TLS 1.3

draft-ietf-tls-tls13-19

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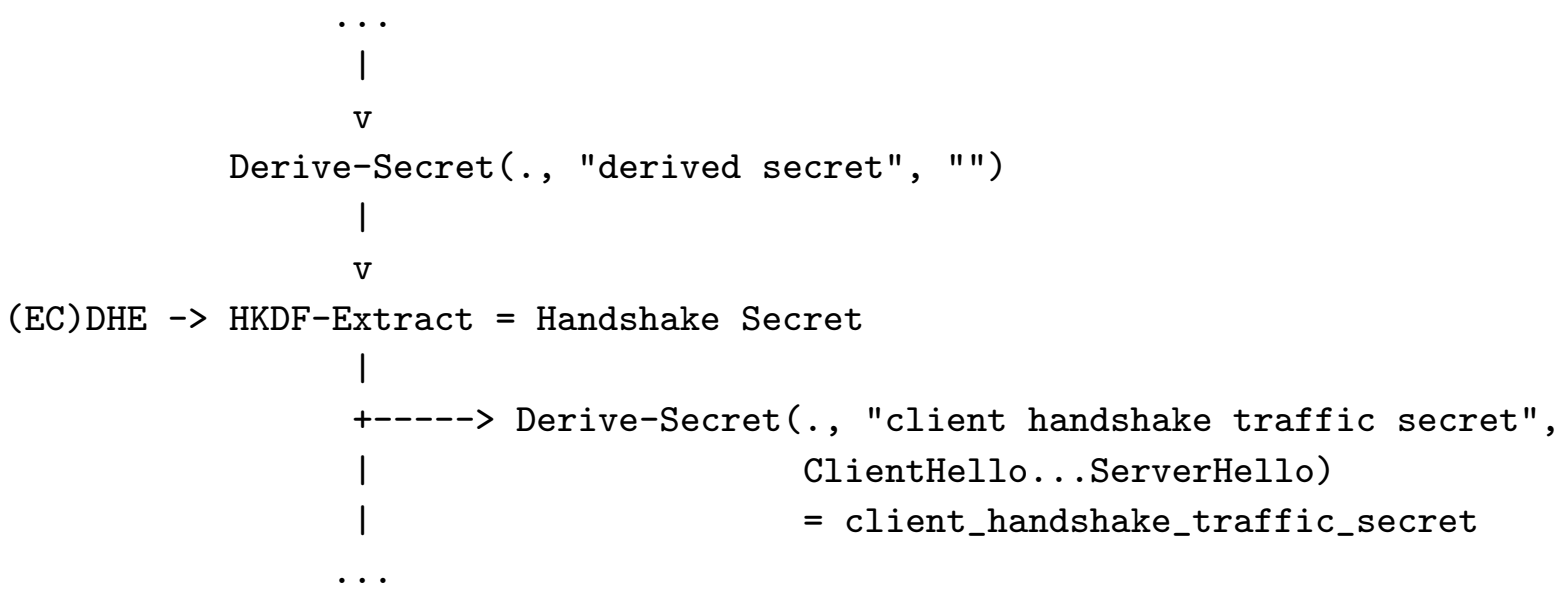
Agenda

- Status
- WGLC issues
- Timeline

Status

- In WGLC#2 with: draft-ietf-tls-tls13-19
  - Modest changes from -18 (more later)
- Quite a few interoperable implementations
  - draft-18 in Firefox Beta (NSS), Chrome Beta (BoringSSL), Cloudflare, OpenSSL, Facebook (Fizz), Fizz, OpenSSL
  - draft-19 under development with partial interop

Additional Derive-Secret stage to key schedule



- Added before each HKDF-Extract from a non-0 salt
- Restore extract/expand parity
- Prevent theoretical concern about collisions from chosen "IKM" values

Hash the context value in exporters

- The context value is limited to 255 bytes
- But the context length in 5705 is 16 bits
- Consensus: hash the value before feeding to HKDF

Hash `ClientHello1` in transcript when doing HRR

- This makes stateless HRR easier
- Also insert the selected cipher suite in HRR

Add an additional Derive-Secret stage to exporters

- The EKM can be used to compute any exported value
  - This means if you need a long-term exporter the EKM is a threat to other exported value
- Solution: domain separate exporters on `label`

```
HKDF-Expand-Label(Derive-Secret(Secret, label, ""),
                  "exporter", Hash(context_value), key_length)
```

Change `end_of_early_data` to be a handshake message

- It was goofy to have it an alert
- All other state transitions are handshake messages
- Spec isn't very clear on how this fits into the transcript
  - Consensus answer:
    `ServerFinished, EOED, [Client Certificate]...`
  - -20 will be clearer

PR#768: DH Key Reuse Considerations

- Not that confident of the analysis
- We don't really want to encourage re-use

- Proposed resolution: drop

PR#762: Short Headers

- Concerns about interop
  - Already seeing some interop problems without this
  - Controlled experiments not very encouraging

- Proposed resolution: drop

Non-X.509 Certificates

- We've changed `Certificate` a lot
- The other certificate format documents assume you replace all of `Certificate`, which doesn't work
- Proposed resolution:
  - Deprecate the following for TLS 1.3: `{client,server}_certificate_type`, `user_mapping`, `cert_type`, `cached_info`?
  - People can update drafts with new code points if they want

Opting-out of post-handshake client auth

- Olivier Levillain on-list:

  The client can not indeed ignore all this state to answer, since it is supposed to answer at least with a Finished message, which will cover the CertificateRequest message. Moreover, since each of these Finished messages must cover the initial handshake and the current CertificateRequest message, it requires a forkable hash implementation, which requires more memory.

- Potential options:
  - ~~Remove post-handshake auth~~
  - Require an extension to opt-in to post-handshake auth
  - Specifically allow ignoring post-handshake
  - Do nothing
- Proposal: ???

Any other issues?

On to draft-20 and IETF-LC