Application Layer Multicast Extensions for RELOAD
draft-samrg-sam-baseline-protocol-03

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Changes Since Previous Version

• Compatibility with RELOAD v21
• Add P2PCast as a second algorithm for ALM usage.
• Incorporated some changes from discussion on mailing list
• Added some references

• Any comments welcome!
ALM Architecture Extensions for RELOAD

- **Usage Layer**
  - Set of application data types

- **Message Transport**
  - Handles end-to-end reliability and request state for usages

- **Topology Plug-in**
  - Implements specific overlay algorithm

- **Forwarding & Link Mgmt**
  - Forwarding packets between nodes
P2PCast

- P2PCast
- Creates a forest of trees
- Similar to Splitstream, which is based on Pastry
- Independent on the underlying P2P algorithm
- Content provider splits the stream into $f$ stripes
- Each tree is an (almost) full tree of arity $f$.
- Trees are conceptually separate: every node of the system appears once in each tree, content provider being the source in all of them.
- Every node is a leaf in all the trees except for one, where the node serves as an internal node (proper tree)
- Ensures nodes contribute as much bandwidth as they consume
P2PCast integration

- P2PCast uses defined messages for communication between nodes during reorganisation.
- Encapsulated by the message type REFORM.
- P2PCast message is included in the Options parameter of REFORM.
  - TAKEON: To take another peer as a child
  - SUBSTITUTE: To take the place of a child of some peer
  - SEARCH: To obtain the child of a node in a particular stripe
  - REPLACE: node sheds off a random child
  - DIRECT: To direct a node to its would be parent
  - UPDATE: A node sends its updated state to its children
Open Issues

• Should any other ALM algorithms be mapped?
• Define parameters for RELOAD config file for ALM usage
• Request to go to last call