Session Key Interface (SKI) for TLS and DTLS

draft-cairns-tls-session-key-interface-01

K. Cairns, J. Mattsson, R. Skog, D. Migault
Architecture

- Edge Servers only host public material
- Key Server:
  - owns the private
  - performs the private key related operations
Key Server operations

1. RSA decryption when the TLS Client provides the encrypted pre_master in ClientKeyExchange message.

2. Sign EDH (with ClientHello.random and the ServerHello.random) in KeyExchange message.
   - RSA signature with DHE_RSA, ECDHE_RSA
   - ECDSA signature with ECDHE_ECDSA
Design Questions

1) Should we consider RSA as KeyExchangeAlgorithm?

2) What is the best design for a signing request:
   a. Provide the hash to the Key Server
      • Chosen plain text attack
   b. Provide all data to the Key Server
      • Additional bytes to be sent
   c. Enable both scheme, leave

3) (if RSA is considered similar consideration as 2) for master secret / extended master secret.)
Next Steps

• Current version:
  – Security analysis of the architecture
  – Abstract description of SKI

• Next step:
  – Document with an abstract description
  – Document with an implementation HTTPS/JSON
Thank you!