

CS 336 Computer Networks

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Introduction

□ Main Course Page

- <http://www.cs.usfca.edu/~srollins/courses/cs336>

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Chapter 1 Introduction

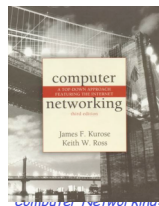
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Computer Networking:
A Top Down Approach
Featuring the
Internet,
3rd edition.
Jim Kurose, Keith Ross
Addison-Wesley, July
2004.

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Chapter 1: Introduction

- What applications do you use that use a computer network?

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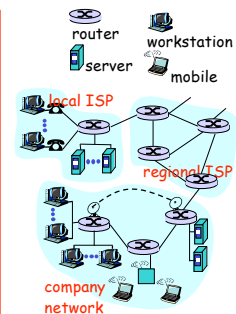
Chapter 1: Introduction

- What applications do you use that use a computer network?
 - We want to understand what is under the hood
- Top-down approach
 - Understand how applications use the network, then understand how the network supports those applications
- Use the Internet as an example

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What's the Internet: "nuts and bolts" view

- millions of connected computing devices: **hosts** = **end systems**
 - examples of hosts?
- running **network apps**
 - examples of applications?



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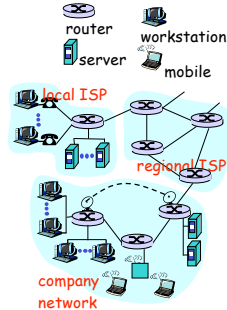
What's the Internet: "nuts and bolts" view

communication links

- fiber, copper, radio, satellite
- transmission rate = **bandwidth**
 - typical bandwidth for modem? wireless?

routers: forward packets (chunks of data)

- what's in a packet?



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What's the Internet: "nuts and bolts" view

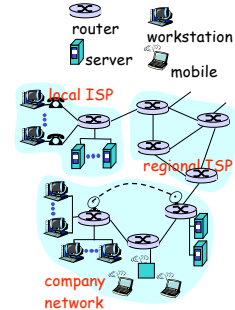
- protocols** control sending, receiving of msgs
 - e.g., TCP, IP, HTTP, FTP, PPP

Internet: "network of networks"

- loosely hierarchical
- public Internet versus private intranet

Internet standards

- RFC: Request for comments
- IETF: Internet Engineering Task Force



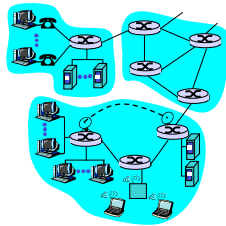
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What's the Internet: a service view

- communication infrastructure** enables distributed applications:
 - Web, email, other examples?

communication services provided to apps:

- connection-oriented reliable
 - example apps?
- Connectionless unreliable
 - example apps?



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What's a protocol?

human protocols:

- "what's the time?"
- "I have a question"
- introductions

network protocols:

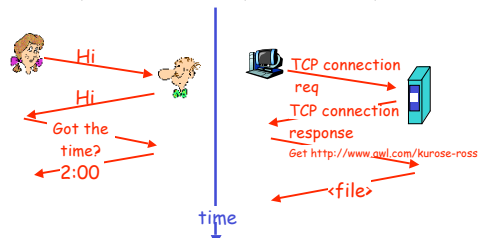
- machines rather than humans
- all communication activity in Internet governed by protocols

protocols define format, order of msgs sent and received among network entities, and actions taken on msg transmission, receipt

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What's a protocol?

a human protocol and a computer network protocol:



Q: Why are protocols so important?

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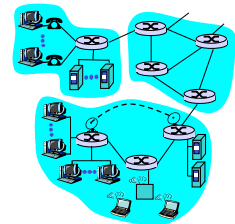
A closer look at network structure:

- network edge:** applications and hosts

- network core:**

- routers
- network of networks

- access networks, physical media:** communication links



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