CS123: Lecture 2, Introduction, How the Web Email and Ethernet works

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Anatomy of a Web Transfer
Context 1: PCs/Workstations and Networking

**WOKSTATION ASKEW**

- **CPU**
- **MEMORY**
- **KERNEL**
  - socket
- **MAIL**
- **DISK**
- **Monitor**
- **Ethernet Interface**

Connections:
- CPU Bus
- Ethernet Interface
- Ethernet
Learn the buzzwords: Domains, ISPs, NAPs, POPs
A Web Transfer

- Watch the steps next time you access a web page.
  Looking up host name, transferring data, etc.
Routing the Web packets

- Routing versus forwarding
- Intradomain routing (shortest path) versus inter-domain routing (policy routing)
Anatomy of Email (and Ethernet and Forwarding)
MAIL FROM ASKEW TO MARIA

mail chuck@maria

Hi!

ASKEW

IP ROUTER

MARIA
ON THE ETHERNET

askew

D1

jim

Jim
Backs off

Boom!

sally

D2

router

askew
Wins

D2
IP AND ETHERNET ADDRESSES

128.21.7.8          128.20.16.13

ASKEW               MARIA

D1                  D2

Network 128.21.*    Network 128.20.*

D3                  D4

128.21.8.2          128.21.11.4

IP ROUTER
Whois R2?

Remember
R2 is D2

Whois R3?

Remember
R3 is D4

D2 R3 TH MH Data

D4 R3 TH MH Data
TRANSPORT (TCP) CONNECTIONS

Local Extensions

socket

NETWORK

Well-known Extensions

ASKEW
TCP PROGRAM

MARIA
TCP PROGRAM
TRANSPORT (TCP) CONNECTIONS

**ASKEW**
TCP PROGRAM

Mail Extension ?
Local Extension x

Connected ME,x

ME,x,Data,Seq 1

**MARIA**
TCP PROGRAM

ME,x,Ack,Seq 1

Shut Down ME,x

OK
TRANSPORT (TCP) CONNECTIONS

Let's boogie

OK

Deliver to "Chuck"

OK

Text is "Hi"

OK

Gotta run

OK