RUTS at IETF 43: a look back ("a RUTrospective?")

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How we got to RUTS

- Mid-1990s -TCP was mature generic transport
  - IETF was doing TCP over Satellite Links
  - Lots of people wanted to do TCP over Wireless
  - Not clear whether cellular = wireless LANs
  - TSV ADs didn't want lots of TCP-over-foo WGs
- Applications that didn't fit TCP or UDP
  - Unclear what requirements were common
- Needed to understand what was required
  - "Requirements for Unicast Transport/Sessions"
  - BOF at IETF 43, December 1998

Oversimplified requirements from RUTS

- COPS – TCP, but need reliable failure indicator
- RADIUS – UDP for retransmission and failover
- L2TP – UDP for retransmission and failover
- HTTP-NG – like UDP but want TCP load behavior
- SIP – UDP and TCP, because neither met needs
- NFSv4 – UDP -> TCP because LAN -> WAN
- SS7 – like TCP but slow start was a problem
- VoIP – messaged based, unreliable but in-order
- BGP4 – TCP but multicast would have helped

What happened during/after RUTS?

- BGP4 continued to use TCP
- SIP continued to use UDP (mostly) and TCP
- HTTP-NG BOFed twice in 1998, not chartered
- SIGTRAN chartered for SS7 over IP in 1998
  - (and produced SCTP as its transport)
- PILC chartered for “lousy links” in 1999
- AAA chartered in 1999, TCP-based
- NSIS chartered for QoS signaling in 2001
- DCCP chartered for “safe UDP” in 2002

What I think we learned from RUTS

- It's OK to think about transport evolution
  - A lot of work was chartered in a burst of activity
  - Much of that work was useful
- Perhaps time to think about it again
  - Step back, look at big picture like RUTS
- Perhaps more attention to deployability
  - NATs, FWs, DPI ...
  - OS kernel vs. userland implementations
- Perhaps more attention to security
  - But look to SEC/PERPASS discussion for guidance