STROMDAO

A consensus system for energy markets

Thorsten Zoerner

What is a grid connection?

1. Forget bilateral activities
2. Forget Entity Relation Model

Transactions are activities that alter the consensus.

Only that what matters for everyone, matters.

Who gets to play on the grid?

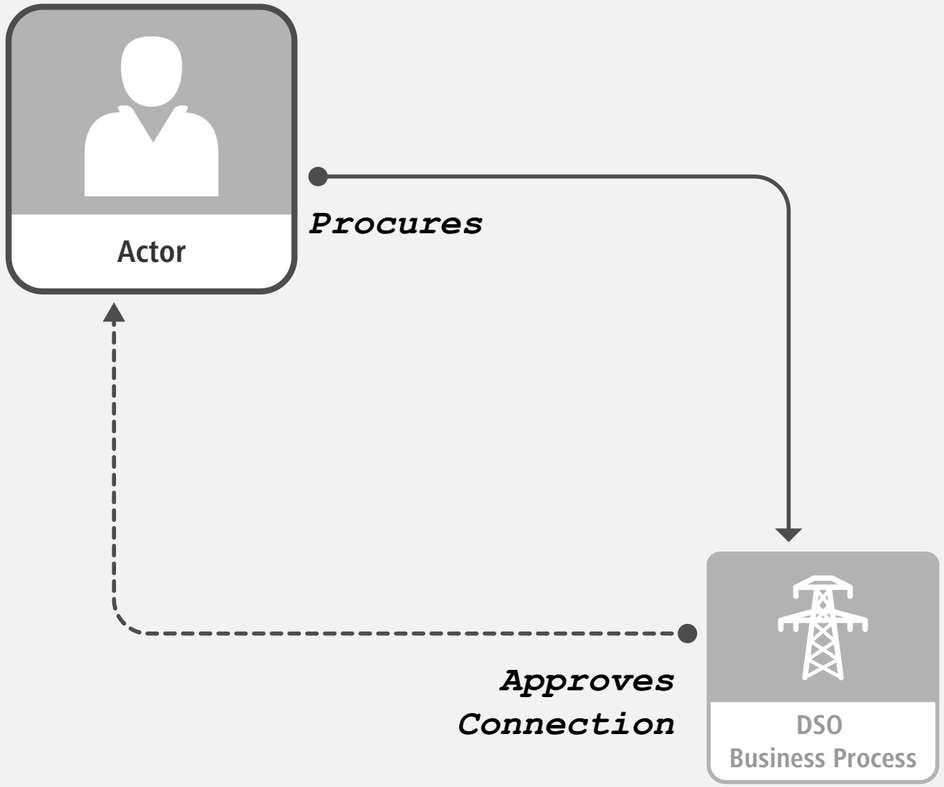
An entity qualifies as a ***Grid Actor*** only,
if there is ***proof*** that:

1. A *trusted* Distribution Service and
2. A *trusted* Meter Point Operation

are being provided.

Only what matters for all, matters at all.

There are processes that Distribution Service and Meter Point Operators comply with.



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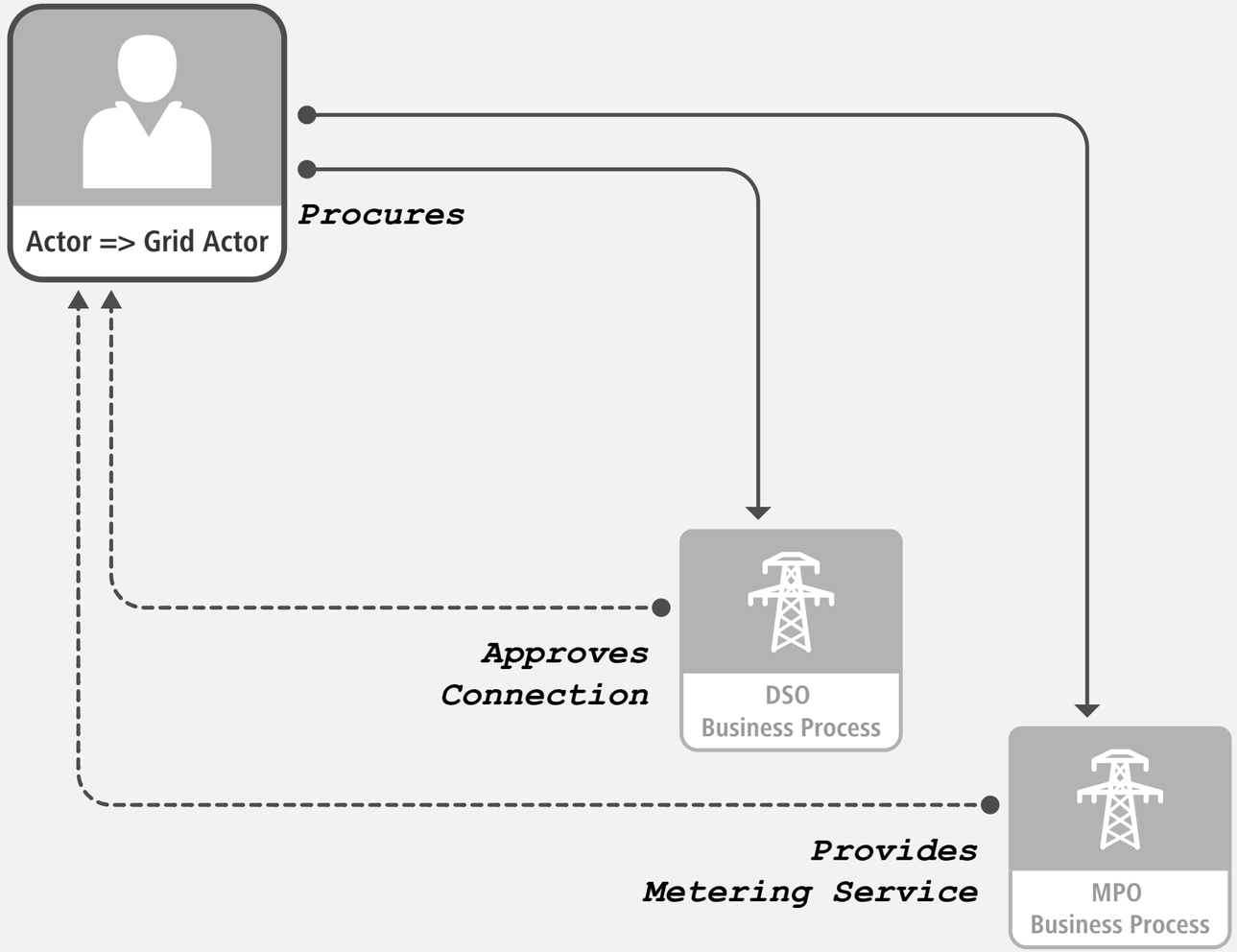
There are processes that Distribution Service and Meter Point Operators comply with.

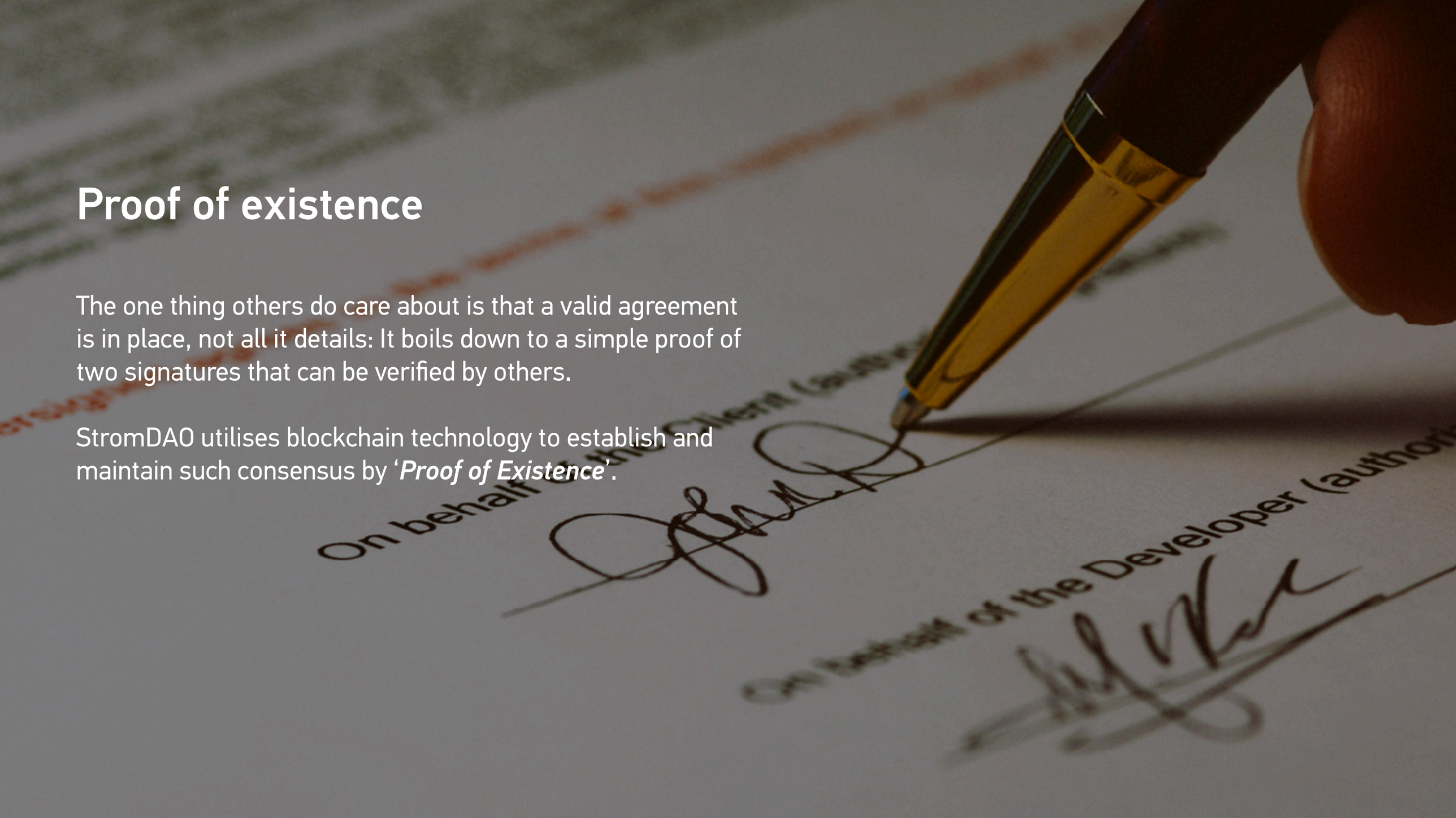
But it is all bilateral: No one else actually cares about this.



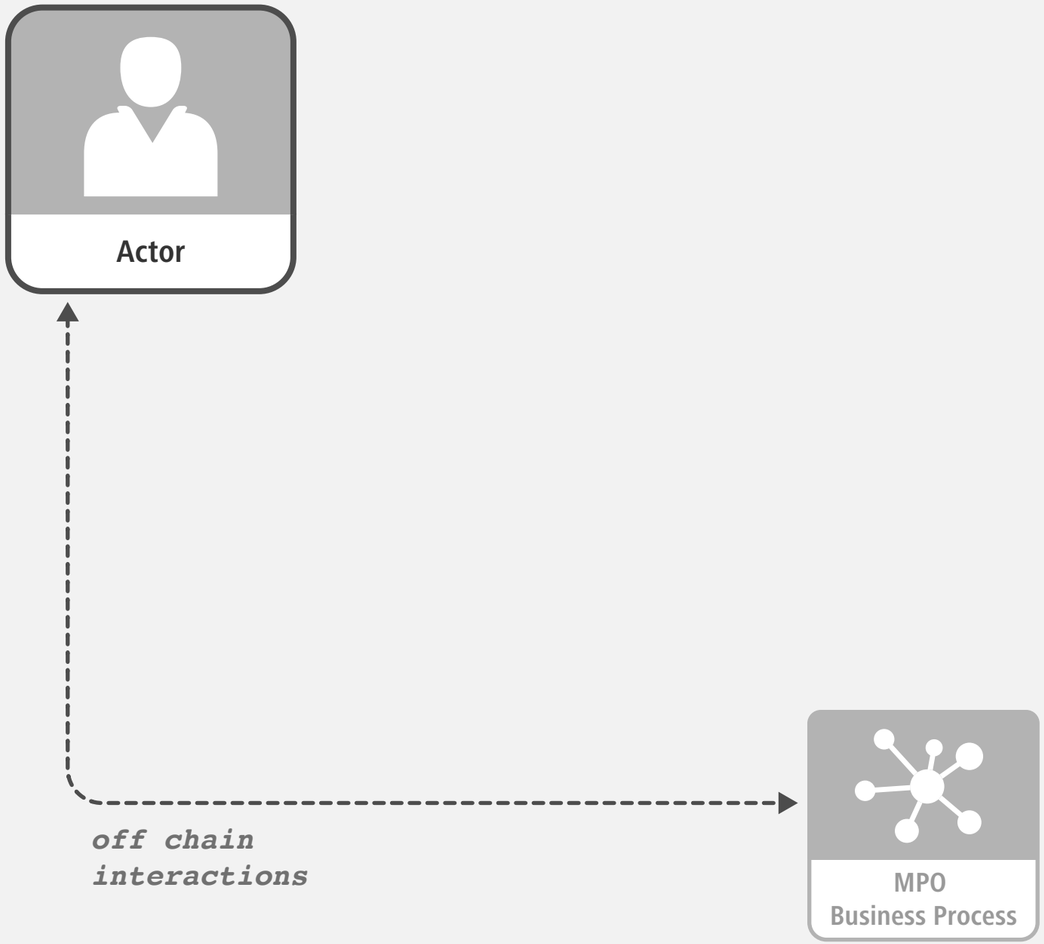
Proof of existence

The one thing others do care about is that a valid agreement is in place, not all it details: It boils down to a simple proof of two signatures that can be verified by others.

StromDAO utilises blockchain technology to establish and maintain such consensus by '***Proof of Existence***'.

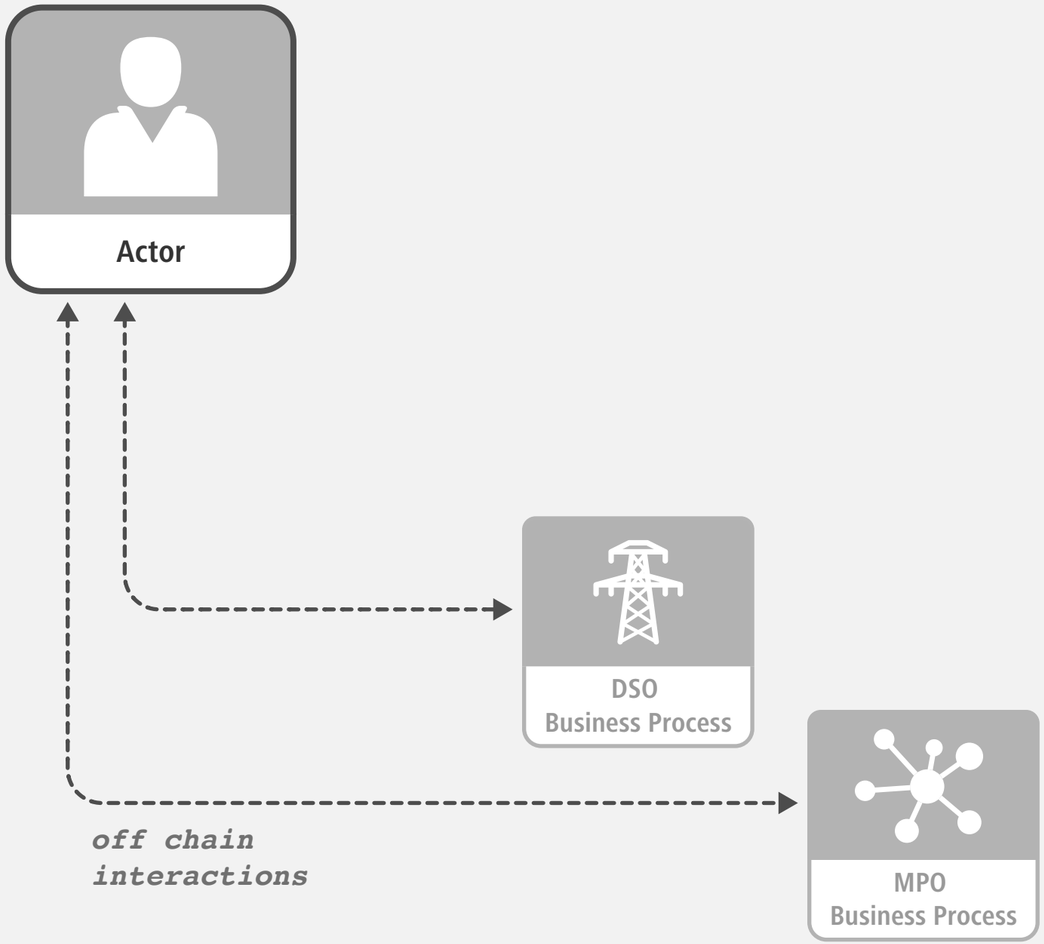


Forget bilateral processes.

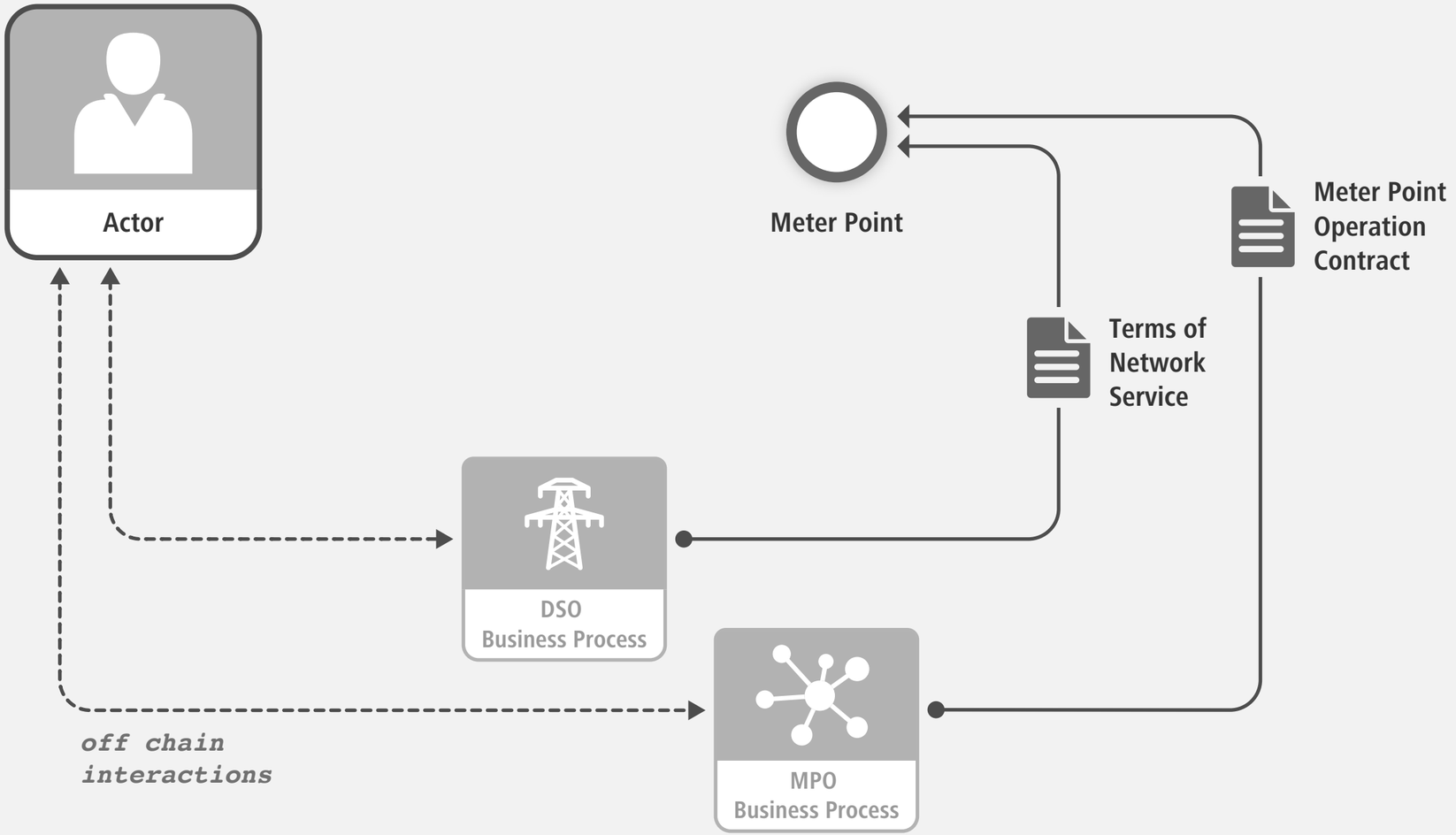


Forget bilateral processes.

Don’t worry about entity relations.



Instead, think about stateless self enforcing agreements...



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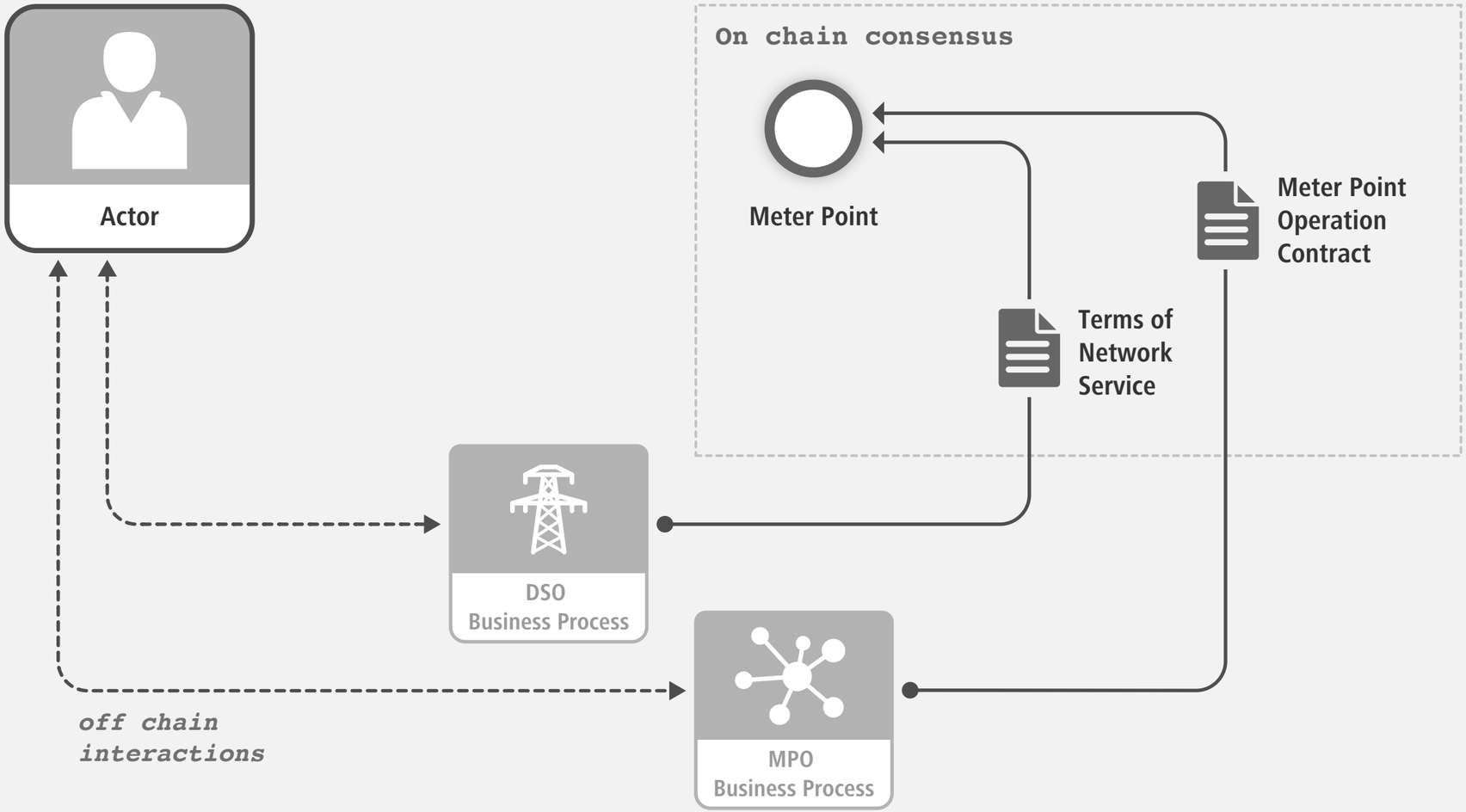

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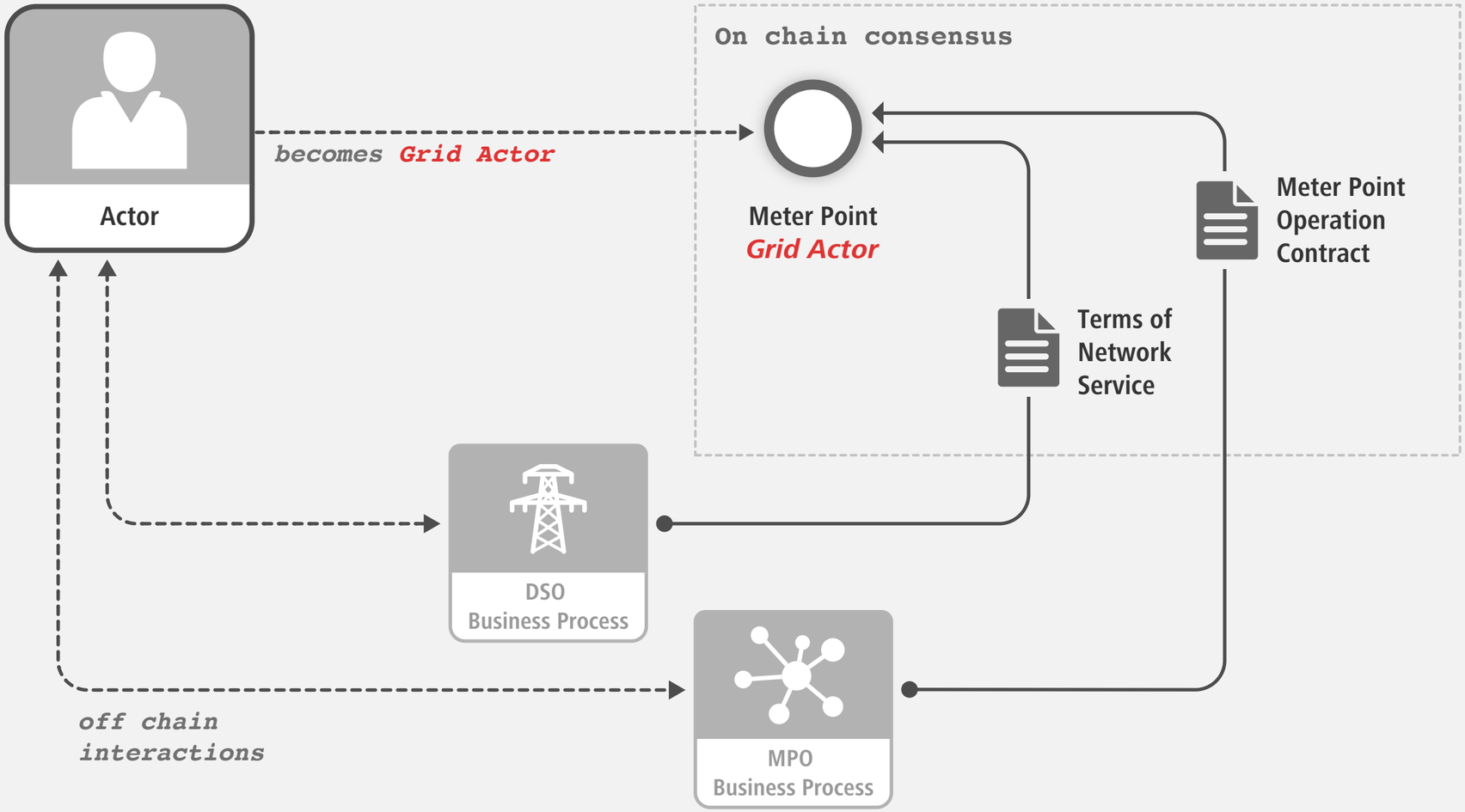
...what matters is verifiable proof that mutual agreement has been established, not what it details.

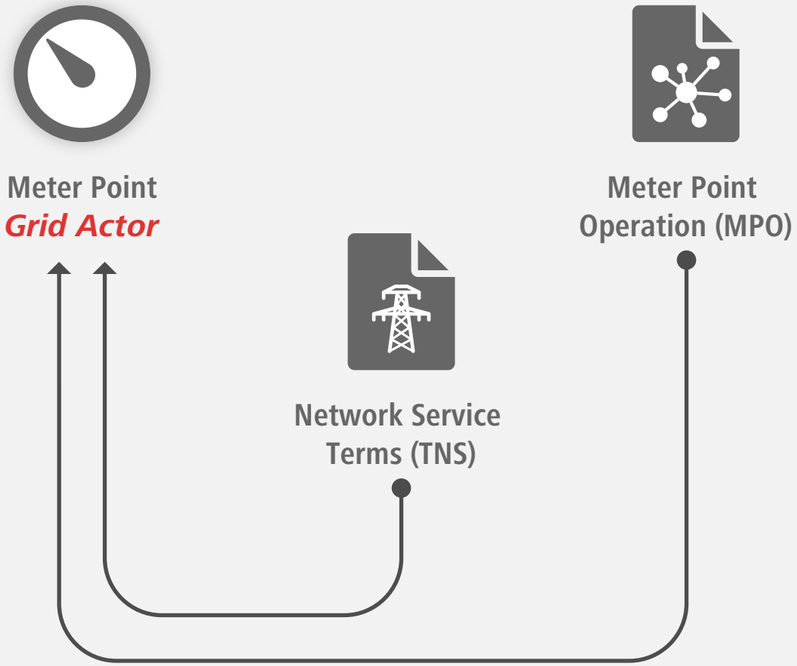
Proof of existence is sufficient.



Gridborne

An actor is ***gridborne*** when a valid TNS and MPO contract is in place.

`On chain consensus`



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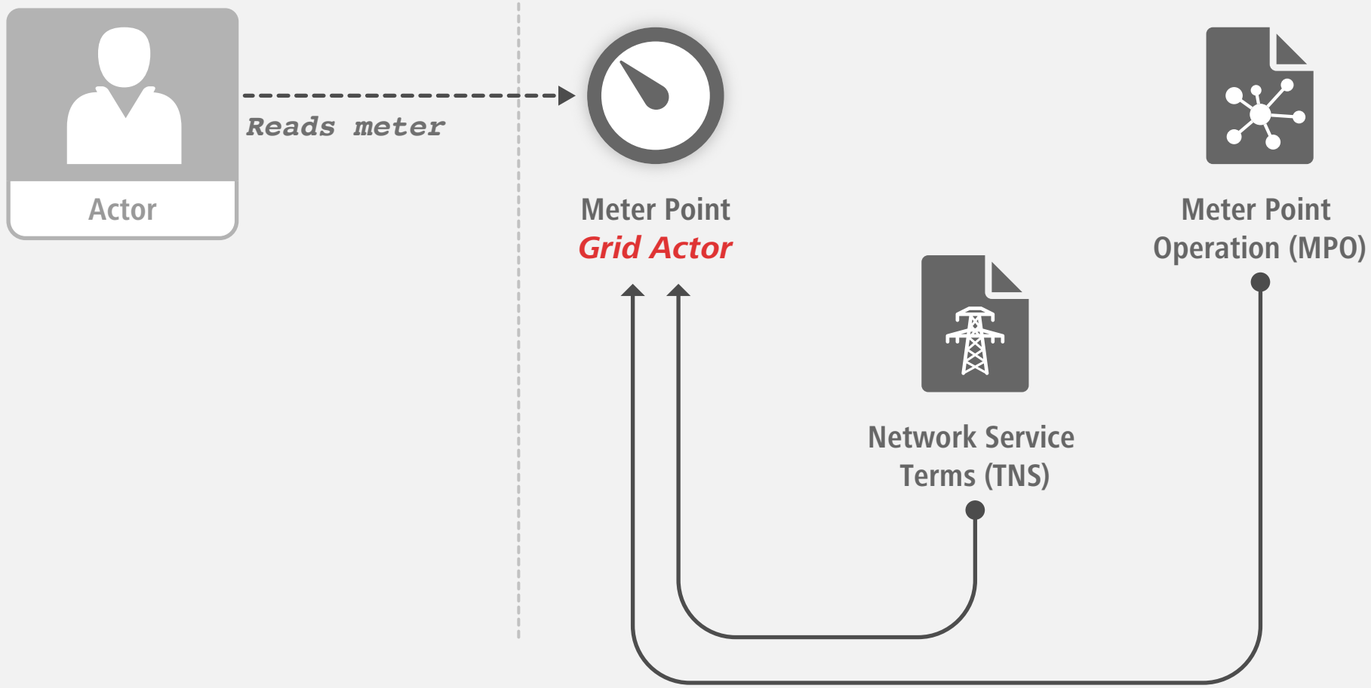

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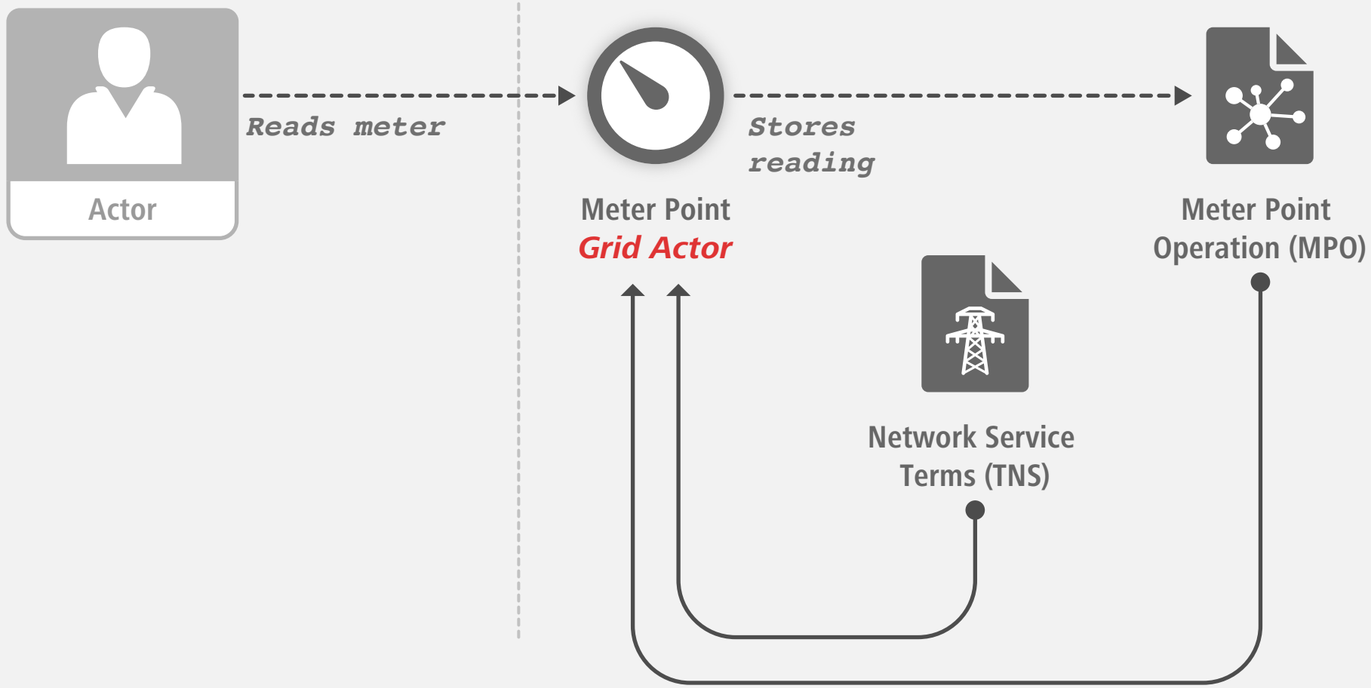
On chain consensus

The MPO contract is now ***authorised to underwrite*** power deliverables with any meter reading provided.



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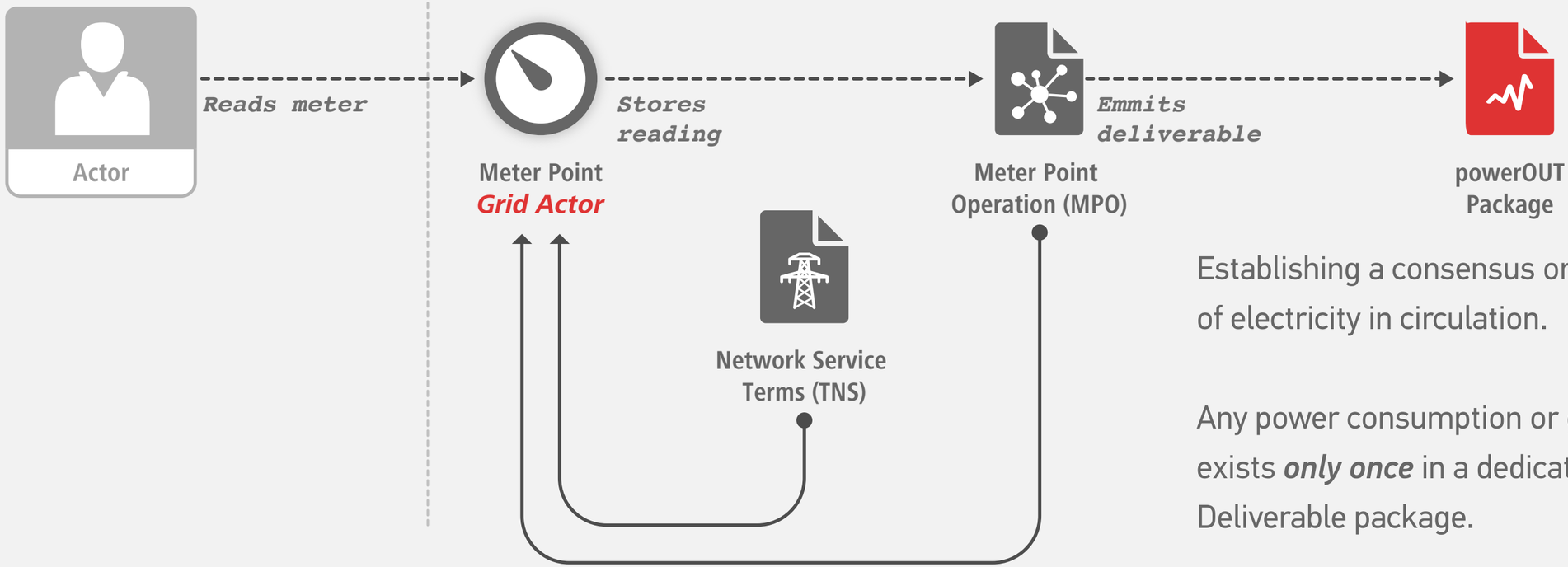

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Establishing a consensus on the amount of electricity in circulation.

Any power consumption or generation exists ***only once*** in a dedicated Power Deliverable package.

Ownership

The notion of ownership is an important concept in blockchain terminology.

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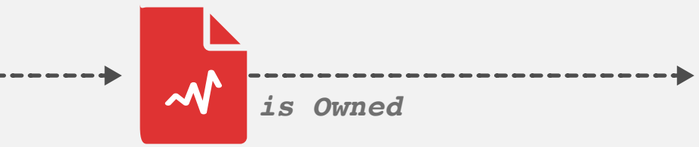
It is being utilised to correlate individual Actors with Power Deliverable packages.



powerOUT
Package

```
contract Delivery is owned {
                    address public owner;
                    address public dso;
                    uint256 public role;
                    uint256 public startTime;
                    uint256 public endTime;
                    uint256 public power;
                    address public resolution;
                    ...
}
```

Ownership

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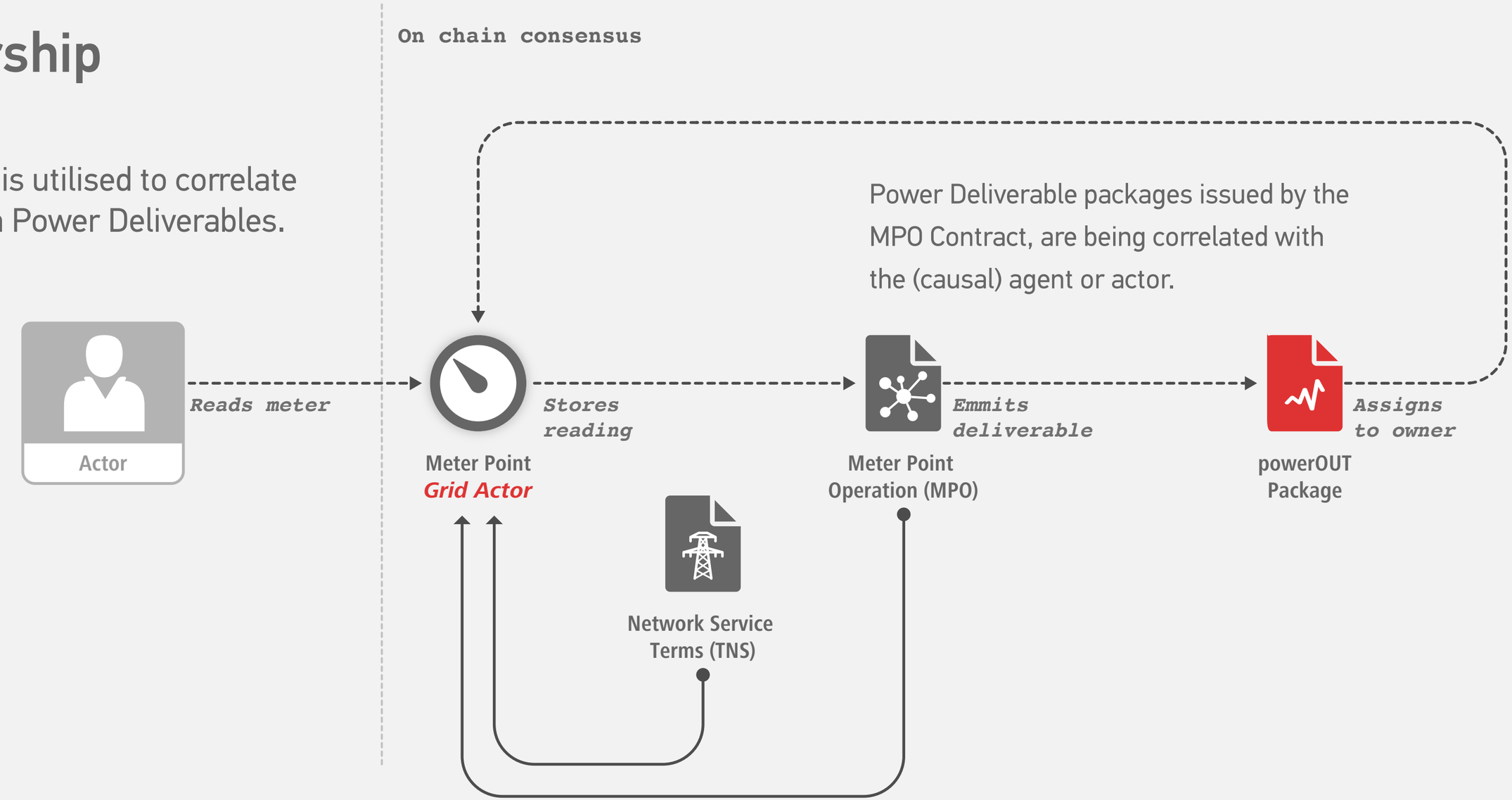
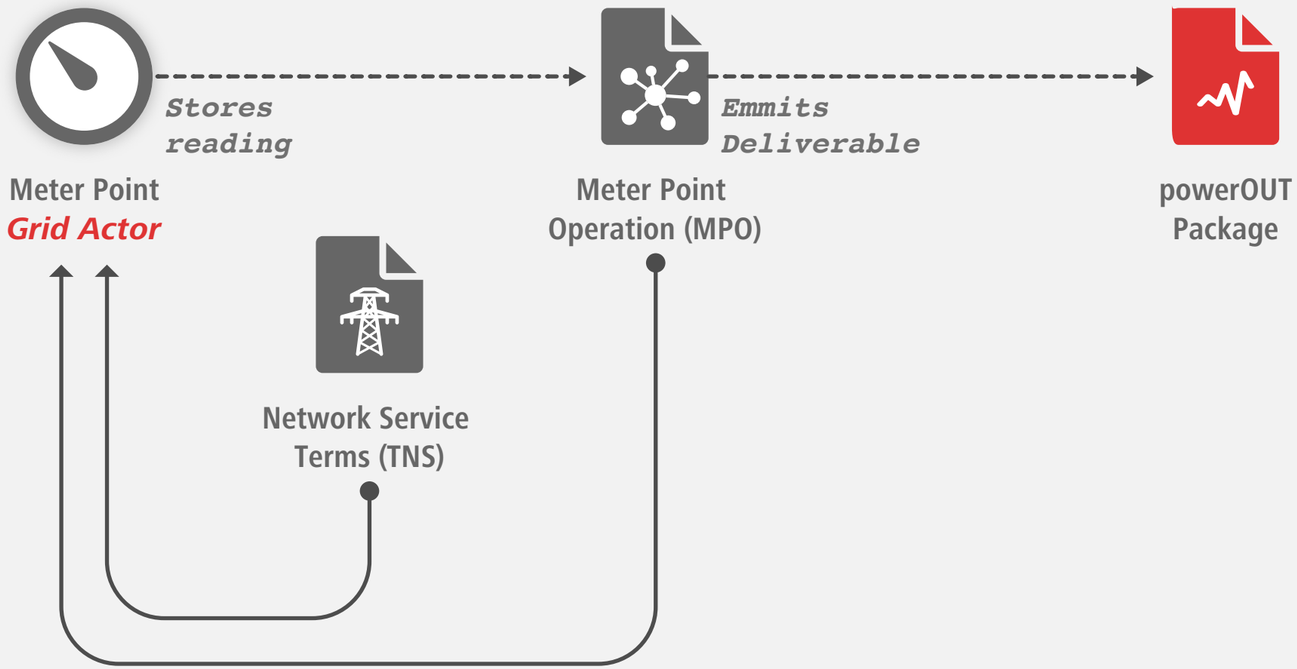


What if the actor does’t want to care about it?

Delegating ownership

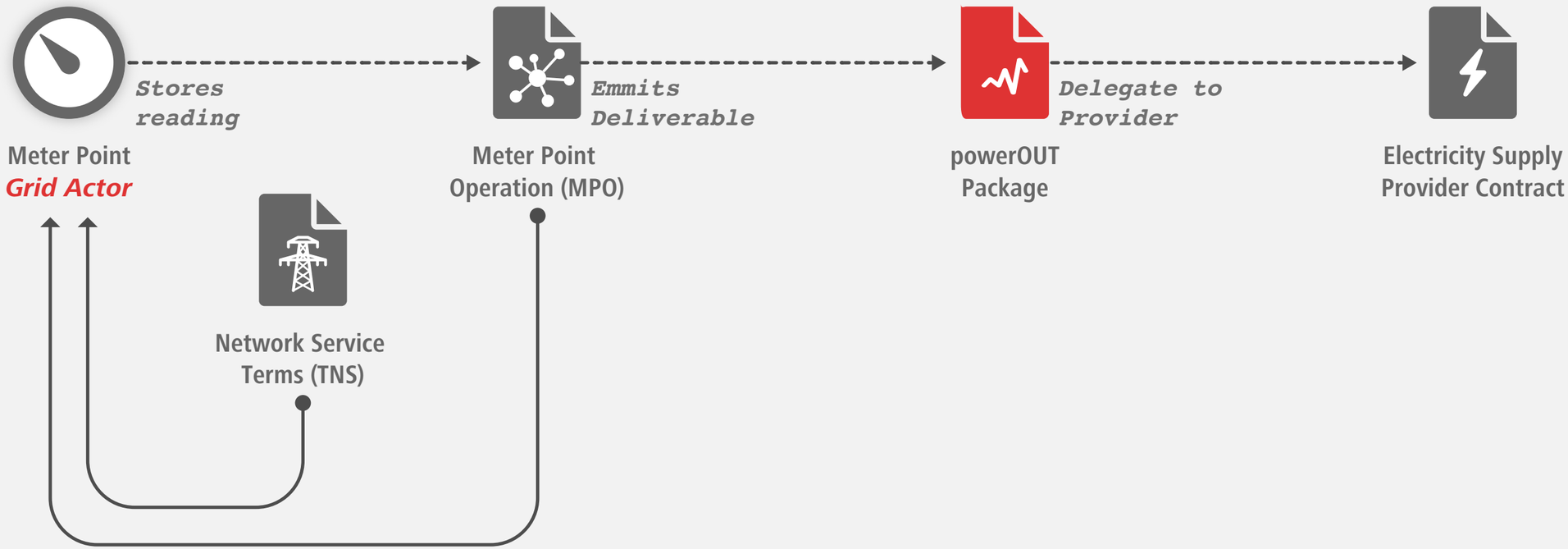
Power Deliverable packages may be delegated to a ***third party*** for aggregation and clearing.



Delegating ownership

Power Deliverable packages may be delegated to a ***third party*** for aggregation and clearing.

Packages can be delegated to an appropriate Electricity Supply Provider Contract.



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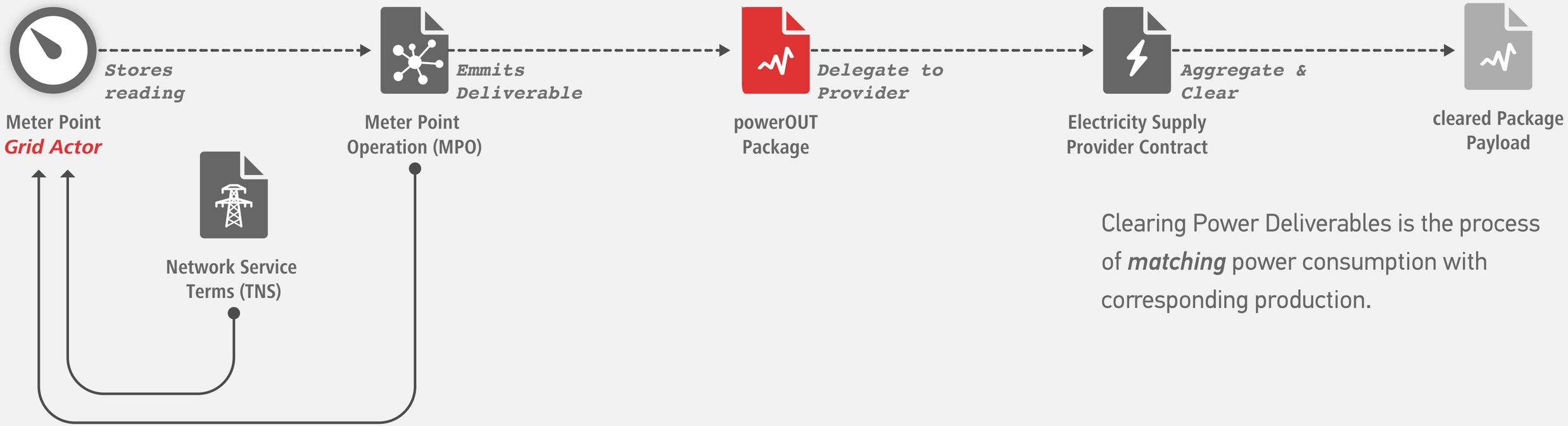
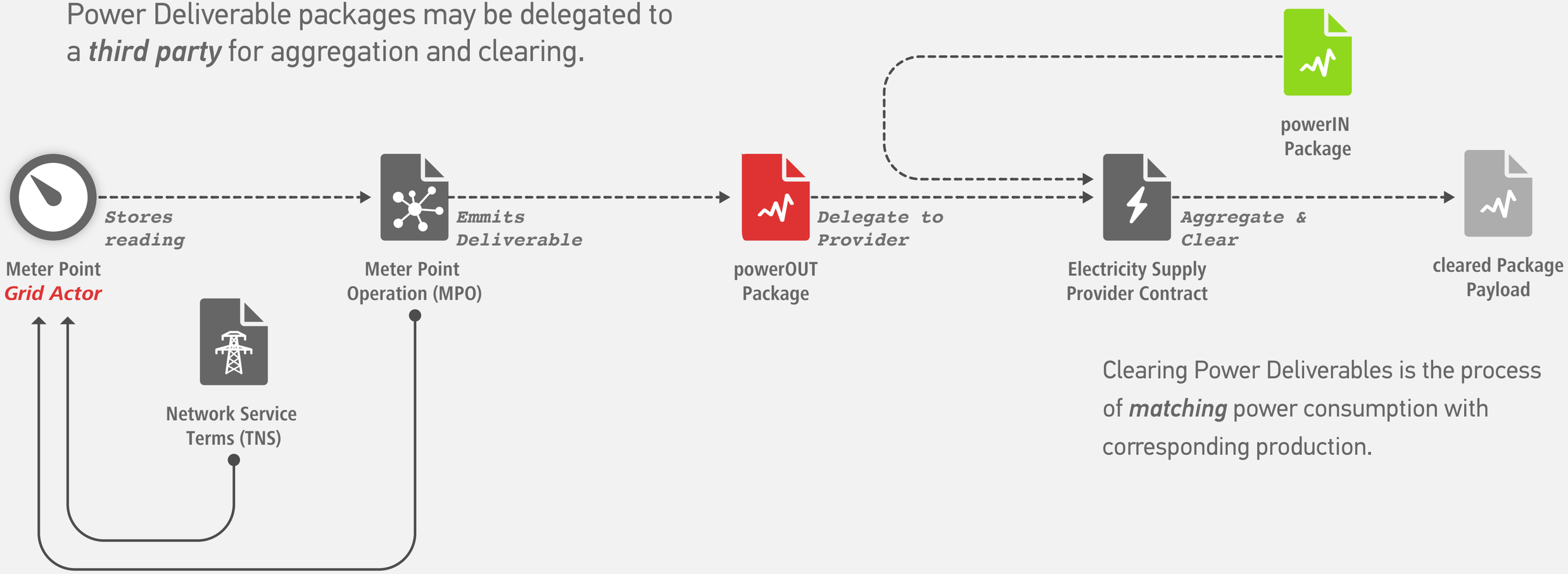


Clearing Power Deliverables is the process of ***matching*** power consumption with corresponding production.

Delegating ownership

Power Deliverable packages may be delegated to a ***third party*** for aggregation and clearing.

The responsibility of sourcing appropriate sets of ***corresponding*** Deliverables is delegated to the Provider Contract.



Clearing Power Deliverables is the process of ***matching*** power consumption with corresponding production.

TODO

TODO TODO TODO.

LET'S DO IT...

1. Create a new actor
2. Ensure Meter-Point-Operation Contract is signed
3. Ensure DSO-Contract is signed
4. Push some Readings
5. Check creation of Deliverables

>>Start Business-Object Demo (localhost:8000)

TODO

TODO TODO TODO.