CSET 2200

Routing (RIP) and VLANs

PC Example from last week

Routing Information Protocol (RIP)

- Distance Vector routing protocol
- Occasionally broadcasts all routes
- Routers add one to each route before resending
- Hop count max of 15 (16 is infinity)

Loop protection

- Split Horizon (Don't transmit out receive int)
- Poison Routes
- Hold Down timer

Example

RIP v1 vs v2

- v1 used all broadcasts
- Containe no mask information
- v2 uses multicast
- Also transmit subnet info

RIP Implementation

Other Routing information

“Advanced” Layer 2

- VLANs
- Spanning Tree

Virtual LANs

- Allow a switch to handle multiple broadcast domains
- 802.1q is the IEEE standard
- Uses the tag field of the Ethernet header

VLAN (Contd)

- Used to seperate layer 3 networks
- Security and or Management reasons
- Need a router to route between them

802.1q

- Uses 0x8100 in the Ethertype field to identify tag
- Adds a 3 bit QoS field
- Adds a 1 bit Drop Eligibile bit
- 12 bit VLAN id

VLAN id

- VLAN 0-4095
- 0 and 4095 reserved
- 1 is normally the default

Trunk ports

- Allow a single cable or link to transit multiple VLANs
- Packets on the trunk are tagged
- One VLAN may be untagged

Access ports

- Access ports transmit packets untagged
- Only contain a single VLAN

Uses for VLANs

- Voice
- DMZ
- Guest Networks
- Segregtion of other traffic

Configuring VLANs

- Done on the switch
- Cisco switch ports have multiple modes
  - trunk
  - access
  - dynamic

```
interface gi0/1
switchport mode trunk
```

```
interface gi0/2
switchport mode access
switchport access vlan 10
```

Router interfaces

- Most router support trunk interfaces
- Can configure subinterfaces on different vlans
- Required to route between VLANs

Example configuration

Questions

Next time - STP (Not stone temple pilots)

- Spanning tree