

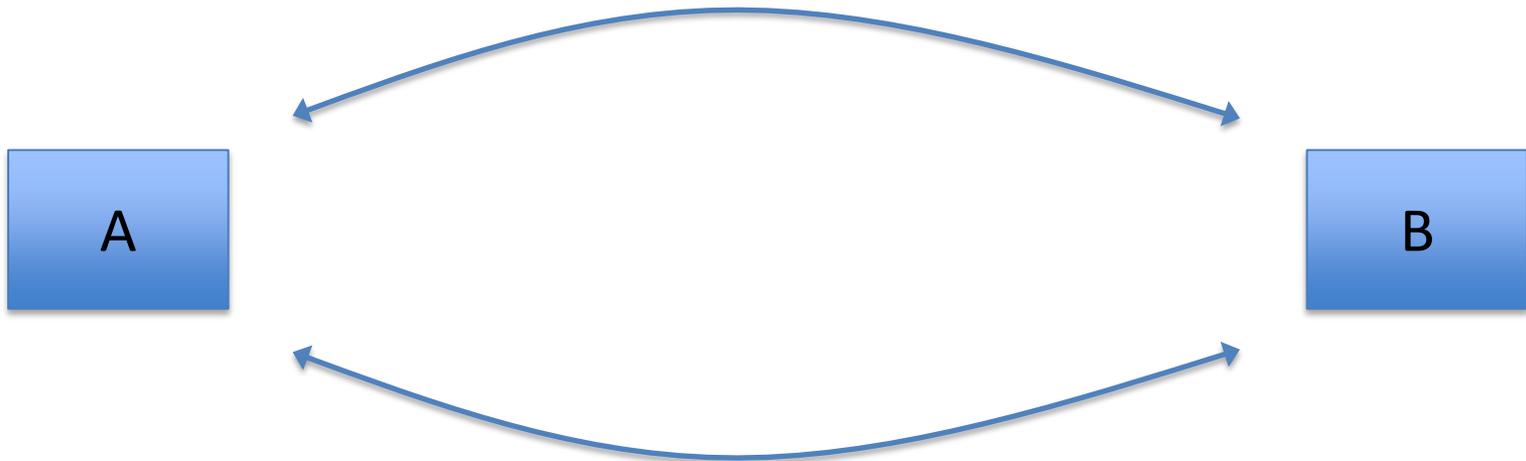
MPRTP

draft-singh-avt-mprtp-00.txt

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Simple Basic Idea

- Exploit multiple (at least partly disjoint) paths between two unicast RTP endpoints



- Similar to the idea of the Multipath-TCP WG

Where Do Paths Come From?

- Multiple host interfaces
 - Learned from the OS
 - Learned from ICE
 - Probed in another way
- Overlay paths
 - STUN servers (learned from ICE)
 - Other transport overlays
- Network paths
 - Learned by some routing magic

Goals: What to use them for?

- Aggregate data rate
 - Higher or more stable
- Load balancing
- Fault tolerance
- Interface optimization
 - E.g., power or performance

Goals: Compatibility

- Keep the “application interface” of RTP
 - I.e., do not require applications to do anything else then create/accept RTP/RTCP
- Keep the RTP/RTCP flow properties
 - I.e., do not confuse middleboxes, monitors, ... that see packets on a single path only

Simple MPRTTP Architecture

Application	
MPRTTP	
MPRTTP Subflow	MPRTTP Subflow
UDP	UDP
IP	IP

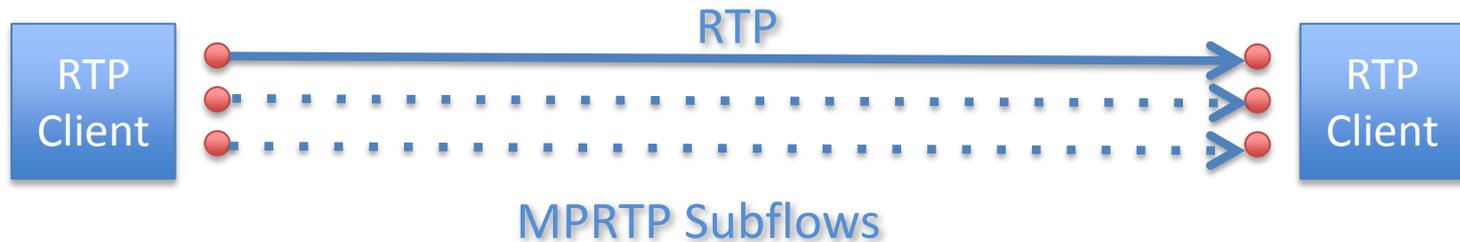
Non-Goal

- Solve the rate adaptation problem for RTP

Functional Block of MPRTTP

- Session Setup
- Expanding RTP
- Adding Interfaces
- Expanding RTCP
- Maintenance and Failure Handling
- Teardown

Path Discovery (e.g., ICE) Path Discovery



MPRTTP Capability Discovery
(in-band with RTP)

- Assume startup signaling for multipath discovery (e.g., ICE)
- Initial session backwards compatible with RTP
 - MPRTTP capability discovery in-band
- Subsessions added
 - Discover MPRTTP support
 - Learn about new paths

A Prospective MP RTP Spec

- Interaction with session setup management
 - SDP (caps) and SIP, RTSP, etc.
 - ICE (interfaces)
 - In-band mechanisms
- RTP/RTCP extensions for subflows
 - Monitoring for individual paths
 - Packet allocation to paths and scheduling (sender)
 - Aggregation of subflows (receiver)
- Mechanisms: leave the algorithms open

Questions

- Many open ones... 😊
- Does it make sense to think about this in AVT?
- What other use cases come to mind?
- Which further constraints to worry about?
- Further architectural implications wrt RTP?
 - Mixers/translators...