

iExec

Le Cloud décentralisé sur la blockchain

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L'équipe d'iExec

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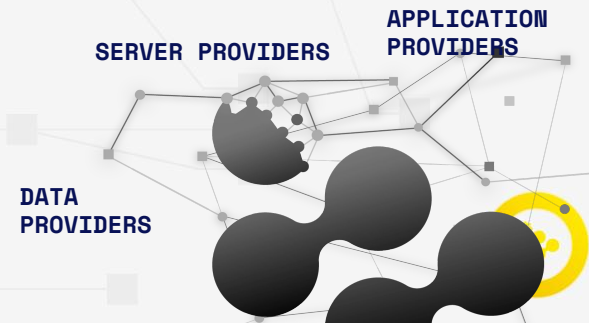


iExec : le Cloud décentralisé

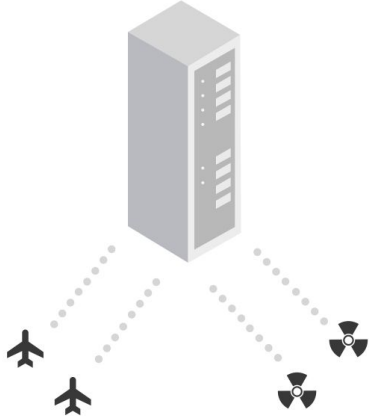
iExec est une place de marché de la ressource de calcul basée sur la blockchain Ethereum.

Les **applications** et **serveurs** échangent leurs ressources de façon directe.

- Les serveurs **vendent** leur puissance de calcul.
- Les applications **ont accès** à ces ressources.

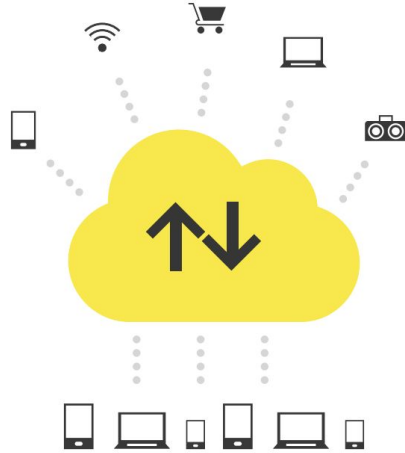


Before 2005



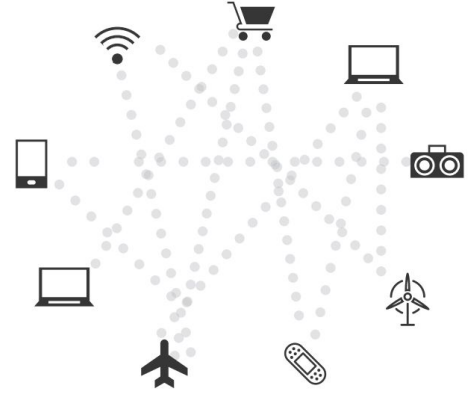
**Closed and Centralized
IT Infrastructure**

Today



**Open and
Centralized Cloud**

2020 and beyond



**Open and Decentralized Cloud
and Fog Infrastructure**



Pourquoi la décentralisation ?



Voici les deux principales raisons :

- Toute la nouvelle génération d'applications décentralisées ("dapps") a besoin d'infrastructures adaptées.
- Le Cloud décentralisé a de nombreux avantages :
 - Moins cher (market)
 - Plus optimisé (edge)
 - À la demande (accessible)



Les cas d'utilisation

- Les applications décentralisées : dès qu'un smart contract a besoin de lancer un calcul off-chain, iExec est la solution.
- Les “legacy applications” : HPC, big data, 3D rendering, finance, ...
- Les applications émergentes : AI, IoT, big data, fog/edge computing, VR, AR → Le Cloud centralisé freine leur développement.





- Le RLC est la monnaie interne d'iExec: les utilisateurs et applications payent le service en RLC.
- Les workers gagnent du RLC en contribuant au réseau.
- Le RLC rend possible les mécanismes d'incentive indispensables au fonctionnement de la plateforme.
- Cette crypto-monnaie a été créée le 19 avril 2017
- L'ico d'Exec a duré 2h 45m
- 87 million de RLC sont aujourd'hui en circulation



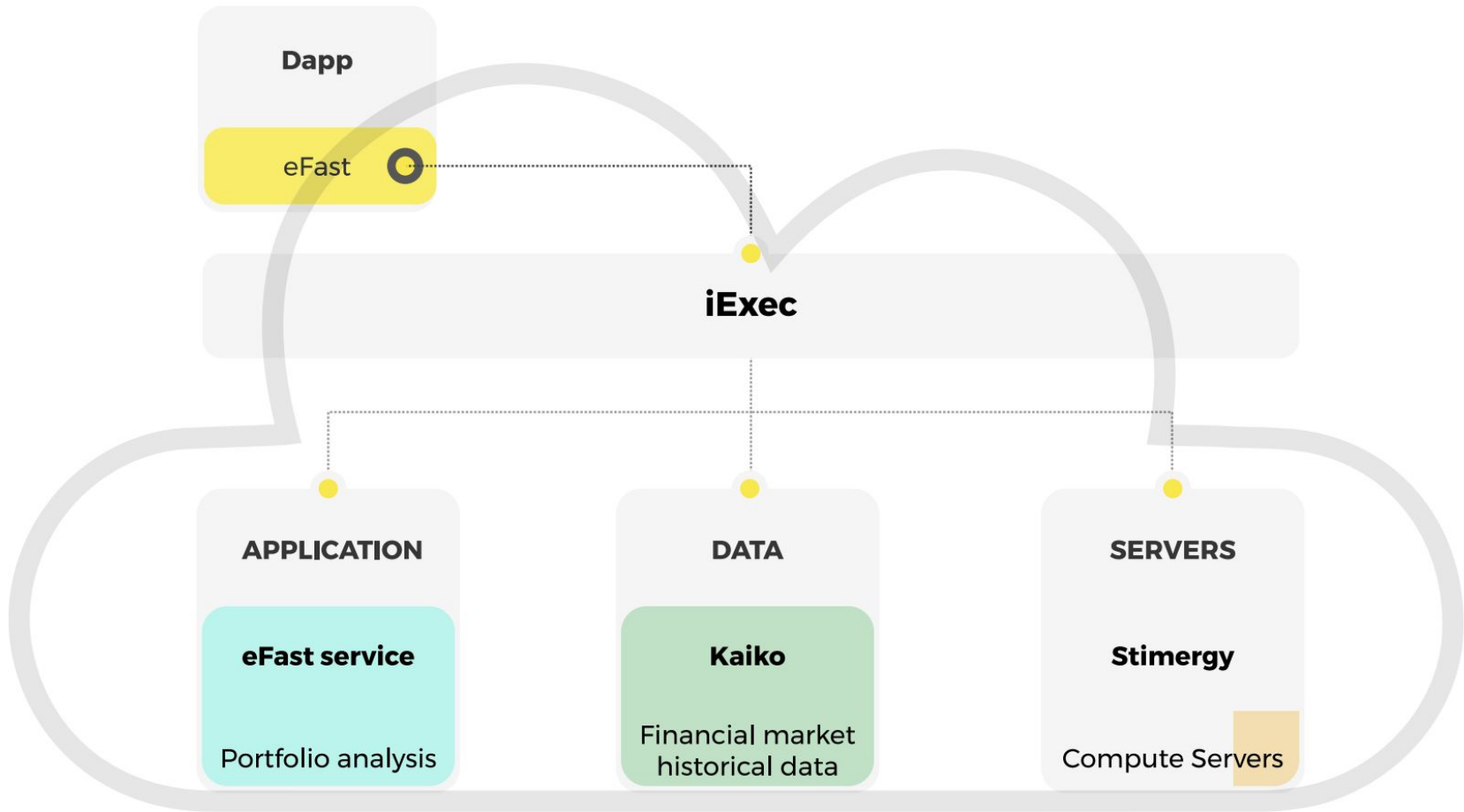
Le Dapp Store d'iExec

The screenshot shows the iExec DappStore interface. At the top, the browser address bar displays "Sécurisé https://dapps.iex.ec". The page header includes the iExec logo and "DappStore" text, along with a "Submit your dapp" button and a search bar. The main content is a grid of dApp cards, each featuring an icon, the dApp name, the creator, and the number of RLC tokens. The cards are arranged in four rows. The first row includes Request Network, Signals Network, Sudoku, ffmpeg, Factorial, Stockfish, TandemX, and Vanitygen. The second row includes Flixoo, Shopin, Blender, R, Wordcloud in R, Gimp, ImageMagick, and Lama. The third row includes SoX, OpenFOAM, GNU Octave, Oyente, Stockpredictor, Gnuplot, Gmsh, and Scikit-learn. The fourth row includes Facial Recognition, 2 NEW DAPPS (Coming soon), and The Dapp Challenge (with a \$150K prize and a "READ MORE" button).

DApp Name	Creator	RLC Count
Request Network	Request Network Inc	Partner
Signals Network	Signals Network Inc	Partner
Sudoku	by Hadrien Croubois	1 nRLC
ffmpeg	by Jeremy Toussaint	1 nRLC
Factorial	by François Branciard	1 nRLC
Stockfish	by iExec	1 nRLC
TandemX	by Synergy Crowds	Partner
Vanitygen	by François Branciard	1 nRLC
Flixoo	by Flixoo	Partner
Shopin	by Shopin	Partner
Blender	by Ugo Plouviez	1 nRLC
R	by Eric Rodriguez	1 nRLC
Wordcloud in R	by François Branciard	1 nRLC
Gimp	by Victor	1 nRLC
ImageMagick	by Victor	1 nRLC
Lama	by Victor	1 nRLC
SoX	by Victor	1 nRLC
OpenFOAM	by Victor	1 nRLC
GNU Octave	by Eric	1 nRLC
Oyente	by Hantong Ji	1 nRLC
Stockpredictor	by Lei Zhang	1 nRLC
Gnuplot	by Ugo Plouviez	1 nRLC
Gmsh	by Victor	1 nRLC
Scikit-learn	by Eric	1 nRLC
Facial Recognition	by Eric	1 nRLC
2 NEW DAPPS	Coming soon	
The Dapp Challenge	\$150K	READ MORE

<https://dapps.iex.ec>





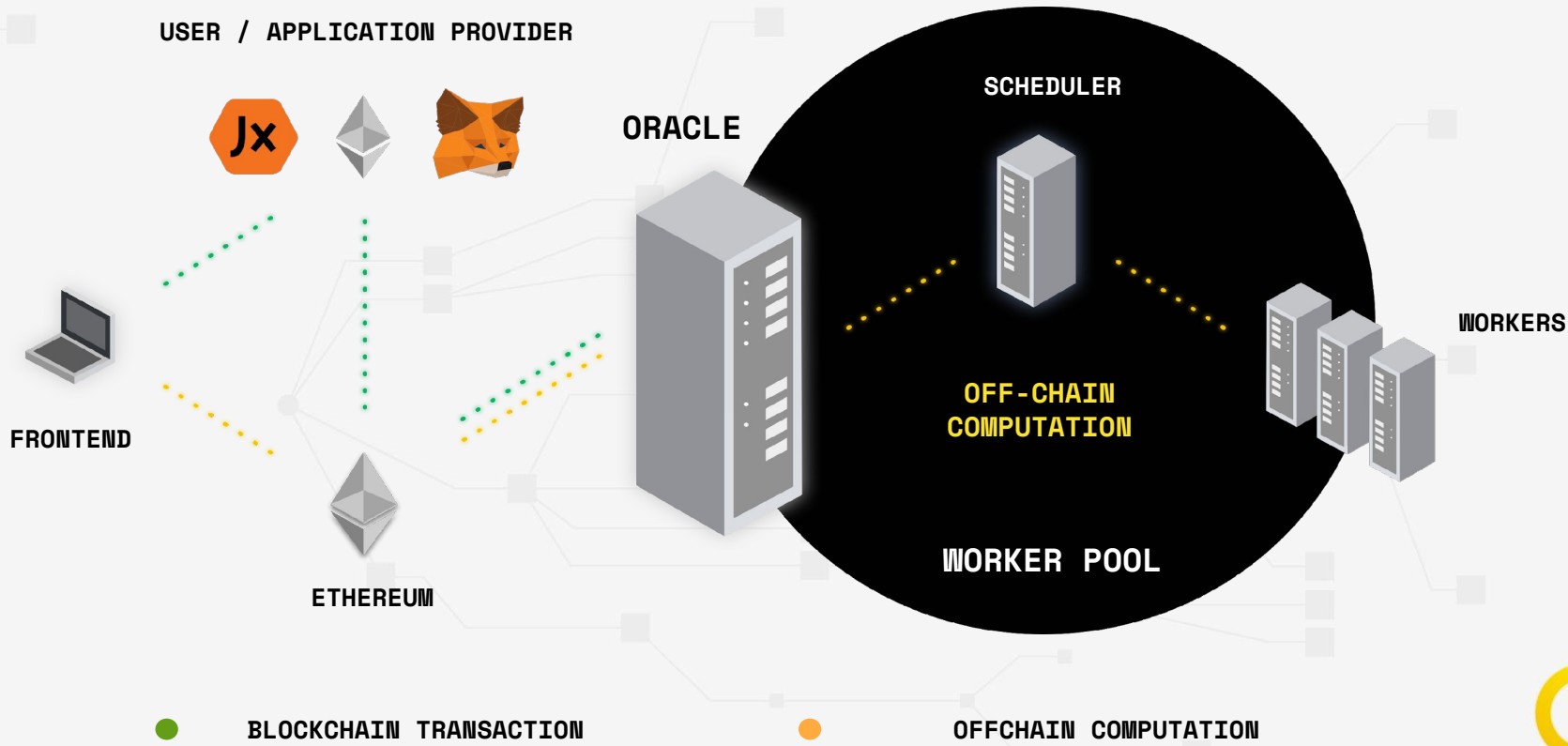
Le Dapp Challenge



- Objectif : financer le développement d'applications qui développent sur iExec.
- Nous avons reçu une quarantaine de candidatures de grande qualité.
- 15 apps ont été sélectionnées et la variété des projets présentés est très frappante.
- Il s'agit d'applications dans des domaines très variés : supply chain, rendering 3D, gaming, AI, analyse de données, santé, énergie, etc

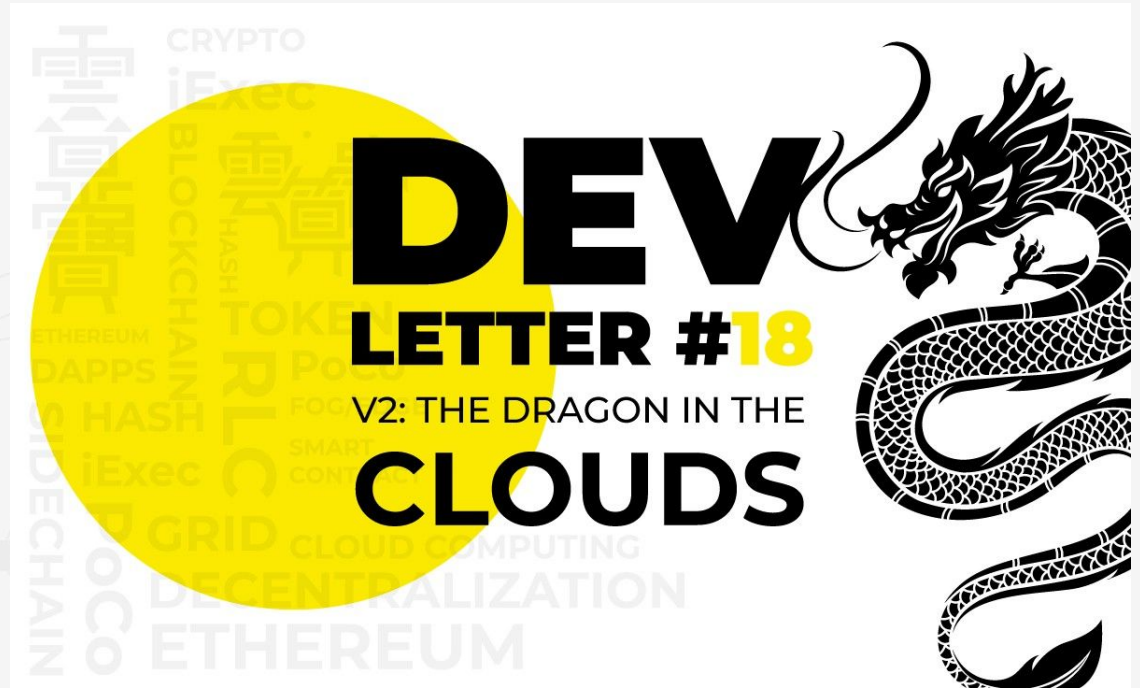


Goodbye Version 1...



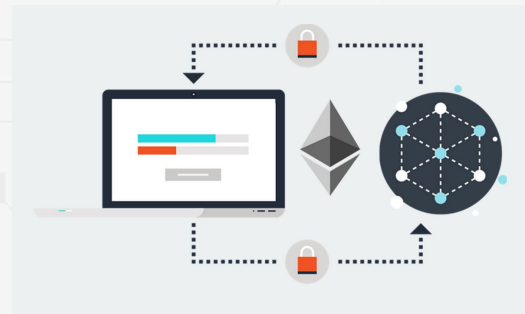
iExec V2: le 29 mai 2018

- Marketplace
- Worker pools
- Proof-of-Contribution
- New providers
- New dapps



Le PoCo: Proof-of-Contribution

- Pour vérifier le calcul de participants qu'on ne connaît pas, on a besoin d'un algorithme de consensus.
- Basé sur les Sabotage-tolerance mechanisms (L. Sarmenta, 2002)
- Le Proof-of-Contribution (PoCo) est l'algorithme de consensus d'iExec. C'est une combinaison entre staking et réputation.



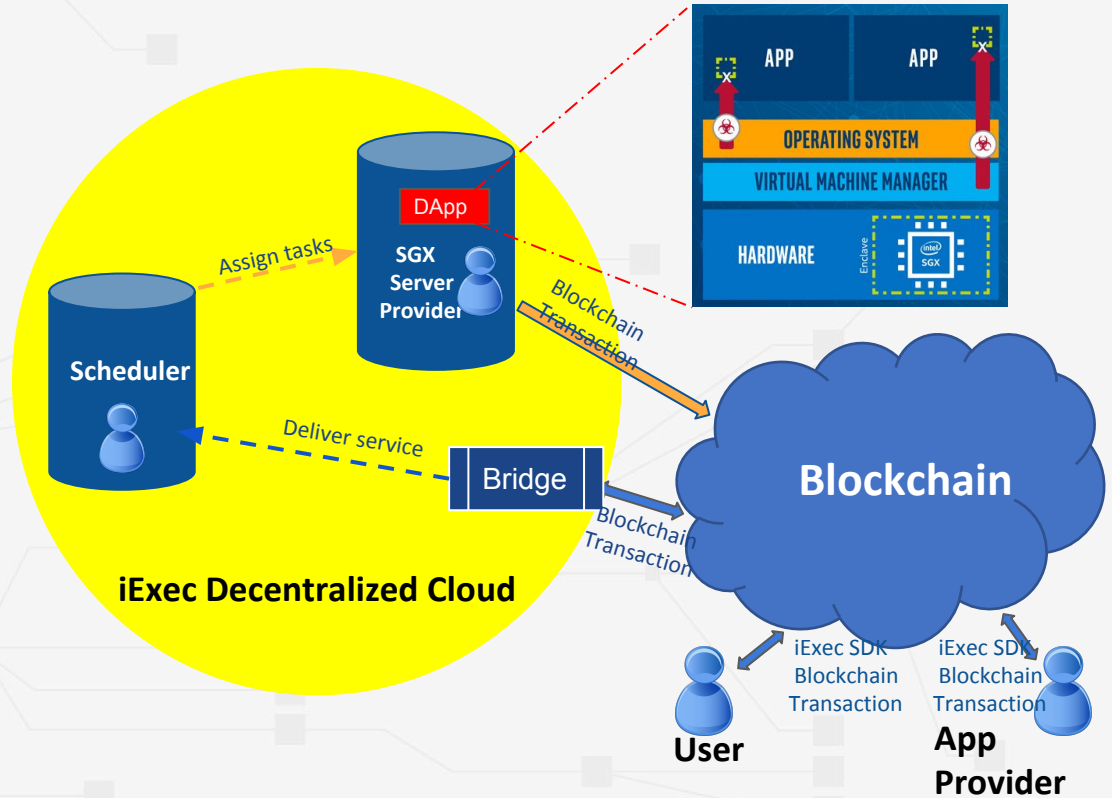
SGX enclaves

+ Requirement:

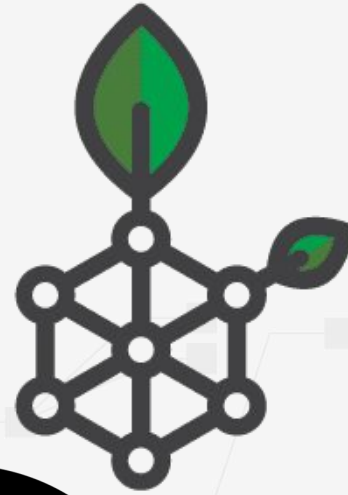
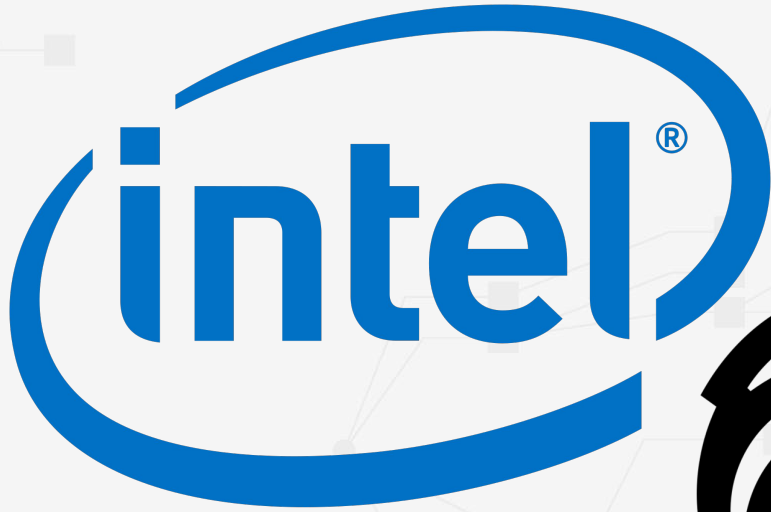
How to protect the DApp (as well as its sensitive data) residing/running on decentralized nodes is becoming a big challenge.

+ Solution:

SGX-based solution allows encrypting the DApp / data while deploying them over networks, and the encryption key can be transferred to SGX enclave at run time via a highly secured channel to decrypt the DApp / data.



Collabs 2018



RSK



UBISOFT



Roadmap

ICO
2017

V1
2017

V2
2018

V3
2019

V4
2020

V5
2021



- Off-chain Computing
- DApp Store

- Marketplace
- CLI, API and GUI
- Payment Scheme
- Sandboxing

- Data Marketplace
- GPU & HPC
- Public/Private Infrastructure
- Fog Computing



iExec

<https://iex.ec>

