XMPP DNA Options

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Overview of the DNA problem

- XMPP outsourcing providers don’t want to have to hold certificates with their clients’ domain names in them.
  - Risk of key compromise, hijacking other services, masquerading, etc.
- The current XMPP server-to-server connection model requires $2N_1N_2$ connections between providers, which doesn’t scale.
  - Need a way to multiplex many domain pairs onto a single connection.
Outline of draft-ietf-xmpp-dna-01

- Instead of CA signing a cert, domain holder signs SRV
- Use dialback (XEP-0220) plus DNSSEC checks to support secure multiplexing
Is there a problem here?

- Ekr: Most certificate risks are mitigated if the certs the outsourcing provider can only be used for XMPP
  - No CommonName or dNSName
  - Only XmppAddr or sRVName (including _xmpp-server._tcp.)
- Dialback already supports multiplexing, just need to fold in security
Solution outline

sender — originating — receiving — target1, target2

On first connect...
▶ SRV: target1.tld → xmpp1.receiving.tld
▶ Start a stream from sender.tld to target1.tld
▶ STARTTLS, server presents cert for target1.tld

On subsequent connect...
▶ SRV: target2.tld → xmpp1.receiving.tld
▶ <db:result from='sender.tld' to='target2.tld'>
▶ <db:verify from='sender.tld' to='target2.tld'>
▶ STARTTLS, client and server present certs
Trade-offs

- Issuance: Issuing certs vs. signing zones
- Validation: PKIX validation vs. validating DNSSEC
- Revocation: PKIX revocation (OCSP, CRLs) vs. DNSSEC expiry
- Muxing: TLS latency vs. DNSSEC latency
What to do?

- Do we still need a document?
- PKIX-based or DNSSEC-based or both?
- Overview of the whole connection process?
- What else?