



fetch.ai

Building with Fetch.ai

19th October 2019

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 fetch.ai

fetch-ai.slack.com

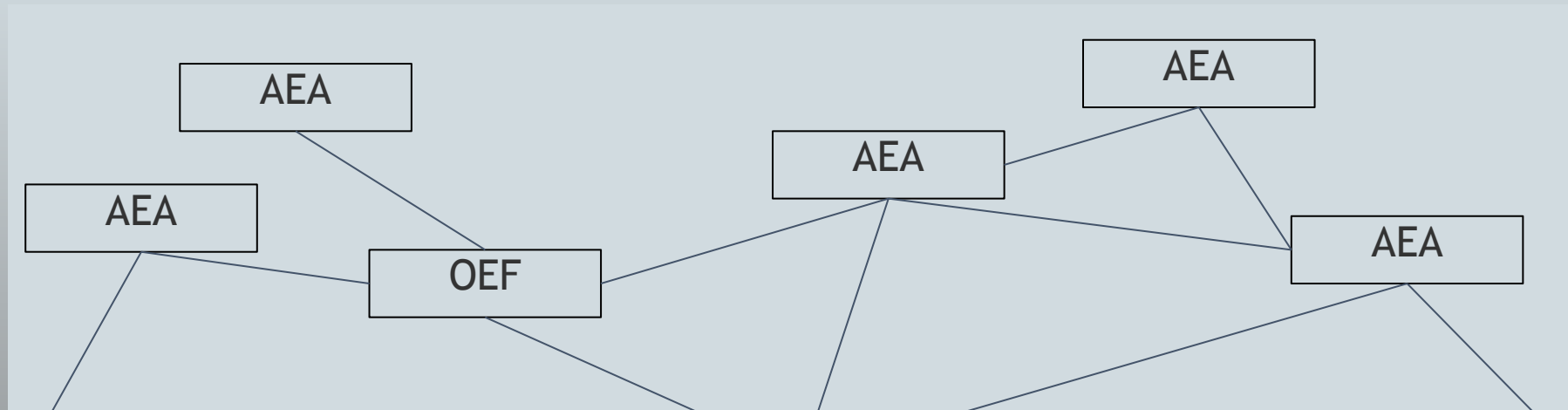
Goal is to support deployment of autonomous economic agents (AEAs) for second layer applications.

Includes sharded blockchain with directed-acyclic graphs (DAG) for high throughput and fast finality.

Distributed machine learning on the ledger VM and between agents

Main-net is due in Q4-2019

web2.0



web3.0

Today's focus:

Why do we need AEA's?

What is an AEA exactly?

How do I get started?

<p>web2.0:</p> <ul style="list-style-type: none">- client-server model- agency lies with client -> user- server mostly reacts	<p>Problems:</p> <ul style="list-style-type: none">- the user has to do a lot- the user has to learn way too many (!) interfaces- the two webs don't bridge very well	autonomy
<p>web3.0:</p> <ul style="list-style-type: none">- replication of effort & decentralization- censorship resistance & trustlessness- persistence		create economic value
agency		

Autonomy + Economics + Agent

“Independent or self governing”

wikipedia

“Economics focuses on the behaviour and interactions of economic agents and how economies work.”

wikipedia

“An agent is anything that can be viewed as perceiving its environment through sensors and acting upon that environment through effectors.”

Artificial Intelligence: A Modern Approach,
Stuart Russell and Peter Norvig

Autonomy + Economics + Agent

An autonomous economic agent is an intelligent agent operating (interacting with the world) on an owner's behalf, with limited or no interference of that ownership entity, and whose goal is to generate economic value for its owner.

AEA

Main control loop:

- > react() -> handle incoming messages
- > act() -> initiate plan execution (send messages)
- > update() -> internal & long running tasks

Preferences & Goals

Client-Server

Request-Response

- > “react()”
- > “update()”

AGI

AEAs have a narrow, goal directed focus involving some economic gain.
They are not artificial general intelligence.

API or server

APIs or sensors which do not have agency or are not separate economic entities.

Do you have some examples?

Autonomous economic agents have well defined goals:

Buy x (e.g. training samples) for me when it is cheapest

Sell y (e.g. weather/car parking data) for me to the highest bidder

If x (e.g. my train is cancelled) happens make sure I get y (e.g. arrange alternative travel so I get home on time) done

We have created a **framework** for AEA development.
Think popular web frameworks but for autonomous economic agents!

<https://github.com/fetchai/agents-aea>

1

Create a workspace and virtual env:

```
$ mkdir aea_dir && cd aea_dir  
$ touch Pipfile && pipenv --python  
3.7 && pipenv shell  
$ pip install aea[all]
```

2

Create a sample agent and run it:

```
$ aea create my_first_agent  
$ aea add skill echo  
$ aea add connection local  
$ aea run --connection local
```

You can mix & match as well as develop your own:

Protocols

message syntax

```
$ aea add protocol oef
```

```
$ aea scaffold protocol  
my_protocol
```

Connections

wraps APIs and SDKs

```
$ aea add connection oef
```

```
$ aea scaffold  
connection my_connection
```

Skills

business logic

```
$ aea add skill gym
```

```
$ aea scaffold skill  
my_skill
```

Work in progress

Integration of fetch.ai
and ethereum ledger apis
for transactions

> if you want to use this
today speak to me
afterwards

ML on two layers:
synergetic smart
contracts & distributed
ML in AEA's

> integration coming
soon, today use AEA's

Some areas where AEsAs might provide value in the short term:

Off-load repetitive tasks

Micro transactions

Wallet agents

- A weather station AEA sells weather data
- A weather data purchaser AEA wants to acquire it
- The AEAs find each other via the OEF

<https://fetchai.github.io/agents-aea/weather-skills/>

- Add an reinforcement learning agent to an AEA as a skill
- Add a OpenAI gym to the agent connection
- Train the AEA against a virtual world

<https://fetchai.github.io/agents-aea/gym-skill/>

November 2019

- AEA demos
- AEA framework

December 2019 & beyond

- AEA package registry
- AEA production use case
- AEA one-click deployment



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