Routing Over Large Clouds Working Group

Monday, 25 July 1994

13:30 - 15:30

16:00 - 18:00

ROLC Agenda

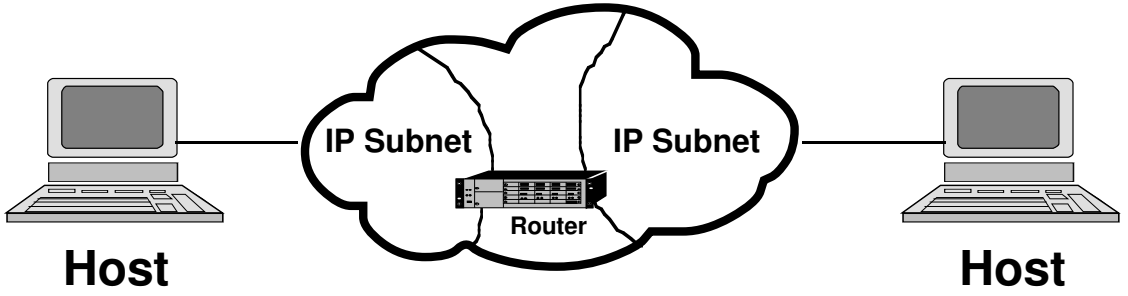
- **Bash the agenda**
- **Discuss overall WG goals and schedule**
- **Discuss technical problem statement, requirements, and goals**
- **Discuss NHRP draft**
- **Discuss future direction, assign work items**

Problem Statement (paraphrased from the charter)

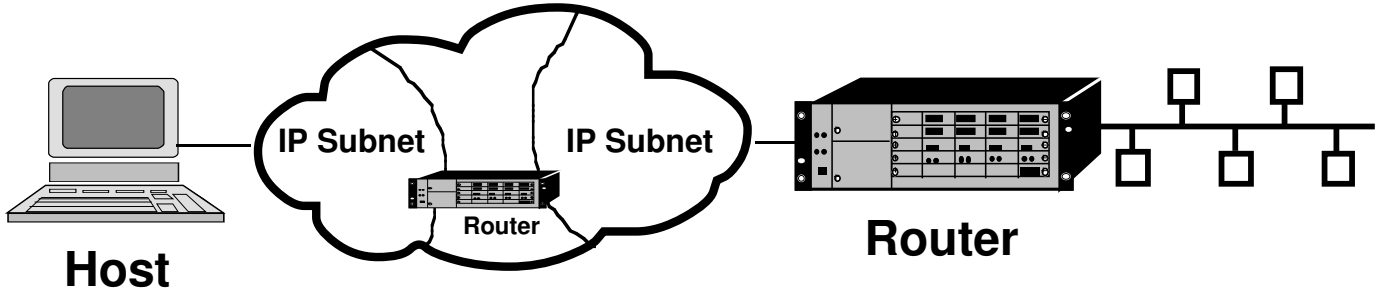
- **Analyze and propose enhancements to IP routing over large "shared media" link layer (with respect to IP) networks**
  - **ATM**
  - **Frame Relay**
  - **X.25**
  - **SMDS**
  - **etc.**
- **Avoid "extra hops" when routing IP**
  - **Defined as IP datagrams leaving and re-entering the same link-layer cloud as a result of an IP routing decision, such as when routing between different IP subnets overlaid on the same cloud**

Problem Statement (continued)

- **Between terminals on same cloud**



- **From terminal on cloud to "optimal" next hop, for off-network destinations**



- **Plus transit (router-router, etc.)**

Requirements (from Seattle)

- Enable communications between two entities in different IP subnets on the same cloud.
- Support policy restrictions (cannot subvert filtering, etc.).
- Be compatible with existing routing protocols.
- No new infrastructure deployed in order to support this.
- Must apply to multiple media and routing technologies.
- Must be loop free.
- Support for complex cases should not unduly burden simple cases.
- This should be applicable to other internetworking protocols (and not just IP or IPng).
- Support routing hierarchies and aggregation.
- Operate in the presence of multiple layers of routing aggregation, including aggregates which cross the cloud boundary.

Goals (from Seattle)

- Do not hold up the simple case to solve the complex case (time to market).
- The address resolution should be effective and cheap in terms of network resources.
- Be decoupled from specific infrastructure, both media and routing, as much as possible (don't assume ATM).
- The solution should converge to desirable routes.
- Be extensible to handle QOS (and other new features) in the future.
- Be able to determine the path before having sent any data packets over it.
- Should be diagnosable.
- Should be deterministic.
- Should work on a cloud where not all attached routers are NHRP-capable.
- Reasonable robustness in the face of misconfiguration.
- Non-goal: the working group is not trying to couple this work to link layer routing (this would involve significantly more complexity).