Architecture Series: Episode 2

Tokens and Trades

Community Call 30rd June 2021

FIREFLY

Token Exchanges

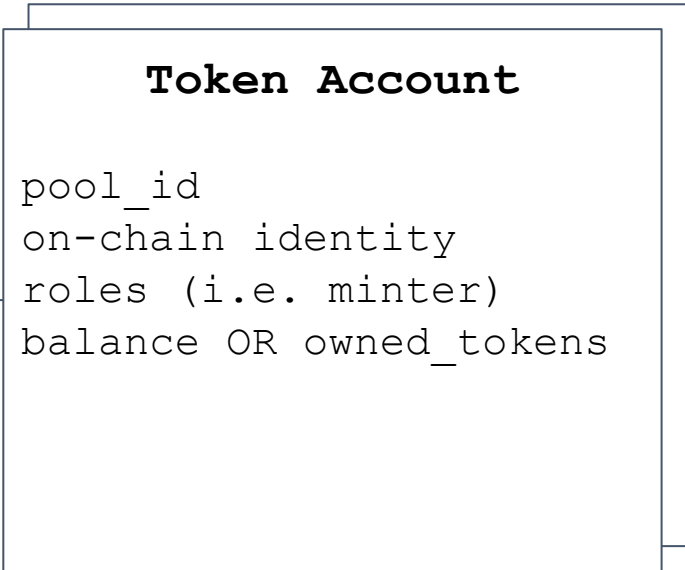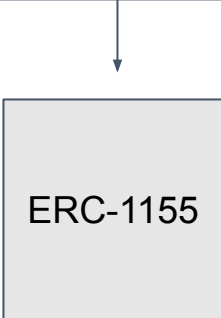| Tokens **for** Tokens	Tokens **for** Data
On-Chain On-Chain	On-Chain Off-Chain

- atomic swap
- hash time locked contract (HTLC) or similar

- non-atomic
- can choose to protect one party
- can involve 3rd party for pre-verification OR legal recourse

Token Resources

Token Pool
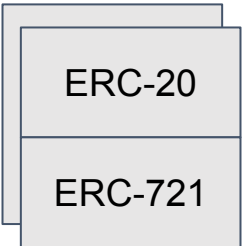
```
pool_id
contract
is_fungible
token_base_uri
```

Token Account

```
pool_id
on-chain identity
roles (i.e. minter)
balance OR owned_tokens
```

```
POST /tokens
GET /tokens
GET /tokens/:id
GET /tokens/:id/accounts
```

Token Plugin

ERC-1155   OR   ERC-20

                         ERC-721   OR...

Simple Transfer (one-way)

`POST /tokens/:id/transfer`

Token Transfer

```
from_account
to_account
amount OR tokens
data
```

Token Account

```
pool_id
on-chain identity
roles (i.e. minter)
balance OR owned_tokens
```

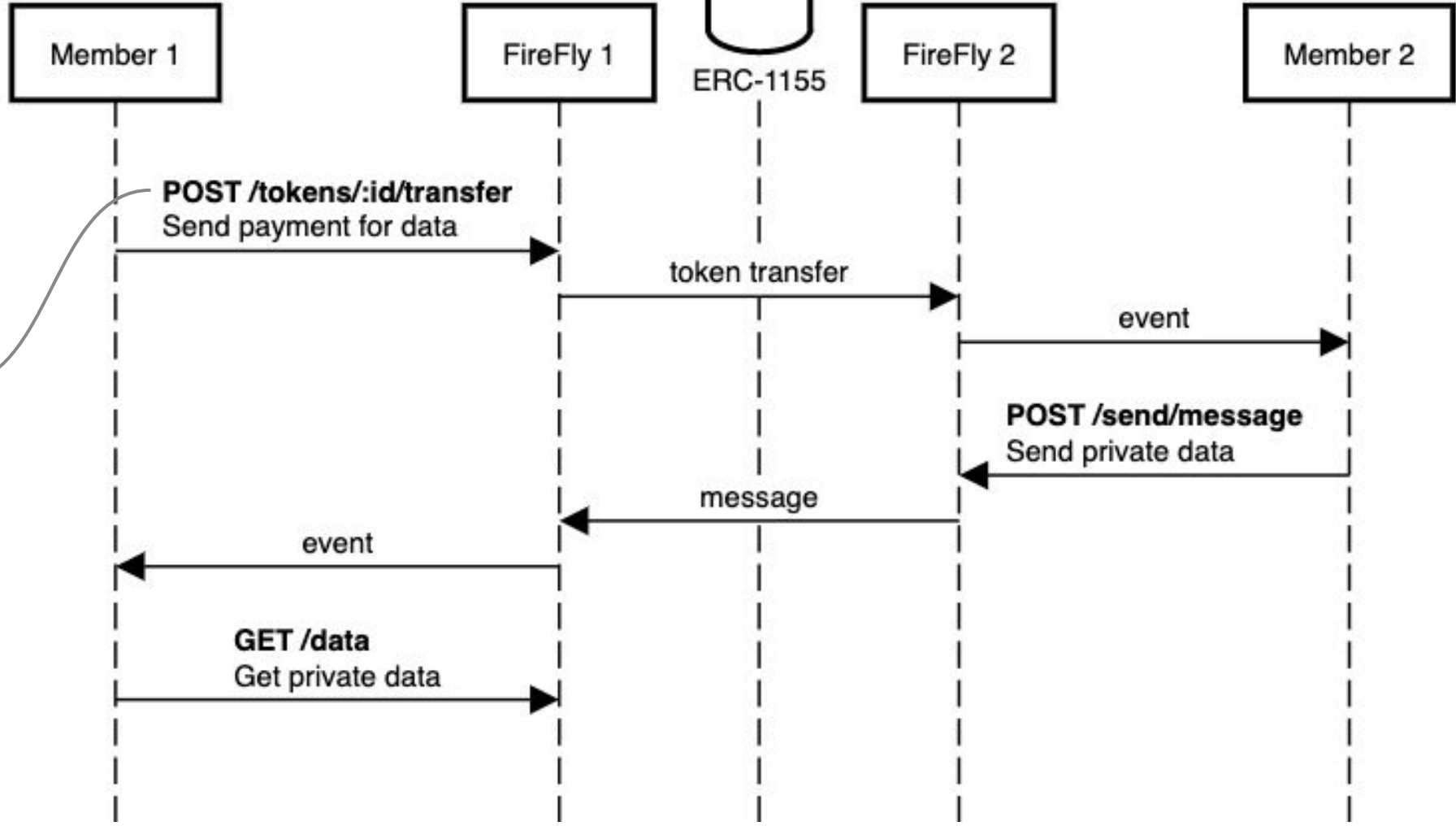Token Plugin

ERC-1155   OR   ERC-20 / ERC-721   OR…
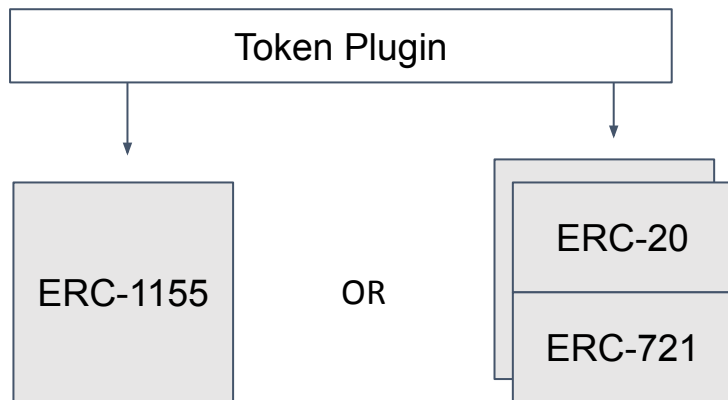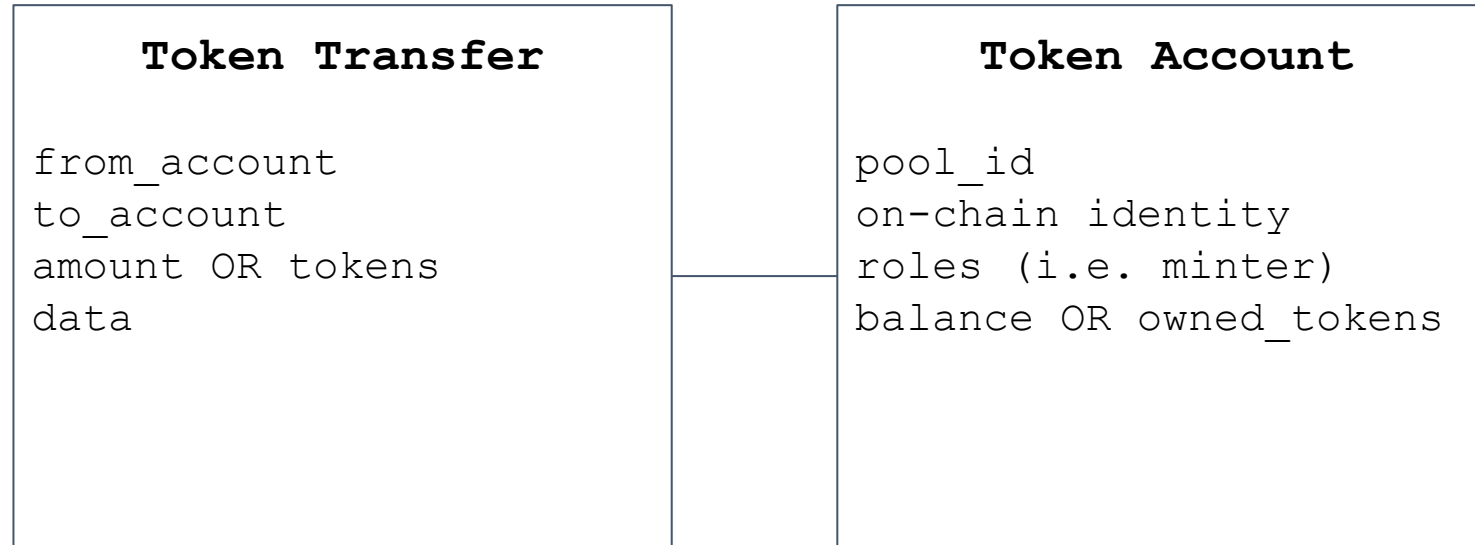
The "data" item here is opaque to FireFly core - but could contain message/data identifiers or other application-specific data related to the transfer.

The token plugin decides how to hash/pin this data alongside the token transfer.

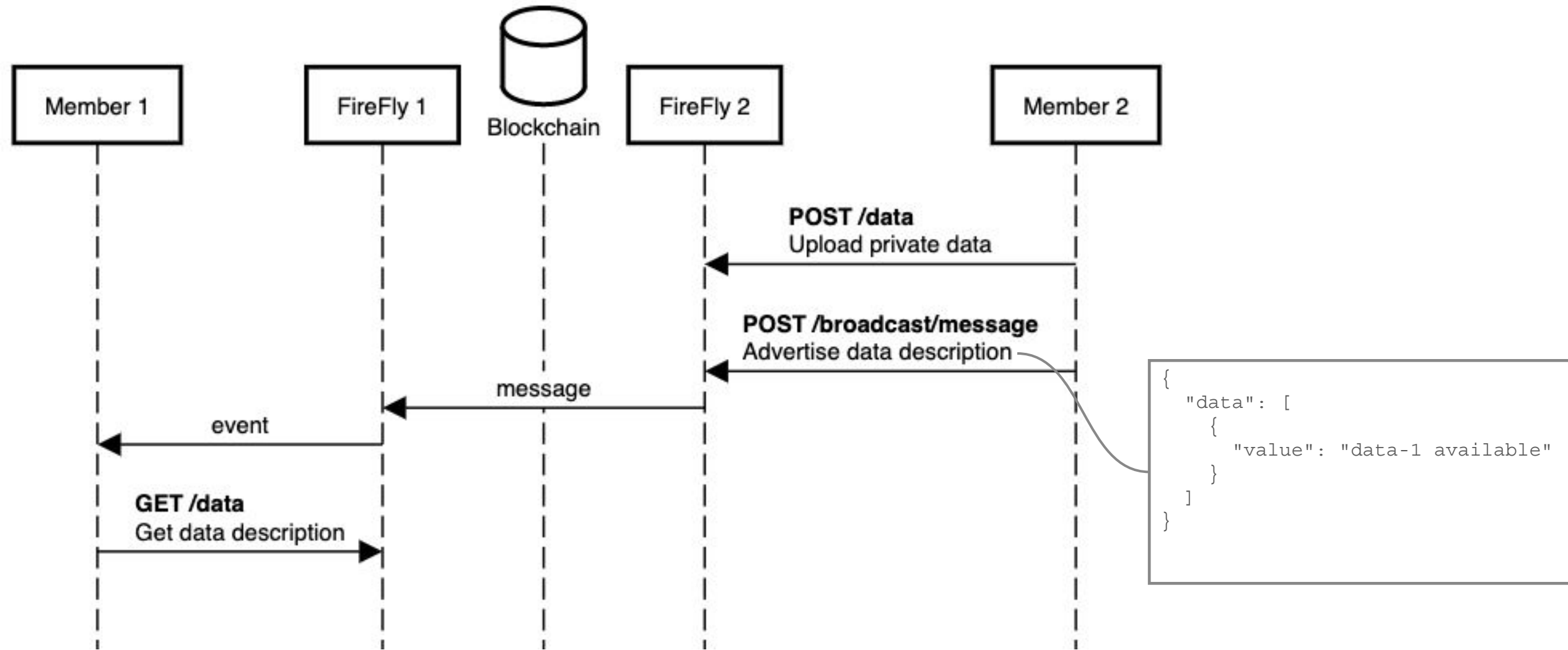# Exchange On-Chain for Off-Chain (tokens for data, non-atomic)

```
{
  "from": "member-1",
  "to": "member-2",
  "pool": "pool-1",

  "amount": 2,
      OR
  "tokens": [1, 2],

  "data": [
    {
      "value": "data-1 request"
    }
  ]
}
```
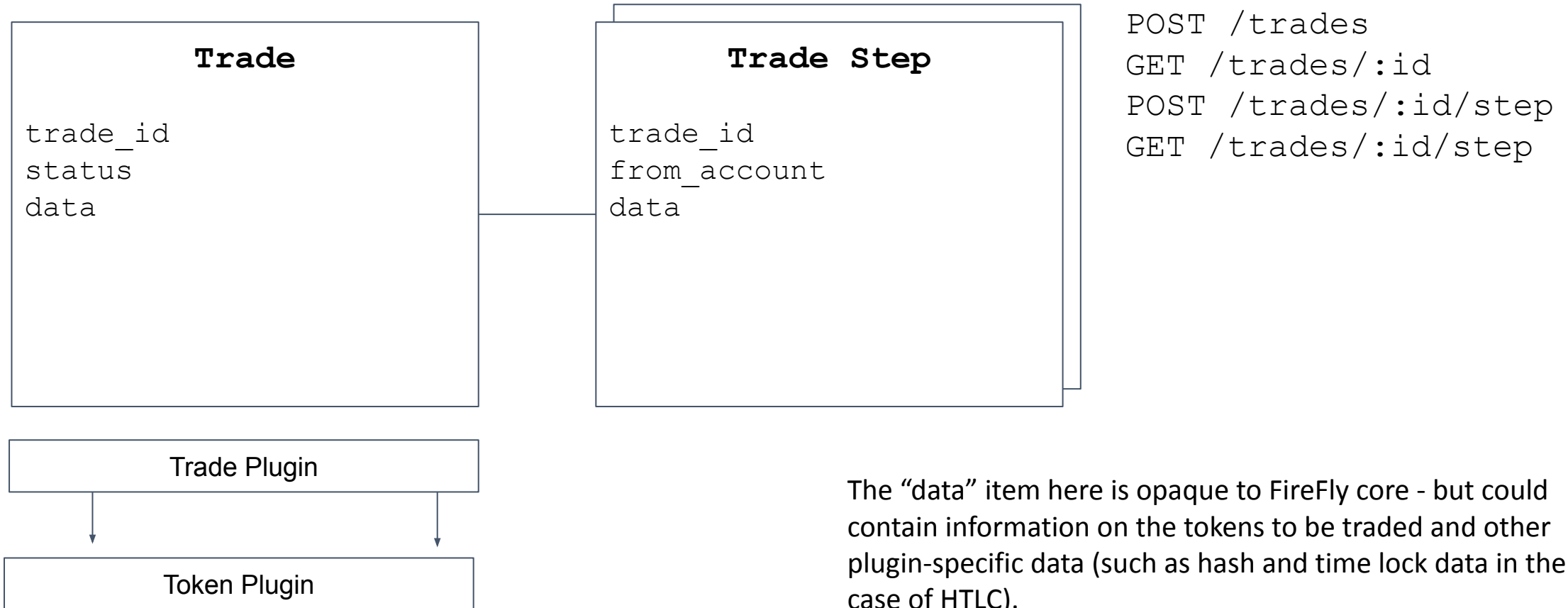
Member 1   **FireFly 1**   ERC-1155   **FireFly 2**   **Member 2**

POST /tokens/:id/transfer
Send payment for data

token transfer

event

POST /send/message
Send private data

message

event

GET /data
Get private data

FIREFLY

Advertise Data Availability**

POST /data
Upload private data

POST /broadcast/message
Advertise data description

message

event

GET /data
Get data description

```
{
    "data": [
        {
            "value": "data-1 available"
        }
    ]
}
```

*** implied as a pre-requisite to token exchange*

Trade (two-way)

Trade

```
trade_id
status
data
```

Trade Step

```
trade_id
from_account
data
```

```
POST /trades
GET /trades/:id
POST /trades/:id/step
GET /trades/:id/step
```

Trade Plugin

Token Plugin

The "data" item here is opaque to FireFly core - but could contain information on the tokens to be traded and other plugin-specific data (such as hash and time lock data in the case of HTLC).

The trade plugin decides how to pin this data through the steps of the trade, and communicates with the token plugin regarding completed transfers.

Exchange On-Chain for On-Chain (atomic swap)
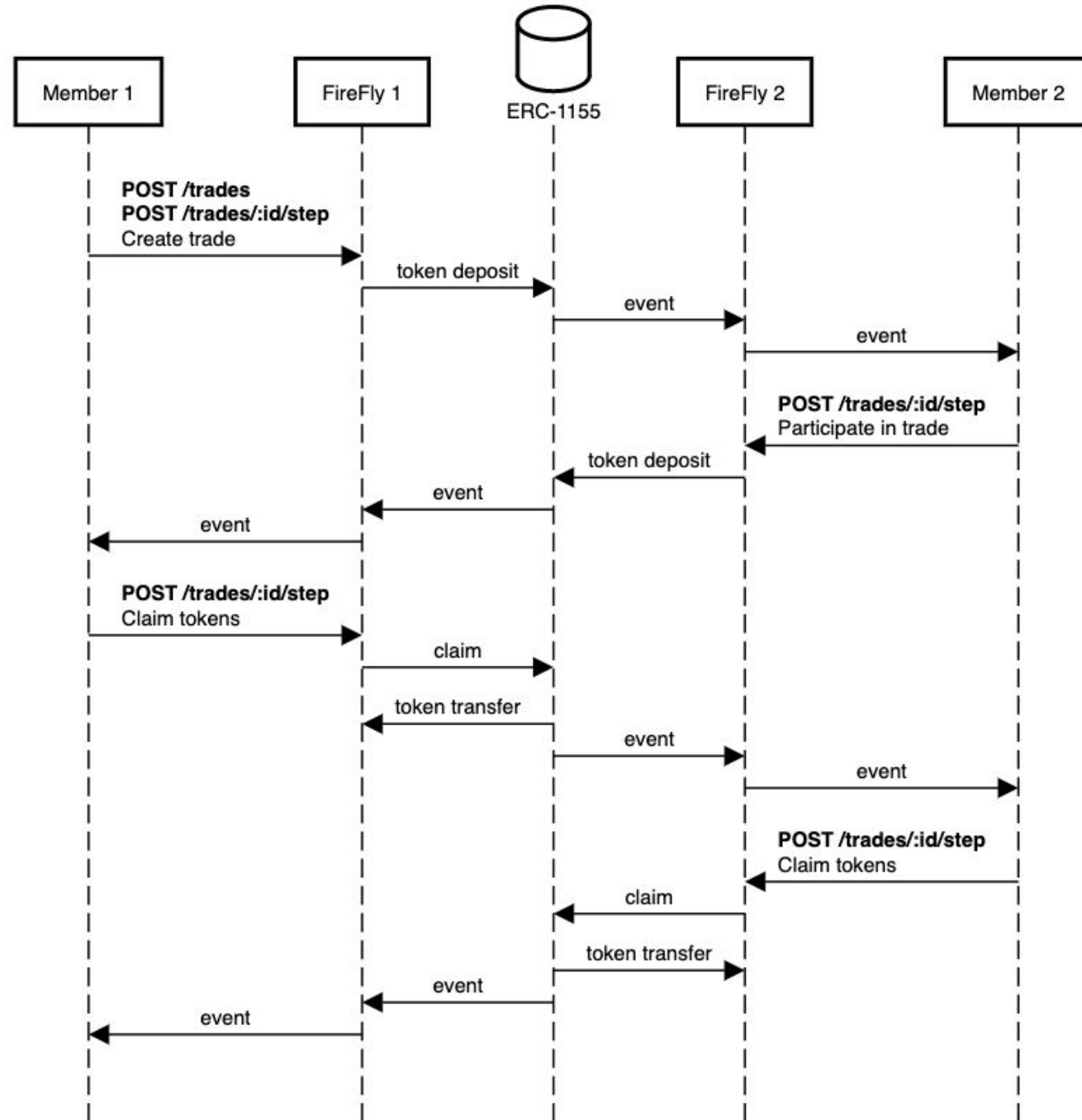
Open Discussion

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