draft-friel-tls-eap-dpp

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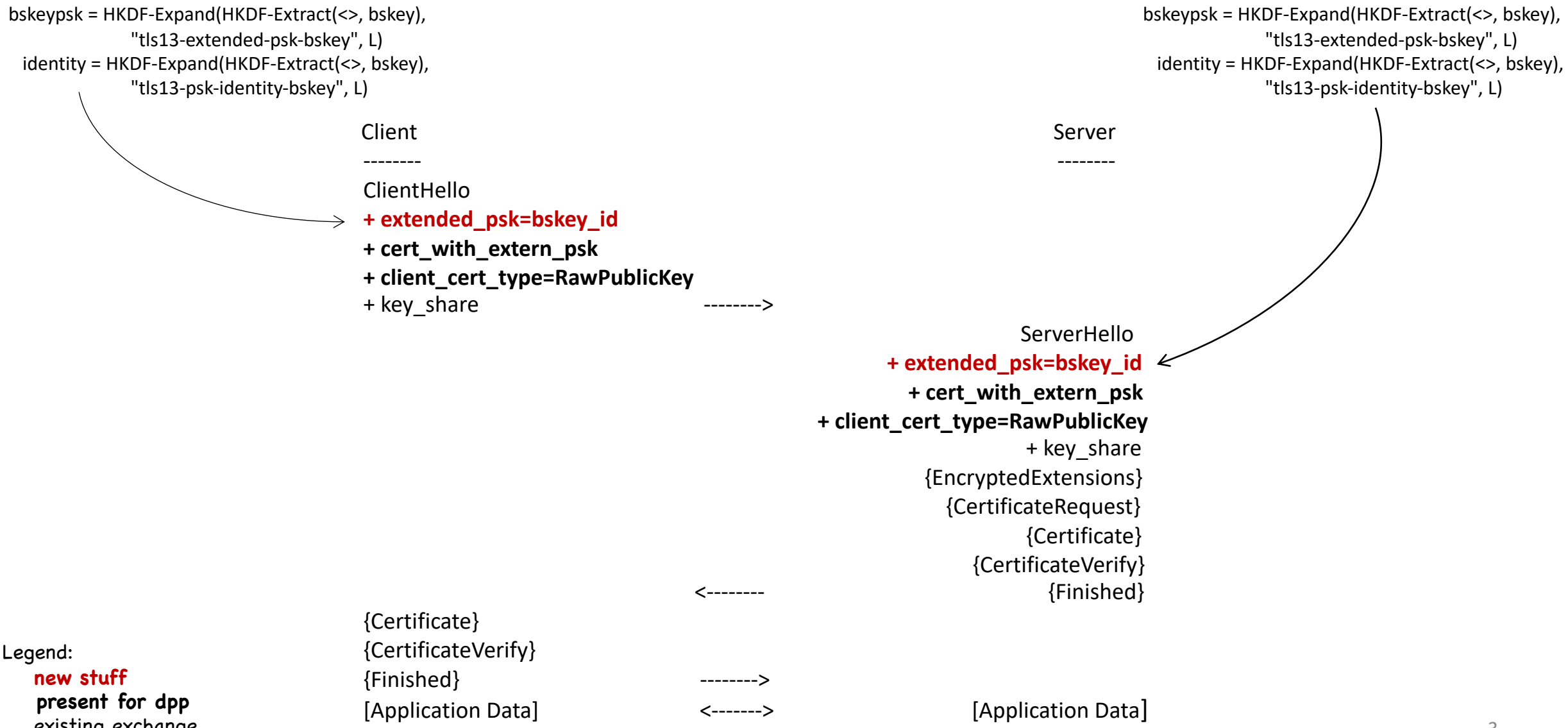
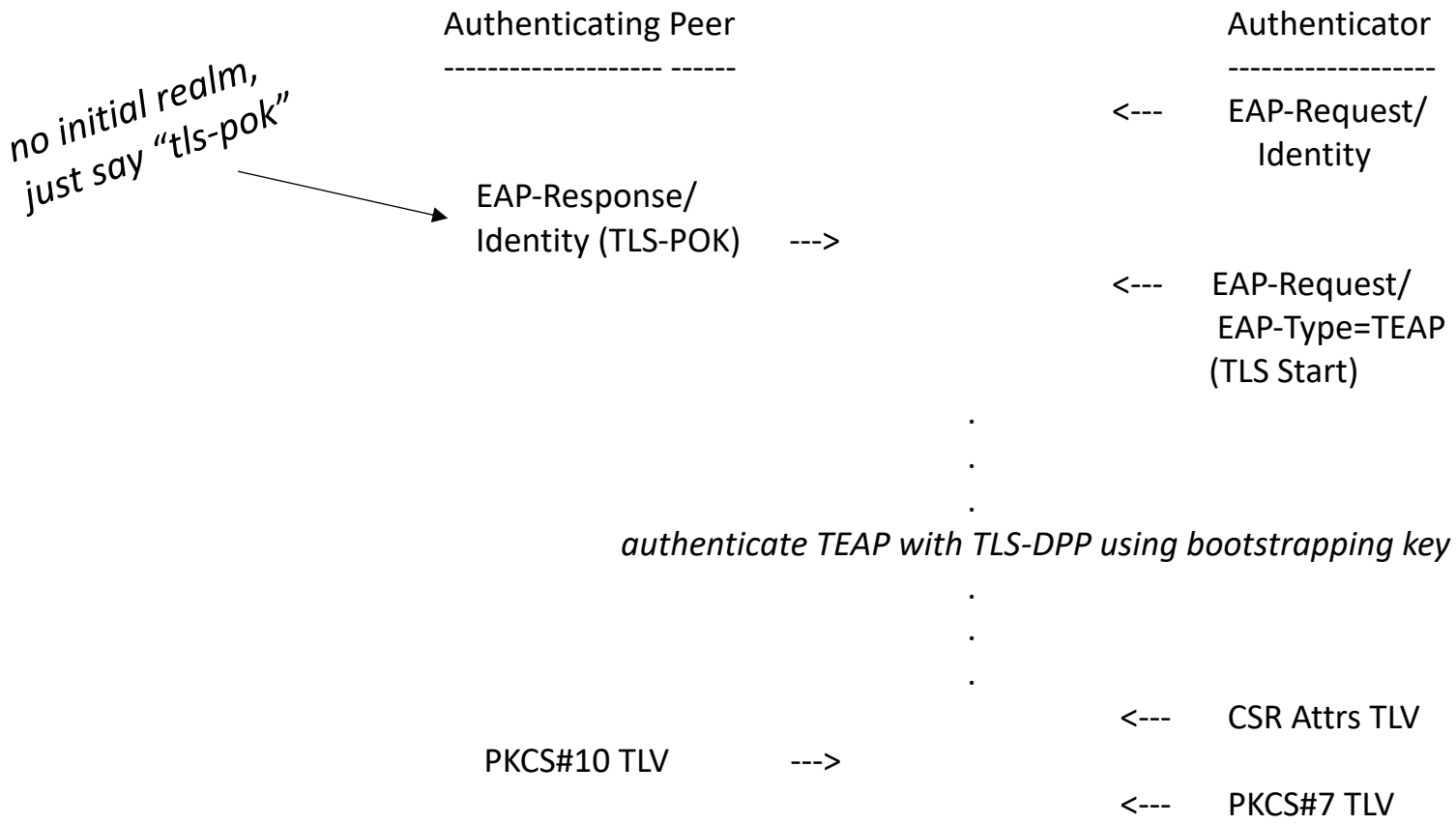
Background

- Wi-Fi alliance Device Provisioning Protocol (DPP) solves the on-boarding Catch-22– you need a credential to get on the network but need to be on the network to get a credential
  - Uses a raw “bootstrapping” public key, obtained in variety of methods, to authenticate supplicant
  - True zero touch provisioning is possible– plug it in, turn it on, walk away
  - DPP is able to provision all possible network credentials on a supplicant– PSKs, passwords, certificates
- DPP is for Wi-Fi but also supports communication over TCP/IP
  - But such “wired DPP” assumes connectivity we don’t have yet when we do EAP
- We want to use DPP bootstrapping with EAP for non-Wi-Fi connections
  - Use RFC 8773 “external PSK” derived from bootstrapping key
    - PSK derived from bootstrapping key is injected into key schedule
    - Client and server prove knowledge of PSK (and therefore bootstrapping key)
  - Use RFC 7250 TLS with raw public key using bootstrapping key
    - Client signs with bootstrapping key, proves possession of private key to server
  - Use draft-group-tls-extensible-psks
    - Client signals the derived PSK identity and type in extended_psk extension
  - No TLS changes/extensions required over and above defining new BSK type for draft-group-tls-extensible-psks

TLS authentication w/DPP bootstrapping keys



TEAP w/DPP bootstrapping keys



Supplicant's subsequent connection uses provisioned certificate

Where we are and where to?

- Specification:
  draft-friel-tls-eap-dpp-04
- Running code:
  https://github.com/upros/mint
- Rough consensus:
  adoption as a work item?