

IPVLX Problem Statement

IETF 60

Erik Nordmark

erik.nordmark@sun.com

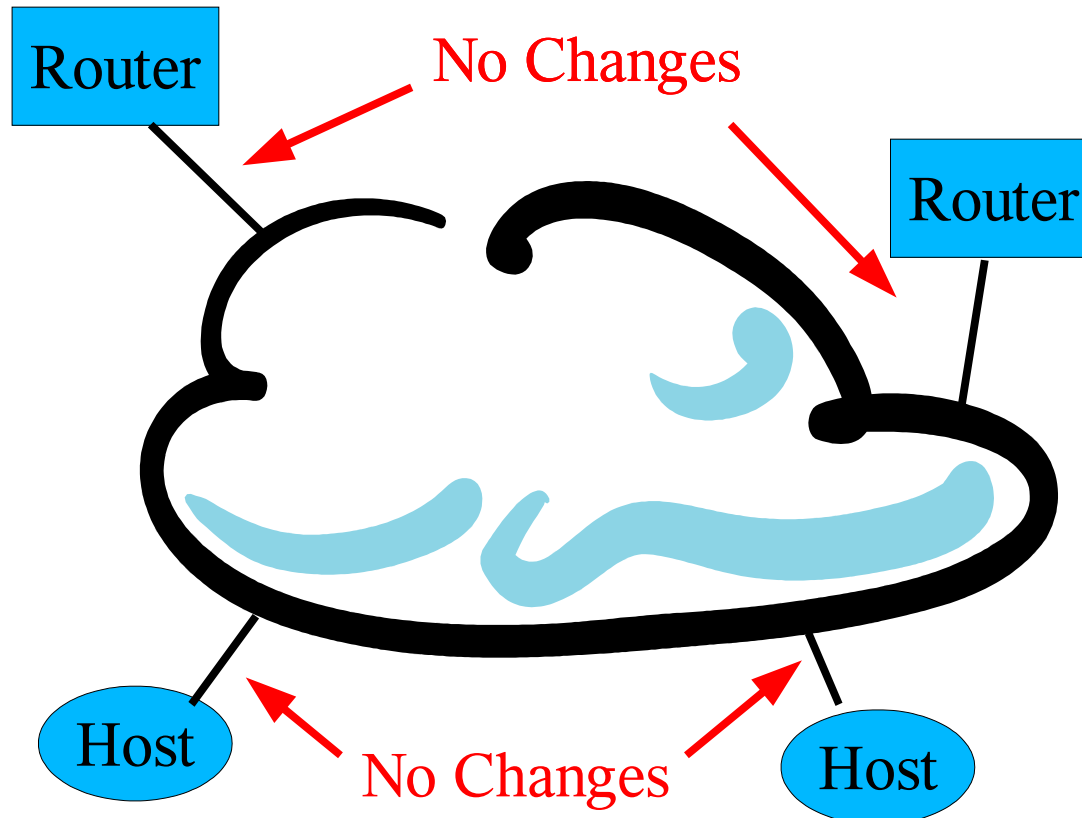
Motivation

- Large network, e.g., a campus network
- Layer 2 technologies (bridges) have some benefits
 - Zero configurationand some disadvantages
 - Limitations caused by no hop count and spanning tree protocol
- IP routers have some benefits
 - Flexible routing which can exploit redundant paths
 - Robust thanks to ttland some disadvantages
 - Must change IP address when host moves, etc

Task

- Combine the best properties of L2 technologies and IP routers
- Form such hybrid for carrying IP traffic across the network

Constraints



Desirable Properties

- Zero configuration of the new network elements
- Mobility without changing IP address
- Robust against failures and misconfiguration
- No additional IP address usage over today's LAN
- Quick failover
- Shortest pairwise routes
- Exploit redundant paths for aggregate capacity
- No changes to hosts, routers, or bridges
 - Neither implementation nor configuration

- For IPv4 as well as IPv6
- “Do no harm” with respect to security
 - For instance, don't prevent Secure Neighbor Discovery
- Multicast as well as unicast