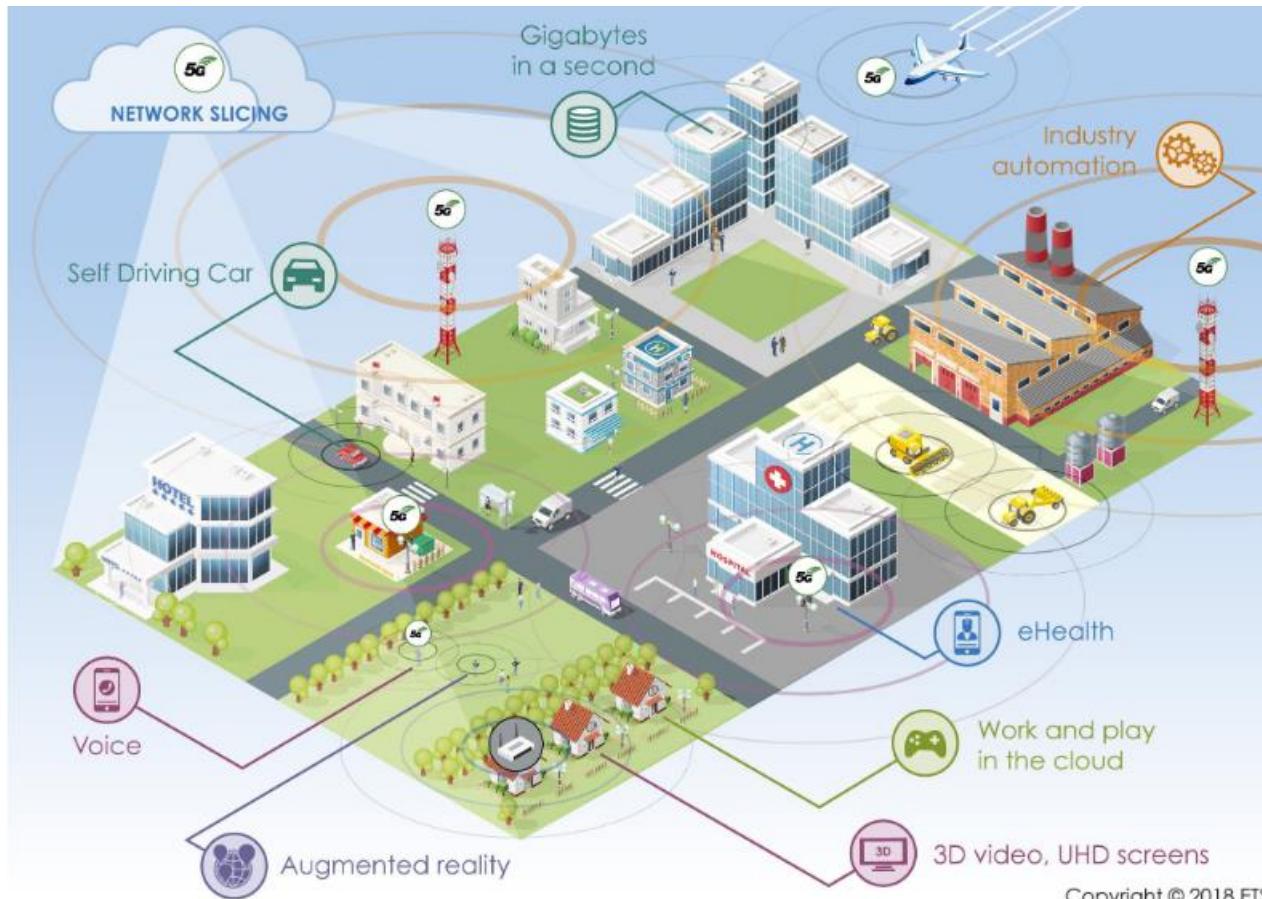


Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

Adrián Blázquez León

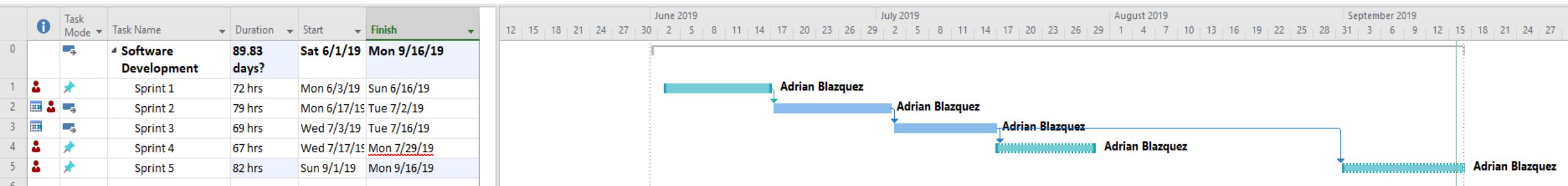
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

1. What is? - current state, stakeholders necessities and Ocean Protocol



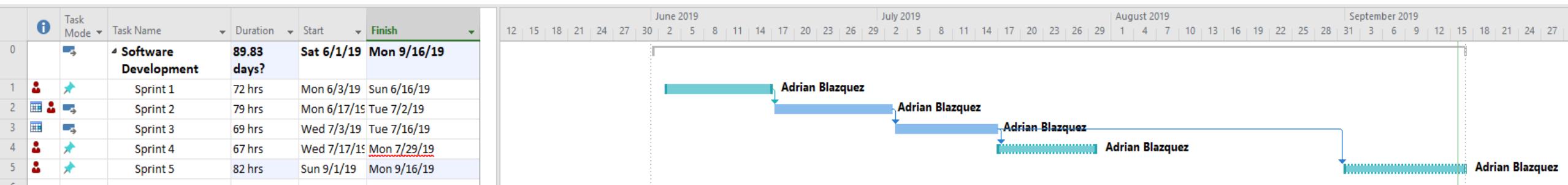
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- Sprint 1
- Sprint 2
- Sprint 3
- Sprint 4
- Sprint 5



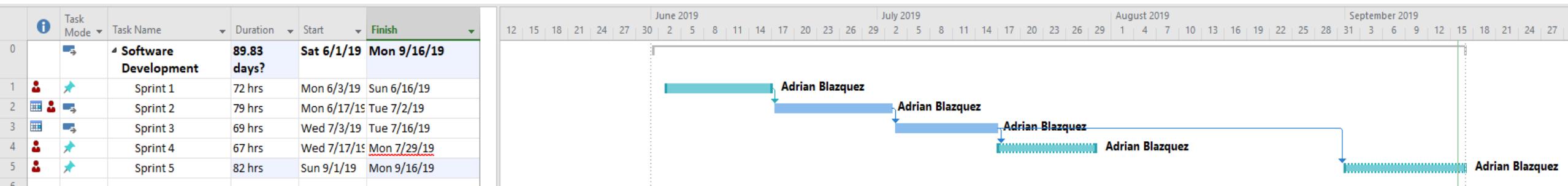
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- Sprint 3
- Sprint 4
- Sprint 5



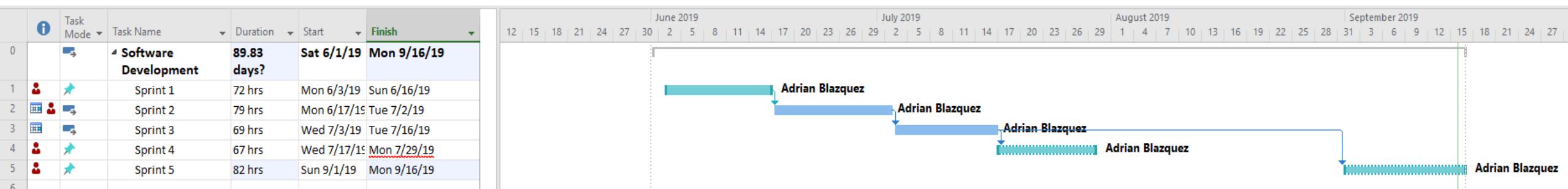
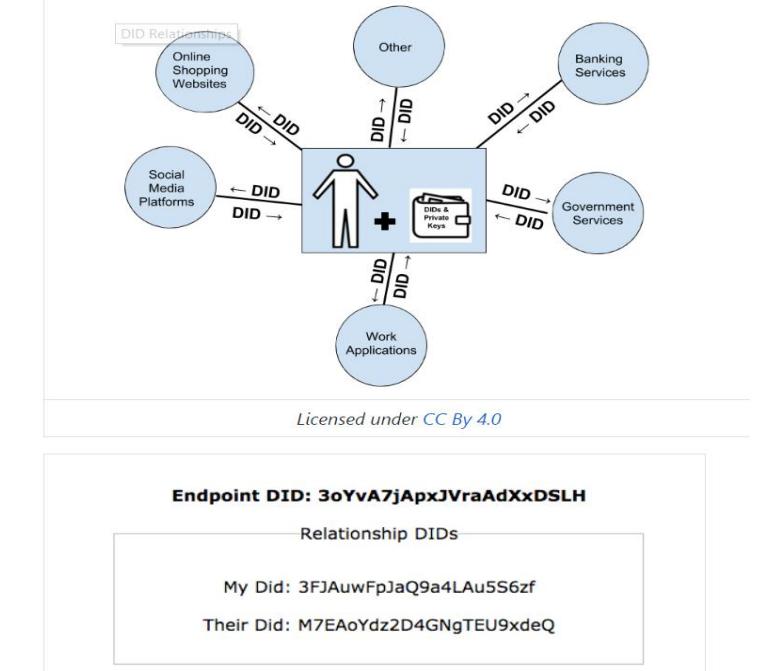
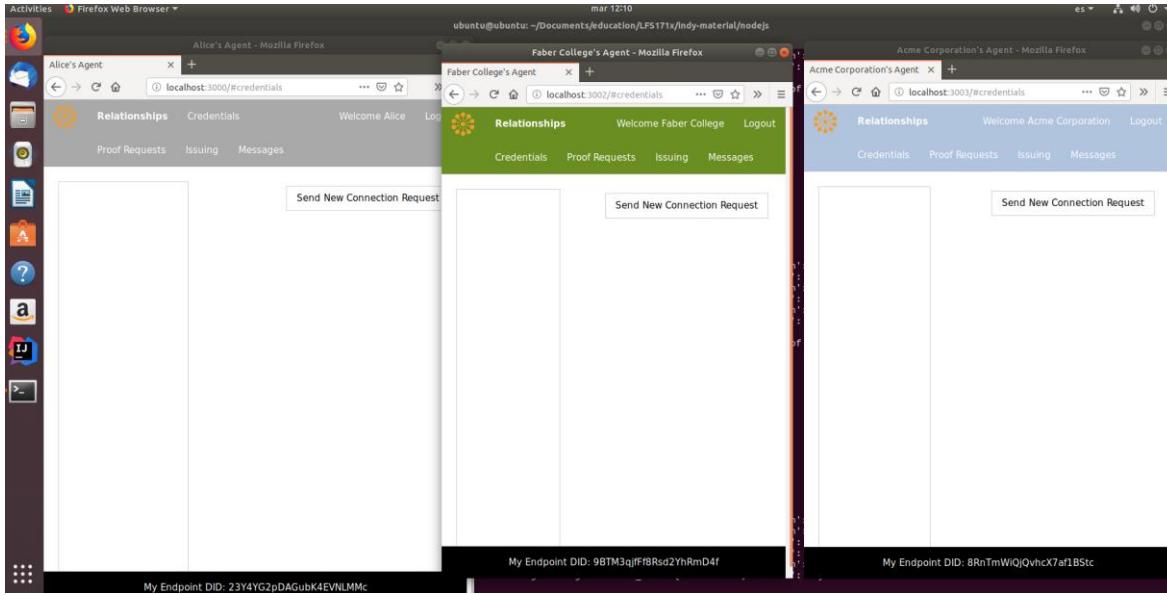
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- Sprint 1
- **Sprint 2**
- Sprint 3
- Sprint 4
- Sprint 5



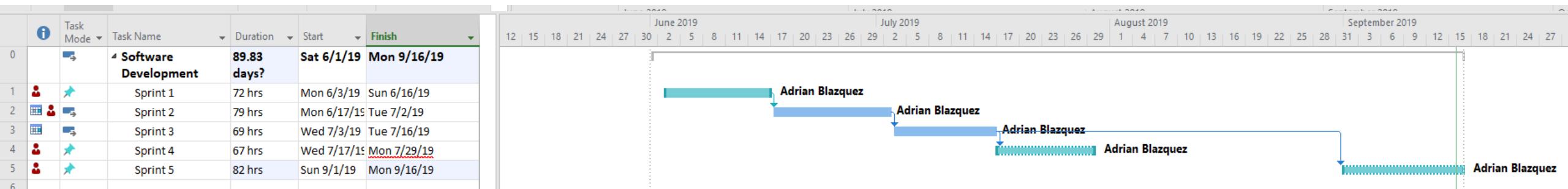
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- Sprint 2
- Sprint 3
- Sprint 4
- Sprint 5



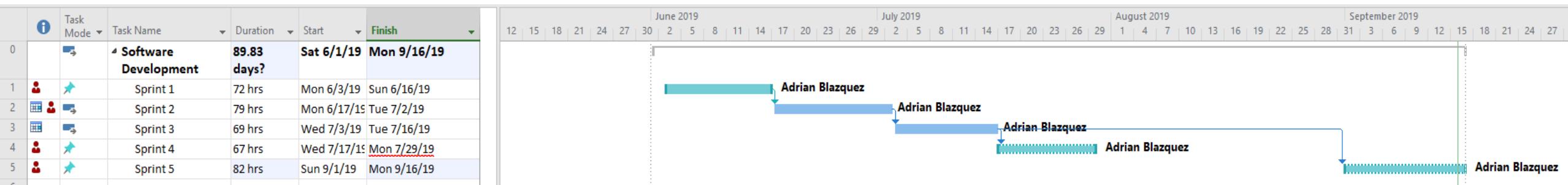
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- Sprint 1
- Sprint 2
- Sprint 3
- Sprint 4
- Sprint 5
 - 1. What is Ocean Protocol? (what is?)
 - 2. Which are its cases of use? (what if/ what wows?)
 - 3. Which value can it add to an AI app? (what Works?)

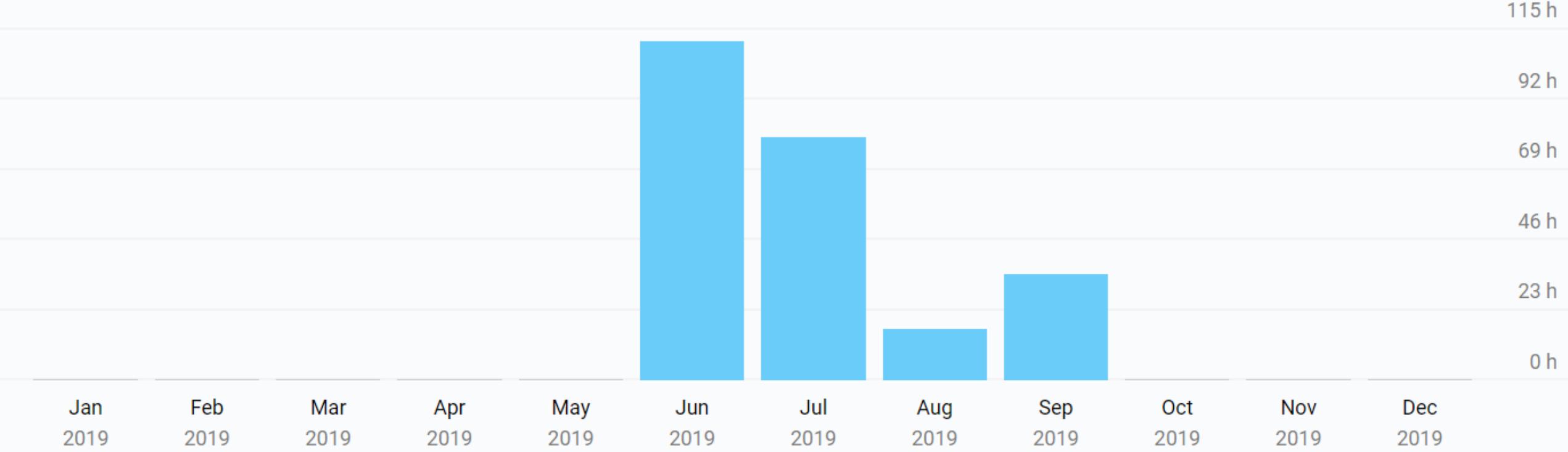


Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- Sprint 1
- Sprint 2
- Sprint 3
 - 1. What is Ocean Protocol? (what is?)
- Sprint 4
 - 2. Which are its cases of use? (what if/ what wows?)
- Sprint 5
 - 3. Which value can it add to an AI app? (what Works?)



< This year >



Group by Project ▾

and Time Entry ▾

🕒 Rounding

CLOCKED HOURS

242:32:05

Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

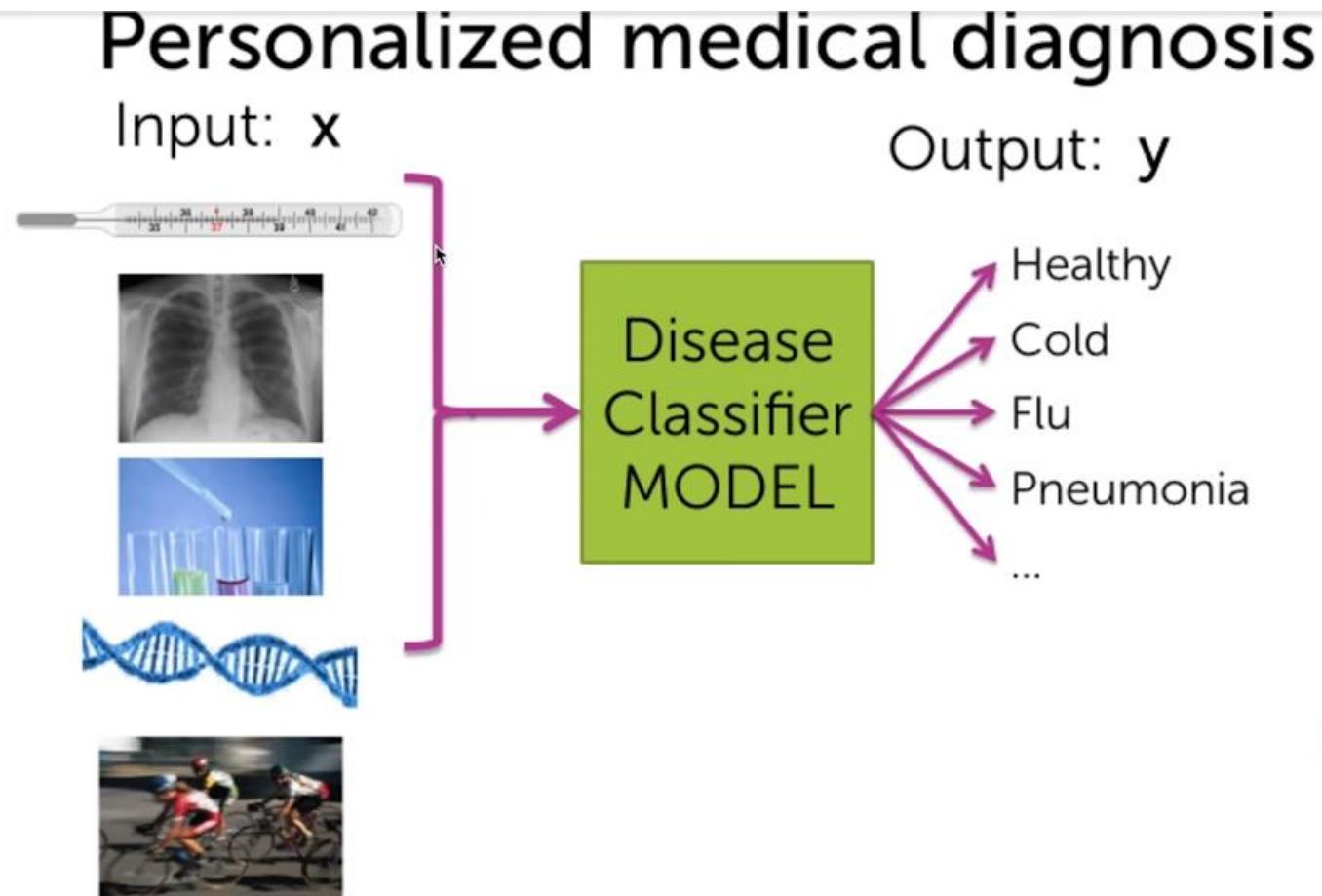
- **What is?** Current state

The AI Business Model

- **STEP 1:** acquire **Data** about people
- **STEP 2:** train a **Model** that does something useful
- **STEP 3:** sell the Use of that **Model** (The App)

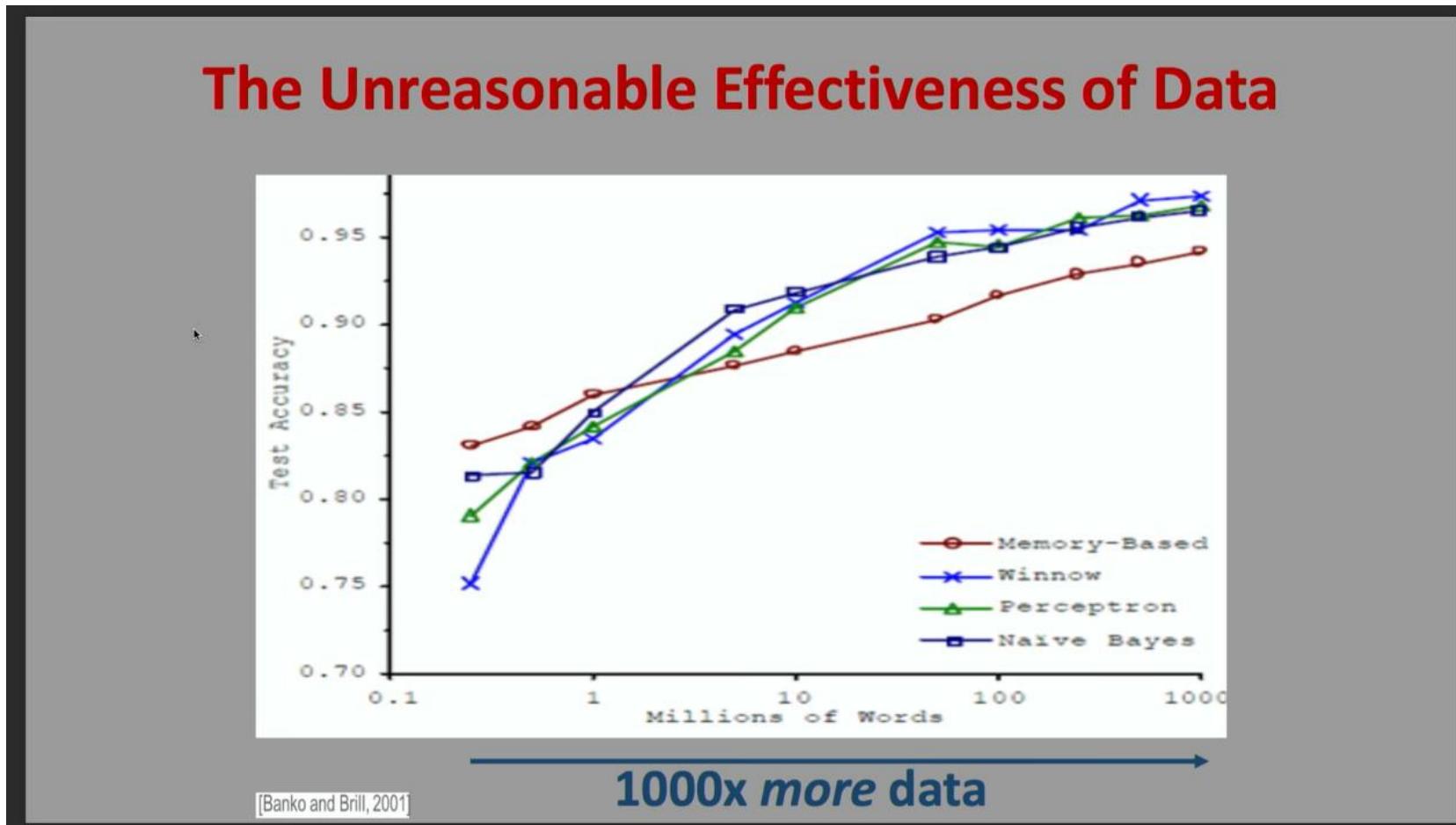
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Current state



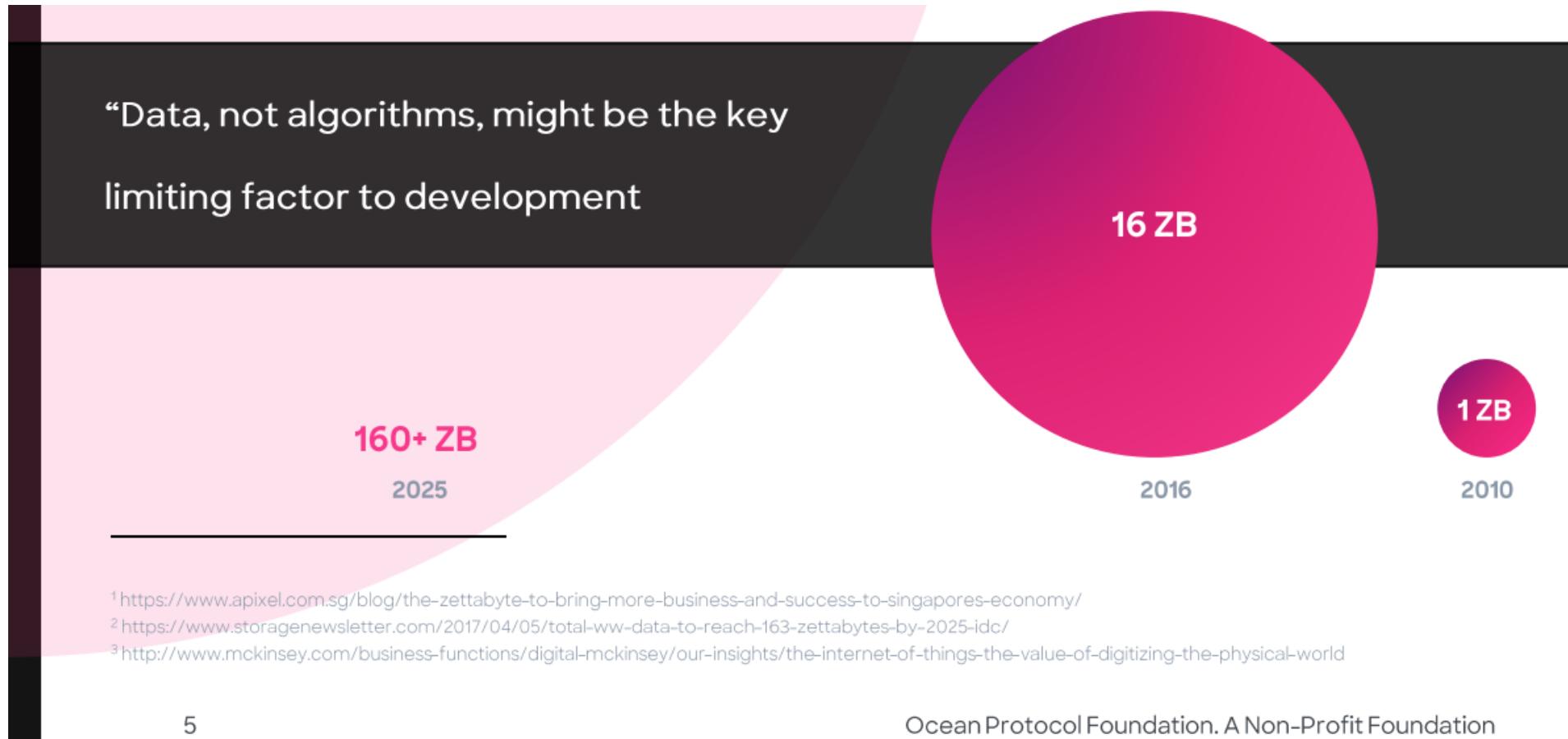
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

1. What is? - current state, stakeholders necessities and Ocean Protocol



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Current state

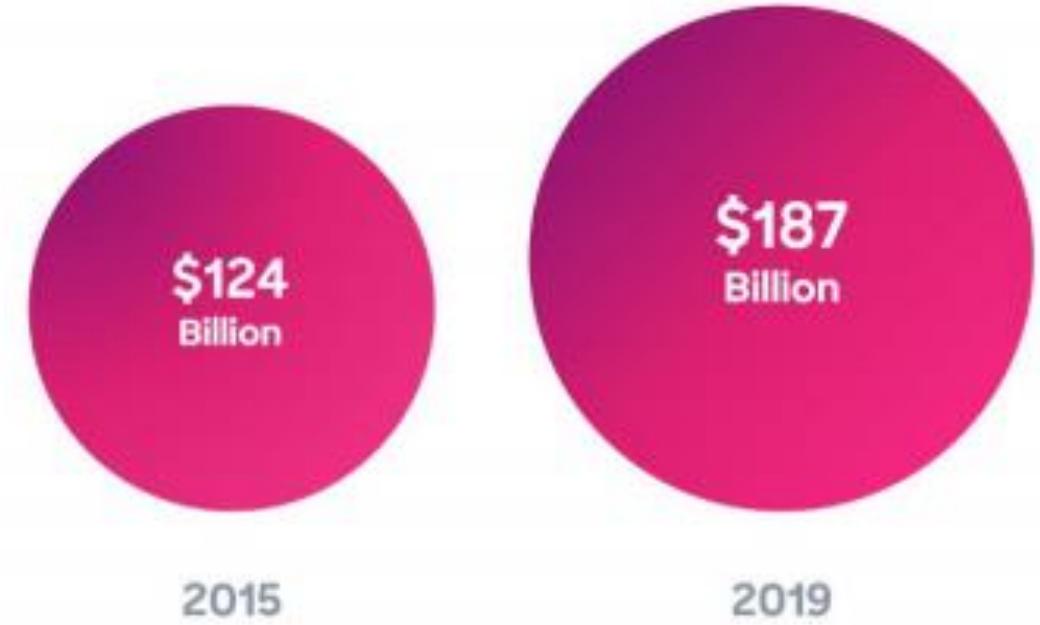


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- **What is?** Current state

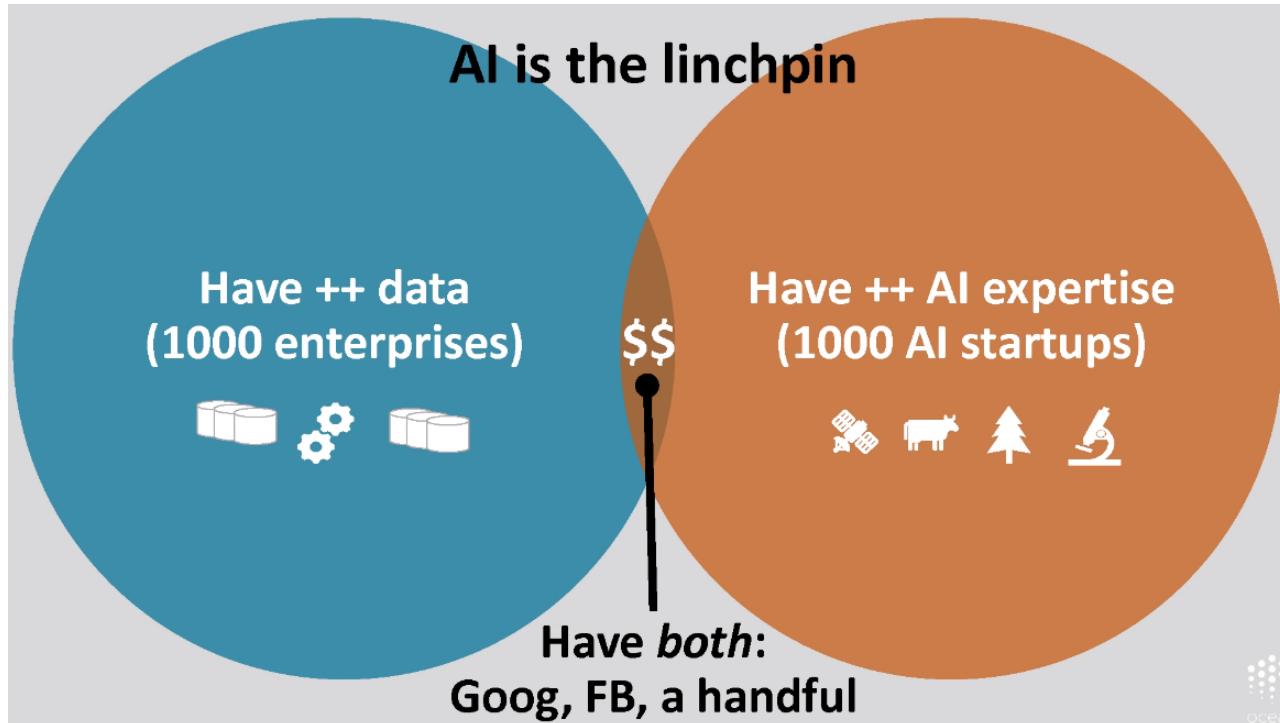


2015



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Current state



Challenges - Data

EU Open Data Portal

Access to European Union open data

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EUROPA > EU Open Data Portal > Data

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food

Economy
and finance

Education,
culture and
sport

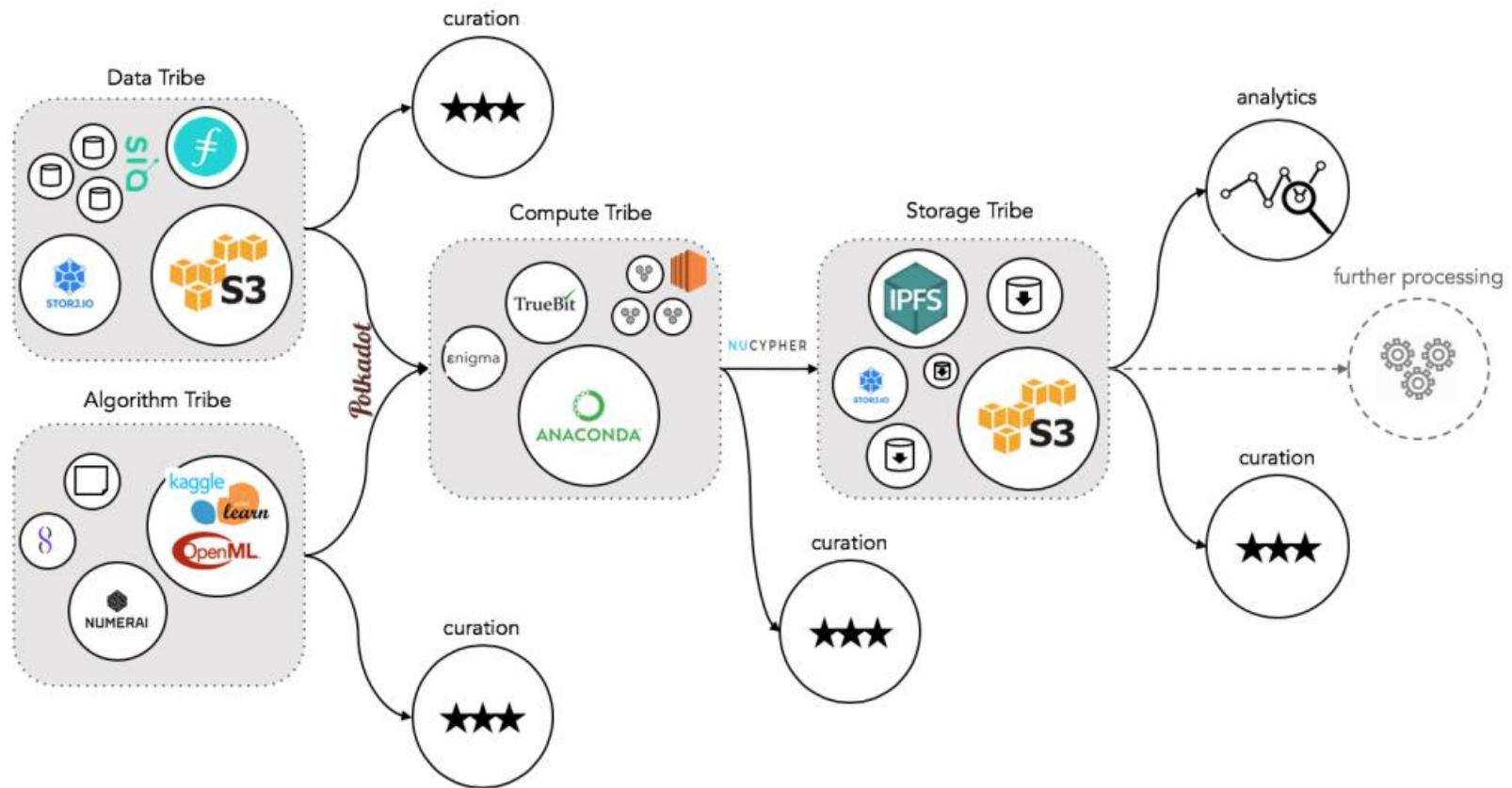
Energy

Environment

Government
and public
sector

Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Current state: different services



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Current state

Use cases/partners
Powered by Ocean
Protocol



Unilever



AVIVA



Roche
Diagnostics



Microsoft



verv

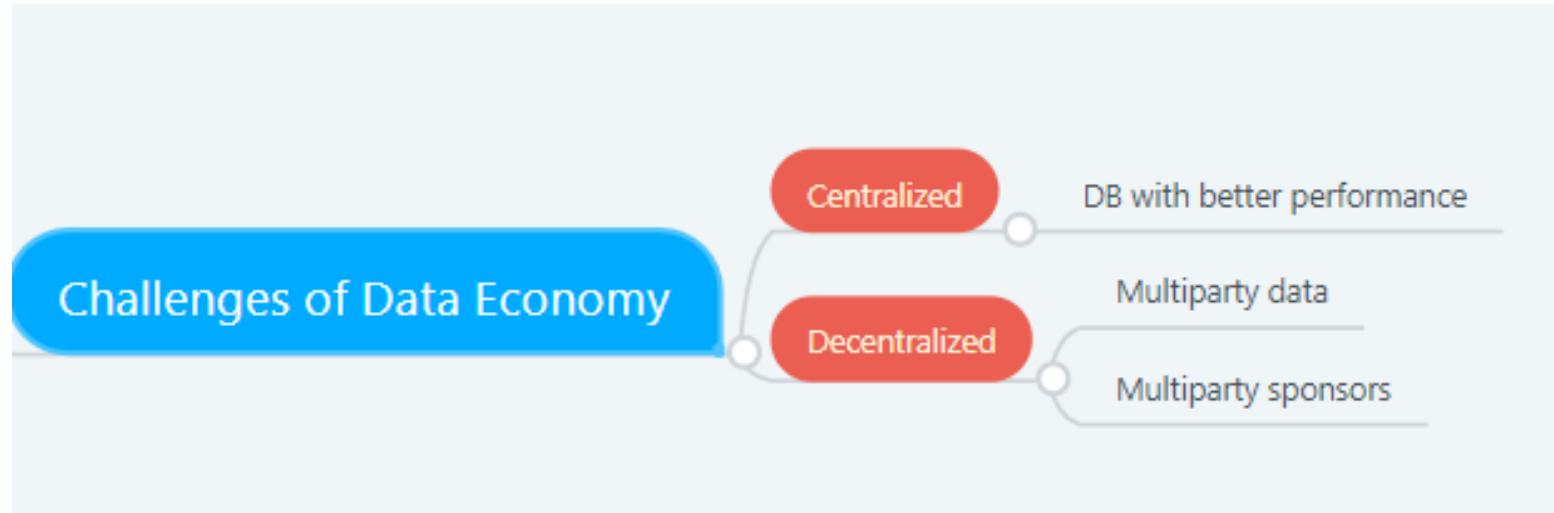


SilverAlly



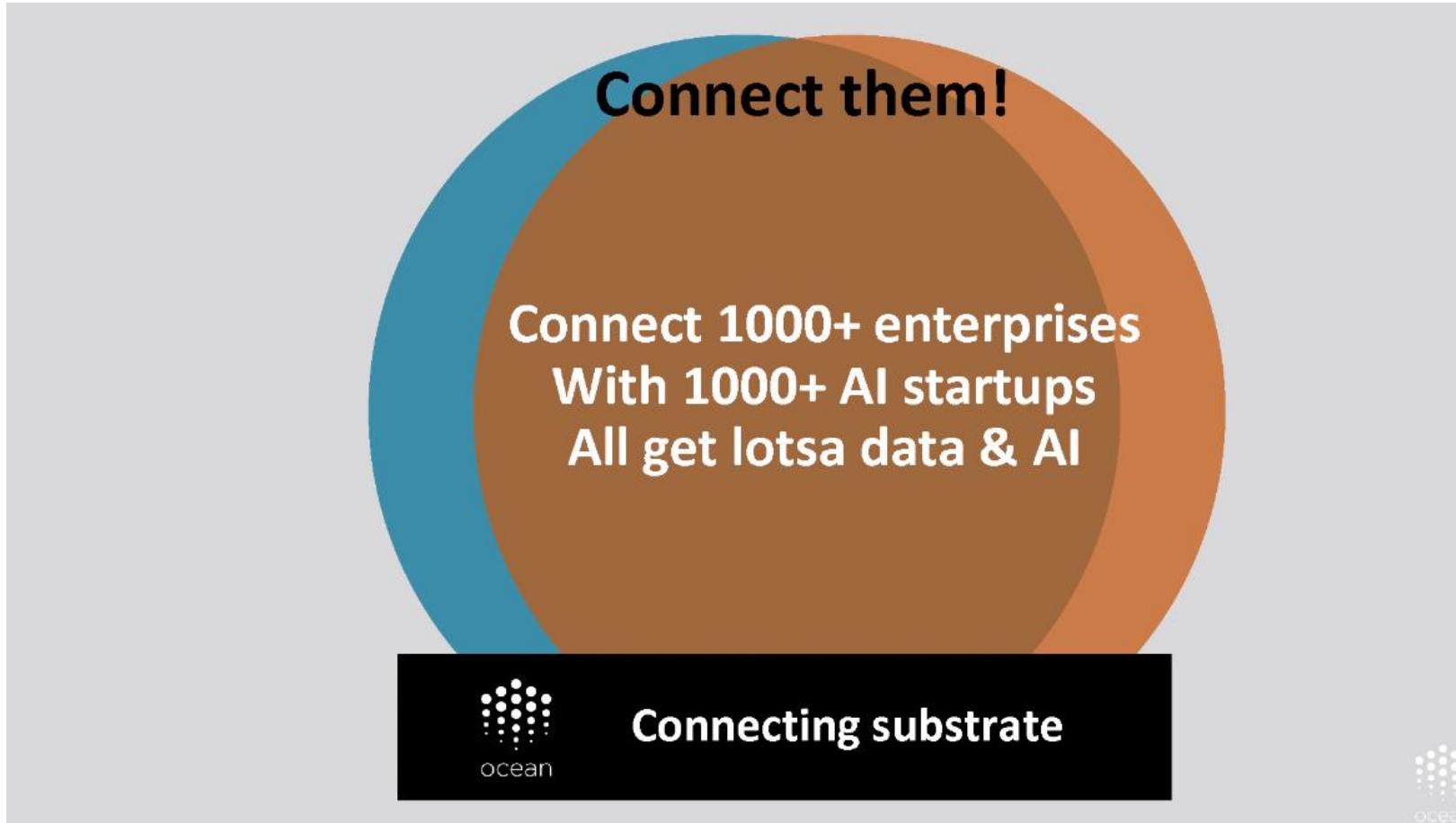
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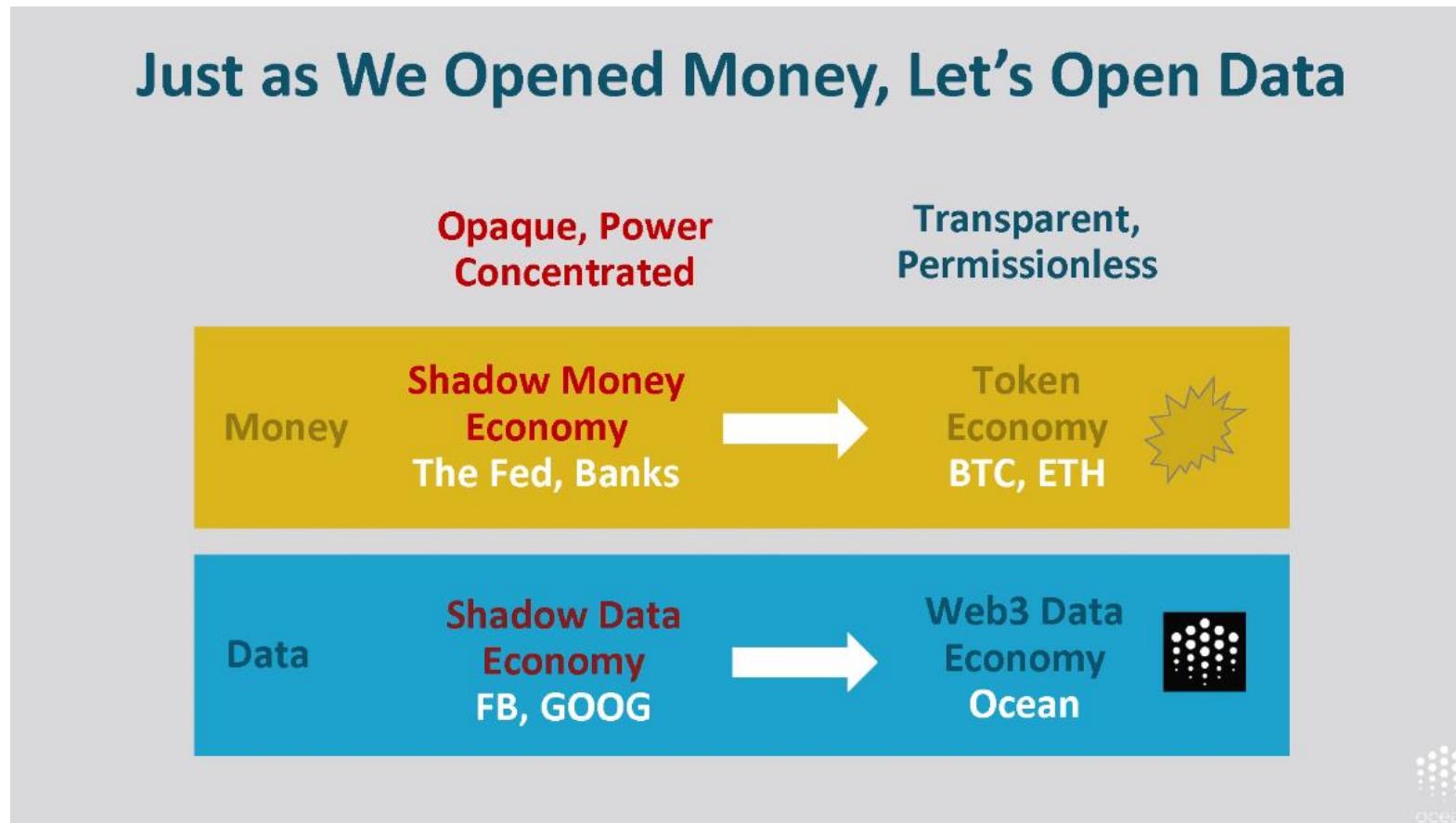
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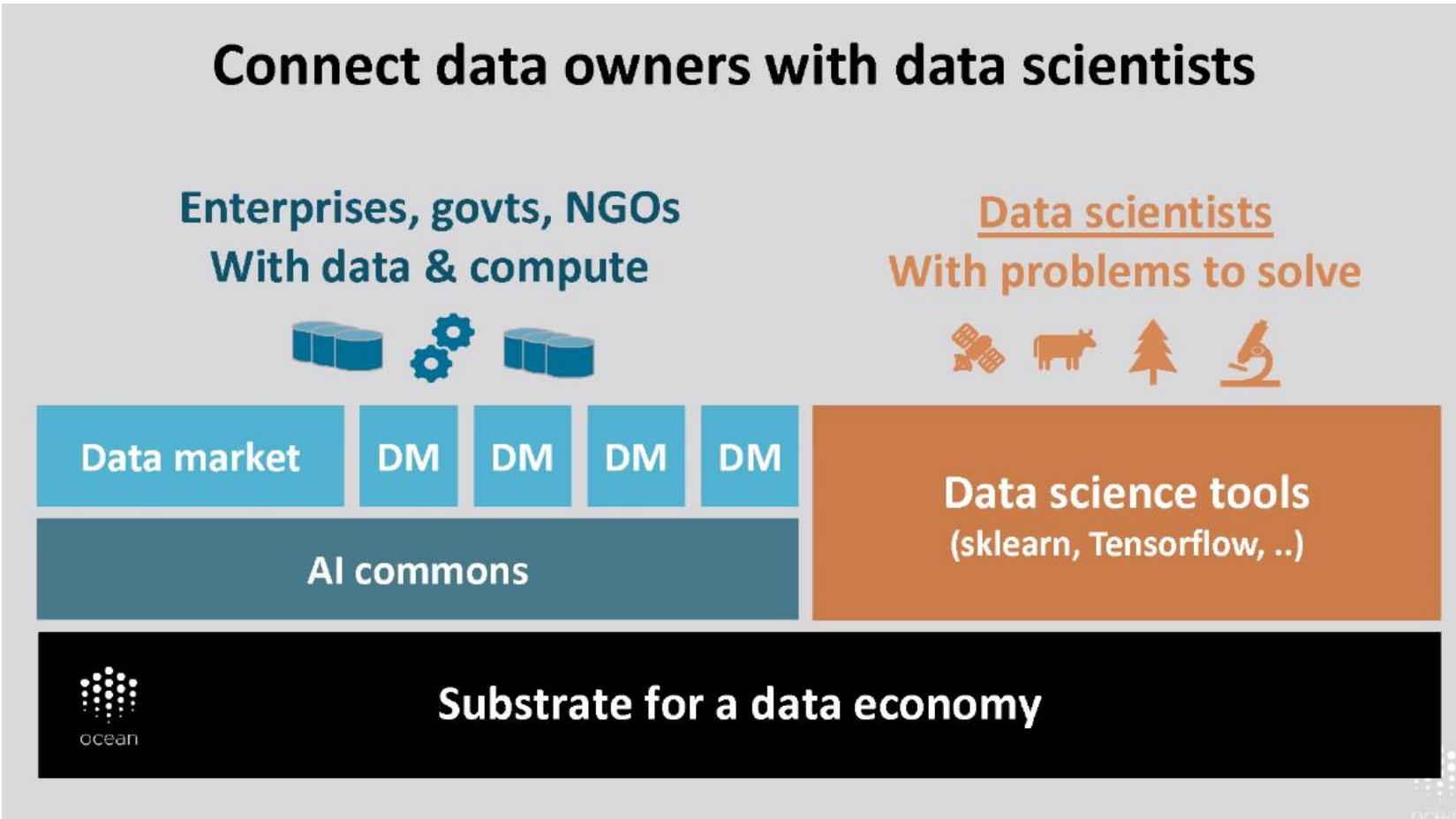
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Current state



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Current state



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

Adrián Blázquez León

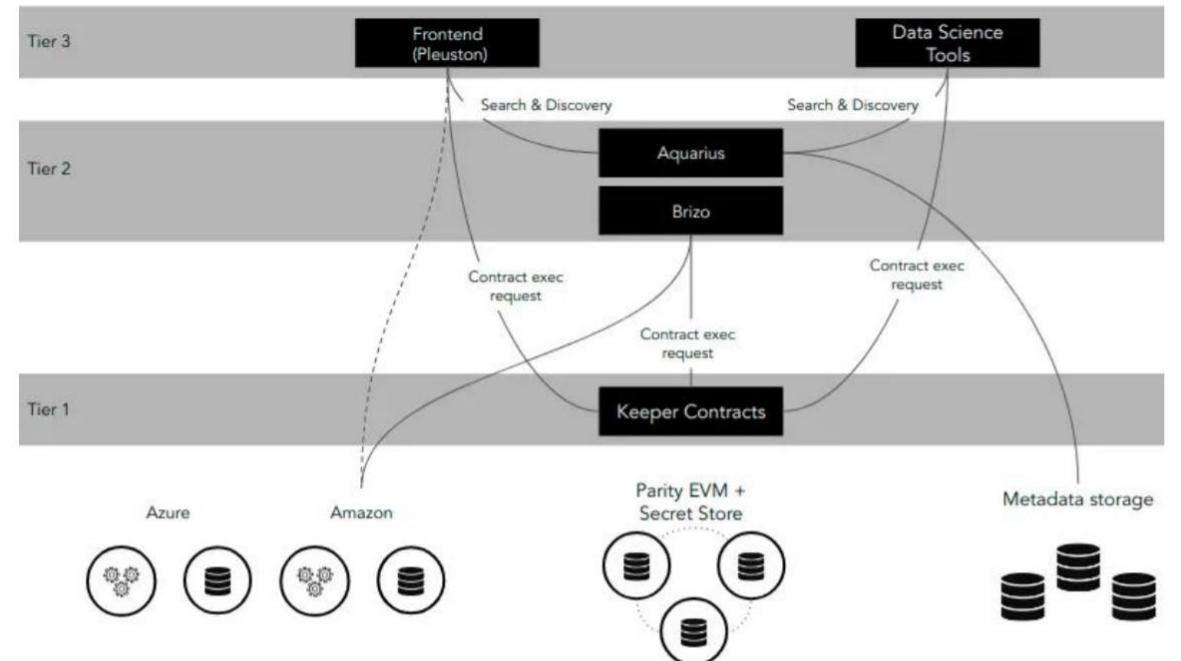
Objectives

- 1. What is Ocean Protocol?
- 2. Which are its cases of use?
- 3. Which value can it add to an AI app?



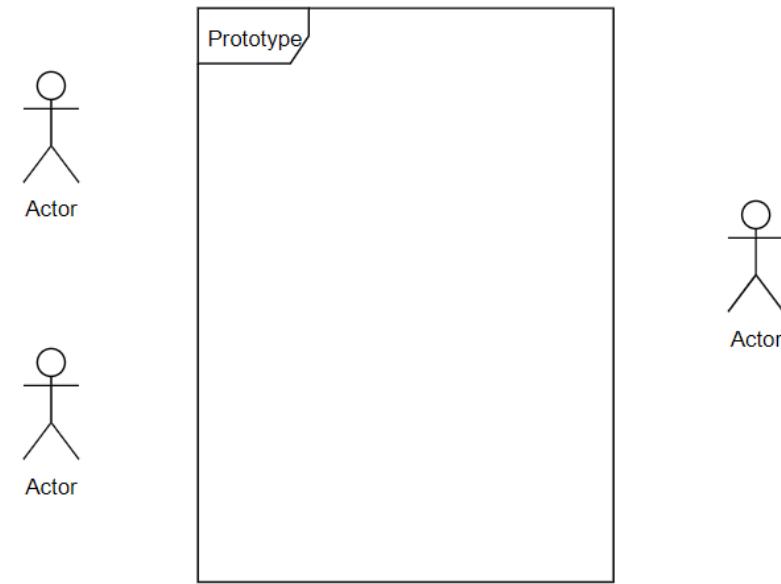
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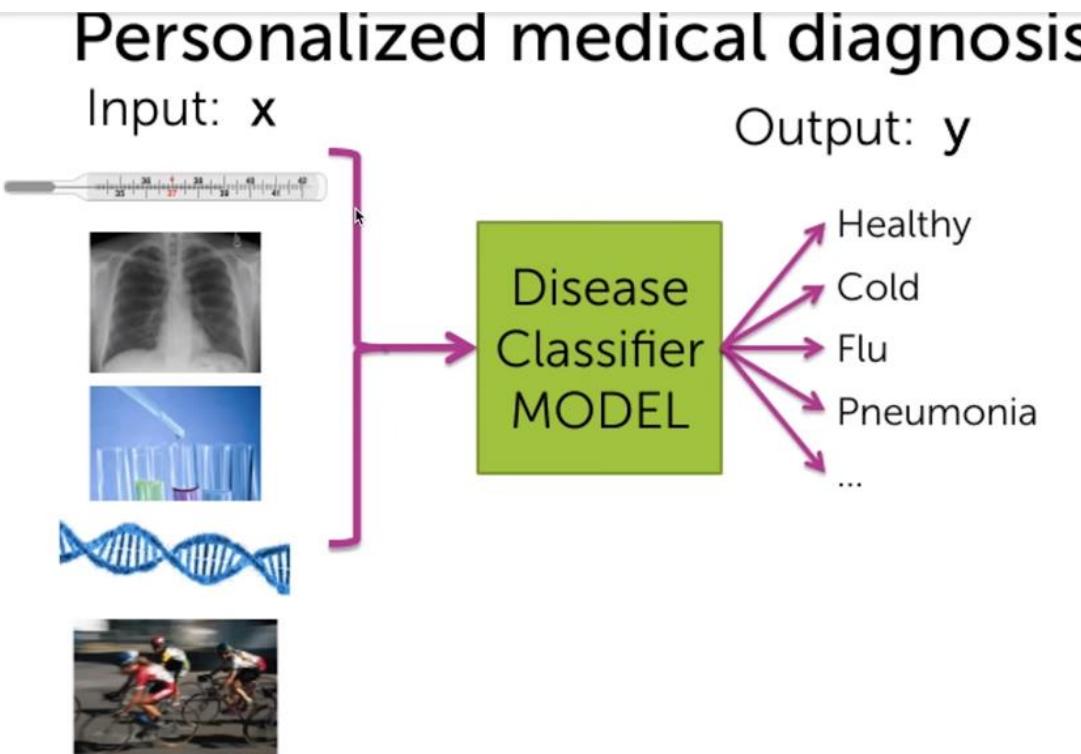
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Objectives

- 1. What is Ocean Protocol?
- 2. Which are its cases of use?
- 3. **Which value can it add to an AI app?**



Objectives

- 1. What is Ocean Protocol?
- 2. Which are its cases of use?
- 3. Which value can it add to an AI app?

Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?**
- **What if?**
- **What wows?**
- **What works?**



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

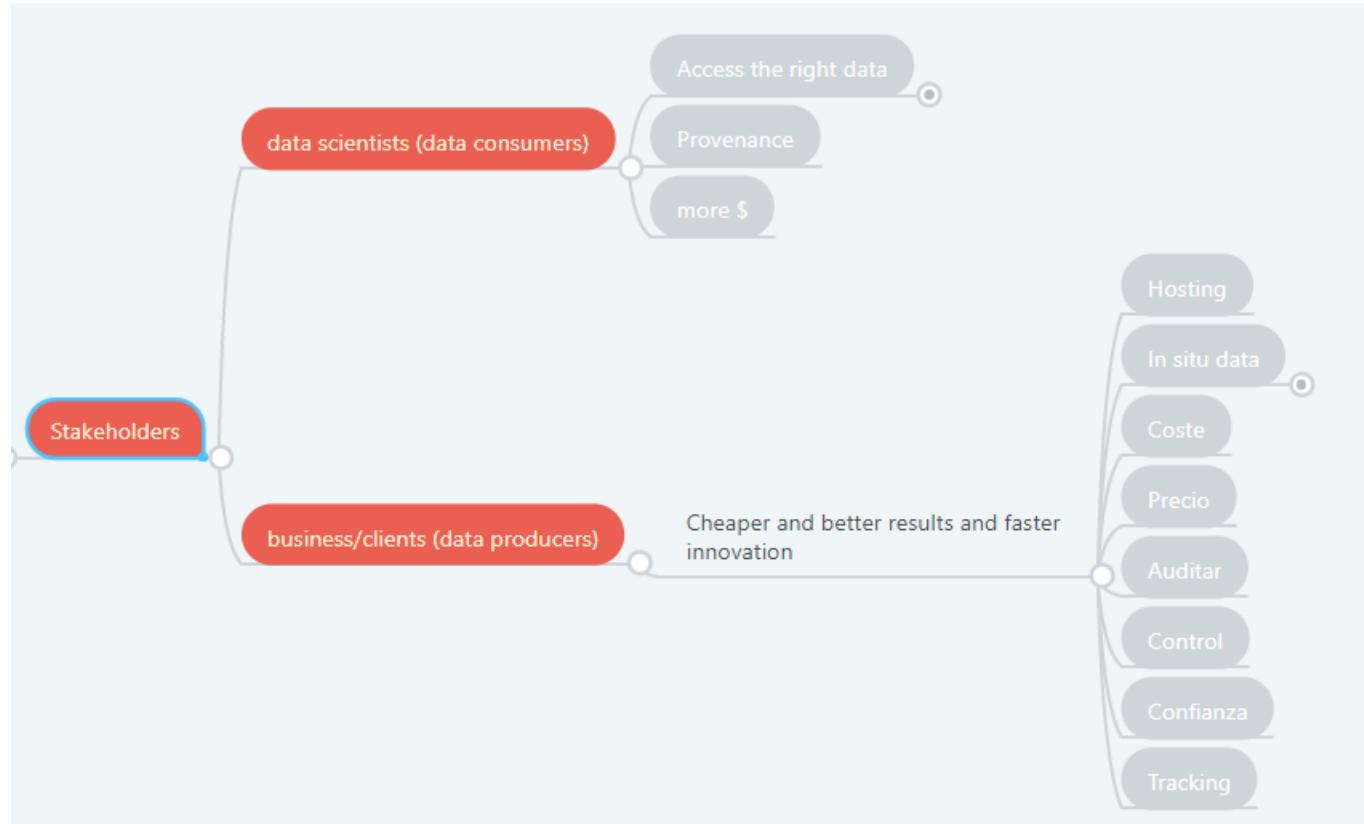
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- 3. What works?** – AI app

Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

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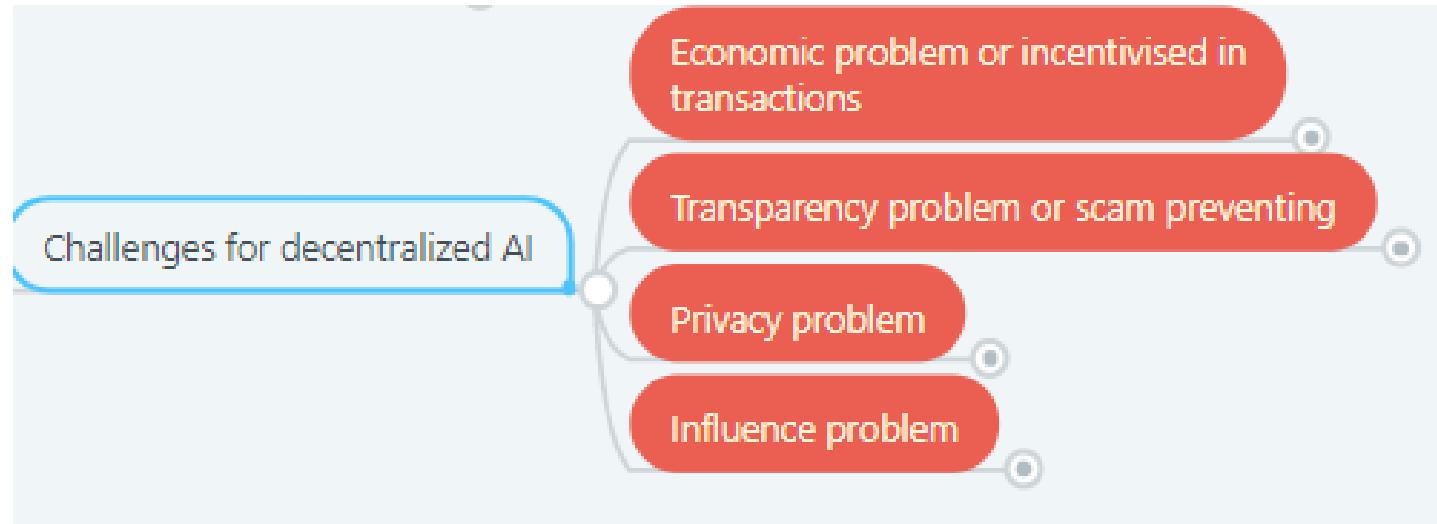
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Stakeholders necessities



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Stakeholders necessities



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- 1. What is? - current state, stakeholders necessities and Ocean Protocol**
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Bruce Pon

[in](#) [Twitter](#)

Daryl Arnold

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Trent McConaghy

[in](#) [Twitter](#)

Don Gossen

[in](#)

Dimitri De Jonghe

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Cristina Pon

[in](#)

Aitor Argomaniz

[in](#) [Twitter](#)Irene Lopez De
Vallejo[in](#) [Twitter](#)

Paul Galwas

[in](#)

Sheridan Johns

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Jérôme Pregelj

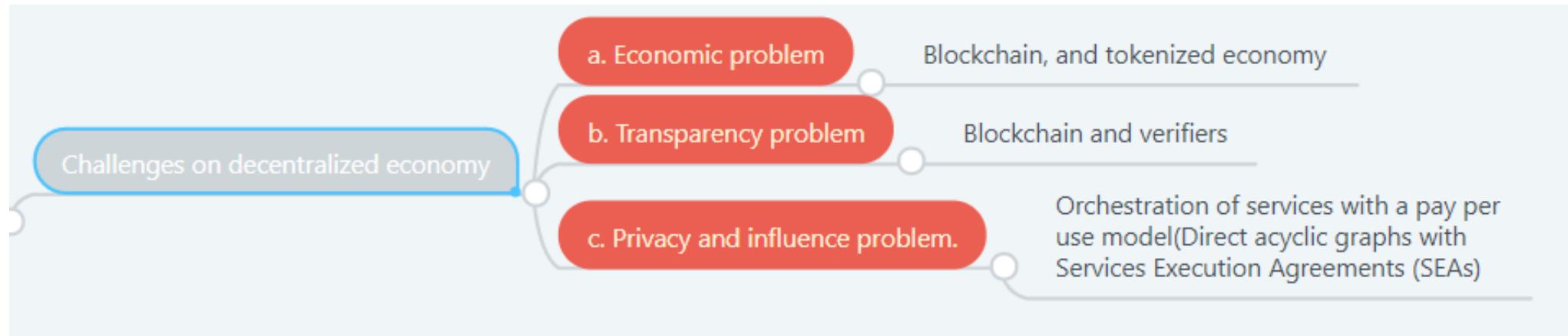
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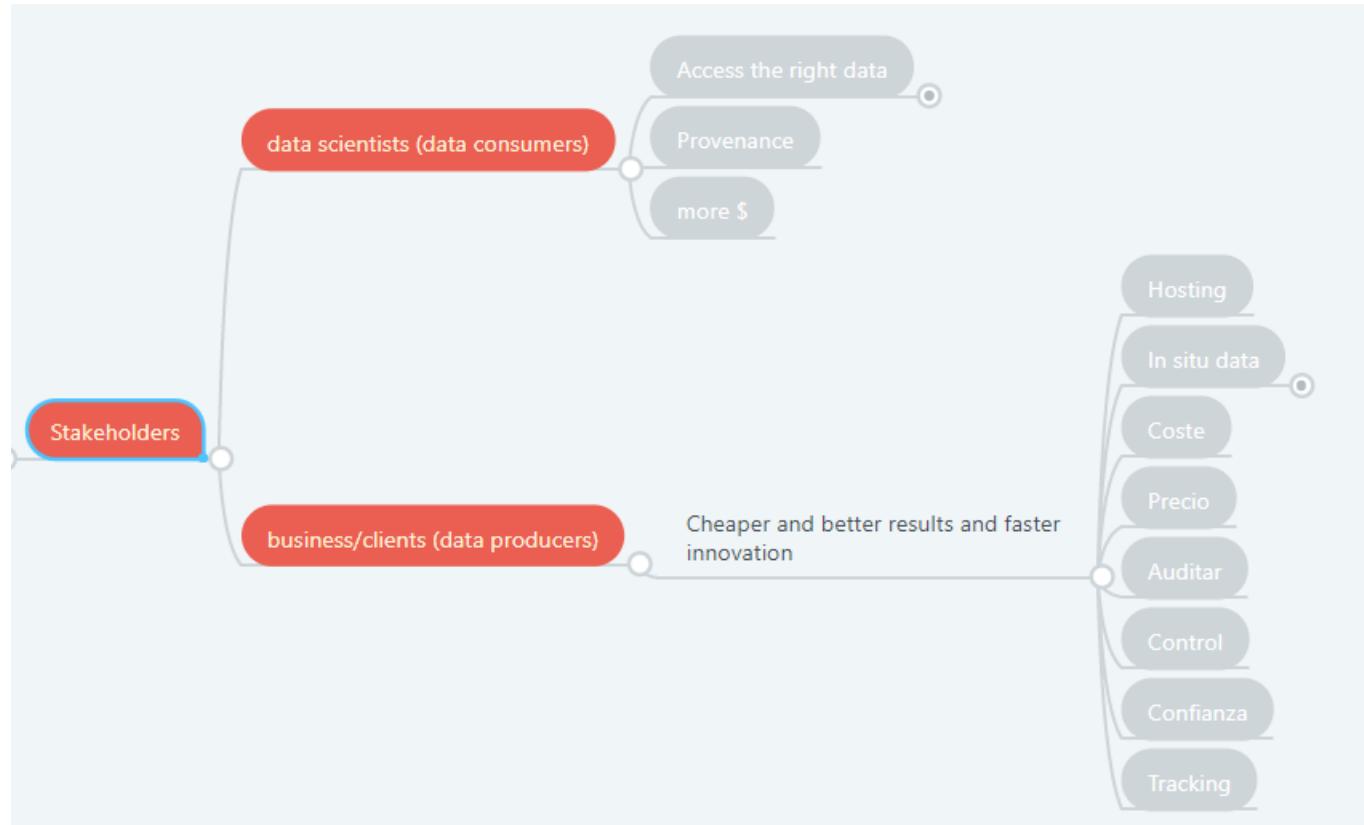
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** Ocean Protocol



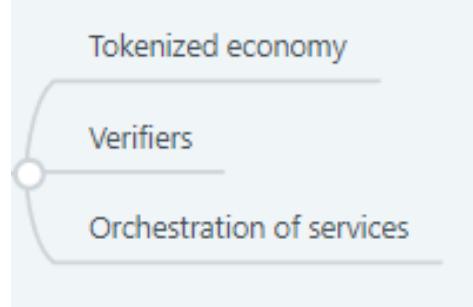
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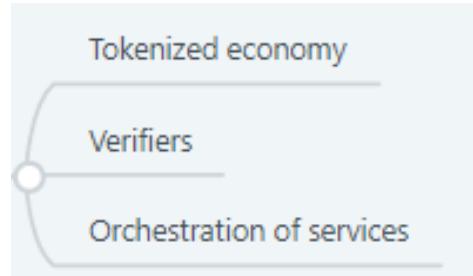
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- **What is?** Ocean Protocol



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

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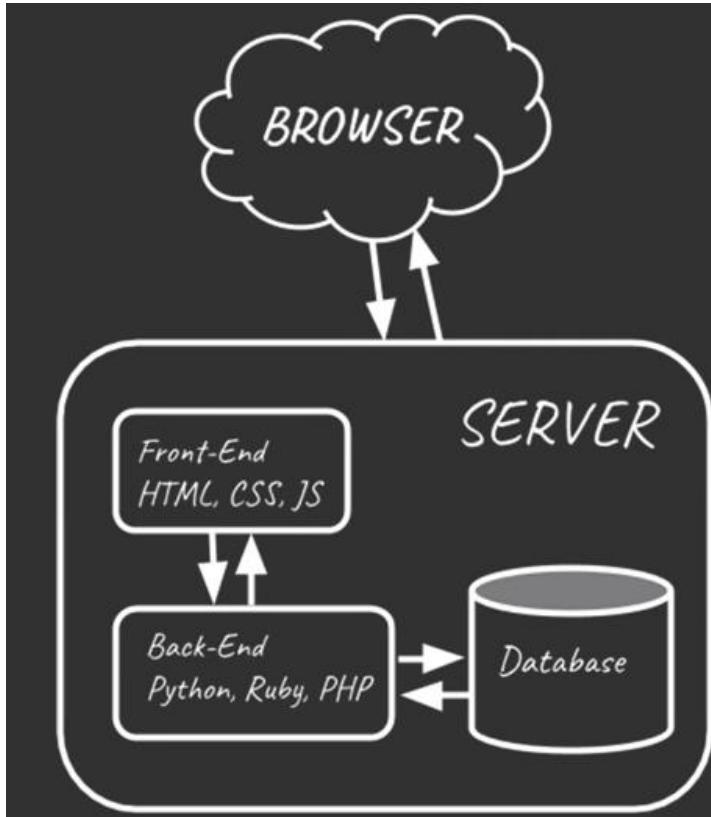


POWERING A TWO-SIDED MARKET FOR DATA



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

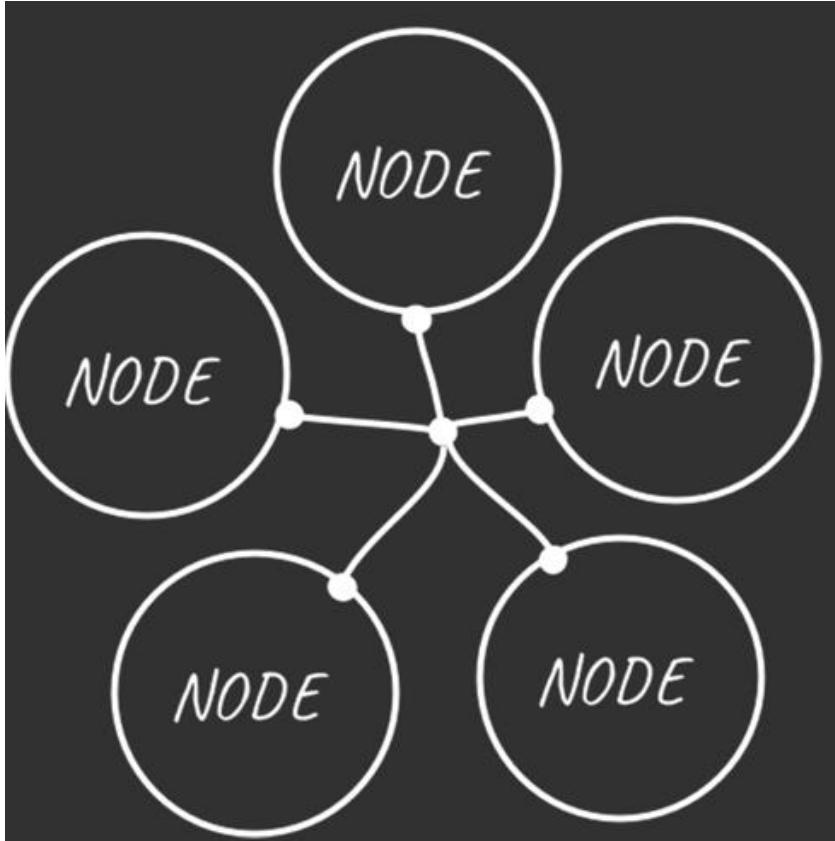
- **What is?**



Gregory, Dapp University

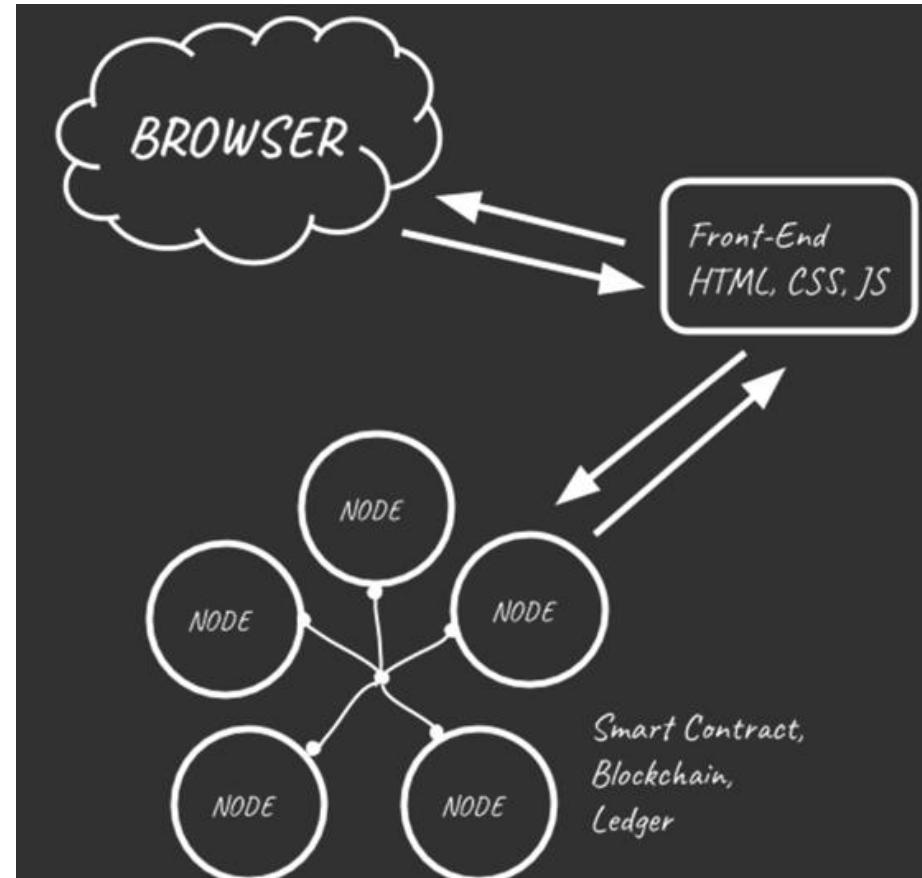
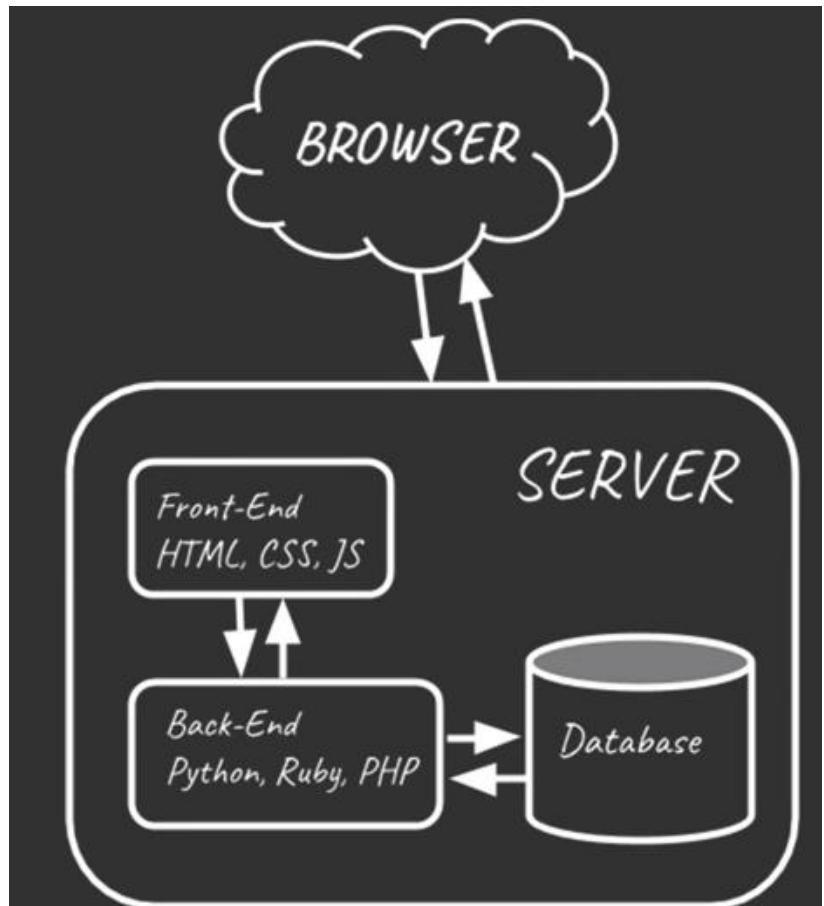
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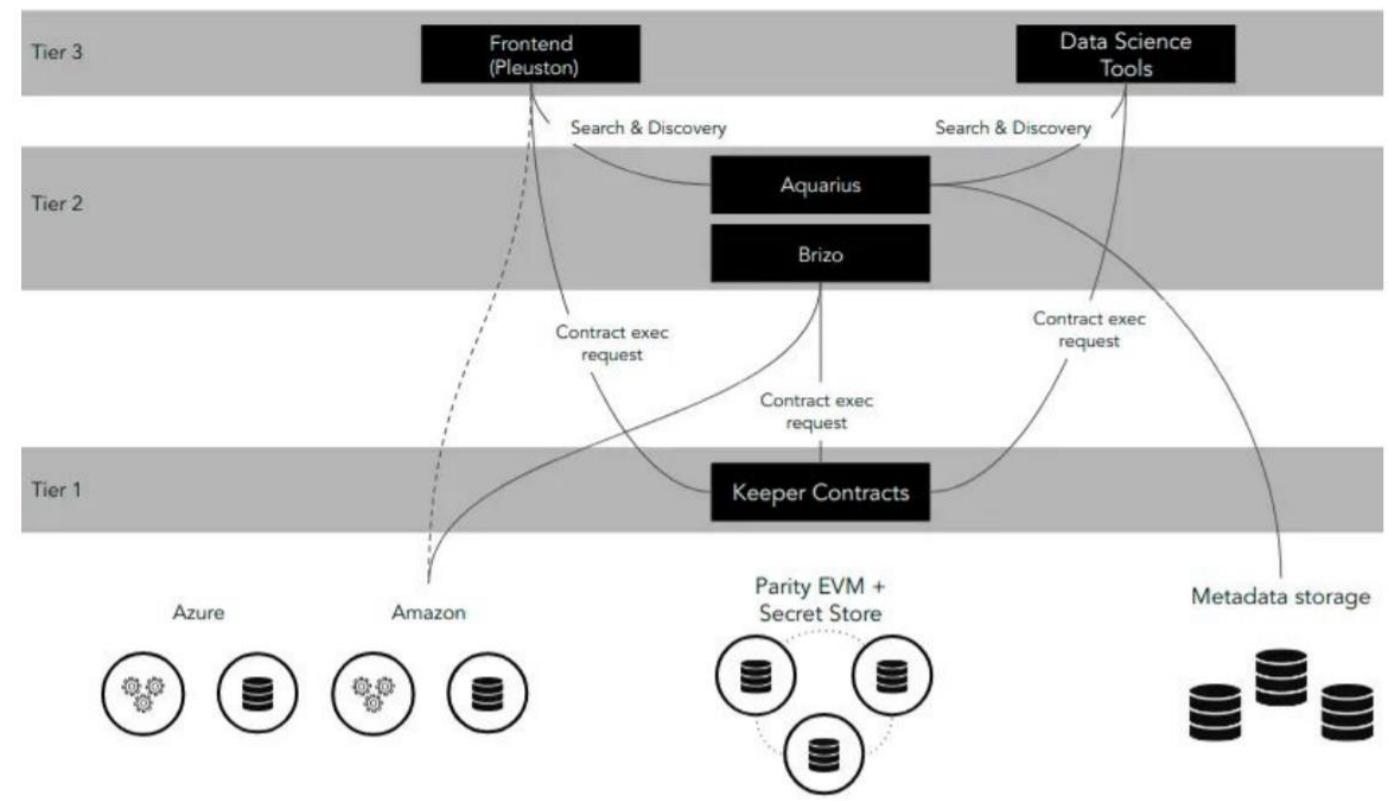
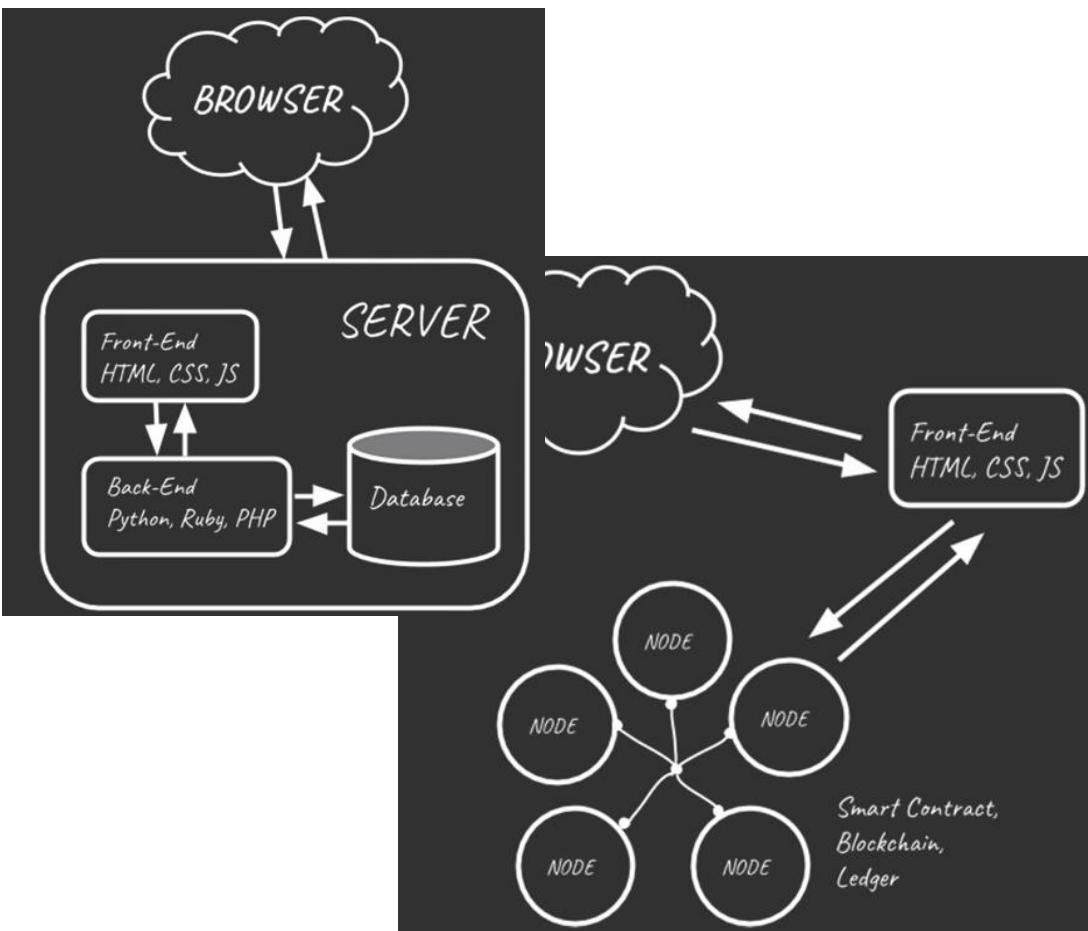
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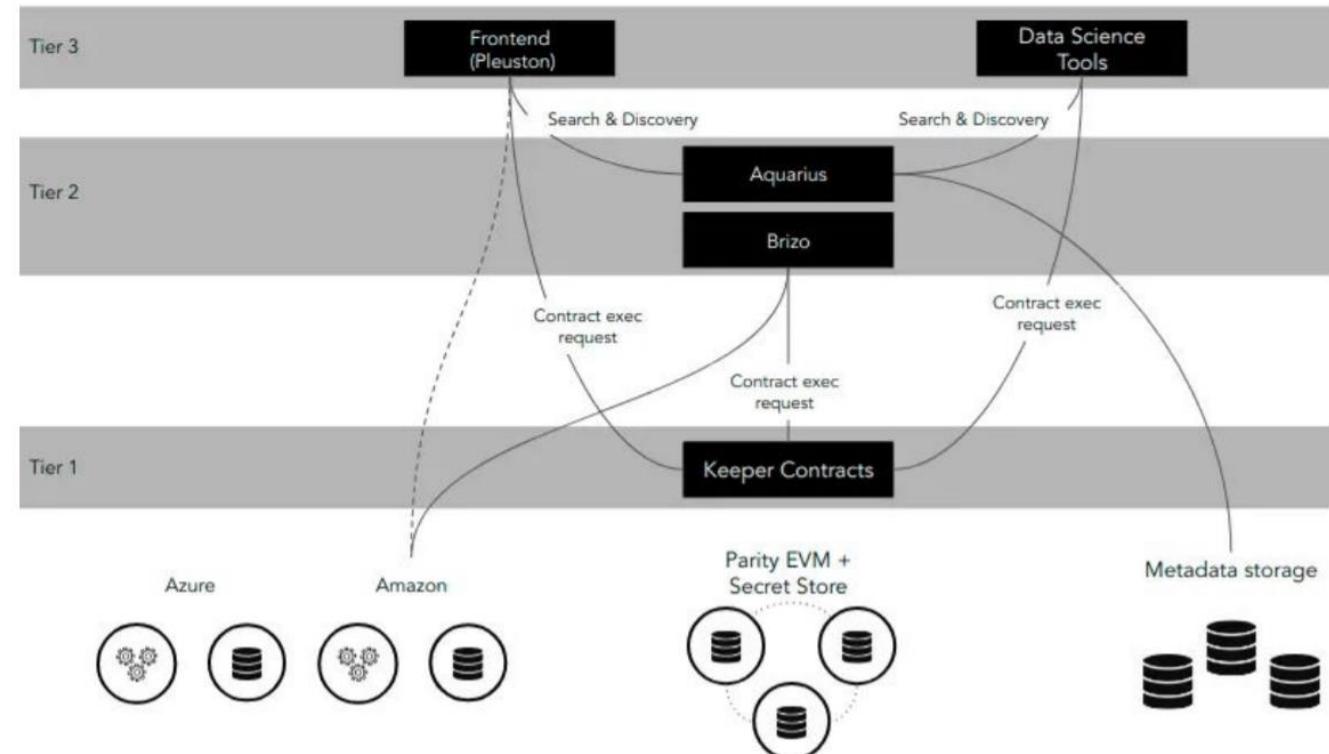
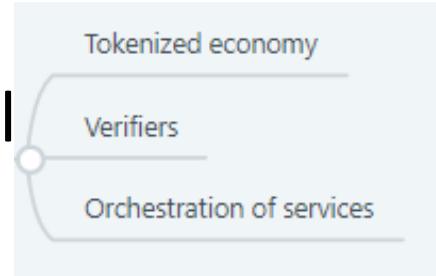
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- What is?



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- What is? Ocean Protocol



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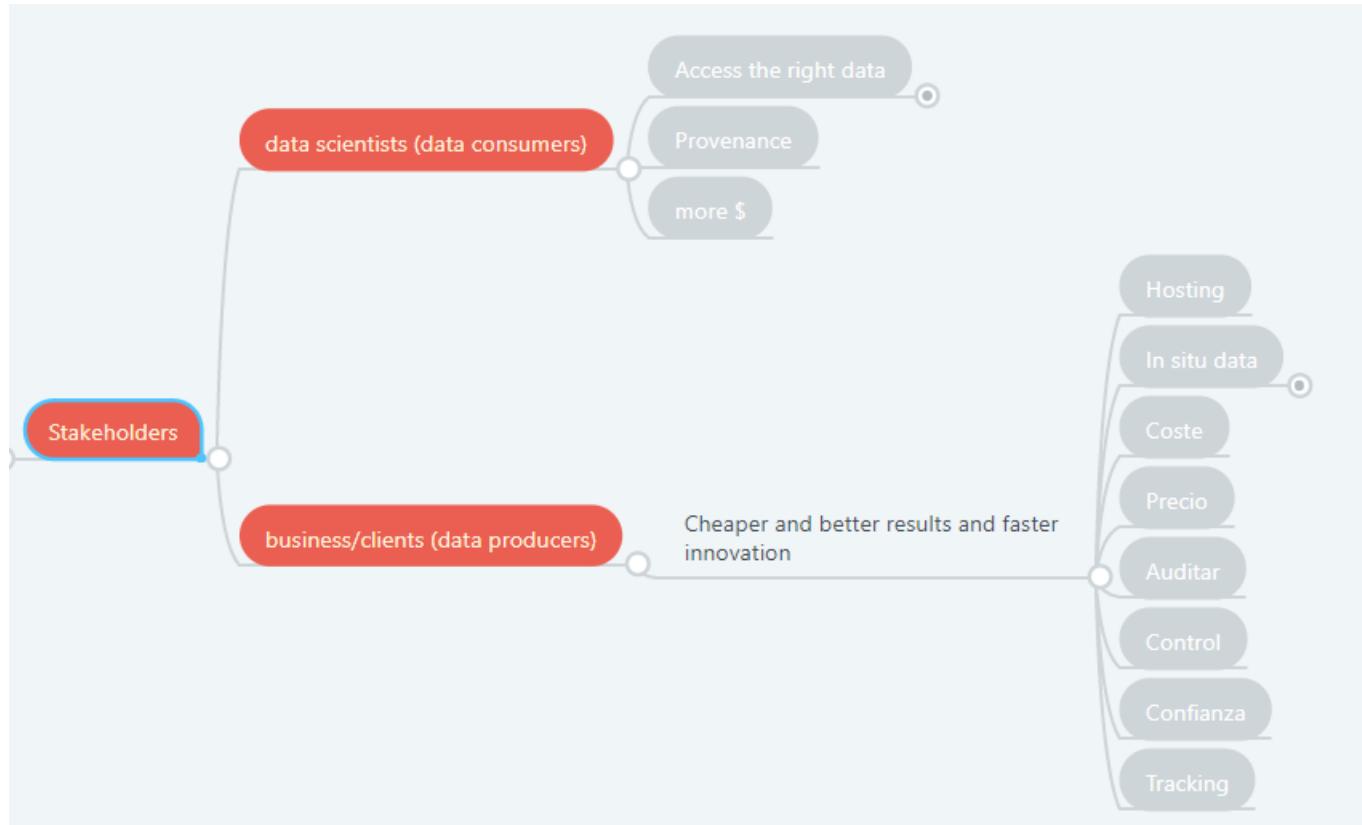
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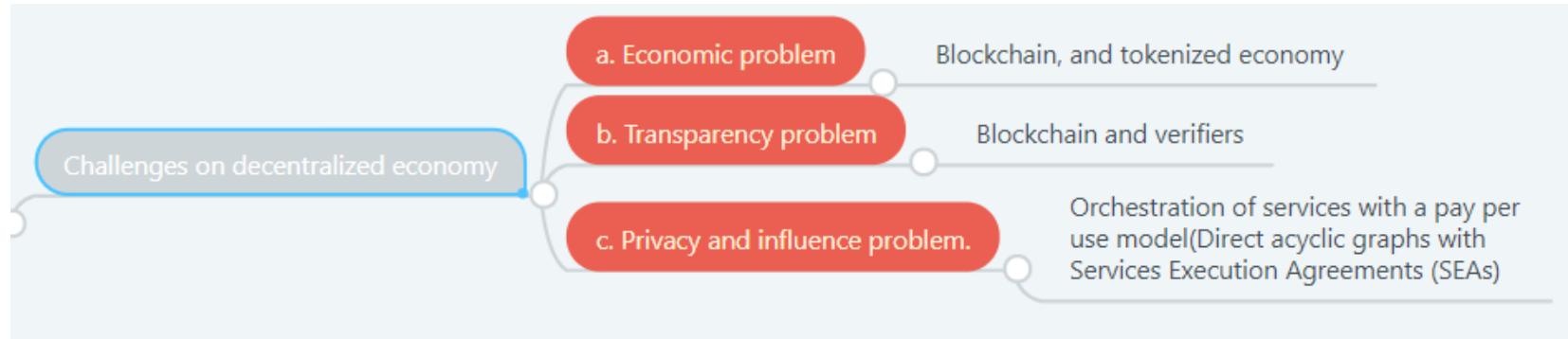
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What if?**

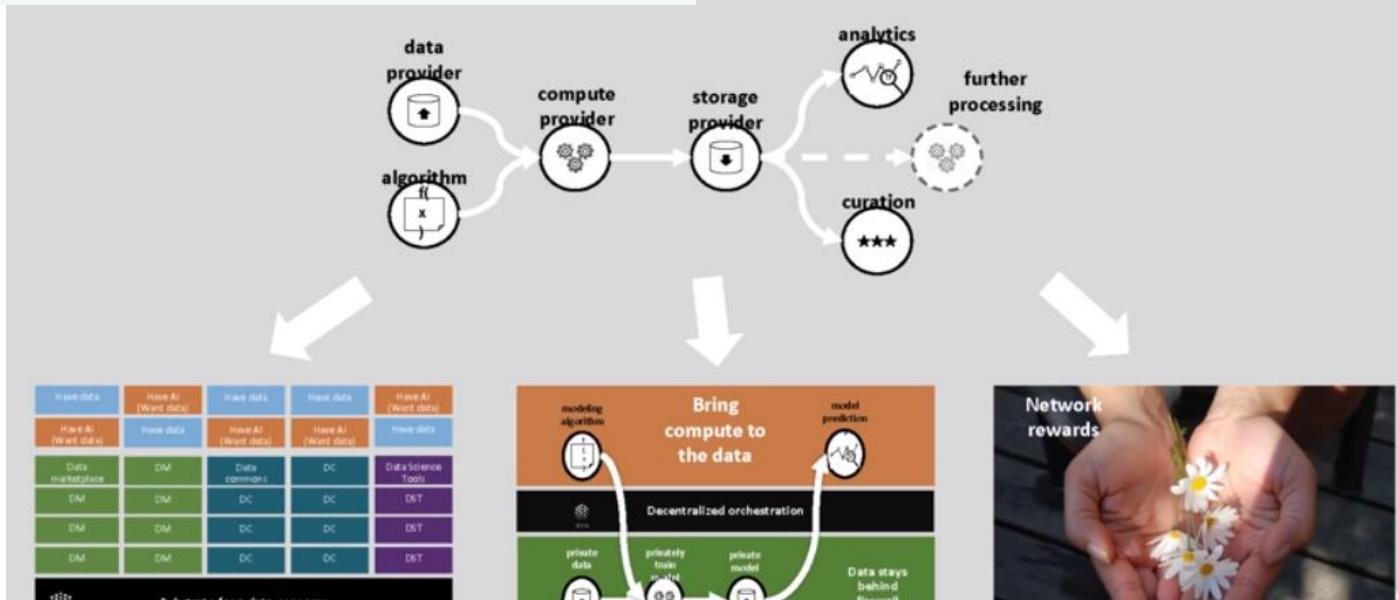


Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What if? Ocean Protocol**

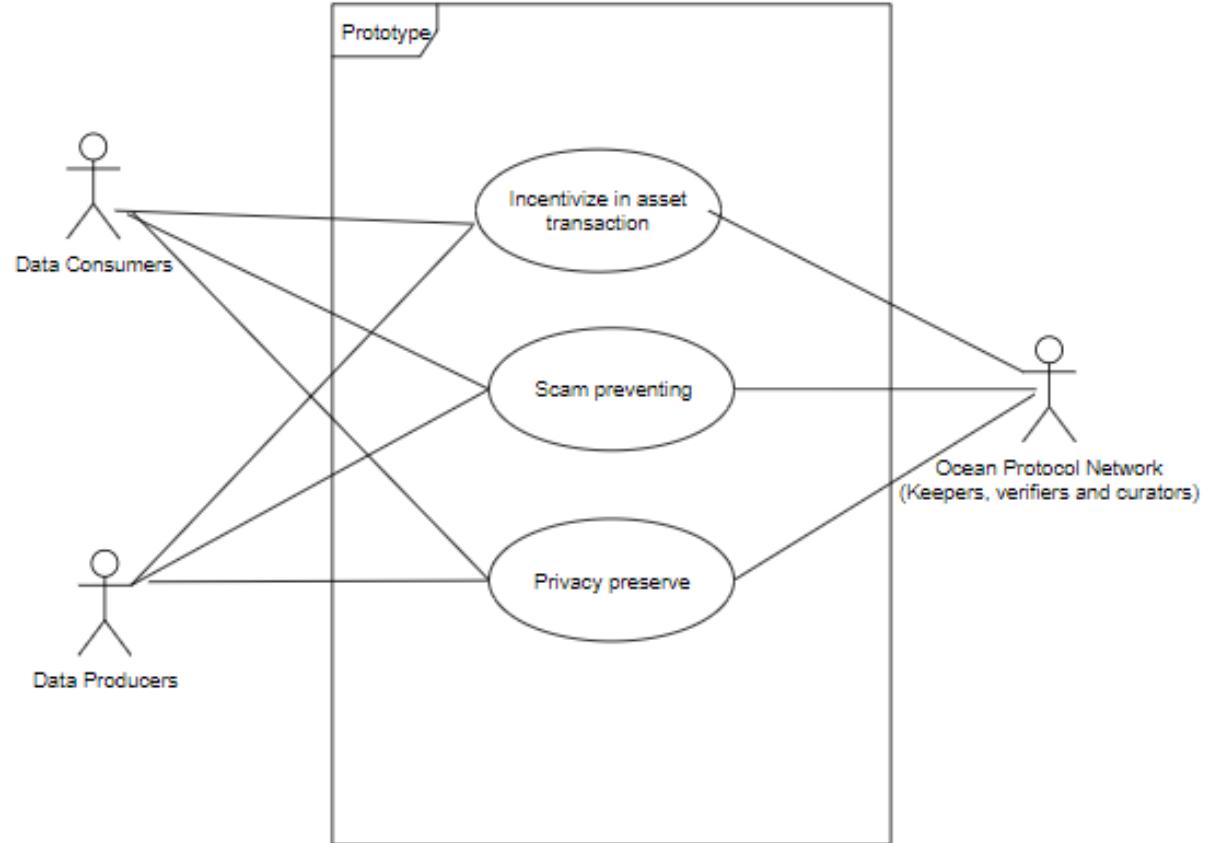


ion (& surrounding tooling)
ys To Supply Data



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What wows?** Cases of use

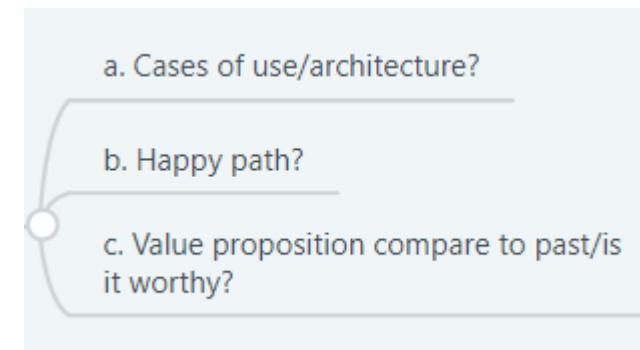


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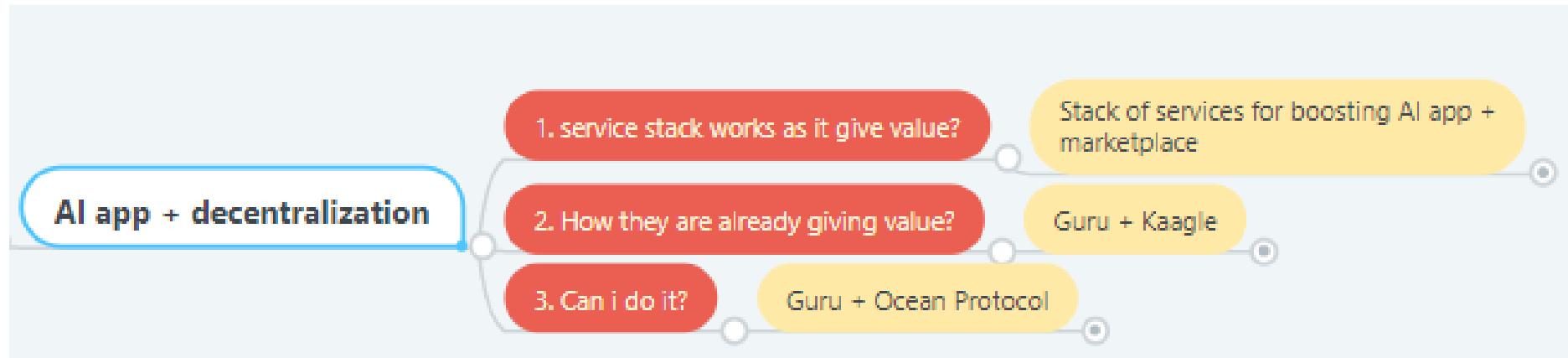
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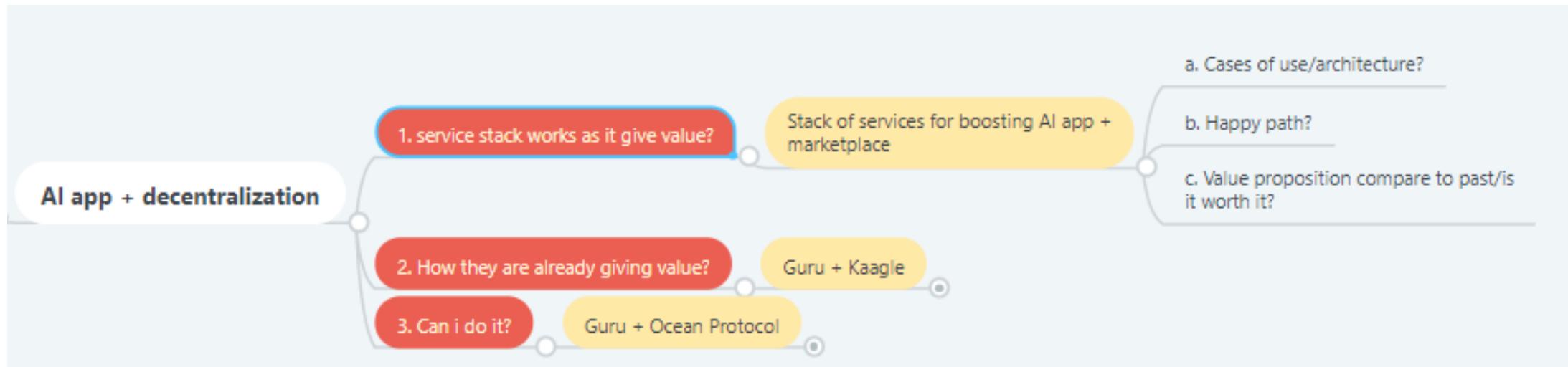
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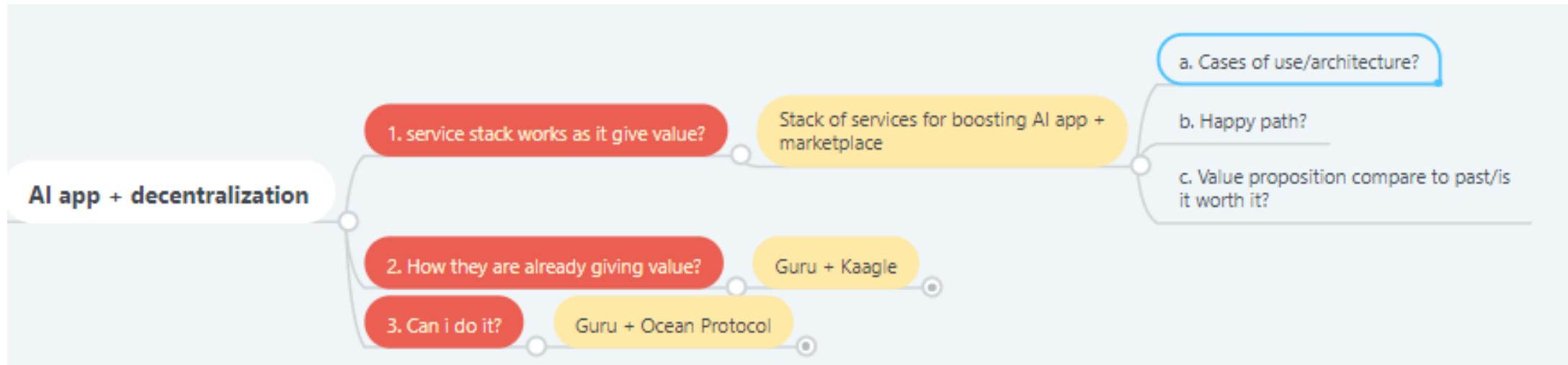
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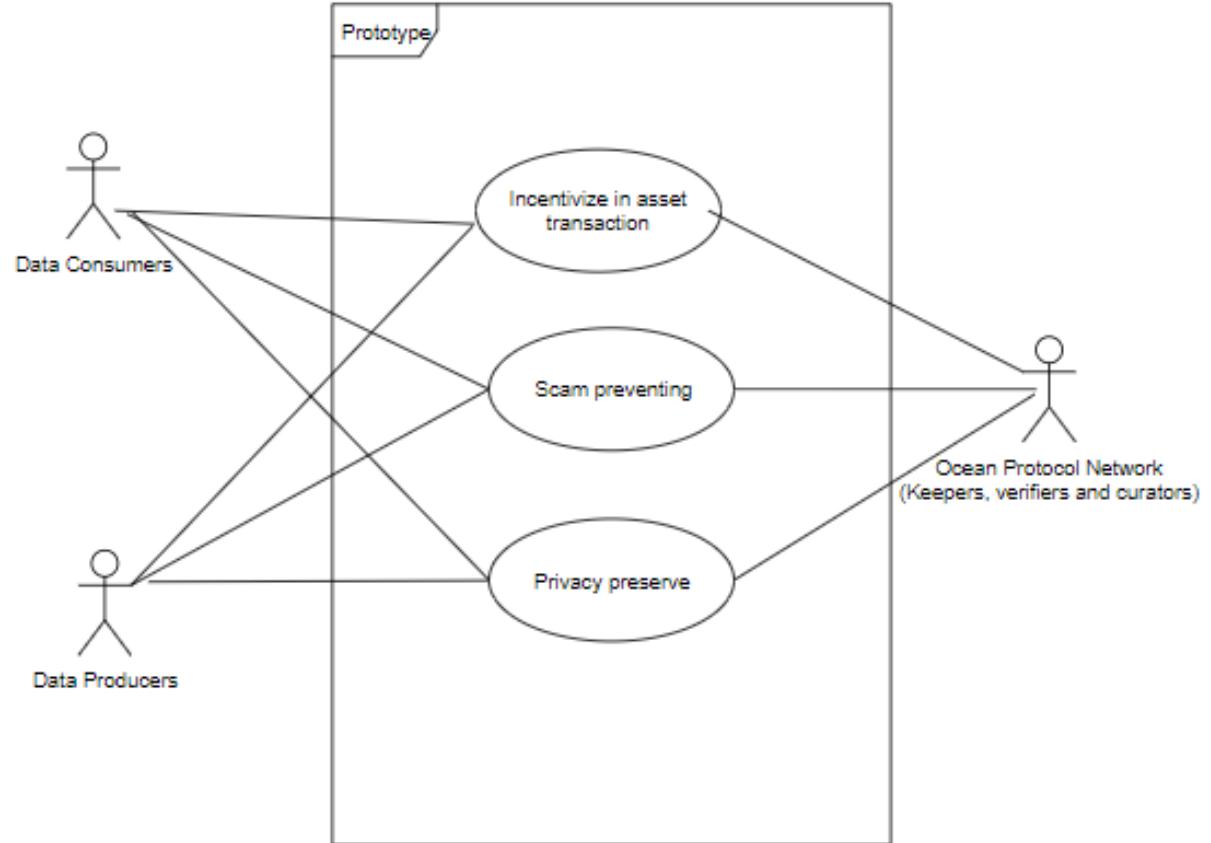
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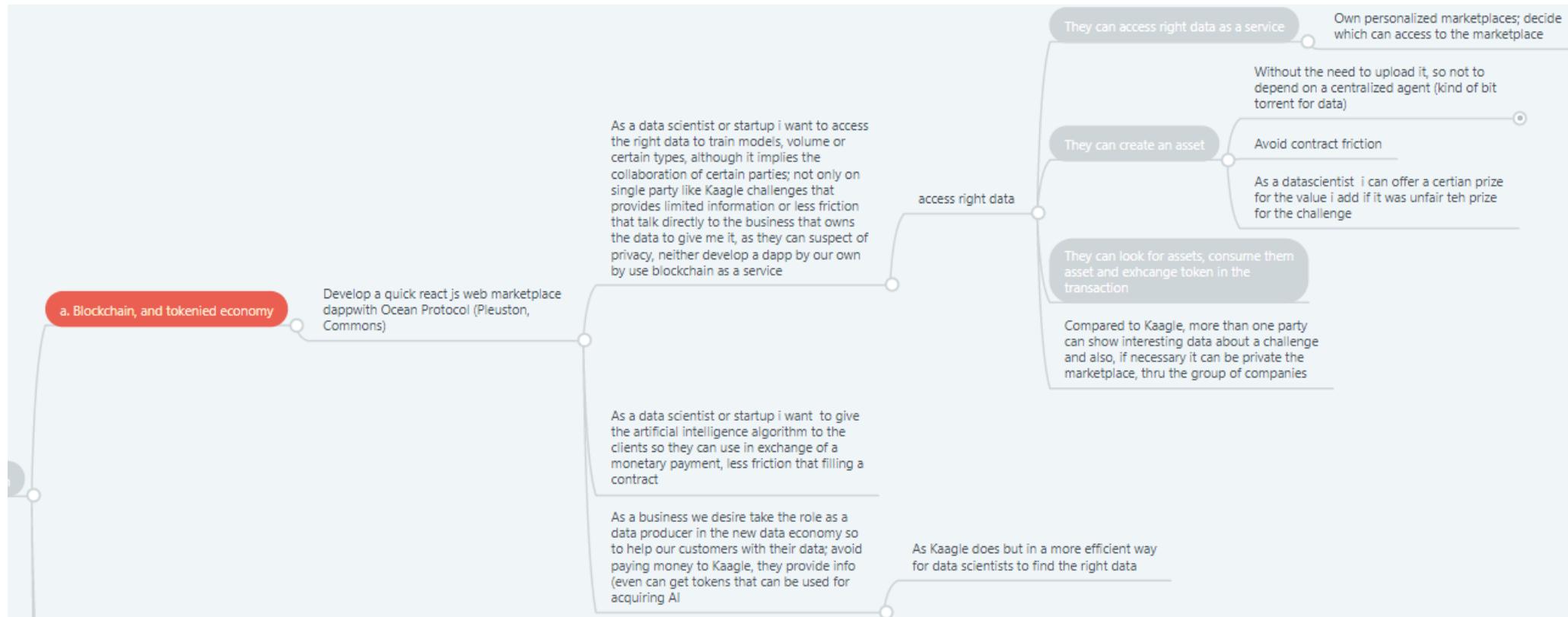
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What wows?** Cases of use



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What works?** Incentivize in asset transactions



Ocean Protocol Prototype ⭐ Private Team Private ABL Invite Elegant »

Sandbox 0:0:0 ...

Product Backlog 0:0:0 ...

RELEASE 1

USER STORY INCENTIVIZE IN TRANSACTIONS As a data scientist or startup i want to access the right data to train models, volume or certain types, although it implies the collaboration of certain parties; not only on single party like Kaagle challenges that provides limited information or less friction that talk directly to the business that owns the data to give me it, as they can suspect of privacy, neither develop a dapp by our own by use blockchain as a service

EPIC INCENTIVIZE IN TRANSACTIONS

USER STORY INCENTIVIZE IN TRANSACTIONS As a data scientist or startup i want to give the artificial intelligence algorithm to the clients so they can use in exchange of a monetary payment, less friction that filling a contract

USER STORY INCENTIVIZE IN TRANSACTIONS As a business we desire take the role as a data producer in the new data economy so to help our customers with their data; avoid paying money to Kaagle, they provide info (even can get tokens that can be used for acquiring AI)

EPIC Scam preventing

USER STORY SCAM PREVENTING As an stakeholder i want to avoid acquiring an asset if it is not useful

USER STORY SCAM PREVENTING As an stakeholder i want to keep what i own

EPIC Privacy preserve

USER STORY PRIVACY PRESERVE As a data provider i want not to disclose data in the training model phase of artificial intelligence

+ Add another card

Sprint Backlog 0:0:0 ...

USER STORY INCENTIVIZE IN TRANSACTIONS As a data scientist or startup i want to access the right data to train models, volume or certain types, although it implies the collaboration of certain parties; not only on single party like Kaagle challenges that provides limited information or less friction that talk directly to the business that owns the data to give me it, as they can suspect of privacy, neither develop a dapp by our own by use blockchain as a service

4 Step 0/3

USER STORY INCENTIVIZE IN TRANSACTIONS As a data scientist or startup i want to give the artificial intelligence algorithm to the clients so they can use in exchange of a monetary payment, less friction that filling a contract

USER STORY INCENTIVIZE IN TRANSACTIONS As a business we desire take the role as a data producer in the new data economy so to help our customers with their data; avoid paying money to Kaagle, they provide info (even can get tokens that can be used for acquiring AI)

+ Add another card

In Progress 0:0:0 ...

Review 0:0:0 ...

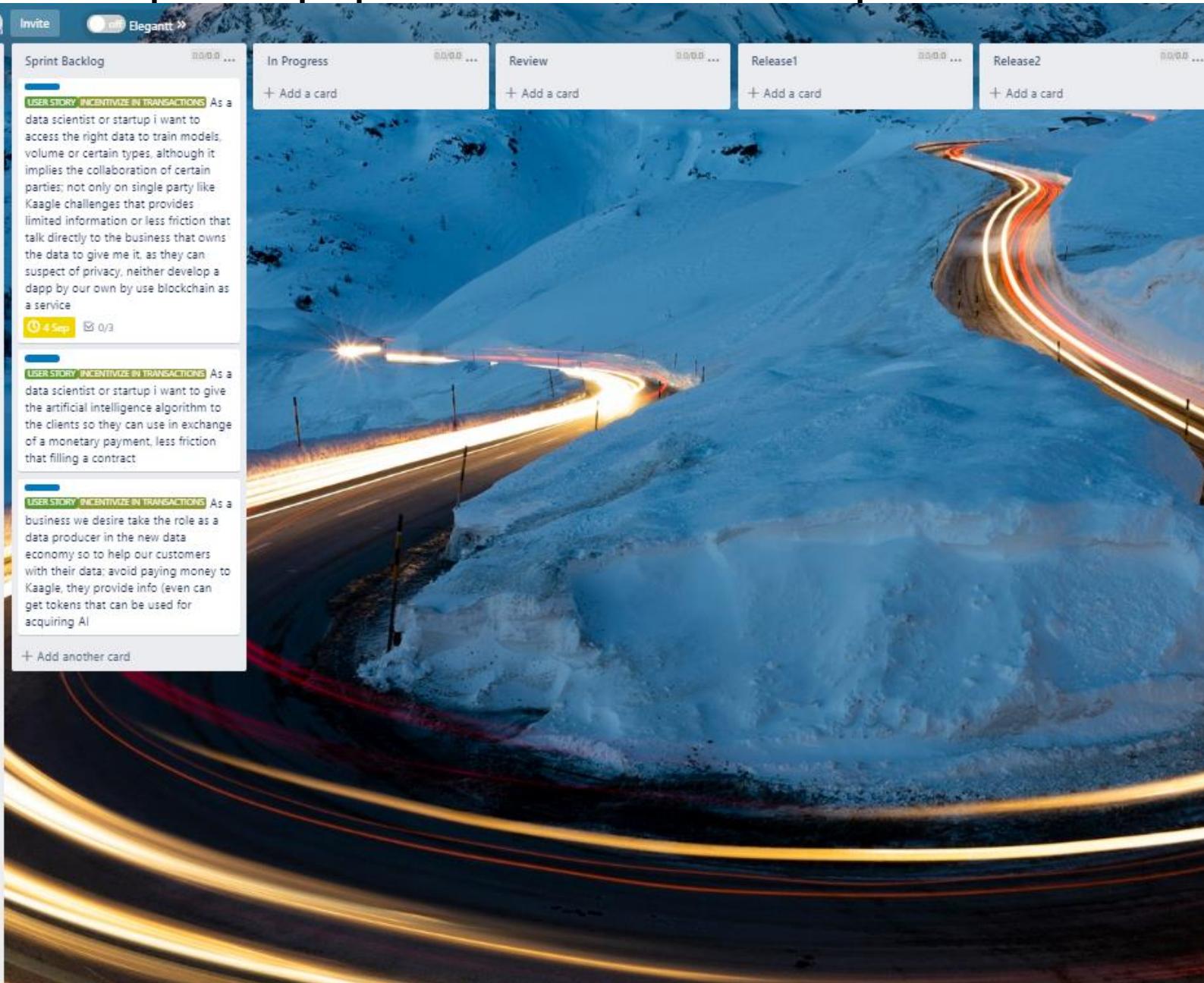
Release1 0:0:0 ...

Release2 0:0:0 ...

+ Add a card

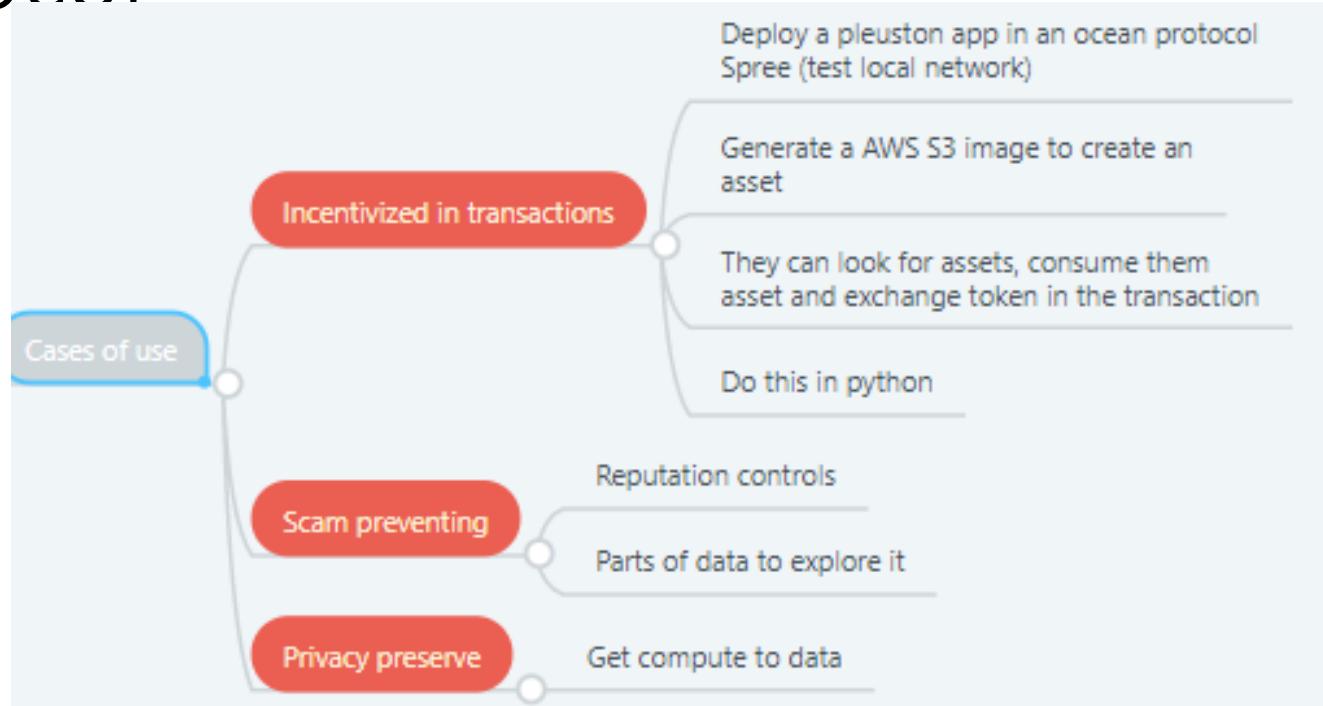
+ Add a card

+ Add a card



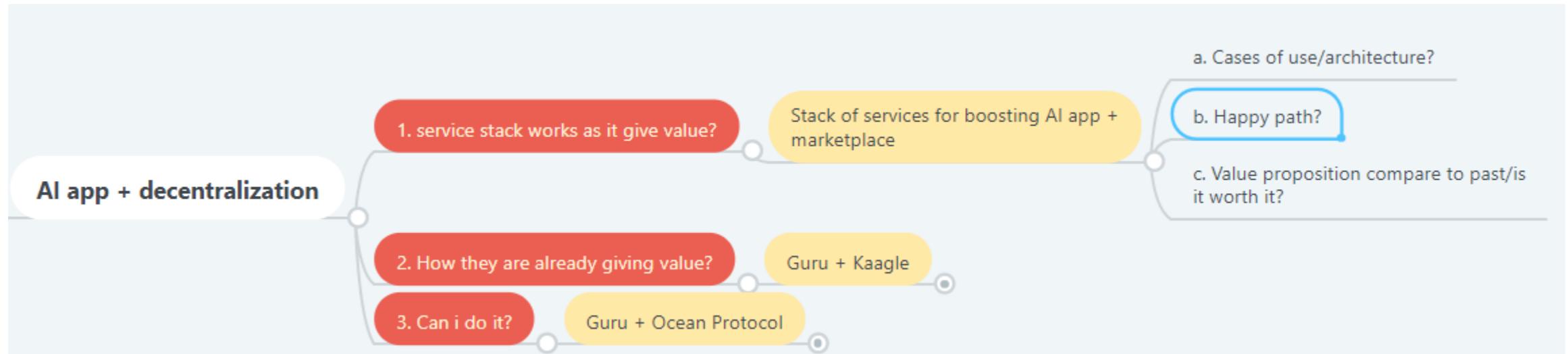
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- What works?



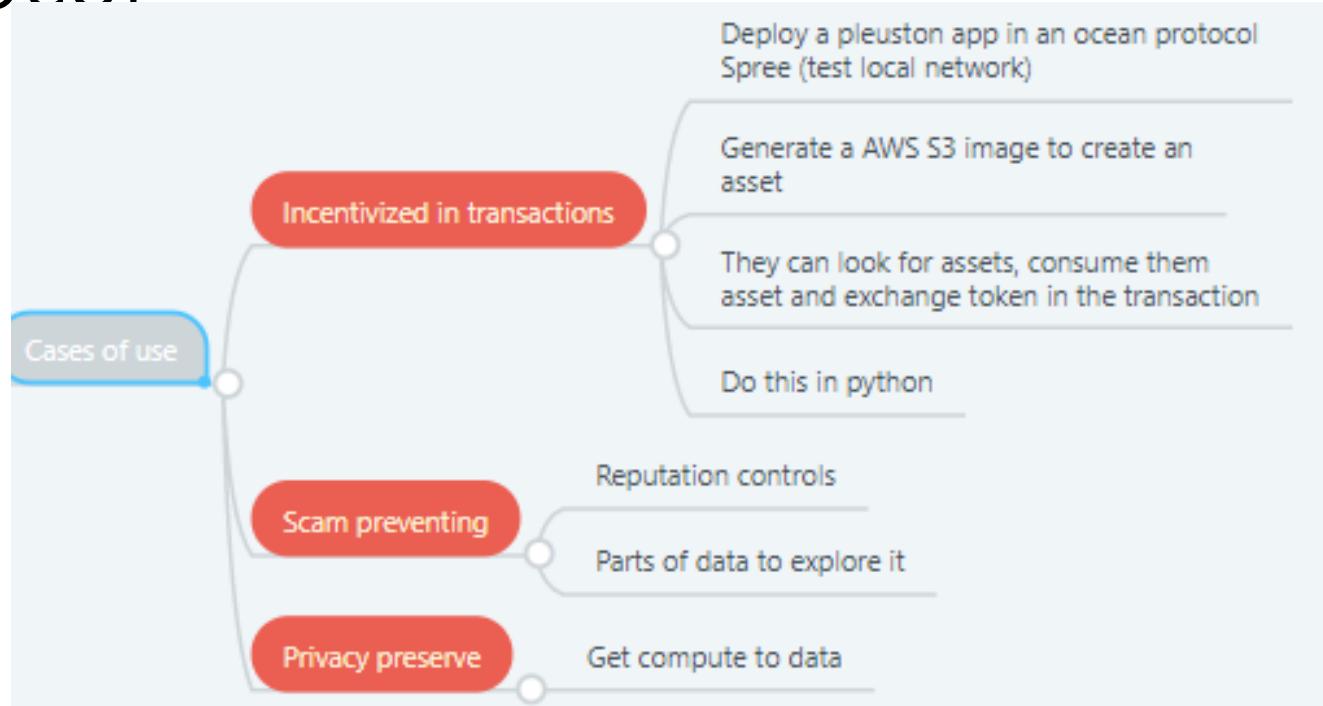
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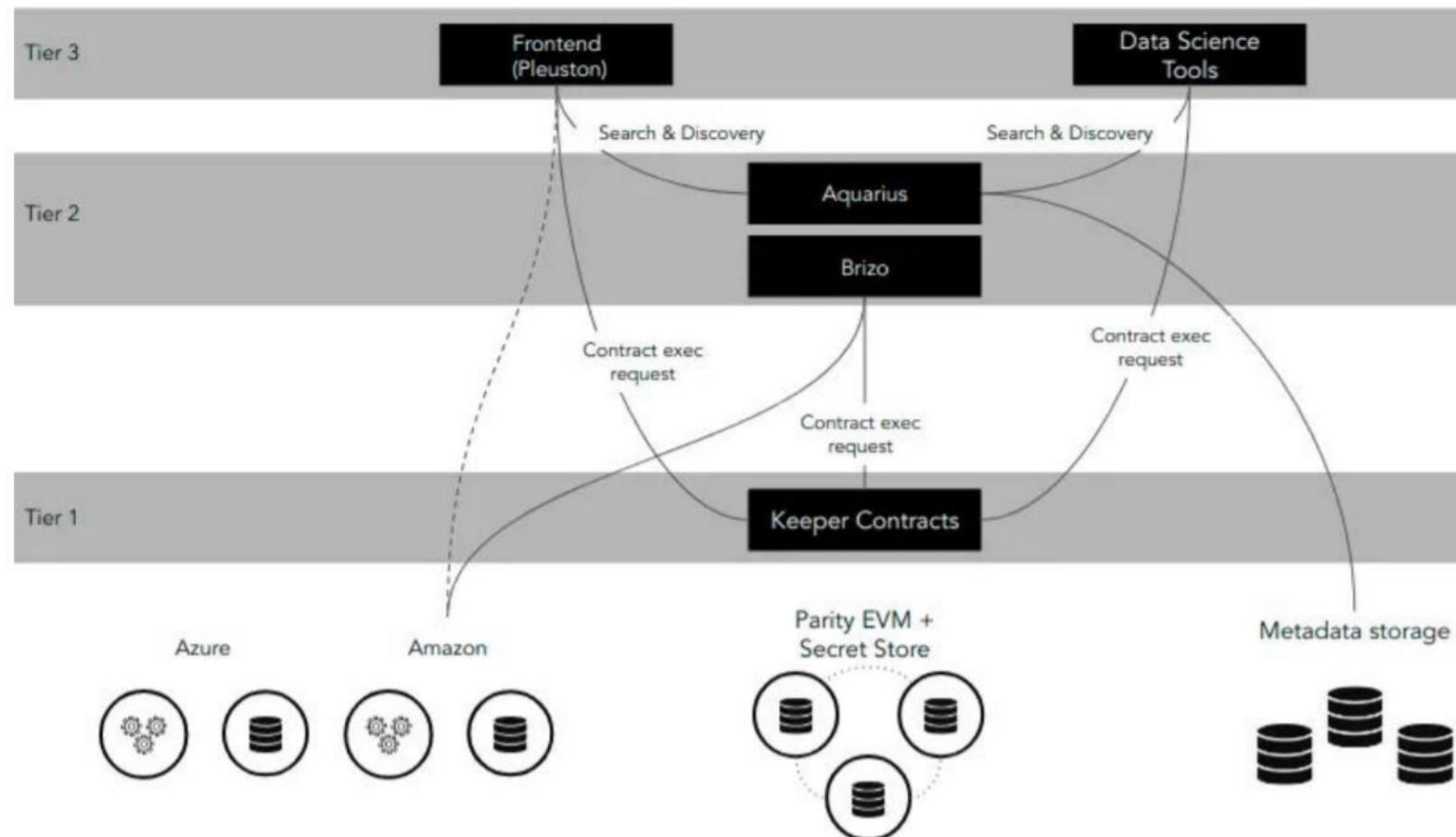
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- What works?



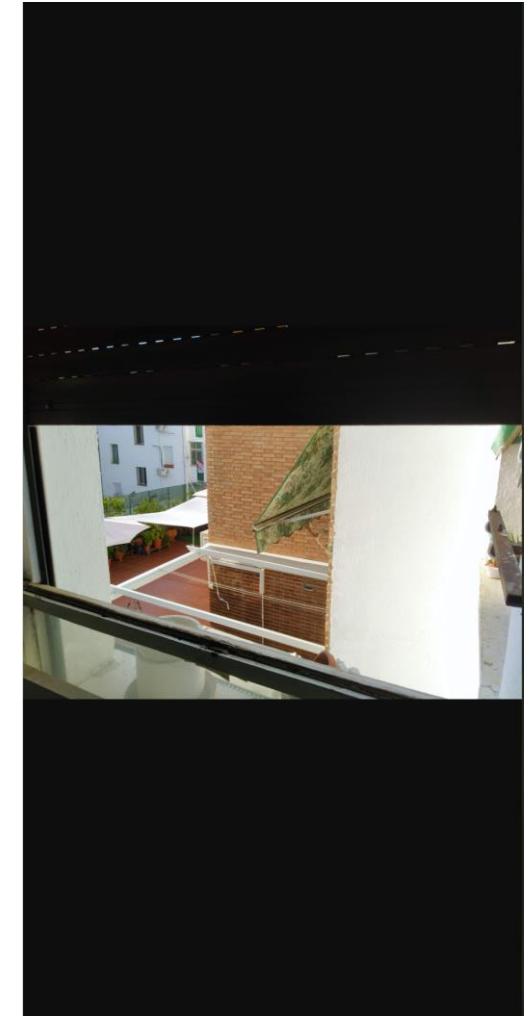
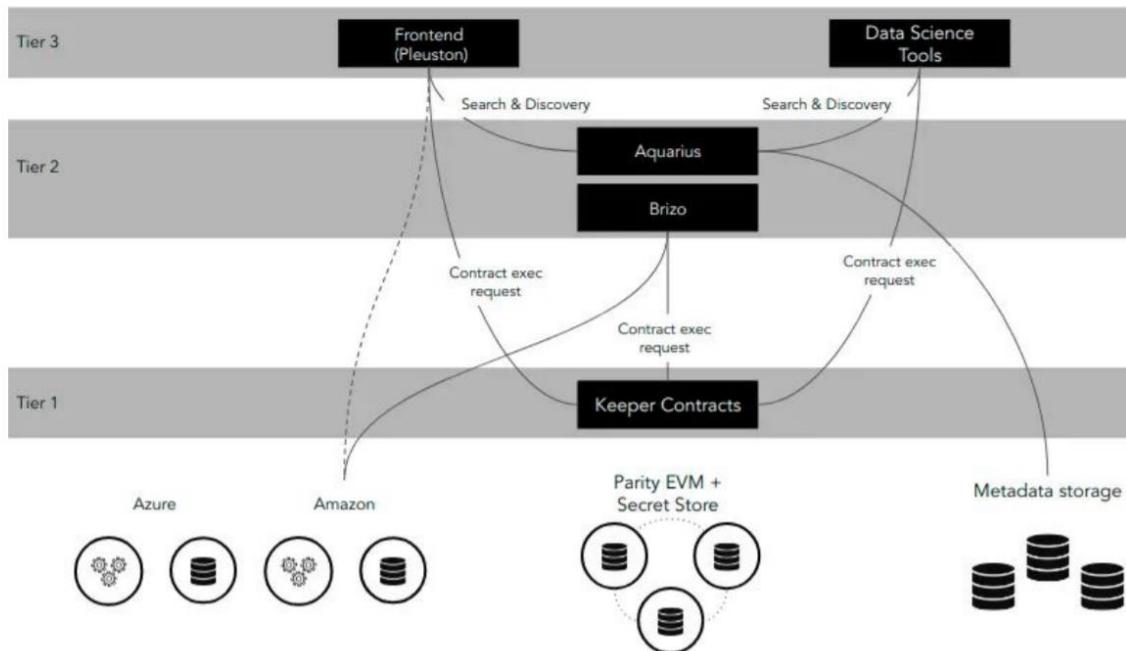
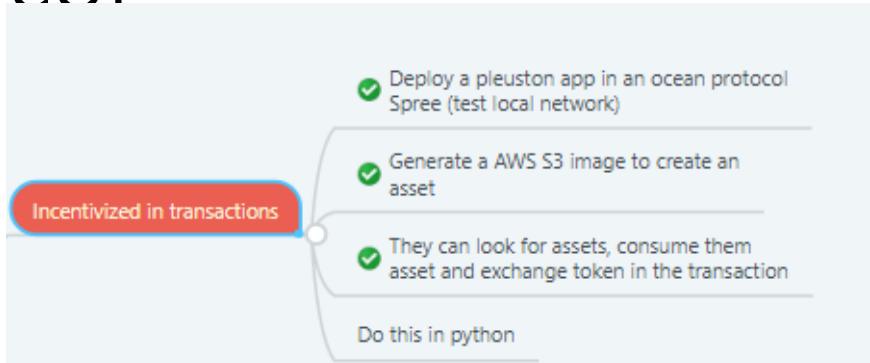
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What works?** Cases of use



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What works?**





Commons

ocean

Channels

Publish

History

Faucet

About



Commons

A marketplace to find and publish open data sets in the Ocean Network.

e.g. shapes of plants

SEARCH

Featured Channel

AI For Good



AI for Good is an initiative to promote the use of artificial intelligence for good causes.

[Browse the channel →](#)



What a Waste Global Database



What a Waste is a global project to aggregate data on solid waste management from around the world. This dat...

Earth & Climate



Lake Titicaca Water Quality

Water Quality Analysis for Lake Titicaca (2003-2011) measured by:\na) Total suspended matter (TSM) and/or turb...

Earth & Climate



MetaMask

Pleuston

The Commons Marketplace

Publish - Commons



https://commons.oceanprotocol.com/publish

80%

Commons
ocean

Channels Publish History Faucet About



Publish

Publish a new data set into the Ocean Protocol Pacific Network.

1 Essentials 2 Information 3 Authorship 4 Register

Essentials

Start by adding a title and URLs for your data set.

Title*

Sample

Enter a concise title. You will be able to enter a more thorough description in the next step.

Files*

Provide one or multiple urls to your data set files.

<https://carabanchelcasa1.s3.amazonaws.com/Fotos/Sample.jpg>

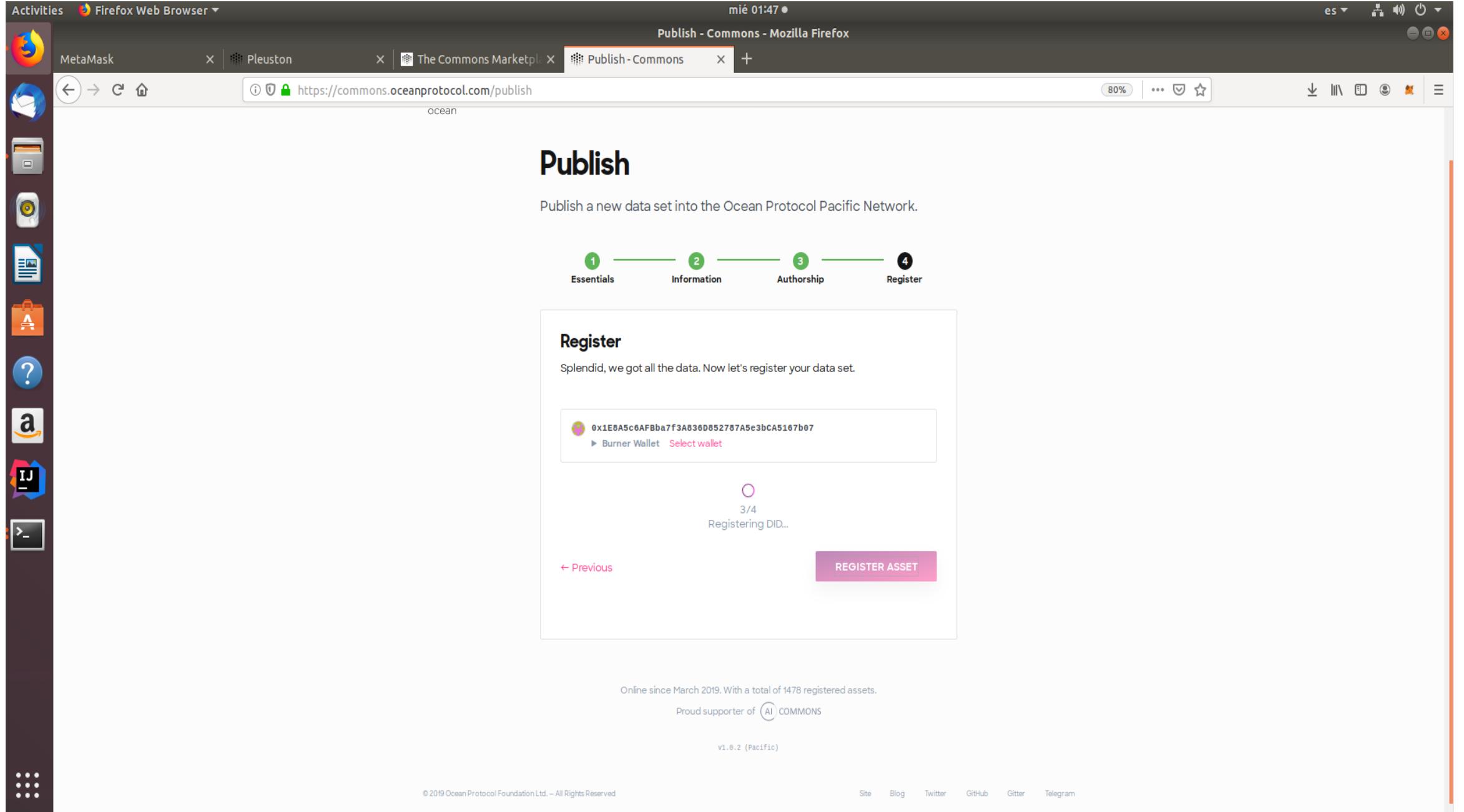
URL confirmed 483.79 KB jpeg

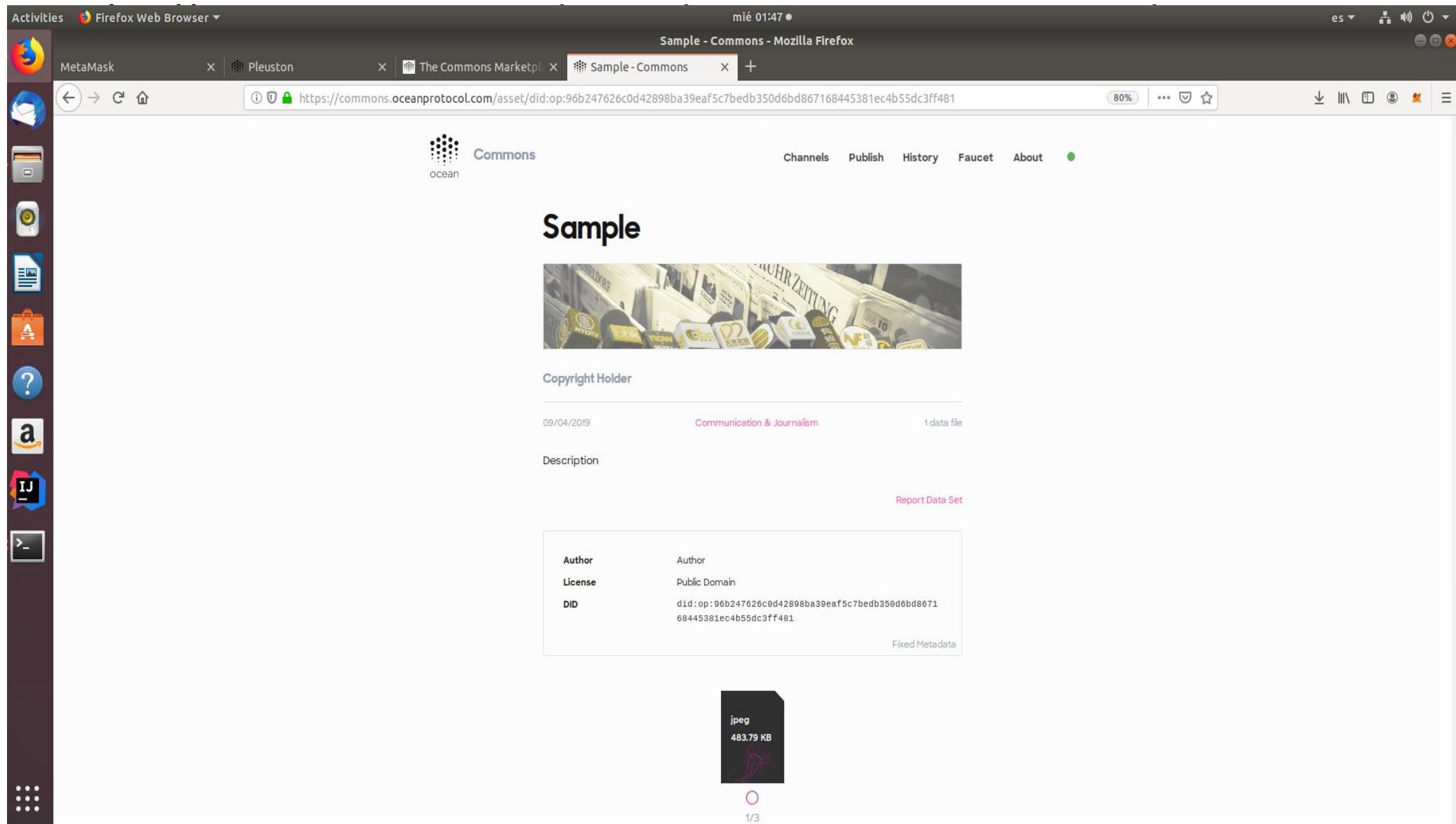
+ Add a file

NEXT →

0x1E8A5c6AFBba7f3A836D852787A5e3bCA5167b07

► Burner Wallet Select wallet





Activities Image Viewer

es ▾



MetaMask

Pleuston

mié 01:48 ●

Sample - Commons - Mozilla Firefox

es ▾



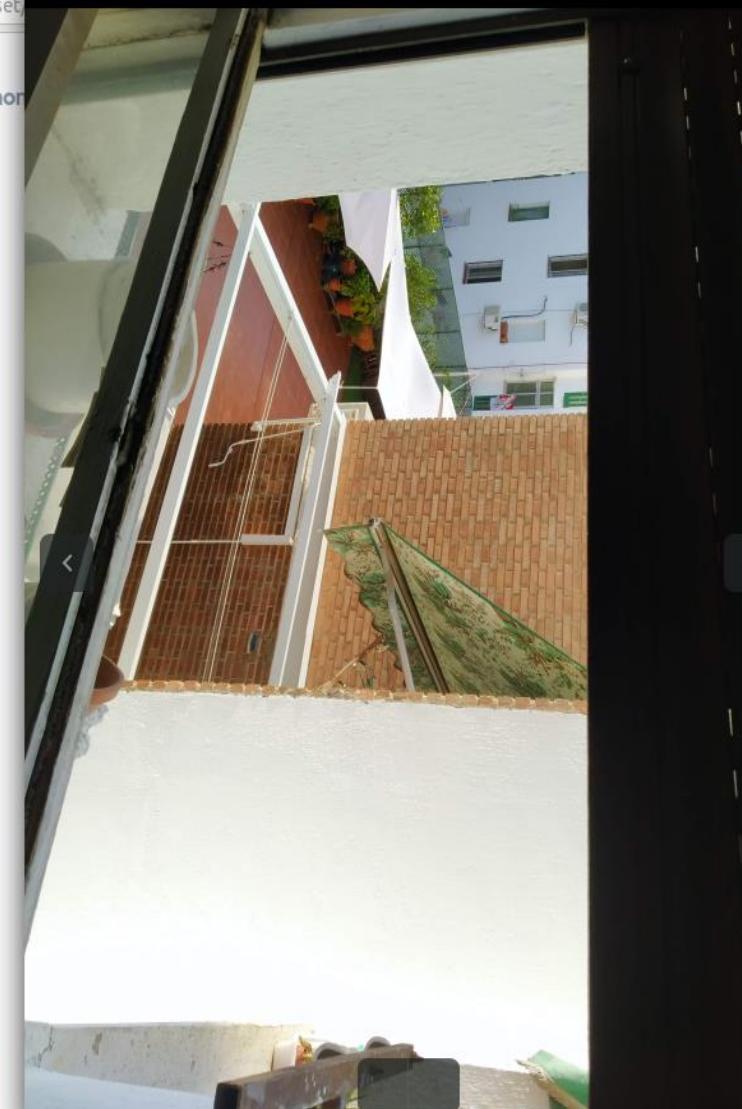
20%

Sample.jpg



Commons

ocean



GET FILE

Activities Terminal ▾

mar 07:04 •

ubuntu@ubuntu: ~/barge

```
File Edit View Search Terminal Help
ubuntu@ubuntu:~$ git clone https://github.com/oceanprotocol/barge.git
Cloning into 'barge'...
remote: Enumerating objects: 211, done.
remote: Counting objects: 100% (211/211), done.
remote: Compressing objects: 100% (135/135), done.
remote: Total 1748 (delta 115), reused 151 (delta 73), pack-reused 1537
Receiving objects: 100% (1748/1748), 1.23 MiB | 2.49 MiB/s, done.
Resolving deltas: 100% (944/944), done.
ubuntu@ubuntu:~$ cd barge/
ubuntu@ubuntu:~/barge$ ./start_ocean.sh --no-pleuston
```

Starting without Pleuston...

```
Unable to find image 'busybox:latest' locally
latest: Pulling from library/busybox
ee153a04d683: Pulling fs layer
ee153a04d683: Verifying Checksum
ee153a04d683: Download complete
ee153a04d683: Pull complete
Digest: sha256:9f1003c480699be56815db0f8146ad2e22efa85129b5b5983d0e0fb52d9ab70
Status: Downloaded newer image for busybox:latest
```



MetaMask

Pleuston



localhost:3000

90%



Data Sets



Data Sets Publish

Data Sets

[Explore all data sets](#) Search for keyword in the name or description.

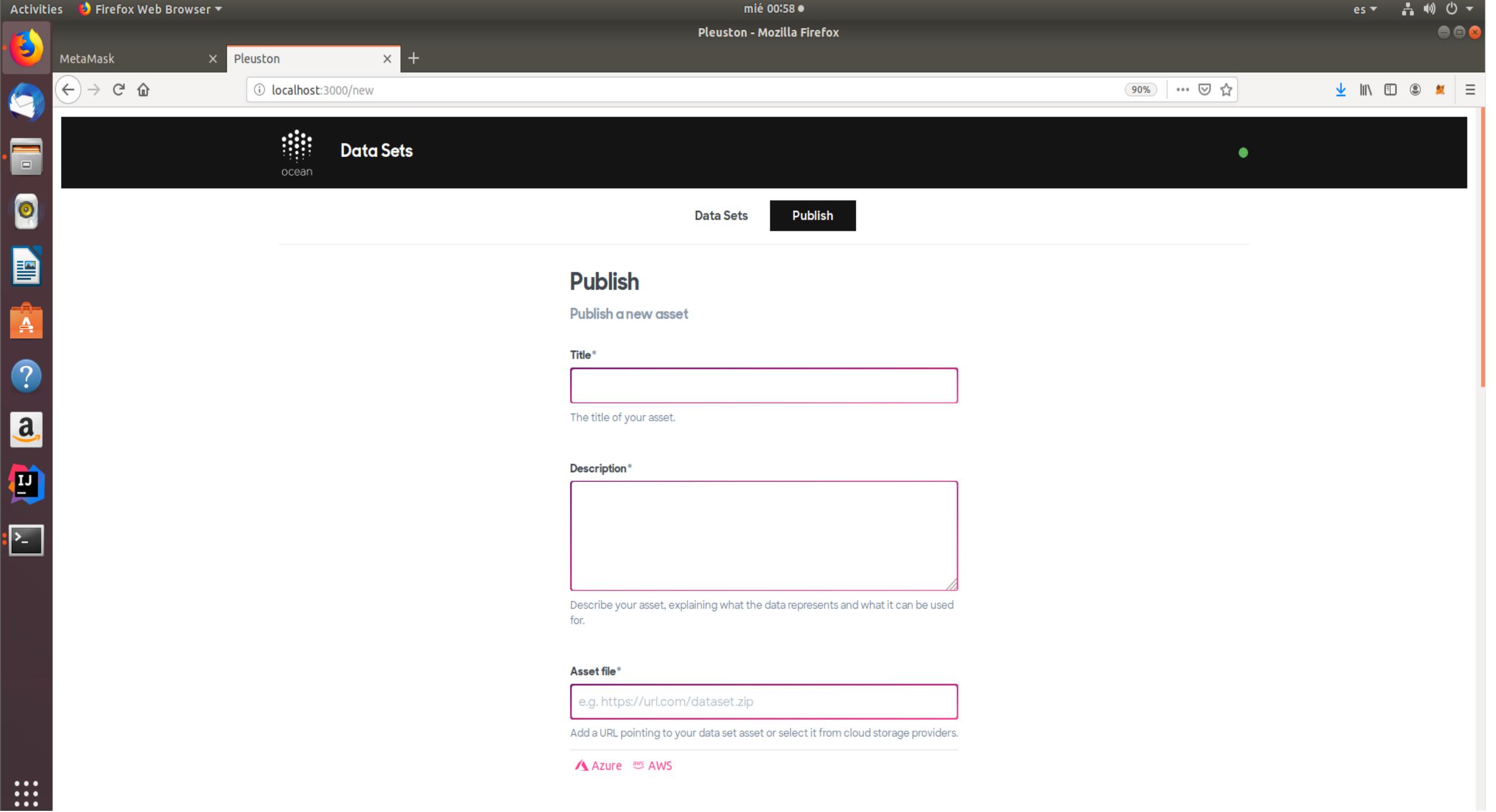
SEARCH

[+ Advanced search](#)

No data sets yet

Why not add some of yours?

[+ Add new data set](#)



Activities

Firefox Web Browser ▾

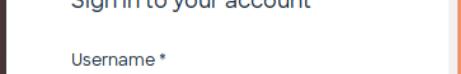


mié 01:37 •

es ⓘ 🔍 ⌂ ⌂ ⌂

Pleuston - Mozilla Firefox

Pleuston - Mozilla Firefox



localhost:3000/aws 90%



localhost:3000/new 90%



No userPool

Sign in to your account

Username *

1.blazquez.leon@alumnos.upm.es

Password *

.....

Forgot your password? [Reset password](#)[SIGN IN](#)No account? [Create account](#)

Publish

Publish a new asset

Title *

Photos fire detection

The title of your asset.

Description *

Set of photos to detect smoke

Describe your asset, explaining what the data represents and what it can be used for.

Asset file *

e.g. <https://url.com/dataset.zip>

Add a URL pointing to your data set asset or select it from cloud storage providers.

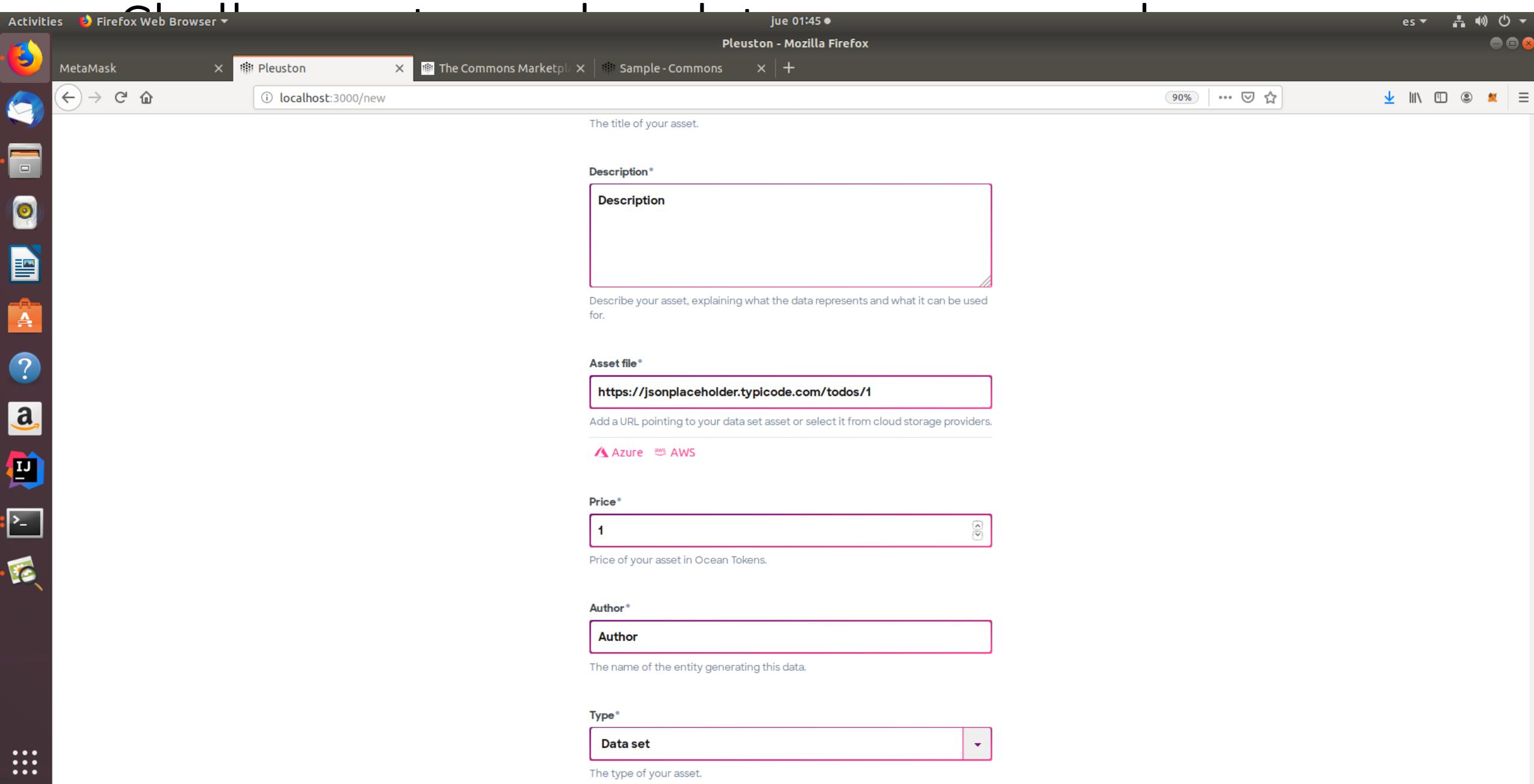
 [Azure](#) [AWS](#)

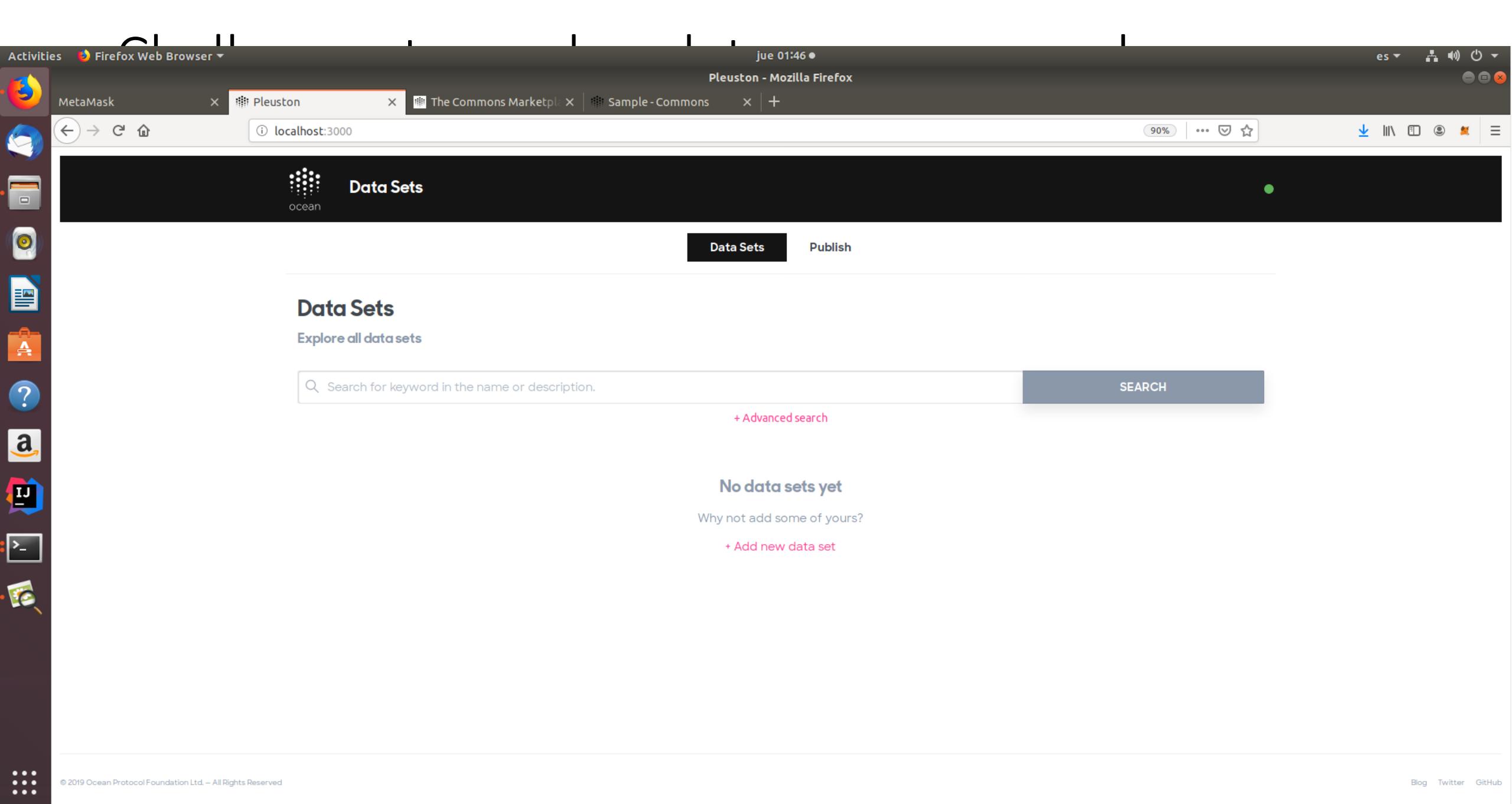
Price *

0

Price of your asset in Ocean Tokens.

Author *





Challenges towards a data economy and

GITTER



oceanprotocol/Lobby The Data Economy



Where communities thrive

JOIN OVER 1.5M+ PEOPLE
JOIN OVER 100K+ COMMUNITIES
FREE WITHOUT LIMITS
CREATE YOUR OWN COMMUNITY

EXPLORE MORE COMMUNITIES

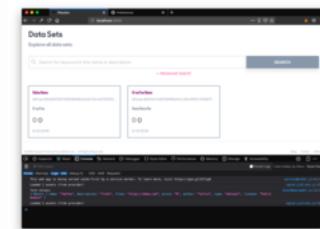


lychongaa @lychongaa Jun 13 11:40

Um... It still doesn't work after pulling the newest version of develop, pruning the docker and restarting ocean protocol.



Matthias Kretschmann @kremalicious Jun 13 12:43



lychongaa @lychongaa Jun 13 16:52

Oh, clearing the browser's cache works. Thank you very much :)



Matthias Kretschmann @kremalicious Jun 13 17:17

@martijnbolt are you still running into Barge issues with latest `develop` branch? We bumped all default versions in there and `./start_ocean.sh` should be way more reliable now



Theo Turner @theoturner Jun 13 17:48

Hey all, how do I set the log level for squid py?



Enrique Ruiz @eruizgar91 Jun 14 09:54

Hi @theoturner , you have to edit the logging.yaml file and set the level that you want to use



lychongaa @lychongaa Jun 14 11:47

Hi, I would like to ask how can I exchange Ocean token from Ethereum token in local spree network? The tutorial said that we can use squid-py methods to request Ocean Tokens, but how exactly does that work? Is there any more detailed instructions to obtain Ocean Tokens in spree network? Thank You :)



Troy McConaghay @ttmc Jun 14 12:01

@lychongaa You don't need to exchange Ether for Ocean Tokens. You can just request Ocean Tokens (in any testnet like Spree, or any network where the "Dispenser" smart contract is deployed).

Currently, you don't really *need* Ocean Tokens to do things. You can just set the price of assets to "0" for now. You really only need Ether, to cover the transaction gas costs.

PEOPLE



SEE ALL (213 PEOPLE)

Pleuston Preferences

localhost:3000

Data Sets

Explore all data sets

Search for keyword in the name or description.

SEARCH

+ Advanced search

fdwfew

did:op:95e9bf0261124818b86edc8c06c4d752f59...

frwfew

0 0

6/13/2019

frwfewfew

did:op:4b60a17a92184886a4cc49c4981c141d67f...

fewfewfe

0 0

6/13/2019

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Blog Twitter GitHub

Inspector React Console Network Debugger Style Editor Performance Memory Storage Accessibility

Filter output Persist Logs 1 item hidden by filters Reset filters

Errors Warnings Logs Info Debug (1) CSS XHR Requests

This web app is being served cache-first by a service worker. To learn more, visit <https://goo.gl/SC7cgQ>

Loaded 1 assets (from provider)

form values:

Object { name: "fdwfew", description: "frwfew", files: "https://demo.com", price: "0", author: "fwfvrw", type: "dataset", license: "Public Domain" }

Loaded 2 assets (from provider)

serviceWorker.js:41:28

squid.cjs2.min.js:158

AssetNewLoader.js:12:20

squid.cjs2.min.js:158



Activities

Firefox Web Browser

Bleuston

The Commons Marketplace | Common

Pleuston - Mozilla Firefox

es ▾

 ocean

Data Sets

Data Sets

Publish

Data Sets

Explore all data sets

 Search for keyword in the name or description

SEARCH

+ Advanced search

No data sets yet

Why not add some of yours?

+ Add new data set

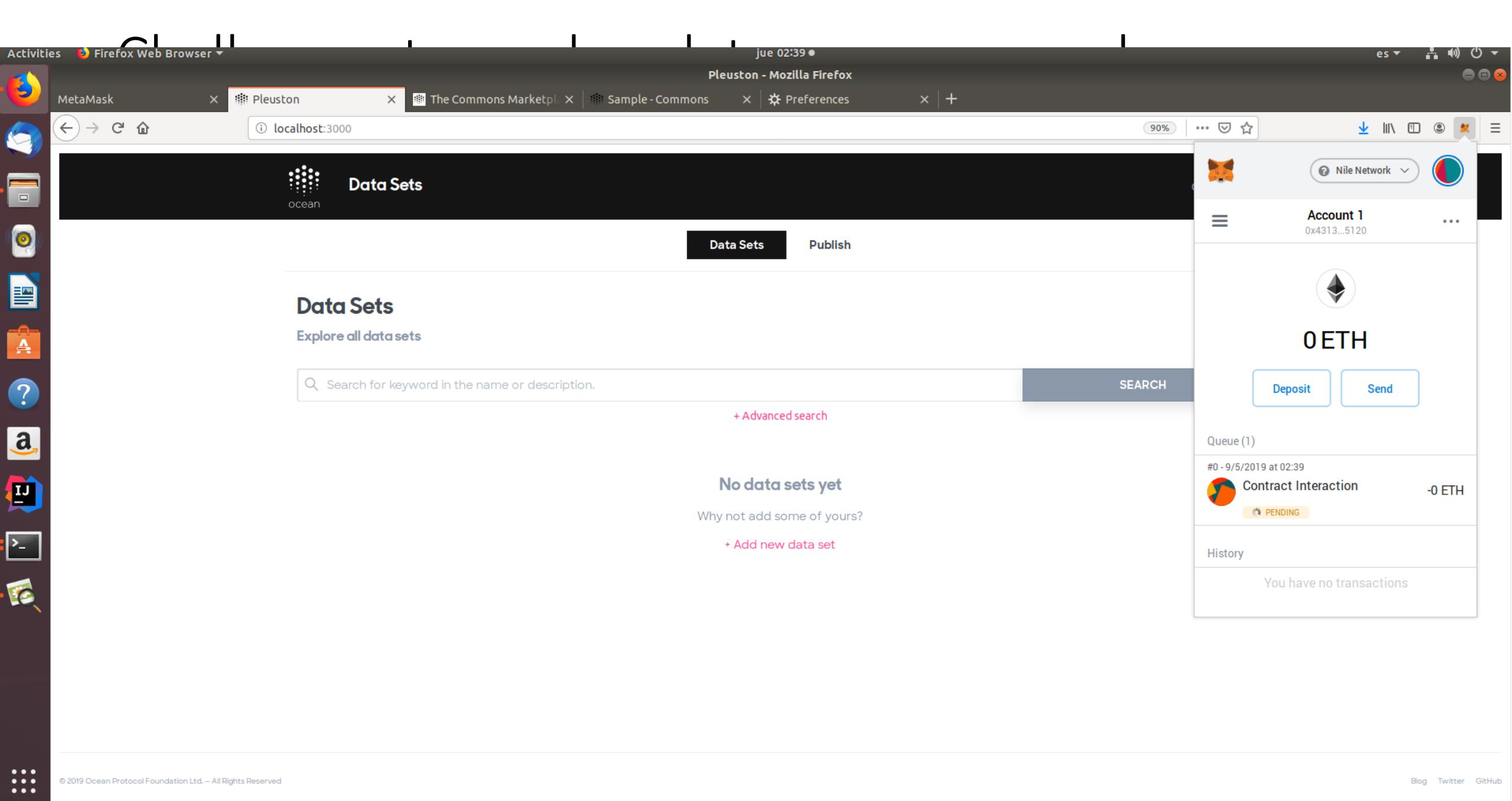


Nile Network



Settings

- Main Ethereum Network >
 - Ropsten Test Network >
 - Kovan Test Network >
 - Rinkeby Test Network >
 - Goerli Test Network >
 - Localhost 8545 >
 - Nile Network >



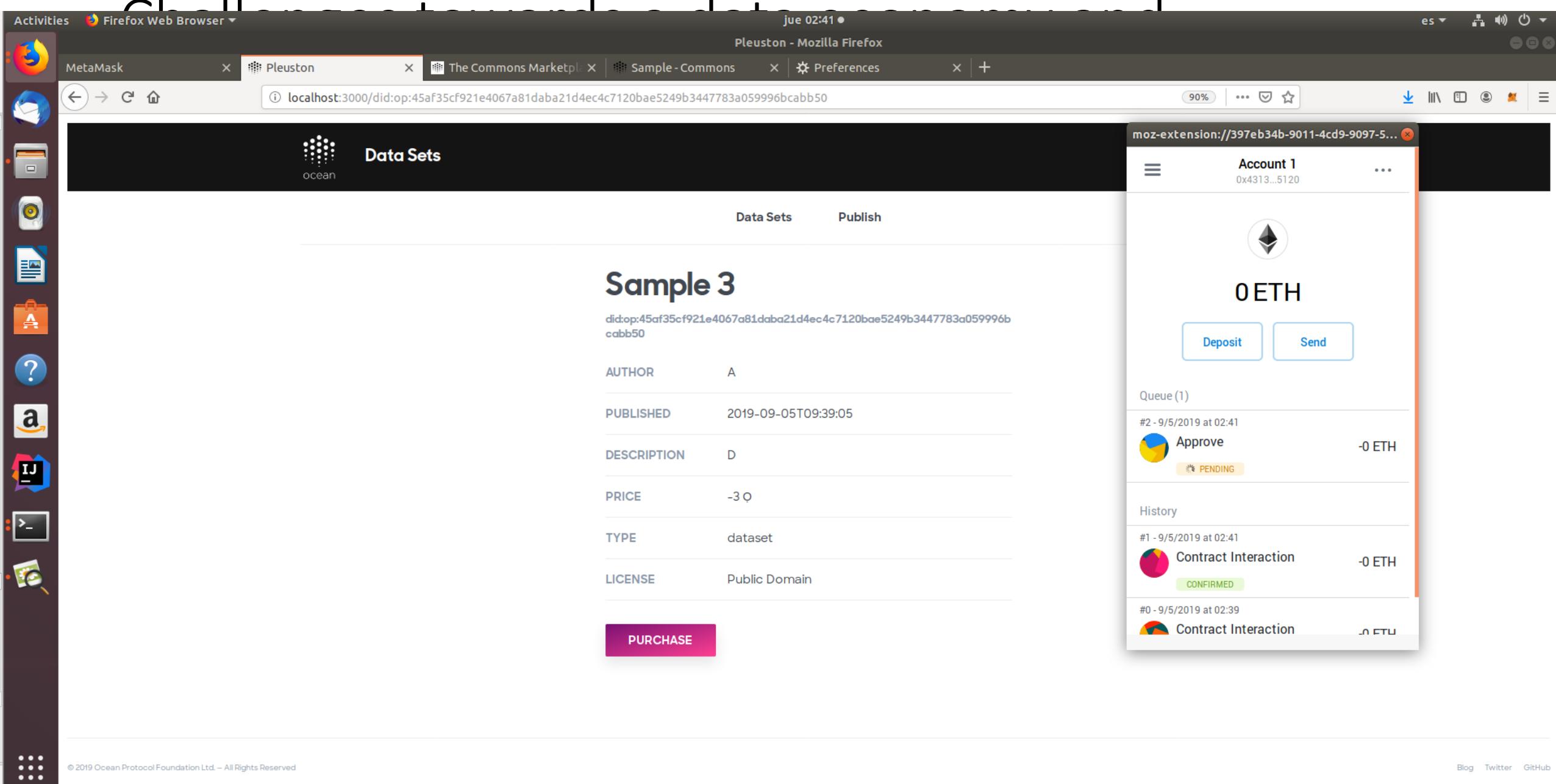


Sample 3

did:op:45af35cf921e4067a81daba21d4ec4c7120bae5249b3447783a059996bcabb50

AUTHOR	A
PUBLISHED	2019-09-05T09:39:05
DESCRIPTION	D
PRICE	-3 ₪
TYPE	dataset
LICENSE	Public Domain

PURCHASE



mantaray_jupyter

Name	Last Modified
artifacts_nile	3 minutes ago
s00_check_k8s_components.ipynb	3 minutes ago
s00_check_squid.ipynb	3 minutes ago
s01_users_and_token.ipynb	3 minutes ago
s02_publish_and_register.ipynb	3 minutes ago
s03_search_assets.ipynb	3 minutes ago
s04_consume_asset.ipynb	3 minutes ago
config_nile.ini	3 minutes ago
introduction.txt	3 minutes ago
LICENSE	3 minutes ago
nile_env.sh	3 minutes ago
README.md	3 minutes ago

Launcher s01_users_and_token.ipynb • s02_publish_and_register.ipynb • Python 3

Section 1: A publisher account in Ocean

```
[ ]: # Get a publisher account
publisher_acct = manta_utils.user.get_account_by_index(ocn,0)

# path_passwords = manta_utils.config.get_project_path() / 'passwords.csv'
# passwords = manta_utils.user.load_passwords(path_passwords)
#
# publisher_acct = random.choice([acct for acct in ocn.accounts.list() if password_map(acct.address, passwords)])
# publisher_acct.password = password_map(publisher_acct.address, passwords)
# assert publisher_acct.password
```

```
[ ]: print("Publisher account address: {}".format(publisher_acct.address))
print("Publisher account Testnet 'ETH' balance: {:.6f}".format(ocn.accounts.balance(publisher_acct).eth/10**18))
print("Publisher account Testnet Ocean balance: {:.6f}".format(ocn.accounts.balance(publisher_acct).ocn/10**18))
```

Your account will need some Ocean Token to make real transactions, let's ensure that you are funded!

```
[ ]: # ensure Ocean token balance
# if ocn.accounts.balance(publisher_acct).ocn == 0:
#     ocn.accounts.request_tokens(publisher_acct, 100)
```

Section 2: Create the Metadata for your asset

The metadata is a key-value set of attributes which describe your asset

A more complex use case is to manually generate your metadata conforming to Ocean standard, but for demonstration purposes, a utility in squid-py is used to generate a sample Meta Data dictionary.

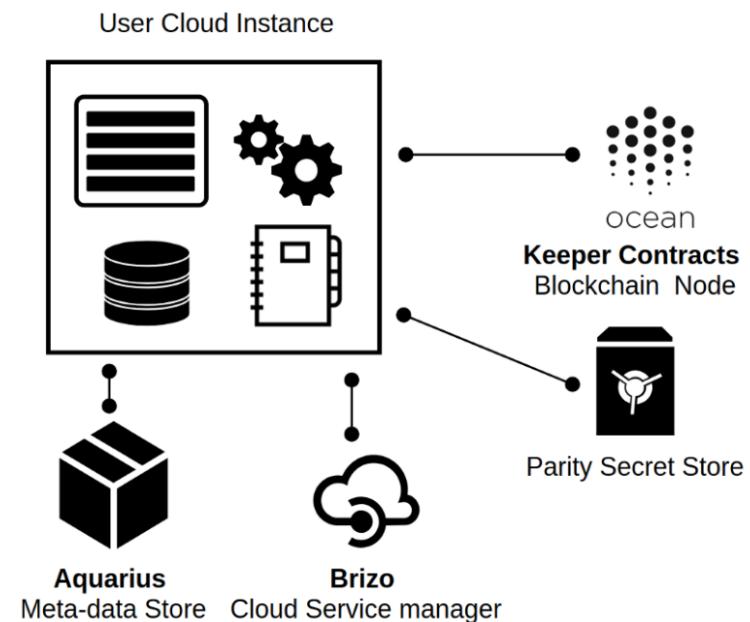
```
[ ]: # Get a simple example of Meta Data from the library directly
metadata = squid_py.ddo.metadata.Metadata.get_example()
print('Name of asset:', metadata['base']['name'])
# Print the entire (JSON) dictionary
pprint(metadata)
```

Note that the price is included in the Metadata! This will be purchase price you are placing on the asset. You can Alter the metadata object at any time before publishing.

```
[ ]: print("Price of Asset:", metadata['base']['price'])
metadata['base']['price'] = "9" # Note that price is a string
print("Updated price of Asset:", metadata['base']['price'])
```

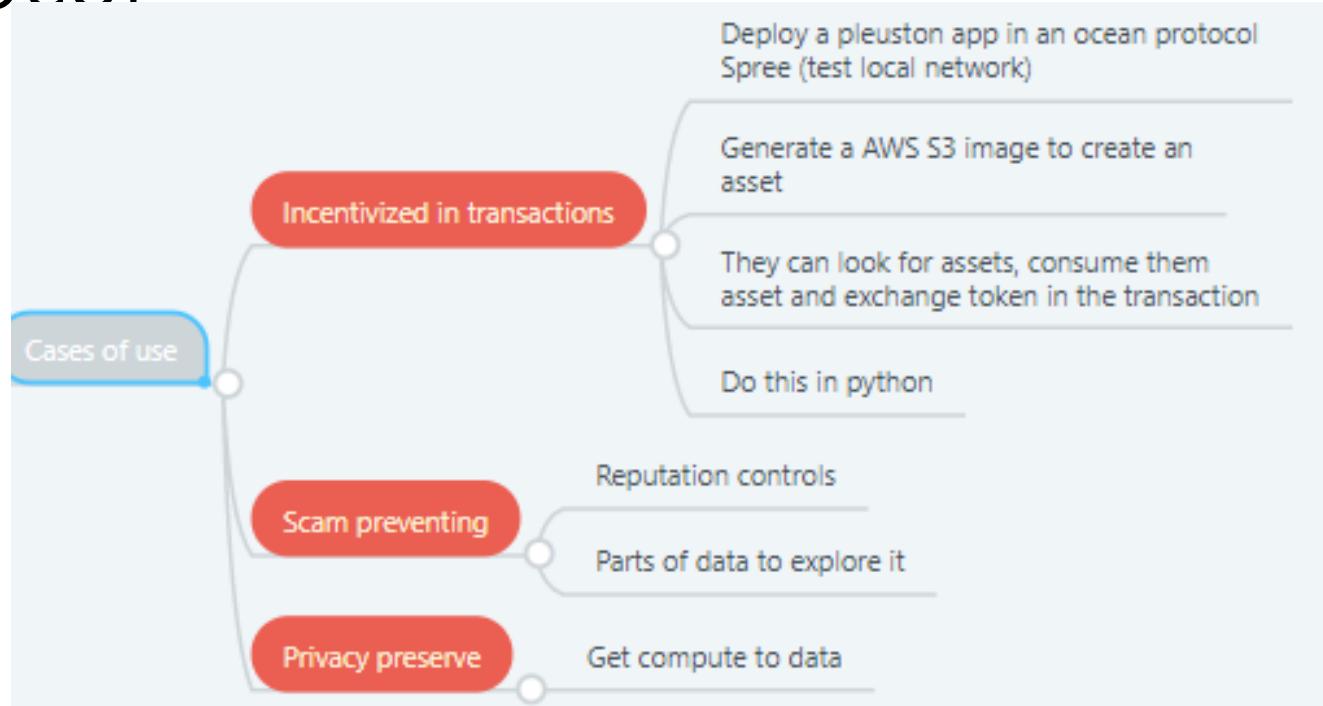
Let's inspect another important component of your metadata - the actual asset files. The files of an asset are described by valid URL's. You are responsible for ensuring the URL's are alive. Files may have additional

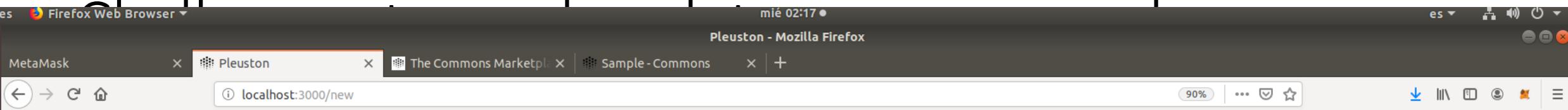
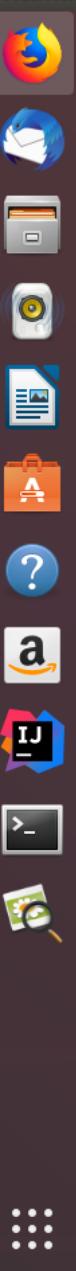
Name	Last Modified
📁 user_configurations_deployed	3 minutes ago
📒 00_Welcome_To_Manta_Ray.ipynb	3 minutes ago
📒 s00_check_k8s_components.ipynb	3 minutes ago
📒 s00_check_squid.ipynb	3 minutes ago
📒 s01_users_and_token.ipynb	3 minutes ago
📒 s02_search_assets.ipynb	3 minutes ago
📒 s03_publish_and_register.ipynb	3 minutes ago
📒 s04_consume_asset.ipynb	3 minutes ago
📄 config_jupyter.ini	3 minutes ago
📄 config_k8s_deployed.ini	3 minutes ago
📄 introduction.txt	3 minutes ago
📄 LICENSE	3 minutes ago
Ⓜ README.md	3 minutes ago



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- What works?





Type*

The type of your asset.

License*

No License Specified

Samples, discovery image

Provide one or multiple links (e.g. samples, format definitions, web links, discovery images) to give supplementary information about an Asset.

+ Add a link

Copyright holder

The party holding the legal copyright.

e.g. climate, ocean, atmosphere, temperature, earth-science, publi

Categorize your asset by one or more tags, separated by comma.

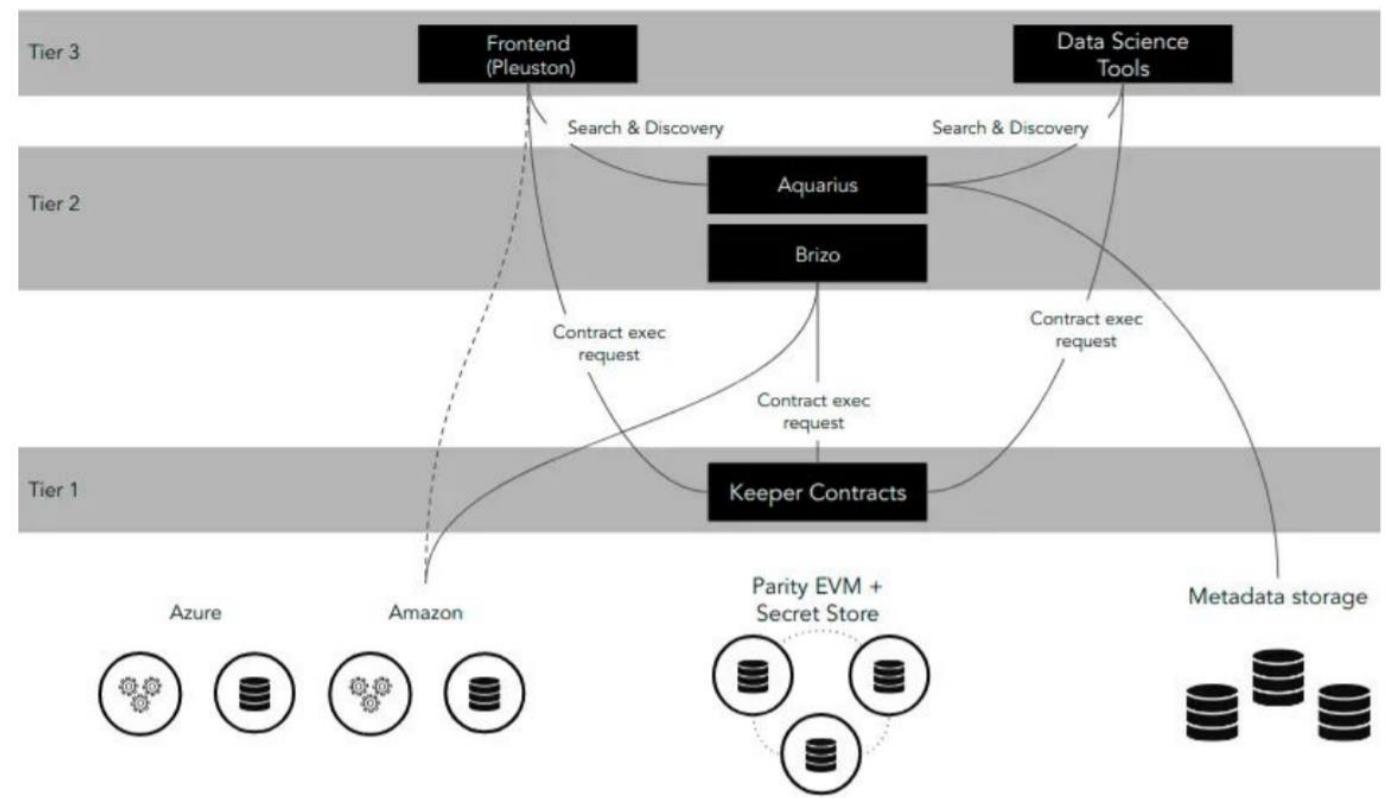
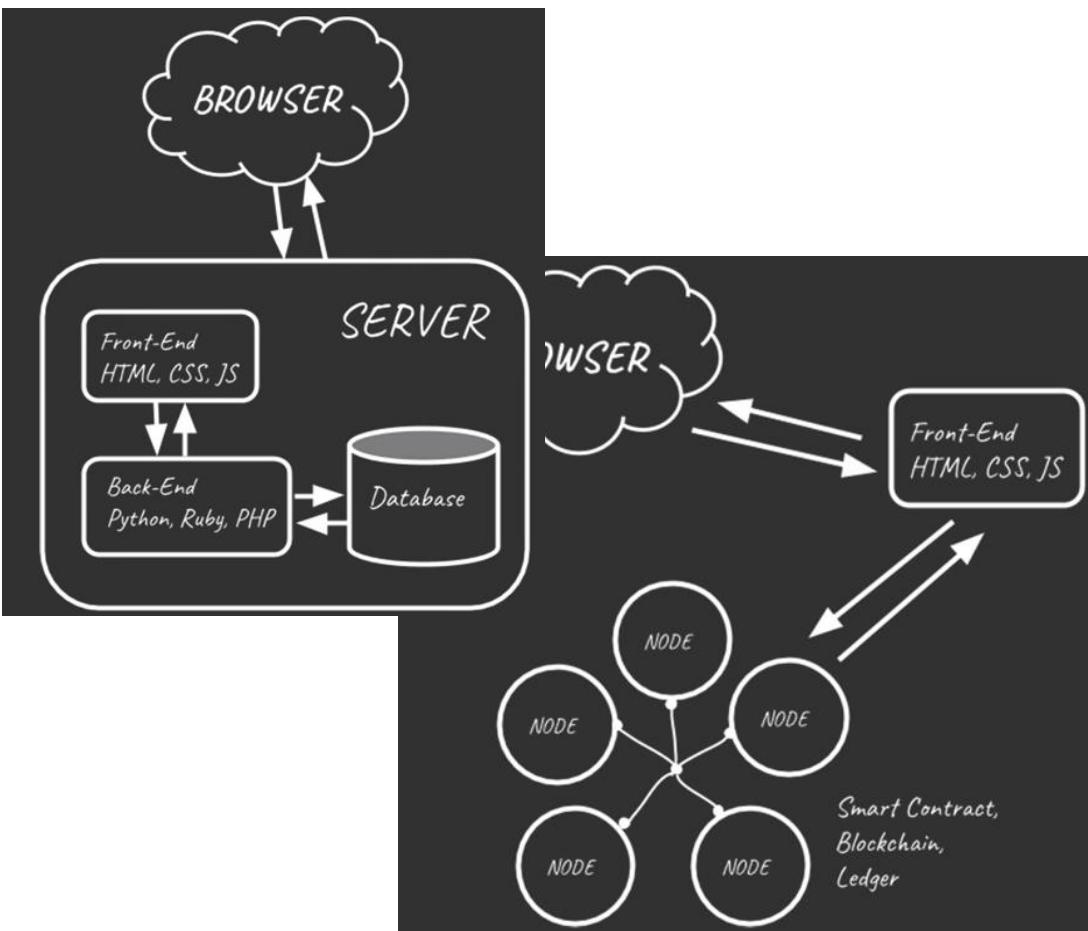
Update Frequency

How often are updates expected, or is the resource static?

PUBLISH

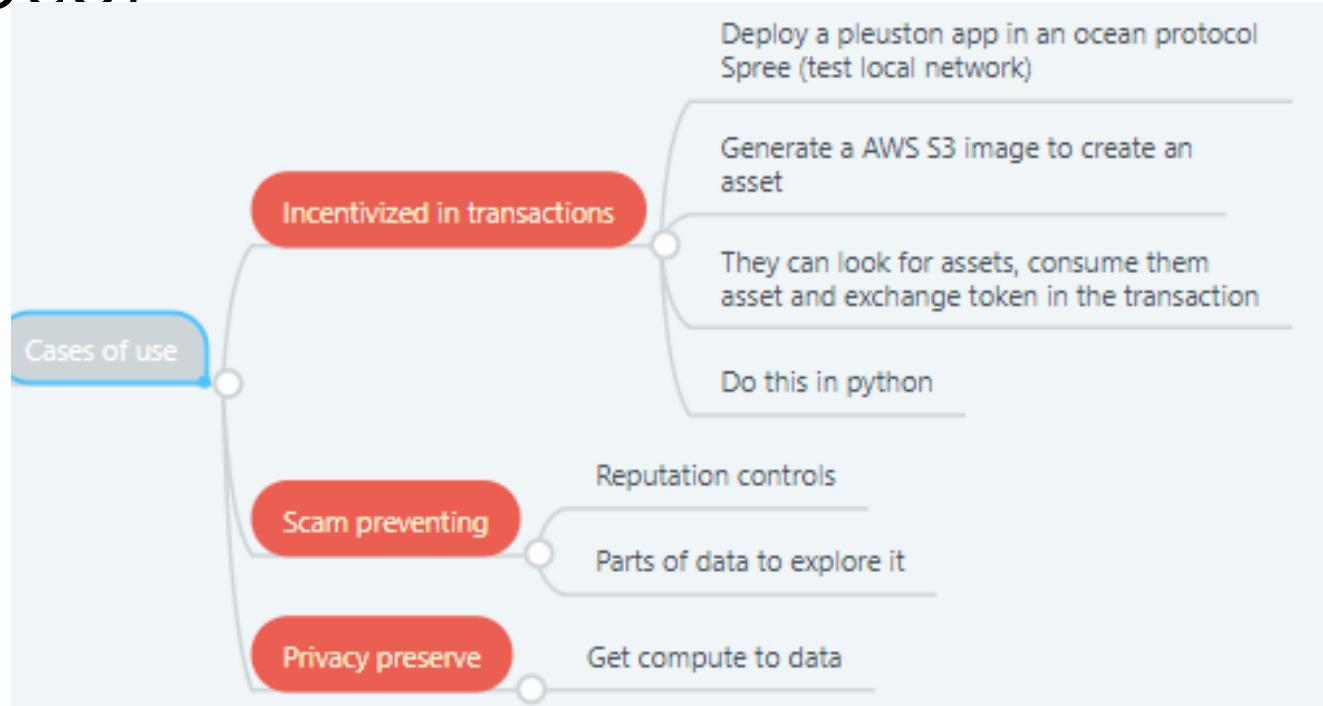
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What wows?** Cases of use

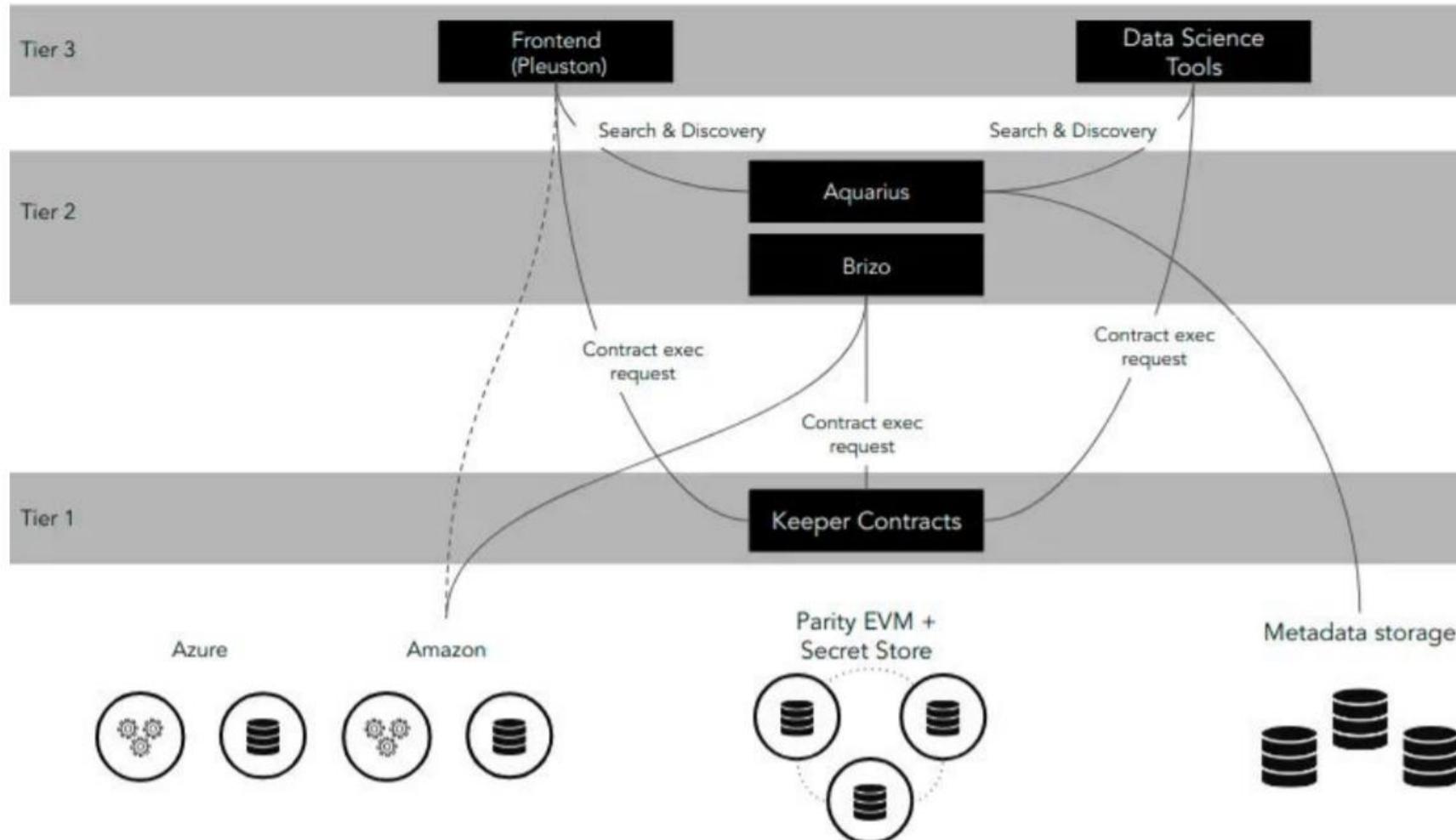


Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- What works?



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol



Layered Structure

Consumers

Curators



Verifiers



Keepers



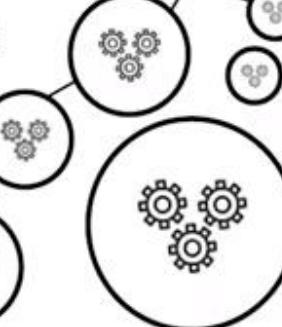
Providers

Data Tribe

data owner

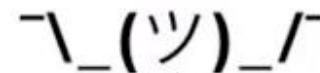


Computer Tribe



service owner

data scientist



Slide courtesy of Dimitri De Jonghe

Curation layer

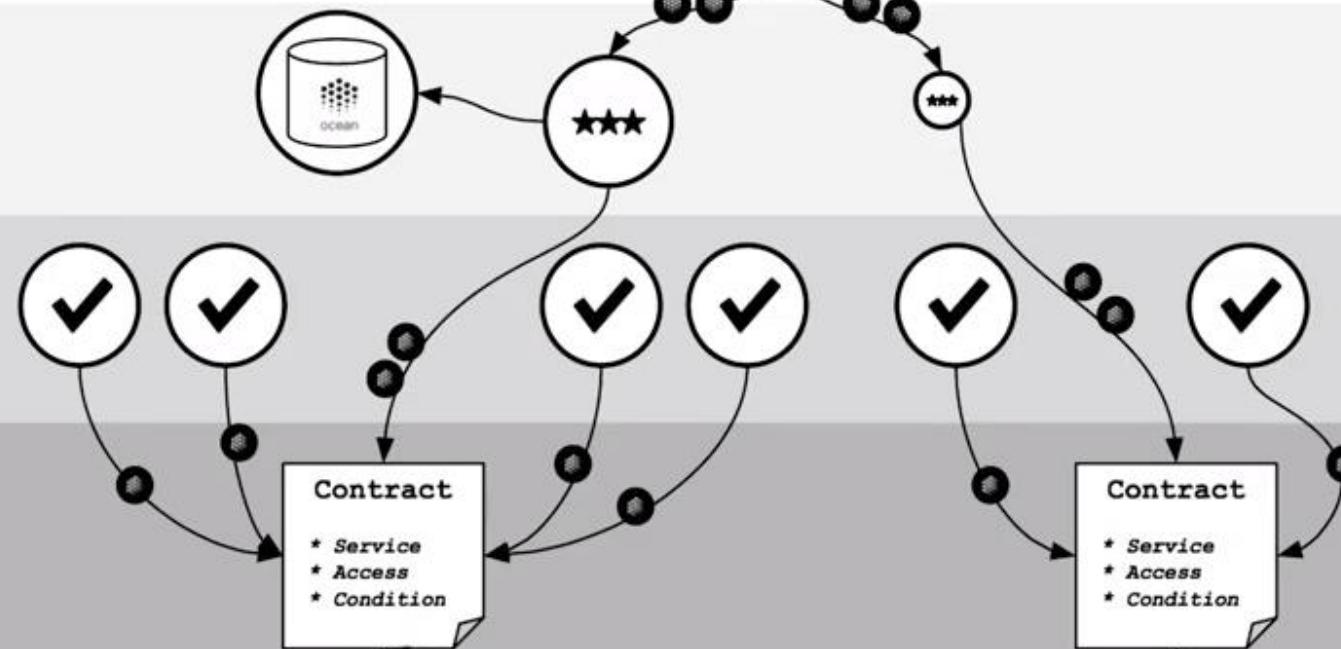
Discovery,
Opinion &
Governance

Verification layer

Proofs &
Challenges

Service layer

Accounts,
Contracts &
Reward



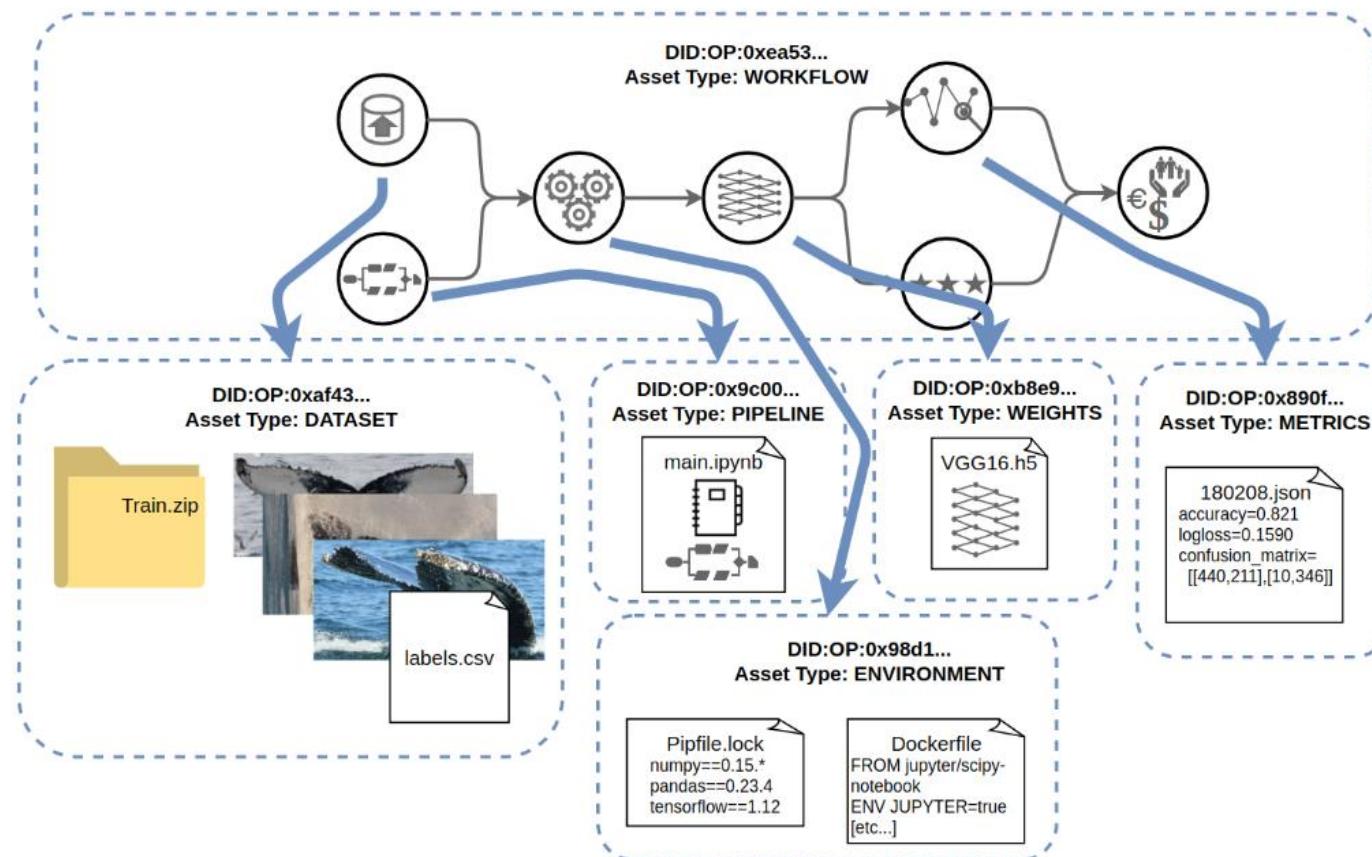


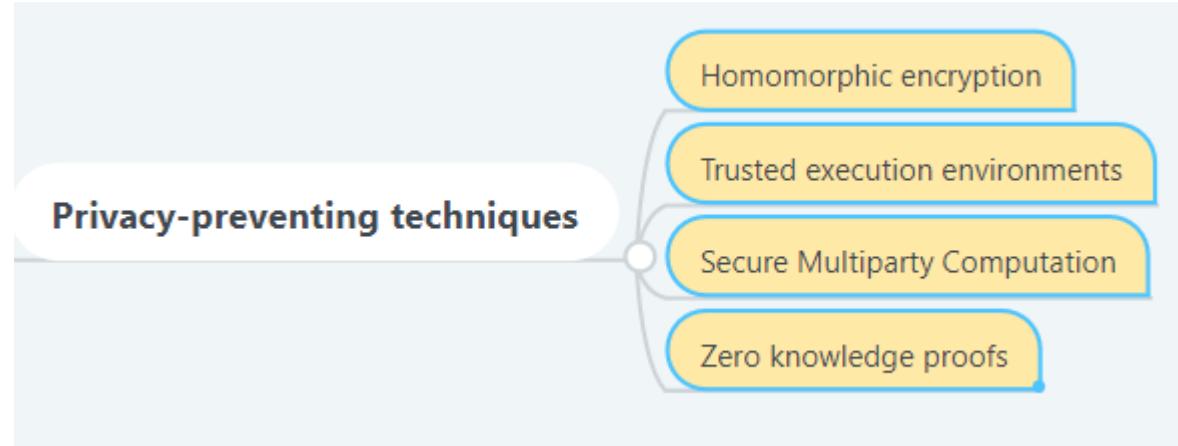
Figure 4 —A sketch of my Ocean assets for the Humpback Whale challenge

Privacy-Preserving Requirements

- Ethereum blockchain is completely transparent and on-chain information is accessible to anyone.
- How do we hide inputs to a smart contract?
(e.g., private data, proofs for verification, etc.)
- How do we keep state hidden from everyone, but ensure result correctness?
(e.g., votes in the voting process)
- How do we do arbitrary computations on encrypted data?
(e.g., proxy re-encryption of data)

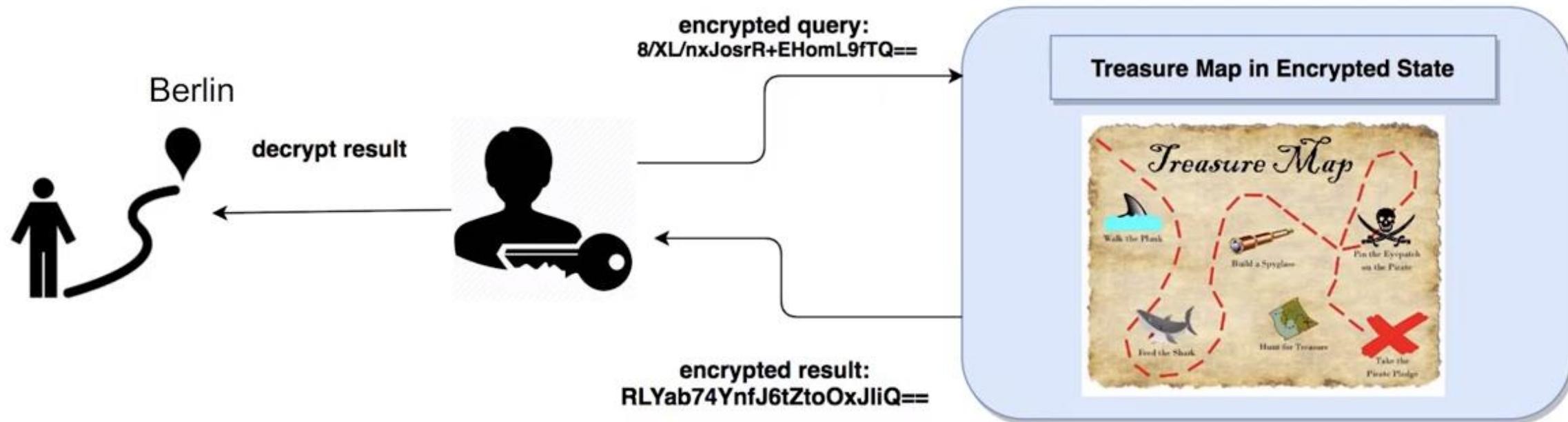
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- What works?



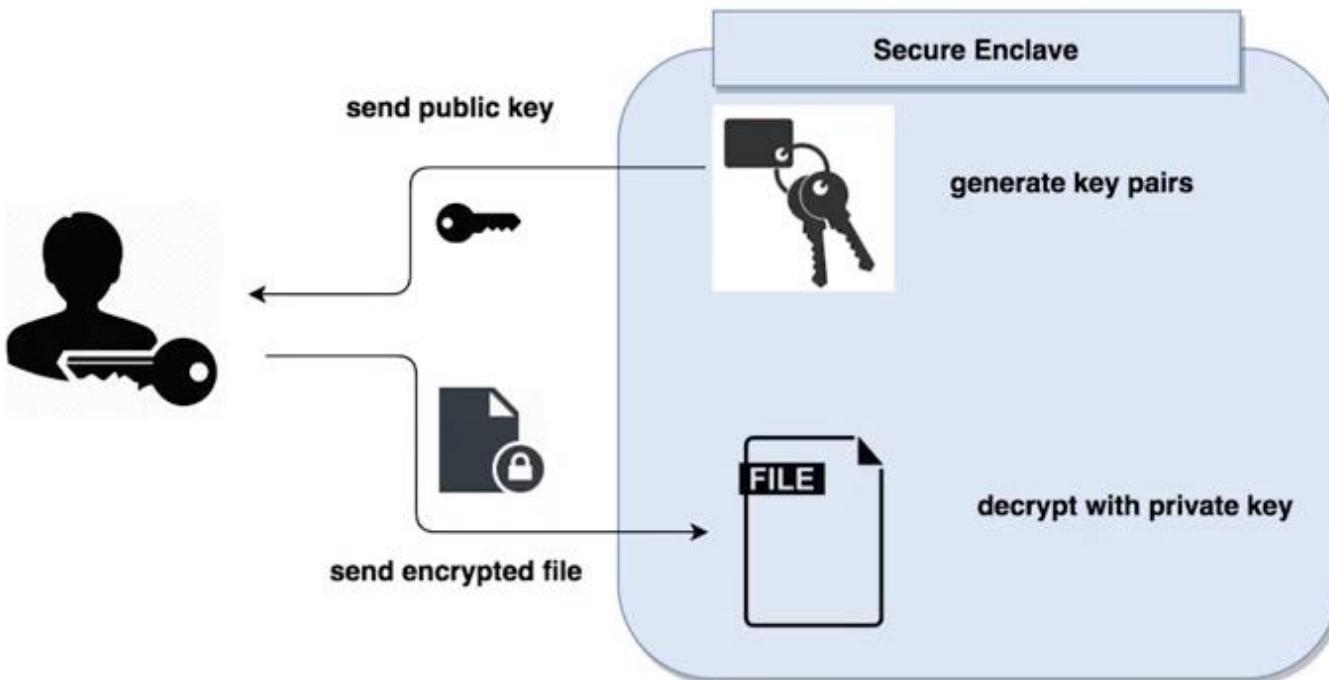
Solution 1: Homomorphic Encryption

- Computing on encrypted data:
 - allow operations on encrypted data according to my encrypted queries
 - without needing to transfer it back and forth to be decrypted
- Computation cost is expensive.



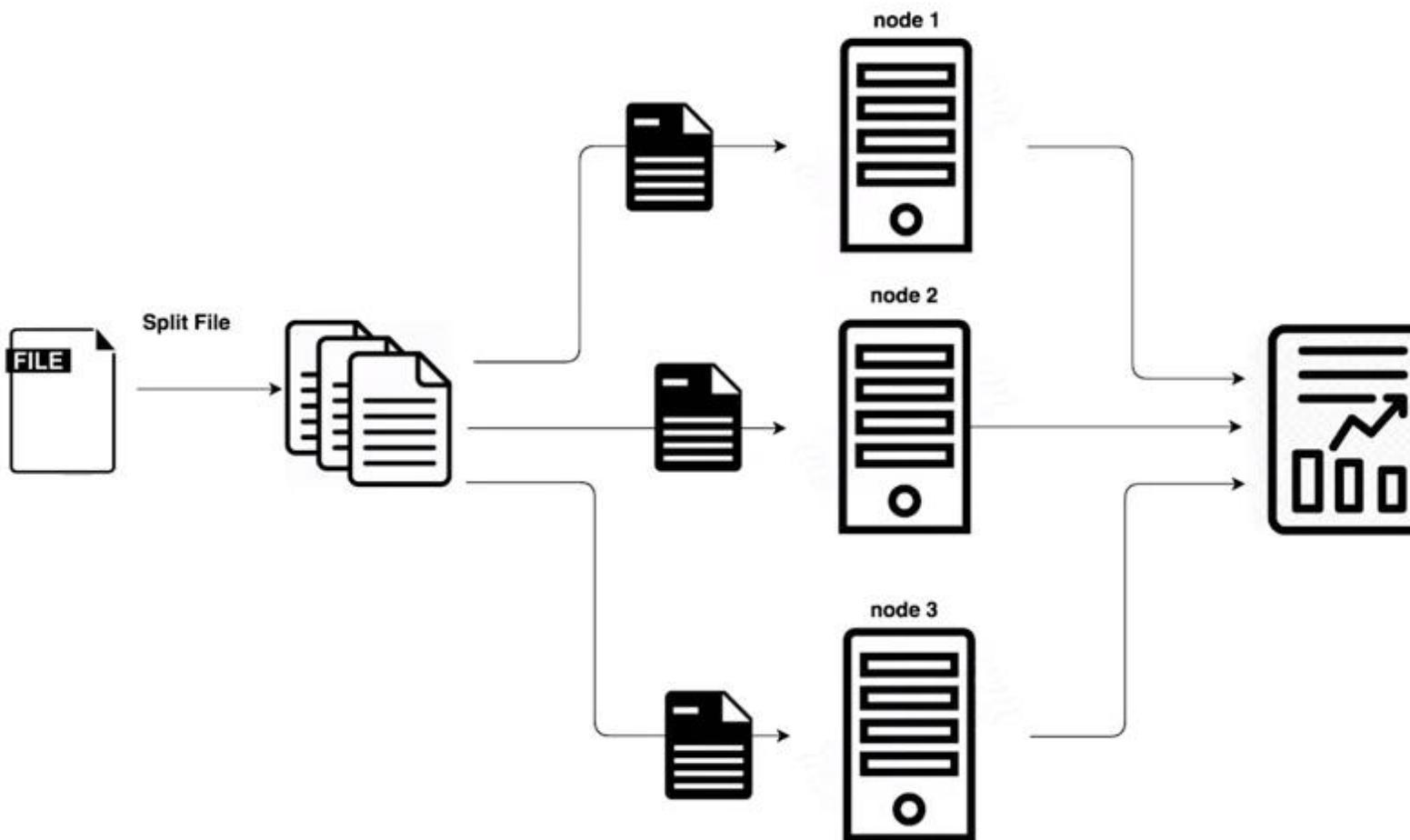
Solution 2: Trusted Execution Environments (TEE)

- **Secure Enclave:** an isolated area on the main processor where data is stored, processed and protected in a trusted environment.



- The most popular hardware is the [Intel SGX](#), but it has issues: centralization risk, remote attestation service with fake IDs, security issues as [Foreshadow](#).
- The most notable projects which are using this approach are [Enigma](#) and [Oasis Labs](#).

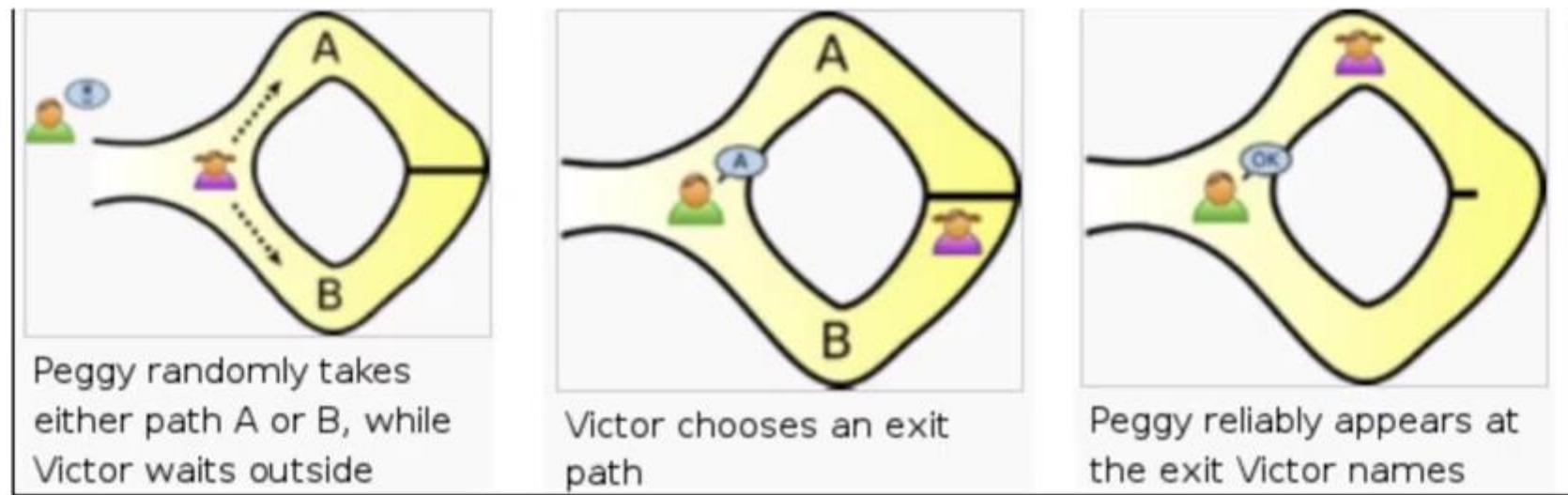
Solution 3: Secure Multi-party Computation (sMPC)



- Issues: dishonest node risk, slow and expensive due to communication cost between nodes.
- The two projects which are approaching privacy-preserving smart contracts with sMPC are [Keep Network](#) and [Enigma](#).

Solution 4: Zero-knowledge Proofs (ZKP)

- a cryptographic technique used to prove the validity of any statement without revealing the knowledge used to prove that statement with the verifier.

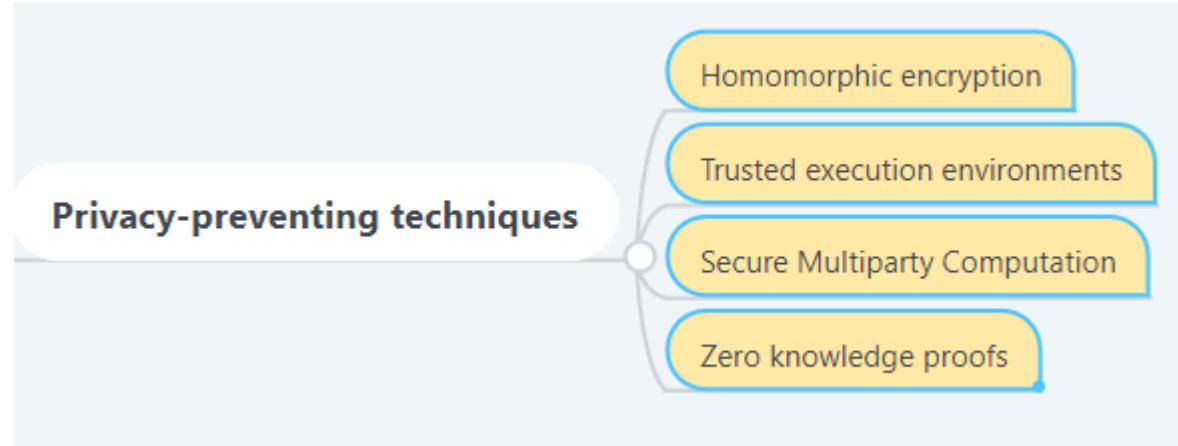


(Image courtesy of <https://cryptologie.net/article/193/schnorrs-signature-and-non-interactive-protocols/>)

- ZCash: transactions can be verified while protecting user/transaction privacy.
- there are limits as to how complex a program can be able to generate a ZKP for.

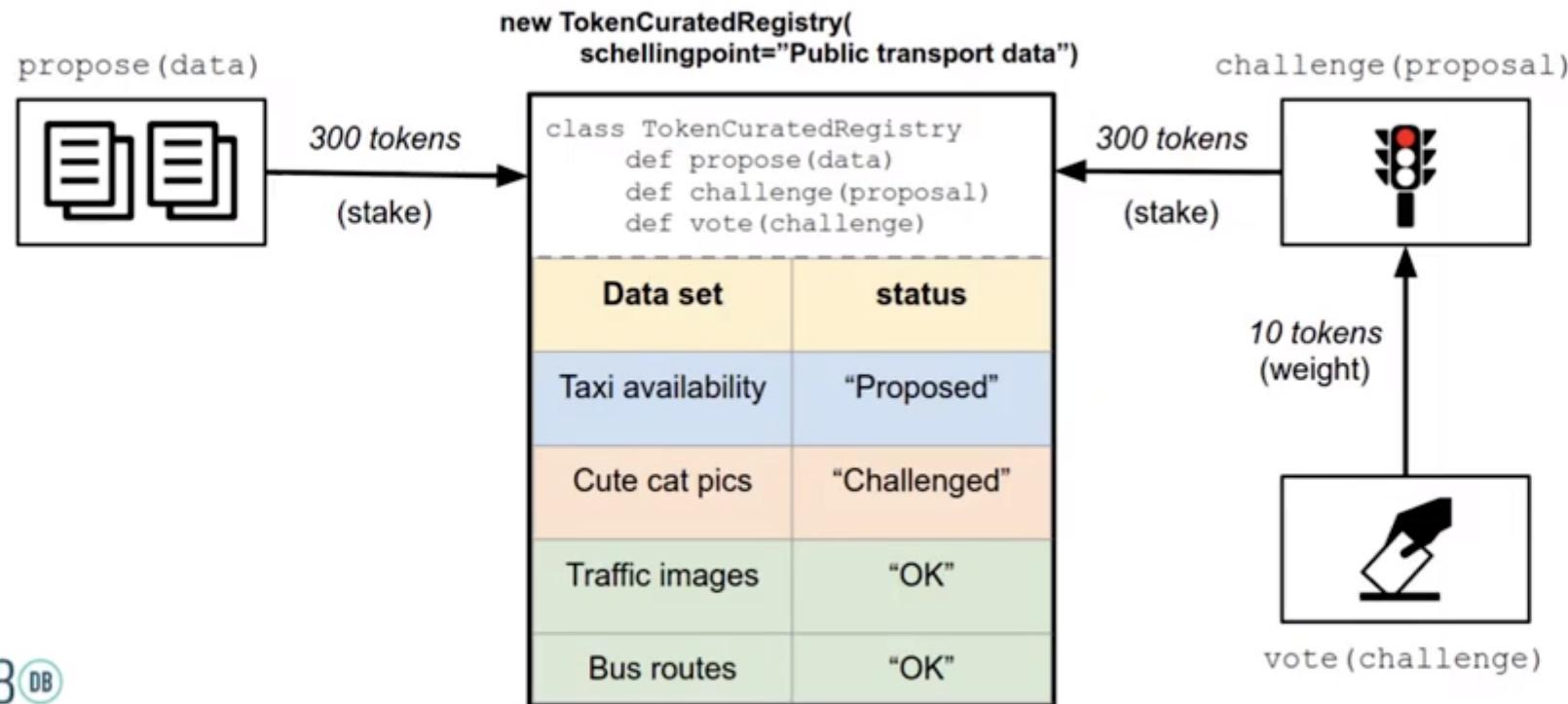
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- What works?



Case Study : TCRs @ Ocean

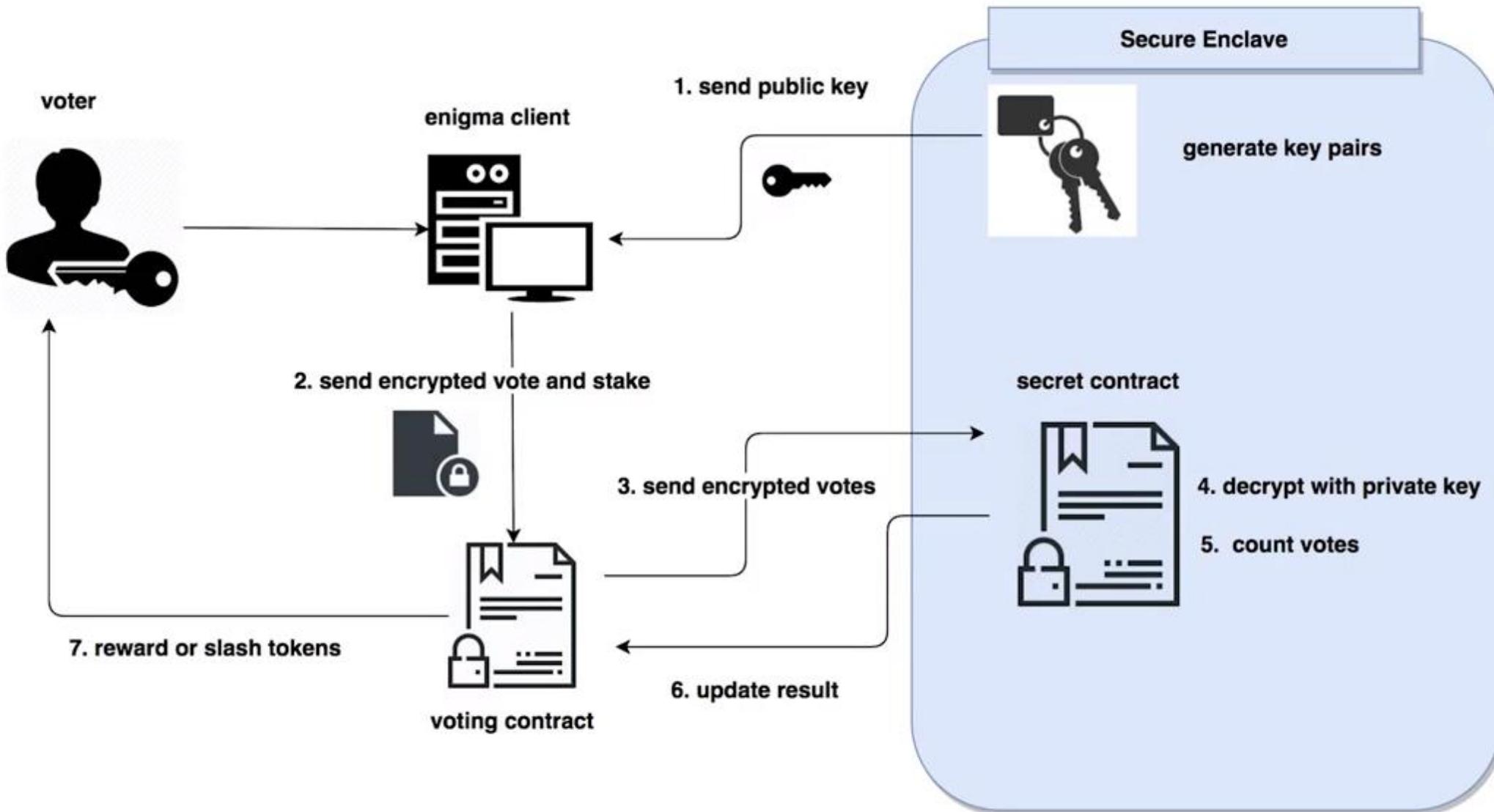
- Token Curated Registry (TCR) and Issues:



Sketch of Token-curated Registries [image credits: [Tim Daubenschütz](#), [Don Gossen](#)]

1. **voter confidentiality:** protects individual freedom of choice, while maintaining anonymity.
2. **preventing bribery:** vote in a certain way in order to collect on a promised bribe.
3. **conformity:** individuals simply vote with the majority for token rewards.

Private Voting from Enigma (TEE method)



Activities Image Viewer

es ▾



MetaMask

Pleuston

mié 01:48 ●

Sample - Commons - Mozilla Firefox

es ▾



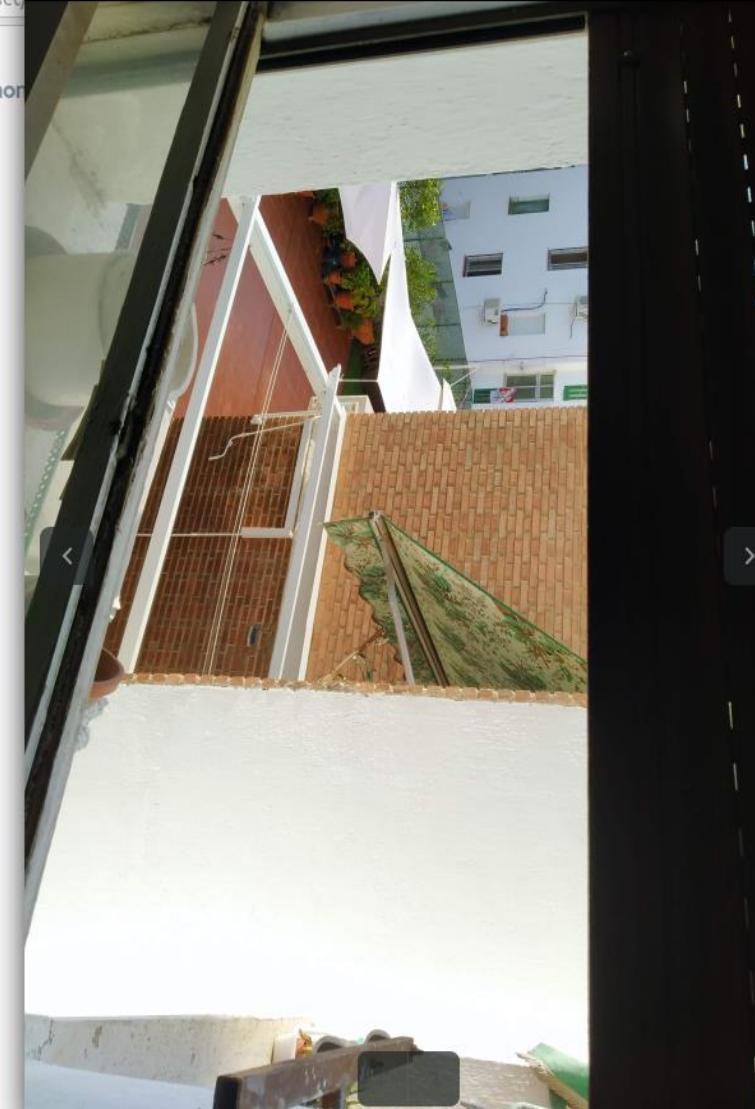
20%

Sample.jpg



Commons

ocean



GET FILE



+



home > ... > downloads_nile >
datafile.a01ca791f8634da9a5c7978691c87e6da9e1...

Name	Last Modified
cweb3.4e.tar.gz	seconds ago
data.txt	seconds ago
testzpk.pdf	seconds ago



Launcher

s04_consume_asset.ipynb

testzpk.pdf



ocean

A Decentralized Data Exchange
Protocol to Unlock Data for
Artificial Intelligence

ethberlinzwei-babelfish_3_0

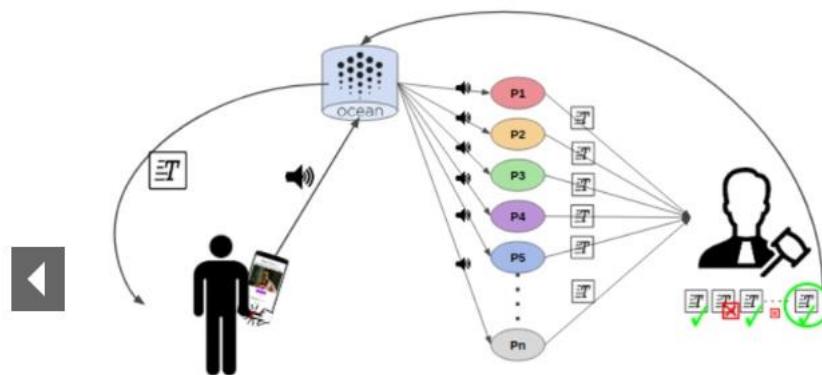
A decentralized verifiable speech-to-text service powered by deep learning and Ocean Protocol

Heart icon Liked | 3

Comment icon

STORY

UPDATES



Request for transcription



SUBMITTED TO



ETHBerlinZwei

CREATED BY



MarcusJones Jones



Magdalena Trzeciak



Chris Hobcroft

Report inappropriate content

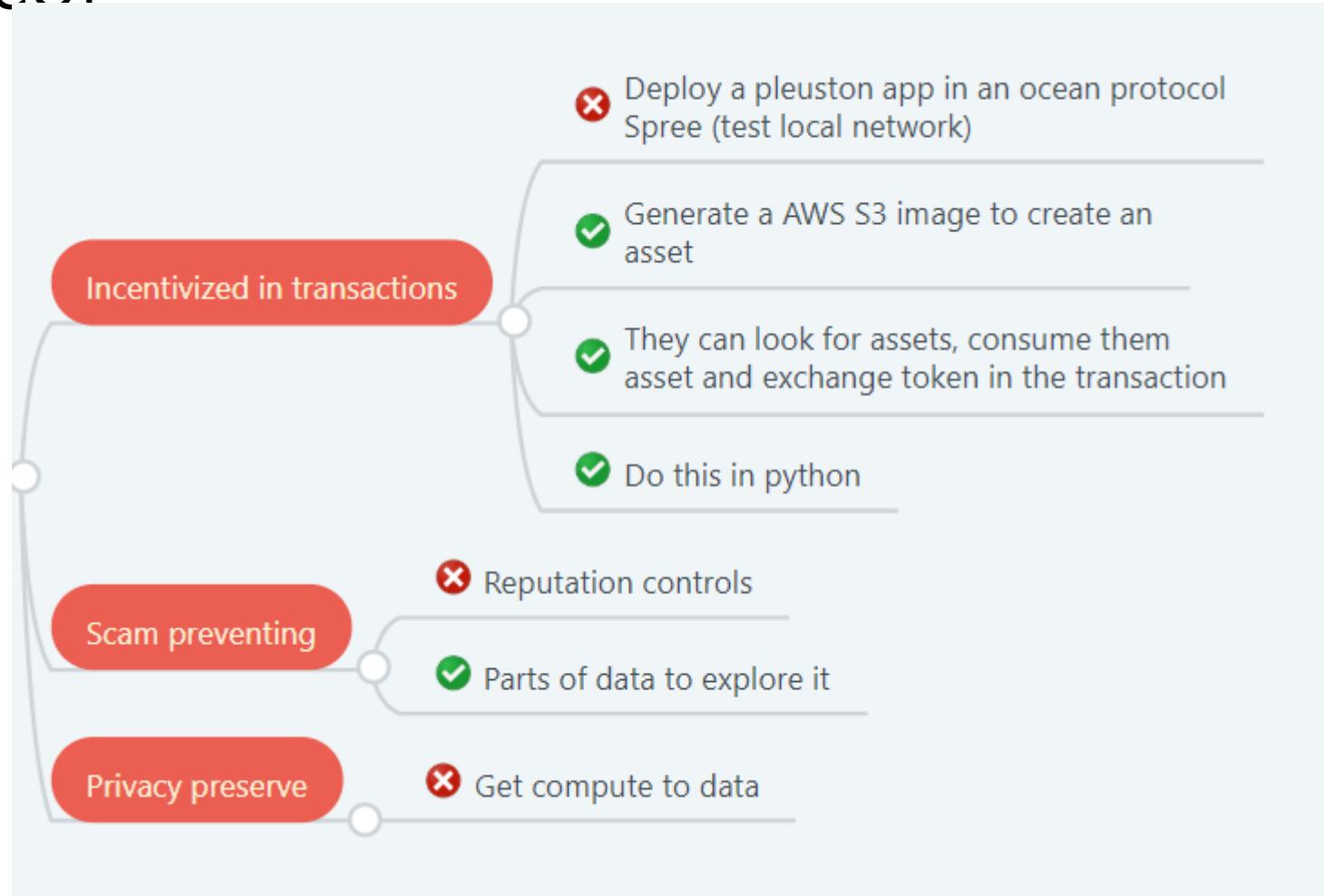
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What works?**



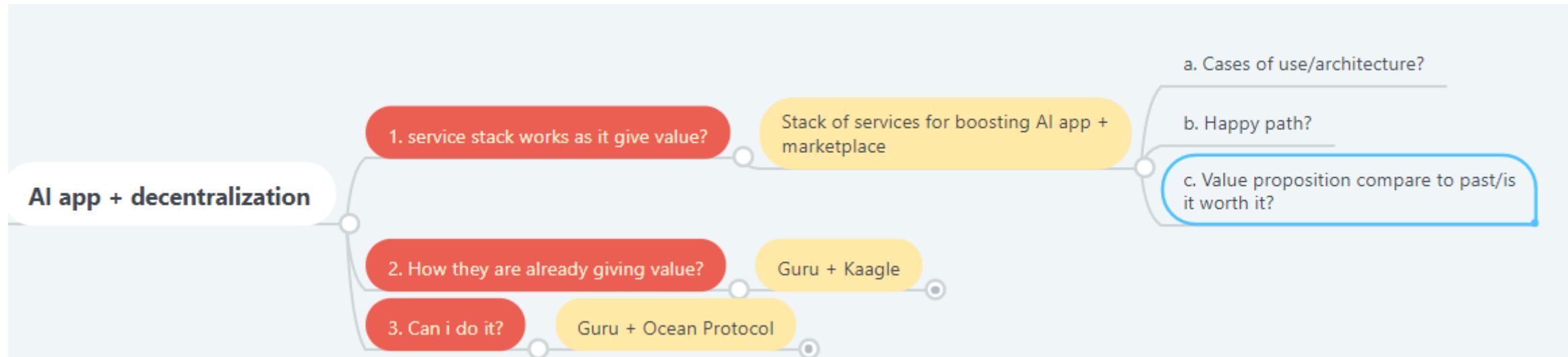
Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What works?**



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What works?**



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What works?**



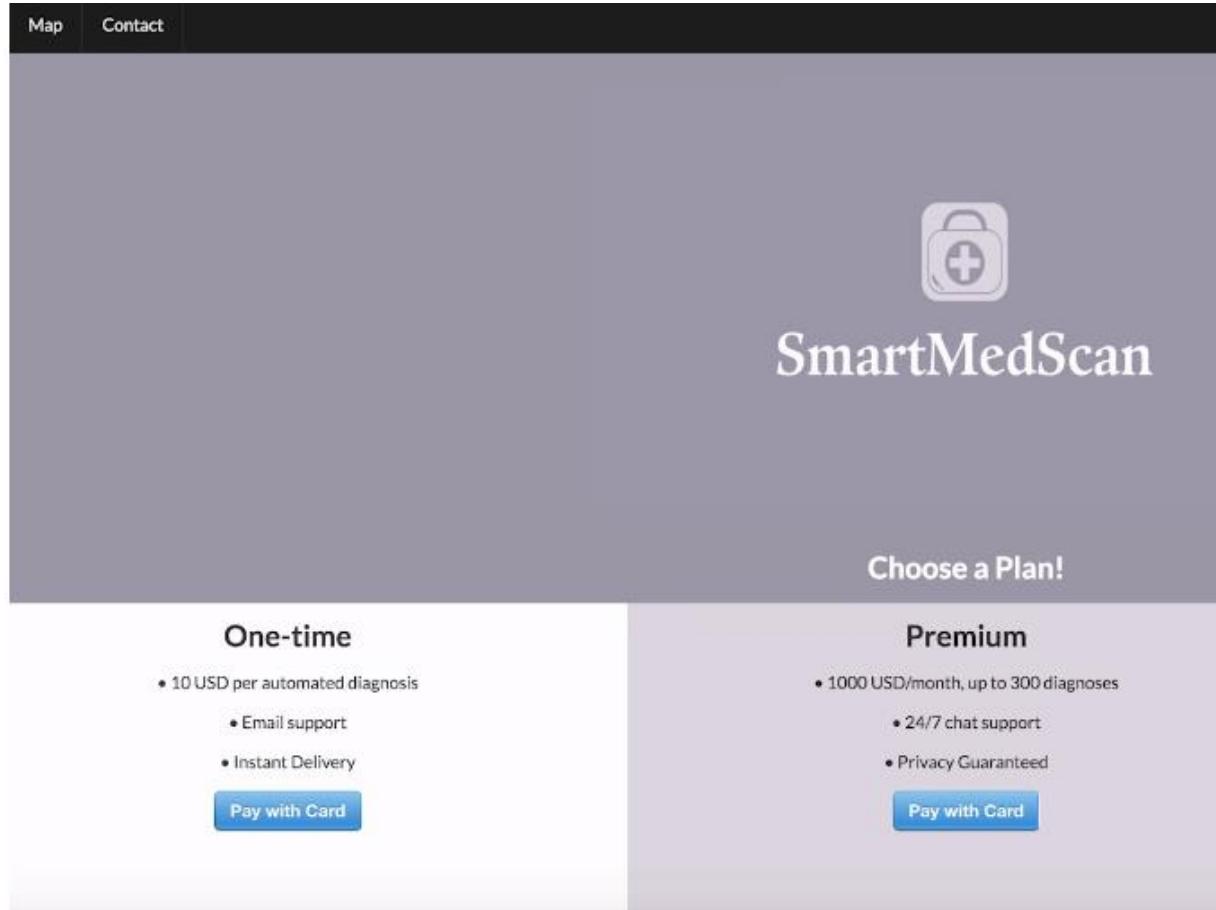
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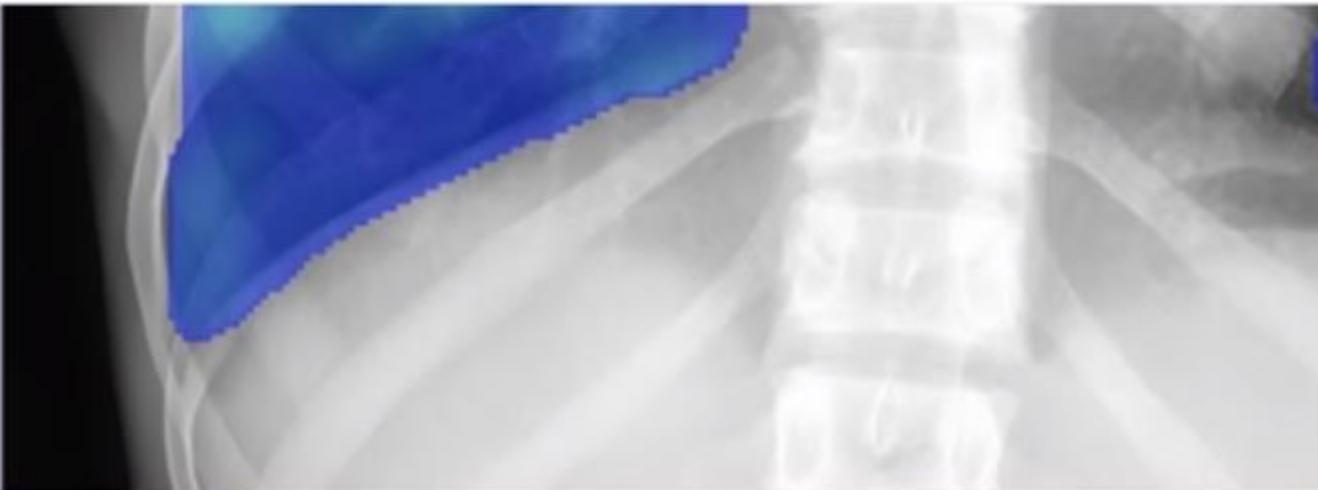


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- What works?



← → ⌂ localhost:5000/uploaded



Results

Disease	Percent Likelihood
Pneumonia	98%
Fibrosis	43%

Choose a Plan!

Siraj Raval

One-time <ul style="list-style-type: none">• 10 USD per automated diagnosis• Email support	Premium <ul style="list-style-type: none">• 1000 USD/month, up to 300 diagnoses• 24/7 chat support
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Dataset

Chest X-Ray Images (Pneumonia)

5,863 images, 2 categories



Paul Mooney • updated a year ago (Version 2)



679

Data

Kernels (156)

Discussion (12)

Activity

Metadata

Download (1 GB)

New Notebook



Usability 7.5

License Other (specified in description)

Tags image data, health, online communities, biology, online image galleries

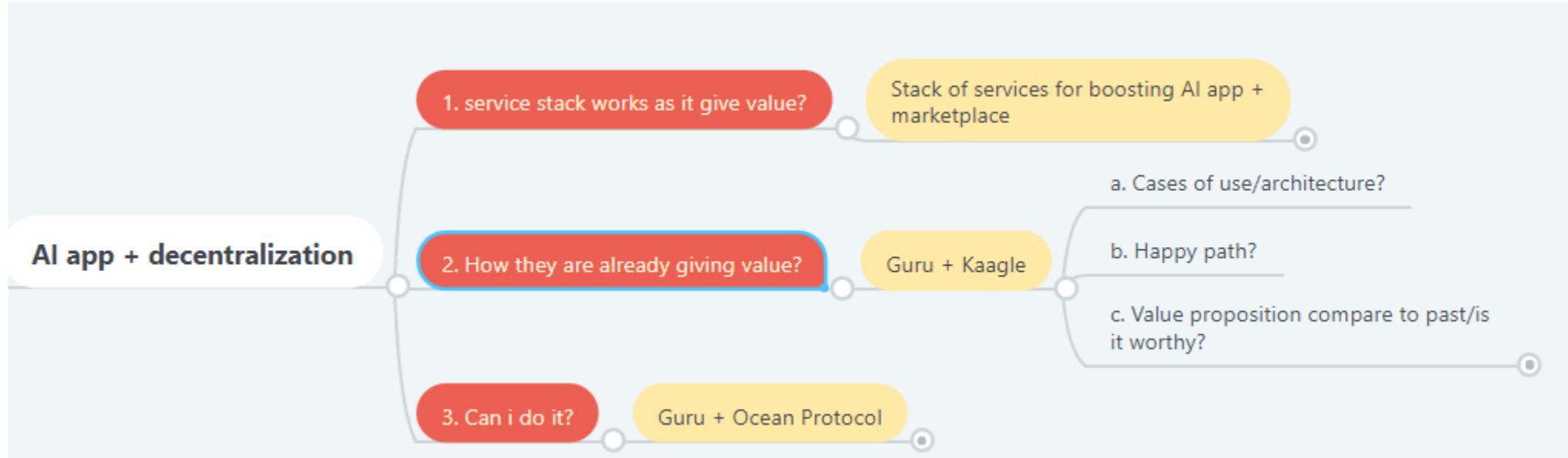
Description

Context

[http://www.cell.com/cell/fulltext/S0092-8674\(18\)30154-5](http://www.cell.com/cell/fulltext/S0092-8674(18)30154-5)

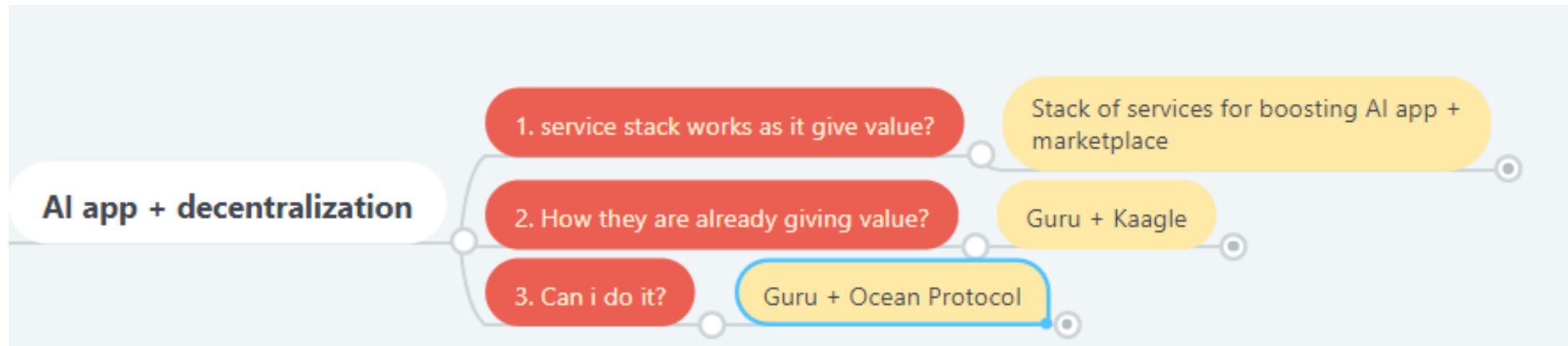
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- **What works?** Comparing happy path

Guru + Kaggle

1. Upload data to a cloud server
2. Run/purchase the advice service

Guru + Ocean Protocol

1. Upload data to a cloud server => and **register the asset in an Ocean Marketplace**
2. **Select the asset DID** and run/purchase the advice service
3. **Doctors or data science or other third parties can propose a better AI, and new labeled data**

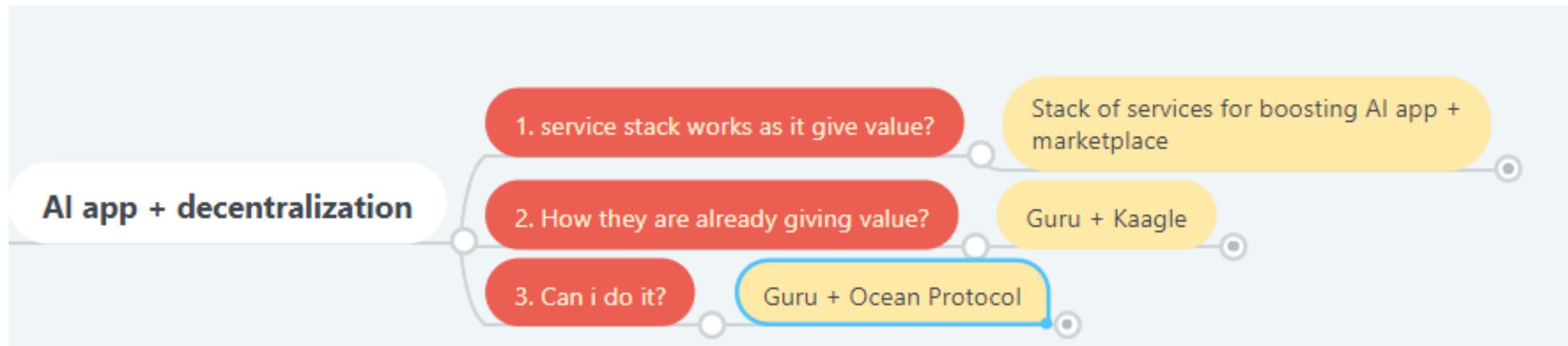
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- **What works?** Comparing happy path

Demo

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- **What works?**



Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- **What is?** - current state, stakeholders neccesities and Ocean Protocol
- **What if?** - cases of use
- **What wows/ What works?** - implementation

Challenges towards a data economy and an artificial intelligence advice app powered by Ocean Protocol

- 1. What is?** - current state, stakeholders necessities and Ocean Protocol
- 2. What if / what wows?** - cases of use
- 3. What works?** – AI app

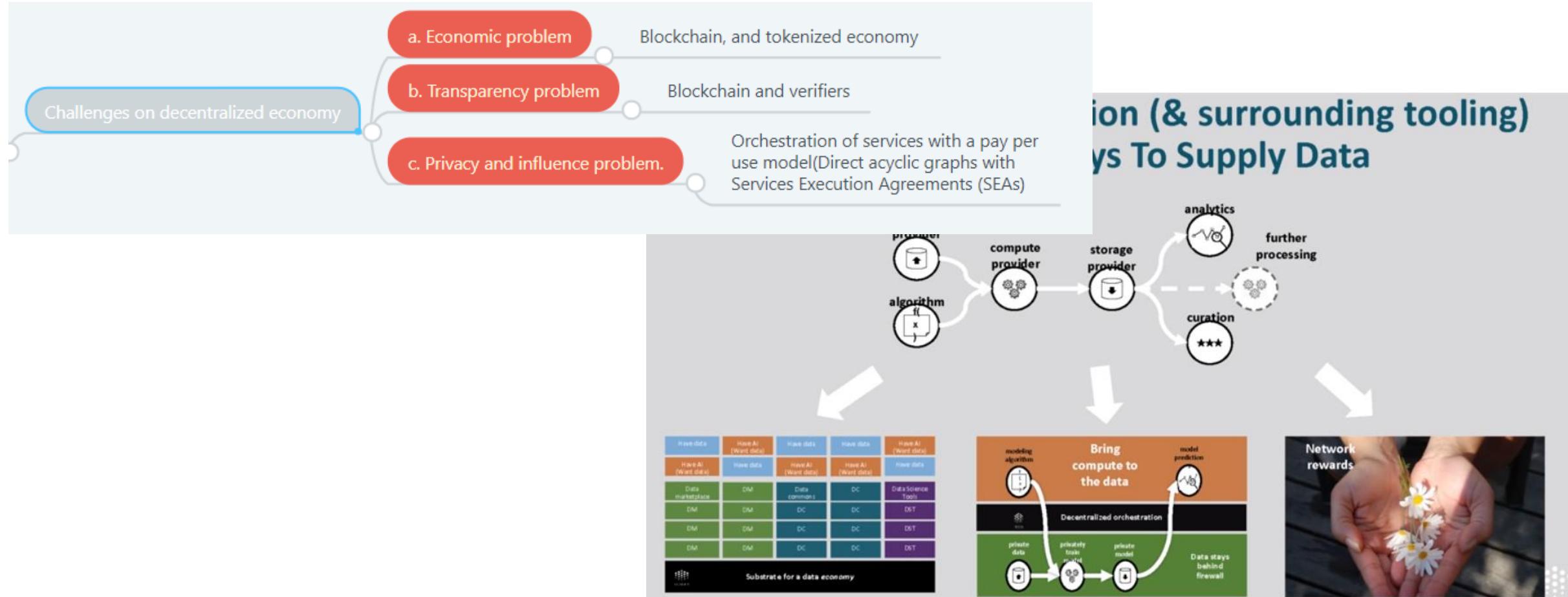
Objectives

- 1. What is Ocean Protocol?
- 2. Which are its cases of use?
- 3. Which value can it add to an AI app?



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- **What wows?** Ocean Protocol



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Adrián Blázquez León

Conclusion

- Privacy vs label data => Only it is HIPAA compliant if you store it in your device, but if you do, how can you supervised the learning?
- Better Reward processing
- Open data improve more the accuracy tan population based learning?

That's all Folks!

*Thanks for your
attention!*