

Novel RPC Transports

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RPC-on-MPTCP

- An MP-TCP implementation landed in Linux kernel in v5.4. This is an opportunity for prototyping RPC-on-MPTCP.
- We don't expect surprises, but do we need standards action to specify:
 - RPC framing
 - Workload distribution on subflows
 - New netids
 - Requirements for endpoint labeling

RPC-on-TLS

- draft-ietf-nfsv4-rpc-tls describes a mechanism for TLS clients to recognize when a server is prepared for a TLS handshake.
- First submitted March 2019, now at revision 06. Replaced draft-cel-nfsv4-rpc-tls, first submitted November 2018.
- Current WG document is waiting for AD write-up.

RPC-on-TLS

- Tom Talpey observed that some implementers might want to use certificates for user authentication.
- Currently our proposal does not support this. The client presents a certificate that identifies only the client host peer. No changes to user authentication.

RPC-on-TLS

- In the context of TLS, should the nfsv4 WG consider support for the Extensible Authentication Protocol (in particular, RFC 5216)?
- Do we need standards support for special certificate management techniques like key pinning?

RPC-on-TLS

- Rick Macklem has prototyped an NFS client and server that enable the client and a single user identity to be merged.
- Does this require RPC protocol changes, NFS protocol changes, or only changes to implementations?

RPC-on-QUIC

- RPC-on-TLS lays groundwork for the part of QUIC that implements Transport Layer Security.
- In addition, a standards-track document will be needed to specify:
 - RPC framing
 - New netids
 - How to handle multi-pathing and TLS.

RPC-on-QUIC

- Prototyping challenges for NFS:
 - To date, no kernel space QUIC implementations exist

Others?