OSPF Working Group

Fred Baker filling in
for John Moy

Agenda:

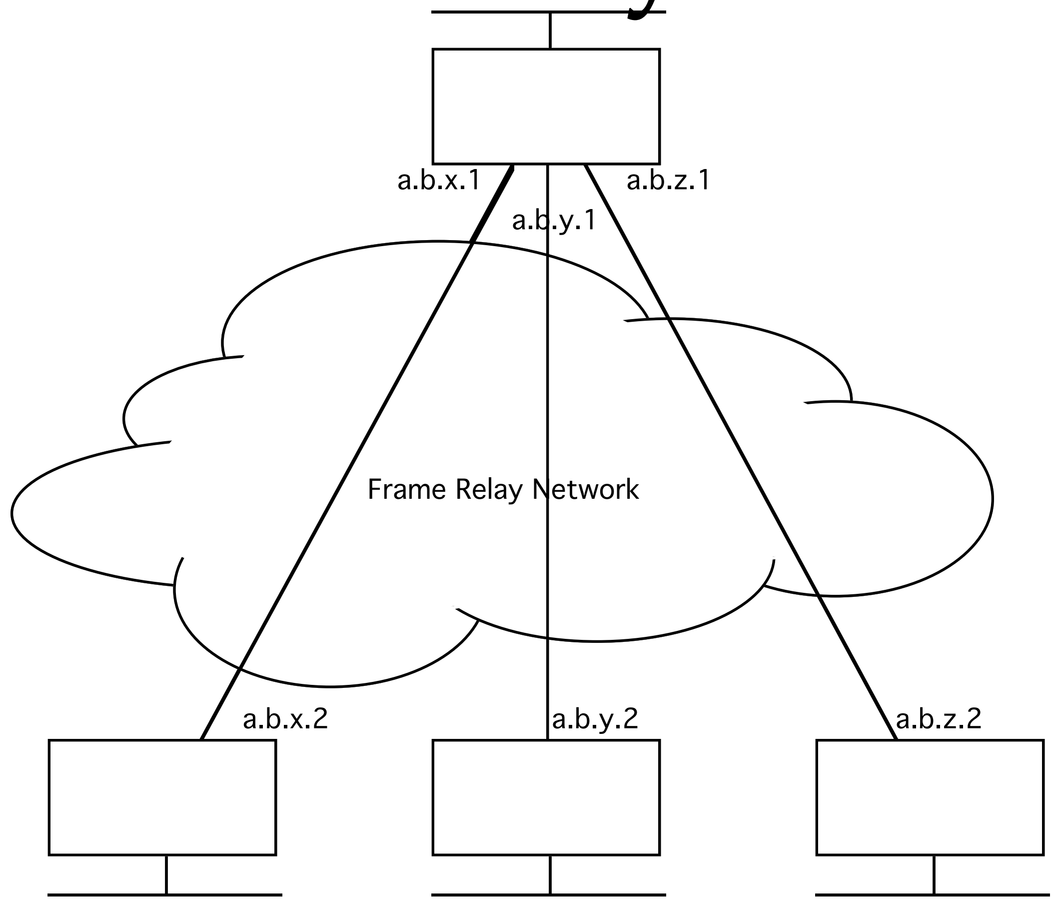
- OSPF MIB -> Draft Standard
- Authentication scheme (Christian Huitema)
- Scaling Testing performed at COS (Paul Serice)
- Point-to-MultiPoint Interface
- IP Forwarding MIB/CIDR

OSPF Point to Multipoint Interfaces

Problem Statement

- Star Networks on Frame Relay
- Downfalls

Star Networks on Frame Relay



Downfalls

- Much Configuration Required
- Utilizes Many IP Addresses
- Large LSAs and/or many of them

Existing Approaches (Osmund's proposal)

- Unnumbered Point to Point Interfaces
- NBMA Networks

Unnumbered Point to Point Interfaces

- requires many OSPF interfaces to be configured
- Router Links LSA has a 12 byte record per DLCI
- Requires management of DLCIs as separate interfaces in SNMP
- How does this relate to Frame Relay SVCs? If circuits come and go, do we want interfaces to come and go?

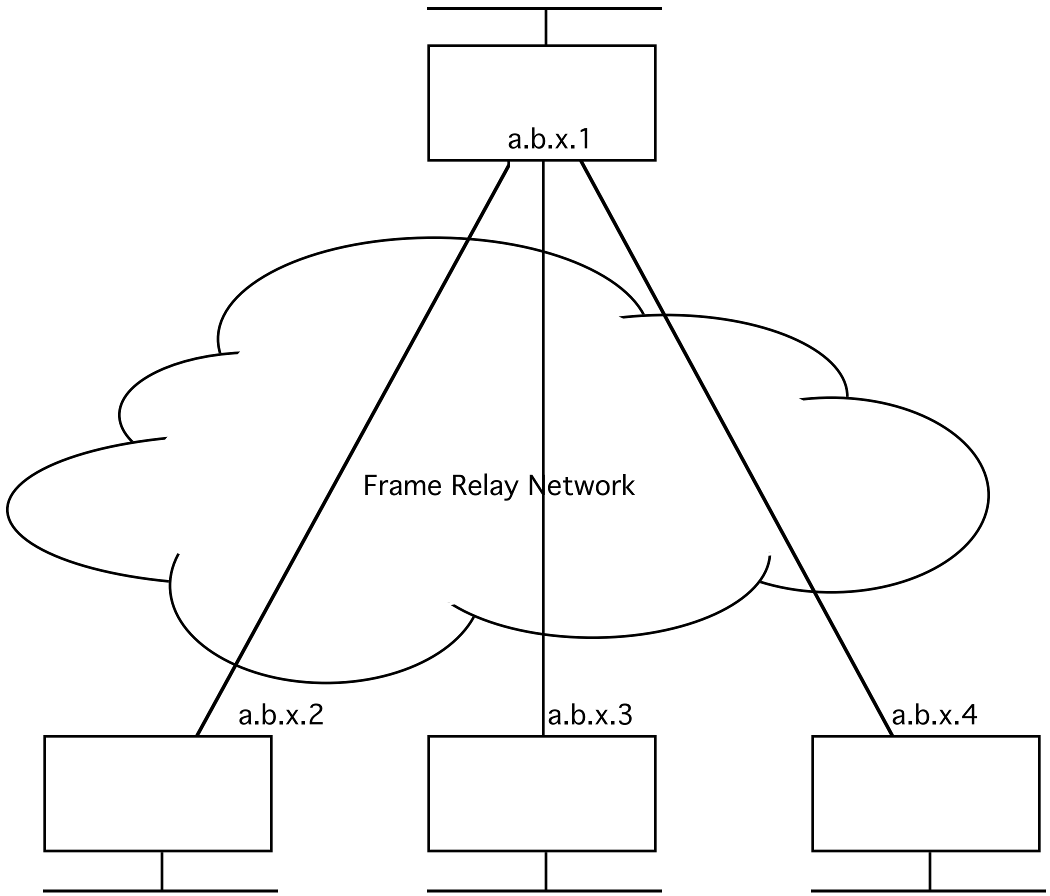
NBMA Networks

- requires many OSPF interfaces to be configured
- requires an IP Address and 255.255.255.252 or wider subnet per DLCI
- Router Links LSA has a 12 byte record per DLCI
- Network Links LSA per DLCI
- DR/BDR Election per DLCI
- IP Address simplifies SNMP Management

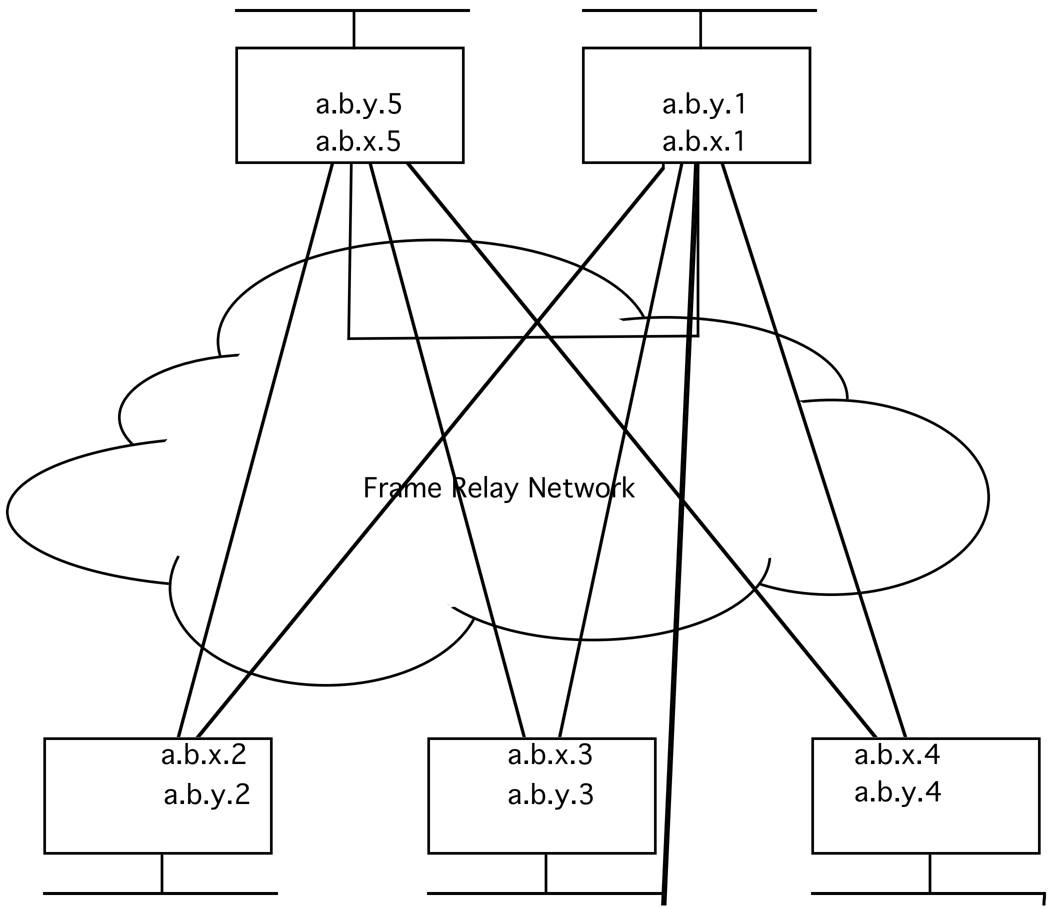
Point to Multipoint Interface

- Single Interface describes the Star
- Multi-Star Networks
- Subnets with differing parameters
- Reasons for the approach

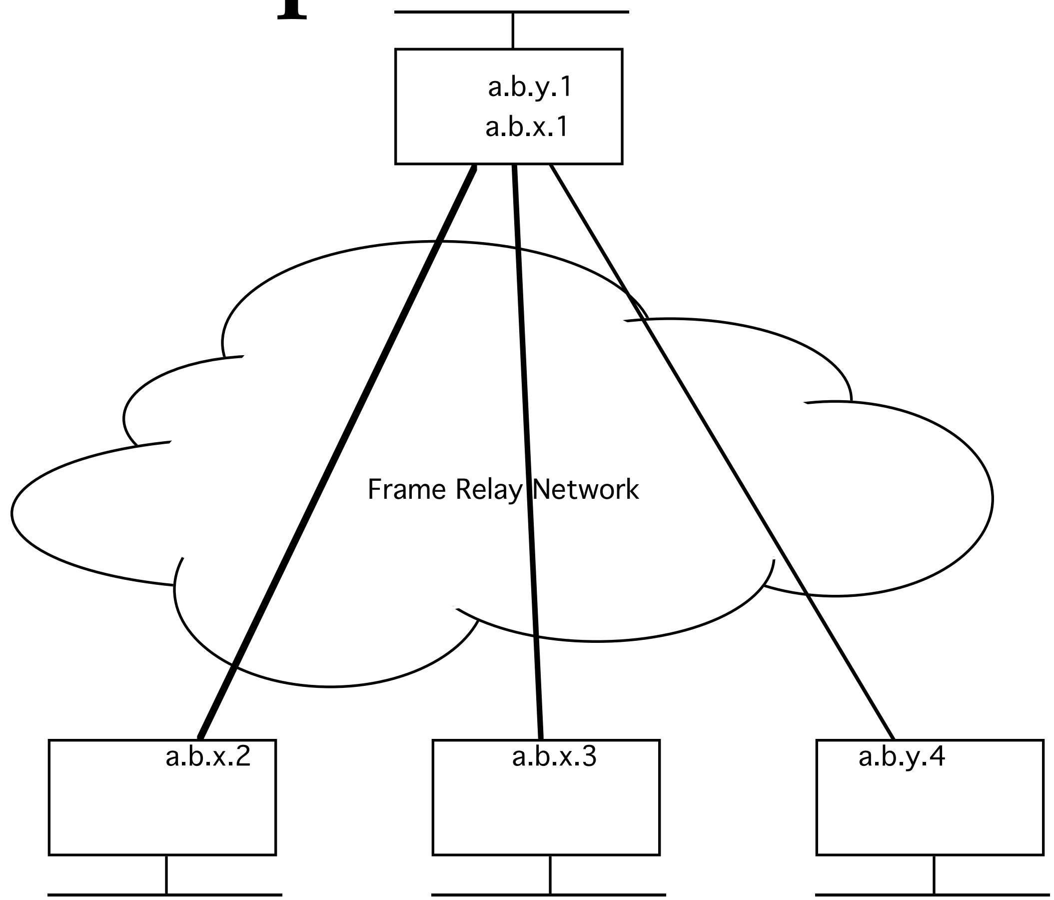
Single Interface describes the Star



Multi-Star Networks



Subnets with differing parameters



Reasons for the approach

- requires fewer OSPF interfaces to be configured
- requires one subnet for many DLCIs
- Router Links LSA has a 12 byte record per DLCI
- Additional 12 byte record for subnet or host address
- no DR/BDR Election
- IP Address simplifies SNMP Management

Route Control MIBS

- IP Forwarding MIB
- CIDR Route Table
- Policy Variable is at issue
- Route Precedence Table
- Route Leaking Table

IP Forwarding MIB

A Brief History of the subject

- Originally ipRouteTable in MIB-II
  - single route to destination
- Router Requirements WG c. 1991
  - multiple routes to destinations
  - routes of multiple policies
    - policy is defined by the protocol
    - therefore has routes from multiple protocols

CIDR Route Table

How am I forwarding Packets?

- Number of CIDR Route Entries
- Instance:
  - Destination Address + Mask
  - Policy/Protocol
  - Next Hop IP Address

Policy Variable is at issue

is Policy always TOS, or can it refer to some other protocol's policy table?

- now can refer to upper layer policy table; implementations?
- Some would like to see policy ALWAYS be TOS
- If it is always TOS, then we don't need protocol in the instance

Route Precedence Table

how do I select among equivalent routes generated by different protocols?

- Optional Table
- Prioritize Routing Protocols
- Smallest Positive Number = Highest Priority
- Objects:
  - Protocol Type - INDEX
  - Route Precedence - 32 bit Positive Integer

Route Leaking Table

What routes should which protocol propagate?

- Optional Table
- Routes from <protocol> should be leaked by <protocol>
- Simple Boolean
- Objects:
  - Importing Protocol - First Index
  - Imported Protocol - Second Index
  - Import? YES/NO