Welcome to INE's Presentation of:

Introduction to Networking Technologies

Course Structure

» Time: 9:00am to 3pm (PST) 2/15/17

» Breaks

» This class is being recorded.

» Q&A

Introduction to Networking Technologies

Course Objectives

» For those thinking of pursuing a career in computer networking, but are still investigating, this course will identify what a computer network is, components of a network and potential job roles.

Course Agenda

» What is a Computer Network?

» Components of a Computer Network

» Technologies That Comprise a Network.

» Computer Networking Job Roles

» Computer Networking Job Specialties
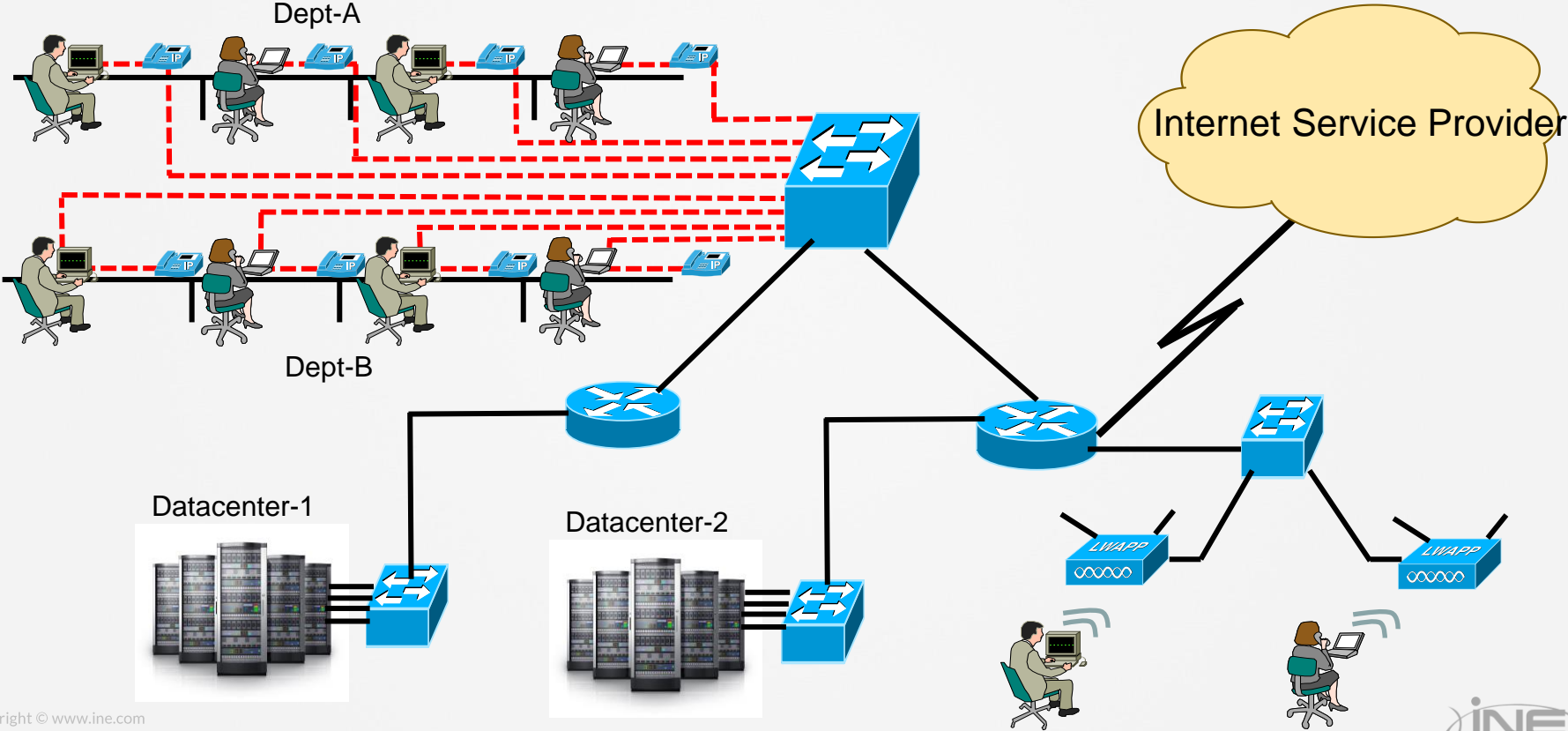
» Where Do I Go From Here?

Course Prerequisites

» **Prerequisite Knowledge**

» **Q&A**

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What is a Computer Network?

What is a Computer Network?

Dept-A

Dept-B

Internet Service Provider

Datacenter-1

Datacenter-2

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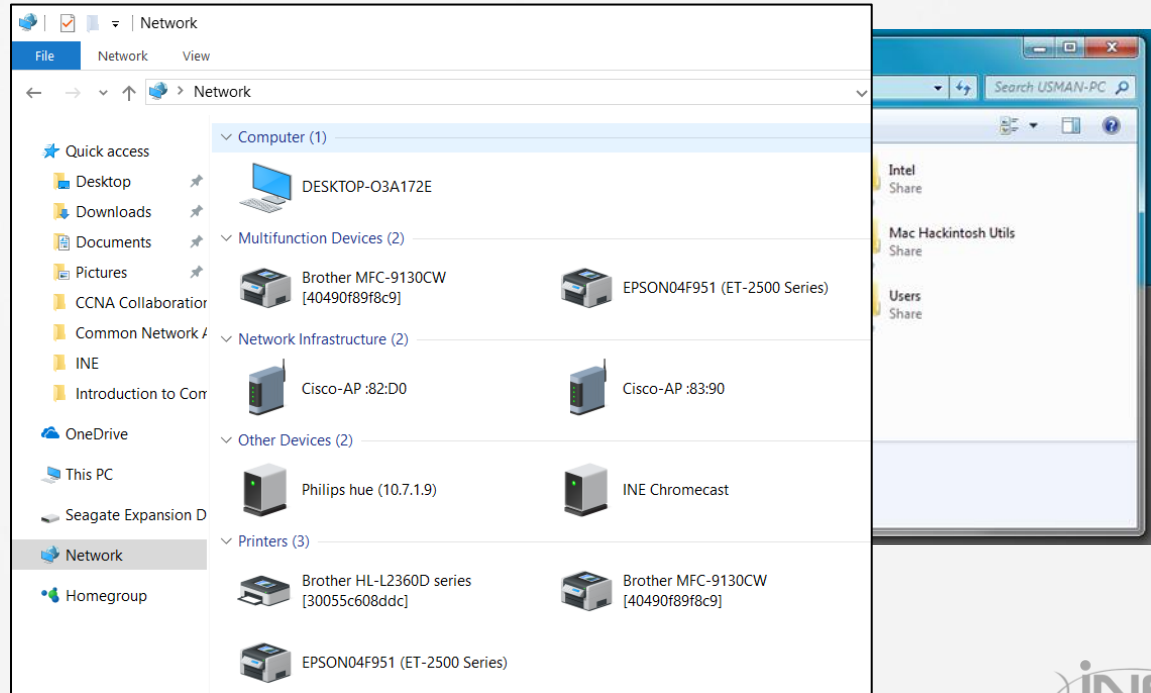
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What is a Computer Network? (2)
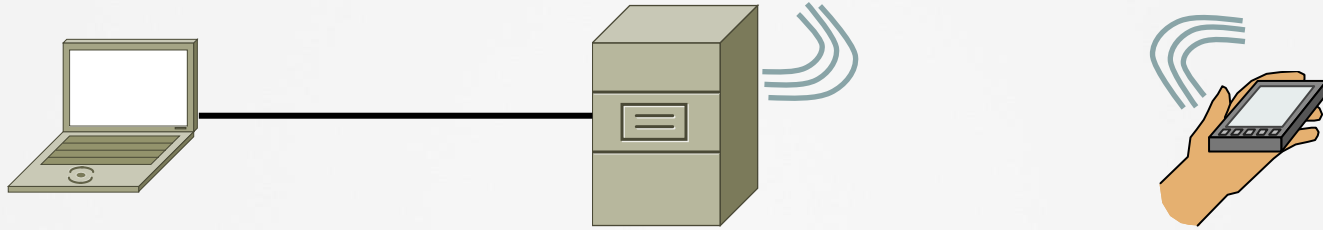
» **Common Vocabulary:**

- LANs versus WANs
- Node or Host
- Local versus Remote Resources
- The Internet

Why do we need Computer Networks?

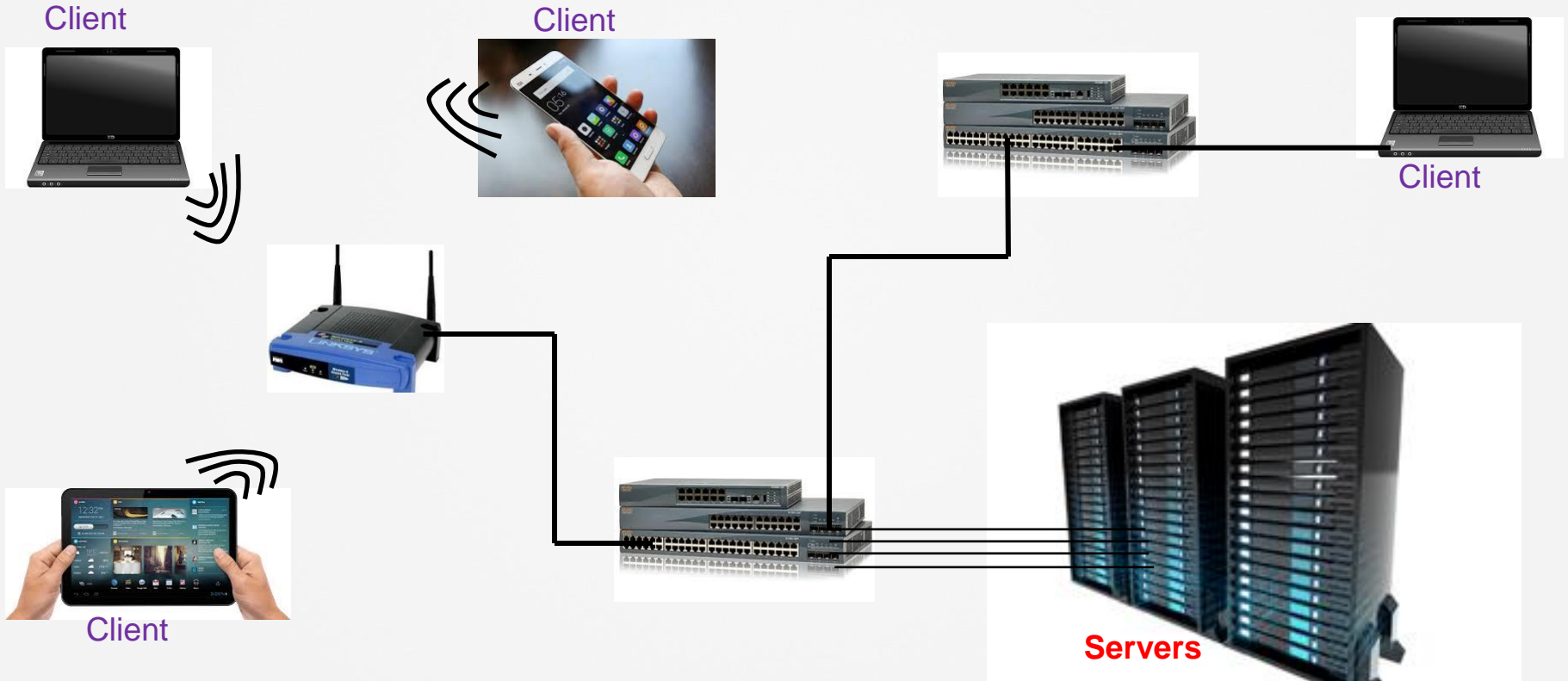» Networks allow us to share things:

- Files
- Programs
- Resources

Components of a Computer Network

What do you find on a Network?

» Servers and Clients

» Local resources vs Network Resources

» Network Hardware Components

» Software

Servers and Clients

Client

Client

Client

Client

Servers

Local and Remote Resources

» Local Resources

- Your own HDD
- Memory
- Keyboard
- DVD-ROM Drive

» Network Resources:

- Networked HDDs
- Networked Printers
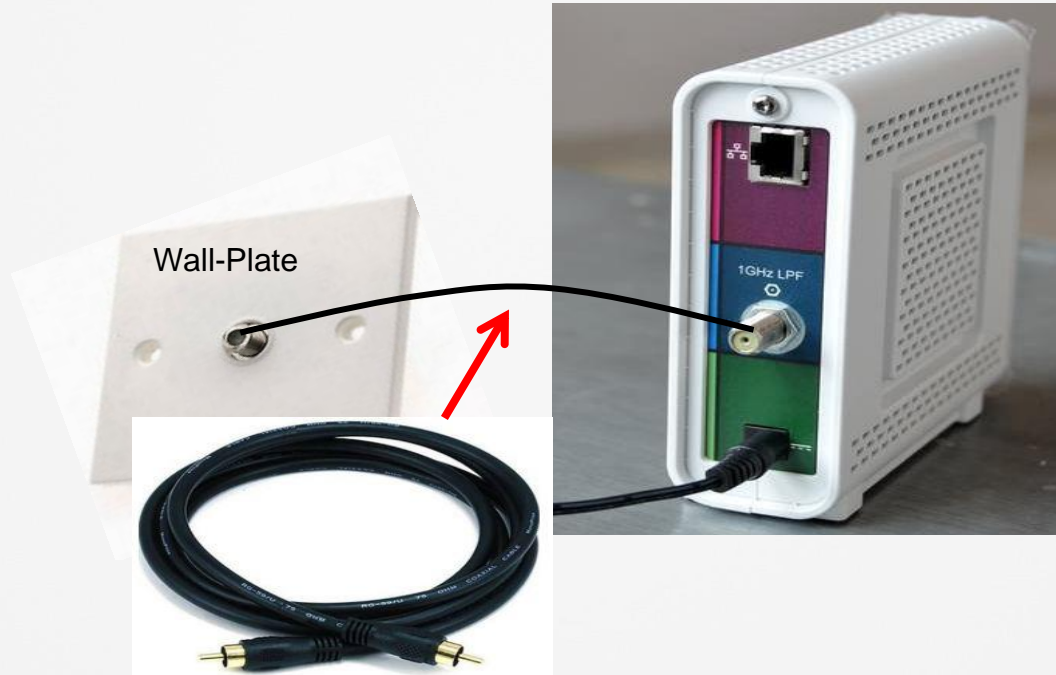- Networked Optical Drives connected to Network Servers.

» **Network Interface Cards, Connectors and Cables**

RJ45   RJ11

Common Network Components – NICs (2)

» Coaxial Cable NICs

Wall-Plate

Common Network Components – NICs (3)

» **WiFi NICs**

Common Network Components - Switches

» Switches

» Routers

Common Network Components

» WiFi Access Points

Common Network Components

» Network Software

- Cisco IOS
- Microsoft Windows (networking component)
- Unix/Linux

Technologies That Comprise a Network

What Technologies are in a Network?

» Routing and Switching

» Data Center

» Collaboration

» Security

Computer Networking Job Roles

Different roles in Information Technology

» Network Architect

» Network Engineer

» Network Administrator

» Technical Support / Helpdesk
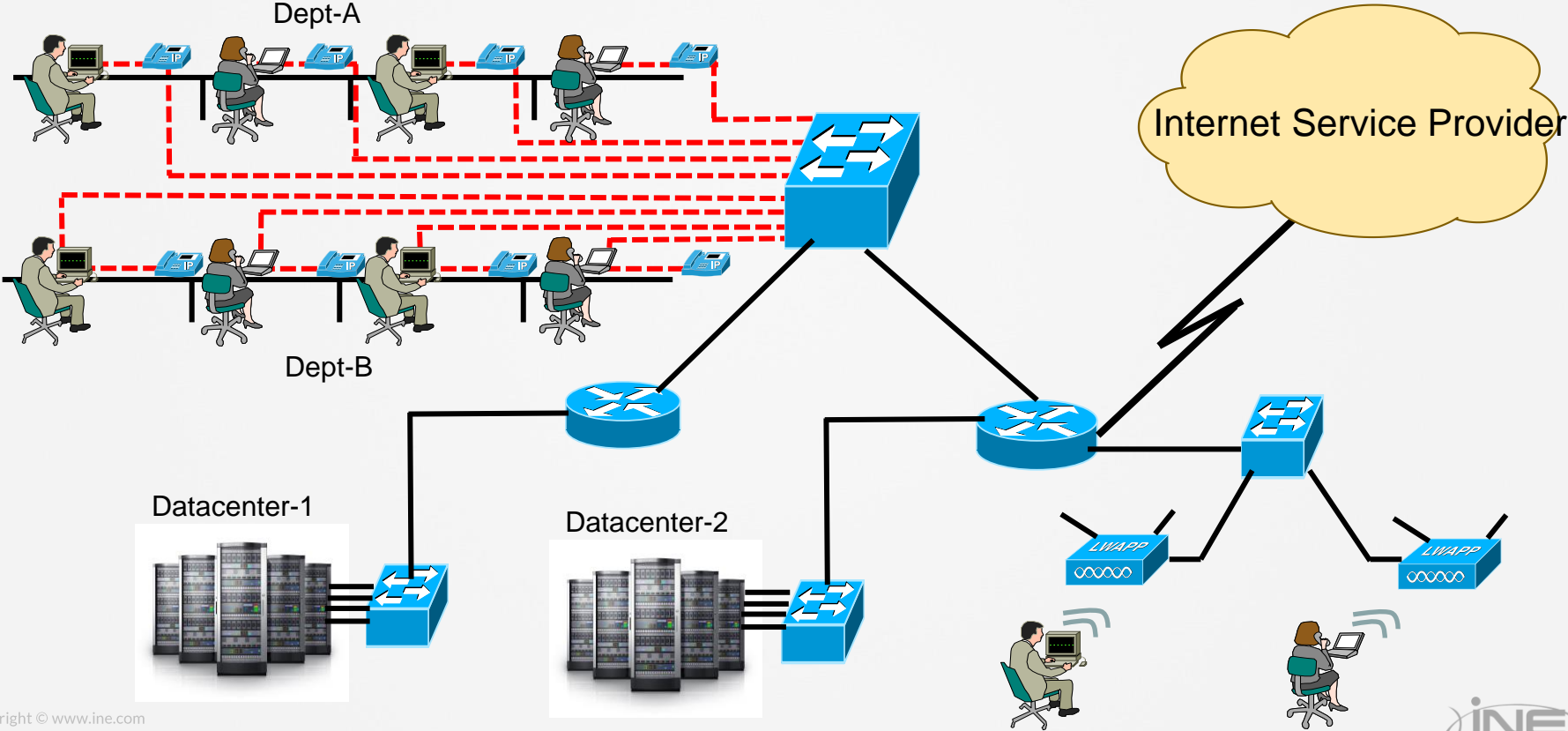
Network Engineers and Architects

» **Network Architects and Engineers:**

- Generally hired to work on larger networks.
- Network Design and Conception
- Prototype Testing
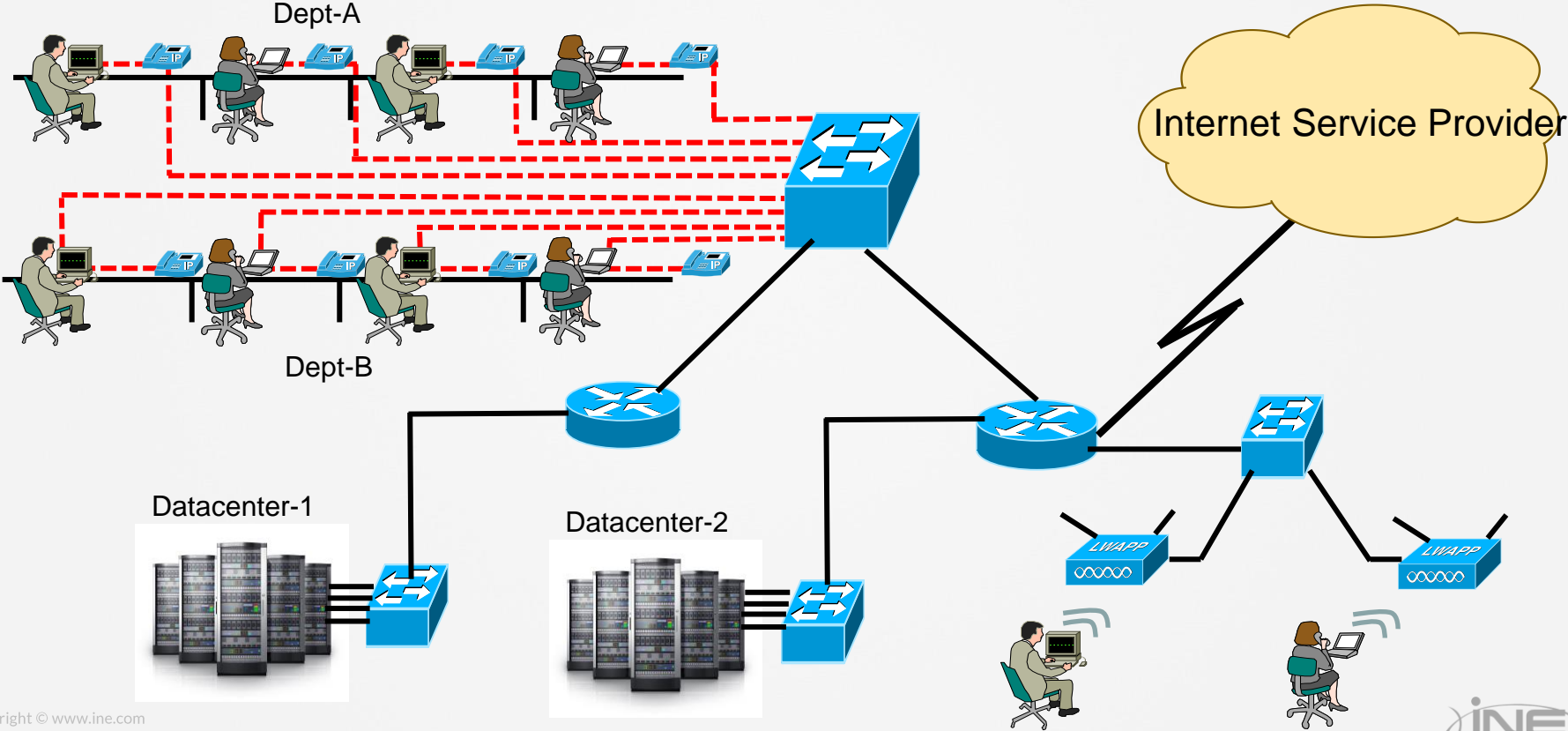- Often hired as consultants rather than W2 employees

» **Architect = Design**

» **Engineer = Implement**

The Network Architect

Dept-A

Dept-B

Internet Service Provider

Datacenter-1

Datacenter-2

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The Network Engineer

Dept-A

Dept-B

Internet Service Provider

Datacenter-1

Datacenter-2

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Network Administrator – Job Role

» May be in charge of servers as well as network infrastructure

- Space available on server for users?
- Capacity planning
- Server backup plans
- Creation and storage of user credentials, files and directories

» Install/Configure new equipment

» Cable equipment

» Implement change requests/Implement upgrades

Technical Support– Job Role

» Phone Support

» Typically provides remote troubleshooting support

» No hands-on installation of equipment.

» Builds great foundational knowledge of software and Network Operating Systems.

Who is right for the job?

» Must be highly organized

» Enjoy learning new things

» Willing to work off-hours

» Critical Thinker (troubleshooting)

» Works well with others

» Ability to sit in front of a computer monitor for extended periods of time

Network Administrator – Pay Scale

» Payscale.com $37-78k (USD)
- http://www.payscale.com/research/US/Job=Network_Administrator/Salary

» Glassdoor.com $63,584 nationally
- https://www.glassdoor.com/Salaries/network-administrator-salary-SRCH_KO0,21.htm
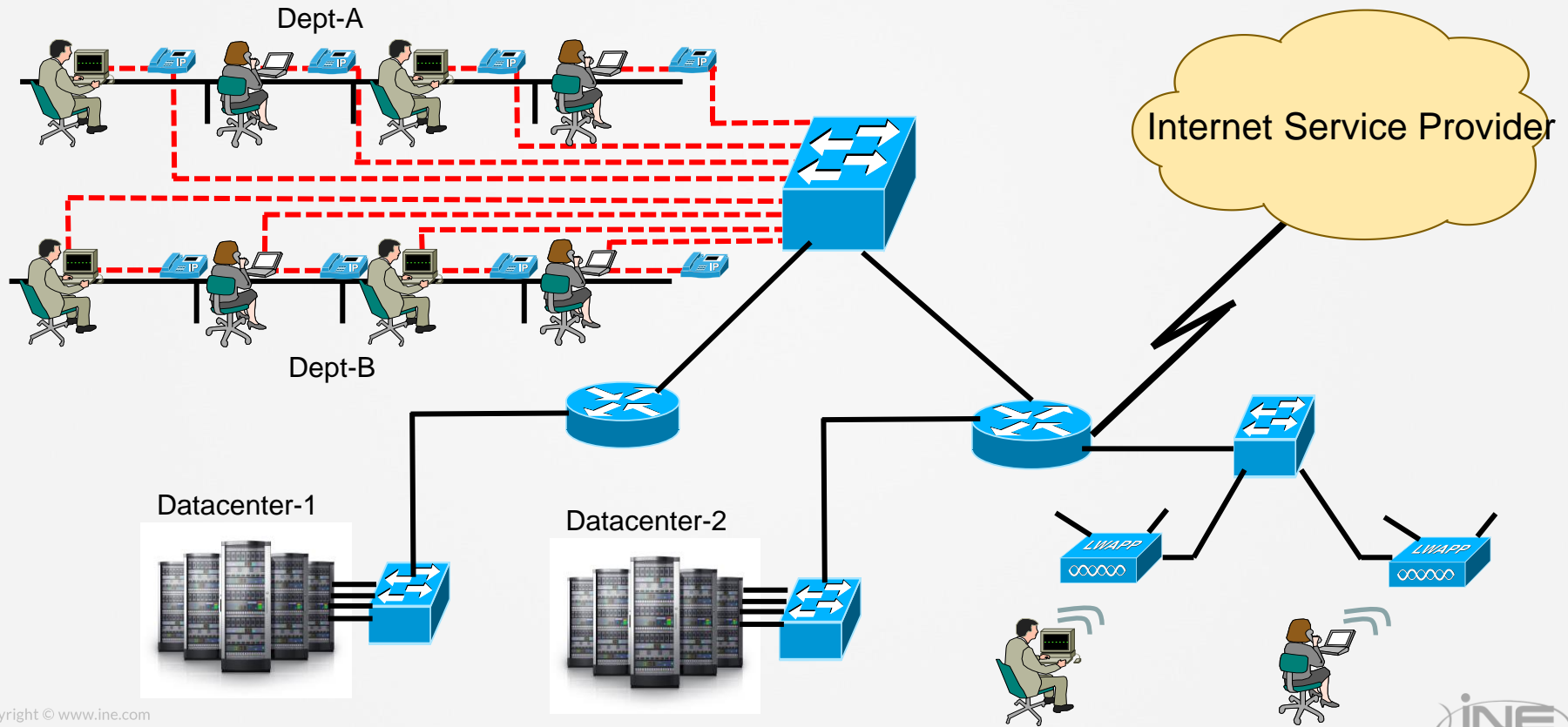
» Salary1.com: $70,951
- http://www1.salary.com/Network-Administrator-II-Salaries.html

» ITCareerfinder.com $71,250 - $105,75
- http://www.itcareerfinder.com/brain-food/it-salaries/network-administrator-salary-range.html

# Computer Networking Job Specialties

Network Specialties

Dept-A

Dept-B

Internet Service Provider

Datacenter-1

Datacenter-2

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Routing and Switching

» Specializing in how to get data from "Point-A to Point-B" across a network.

» Enabling the network to differentiate between different types of data and treat each according to prescribed requirements.

» Identifying various ways to partition networks for basic security requirements and scalability.
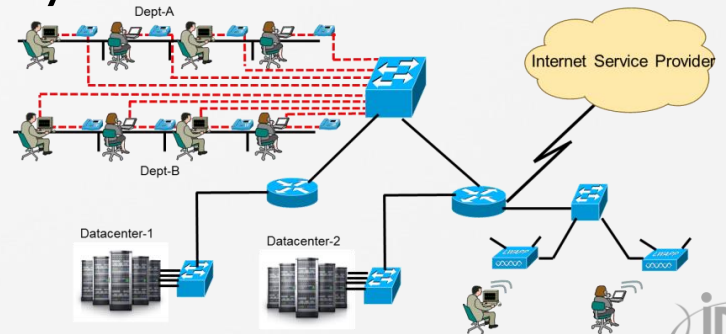
Security

» Identifying and protecting against security threats.

» Implementation of security devices such as Firewalls, Intrusion-Detection, VPNs, and more.

» Device "Hardening"
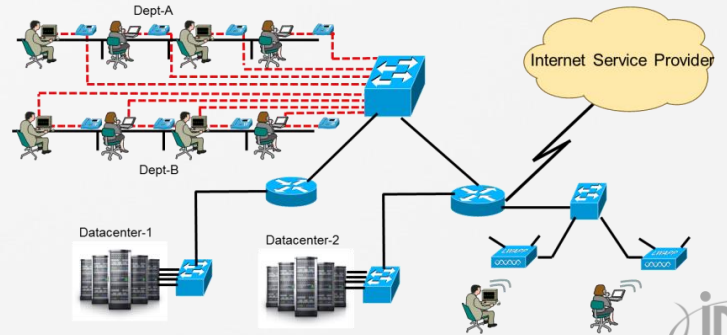
Data Center

» Unify storage, computing, and network resources to simplify a data center.

» Utilize technologies including policy-driven infrastructure, virtualization, automation and orchestration, unified computing, data center security, and integration of cloud initiatives.
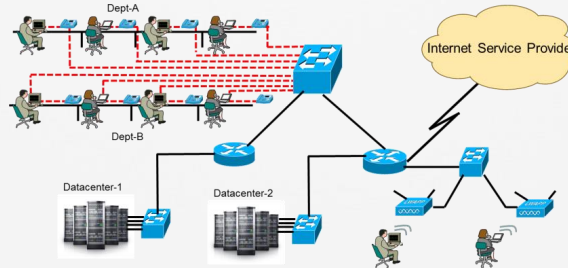
Collaboration

» For network video engineers, collaboration engineers, IP telephony and IP network engineers who want to develop and advance their collaboration and video skills in line with the convergence of voice, video, data and mobile applications
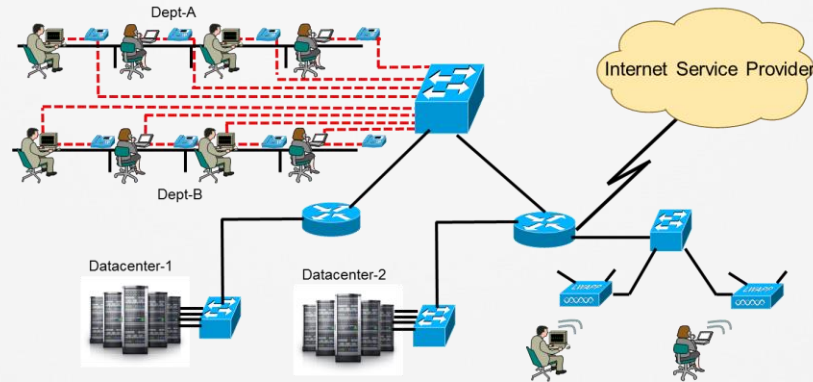
Wireless

» Designing, implementing, and securing Cisco Wireless networks for optimal performance.

» Understanding and implementing features and hardware to improve WiFi performance.
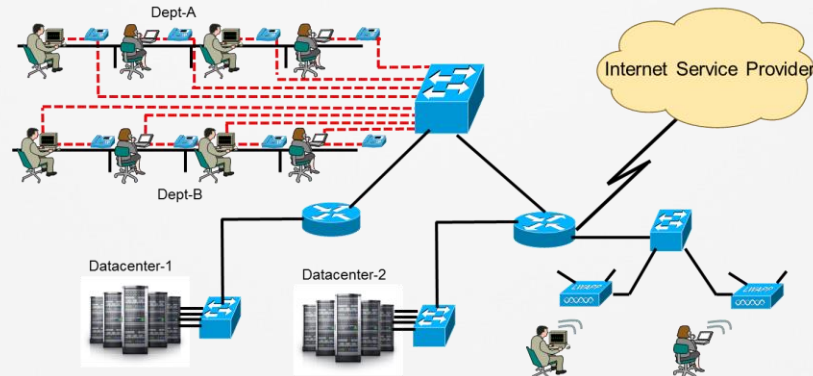
Service Provider

» For service provider network engineers, technicians and designers who focus on the latest in Service Provider industry core networking technologies and trends.

» Configure, implement, and troubleshoot baseline Cisco Service Provider Next-Generation networks, deploy, maintain and improve carrier-grade network infrastructures.
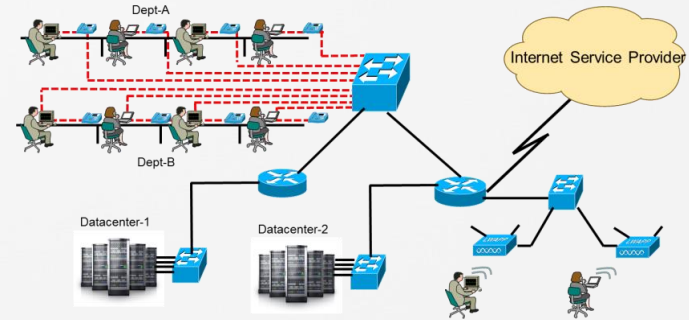
Where Do I Go From Here?

Talk to someone

» Identify a Network Admin at your work or school.

» Ask questions about their job.
- What do they do?
- What kind of experience did they have prior to getting hired?
- What skills do they consider important for their job?
- What kind of roadmap would they suggest for you given your current knowledge, skills, and abilities?

» Watch YouTube videos where Network Engineers are interviewed; "Eli the Computer Guy"

Where do I go from here?

» **Purchase two routers and a switch (low-end).**

- Cisco 3725 Routers (Ebay cost as of 2/2017 ≈ $80.00 USD)
- Cisco 3560 Switch (Ebay cost as of 2/2017 ≈ $100.00 USD)

» **Become familiar with:**

- How to connect your laptop to Console Ports
- LED status and what they mean
- Cabling experience
- IOS Upgrade Procedure / Saving & Loading Remote Configs
- Password Recovery
- Sniffer Traces

Certifications

»Cisco Certifications

- Entry-Level

- Associate

- Professional

- Expert

- Architect

Certifications starting as CC**D**x are specifically geared towards "**Design**".

» Thank you!!