RTP/RTCP Overlays

draft-ott-avt-rtcp-overlay-00.txt

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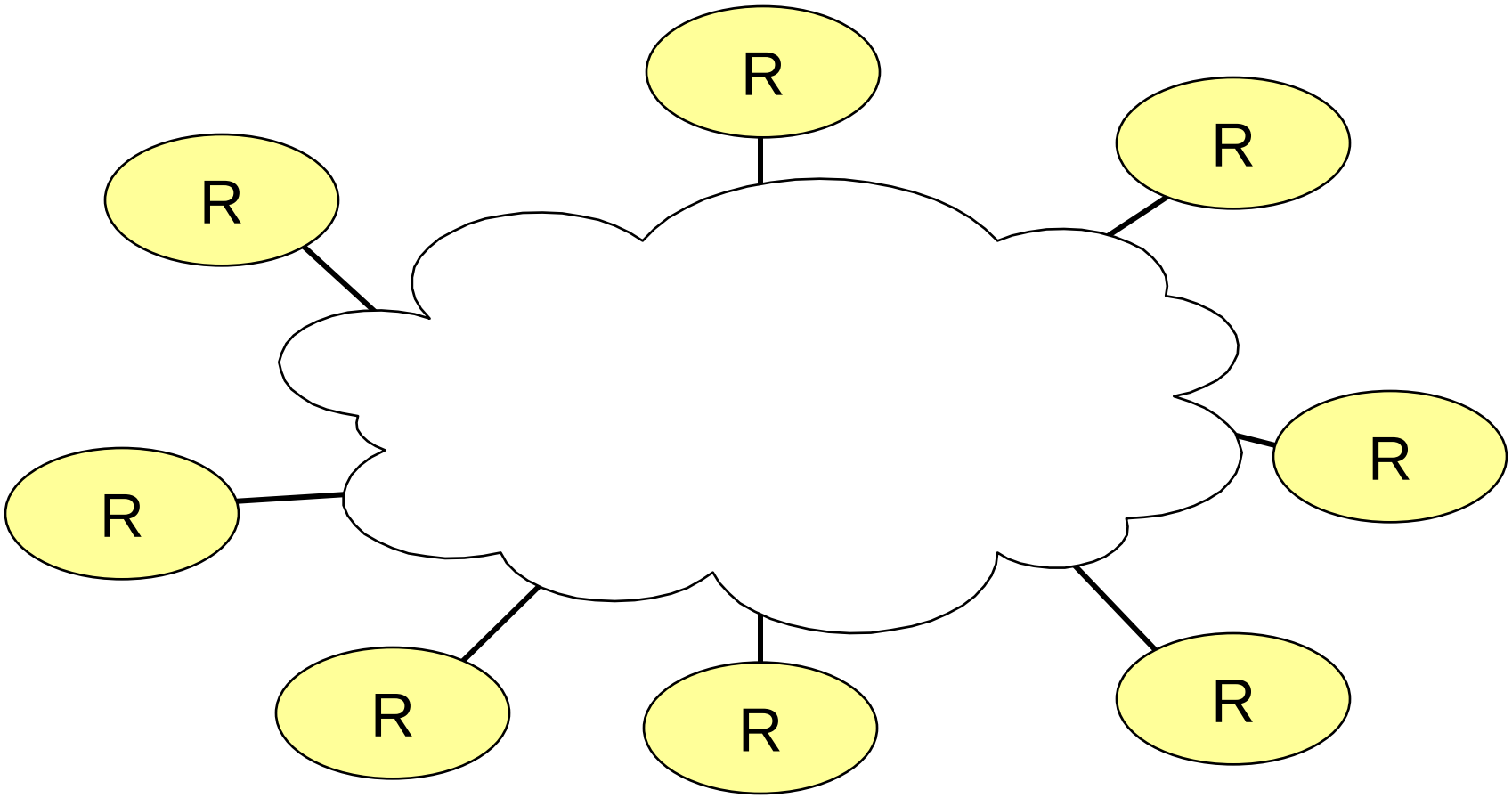
Background

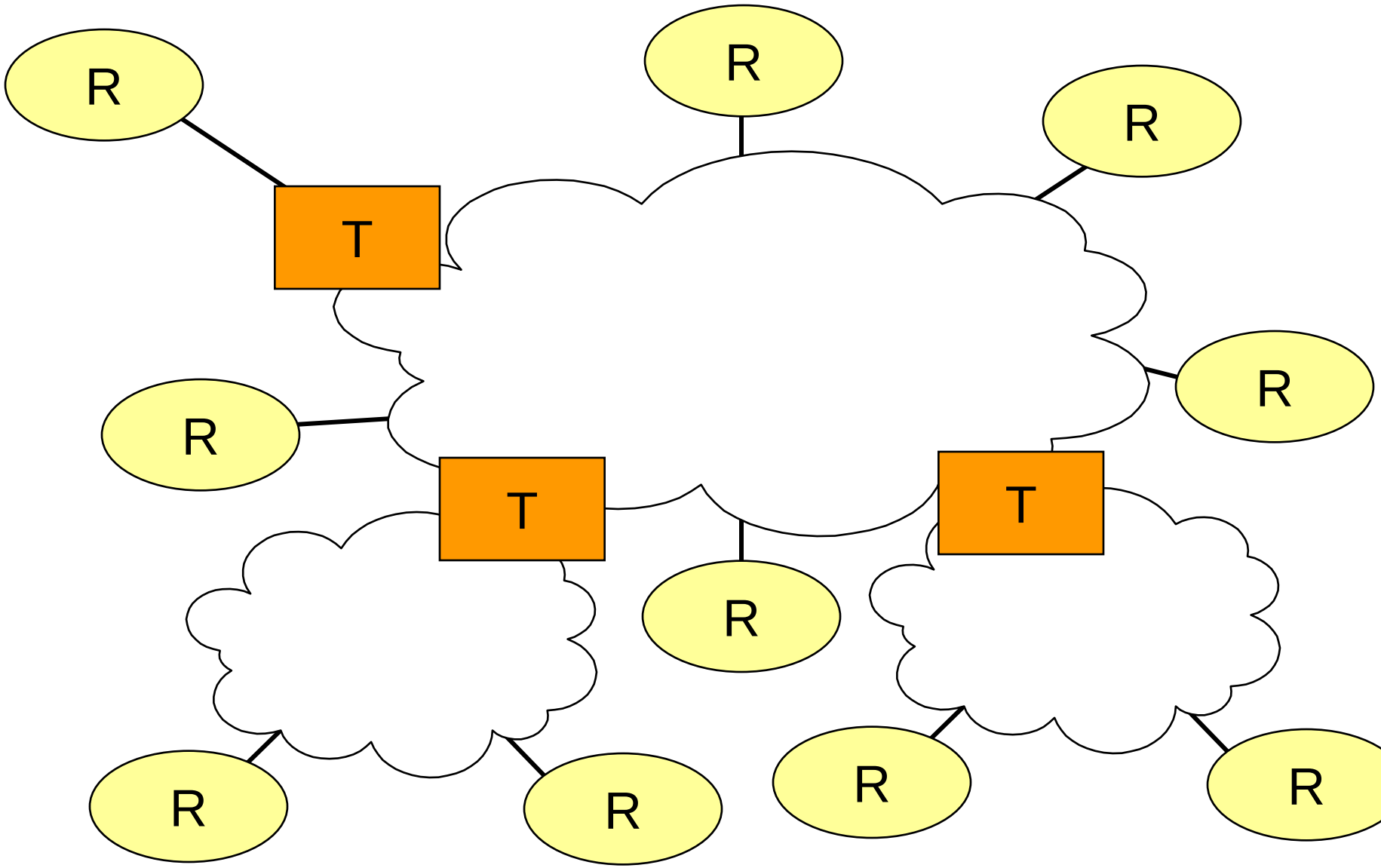
- RTP has been designed with (any-source) multicast in mind
- RTCP scales to large numbers at constant bit rate at the expense of report frequency
- Overlay-based multicast at the application layer can emulate ASM

- Translators enable inter-connecting different regions of a network
  - Unicast and multicast, IPv4 and IPv6, etc.
- Mixers serve as bridges between (unicast) nodes
- RFC 5117: real-world RTP topology examples

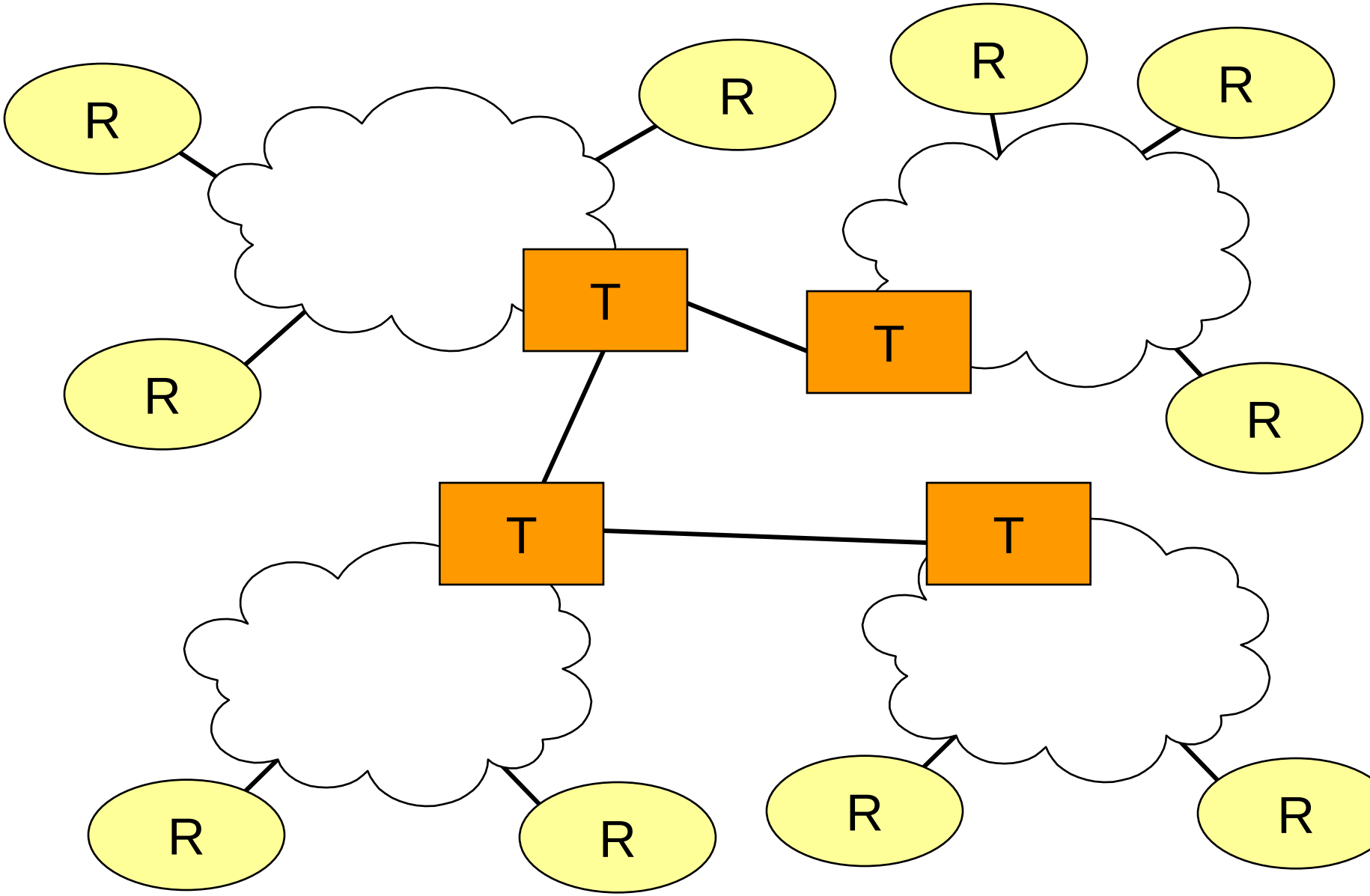
Example: ASM Network



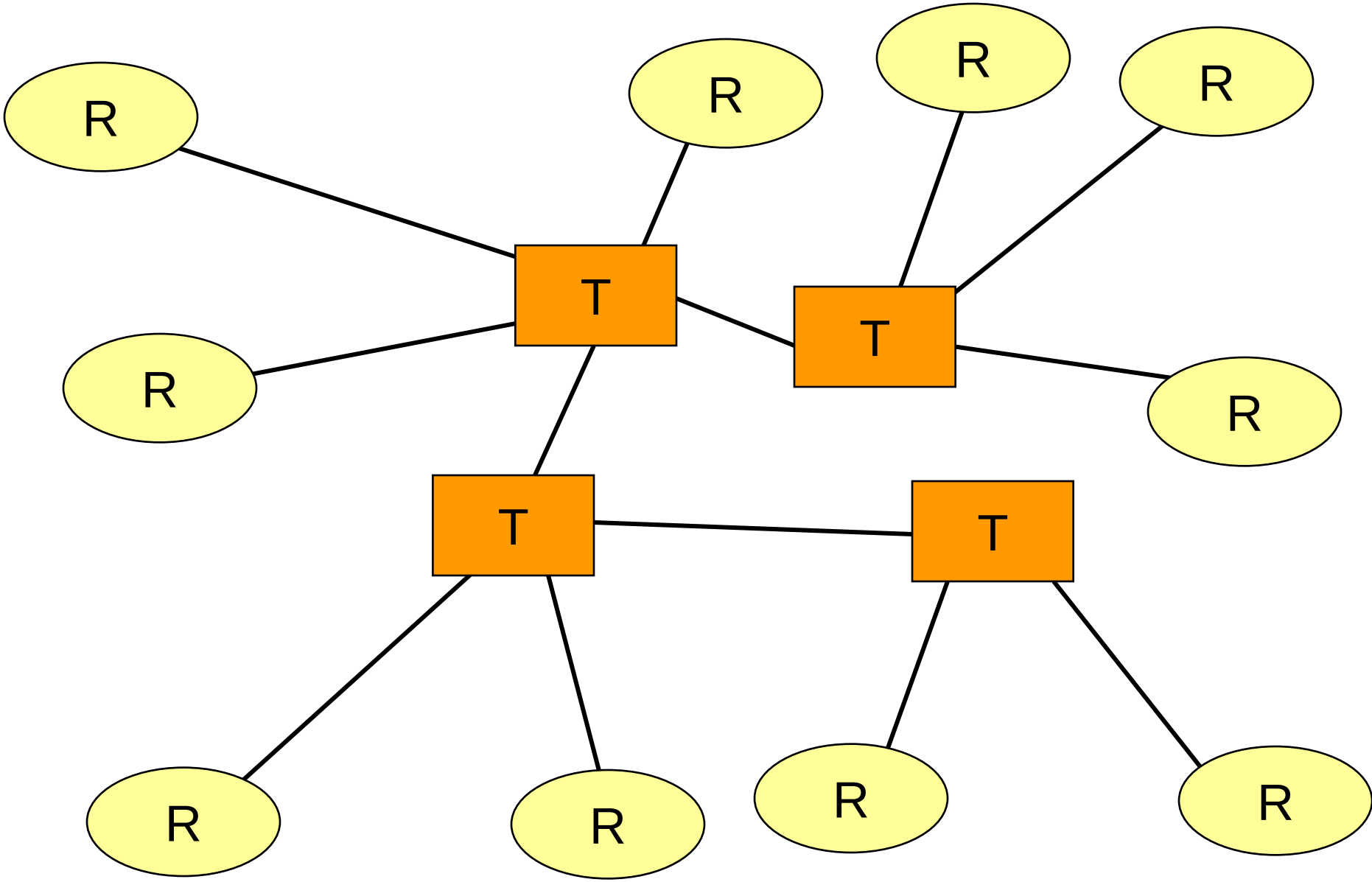
Example: ASM Network with Translators



Example: ASM Islands and Translators



Example: Turning into an RTP overlay



A Random Multicast Overlay

Two main tasks

- Overlay maintenance
- Data forwarding

We look at the forwarding aspect only.

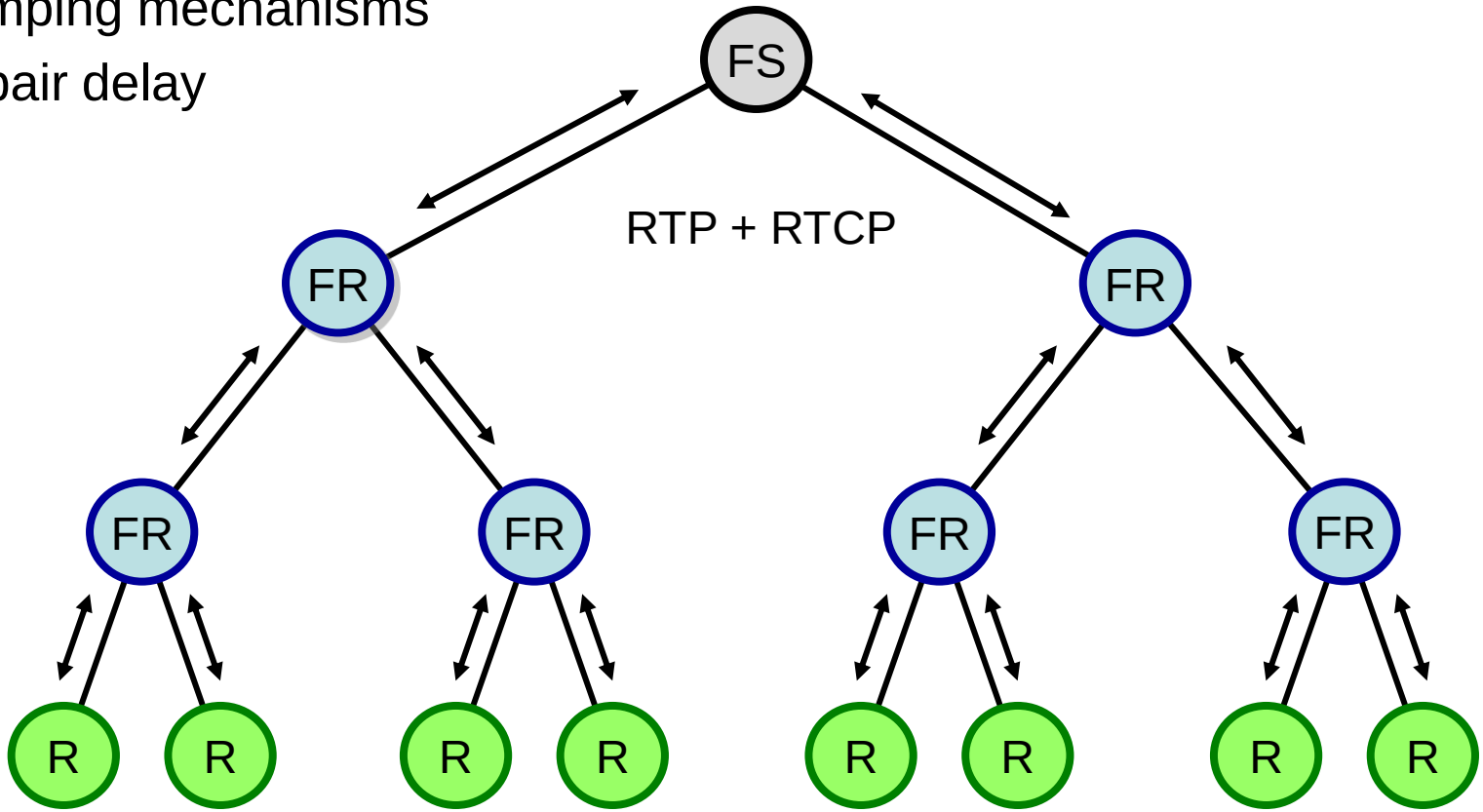
  – But may provide input to overlay maintenance.

Initially looking at source-specific multicast only

Term: Translator ➔ Forwarder

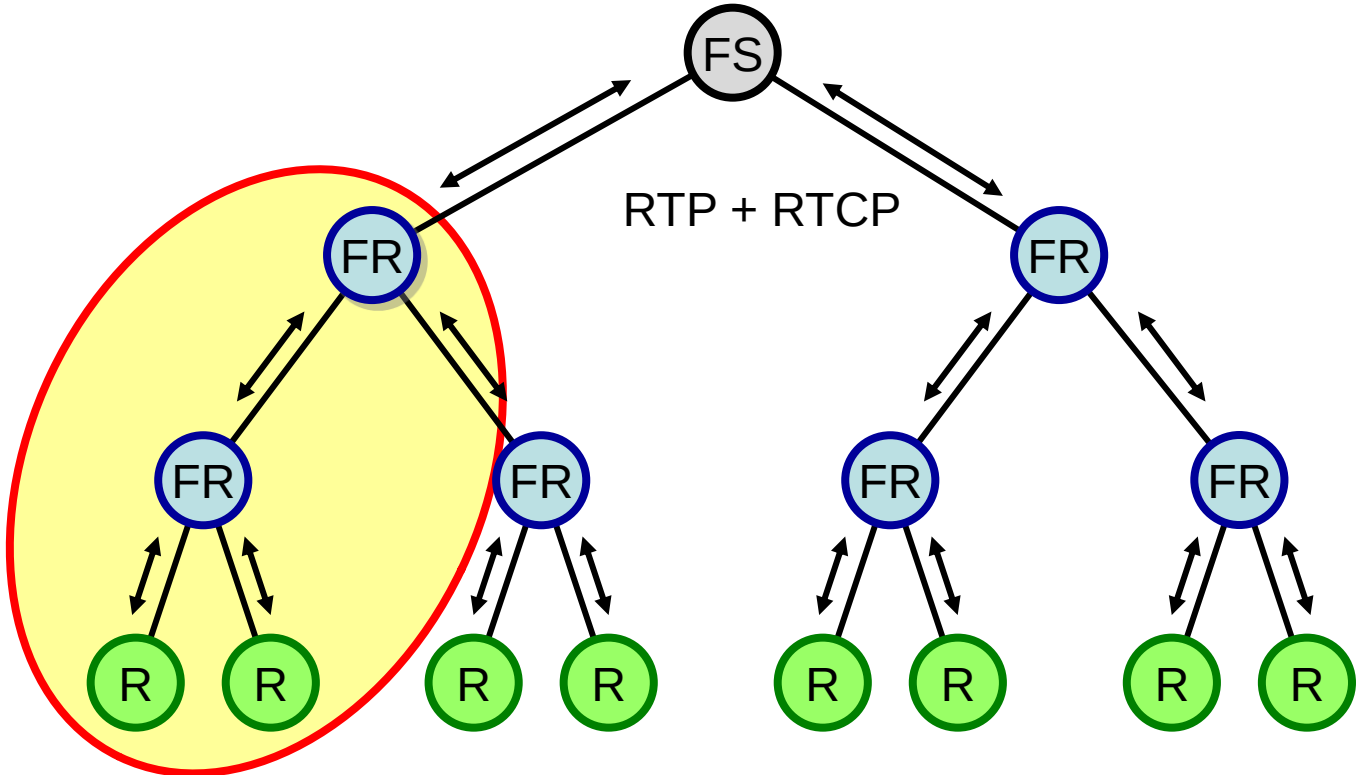
Basic Operation

- RTP/RTCP just work: Translator rules are sufficient
- Issues: longer delays
  - Group size sampling
  - Damping mechanisms
  - Repair delay



Adding SSM-style Aggregation

- Forwarders are natural feedback targets
- Aggregate RTCP + limit the reach
- Higher local rate without increasing global overhead
  - May support local repair
  - May provide input to overlay maintenance



Final remarks

- Suggest to extend the RTP toolbox in support of overlays
- Generalization of translators: blending with feedback targets
- No intent to do overlay maintenance
  - no “me-too” for overlay streaming

Seeking WG feedback

- Reasonable? Futile? …?