Nodes

Initial knowledge/state
- # of interfaces
- Name (MAC address)
- Other things (configuration)

Want to minimize: Why?
Nodes

Run some program
- Usually event driven
  - Respond to
    - Booting up
    - Receiving Packets
    - Timer Alarms
- When processing event
  - Update local state
    - Send one or more packets
  - Run computation
  - Other things?
Anything a node knows is either
- provided initially (name/# of interfaces)
- discovered from messages
Protocols

- Solve problems across the network.
- Specify the actions at each node.

Example

Physical

A's perception

How to discover what interfaces are connected when A first boots.
Send data from Palin $\rightarrow$ Idle

Chapman

Gilliam

Jones

Palin
\[ \text{not relevant} \]

\[ \text{Palin} \]

\[ \text{not relevant} \]
Protocol?
Lab 1 & 2

- Write program to run on switches to solve problems

Lab 1

Use flooding for forwarding.

Handle loops.

See handout!
Lab 1

It might appear hard from just the handout.

We will solve the theoretical part of the problem in class before due date.

Technology Setup

(Briefly)
What is a packet?

[Diagram of a packet structure with sections for header and data]
Node [both host, switch]

Look at header to decide what to do.
Alternative?

Just look at where data came from

Circuit Switching
Why circuits?

- Used in traditional phone networks
- Simple switches
  [Originally people]
  Why?

- Predictible
Why packets?

- Efficiency

- Resilience
Packets vs Circuits Today