

DLT Gateway Interoperability

Scope & Architecture

IETF112 Side Meeting
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Thomas Hardjono (MIT), Martin Hargreaves (Quant), Ned Smith (Intel), Rama Ramakrishna (IBM)

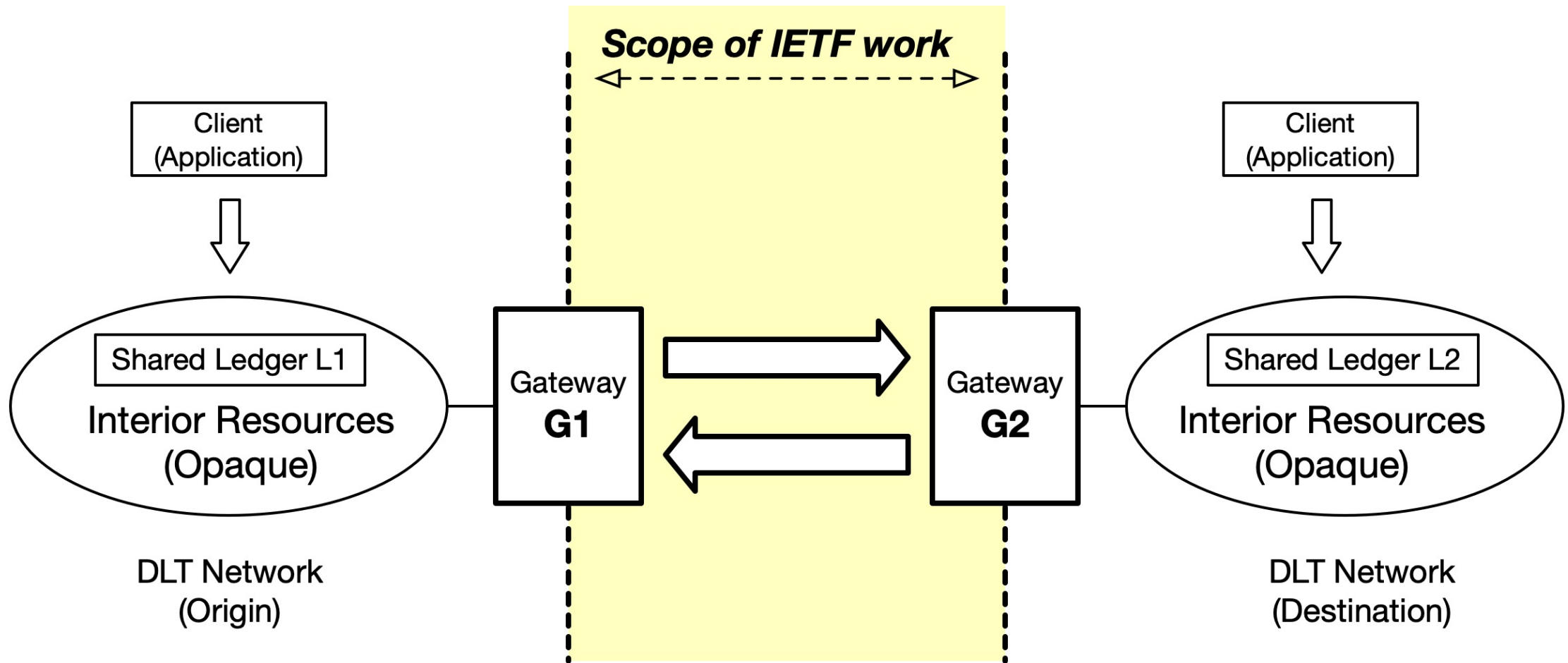
Problem Statement

- Poor (no) interoperability of Blockchain/DLT networks
 - Each DLT network has unique internal constructs
 - Today asset transfers mediated by centralized entities
- Meaning of “DLT interoperability”:
 - Digital assets can freely move across DLT networks
 - Authorized data can be “exported” and validated (Views)
 - Atomicity properties (ACID)
 - Security & integrity properties

Proposed Solution: DLT Gateways

- One or more Gateways in each DLT network
- Used primarily for cross-DLT asset transfers or swaps
 - Also for authorized-data exports
- Assume DLT-resources are opaque to external entities
- Gateway hides DLT-specific characteristics:
 - Inbound: has access to interior DLT resources
 - Outbound: peers with gateway in another DLT network
- Implements Gateway-to-Gateway protocol

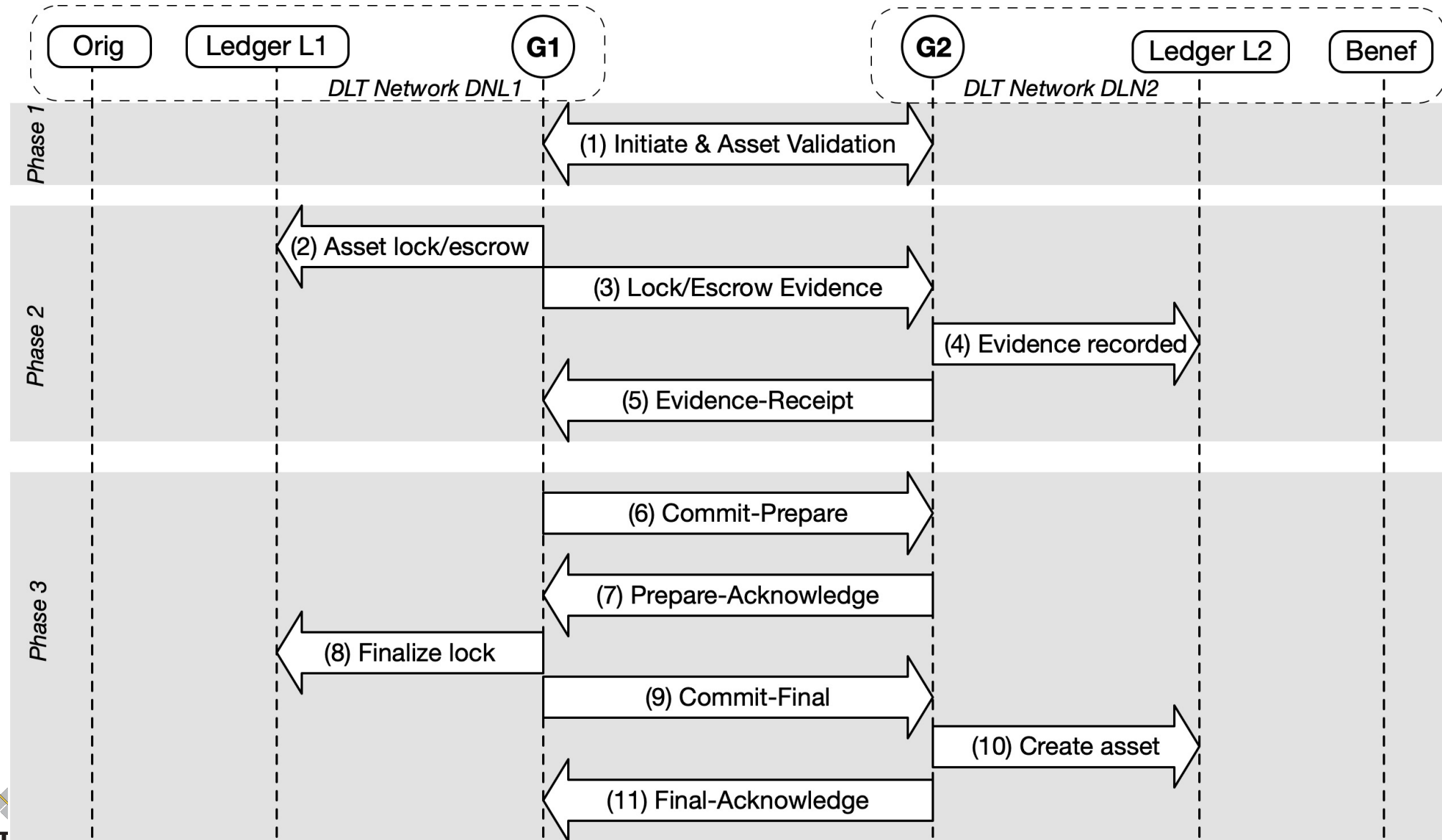
Scope of Work



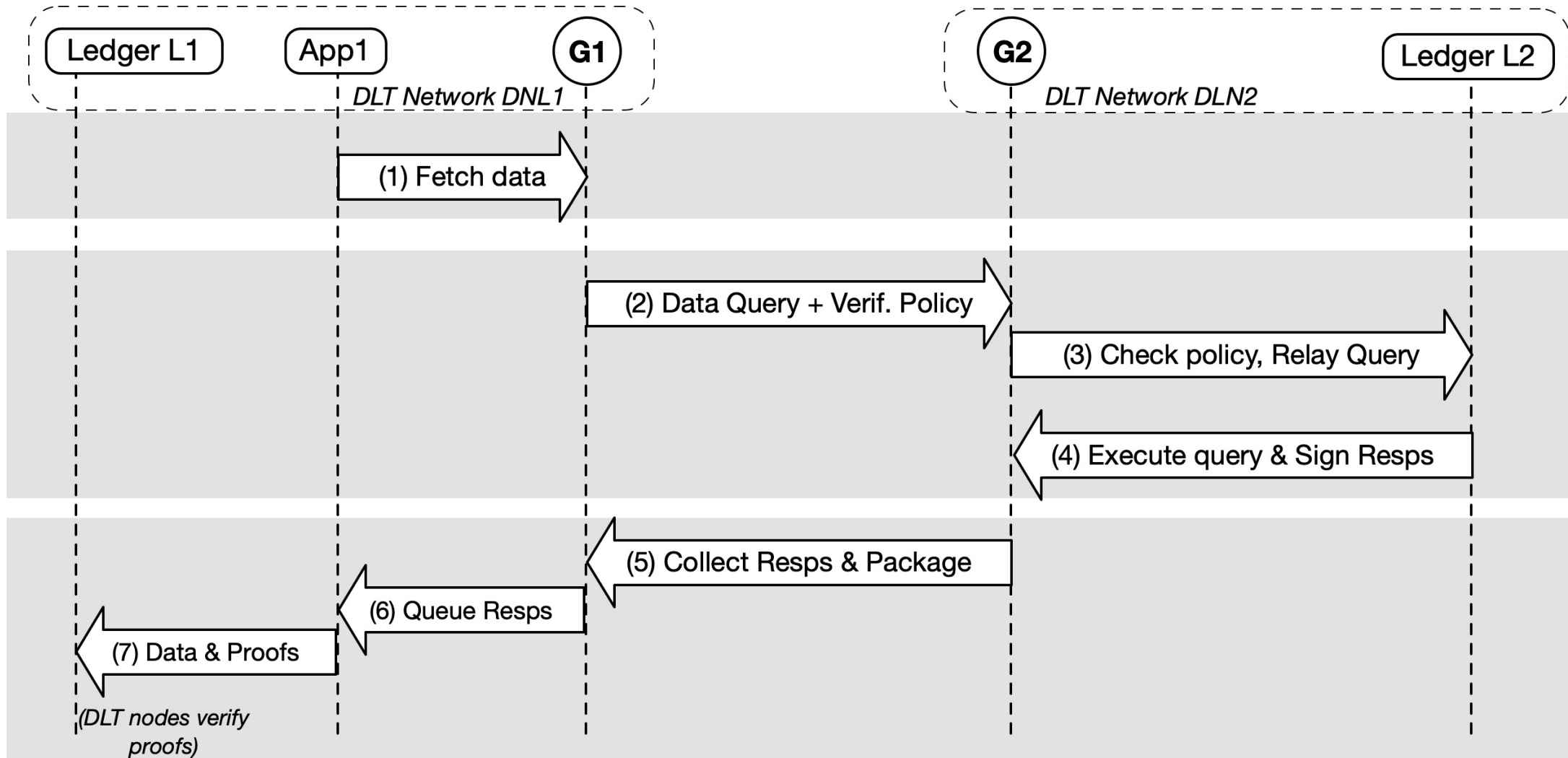
Scope of Work

- Gateway API-endpoint definitions
- Resource identifiers/addresses
- Payload definition
- Message flows
- Secure channel establishment (e.g. TLS1.3)
- Terminology (extending NIST 8202)

Asset Transfer: Overview



Data Transfer (Views): Overview



Out of Scope

- Blockchains and DLT systems
- Consensus & BFT protocols, PoW, PoS, etc.
- Cryptocurrencies, tokenization, NFTs, etc.
- Incentive mechanisms, economic models; etc.
- Zero-knowledge proof (ZKP) protocols & ciphers, etc.
- Authentication & Authorization protocols, etc.
- Concurrency control algorithms, etc.
- Identity management & user privacy, etc.
- Others (e.g. DLT-specific interior constructs)

List of current drafts

- DLT interop architecture draft
- Asset transfer protocol draft
- Gateway crash recovery draft
- Gateway discovery draft
- Data sharing (Views) draft
- Asset definition/profile draft
- Glossary (soon)

Welcome to join group

- Group has been meeting bi-weekly since Sept 2020
- Operates under IETF IPR Rules (IETF Note Well)
- Regular meeting information
 - Every second Tuesday 8am-PST/ 11am-EST/ 16:00-UK
 - Zoom
- IETF mail-list
 - <https://www.ietf.org/mailman/listinfo/blockchain-interop>