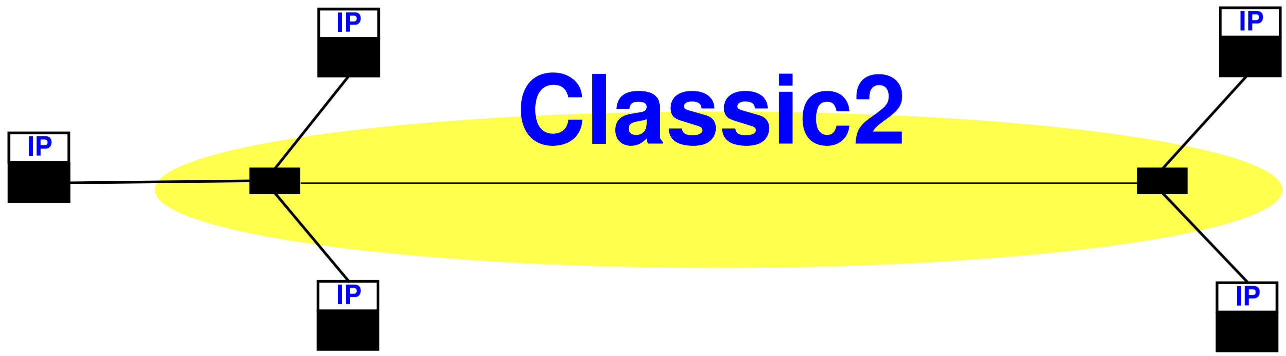

RFC1577 Update Status

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Classic2 Update Status

Changes to RFC1577

- **Pointer to Classical MIB I-D for setting of variables**
- **Single ATMARP server address to ATMARP server list, configurable via the MIB**
- **RFC1626 text replaces MTU section (RFC1626 will be obsoleted)**
- **Client registration procedures from In_ATMARP packet format**
- **Clarification of variable length ATMARP packet format**
- **Clarification of ARP_NAK packet format**
- **Clarification of In_ATMARP packet format for null IPv4 addresses**

Classic2 Update Status

Suggested Additional Text

To handle the case when a client has more than one IP address within a LIS the following is suggested:

1. **If using PVCs, when an InATMARP_Request is received an InATMARP_Reply should be generated for each such address**
2. **If using an ATMARP server, the client must register each such address**

Classic2 Server Synchronization

Goals

- **Old RFC1577 clients must be able to use the multi-server service**
- **Classic2 clients allowed to use multiple servers in the LIS**
- **New clients must work with old servers**
- **Must support up to 10,000 clients**
- **Must reliably support 200 servers distributed in the LIS according to local topology and administrative deployment decisions**
- **No single bottleneck intrinsic to the protocol**
- **Quick turn around; e.g. all servers have all local data**
- **Must allow for authentication**
- **Must work with autoconfiguration**
- **No changes needed to client code (beyond other Classic2 changes)**
- **No changes needed to RFC1577 client <> server protocol messages**

Classic2 Server Synchronization

Goals, continued

- **Use existing synchronization techniques; i.e., if someone else has a proven and workable solution use it**
- **Permit the RFC1577 LIS model to be used**
- **Keep IP layer topology decoupled from ATM layer topology; i.e. if RFC1577 runs there now, Classic2 will run there also**
- **Minimal reliance on the ATM services - keep dependencies to point-to-point VCs and signaling; permit optional features to use new ATM capabilities**
- **Provide a packet format and method that allows easy extension other IETF server synchronization problems; i.e., must be the same mechanism for MARS and NHS**

Classic2 Server Synchronization

Approach

1. For scaling to large systems, derive techniques from Xerox PARC's Epidemic work
2. For reliable operation over moderate systems, derive from experience with routing protocol synchronization

Combine 1 and 2 for scalable stable operation

Classic2 Server Synchronization

Method

Xerox PARC'sEpidemic Algorithms:

- **scales to large number of neighbors**
- **scales to extremely large systems**
- **robust/resiliant**
- **full information distribution with no intrinsic single point of failure**
- **existing real use experience: XeroxClearinghouse**
- ***anti-entropy* and *rumor mongering* with *counter and feedback* methods appropriate**
- **permits arbitrary server interconnection topologies and server addition and departure**
- **handles network partitioning and rejoins**

Classic2 Server Synchronization

Method

Routing Protocol Synchronization Method:

- **robust/resiliant**
- **full information distribution with no intrinsic single point of failure**
- **existing real world experience OSPF PNNI**
- **exchange full database rather than summaries -> simpler**
- **permits arbitrary server interconnection topologies and server addition and departure**
- **handles network partitioning and rejoins**

Classic2 Server Synchronization

Classic2-01 changes to -00

- **Default behavior results in flooding to all neighbors**
- **Flooding is now reliable**
- **Moved details of Xerox mechanism to appendix**

Classic2 Server Synchronization

Terminology Equivalent

- **Rumor monger equals update flooding**
- **Anti Entropy equals data base sync**

Important Point:

Stochastic rumor mongering allows for scaling to very large numbers of neighbors.

Classic2 Server Synchronization

Issue

It has been pointed out that when a client changes its ATM address there can be race conditions in terms of what information is known by remote servers.

This does get repaired in 15 minutes.

That is much too long.

Fixing this properly requires a change in the client packet format.

Therefore, this repair is left to NHRP.

Classic2 Server Synchronization

A picture for discussion