ELASTIC Project

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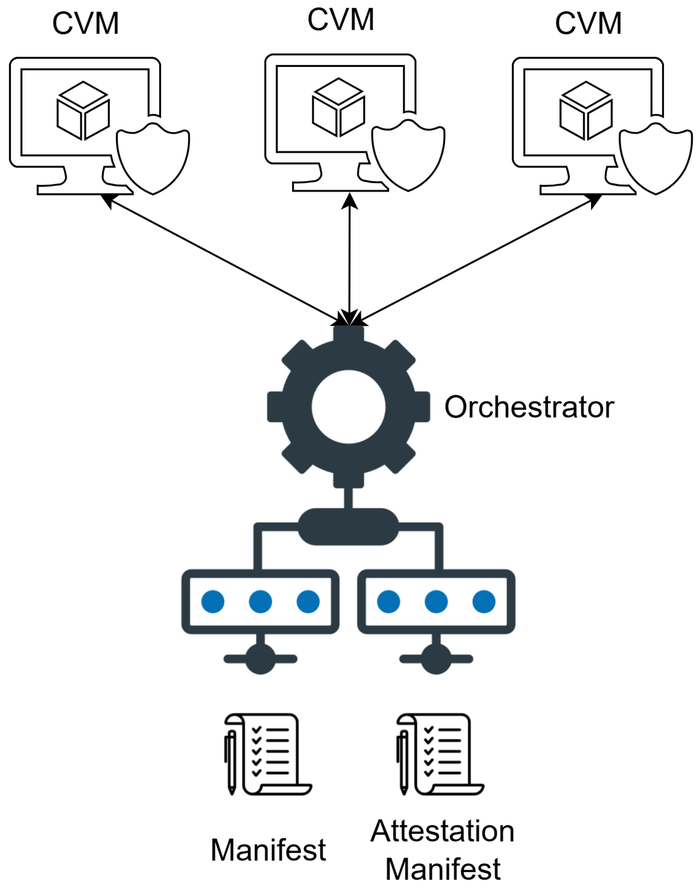
Attestation of Distributed Applications

Background

- Remote Attestation: a mechanism that allows one device to prove properties of itself to another
- Trusted Execution Environment (TEE): a secure and isolated area for authorized parties to process and execute confidential data

Problem

Current remote attestation mechanisms are limited to attesting monolithic applications that run within a single TEE

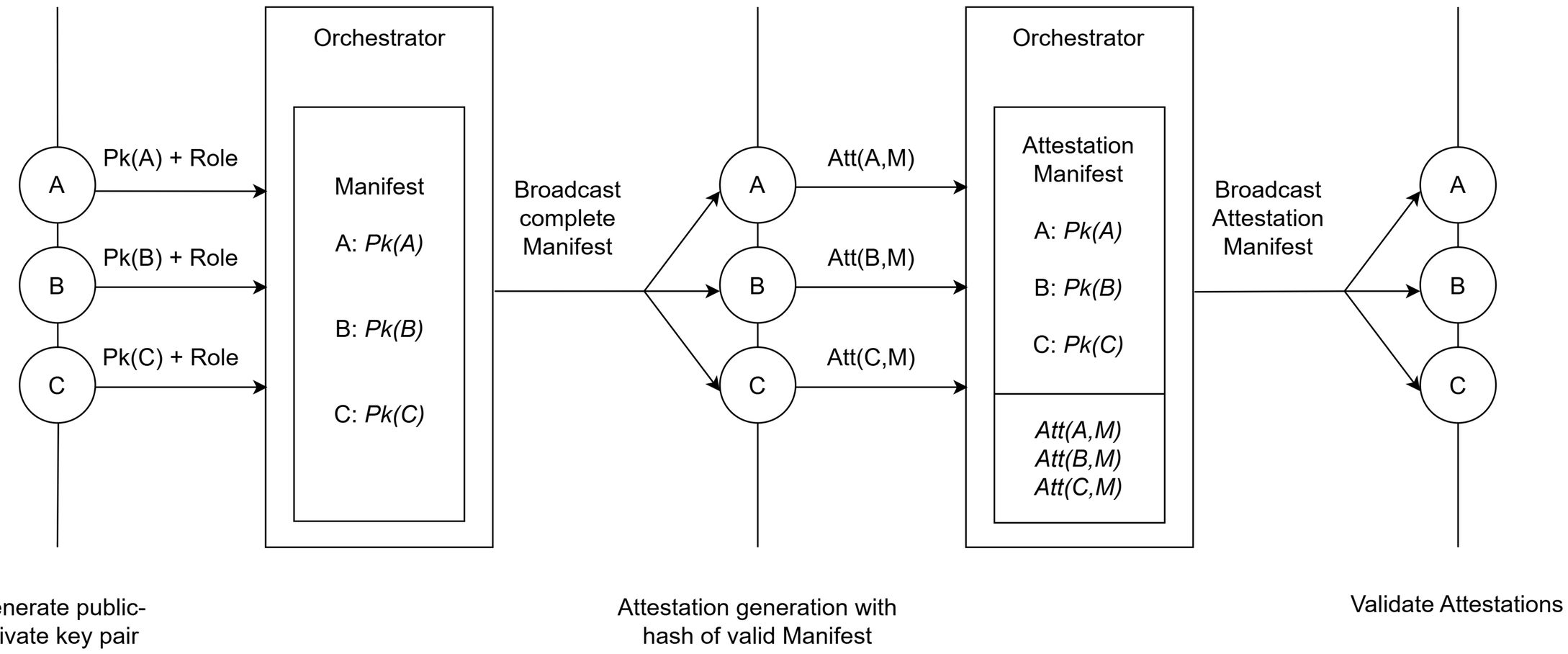


Solution

- Agree on identities of application components with consensus-like protocol
- Components attest their own identity and consensus result on individual machines
- Manifest + individual attestations attest whole application

Contributions

- A distributed application can attest itself as a single unit, ensuring all underlying components execute the right code and all configuration is correct
- Implementation with two TEEs (Intel TDX and SGX) demonstrates the practicality of the protocol



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