CS423: Lecture 1, Introduction, How Mail Works

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September 21, 2001
Why Study Networking?

• Because its already part of your life: witness Napster, MP3, the web. Wouldn’t you like to know how it works?
• Because its the hip place to be: the Internet is doubling every 6 to 9 months. Wouldn’t you like it to be all geek (as opposed to greek) to you?
• Because there’s lots of cool work to do. Internet startups are redefining networking and bringing great products to market. Wouldn’t like to know enough to at least get in the door of a great startup?

Now for a whirlwind tour . . . Fasten your seatbelts
HAT TRANSFER ANALOGY

"A Plumed Hat, Please"

HAZELS
HATS
BOSTON

"3 Shipments of Plumed Hats"

"Check Inventory"

HAZELS
MOROCCO

BIGWIG
IMPORT
EXPORT

"Did shipment arrive?"

"Whoa, too fast"

BIGWIG
MOROCCO

BOSTON
POST
OFFICE

RIO
POST
OFFICE

MOROCCO
POST
OFFICE

VARIG
AIR
(LOGAN)

VARIGB.S.
RIO
RIO

CASABLANCA
BALLOON
STATION

Airline

Balloon
MAIL FROM BOSTON TO PARIS

BOSTON

Satellite

PARIS

Ethernet

W/S

W/S
MAIL: POE TO PROUST

"Hi, Marcel"

POE'S
MAIL
PROGRAM

"New mail"

"Did message arrive?"

"Whoa, too fast"

POE'S
TRANSPORT
PROGRAM

MARCEL'S
MAIL
PROGRAM

MARCEL'S
TRANSPORT
PROGRAM

POE'S
ROUTING
PROGRAM

BOSTON
ROUTER

MARCEL'S
ROUTING
PROGRAM

ETHERNET
D.L.
BOSTON

ETHERNET
I/F

SAT.
I/F

SATELLITE
D.L.

Satellite

Ethernet
ON THE ETHERNET

askew

jim

sally

Boom!

Jim Backs off

askew Wins

D1

D2

router
**IP AND ETHERNET ADDRESSES**

128.21.7.8  
ASKEW  
D1  
Network 128.21.*  
D2  
128.21.8.2

128.20.16.13  
MARIA  
D3  
Network 128.20.*  
D4  
128.21.11.4

IP ROUTER
Whois R2?

Remember
R2 is D2

Whois R3?

Remember
R3 is D4
TRANSPORT (TCP) CONNECTIONS

NETWORK

Local Extensions

socket

ASKEW
TCP PROGRAM

Well-known Extensions

MARIA
TCP PROGRAM
ASKEW
TCP PROGRAM

Mail Extension ?
Local Extension x

Connected ME,x

ME,x,Data,Seq 1

ME,x,Ack,Seq 1

Shut Down ME,x

OK

TRANSPORT (TCP) CONNECTIONS

MARIA
TCP PROGRAM
TRANSPORT (TCP) CONNECTIONS

ASKEW MAIL PROGRAM

MARIA MAIL PROGRAM

Let’s boogie

OK

Deliver to "Chuck"

OK

Text is "Hi"

OK

Gotta run

OK