Routing Arbiter Overview

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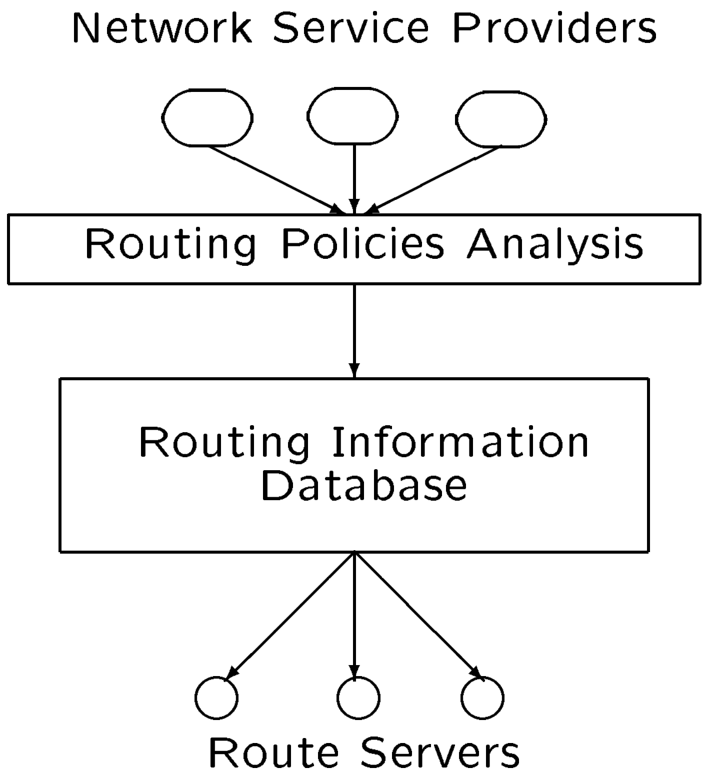
Participants

- Collaborative effort of USC Information Sciences Institute (ISI), T.J. Watson Reseach Center, IBM Corp., and MERIT

- ISI and IBM—primary responsibility for overall architecture, software development, and new routing technology

- MERIT—primary responsibility for the design and implementation of the network management architecture, and operation of the overall system


Network Service Providers
Routing Policies Analysis
Routing Information
Database
Route Servers

Routing Arbiter Data Base

- Vehicle for
  - documenting and sharing routing policy information
  - analyzing the interaction among policies; assisting in detection of inconsistent or conflicting policies
  - promote routing coordination through the Internet
- Contains: domain level connectivity, aggregation polices, transit policies, source and destination policies
- Used to generate Route Server configuration files; files control the flow of routing information
- Future roles: e.g., SDRP routes.

Route Server: Purpose

- segregates control over the exchange of routing information among attached clients
  - routing information exchange is controlled via configuration files (based on the information from the RADB)
- enforces routing stability
- simplifies configuration
- simplifies routing information exchange (eliminates peer-wise routing)
  - client domains peer only with the RS, and not with each other
  - provides proxy aggregation
  - provides specialized routes (realized via SDRP)

Route Server: Description

- Two routing protocols, BGP-4 and IDRP
  - BGP-4—IP only
  - IDRP—IP, CLNP (IPng in the future)
- Utilizes “third-party” capabilities of routing protocol (NEXT_HOP)
- maintains multiple “views”—one per client domain (or a group of domains with the same policies)
  - customizes routing information for individual client domains
- use of RS is not mandatory—direct peering between clients on the NAP is allowed

RA-Network Operations Center

- SNMP based
- Responsible for RS operations
- Operational statistics gathering related to the operations of the RA

Advanced Routing Services

- Support for multi-media NAPs
- Handling verification and enforcement of transit policies
- Support for ToS routes
- Support for provider selection
- Support for source demand route construction
- Support for alternate path routing
- IPng routing
- Support for Multicast routing
- Scalable Route Server