MTC experiment early results

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PLANTS IETF 125

Merkle Tree Certificates experiment

Goal: evaluate feasibility and performance of MTCs

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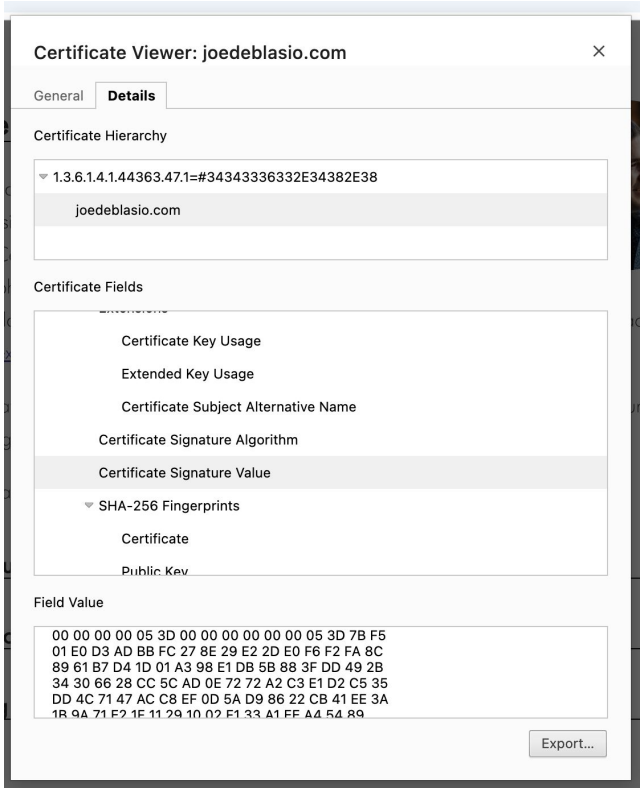
Cloudflare runs

- TLS server — currently 1000 Cloudflare-proxied domains
- "bootstrap" MTC CA
  - Every MTC is backed by a traditional cert chain
  - Restricts experiment to classical signatures
  - Use 7 day cert validity
- Limit to landmark MTCs
  - Landmarks every hour
  - Largest proof size: 512 bytes (Web scale will be 700-800)

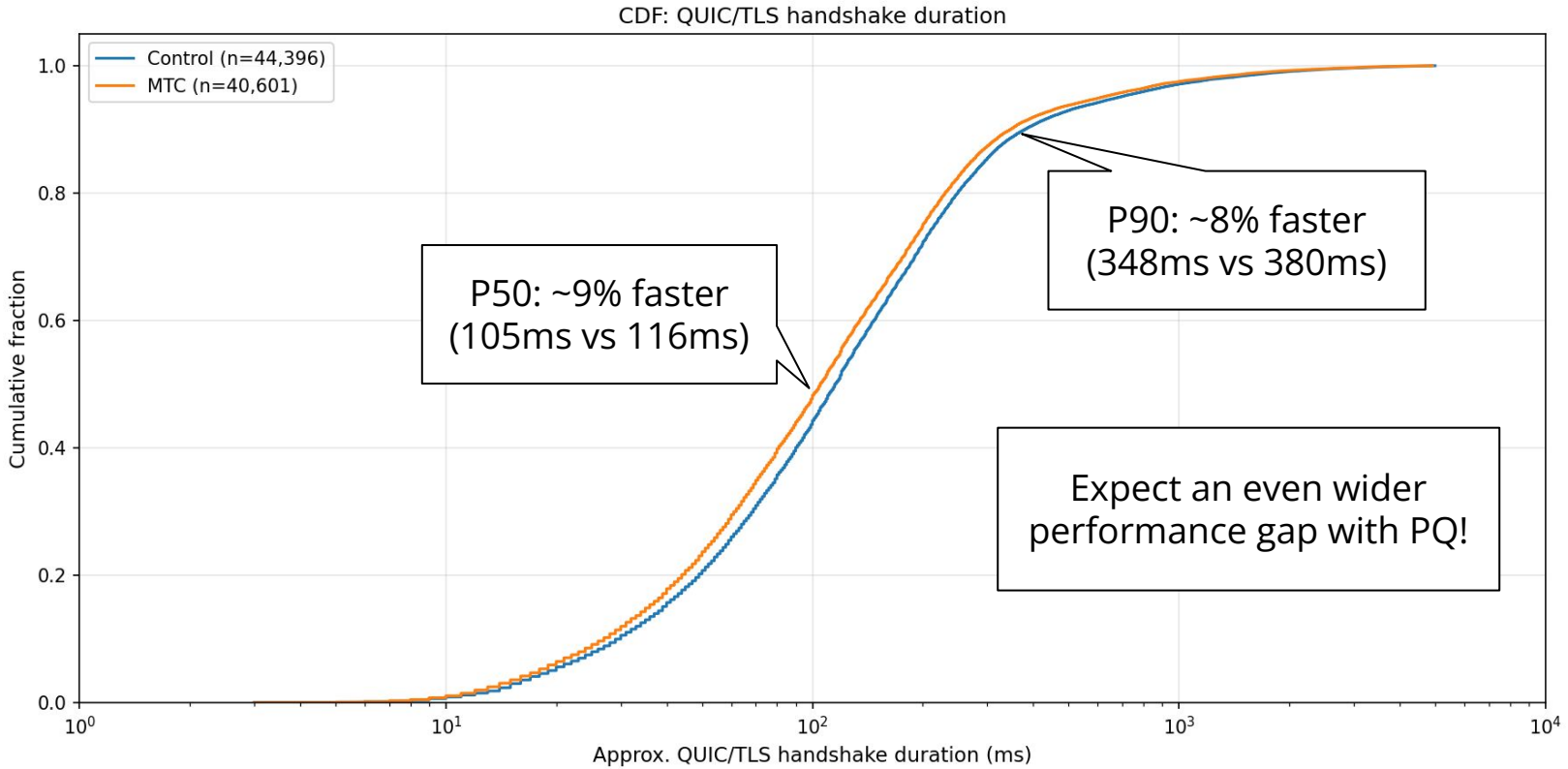
Chrome runs

- TLS client — currently 50% of Chrome Beta 146+
- Update service to validate and distribute landmarks
  - Client state for landmarks: ~10KB

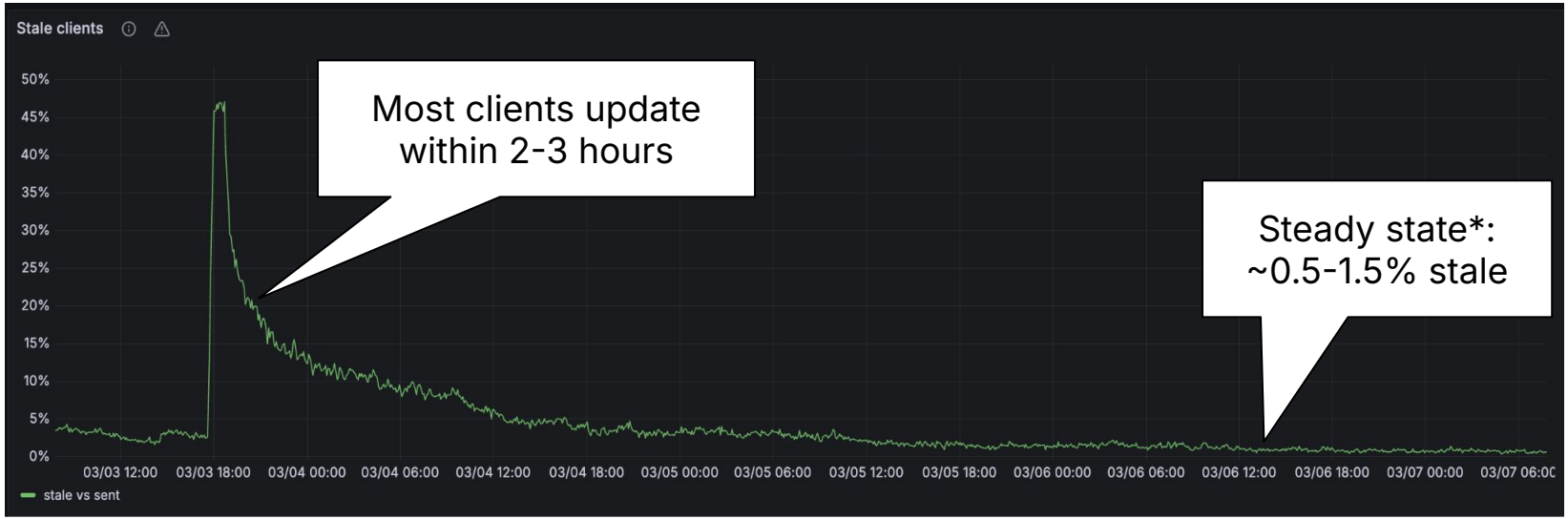


MTC in Chrome Beta

Are landmark MTCs faster than *classical*?



How quickly do clients get landmarks?



*This is an *upper bound* due to experimental quirks

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- Generally not a problem for clients to stay up-to-date with landmarks

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Operational experience

- We've had to shake out a few bugs on both client and server side
- Middlebox interference thus far is a non-factor (TLS 1.3 encrypts server cert)