE GUIDELINES FIRST!**



CFG Topology

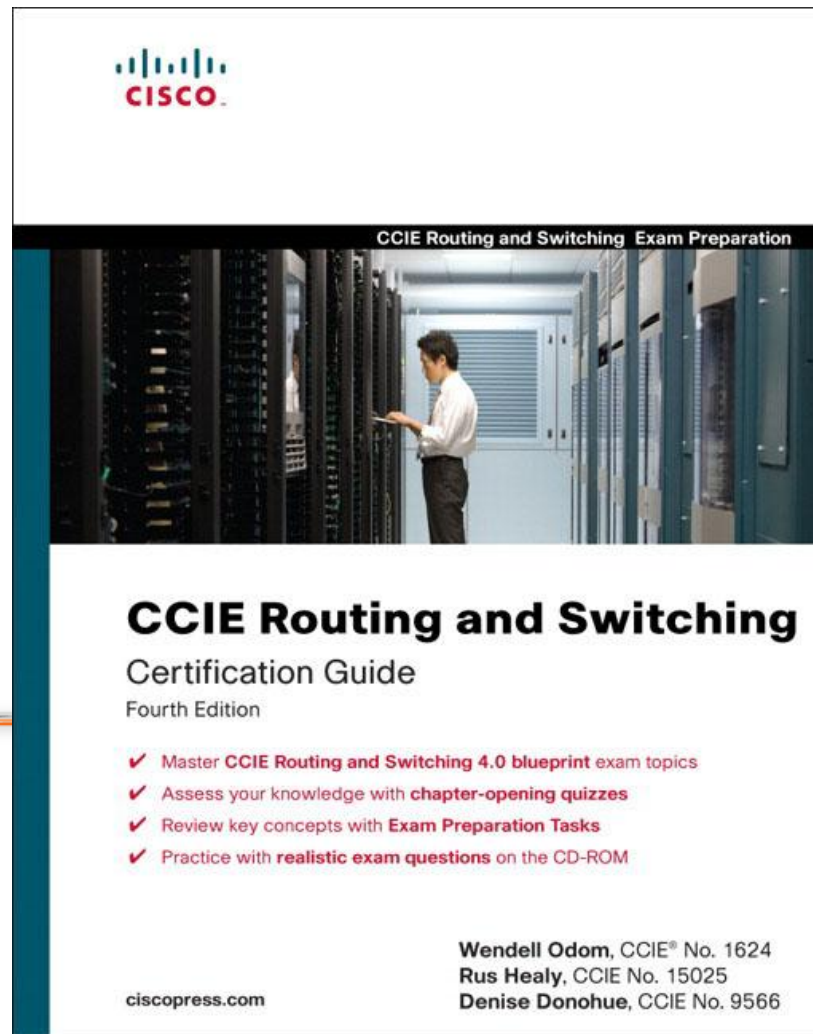
- Virtual devices (IOU + L2IOU)
- Web session will NOT automatically close... Proctor will stop you.
- **READ THE GUIDELINES FIRST!**



Recommended Reading

LTRCCIE- 3001

Learn. Connect.
Collaborate. *together.*



Please complete your Session Survey

We value your feedback

- Don't forget to complete your online session evaluations after each session. Complete 4 session evaluations & the Overall Conference Evaluation (available from Thursday) to receive your Cisco Live T-shirt
- Surveys can be found on the Attendee Website at www.ciscoliveLondon.com/onsite which can also be accessed through the screens at the Communication Stations
- Or use the Cisco Live Mobile App to complete the surveys from your phone, download the app at www.ciscoliveLondon.com/connect/mobile/app.html

1. Scan the QR code
(Go to <http://tinyurl.com/qrmelist> for QR code reader software, alternatively type in the access URL above)
2. Download the app or access the mobile site
3. Log in to complete and submit the evaluations



<http://m.cisco.com/mat/cleu12/>



Cisco *live!*

Thank you.

