COL788: Advanced Topics in Embedded Computing

Lecture 18 – Trusted Computing (Cont.)

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Semester I
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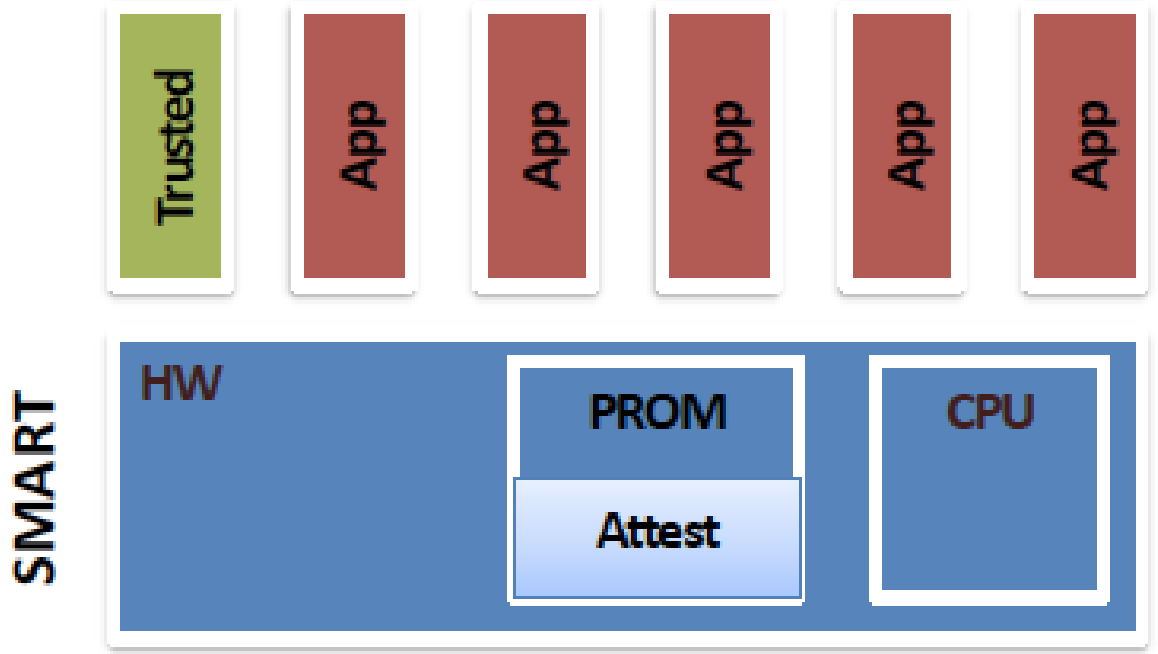
Basic Architecture

- SMART: Secure Minimal Architecture for (Establishing a Dynamic) Root of Trust



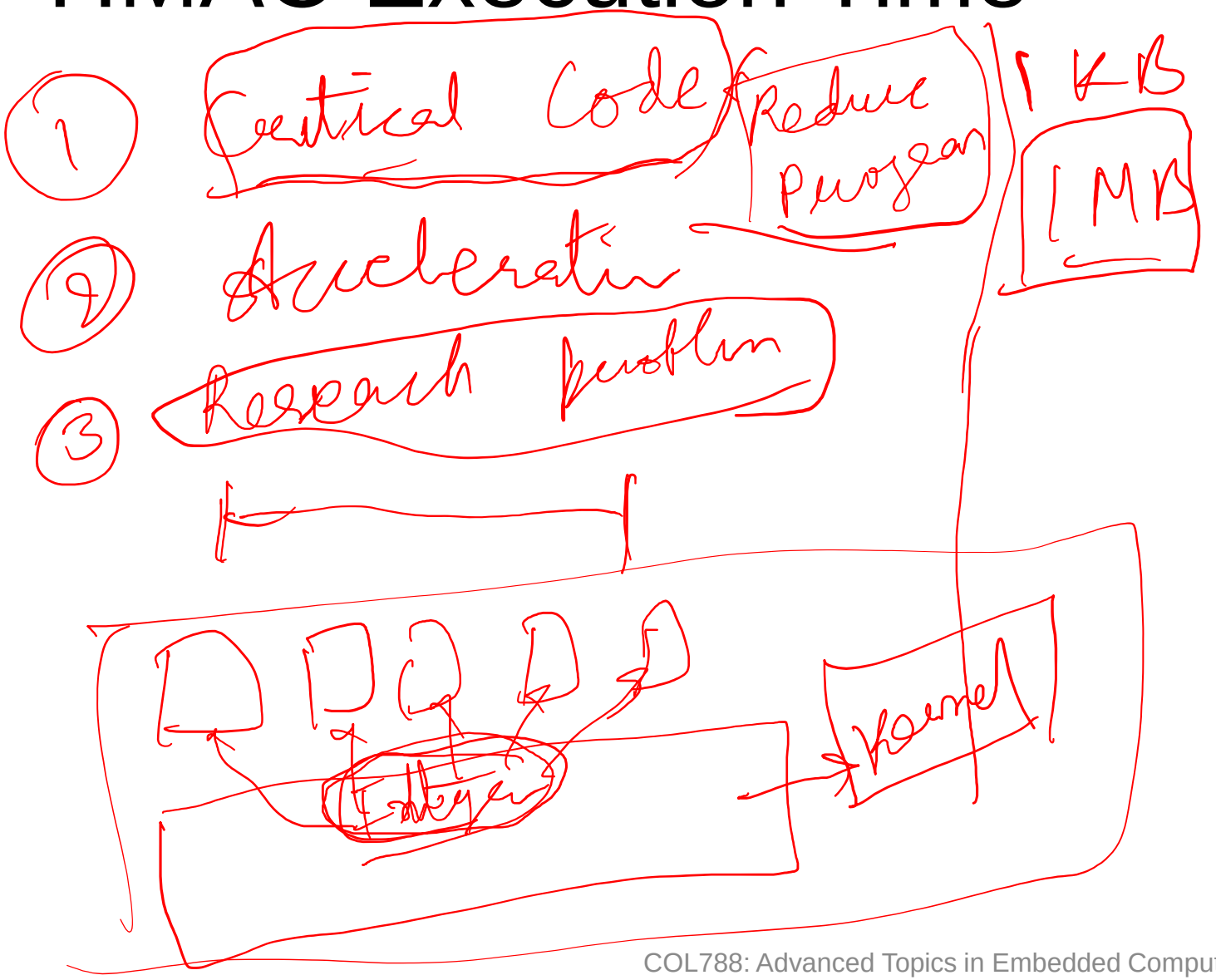
Threat Model

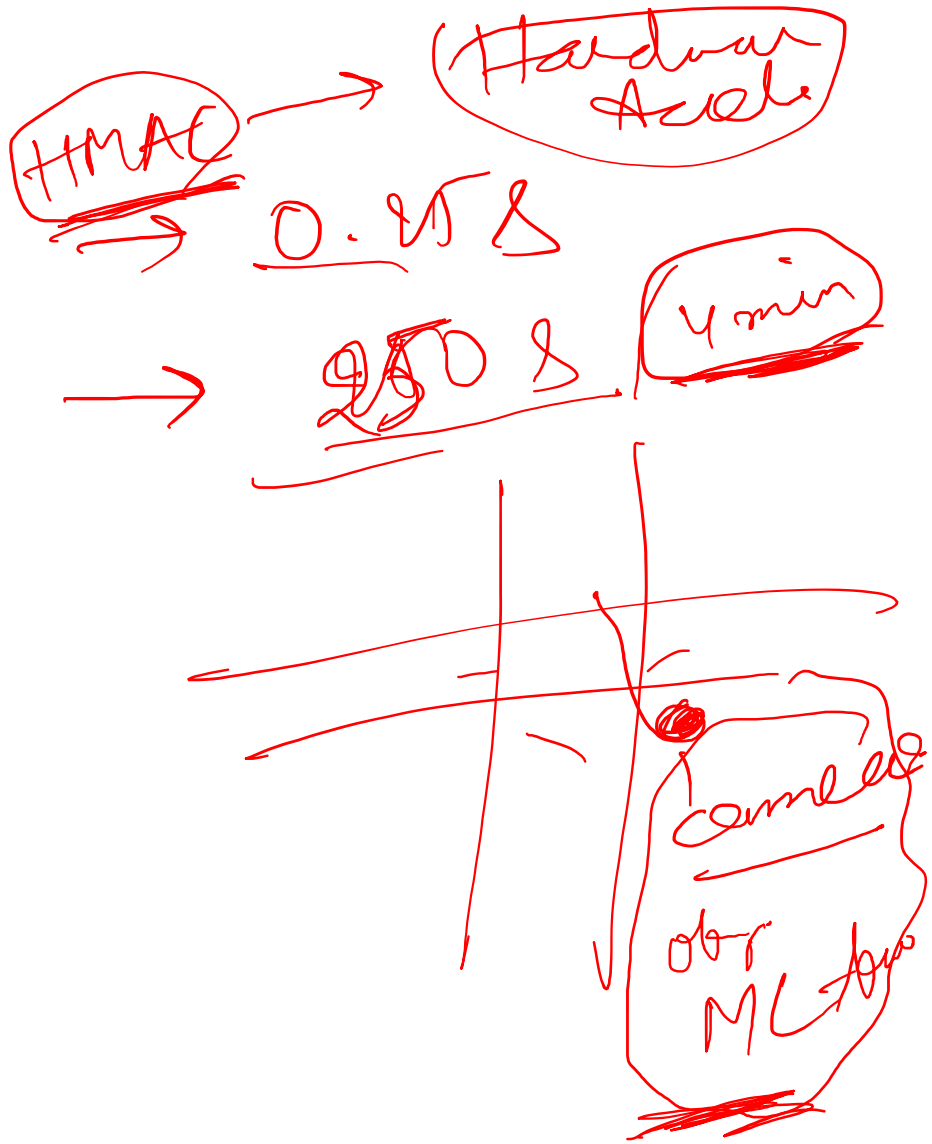
- System
  - Immutable ROM
  - RAM erased at reset

- Attacker
  - Full control over software
  - No invasive hardware attacks
  - No side-channel attacks

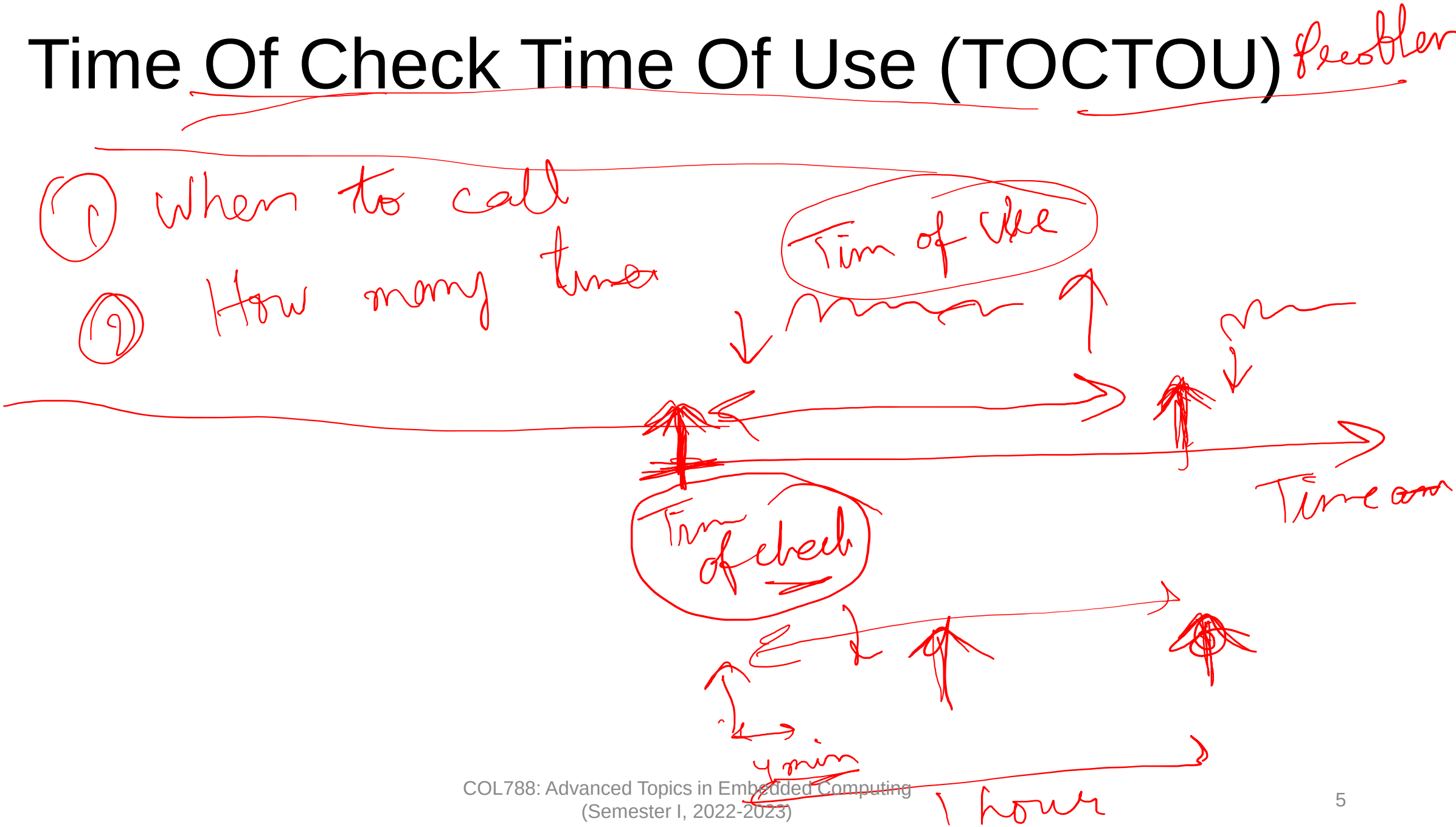
- Shared key between prover and verifier

HMAC Execution Time





Time Of Check Time Of Use (TOCTOU)



What Next?

- Lecture 19
  - September 22,Thursday, 12 pm – 1 pm