Trellis**fw** - IBM Food Trust JavaScript API - **NPM** package

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Draft 0.0.1

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Outline

- **IBM Food Trust and Blockchain**

- **Hyperledger Fabric**
    - **Architecture**
    - **Model**
    - **Network**

- **Demo**

Blockchain

Distributed Ledger

Decentralized

Collaborative

Immutable

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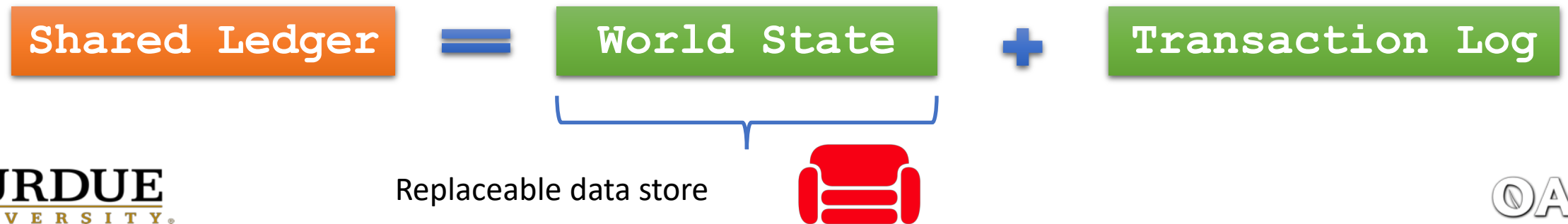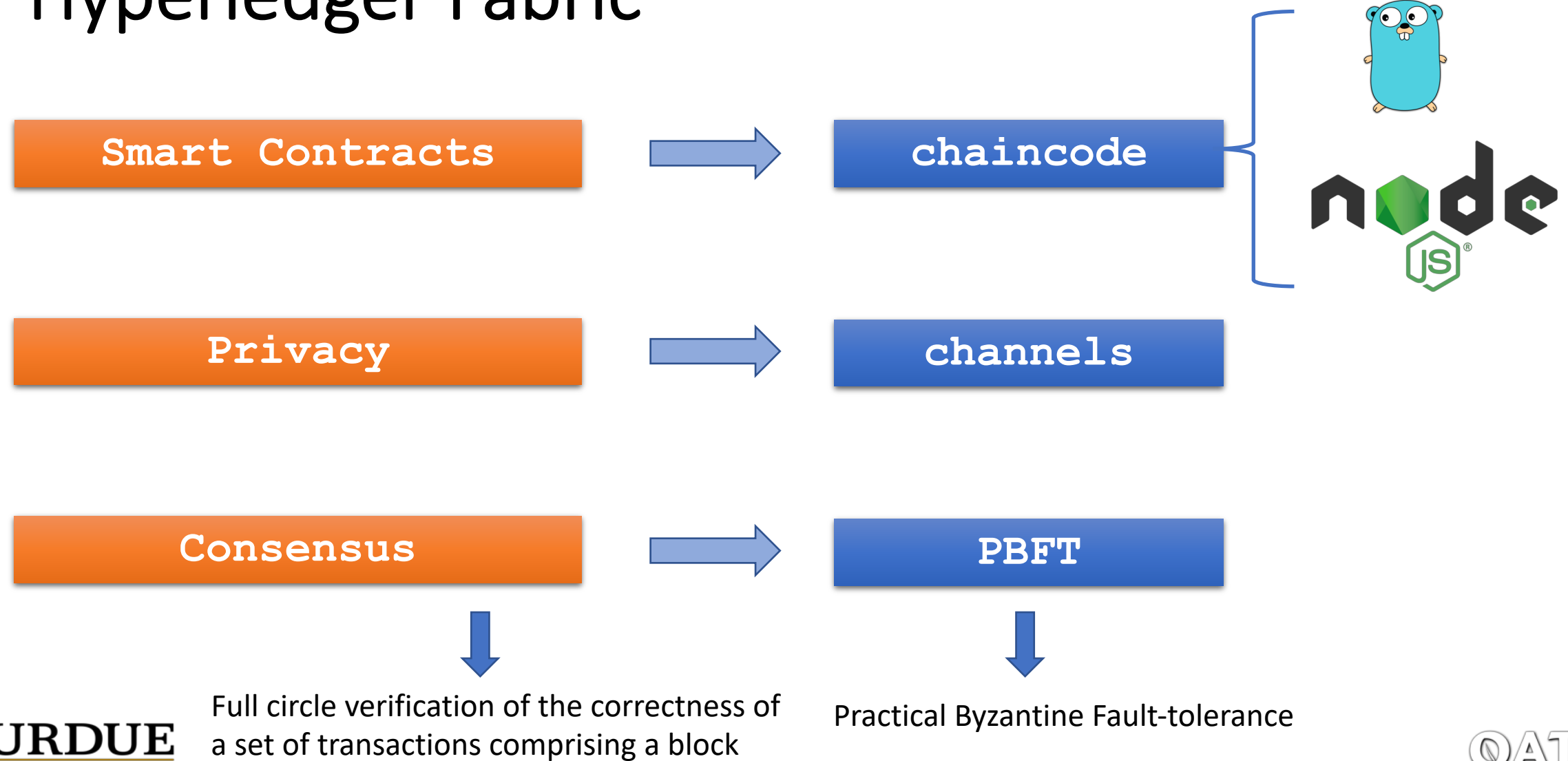
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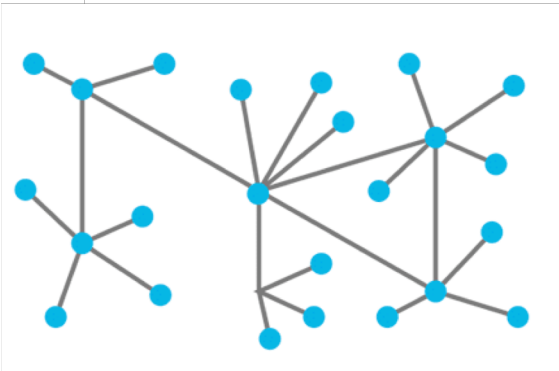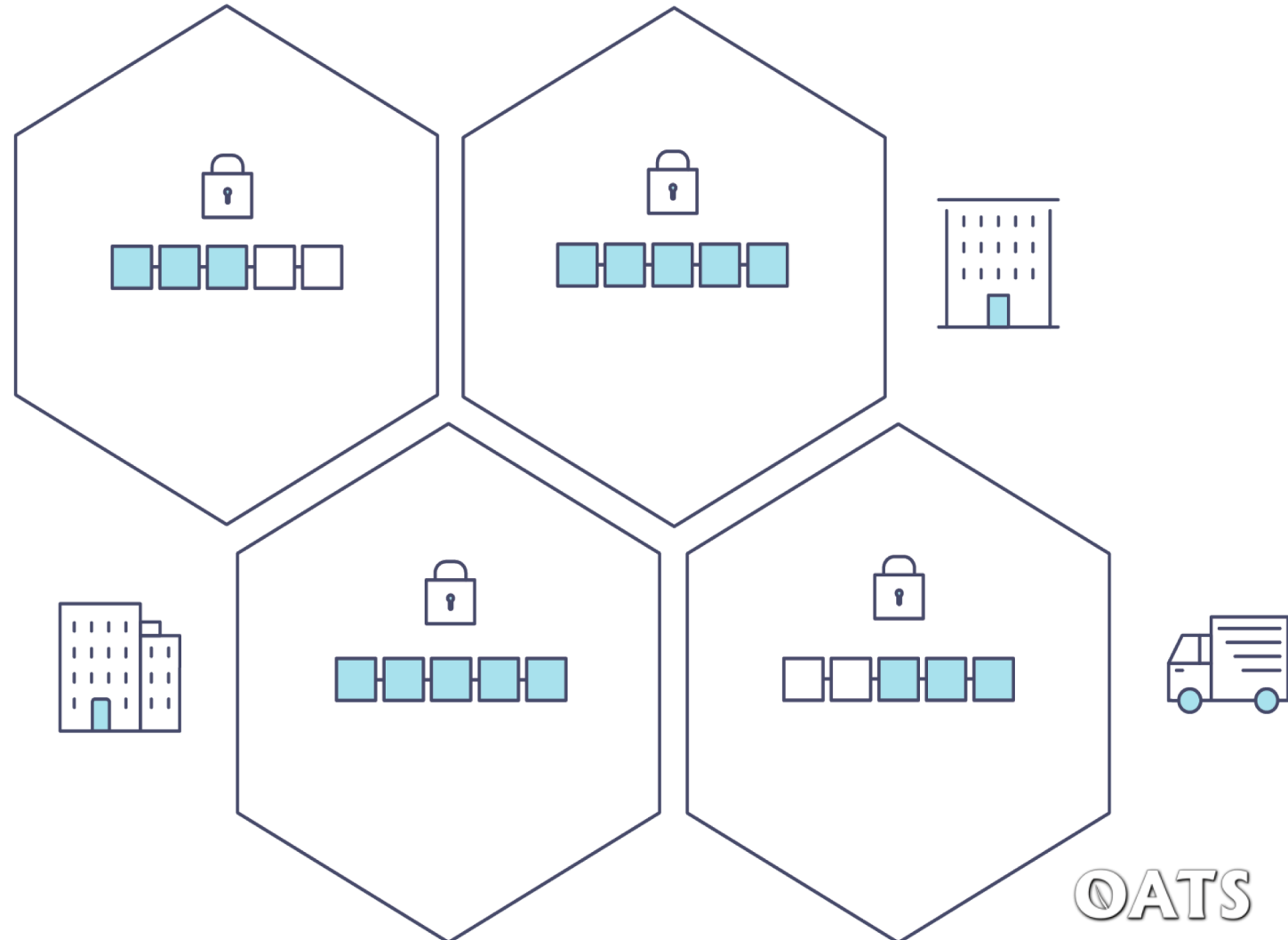
What is Hyperledger Fabric?

Hyperledger Fabric is a **blockchain framework** implementation and one of the Hyperledger Projects hosted by *The Linux foundation*

Shared Ledger = **World State** + **Transaction Log**

Replaceable data store

Hyperledger Fabric

| Smart Contracts | → | chaincode |

| Privacy | → | channels |

| Consensus | → | PBFT |

Full circle verification of the correctness of a set of transactions comprising a block

Practical Byzantine Fault-tolerance

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Components of a Network
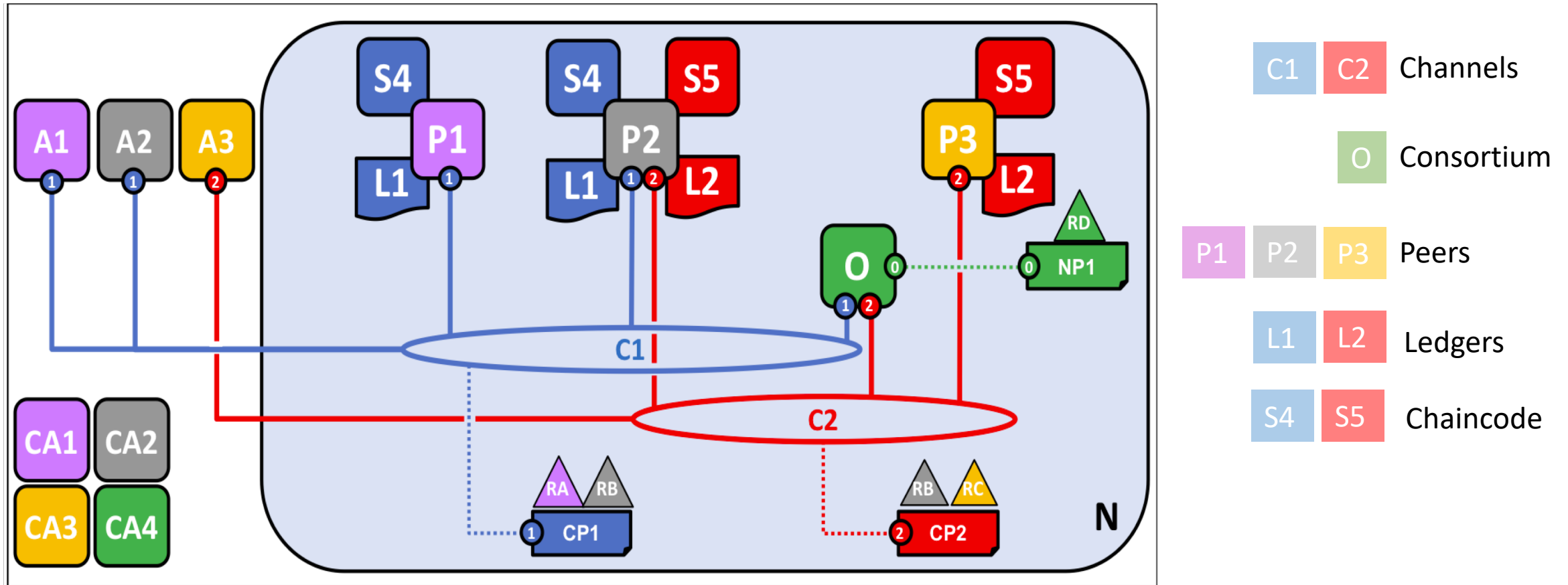
Demo – Querying the Ledger

Blockchain Network

Application

Run query

Return query results

Network endpoint

Smart contract

query

ledger

Key-Value Pairs

https://hyperledger-fabric.readthedocs.io/en/release-1.2/write_first_app.html

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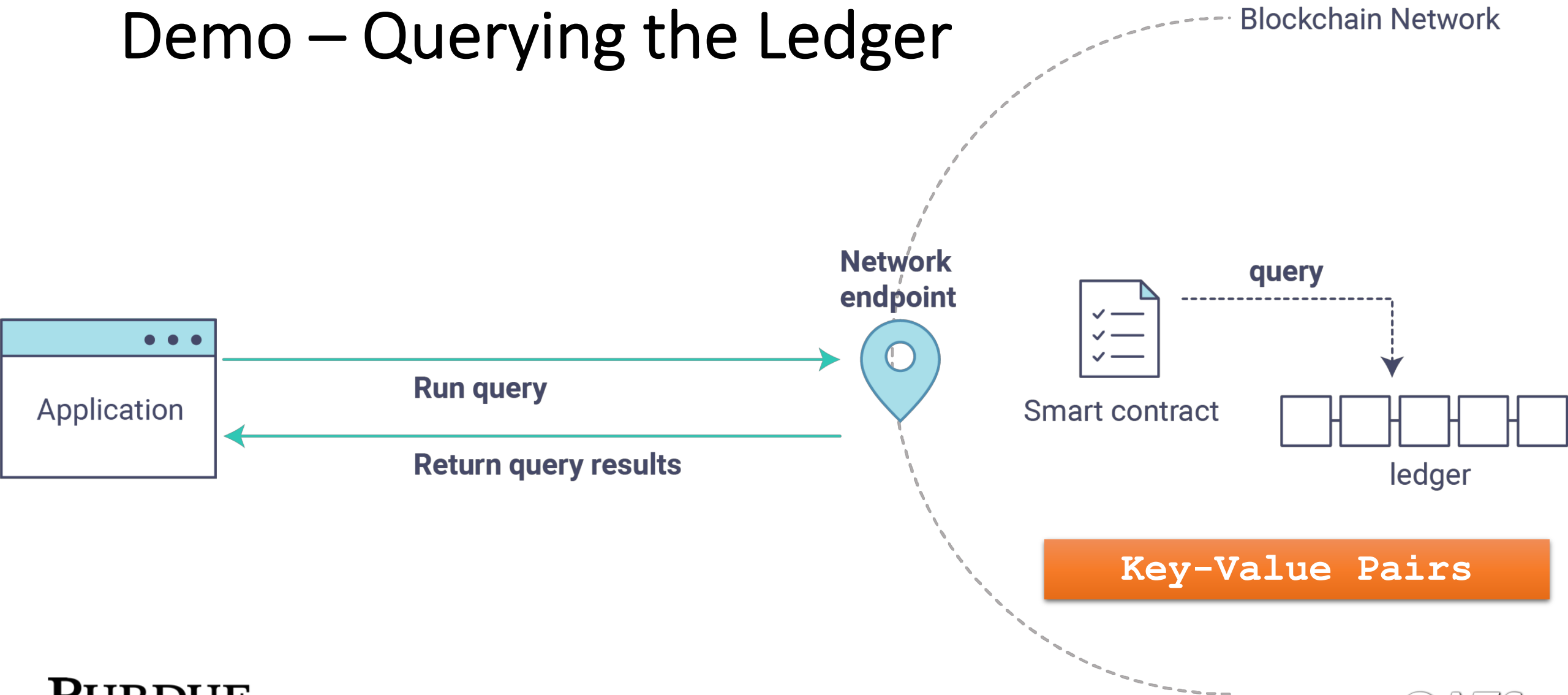
Demo – Updating the Ledger

Blockchain Network

Application

- Propose update transactions
- Order transaction proposals
- Notify ledger updated

Network endpoint

Smart contract

update

ledger

Key-Value Pairs

https://hyperledger-fabric.readthedocs.io/en/release-1.2/write_first_app.html
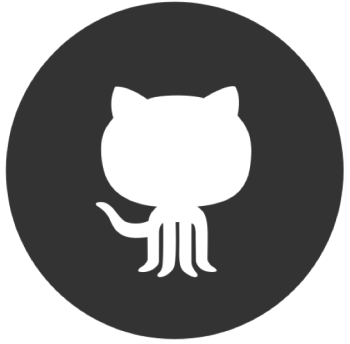
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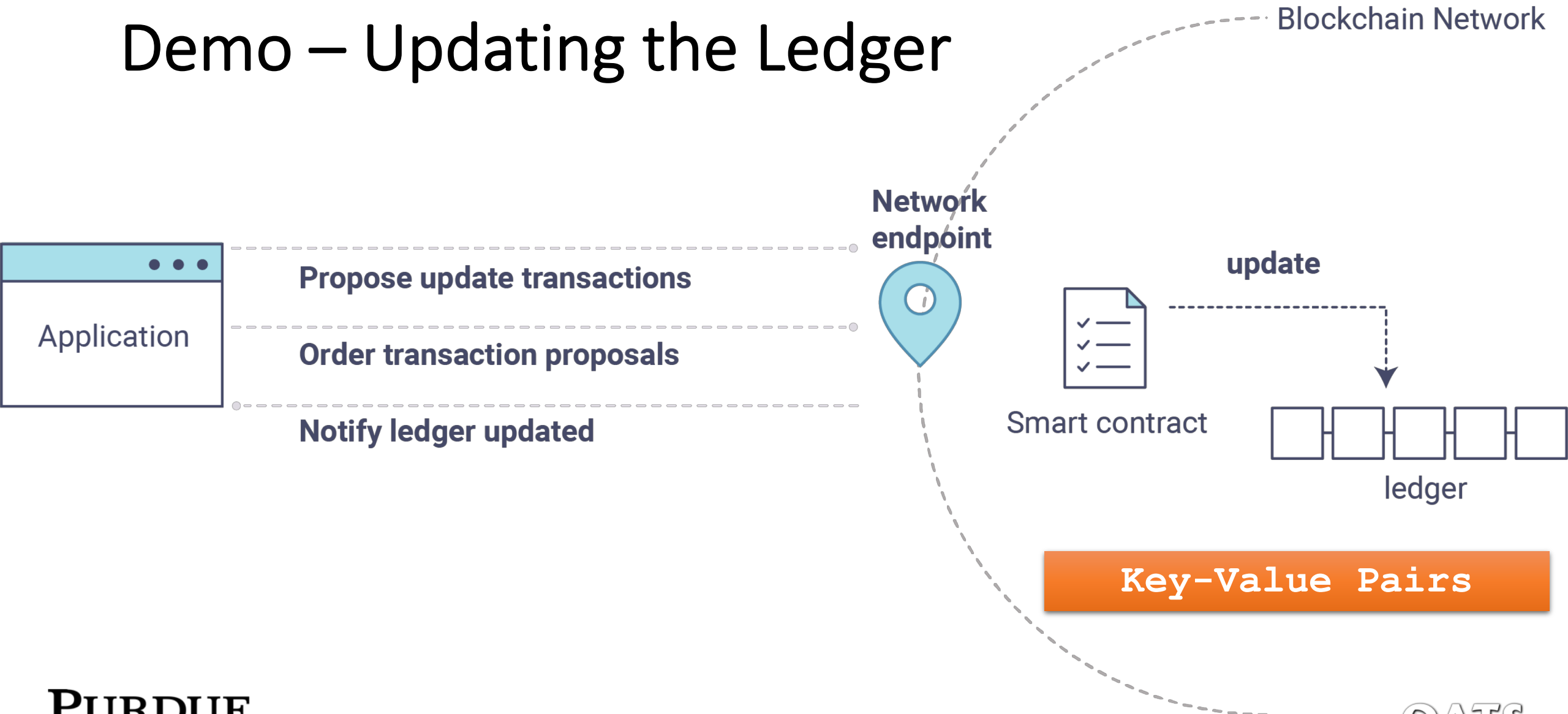
IBM Food Trust (IFT) JavaScript API

Retrieving a certificate

```javascript
const IFT = require("trellisfw-lib-ibmfoodtrust");
const debug = require("debug")("trellisfw-lib-ibmfoodtrust:index");
let ift = new IFT({
  organization_id: "OrganizationIdGoesHere",
  apiKey: "apiKeyGoesHere"
});
/* connecting to IFT framework * retrieving a certificate to the IFT */
return ift .getCertificate("certificateid")
          .then(response => { debug("[FETCHED]", response); })
          .catch(err => { debug("Error: Failed to getCertificate() to hyperledger.", err);
});
```

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IBM Food Trust (IFT) JavaScript API

Creating a new certificate

```javascript
const IFT = require("trellisfw-lib-ibmfoodtrust"); …
return ift .putCertificate(audit, certificate)
        .then(hyperledgerId => {
            debug( certificationId, "Successfully pushed to hyperledger. id:", hyperledgerId );
        })
        .catch(err => {
            debug( certificationId, "Error: Failed to putCertificate() to IFT.", err );
        });
```

https://github.com/trellisfw/trellisfw-lib-ibmfoodtrust

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