OB*AD*A

the **O**pen

Blockchain for

Asset **D**isposition

Architecture

DAO meeting
March 3, 2022

3/3 Agenda

Agenda

Existing Business

- Existing Business
  - Administrative
  - Decentralization (Path to DAO voting)

New Business

- OBADA Blockchain Status Update

Implementation Teams

- Node Installers
- PoC 1: Physical Layer
- PoC 2: Inventory Systems "Carfax"
- PoC 3: Trust Anchors

Other Teams

- Documentation Team (Foundation)
- Standards Team (Foundation)
- Marketing Team: G

Administration

- Attendance
- Legal Clauses
- Announcement of any Proxy votes for this meeting
  - To indicate a proxy vote, please email Mark/Rohi prior to the meeting with whom your proxy vote will be. Proxy voters must be DAO members.
- Approval of February 3, 2022 minutes
  - 1st Neil; 2nd Robin.

OBADA

**DAO Membership
Attendance 3/3/22 meeting**

Techreuse	Charles Brennick	CELX Advisory, LLC	Guennael Delorme
Good Point Recycling	Robin Ingenthron	E-Reuse Services Inc.	Sarah Kim
Tradeloop	Rohi Sukhia	iFixit	Kyle Wiens
Rhapsody Ventures	Vincent Lui	JT Environmental Consulting, Inc.	Jason Teliszczak
The Broker Site	Brian Altman	The Repair Association	Gay Gordon-Byrne
World Data Products, Inc.	Neil Vill	XS International, Inc.	Todd A Bone
USODY	David Franquesa	Dynamic Lifecycle Innovations	Bobbie Suhr
ASCDI	Joseph Marion	Eagle Advisors, LLC	Dirk Wray/Seve Romo
Network Commerce International	Billy Marion- Joe Marion	First Class Networks	Craig Rabe
U Nevada	Ron Lembke	Greentec	Tony Perrotta
DMD Systems Recovery, Inc.	Aaron Zeper	Quantum Lifecycle Partners LP	Gary Diamond
Facilitator	Mark Schaffer	Unduit	Omar Javed

Antitrust Statement

Because this meeting involves representatives of competing businesses, it is important that I get everyone's agreement before we begin so that the meeting will be conducted in full compliance with antitrust laws. We must avoid any comment or action that encourages joint action by participating firms to restrict their competition.

Patents/IP

Participants shall inform OBADA of the identity of each holder of any potential IP or Essential Patent Claims of which they are personally aware if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents

Participants should inform OBADA of the identity of any other holders of potential Essential Patent Claims

Communicating to OBADA

Cause an Letter of Assurance (LOA) to be submitted to OBADA; or

Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible; or

Speak up now and respond to this Call for IP and Potentially Essential Patents If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance, please respond at this time by providing relevant information to OBADA

DAO 2022 TIMELINE (Mark)

1H 2022: "Progressive Decentralization"
- DAO is current run by foundation, facilitated by Mark Schaffer

To do
- Governance
  - Online DAO voting
- Tech Teams
  - "ITAD Services Demo" on Cosmos Testnet
- Standard & Legal Docs
  - Draft of Standard
  - Platform Agreement
- Marketing
  - Plan for Round B Rollout

2H 2022: "Sufficient Decentralization"
- Launch Round B
  - ~77 more DAO members for 100 total
  - Issue 16,000,000 OBD tokens total

2023: Production Launch
- Issue the final 16,000,000 OBD tokens at $1 each for general users

The OBADA Standard
Short overview / reminder

OBADA Standard *1.0 Data Methods*

The OBiT DID: A decentralized identifier for a physical asset

1.1   OBiT DID Formula *to create an identifier for the physical asset*

> **0000ca978112ca1bbdcafac231b39a23dc4da786eff8147c4e72b9807785afee48babc**
>
> version| ----------------------------------- SHA-256 hash of "mfr, part, serial number"----------------------------- | checksum

1.2 IPFS Data Storage Methodology

- Defines how to store asset data and "connect" it to the DID.

1.3 The Data Checksum method *proves the data*

- Hash all data objects together to create a provable *OBiT Checksum*

OBADA Standard *2.0 Physical Layer Processes*

2.1 Physical Asset Identification
- Processes for DID generation (device identification / fingerprinting) via firmware or by physical inspection
- *This enables Proof of Existence & Proof of Possession*

2.2 Asset Disposition Proofs
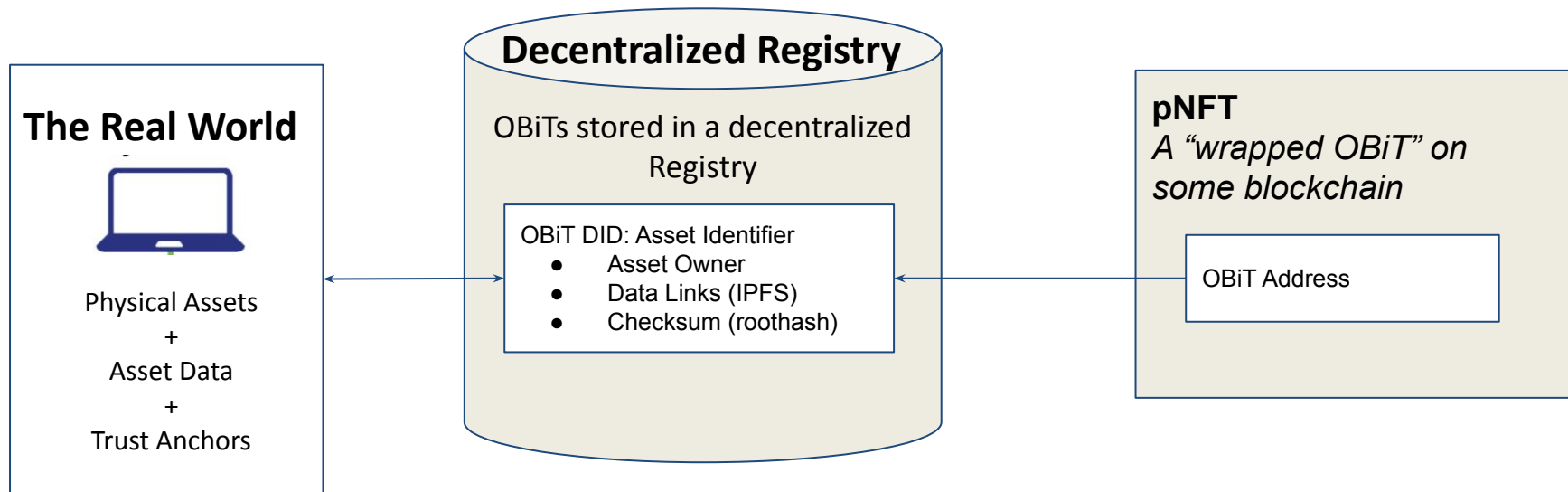- Processes to obtain physical proof of
  - Data Sanitization
  - Functionality
  - Recycling
  - etc.

2.3 Trust Anchor Processes
- Processes to provide Proof of Ownership
- And other processes at the human machine interface level

OBADA Standard *3.0 Communications Protocol*

OBADA DID Method - Interoperability

The Real World

Physical Assets
+
Asset Data
+
Trust Anchors

Decentralized Registry

OBiTs stored in a decentralized Registry

OBiT DID: Asset Identifier
- Asset Owner
- Data Links (IPFS)
- Checksum (roothash)

pNFT
A "wrapped OBiT" on some blockchain

OBiT Address

Key point: The OBiT (asset data) is separate from the blockchain where the NFT resides.

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Current Implementation
(Cosmos)

Current Implementation: No DID Registry

```
Cosmos NFT

{
  "class_id": "OBT",
  "ID":  "12345",
  "uri": not used
  "uri_hash": not used,
  "data": {

        The OBIT
        ●  On-chain data
           ○   encrypted keystore
           ○   On-chain metadata
        ●  Links to data
        ●  Roothash

  }
}
```

The OBiT data is wrapped inside a Cosmos NFT.

No DID Registry is used.

The OBiT is entirely on-chain

Currently the OBiT is wrapped inside a Cosmos NFT.

pNFT w/ OBiT data

pNFT w/ OBiT data

pNFT w/ OBiT data

Cosmos TestNet

Future (2023+) Implementation: DID Registry

```
Cosmos NFT

{
  "class_id": "OBT",
  "ID":  "abcde12345",
  "uri": "did:obit:abcde12345"
  "uri_hash": "obit.checksum",
  "data": {

      The OBIT  (per DID method)
      ●  On-Chain data
          ○  encrypted keystore
          ○  On-chain metadata
      ●  Links to data
      ●  Roothash

  }
}
```
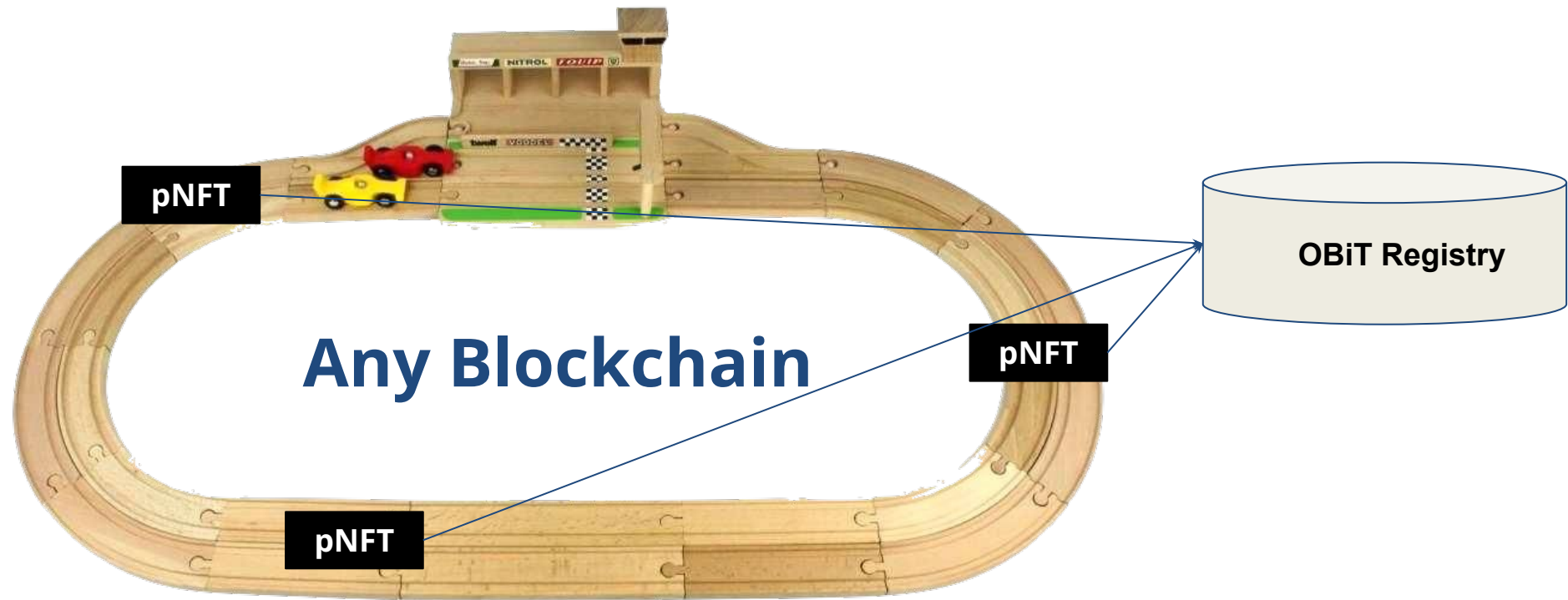
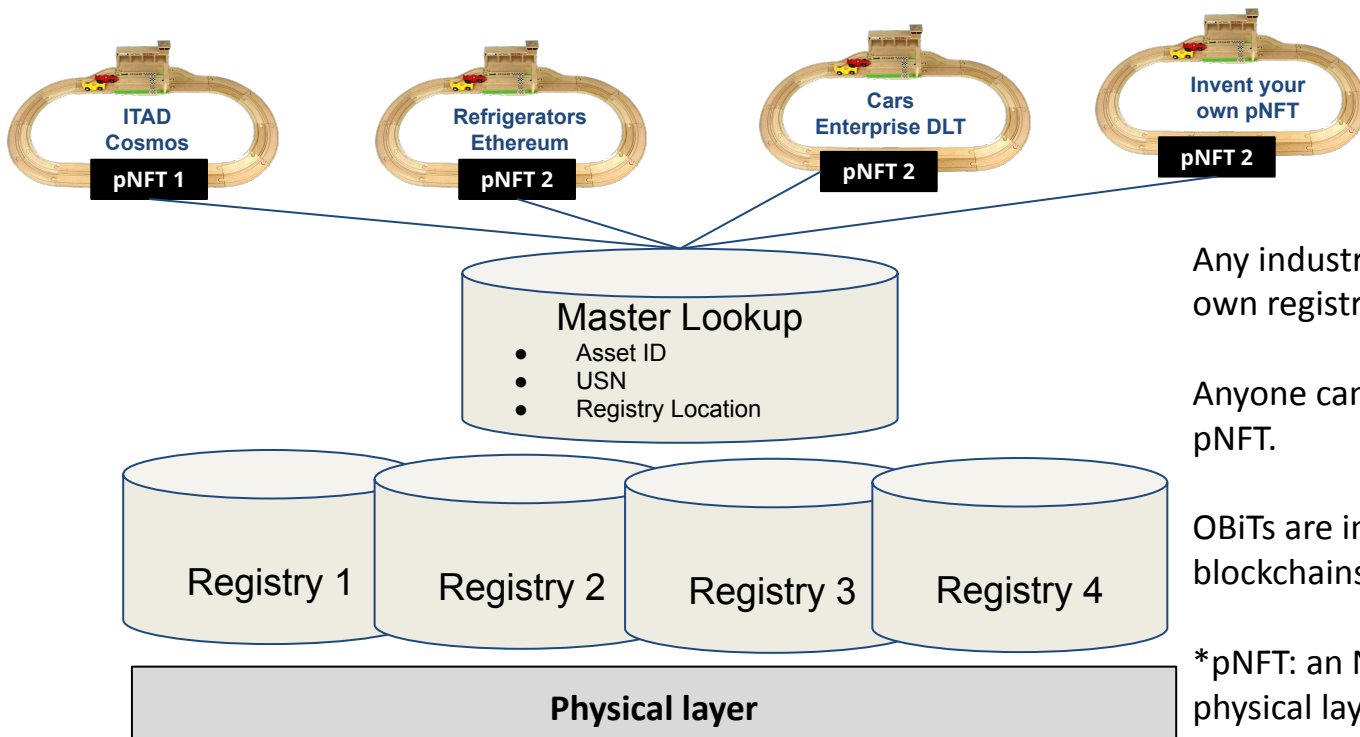The pNFT points to the registry that holds the info and connection to the physical asset.

The NFT is just a vehicle for communicating the OBiT on some specific blockchain.

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Future Approach with DID Registry

Any Blockchain

pNFT

pNFT

pNFT

OBiT Registry

The DID Registry approach is for interoperability

ITAD
Cosmos
pNFT 1

Refrigerators
Ethereum
pNFT 2

Cars
Enterprise DLT
pNFT 2

Invent your
own pNFT
pNFT 2

Master Lookup
- Asset ID
- USN
- Registry Location

Registry 1 Registry 2 Registry 3 Registry 4

Physical layer

Any industry can set up their own registry.

Anyone can set up their own pNFT.

OBiTs are interoperable across all blockchains.

*pNFT: an NFT minted at the physical layer. Our pNFT is called an OBiT.

Tech Teams
Creating an "ITAD demo".

Tech Teams

https://docs.google.com/spreadsheets/d/1X3CkorSN7SRGYELwJERXgjc27GLUWjpp-ekYl1HCMjg/edit?usp=sharing

Node Installation Team

Goal	Install the Full Core and/or Local Playground to your local server.			
Status	02-18-22: Ready to deploy. No further support from OBS needed.			
OBS Resources	No longer needed			
Documentation	(insert link to video, github docs)			
Team Leader	TBD	Nevin		

	Team	Company	Tech Contact	Role	Status
	1	WDPI	Nevin	implementer	done
	2	Tradeloop	Rohi / Brian	implementer	needs update
	3	TBS	Brian	implementer	
	4	ASCDI / NCI	Dennis	implementer	
	5	Usody	David	implementer	
	6	UNR	Michael	implementer	
			Adam Clark		

PoC 1: Device Interface Team (a.k.a. "device fingerprint team

Goal	Create OBIT from device firmware (fingerprint). Use API to post drive			
Status	02-18-22: OBADA code is done. Andrii assisting integration.			
OBS Resources	Andrii assisting team			
Documentation	(insert link to video, github docs)			
Team Leader	David from Usody			

	Team	Members	Tech Contact	Role	Status
	1	Usody	David	implementer	in development
	2	TechReuse	Charles	implementer	in development
	3	Greentec	TBD	tester	
	4	Unduit	TBD	tester	

PoC 2: Server Interface Team (a.k.a. "Carfax Team")

Goal	Connect your inventory system via API to manage OBITs			
Status	02-18-22: OBADA APIs are done.			
OBS Resources	Andrii will be needed to assist integration			
Documentation	(insert link to video, github docs)			
Team Leader	TBD			

	Team	Members	Tech Contact	Role	Status
	1	Usody	David	implementer	
	2	TechReuse	Charles/TBD	implementer	
	3	Tradeloop	Rohi/Brian	implementer	
	4	TBS	Brian		
	5	WDPI	Nevin		
	6	Eagle Advisors	TBD		
	7	GPR	TBD		
	8	Greentek	TBD		
	9	DMD Systems	TBD		
	10	Unduit	TBD		

PoC 3: Trust Anchor Team

Goal	Issue and resolve Proof of Identity for users via JWT Tokens			
Status	02-18-22: OBADA APIs are done.			
OBS Resources	Andrii will be needed to assist integration			
Documentation	(insert link to video, github docs)			
Team Leader	TBD	Dennis		

	Team	Members	Tech Contact	Role	Status
	1	ASCDI	Dennis	implementer	c
	2	Tradeloop	Rohi/Brian	implementer	r
	3	TBS	Brian	implementer	b

Node Installation Team (Mark/Andrii)

Q: Do I need to install a node?

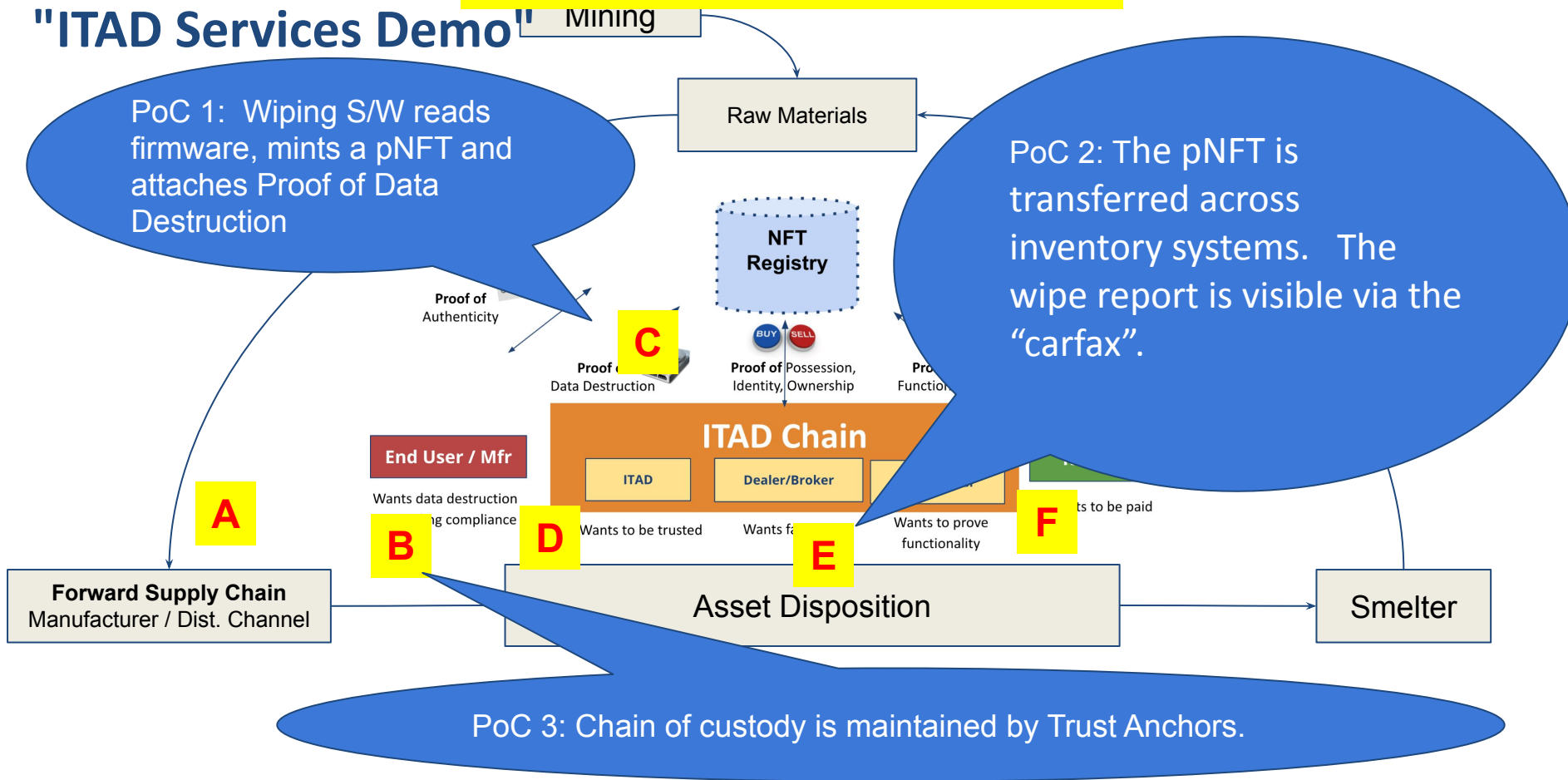**A: Yes!   Without nodes, there is no blockchain.**
We need 25 nodes for minimum viable production.

Start Here:

- Install the Local Network Playground:
  - A complete local version of the entire "blockchain" ecosystem. It's many different systems with a "node" at the center.
  - This will help developers understand all the components.
- Installation Video: ***new!*** https://drive.google.com/file/d/1aEqd8FHd5Oi7ZkIK1gLEVxItGglWlsVE/view

OBADA
Open Blockchain for *Asset Disposition* Architecture

Coordinate with Marketing Team

"ITAD Services Demo"

Mining

Raw Materials

PoC 1: Wiping S/W reads firmware, mints a pNFT and attaches Proof of Data Destruction

PoC 2: The pNFT is transferred across inventory systems. The wipe report is visible via the "carfax".

NFT Registry

BUY **SELL**

Proof of Authenticity

C

Proof of Data Destruction

Proof of Possession, Identity, Ownership

Proof of Function

ITAD Chain

End User / Mfr

Wants data destruction ... compliance

ITAD

Dealer/Broker

Wants to be trusted

Wants fa...

Wants to prove functionality

...ts to be paid

A

B

D

E

F

Forward Supply Chain
Manufacturer / Dist. Channel

Asset Disposition

Smelter

PoC 3: Chain of custody is maintained by Trust Anchors.

PoC 1: Physical Layer (Drive Wipe S/W) (David/Charles)

Drive wipe S/W mints a pNFT and attaches Proof of Data Destruction

Steps
- **Create OBiT DID:** A USN is generated based on reading make, model, and serial number from the firmware
  - Per OBADA Standard 1.1
- **Attach Data Payload**: A wiping report is "attached" as a document to the DID
  - per OBADA Standard 1.2.
- **Create a "wrapped OBiT".**   Embed the OBiT data into an ERC-721 NFT structure.
- **Mint a pNFT** on the Cosmos Testnet.

Other Tech PoCs
- PoC 2: Trust Anchors: No update.
- PoC 3: Carfax / Servers: Start after PoC 1 can mint pNFTs

Other Team Updates

Finance & Accounting (Jen/Joe)

Finance Team

- Jen, Joe, Neil, Rohi

Founding and Round A1 (2020/2021)

- $45,000 raised from 9 members
- ~$2,500 remains

Round A2 (2022)

- $70,000 raised from 14 members

Round B (mid-2022)

- $385,000 from ~77 members

2022 (Round A2) Budget: $70,000

- Tech (Platform Development) $30K-$40K
  - Back-end Dev- $20K
  - Front-end Dev - $5K
  - Tech Writer - $5K
- Governance (Legal/Accounting) $10K
- Operations/Facilitator $10K
- Reserve $10K-20K
- Overhead ~$5k year (Hosting, Dues, Email, etc)

To Do: Accounting (Aprio) / Legal (Montague)

- File taxes for OBADA orgs
- Refile corp docs
- Ratify Platform agreement

Documentation Team (get to DAO voting)

Team:

- Rohi, Ron, Mark

GOAL: Allow DAO to make proposals and vote on them.

- Set up Online DAO Collaboration Tools
  - Online forum via www.discourse.org
    - e.g. forum.bankless.community
  - Onchain voting e.g. https://snapshot.org

GOAL: Document the Platform Agreement

- Organize the Platform Agreement in Github (TBD)

ISO Standards Team

Team:

- Rohi, Mark, Ron, Jason

Status

- Held premeeting
- Still waiting for date on ISO AHG 3
- Second ISO Premeeting next week

GOAL: Drive ISO Effort.

GOAL: Organize Github "issues" to allow developer feedback.

- https://github.com/obada-foundation/standard/issues

Marketing / Adoption (G)

- Many thanks to everyone who has shared their company blurb & logo. Here are the ones I have so far:
  - DMD (Aaron Zepper)
  - TechReuse (Charles Brennick)
  - JT Environmental Consulting, Inc (Jason Teliszczak)
  - TheBrokerSite.Com (Brian Altman)
  - UNevada (Ron Lembke)
  - ASCDI (Joe Marion)
  - Equipment Trading Network (Joe Marion)
  - XSi (Todd Bone)
  - E-Reuse Services (Sarah Kim)
  - Greentec (Tony Perotta)
  - Eagle Advisors, LLC (Seve Romo)

- Apologies if you have sent to me and your name isn't here. Resend / let me know, I'll get it right
- Obviously, if you haven't sent me the information… you know what to do :) guennael@CELXadvisory.com
- These logos & blurbs are designed to go on the OBADA.io website, in the DAO Members section
  - https://www.obada.io/foundation/dao/members/
  - Will be added shortly when Adam comes back from paternity leave

What else is the Marketing committee up to? (G)

- We are developing scenarios and creating case studies
- Will be used to help tell our story and go after Round B
- 7 scenarios were identified initially, but open for more
  - See next slides for the 7
  - Planning to address the following questions to begin with:
    - Who are the core stakeholders
    - Problem statement: what pain point are we trying to solve
    - Logical process point of entry
    - How would Blockchain help solve the problem
    - How would solving the problem benefit this group? E.g.,
      - Compared to current solutions
      - Financial benefits
      - Others
- The committee now has its own Google workspace + Slack channel for communication, and standing bi-weekly meetings
- Thanks to those of you who have offered to help, we would be happy to see more volunteers

Mining

Raw Materials

NFT Registry

Proof of Authenticity

C

Proof of Data Destruction

BUY SELL

Proof of Possession, Identity, Ownership

Proof of Functionality

✔ **Proof of** Recycling

G

ITAD Chain

ITAD

Dealer/Broker

Refurbisher

End User / Mfr

Wants data destruction ... compliance

Recycler

... ts to be paid

A

B

D

Wants to be trusted

E

Wants fa...

F

Wants to prove functionality

Forward Supply Chain
Manufacturer / Dist. Channel

Asset Disposition

Smelter

END

- OBADA PROPOSAL: A "Proof of USN" could be created by uploading the entire firmware text to the OBiT
- OBADA PROPOSAL: Idea for a future version of the OBiT ID. Don't hash mpsn. Instead hash the entire firmware text. Trim leading and trailing spaces then just hash the whole thing.

Governance: Sufficient Decentralization

"*Sufficient Decentralization*" means the time **when the DAO is large enough** to be considered decentralized, relative to the size of the industry, and **when the DAO has the ability to function without the need for a single person or group (i.e. the Foundation)** to carry out the essential managerial or entrepreneurial efforts. In order to complete the transition to a Member-managed DAO, as outlined in **Section 3.02 (b),** the DAO will not only require a certain number of people to vote, but **must also be a functioning group with a quorum that has the ability to coordinate and execute.** Sufficient Decentralization will require **transparent online discussion, proposal, and voting tools to be in place.**

from the Operating Agreement

Step 1: The Foundation is establishing Proposal/Voting

- Discussion Tools for Proposals (e.g. https://forum.bankless.community/categories)
- Voting tools (e.g "Snapshot") https://snapshot.org/#/ens.eth)

Step 2: We must demonstrate we can use them to make and decide on proposals

- We may need to revisit the operating agreement definition of quorum (John)

Step 3: Foundation cedes control of voting to the DAO