Precept 5

Router & Assignment 2

How VNS works

• Just informational
• You don’t have to know it to finish assignment

Your VR Client

• Receive a Raw Ethernet Frame
• Analyze headers to decide actions
• Modify the frame
  • e.g., decrement TTL, update checksum
• Or generate new frame
  • e.g., ARP reply, ICMP echo reply
• Specify interface & Send the new frame to VR server

How VNS works

How Router works

• Scenario:
  • A TCP connection to one application server

1. ARP Request on eth0: How has IP3?
1. ARP Reply on eth0: eth0 HW has IP3

2. ARP request on eth1: Who has IP3?

3. IP packet on eth0: destined for IP3

4. ARP reply on eth1: HW3 has IP3

5. IP packet on eth1: HW3 in Ethernet header. Destined for IP3

Big / Little endian

- Network order: big endian
- Host order: usually little endian (x86)
- Functions:
  - htonl, htons
  - ntohl, ntohs
Some Exam Questions

- Spring'11 Midterm Q1
- Spring'10 Midterm Q1
- Spring'09 Midterm Q4
- etc.