Bedrock Business Utility

Public Identity Utility, LF Operational Project

Bedrock Consortium Governance Framework Working Group

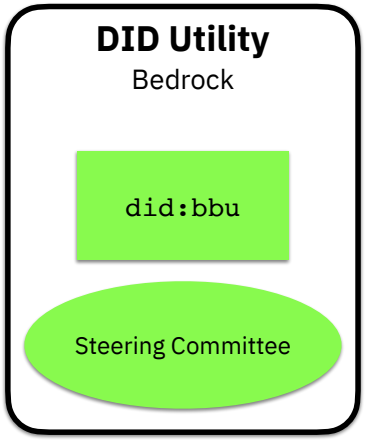
THE LINUX FOUNDATION

Prospective Member Briefing

Agenda Topics

- What is a public identity utility?
- What is BBU?
- Why is BBU needed?
- What is the BBU Business Model?
- What are the BBU Membership Options?
- How is the BBU organized?
- How to join?

Bedrock
trusted data for business

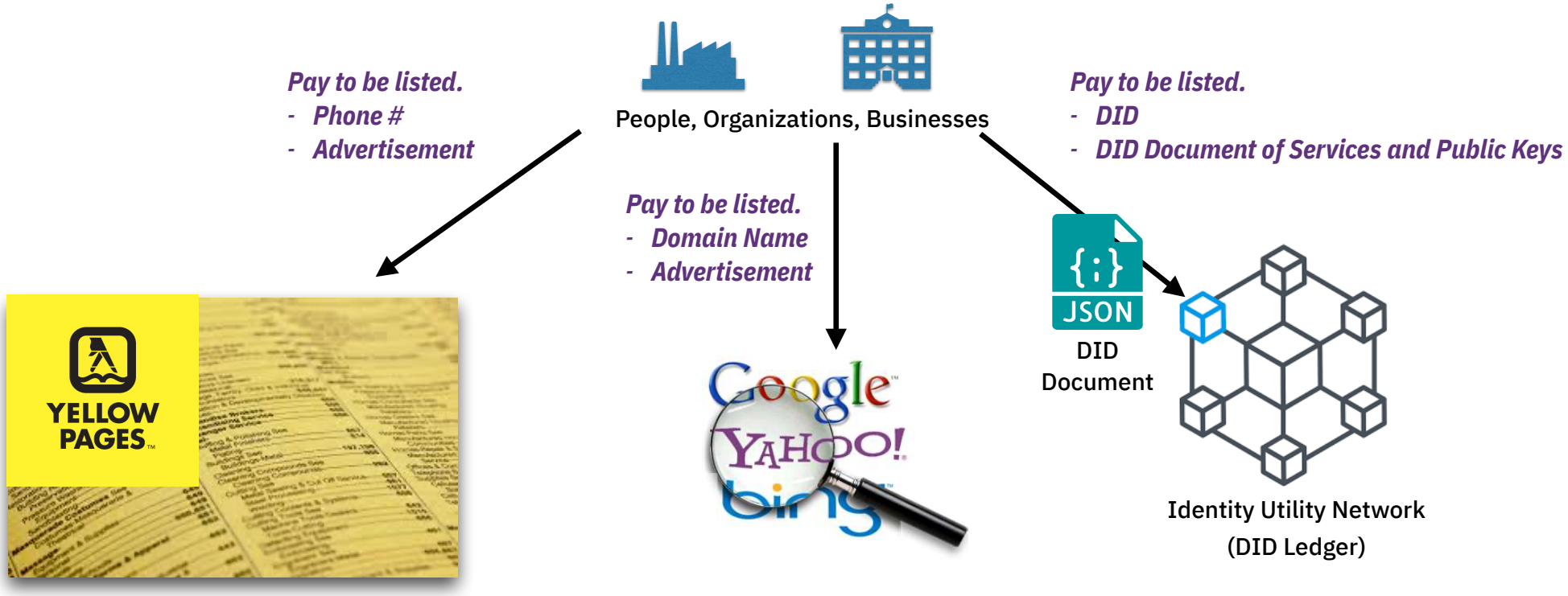


Public Identity Utilities

- How are entities discoverable?
- How do entities become verifiable?
- What influences business models?

How do entities become discoverable?

Lookup and verification business models continue to improve.



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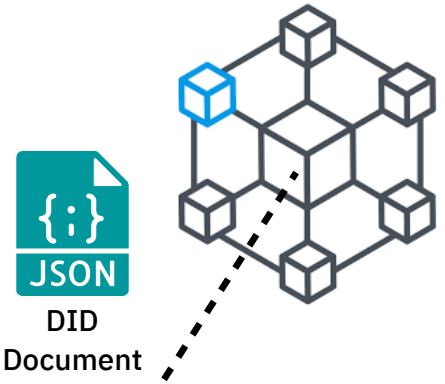
What are the basic concepts of a Public Identity Utility?

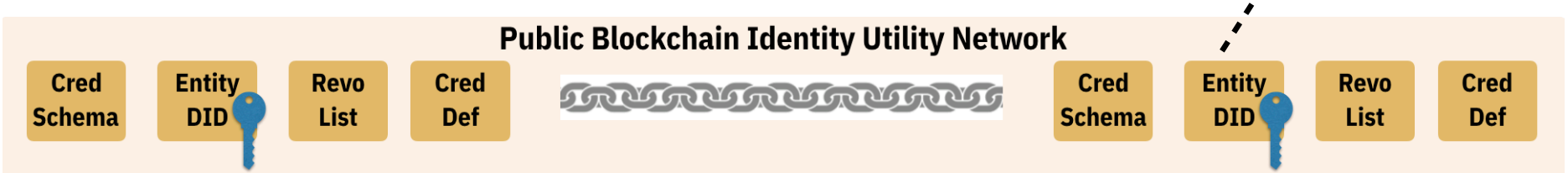
Some introductory terms and concepts.

- **Decentralized identifiers (DID)**: A W3C Specification for unique identifiers.
- **Schema**: A set of attribute data types and formats that can be part of a credential claim. Eg., the fields within a passport/license document.
- **Credential Definition**: A public statement by the issuer that they will publish credentials agains a specific schema(s).
- **Credential**: An issuer-specific data fields that can come from one/more schemas and defines the proofs sent by the holder. Eg., proof of education, age, nationality, etc.
- **Verifiable Credential (vCred)**: A W3C Specification for Verifiable Credentials.
- **Revocation List**: A registry that helps identify the revocation of a private DID of a holder
- **DID v. Verifiable Credential**: DIDs create the cryptographic trust between two entities whereas the verifiable credential creates the business trust across the same.

How do entities become verifiable?

A minimal set of non-personal meta-data is stored on the ledger.

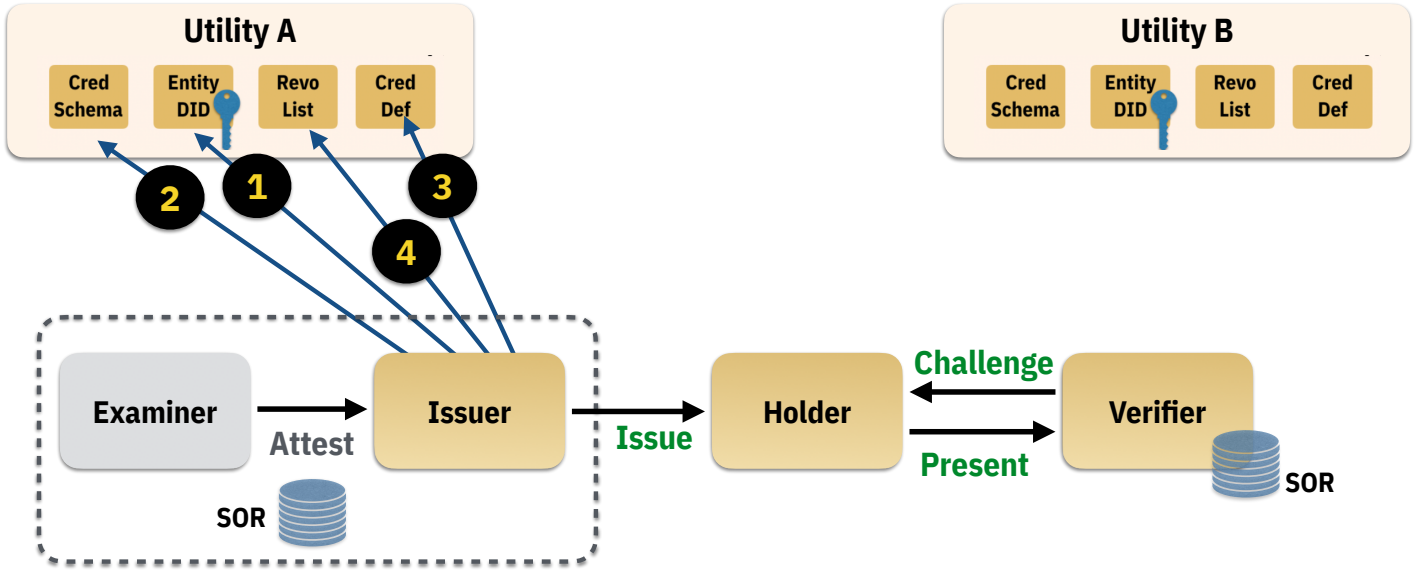




Each write to the ledger will pertain to a set of specific transaction types that may be accompanied by different fee values.

Utility Interactions: Sample issuer transactions

The role of an issuer is responsible for several types of write transactions to a public identity utility.

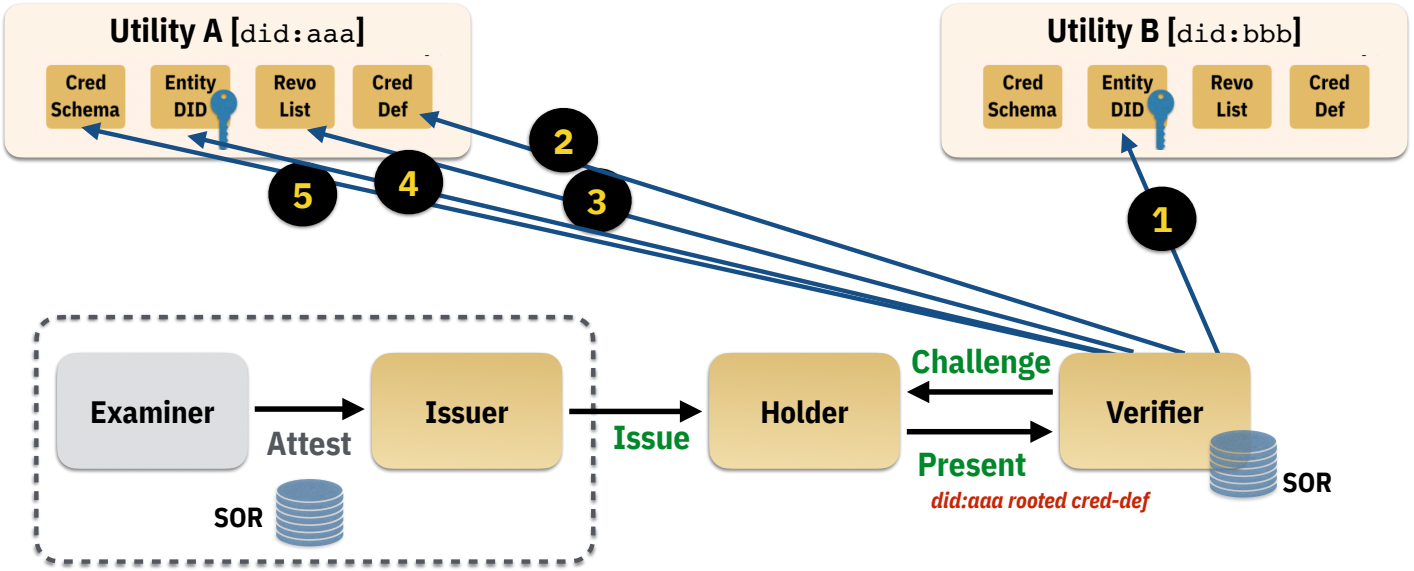


1. Publishing a DID Document containing at least one public key and possibly several service URLS. The DID Document is associated with a Public DID.
2. Publishing a Credential Schema.
3. Publishing a Credential-Definition that allows an Issuer to associate their DID with a specific Credential Schema.
4. Publishing a list of revoked credentials.

NOTE: Public DIDs are written to the public Utility whereas private DIDs are maintained off-ledger.

Utility Interactions: Sample verifier transactions

The role of a verifier is responsible for several types of write and read transactions to one or more public identity utilities.



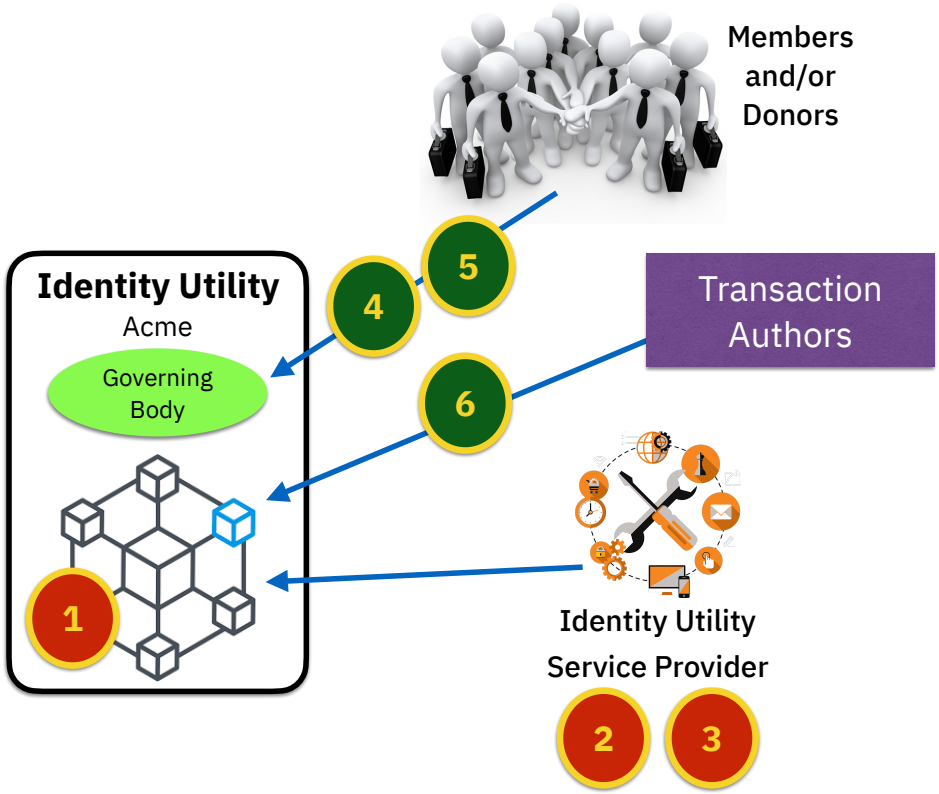
1. Publishing a DID Document containing at least one public key and possibly several service URLS. The DID Document is associated with a Public DID.
2. Process presented credential. Locate Utility associated with DID Root Namespace and validate Cred-Def. Fail verification process if does not exist.
3. Check if Credential is on Revocation List. Fail verification process if true.
4. Validate the existence of Issuer DID corresponding to Cred-Def. Fail verification process if not valid.
5. Validate the existence of Credential Schema corresponding to Cred-Def. Fail verification process if not valid.

What factors impact an identity utility business model?

Identity Utility Networks have specific income and expense characteristics that are addressed by the principles, polices and procedures outlined in their governance frameworks.

- **Expenses**
  1. Node Hosting
  2. Network Operation and Maintenance Services
  3. Consortium Governance

- **Income**
  4. Consortium Membership
  5. Community Donations
  6. Transaction Revenue



Bedrock Business Utility (BBU)

- Who is the Bedrock Consortium?
- What is the BBU?
- What are goals of the Governance Framework?

Bedrock Consortium

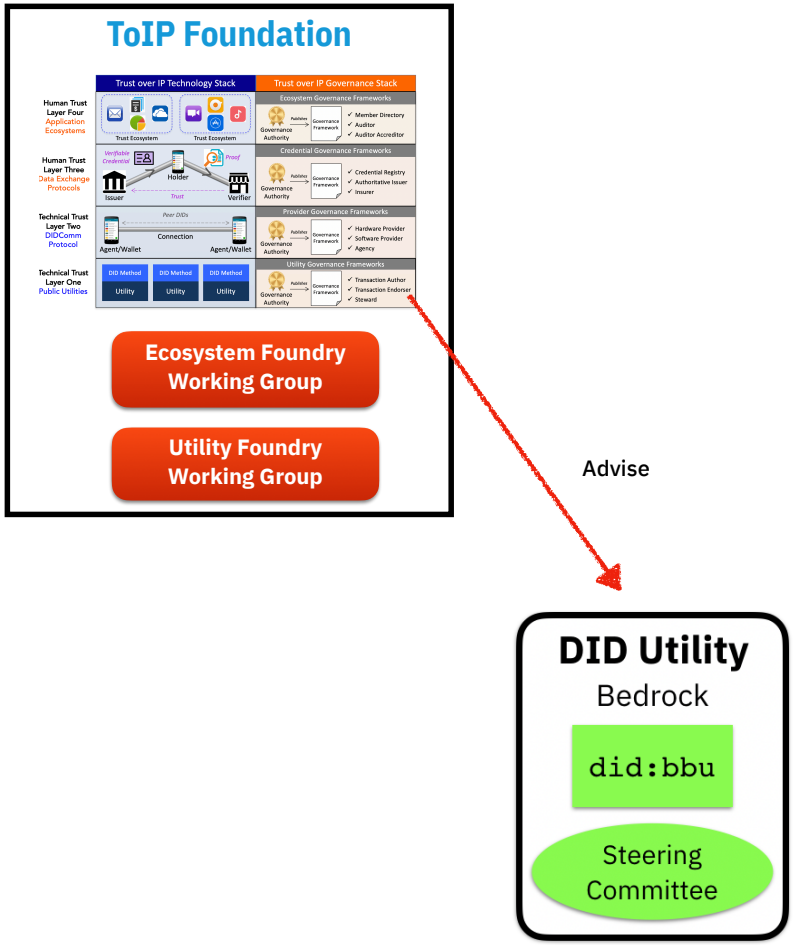
A participant in the digital trust marketplace influenced by the ToIP Foundation.

- A collection of international private sector companies that operate the Bedrock Business Utility
- Initially represented as 9 *prospective members* seeking to establish the new BBU.
- Comprised of organizations that:
  - desire to participate in digital trust ecosystems
  - share a common interest in collaborating on the delivery of the infrastructure and governance necessary for a dedicated and trusted public identity utility based on decentralized identity technology.

Bedrock Business Utility

A instance public identity utility.

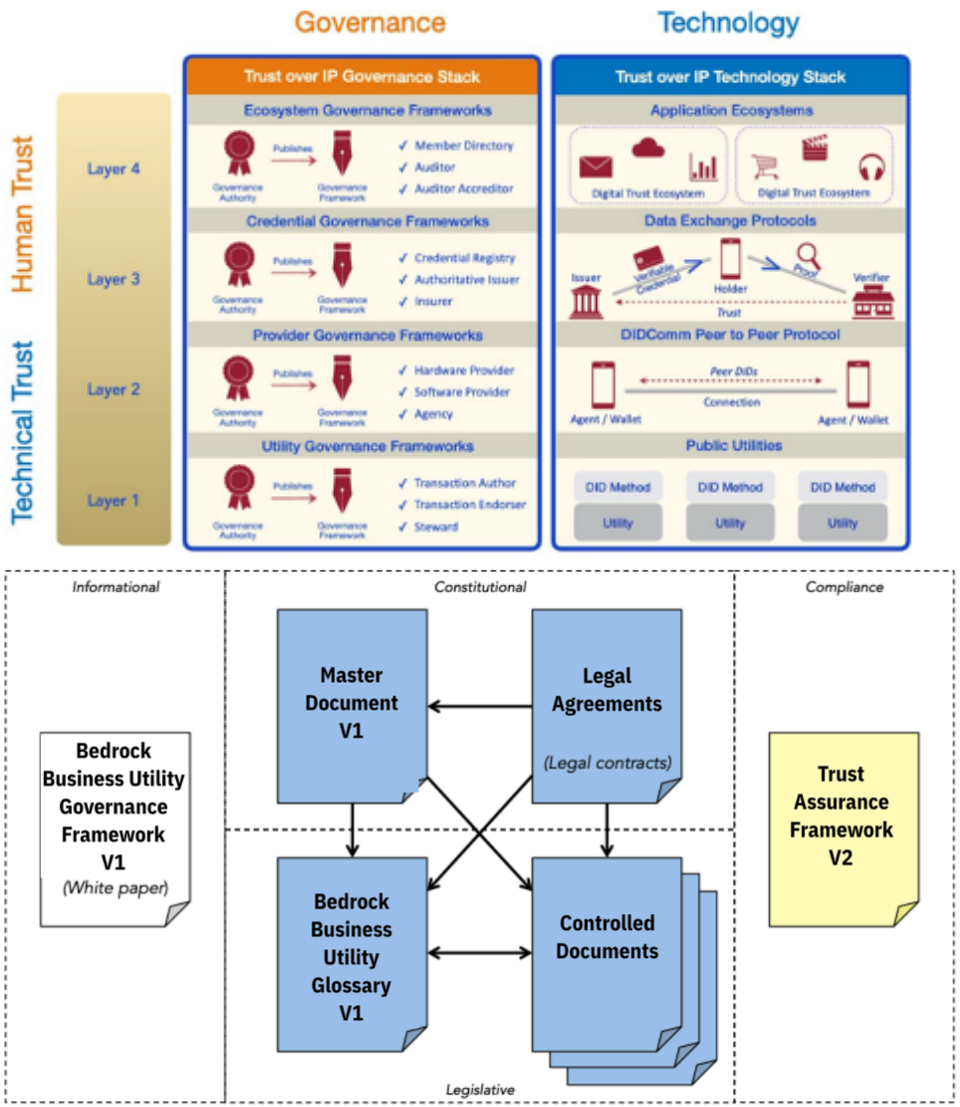
- An independent self-governed non-profit legal entity
- Operates as a self-sustainable directed fund project under The Linux Foundation.
- Operated by the Bedrock Consortium.
- Intended to reliably serve the verifiability of both physical and online digital identity interactions.



Governance Framework

A compendium of informational, constitutional and compliance oriented documents used to govern a Layer 1 Public DID Ledger.

- Enforce permissioned-writes with contractual instruments that will conform to privacy regulations such as GDPR.
- Maintain financial sustainability of the consortium members without the use of cryptographic tokens.
- Establish a governing board so that no single organization owns the Identity Utility.
- Adhere to specified open standards and protocols.

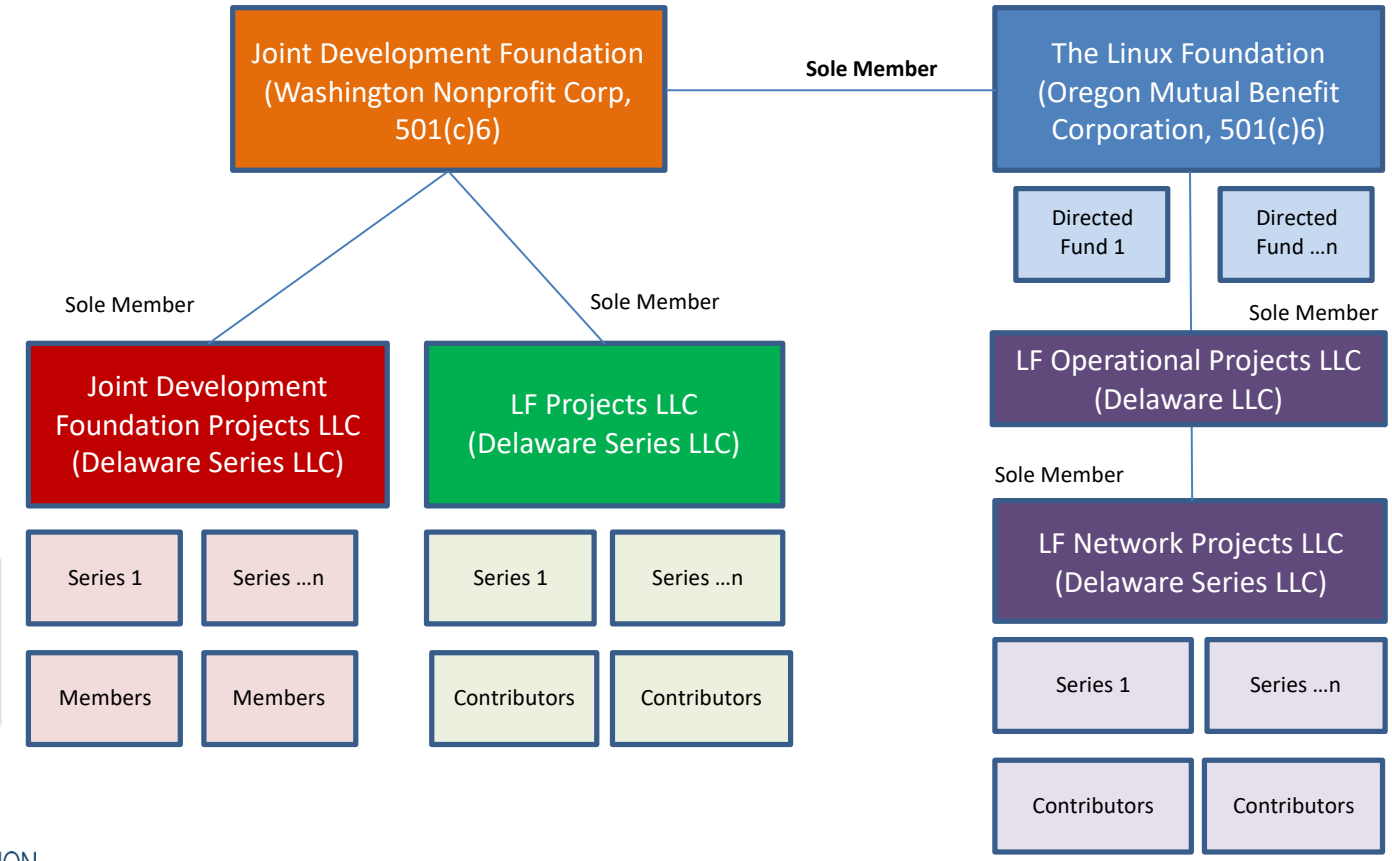


Legal Entity Model

- What LF Legal Entity Structure?
- What is BBU affiliation with ToIP Foundation?
- What contractual instruments are required?

Linux Foundation: Legal Entity Structure

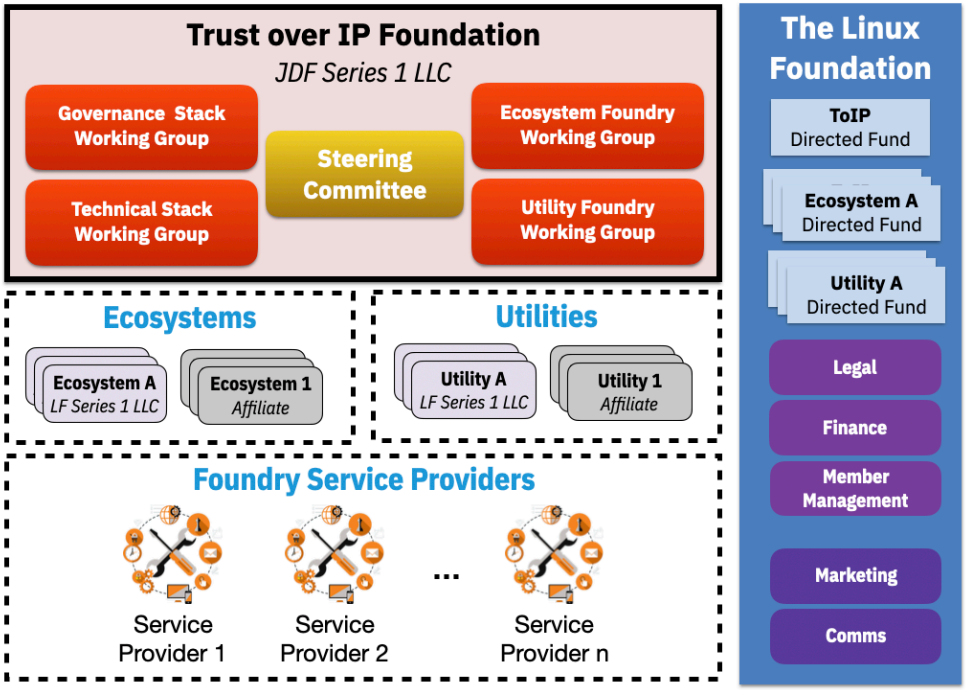
The LF provides a proven and reproducible organizational structure for a variety of open source project.



ToIP Foundation Affiliation

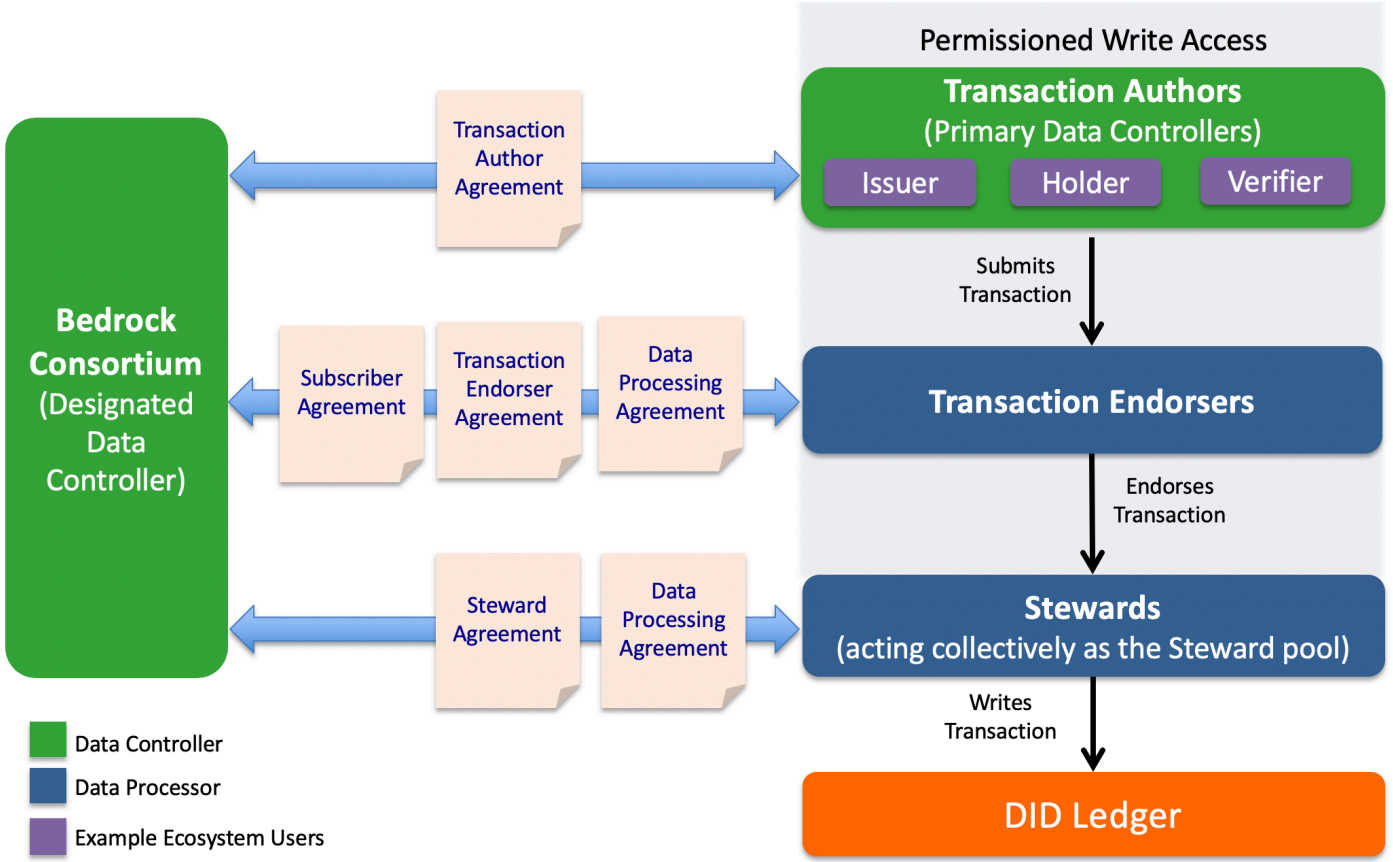
The BBU operates as a Linux Foundation Operational Project (a Delaware series limited liability company) under its own governance framework.

- The ToIP Foundation provides an open source collaborative community for the technologies and services necessary to establish, operate, maintain and govern digital trust ecosystems.
- BBU is an instance of a independent non-profit legal entity
  - Utility Series 1 LLC
  - Utility Directed Fund



Bedrock Business Utility: Contractual Instuments

A dedicated decentralized identity utility for trusted commerce that is a safe-zone for enterprises.



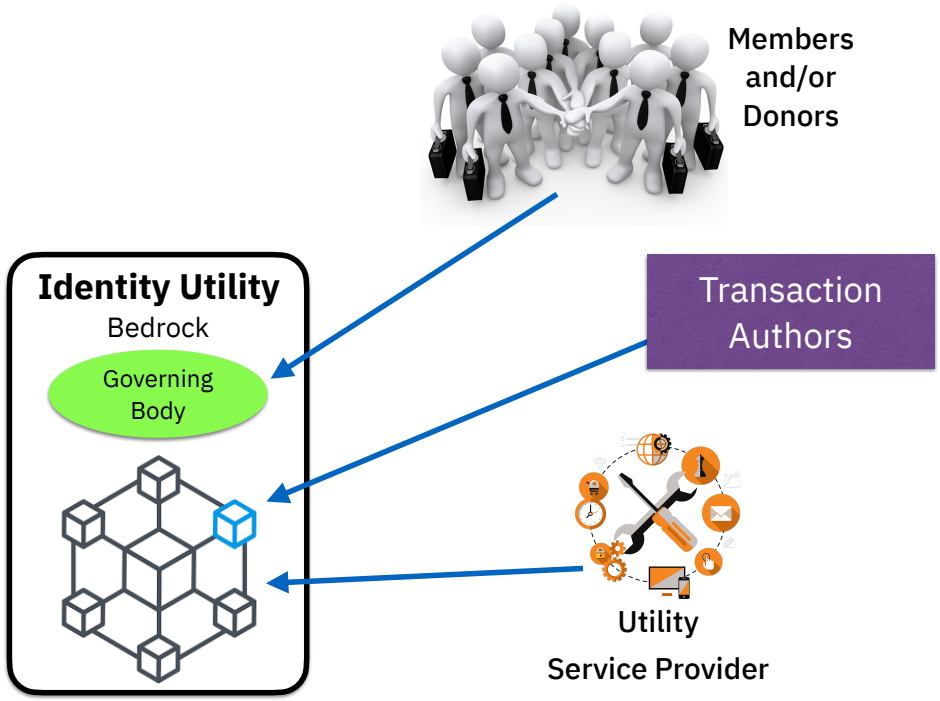
Key BBU Concepts

- What is the BBU business model?
- What are the BBU access policies?
- What membership types are available?

Business Model

Self-sustainability is a key BBU principle.

- Governance Framework
  - Version 0.9
  - Online: http://bbu.bedrockconsortium.org/
- Income
  - Annual Membership Fees
  - Members receive transaction entitlements that they can monetize
- Expenses
  - Ledger Operations and Maintenance is outsourced to a Utility Service Provider.



Business Model

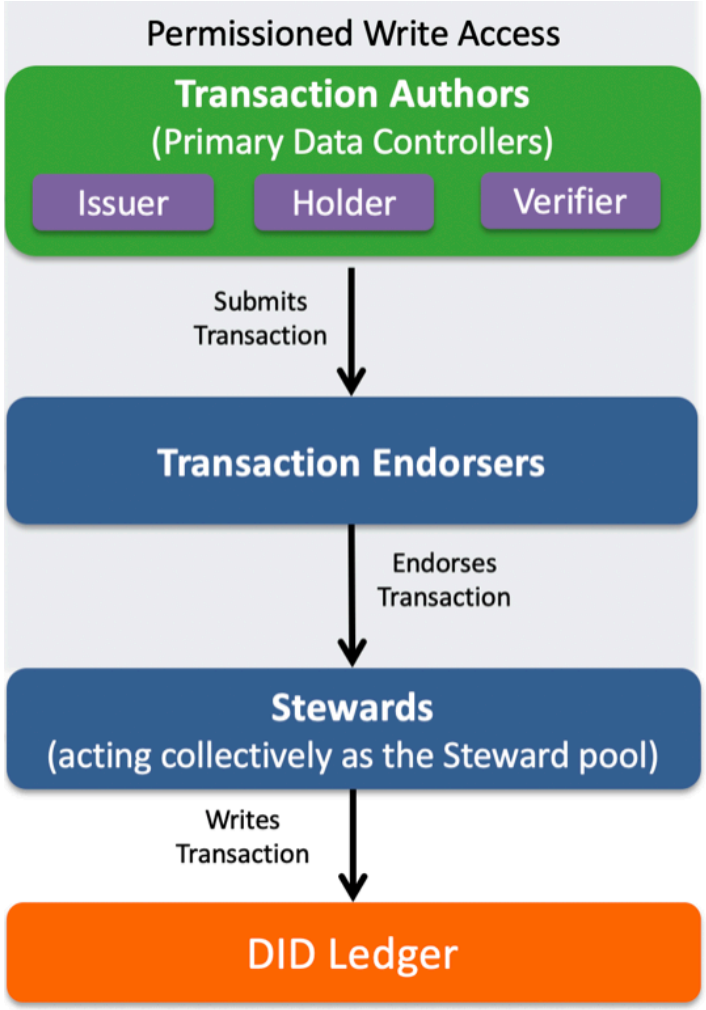
There are several factors that need to be considered with respect to a sustainable business model

	Node Hosting	Network O&M Services	Membership Revenue	Transaction Revenue
Concept	A single centralized entity can not own and operate the ledger or the nodes attached to the ledger.	The management of a distributed ledger MUST be administered by skilled personnel.	Read transactions are generally publicly accessible and free, write transactions are typically fee-based.	The governing body of a public identity utility may charge fees for write access.
BBU Perspective	Some members are required to host nodes and are responsible for the financial demands of such hosting.	The Board of Directors will will hire personnel responsible for the operation and maintenance of the Utility.	Write transactions are entitlements of membership.	The BBU does not collect revenue from transaction fees.Transaction Endorsers are free to charge any fee they desire for access to their write transaction entitlements.

Ledger Access Policies

Permissioned access is a key BBU principle.

- Permissioned Writes via Membership Entitlements
  - Transaction Authors submit write requests
  - Transaction Endorsers must approve all write requests
  - Stewards process write requests
- Read access is available to the public



Membership

Entities can join and renew membership on an annual basis under three possible membership types.

	Governing Member (Steward)	Operational Member (Steward)	Subscriber
Obligations	1. Must host 2 utility infrastructure nodes. 2. Must sign the required Network Agreements. 3. Must volunteer at least one resource to at least one Directed Fund Committee and the Technical Project.	1. Must host 1 utility infrastructure node. 2. Must sign the required Network Agreements. 3. Must volunteer at least one resource to at least one Directed Fund Committee and the Technical Project.	1. Must sign the required Network Agreements.
Entitlements	1. A single representative on the Governing Board. 2. Appointment of representatives to any Committee within the Directed Fund. 3. Approval to act as a Transaction Endorser. 4. Write Transactions as a Transaction Endorser	1. Appointment of representatives to any Committee within the Directed Fund. 2. Approval to act as a Transaction Endorser. 3. Write Transactions as a Transaction Endorser	1. Appointment of representatives to any Committee within the Directed Fund. 2. Approval to act as a Transaction Endorser. 3. Write Transactions as a Transaction Endorser

Membership

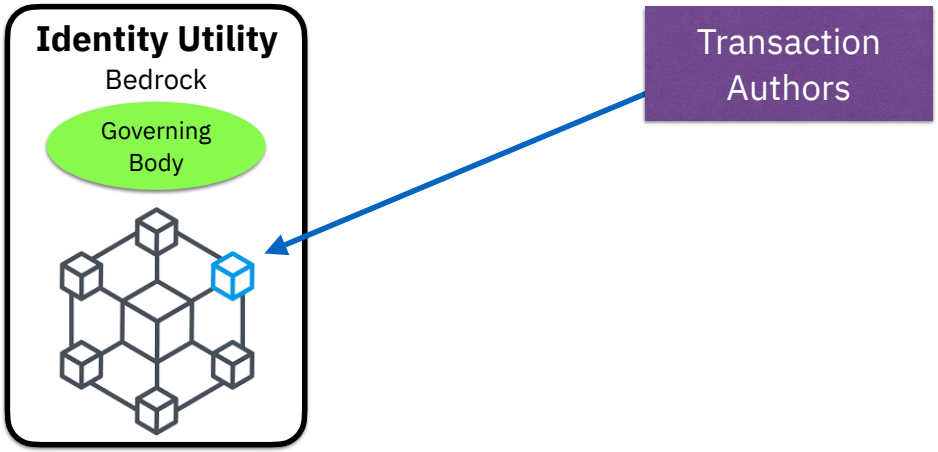
Participants in the Directed Fund must sign the Network Agreements upon entrance and annual renewal. Associate members are limited to participation in committees within the Technical Project.

Network Agreement	Governing Member	Operational Member	Subscriber Member	Associate Member
Steward Agreement	Required	Required		
Steward Data Processing Agreement	Required	Required		
Transaction Endorser Agreement	Required	Required	Required	
Transaction Endorser Data Processing Agreement	Required	Required	Required	
Transaction Author Agreement	Optional	Optional	Optional	Optional

Non-Members

Operational use of BBU and open participation in technical project welcomed.

- Transaction Author
  - Any entity (member or non-member) that is the submitter of a write transaction in support of using the ledger for decentralized identity interactions.
  - Interacts with a Transaction Endorser for the processing of write requests.
  - Must adhere to submitting transaction types outlined in ledger access and ledger data policies.
  - Must sign the Transaction Author Agreement.
- Associate
  - A Contributors License Agreement (CLA) is not required to participation in committees within the Technical Project.



Organizational Structure

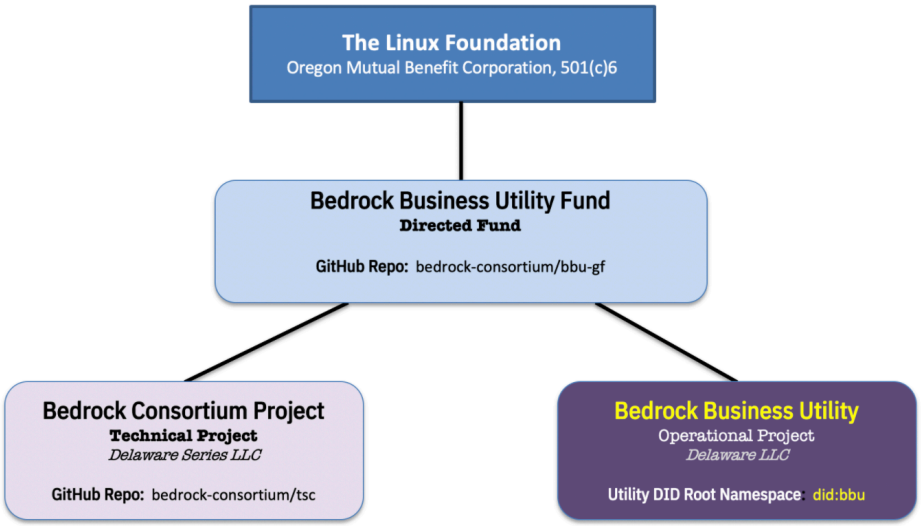
- What is the governing body?
- What committees are available?

Governing Bodies

Each legal entity is assigned a governing body.

- Operational Project
  - Board of Directors (BoD)
  - Membership Committee
  - Finance Committee
  - Audit Committee
  - Governance Framework Working Group

- Technical Project
  - Steering Committee (TSC)



Bedrock Utility Series 1 LLC
Steering Committee: Provides and maintains a governance framework for an independent, self-governed and self-sustainable Utilities at ToIP Layer 1. Responsible for selection of and contracting with a Foundry Service Provider that will provide the Utility enablement services.
Technical Steering Committee: Assists SC with technical requirements and configuration aspects of open source assets. Advice on technical polices and procedures. May interface with ToIP Utility Foundry Working Group.

Participation

- How to join?

Dependencies

Linux Foundation Membership is a pre-requisite for membership into BBU.

- LF Platinum: $500,000
- LF Gold: $100,000
- LF Silver:
  - Under 100 employees: $5,000; 100-499 employees: $10,000; 500-4,999 employees: $15,000; 5,000 or more employees: $20,000.
- LF Associate membership is available for non-profit, open source, and government entities at no cost.

Membership

Linux Foundation onboarding process allows for simple DocSign activation.

- Join LF, if not an existing member.
- Select Membership Class and sign required agreements:
  - Participation Agreement
  - Network Agreements
- Pay invoice

- NOTE: Prospective Members receive *First Right of Refusal on Governing Membership* up to a certain date.

Membership Class	Annual Membership Fees	Node Hosting Requirement	Write Transaction Entitlements
Governing Member	$15000	2	Unlimited
Operational Member	$30000	1	Unlimited
Subscriber Member	$40000	0	50
Associate Member	$0	0	0

Subscriber membership comes with 50 transaction entitlements per annual membership. Additional transactions can be acquired per annum @ $10K / 50.

While a Subscriber may purchase an unlimited number of entitlement packages, all unused transactions expire at years end without rollover.

Thank you

Related resources:

linuxfoundation.org

trustoverip.org

bedrockconsortium.org

Bedrock GitHub Repo

Bedrock Governance Framework