

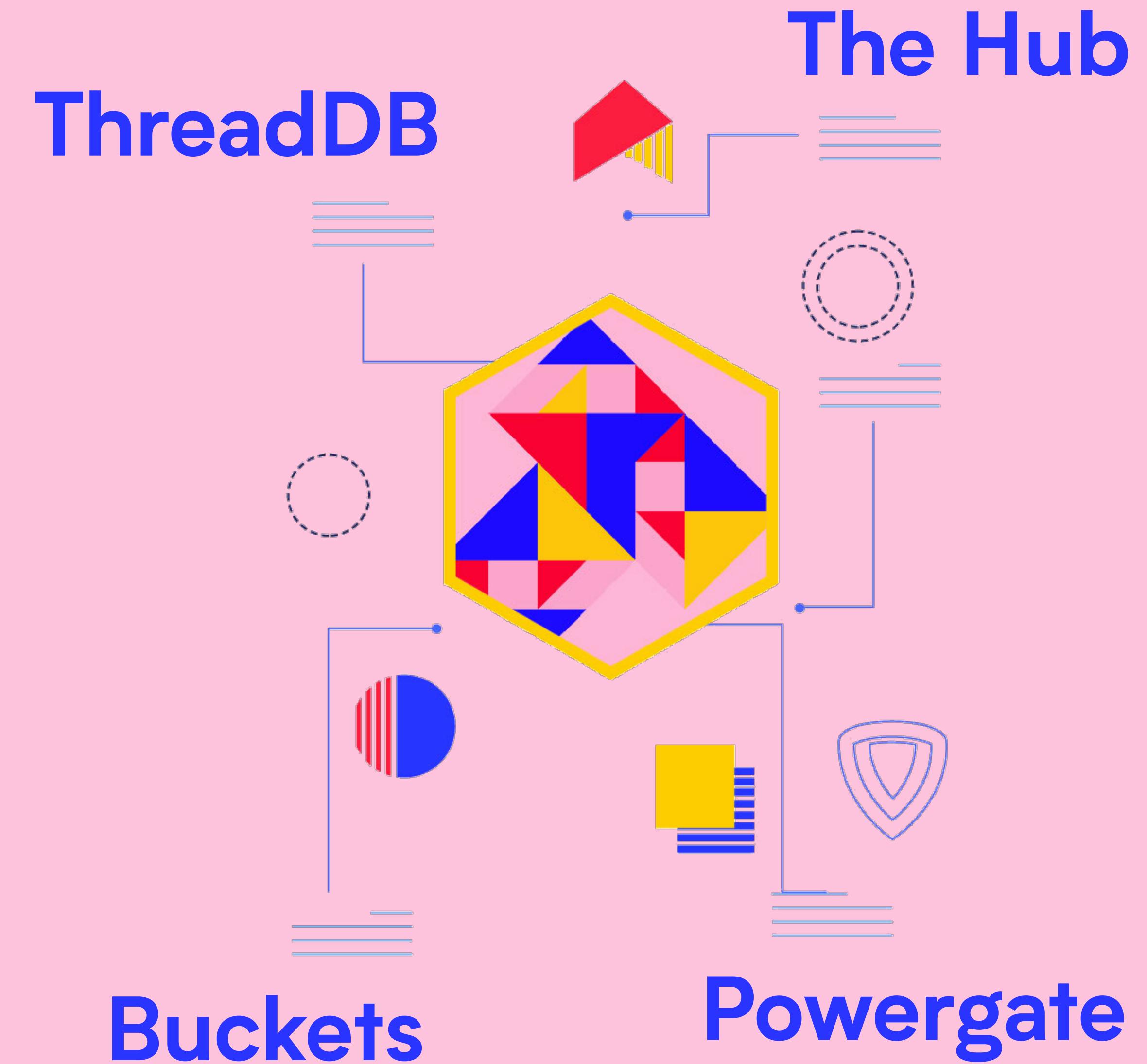
Getting started with **Filecoin**

docs.textile.io/powergate

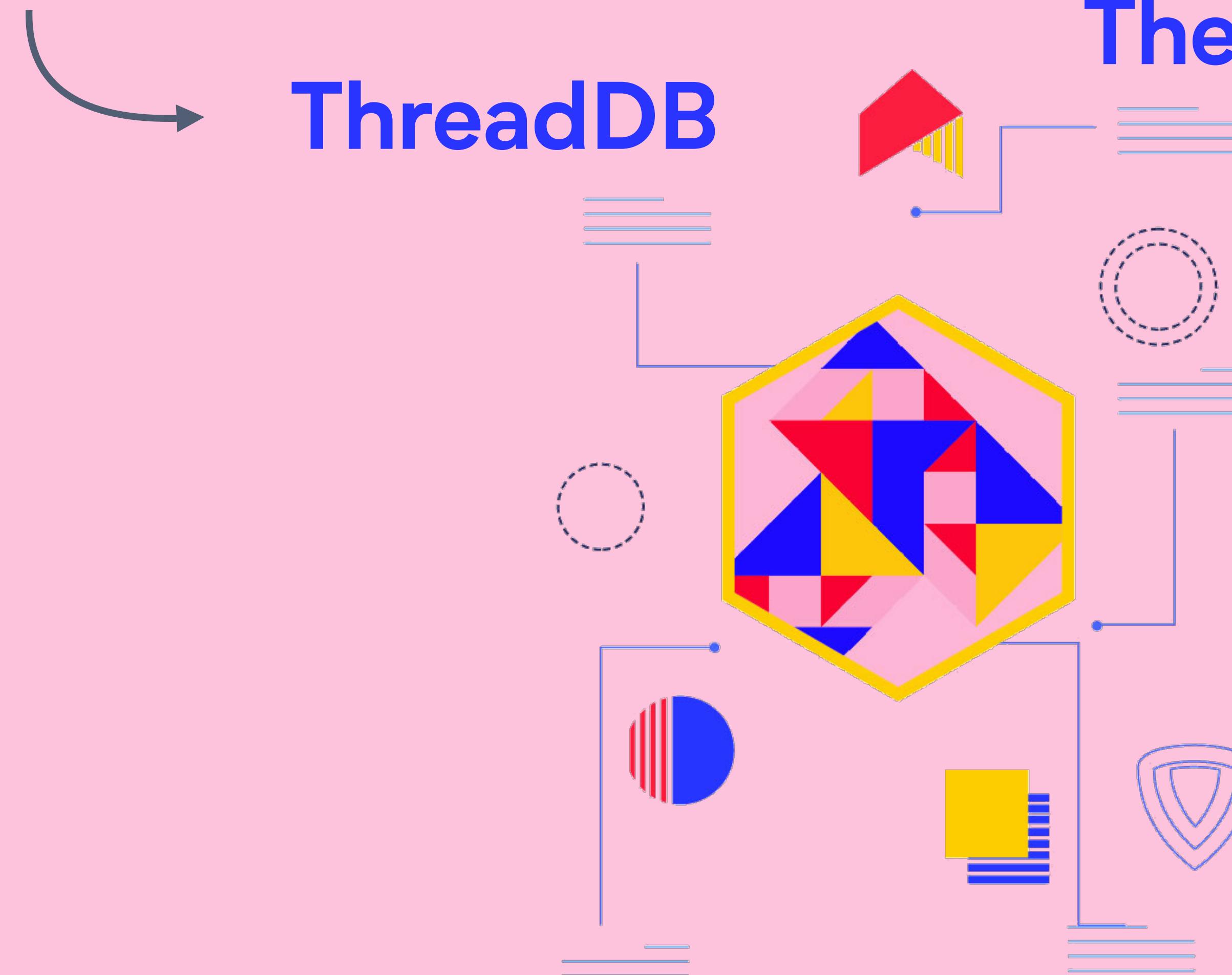




hi! i'm
@andrewxhill
from **textile.io**



p2p database built on IFPS



ThreadDB

The Hub

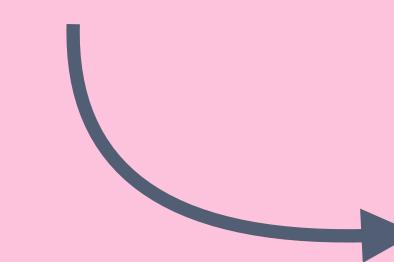
Buckets

Powergate

The Hub

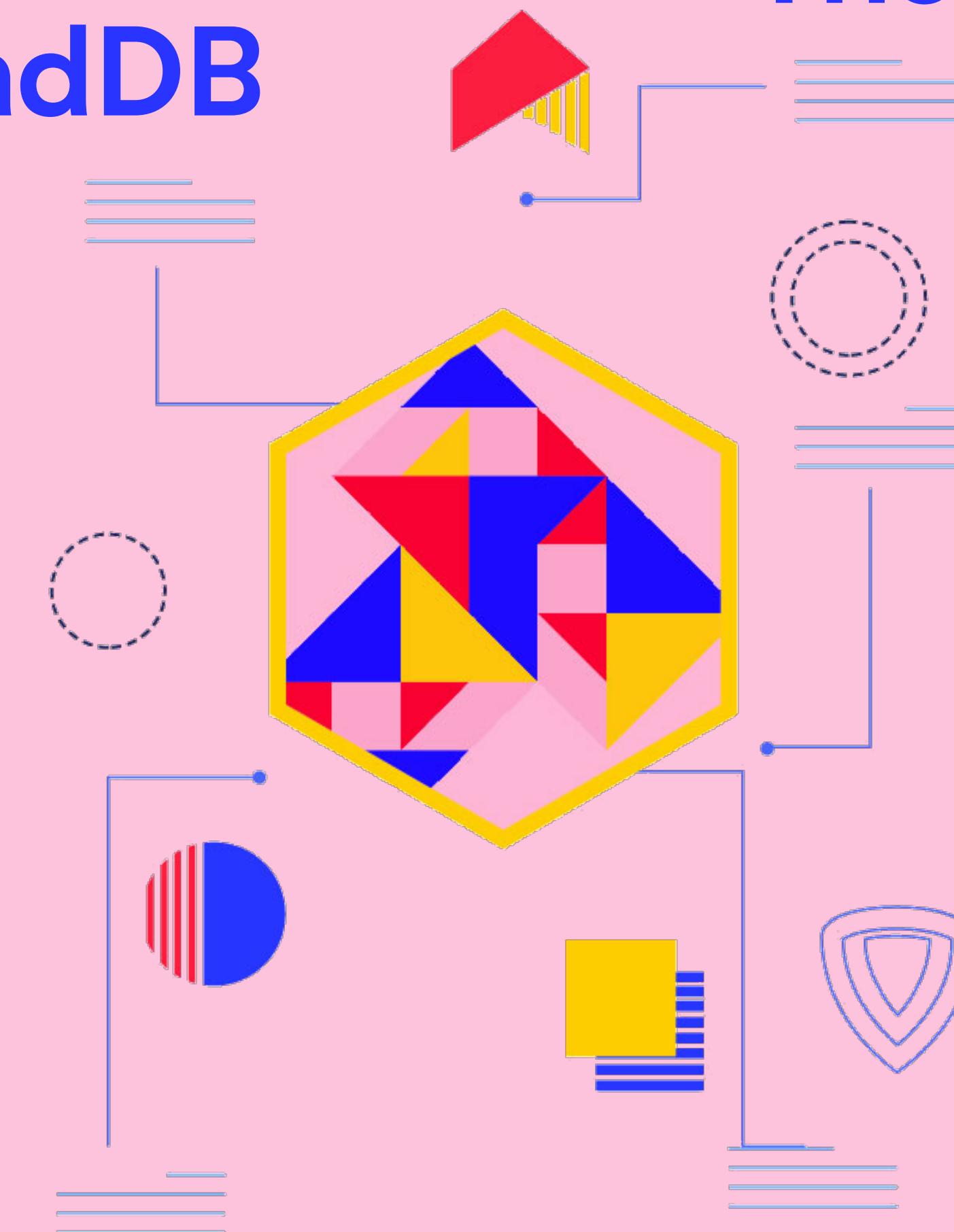
ThreadDB

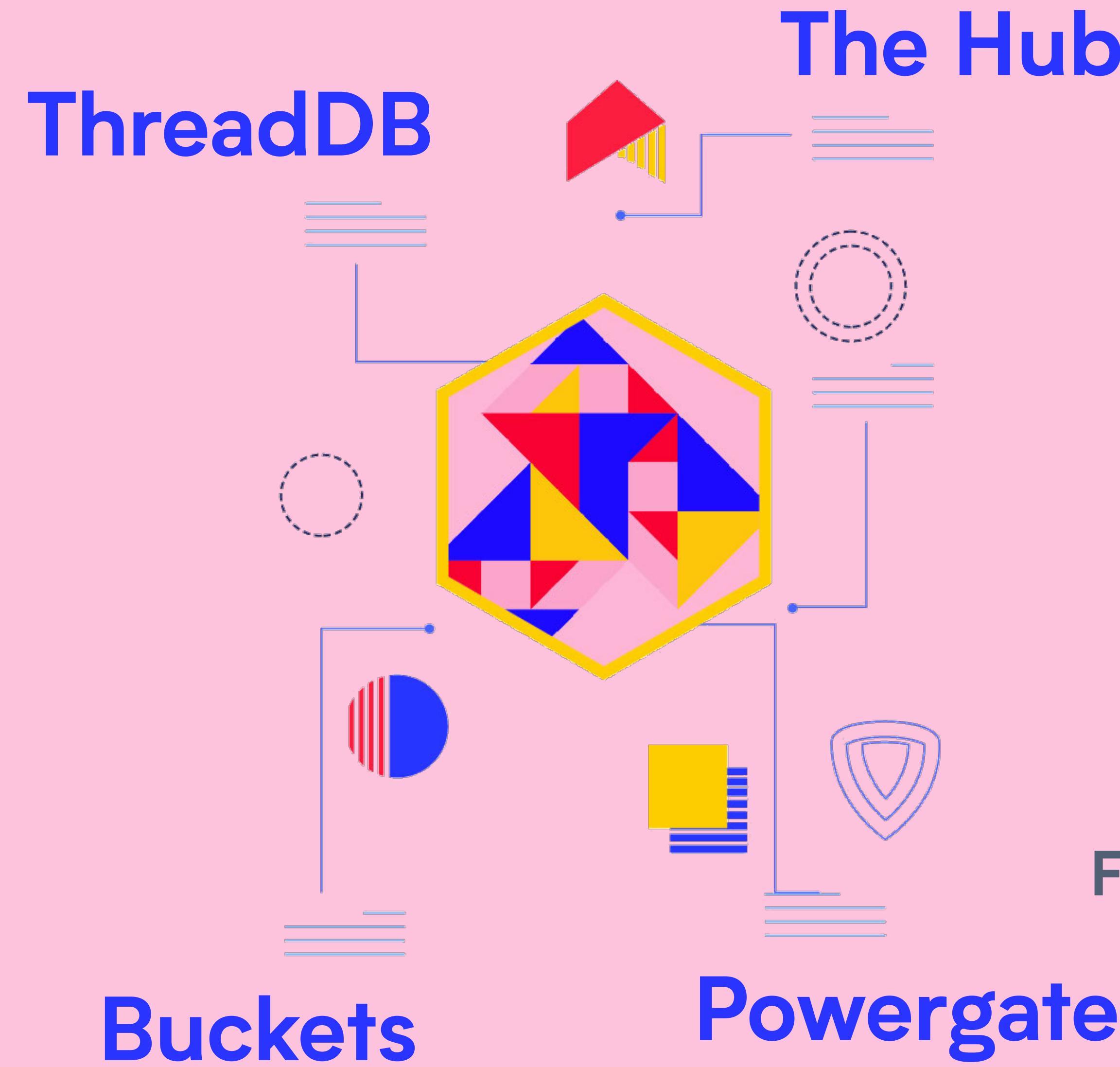
Dynamic folder persistence
and synchronization on IPFS

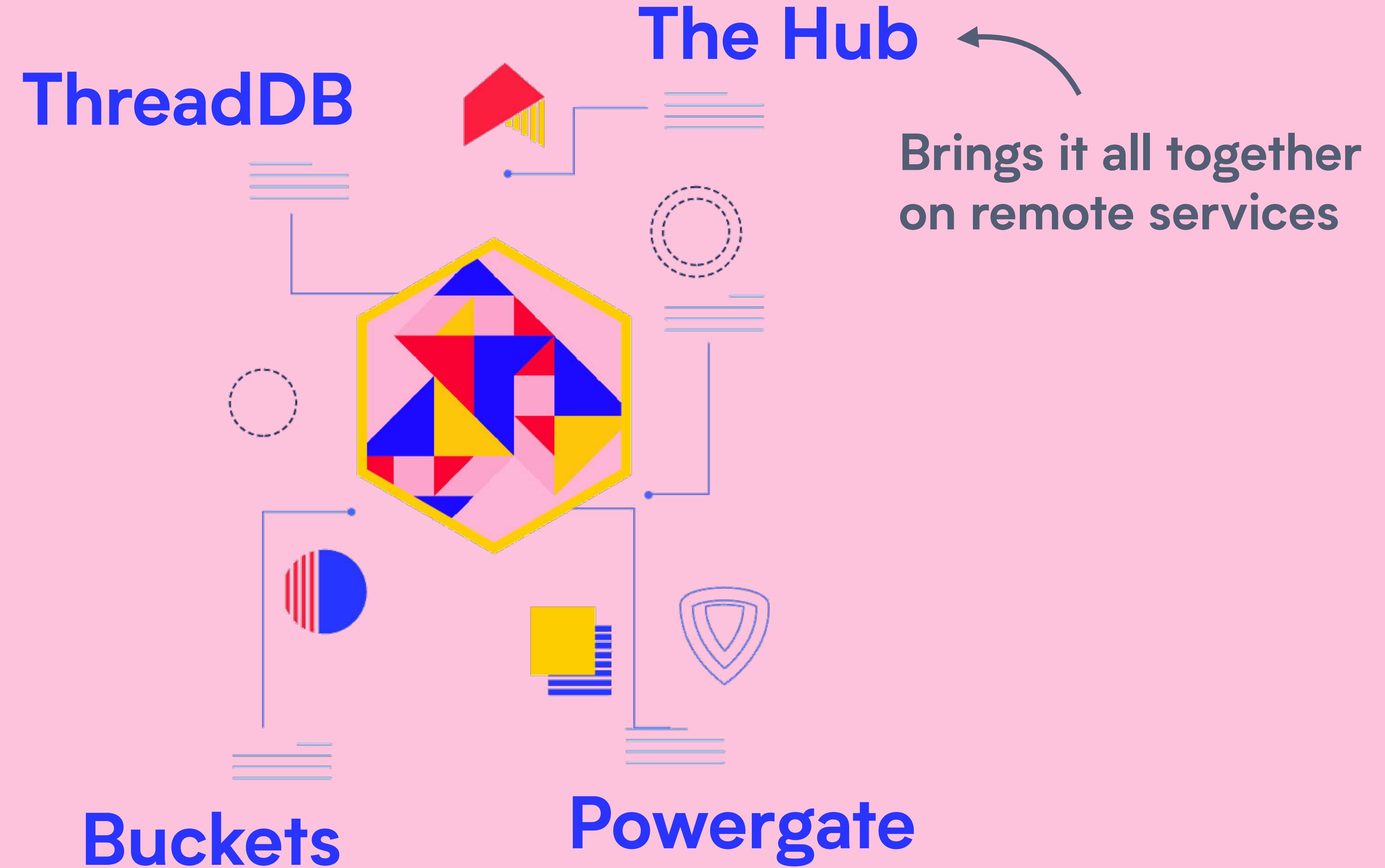


Buckets

Powergate

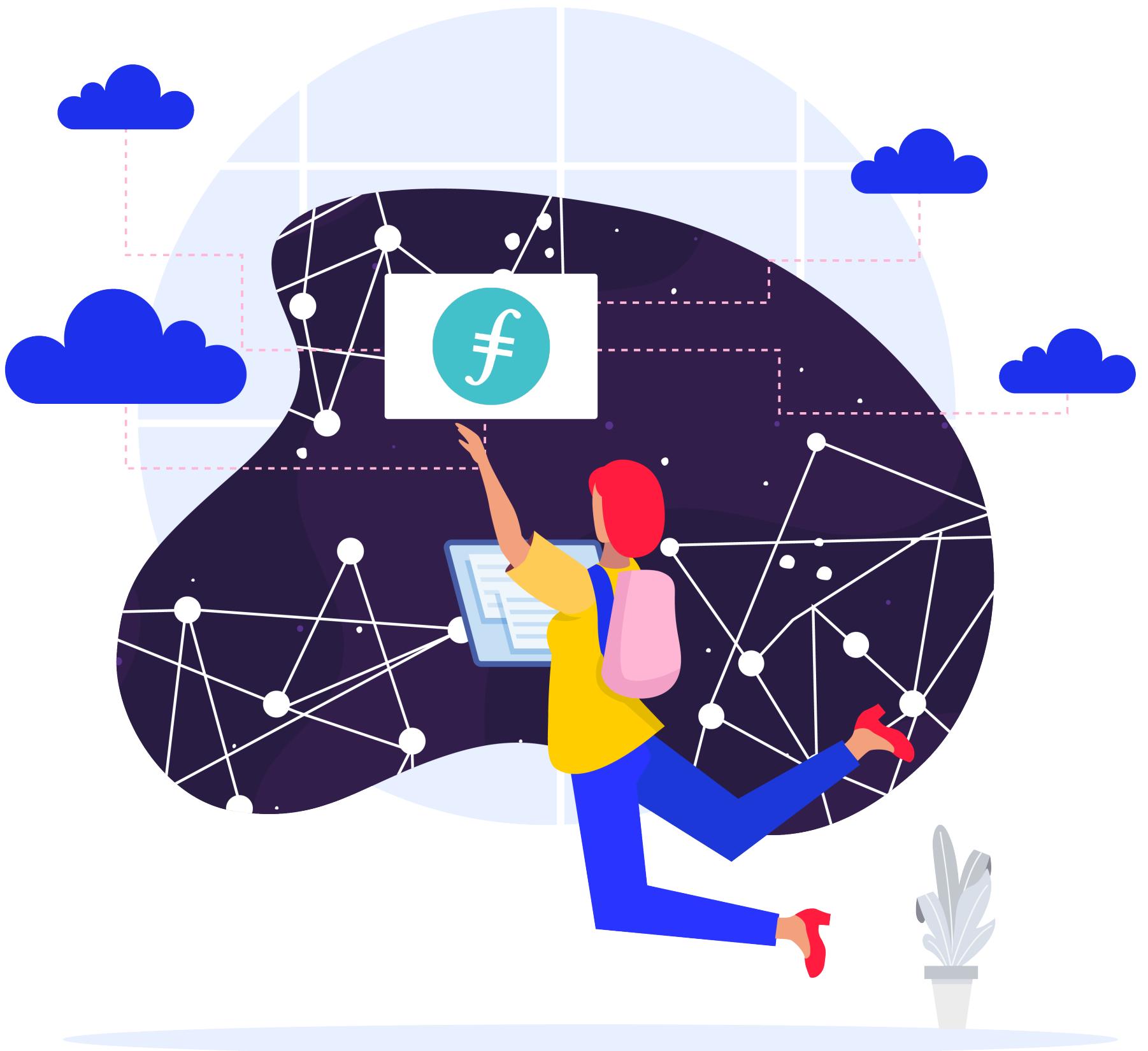








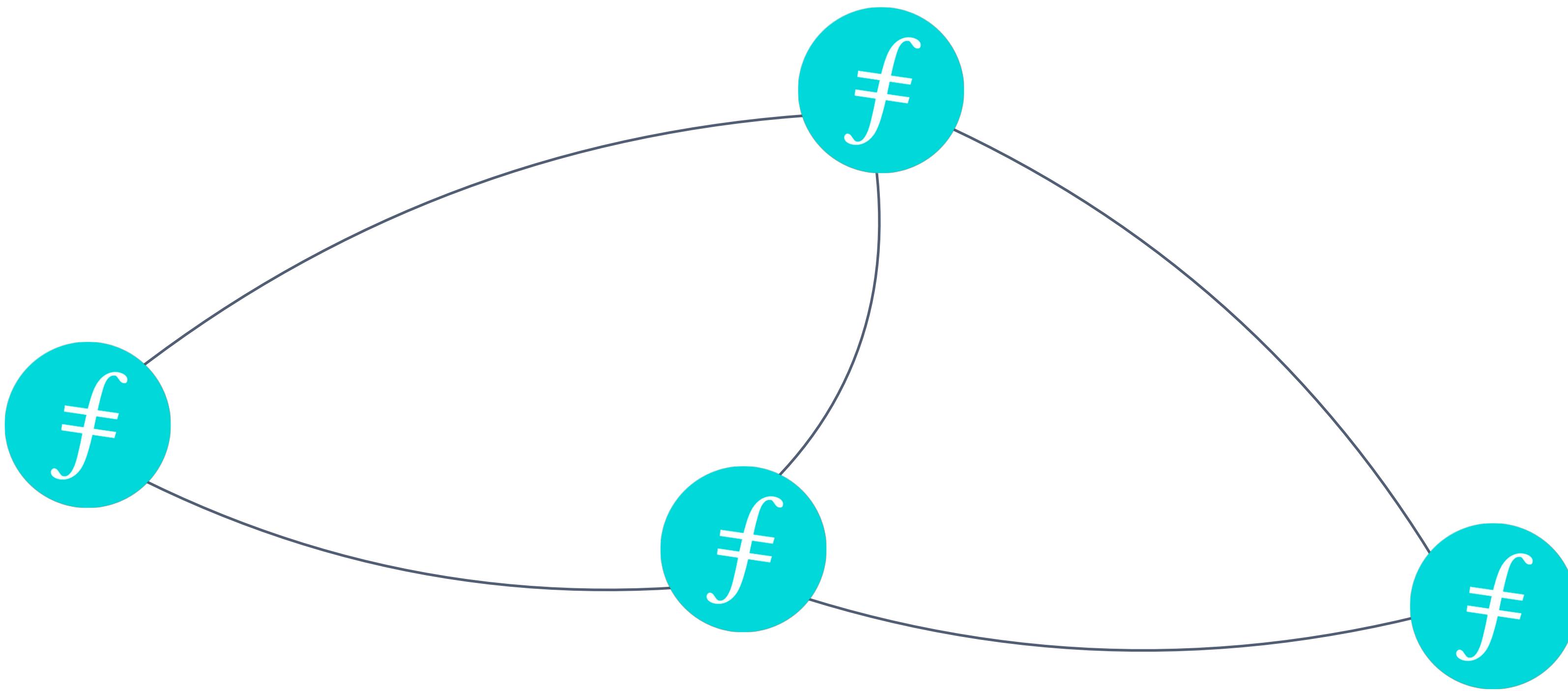
docs.textile.io



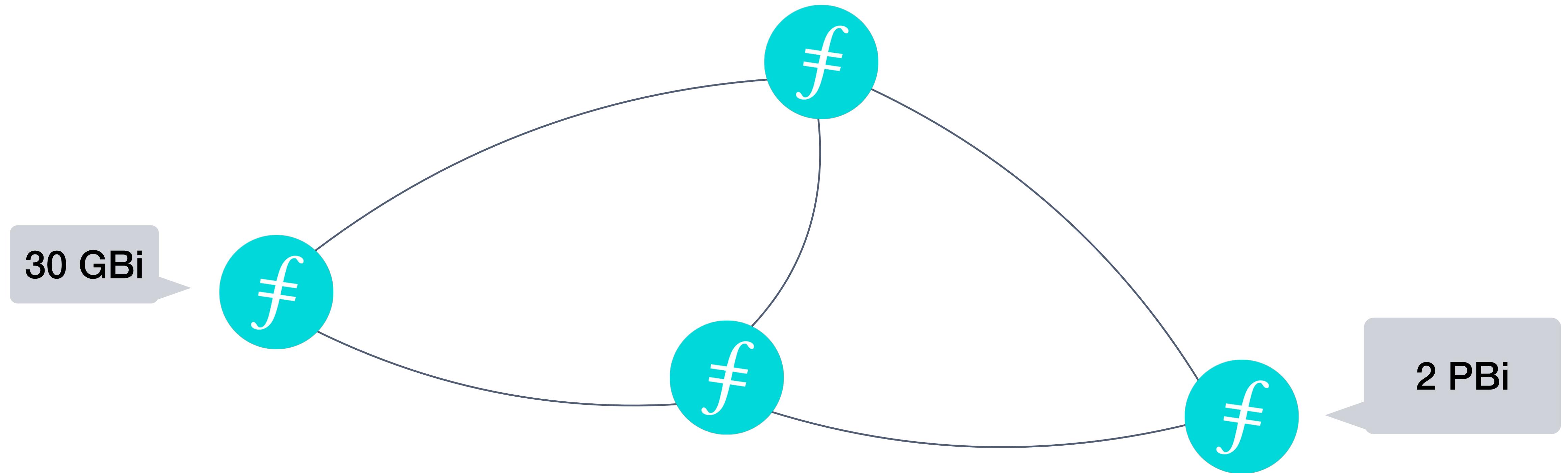
Building with Filecoin



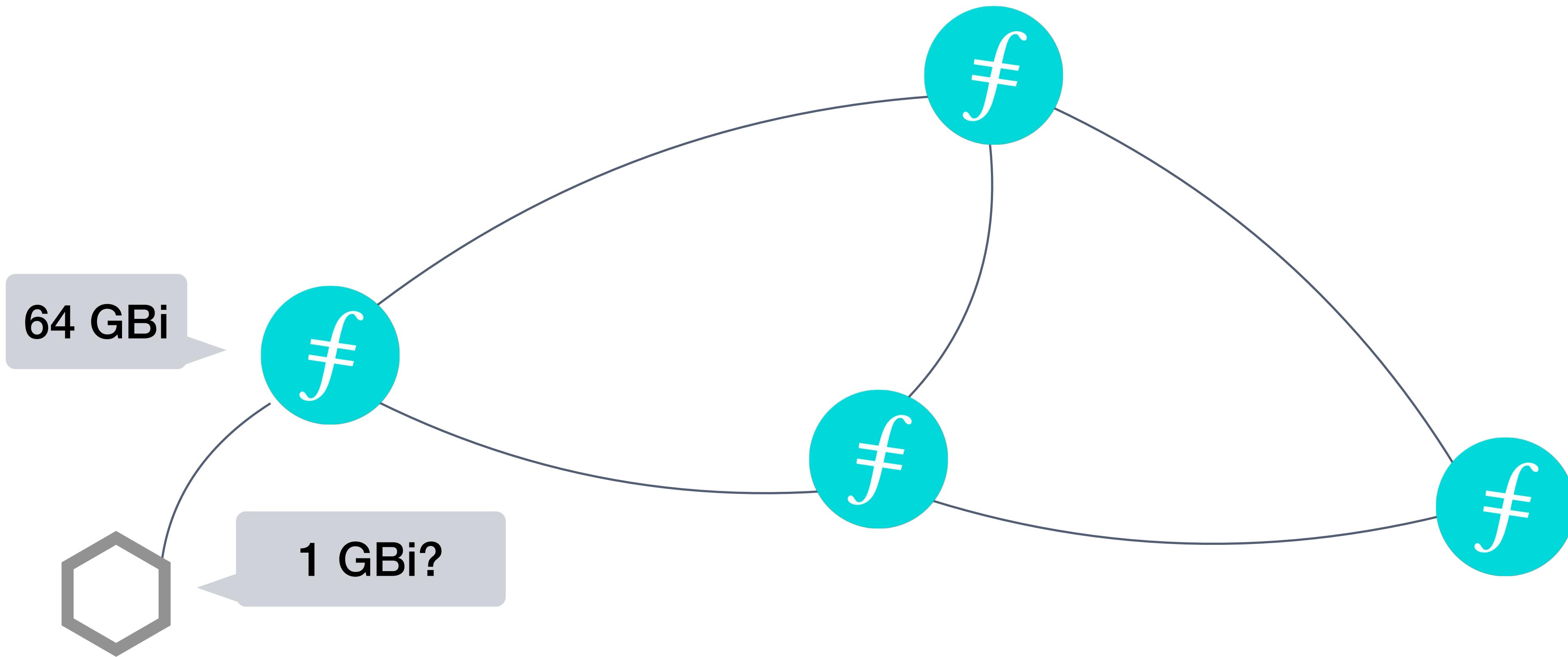
A few basics



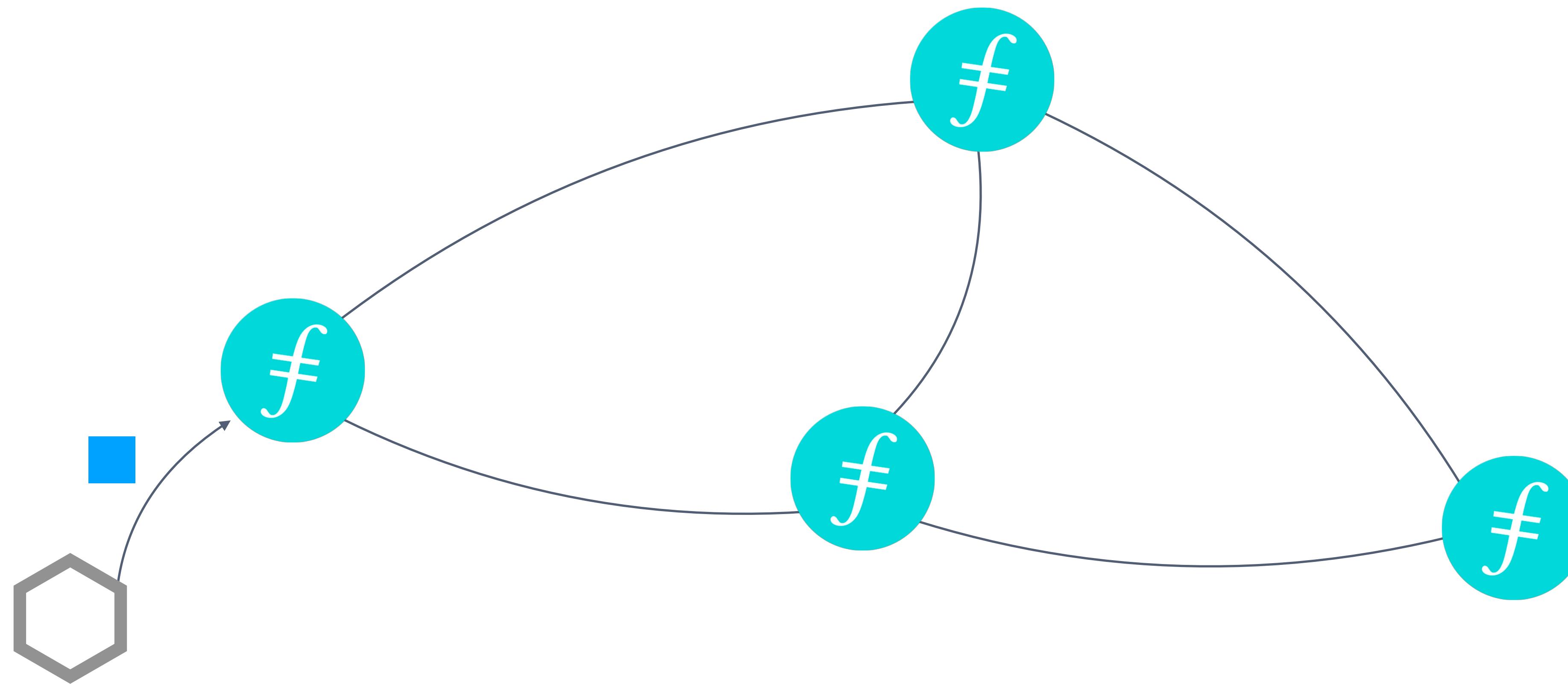
Miners



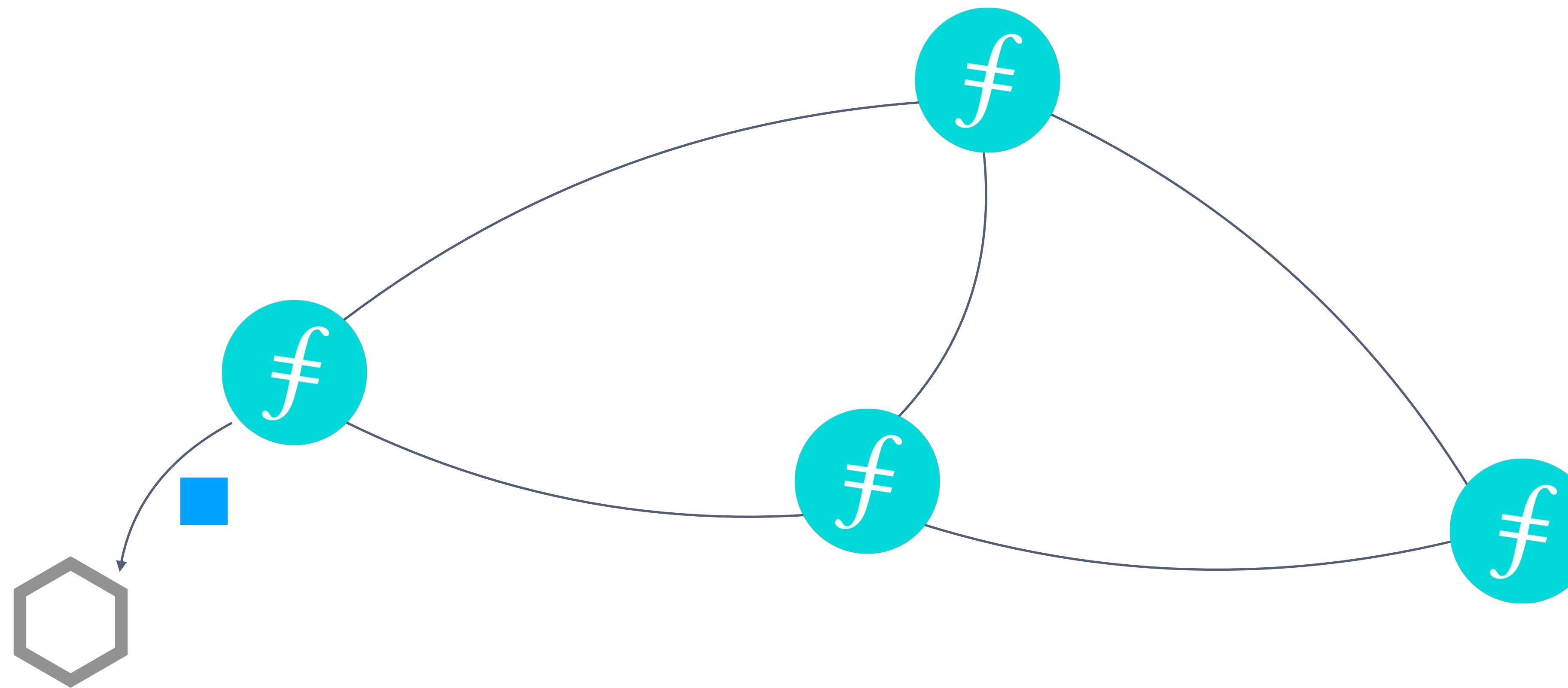
Miners



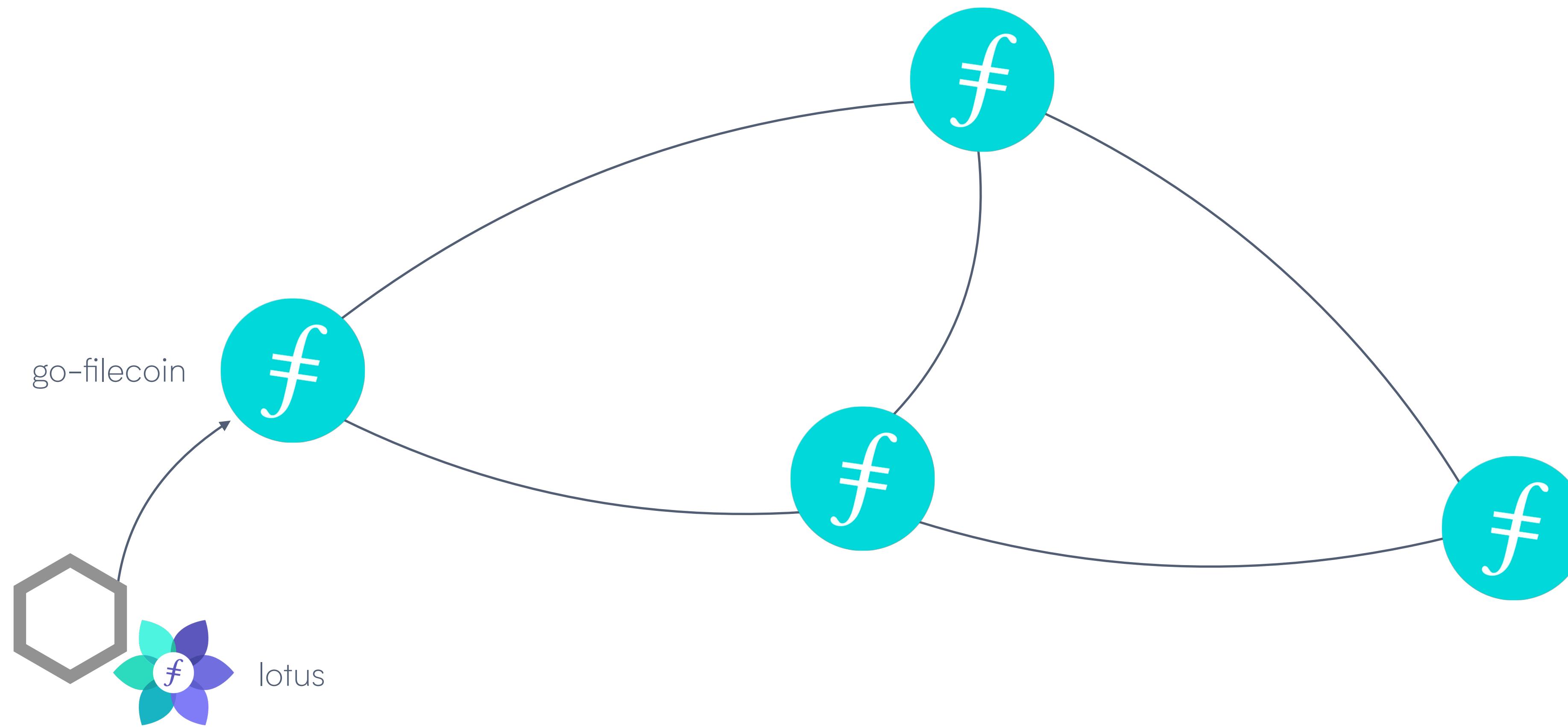
Storage



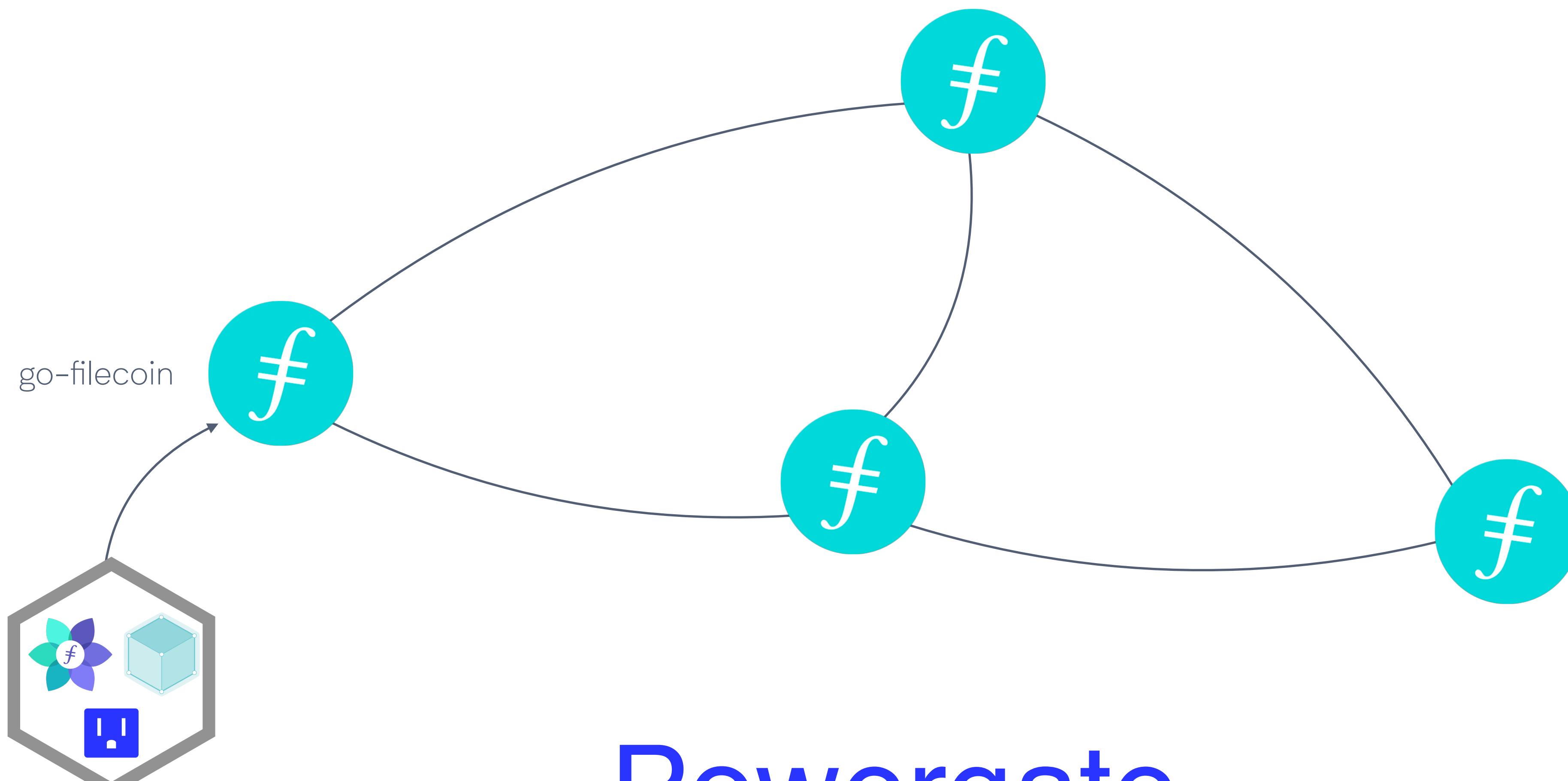
Deals



Retrieval



Implementations



Powergate

Mainnet

Testnet

Devnet

Embedded Devnet*

Networks

tinyurl.com/hackfs-resources

Resources



Building with Filecoin

Powergate

An API-driven solution for developers



- Low-latency, high-throughput datasets backed by Filecoin storage
- Turnkey interop solution for creating storage on Filecoin and availability on IPFS.
- Familiar interfaces for reading and writing data and configurable settings to sync, store, and cache data

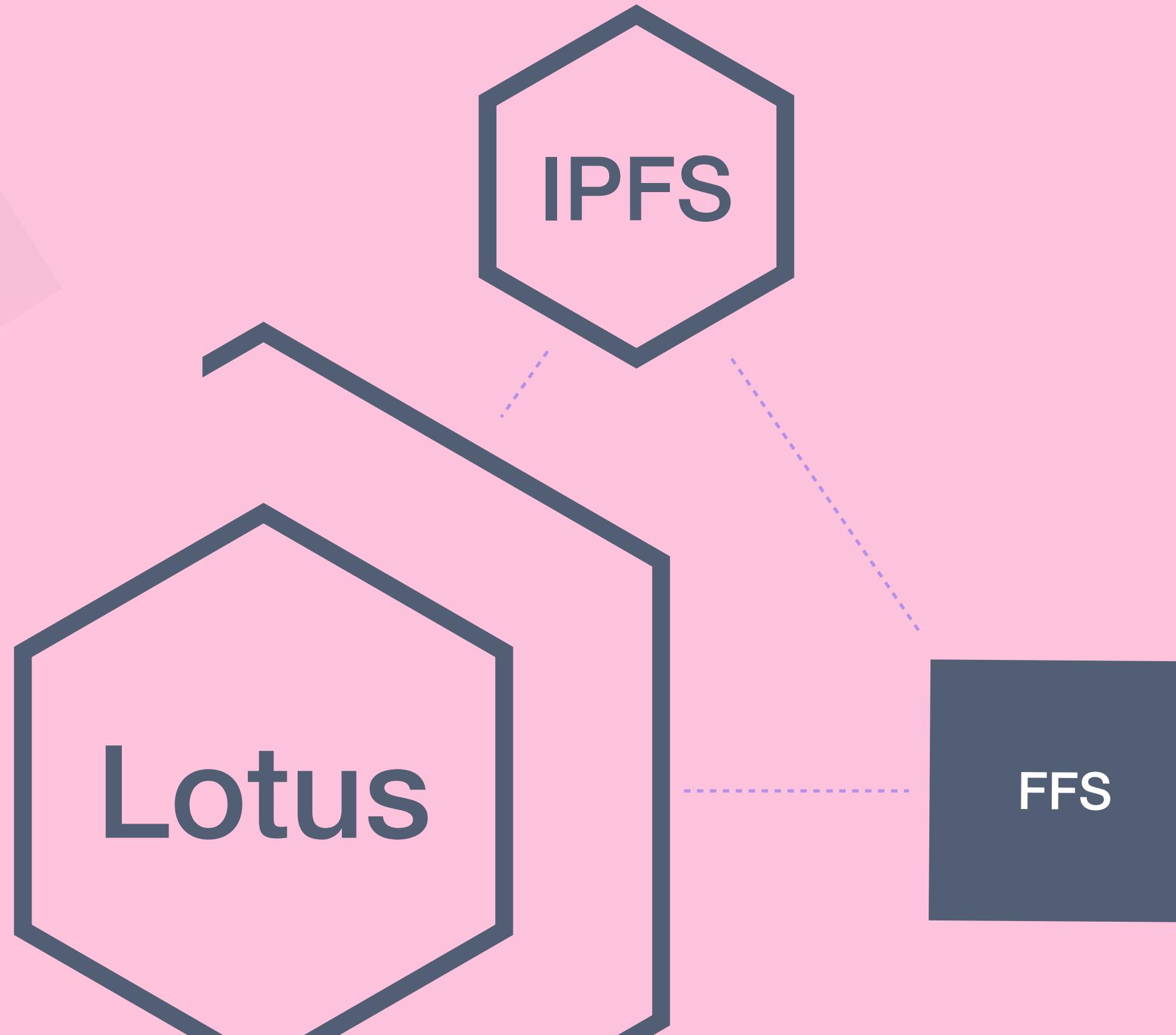
Powergate



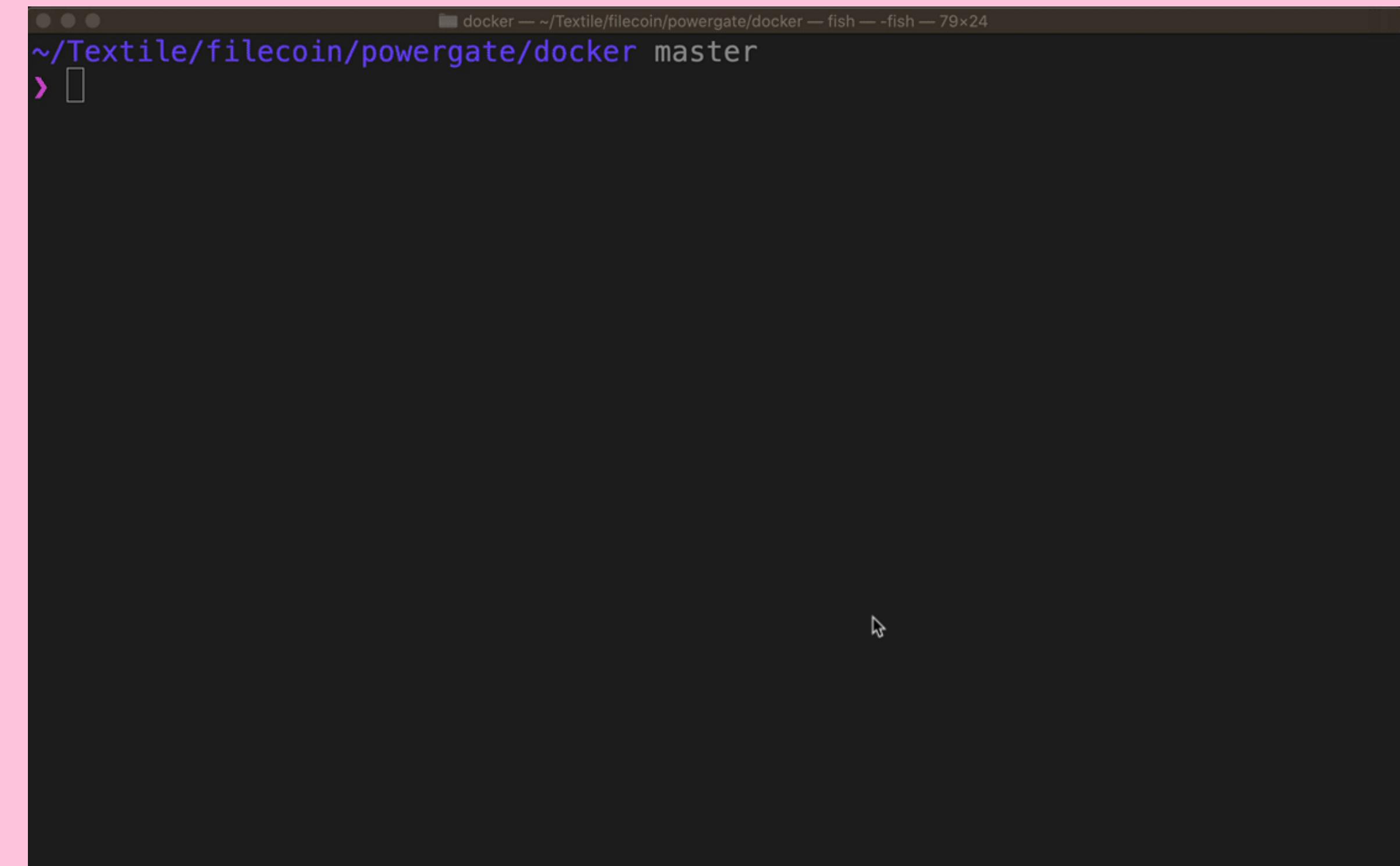
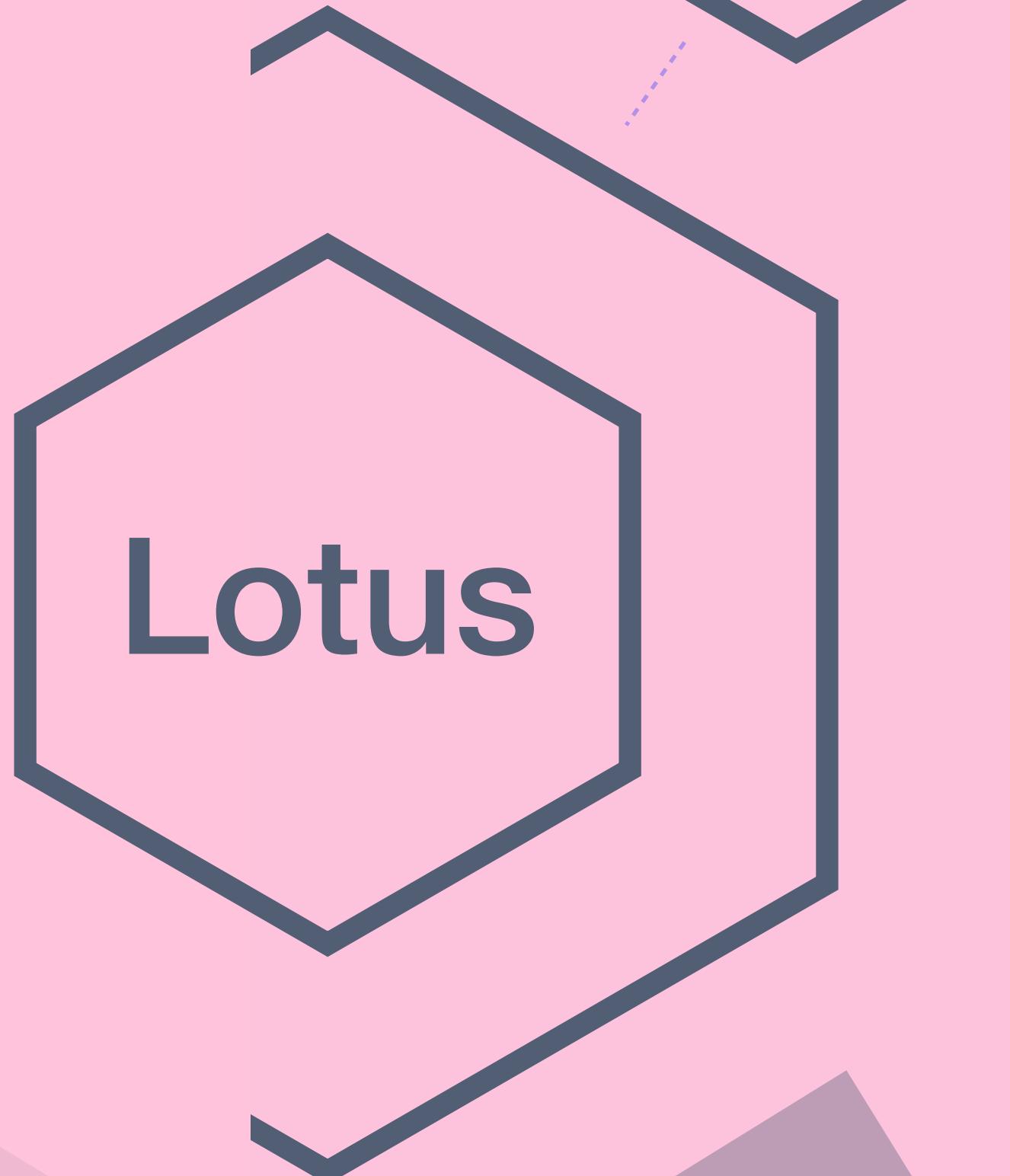
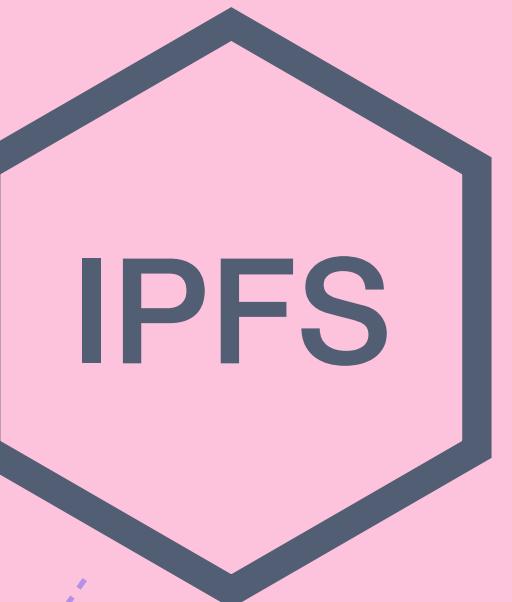
Feature Highlights

- Filecoin storage and IPFS availability.
- Deal agent to Create, Repair, Renew, Expire.
- Stateful for longterm deal monitoring.
- Multi-user/tenant address and deal management.
- Miner indices, reputation tracking, advanced deal finding.

Overview

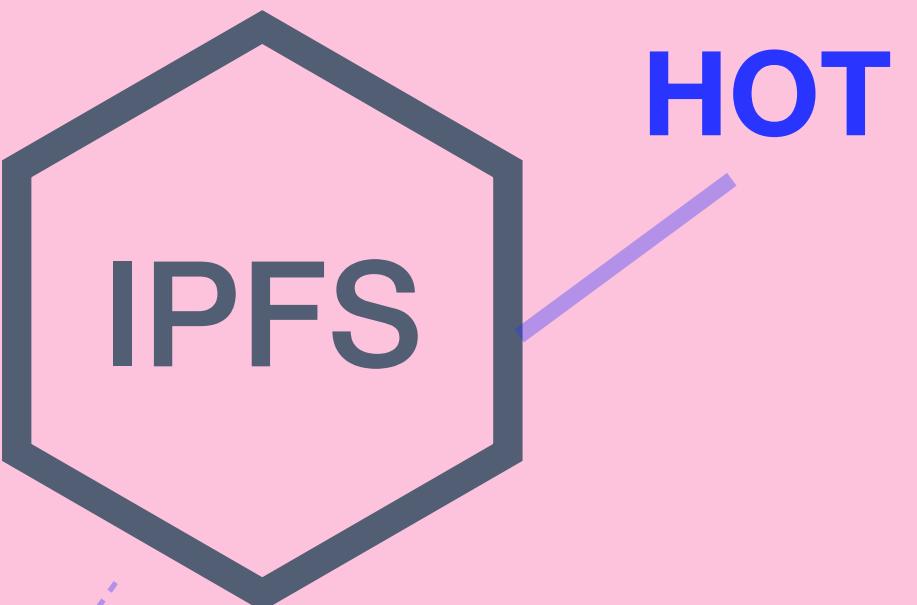


Powergate



Launching IPFS, Lotus and Powergate

Powergate

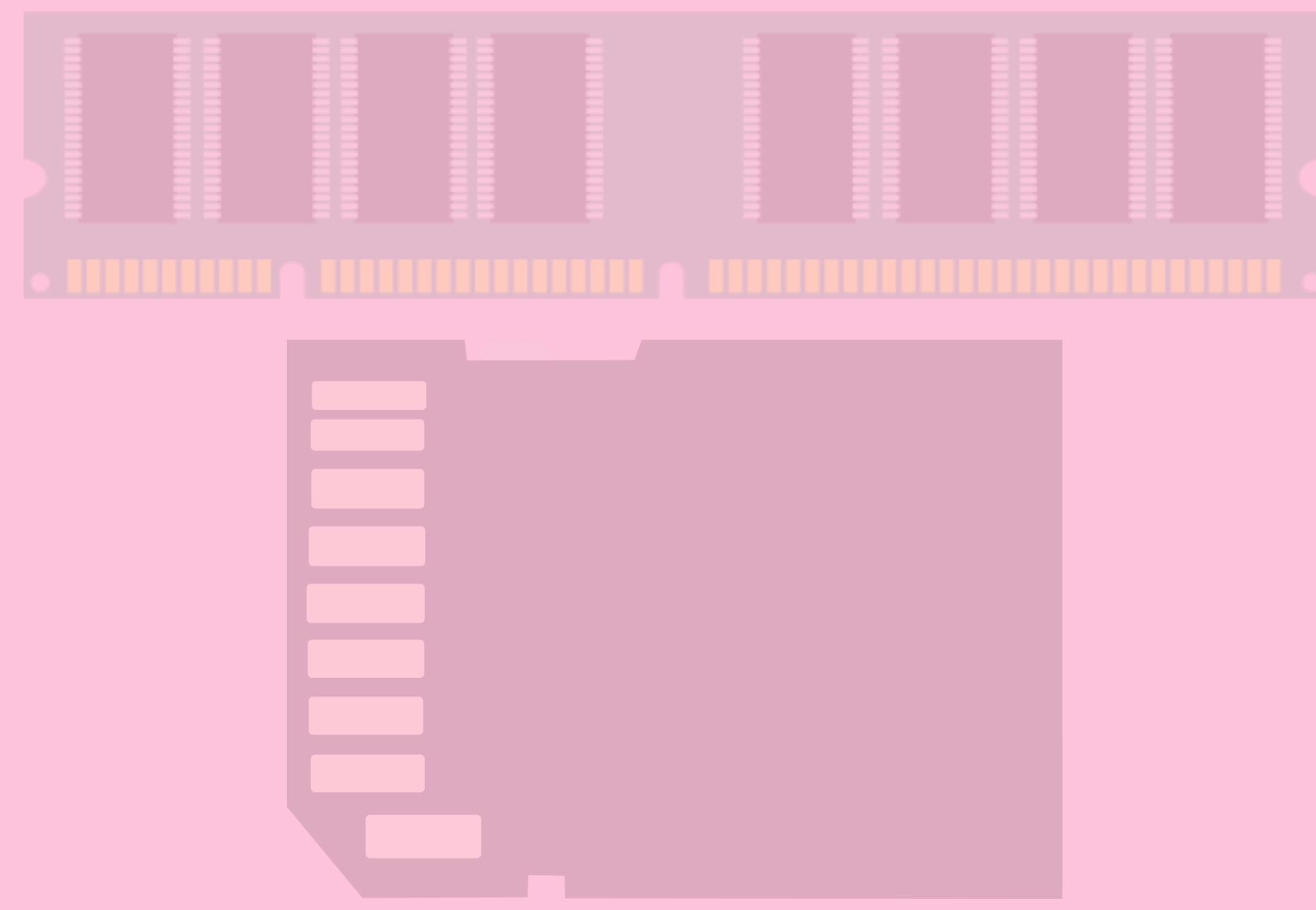


HOT

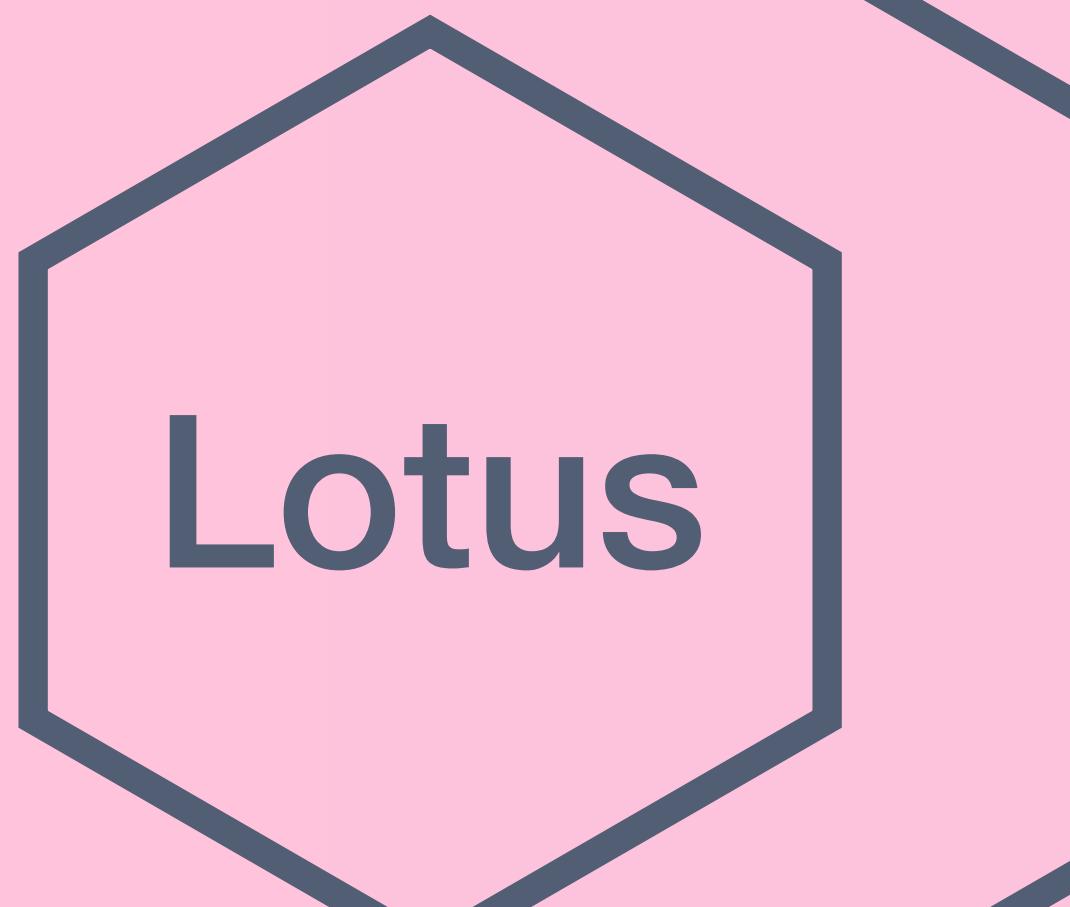
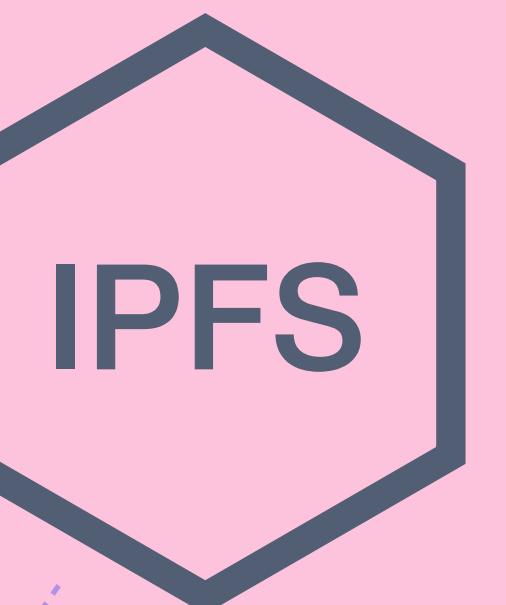


COLD

A multi-tiered storage system
across Filecoin and IPFS



Powergate



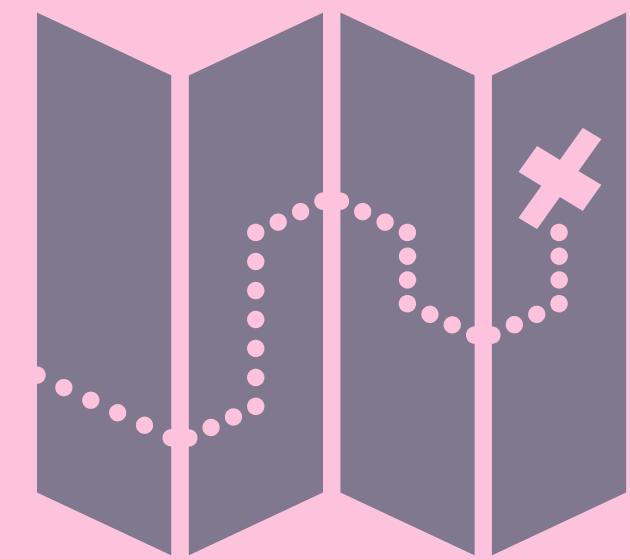
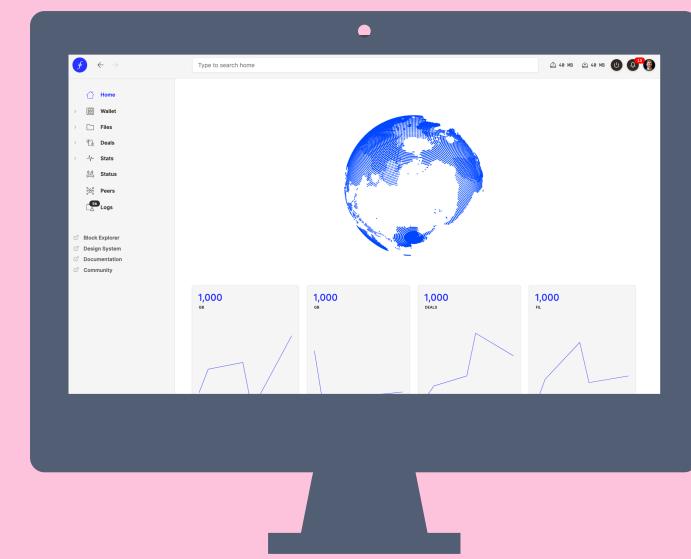
gRPC API

```
> pow --help
A client for storage and retrieval of filecoin data
Usage: filecoin [command]

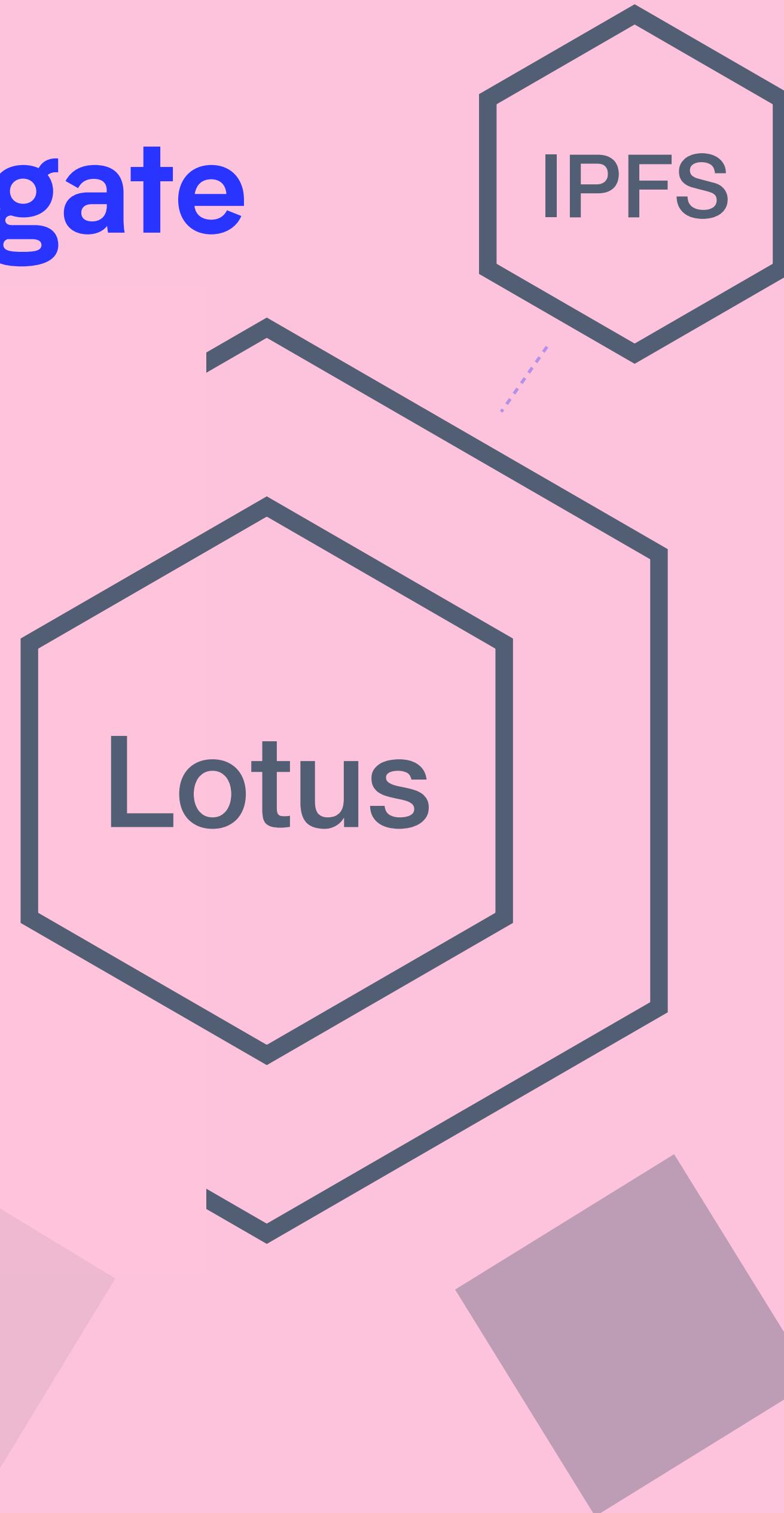
Available Commands:
  asks      Provides commands to view asks data
  config   Provides commands to manage storage configuration
  deals    Provides commands to manage storage deals
  ffs      Provides commands to manage ffs
  health   Displays the status of the node
  help     Help about any command
  init     Initializes a config file with the provided values or defaults
  miners   Provides commands to view miners data
  net      Provides commands related to peers and network
  registration Provides commands to view storage registration data
  slashing Provides commands to view slashing data
  wallet   Provides commands about filecoin wallets

Flags:
  --config string            config file (default is $HOME/.powergate.yaml)
  -h, --help                 help for filecoin
  --serverAddress string     address of the filecoin service api (default "ip4/127.0.0.1/tcp/5002")

Use "filecoin [command] --help" for more information about a command.
>/extilde/filecoin/powergate/docker master
> #
```



Powergate



```
docker — ~/Textile/filecoin/powergate/docker — fish — -fish — 100x30
❯ pow --help
A client for storage and retrieval of filecoin data

Usage:
  filecoin [command]

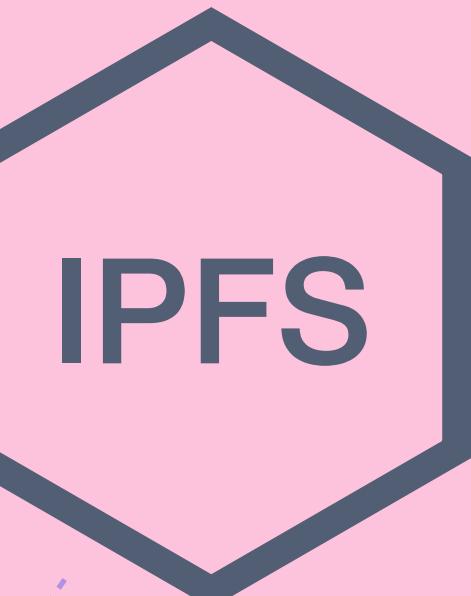
Available Commands:
  asks      Provides commands to view asks data
  config    Provides commands to manage storage configuration
  deal      Interactive storage deal
  deals     Provides commands to manage storage deals
  ffs       Provides commands to manage ffs
  health   Display the node health status
  help      Help about any command
  init      Initializes a config file with the provided values or defaults
  miners   Provides commands to view miners data
  net       Provides commands related to peers and network
  reputation Provides commands to view miner reputation data
  slashing  Provides commands to view slashing data
  wallet    Provides commands about filecoin wallets

Flags:
  --config string          config file (default is $HOME/.powergate.yaml)
  -h, --help                help for filecoin
  --serverAddress string   address of the filecoin service api (default "/ip4/127.0.0.1/tcp/5002")
)

Use "filecoin [command] --help" for more information about a command.
~/Textile/filecoin/powergate/docker master
❯
```

Powergate CLI

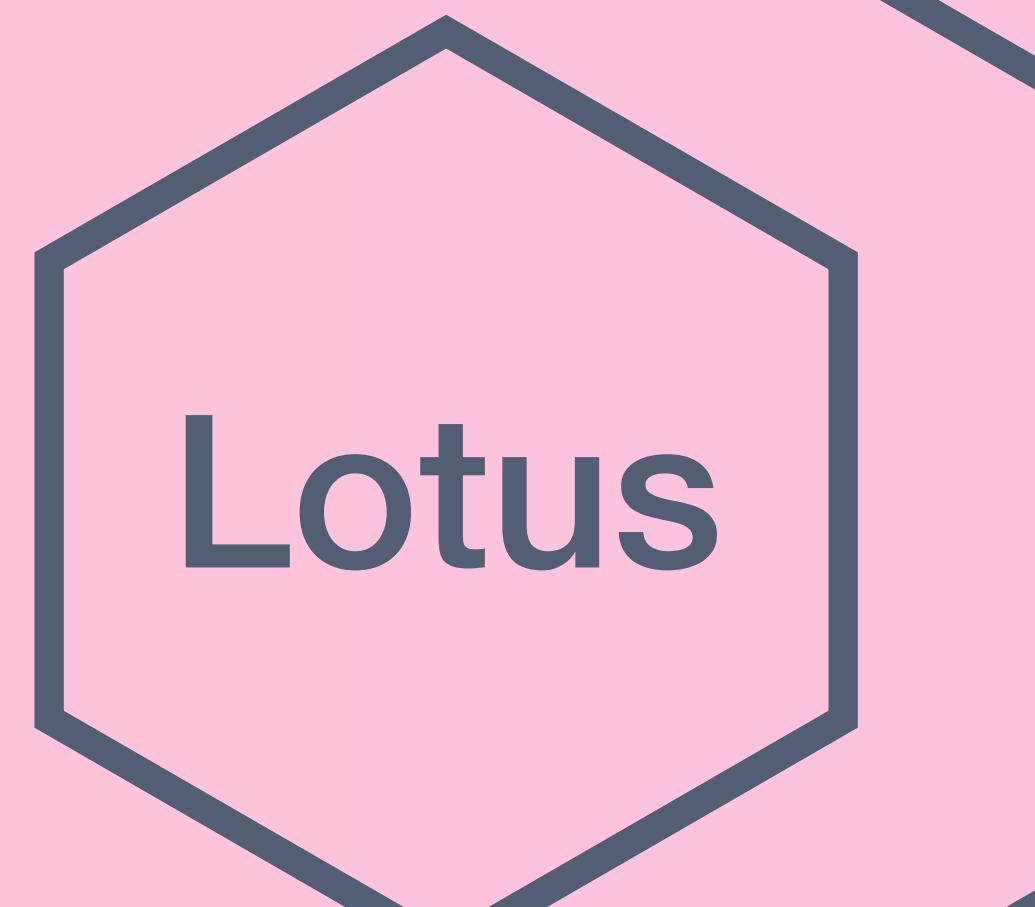
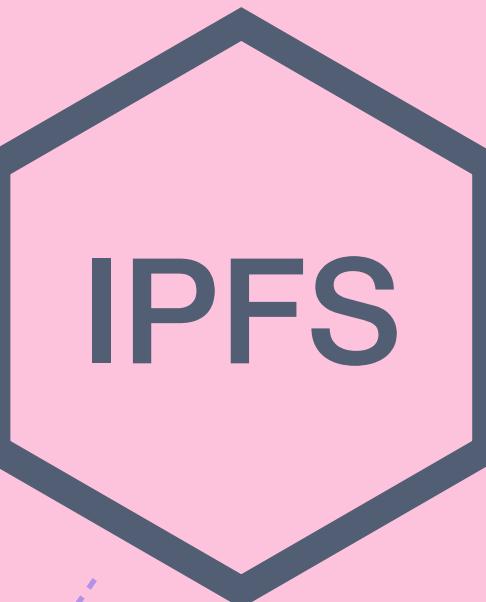
Powergate



The Powergate works for you.

- Monitor deals for expiration, auto-renew
- Auto repair and replication
- One or many sandboxed addresses
(access token based)
- Collects miner reputation and allows
pre-deal filtering

Powergate



```
docker — ~/Textile/filecoin/powergate/docker — fish — -fish — 100x30
❯ pow --help
A client for storage and retrieval of filecoin data

Usage:
  filecoin [command]

Available Commands:
  asks      Provides commands to view asks data
  config    Provides commands to manage storage configuration
  deal     Interactive storage deal
  deals    Provides commands to manage storage deals
  ffs       Provides commands to manage ffs
  health   Display the node health status
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  wallet   Provides commands about filecoin wallets

Flags:
  --config string          config file (default is $HOME/.powergate.yaml)
  -h, --help                help for filecoin
  --serverAddress string    address of the filecoin service api (default "/ip4/127.0.0.1/tcp/5002")
  ")

Use "filecoin [command] --help" for more information about a command.
~/Textile/filecoin/powergate/docker master
❯
```

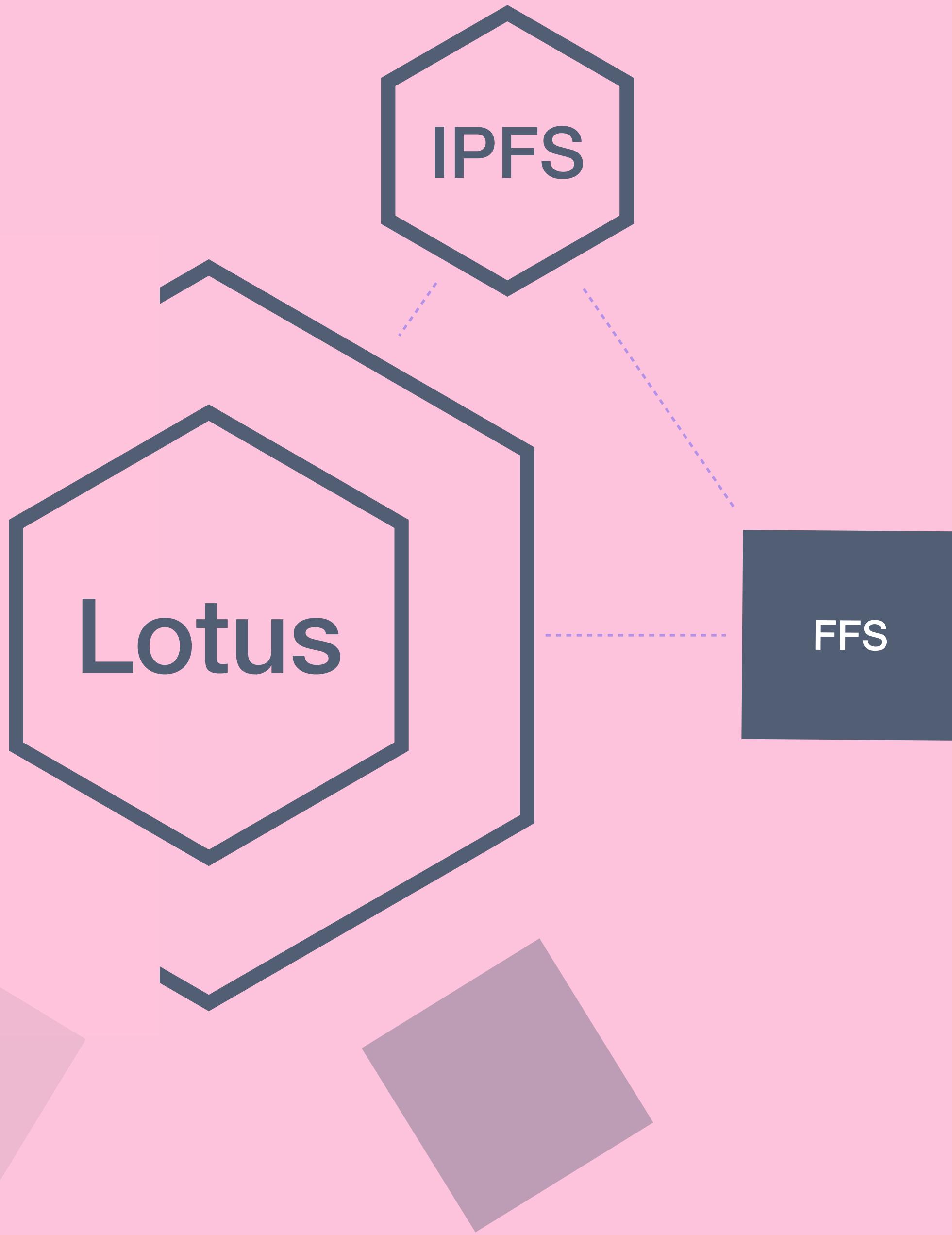
Powergate FFS



FFS



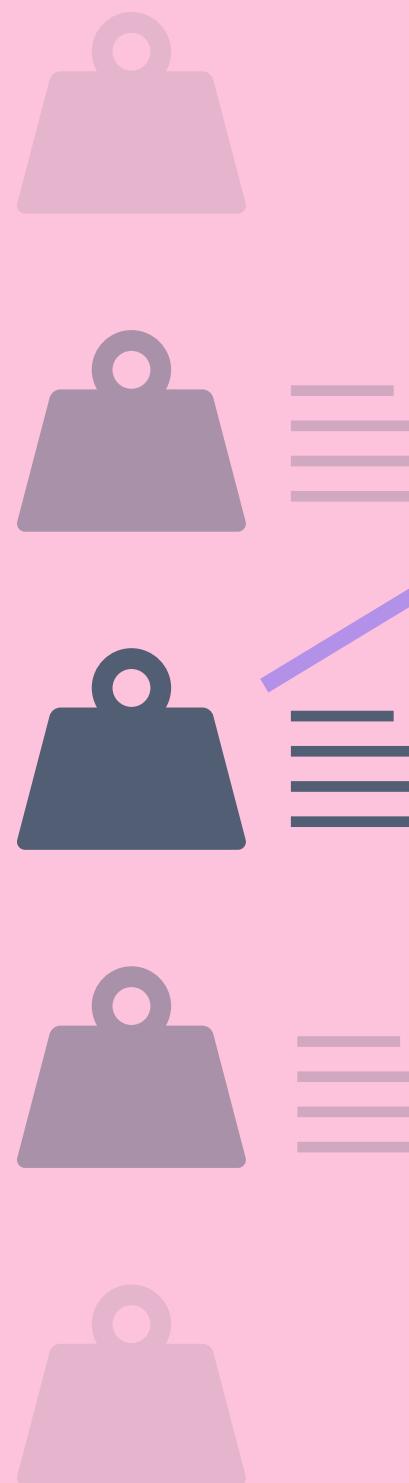
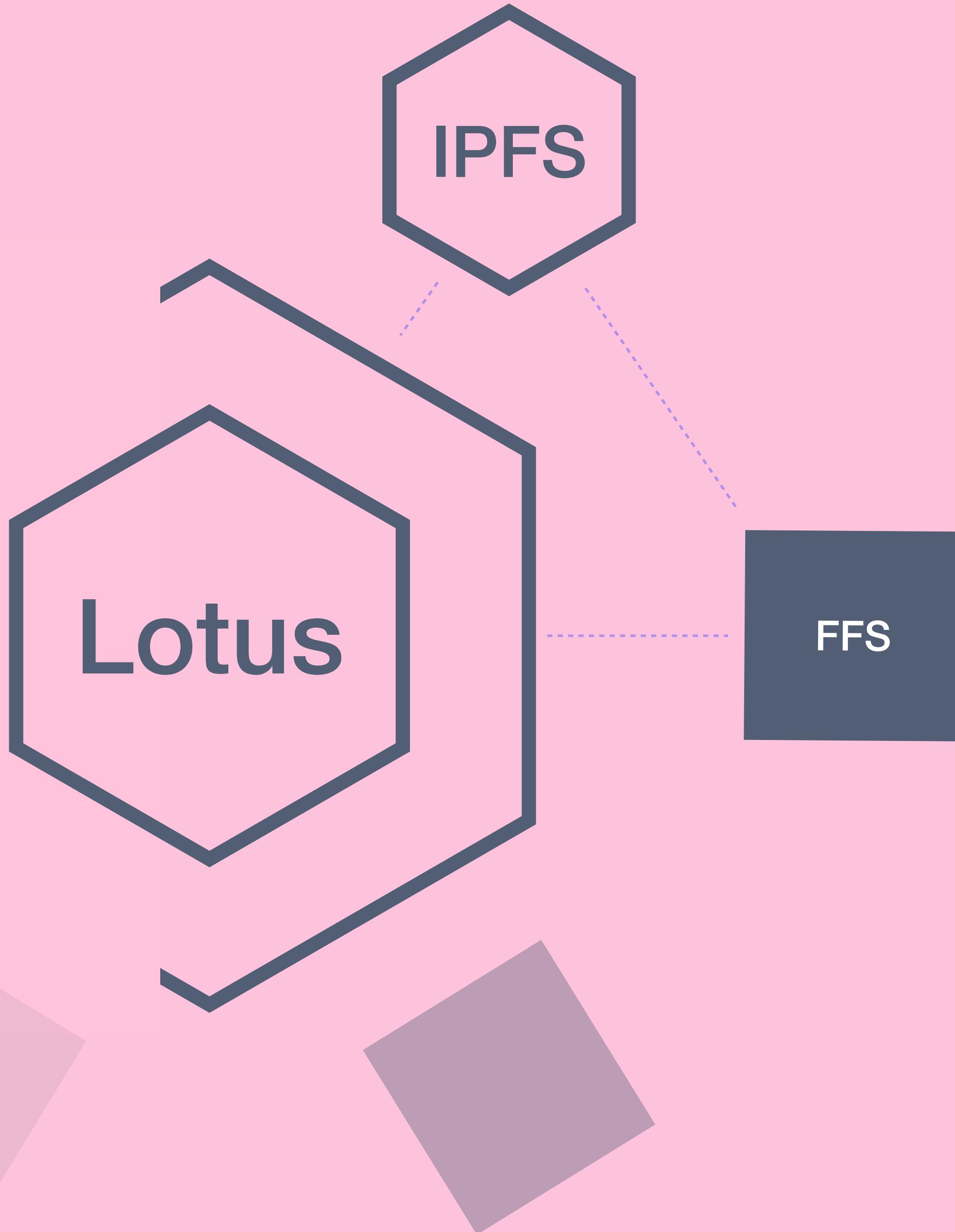
FFS



Filecoin File System

- Each Powergate manages multiple FFS instances.
- Every instance has its own Filecoin address(s) with its own balance(s) etc.
- Every instance has its own defaults and settings for how it wants to store data on Filecoin (cold) and when to make it available over IPFS (hot).

FFS

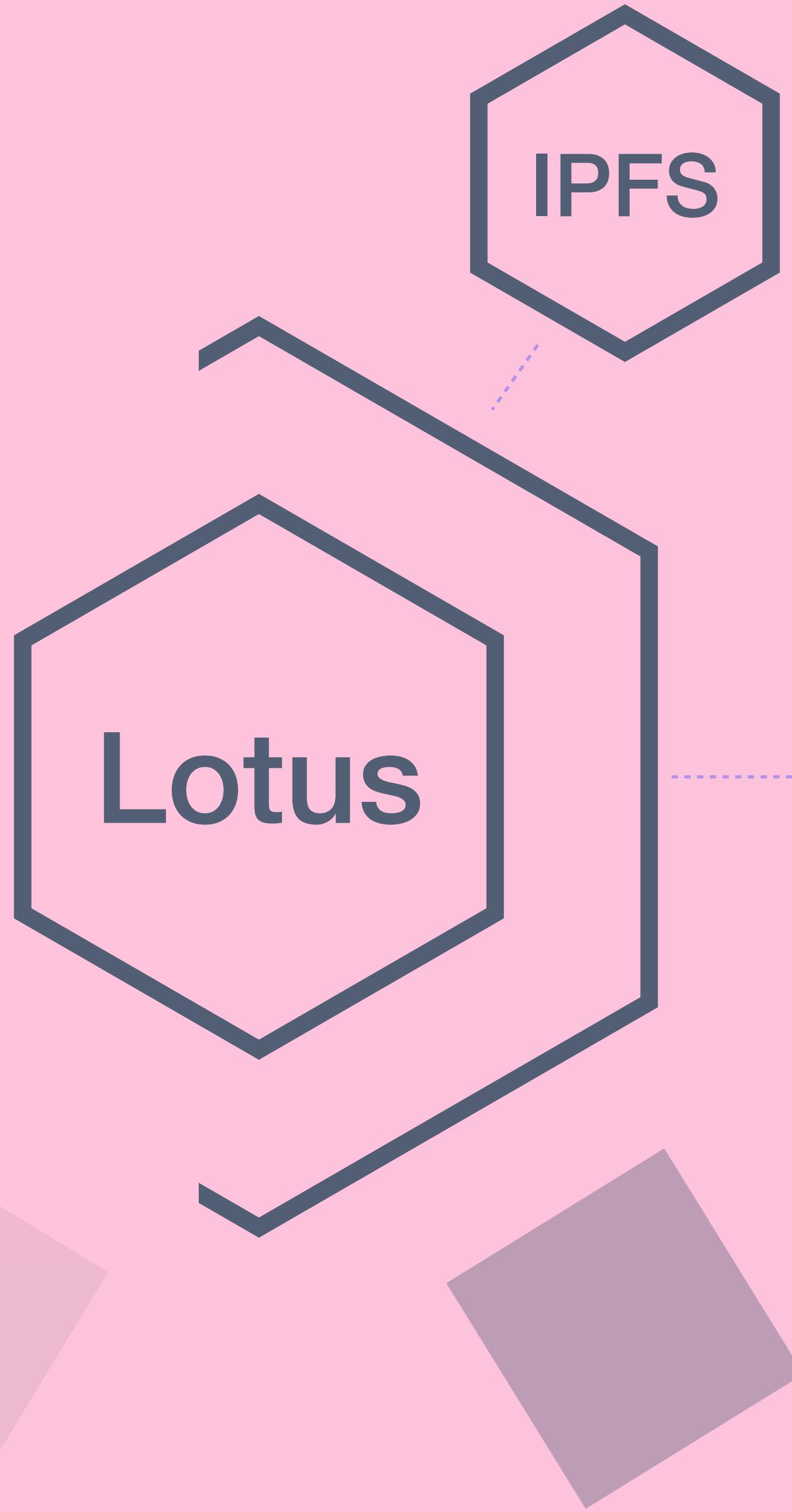


**Every file stored by an FFS
is tracked by its CID**

**A storage config can be set
per CID. It uses the FFS
config by default. Configs
can be updated.**

*FFS manages storage
for “users”*

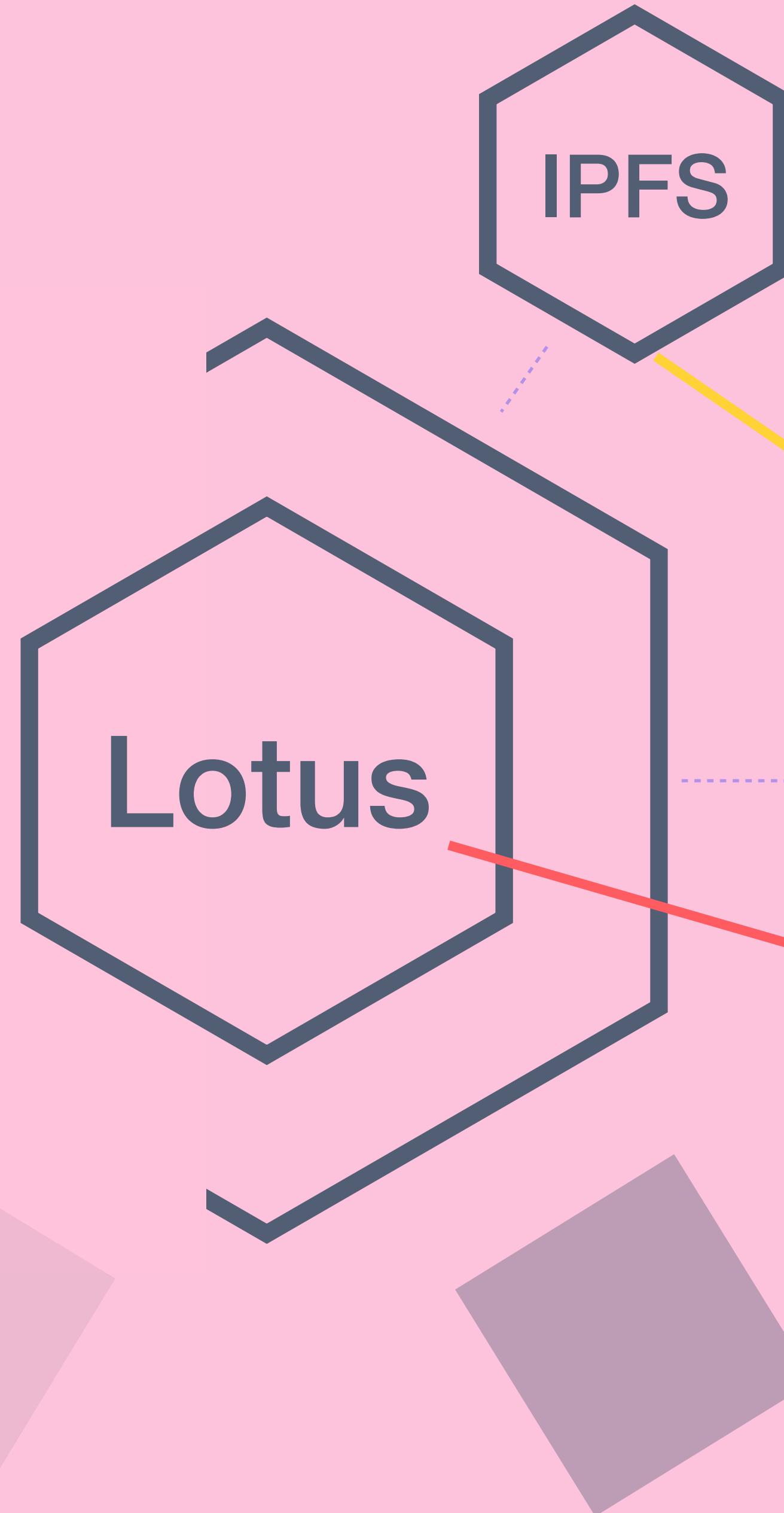
FFS



```
powDemo — aaron@dinamarca — /tmp/powDemo — -zsh — 111x35
> FFS instance id: 85862369-5d60-48bc-9e71-9155e7d692db
> Wallet addresses:
  NAME          TYPE      BALANCE      DEFAULT
Initial Address t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpth5vah3v75t4egggkw7h77lrg4k4esu7pba      bls
  3993989000    yes
> Default storage config:
{
  "Hot": {
    "Enabled": true,
    "AllowUnfreeze": false,
    "Ipfs": {
      "AddTimeout": 30
    }
  },
  "Cold": {
    "Enabled": true,
    "Filecoin": {
      "RepFactor": 1,
      "DealDuration": 1000,
      "ExcludedMiners": null,
      "TrustedMiners": null,
      "CountryCodes": null,
      "Renew": {
        "Enabled": false,
        "Threshold": 0
      },
      "Addr": "t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpth5vah3v75t4egggkw7h77lrg4k4esu7pba"
    }
  },
  "Repairable": false
}
> Pinned cids:
CID
QmaxZtzWoAyL5Xrn3o9dxisDpGJ7iPpcvJceFvnCNKKHM4
```

Storage Config

FFS

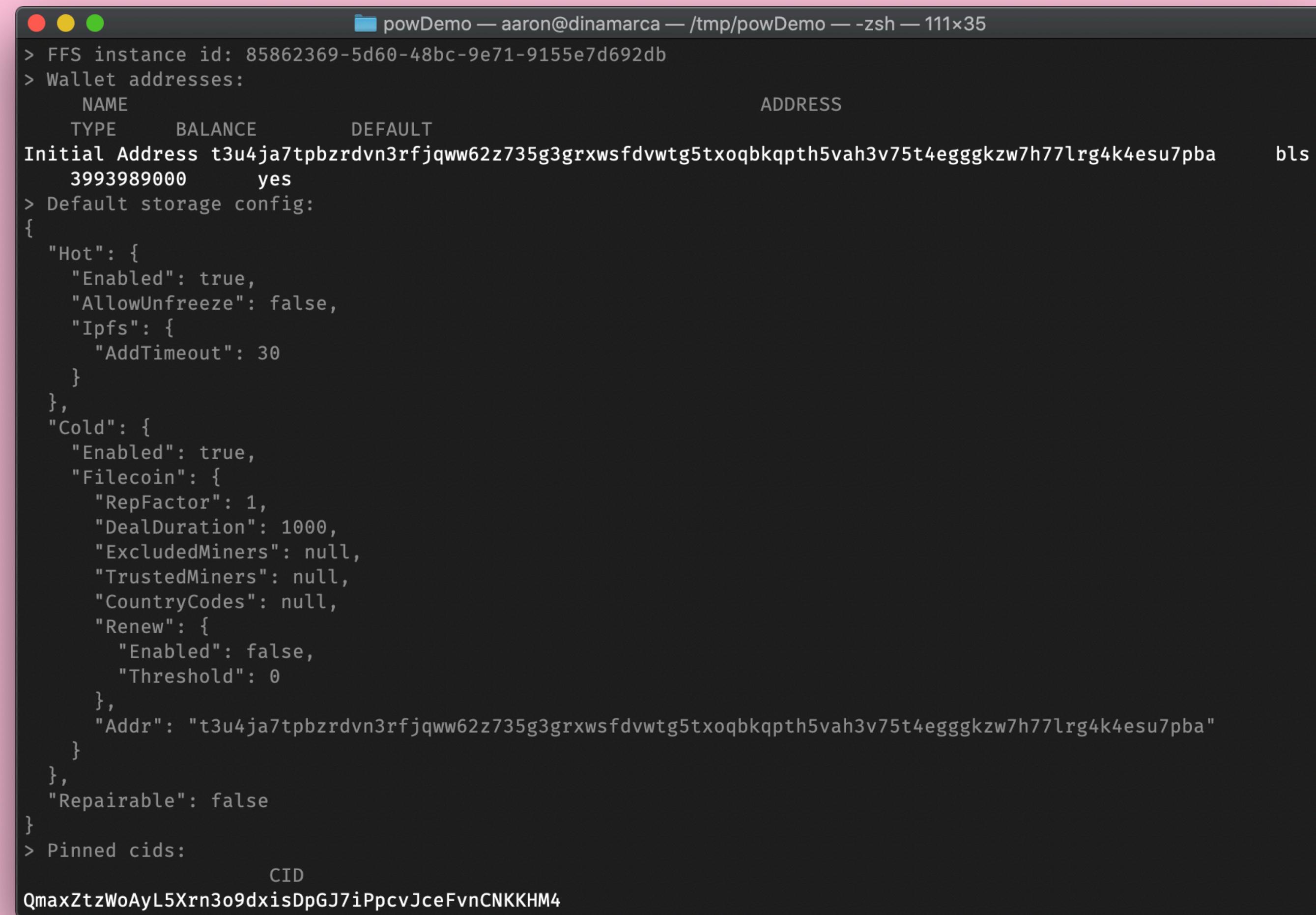


```
powDemo — aaron@dinamarca — /tmp/powDe
> FFS instance id: 85862369-5d60-48bc-9e71-9155e7d692db
> Wallet addresses:
  NAME          TYPE      BALANCE      DEFAULT
Initial Address t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqp
            3993989000      yes
> Default storage config:
{
  "Hot": {
    "Enabled": true,
    "AllowUnfreeze": false,
    "Ipfs": {
      "AddTimeout": 30
    }
  },
  "Cold": {
    "Enabled": true,
    "Filecoin": {
      "RepFactor": 1,
      "DealDuration": 1000,
      "ExcludedMiners": null,
      "TrustedMiners": null,
      "CountryCodes": null,
      "Renew": {
        "Enabled": false,
        "Threshold": 0
      },
      "Addr": "t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpt"
    }
  },
  "Repairable": false
}
> pow ffs info
```

Inspired by the Config

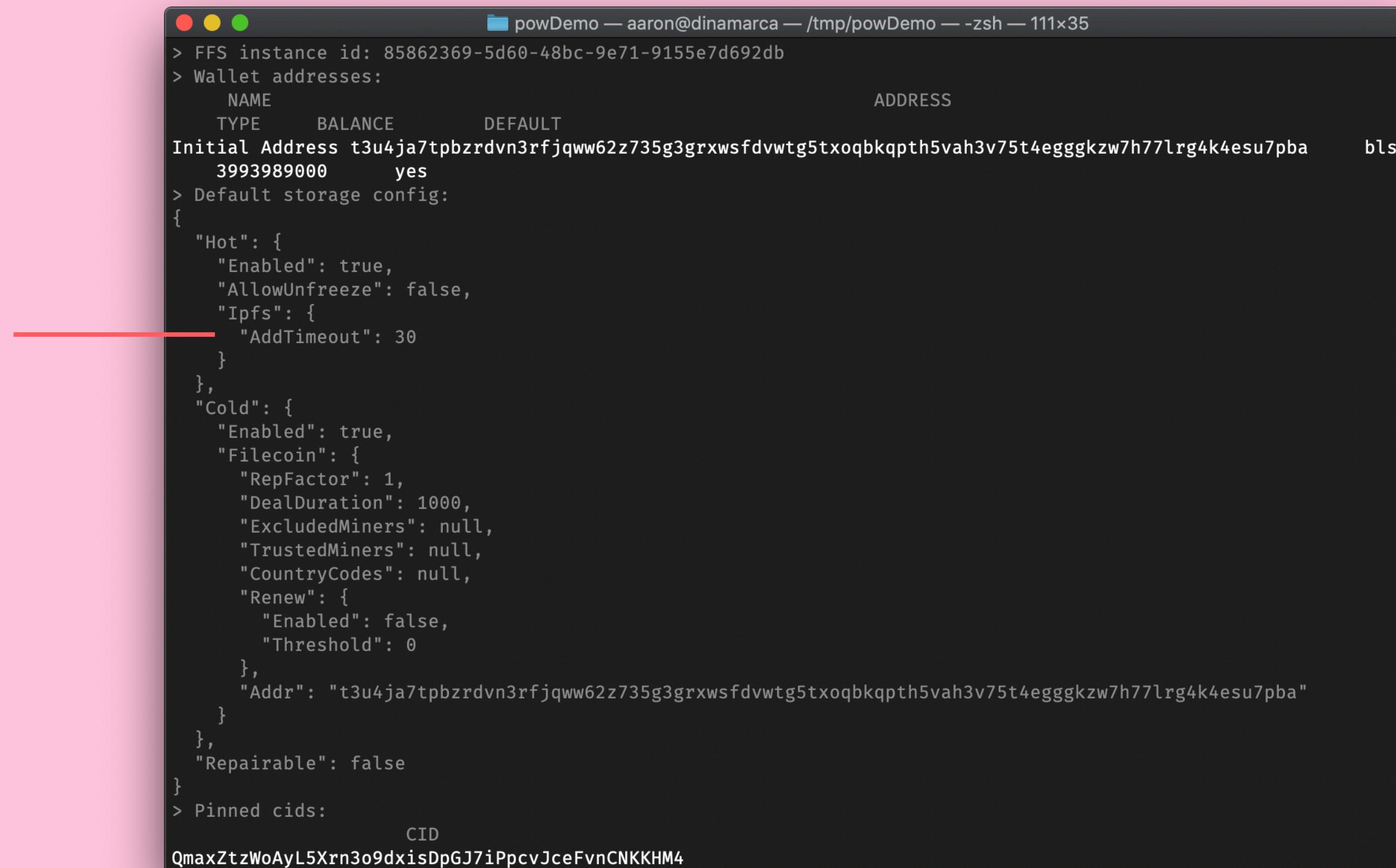
HOT

COLD



```
FFS instance id: 85862369-5d60-48bc-9e71-9155e7d692db
> Wallet addresses:
  NAME                               ADDRESS
  TYPE      BALANCE      DEFAULT
Initial Address t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpth5vah3v75t4egggkzw7h77lrg4k4esu7pba    bls
  3993989000          yes
> Default storage config:
{
  "Hot": {
    "Enabled": true,
    "AllowUnfreeze": false,
    "Ipfs": {
      "AddTimeout": 30
    }
  },
  "Cold": {
    "Enabled": true,
    "Filecoin": {
      "RepFactor": 1,
      "DealDuration": 1000,
      "ExcludedMiners": null,
      "TrustedMiners": null,
      "CountryCodes": null,
      "Renew": {
        "Enabled": false,
        "Threshold": 0
      },
      "Addr": "t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpth5vah3v75t4egggkzw7h77lrg4k4esu7pba"
    }
  },
  "Repairable": false
}
> Pinned cids:
  CID
QmaxZtzWoAyL5Xrn3o9dxisDpGJ7iPpcvJceFvnCNKKHM4
```

Mixed networks

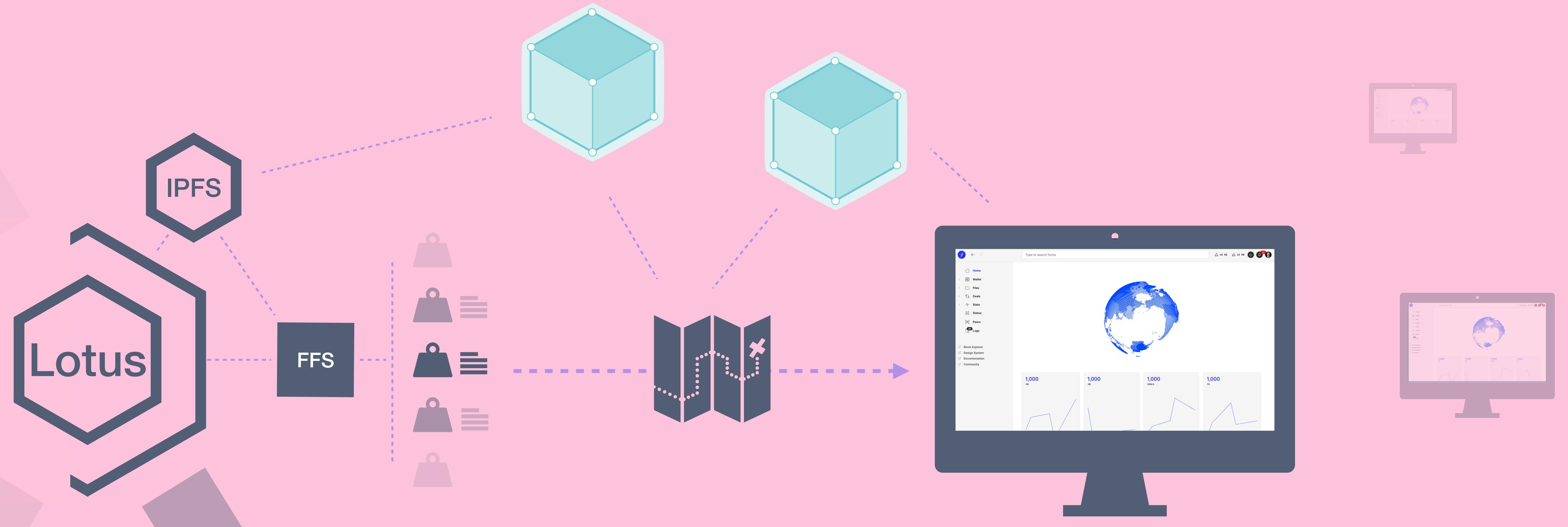


The screenshot shows a terminal window titled "powDemo — aaron@dinamarca — /tmp/powDemo — zsh — 111x35". The window displays the configuration of an FFS instance. It lists a wallet address with a balance of 3993989000 and sets default storage configurations for both "Hot" and "Cold" storage types. The "Hot" storage is configured with an IPFS add timeout of 30 seconds. The "Cold" storage is configured with a RepFactor of 1, a deal duration of 1000, and no excluded miners or trusted miners. The configuration also includes a renew section and a repairable flag set to false. A red horizontal line highlights the "Hot" storage configuration section.

```
> FFS instance id: 85862369-5d60-48bc-9e71-9155e7d692db
> Wallet addresses:
      NAME                               ADDRESS
      TYPE      BALANCE      DEFAULT
Initial Address t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpth5vah3v75t4egggkzw7h77lrg4k4esu7pba      bls
      3993989000      yes
> Default storage config:
{
  "Hot": {
    "Enabled": true,
    "AllowUnfreeze": false,
    "Ipfs": {
      "AddTimeout": 30
    }
  },
  "Cold": {
    "Enabled": true,
    "Filecoin": {
      "RepFactor": 1,
      "DealDuration": 1000,
      "ExcludedMiners": null,
      "TrustedMiners": null,
      "CountryCodes": null,
      "Renew": {
        "Enabled": false,
        "Threshold": 0
      },
      "Addr": "t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpth5vah3v75t4egggkzw7h77lrg4k4esu7pba"
    }
  },
  "Repairable": false
}
> Pinned cids:
      CID
QmaxZtzWoAyL5Xrn3o9dxisDpGJ7iPpcvJceFvnCNKKHM4
```

IPFS: addTimeout

Mixed networks



Other nodes on the network can help keep maintain your Hot layer!

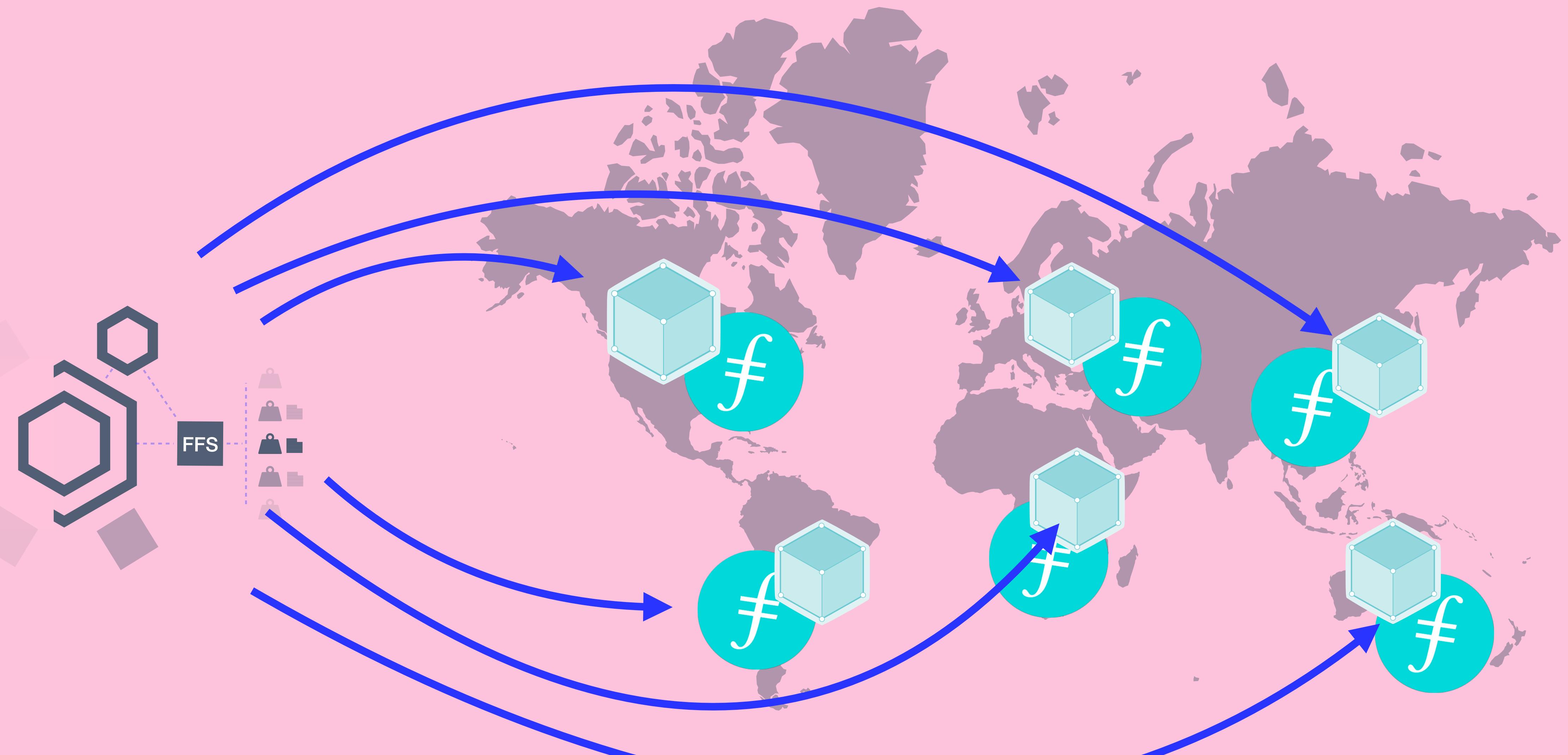
What's hotter than hot?

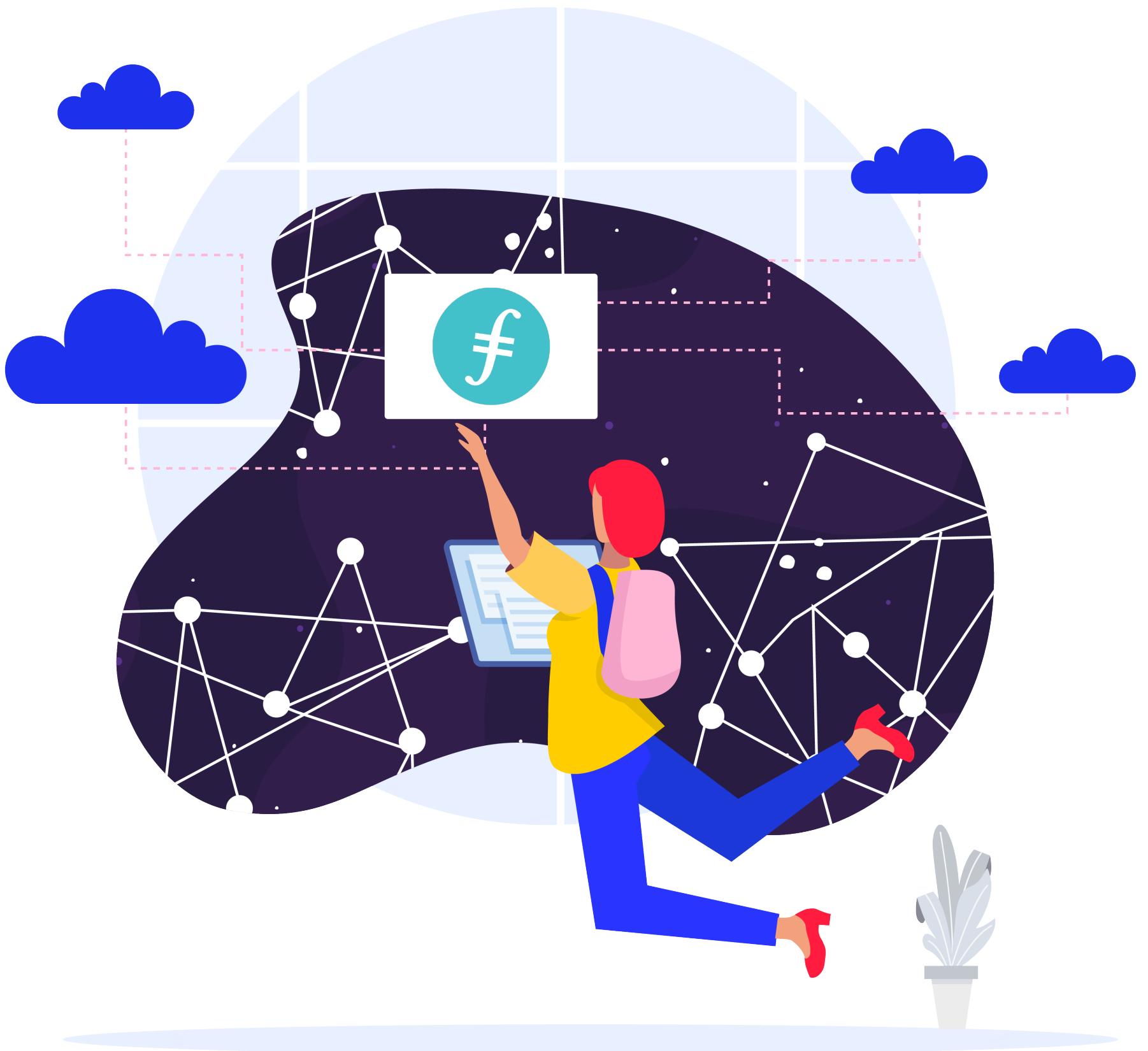


```
powDemo — aaron@dinamarca — /tmp/powDemo — -zsh — 111x35
> FFS instance id: 85862369-5d60-48bc-9e71-9155e7d692db
> Wallet addresses:
      NAME                               ADDRESS
      TYPE      BALANCE      DEFAULT
Initial Address t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpth5vah3v75t4egggkzw7h77lrg4k4esu7pba    bls
      3993989000      yes
> Default storage config:
{
  "Hot": {
    "Enabled": true,
    "AllowUnfreeze": false,
    "Ipfs": {
      "AddTimeout": 30
    }
  },
  "Cold": {
    "Enabled": true,
    "Filecoin": {
      "RepFactor": 1,
      "DealDuration": 1000,
      "ExcludedMiners": null,
      "TrustedMiners": null,
      "CountryCodes": null,
      "Renew": {
        "Enabled": false,
        "Threshold": 0
      },
      "Addr": "t3u4ja7tpbzrdvn3rfjqww62z735g3grxwsfdvwtg5txoqbkqpth5vah3v75t4egggkzw7h77lrg4k4esu7pba"
    }
  },
  "Repairable": false
}
> Pinned cids:
      CID
QmaxZtzWoAyL5Xrn3o9dxisDpGJ7iPpcvJceFvnCNKKHM4
```

Push to external pinning services:
Flaming Hot

What's hotter than hot?





What can you build with the
Powergate?

Powergate Pinning Service

Filecoin Network Explorer Profile Network Pin Gallery

Pinning Service

1. Select File

No file selected.

2. Configure Storage Options

Add to Public IPFS Network
 Allow Un-Freeze
Timeout (in seconds): 30

Add to Filecoin Network
Replication Factor: 1

Minimum Deal Duration (in seconds): 1000

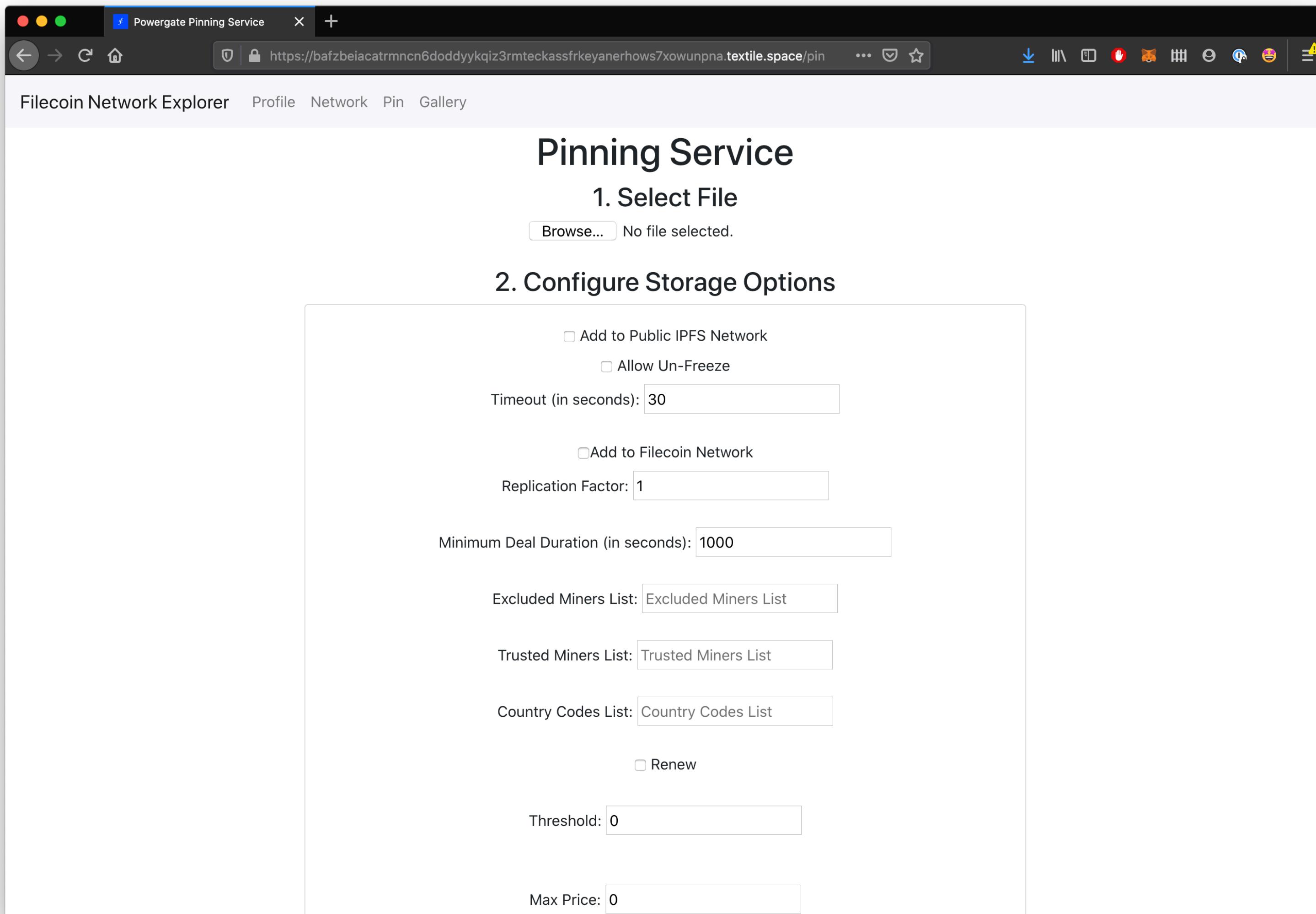
Excluded Miners List: Excluded Miners List

Trusted Miners List: Trusted Miners List

Country Codes List: Country Codes List

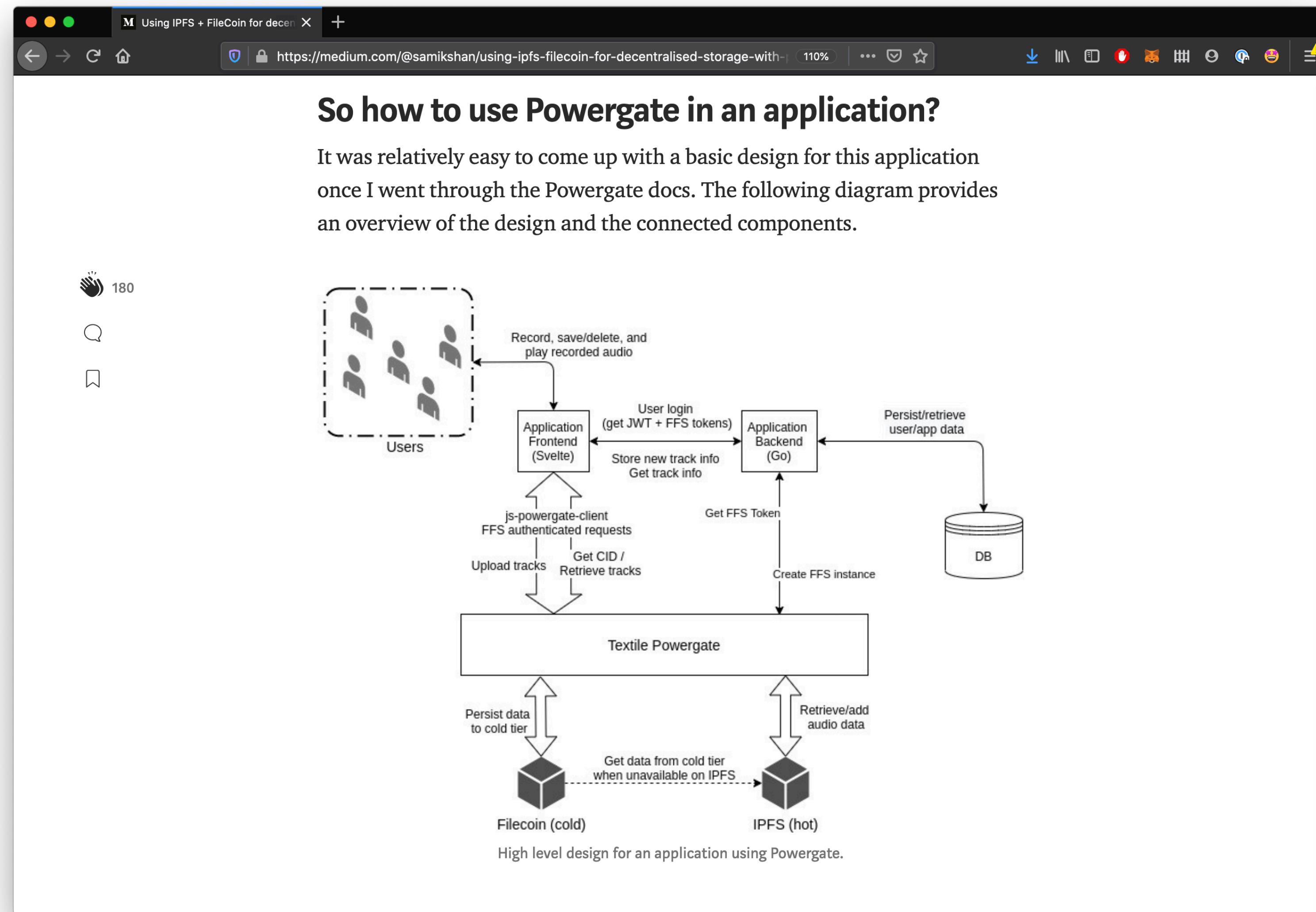
Renew
Threshold: 0

Max Price: 0



github.com/filecoin-shipyard/powergate-pinning-service

twitter.com/vasa_develop

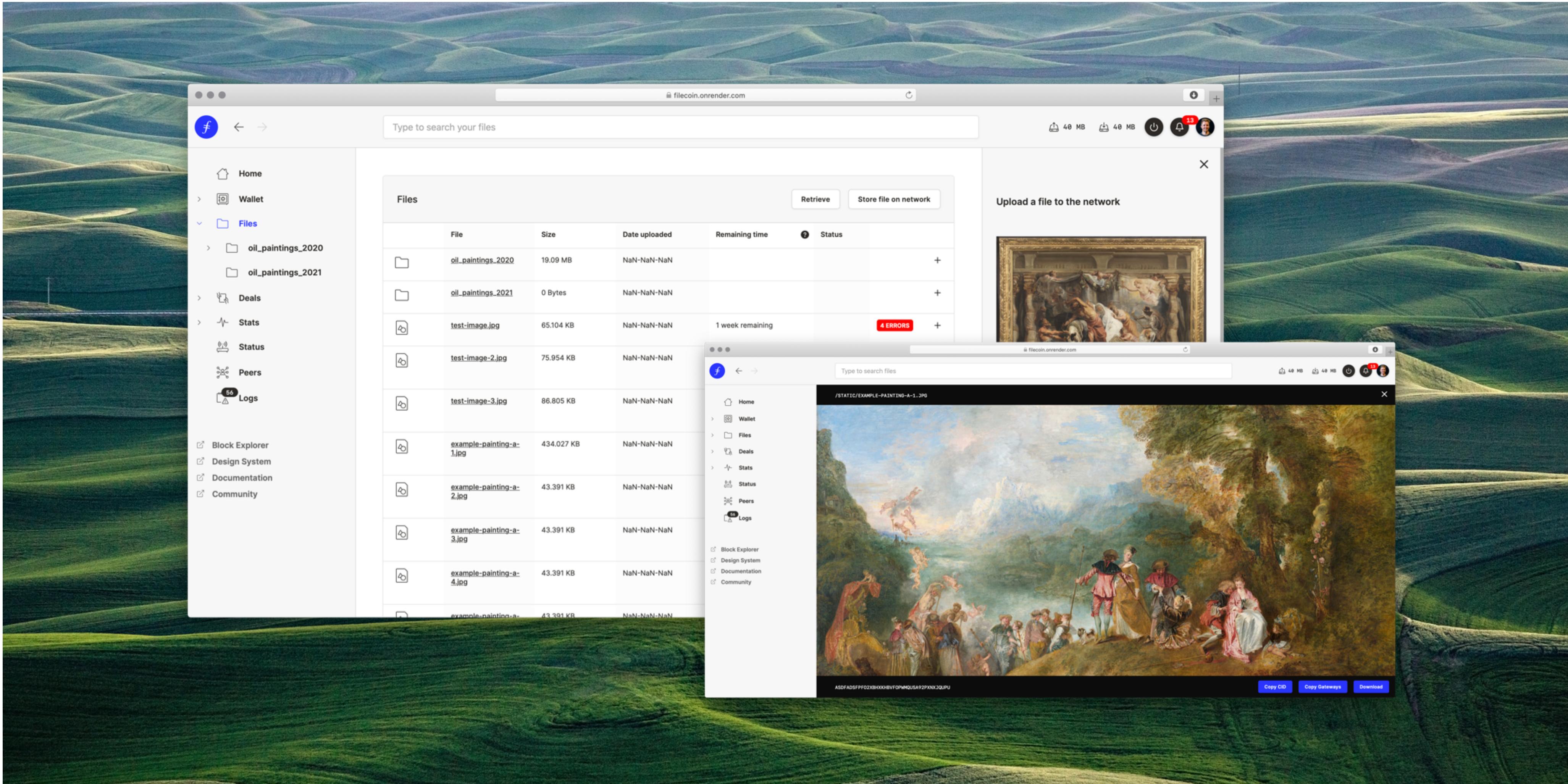


tinyurl.com/samikshan-pow

twitter.com/samikshan

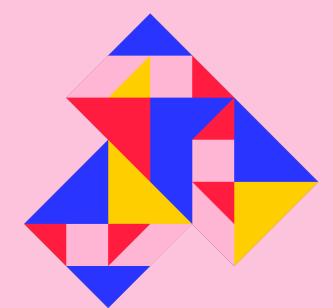
The screenshot shows a web browser window with the URL `127.0.0.1:3000/user`. The title bar includes the Textile logo, the text "Textile + Node Starter", and the user information "User hi@asutula.com". On the right side of the header, there are "Logout" and other standard browser controls. The main content area has a heading "FFS (79e68d70-edf9-4920-9c54-c800ac3e5ca1)" followed by the subtext "Data for your FFS instance." Below this, a section titled "Instance Info" contains a large JSON object representing the configuration of the FFS instance. The JSON is as follows:

```
{  
  "id": "79e68d70-edf9-4920-9c54-c800ac3e5ca1",  
  "defaultConfig": {  
    "hot": {  
      "enabled": true,  
      "allowUnfreeze": false,  
      "ipfs": {  
        "addTimeout": 30  
      }  
    },  
    "cold": {  
      "enabled": true,  
      "filecoin": {  
        "repFactor": 1,  
        "dealMinDuration": 1000,  
        "excludedMinersList": [],  
        "trustedMinersList": [],  
        "countryCodesList": [],  
        "renew": {  
          "enabled": false,  
          "threshold": 0  
        },  
        "addr": "t3rjl2btcopzilnvnepwfjj4ybs3byv456jijzy",  
        "maxPrice": 0  
      }  
    },  
    "repairable": false  
  },  
  "balancesList": [  
    {  
      "addr": {  
        "name": "Initial Address",  
        "addr": "t3rjl2btcopzilnvnepwfjj4ybs3byv456jijzy",  
        "type": "bls"  
      },  
      "balance": 4000000000000000  
    }  
  ]  
}
```



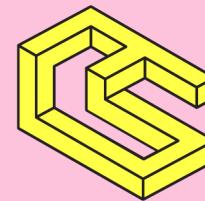
github.com/filecoin-project/slate

twitter.com/wwwjim



textile

OB1



ChainSafe



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<https://tinyurl.com/hackfs-pow>

