

Eve Frontier

challenges, lessons and future
of building an autonomous world on Ethereum

Justin Glibert and Hilmar Pétursson

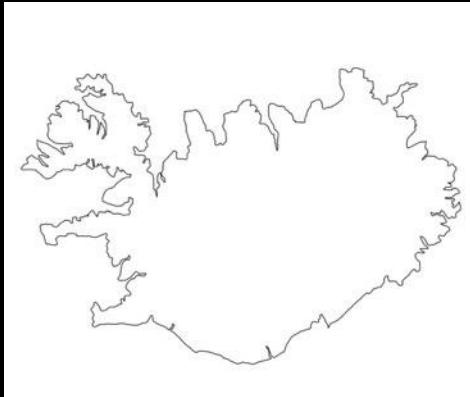
Lattice X CCP Games

A dark, futuristic space station or city structure is shown against a background of a bright, orange-yellow star or nebula. The station features numerous glowing orange energy beams and lights, creating a sense of a high-energy, advanced civilization. A small, sleek ship is visible in the lower center, moving towards the viewer.

We create virtual worlds
more meaningful than real life

- **21 years online**
- **1,2 million active characters**
- **38 million characters created**
- **676,869 daily trades**
- **10,000 transactions per sec**
- **247 million trades per year**
- **250 million spaceships built**





Population of
Iceland

385,933



Number of
sheep

365,290



EVE Online
characters

1,153,931

Over 60,000,000 Players

Have Helped Create The EVE Universe that Has Generated over 1.4 Billion USD in Revenue



EVE
ONLINE

无烬星河
EVE
INTENSITY

EVE
FRONTIER

DUST

EVE
VANGUARD

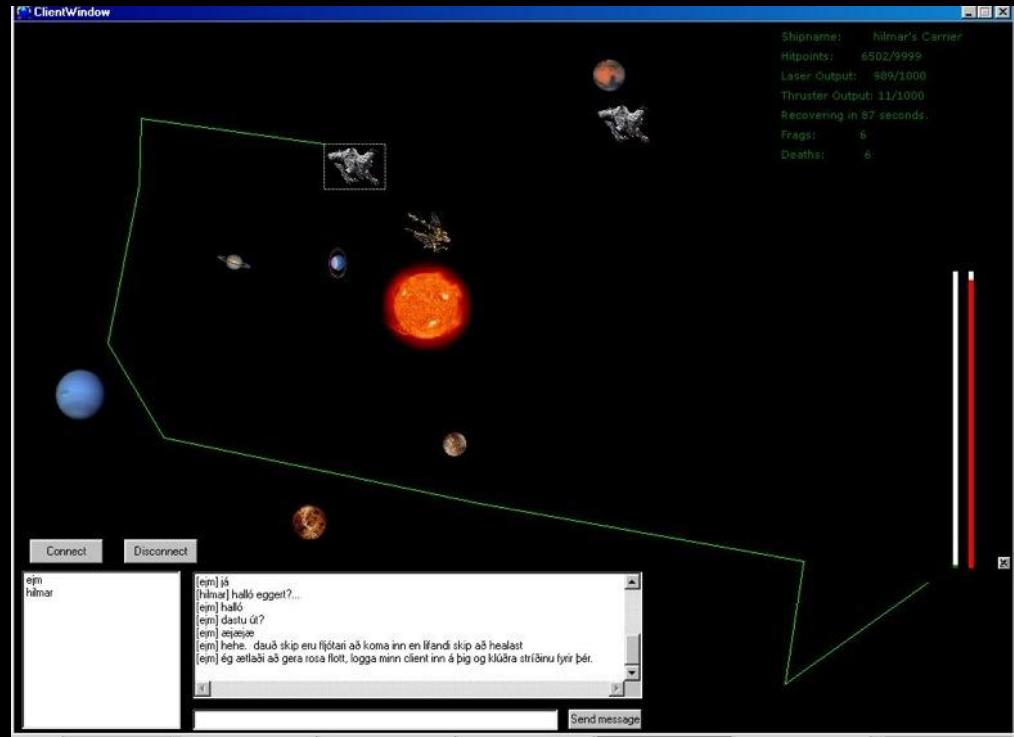
EVE
VALKYRIE

EVE
GUNJACK

EVE
ECHOES

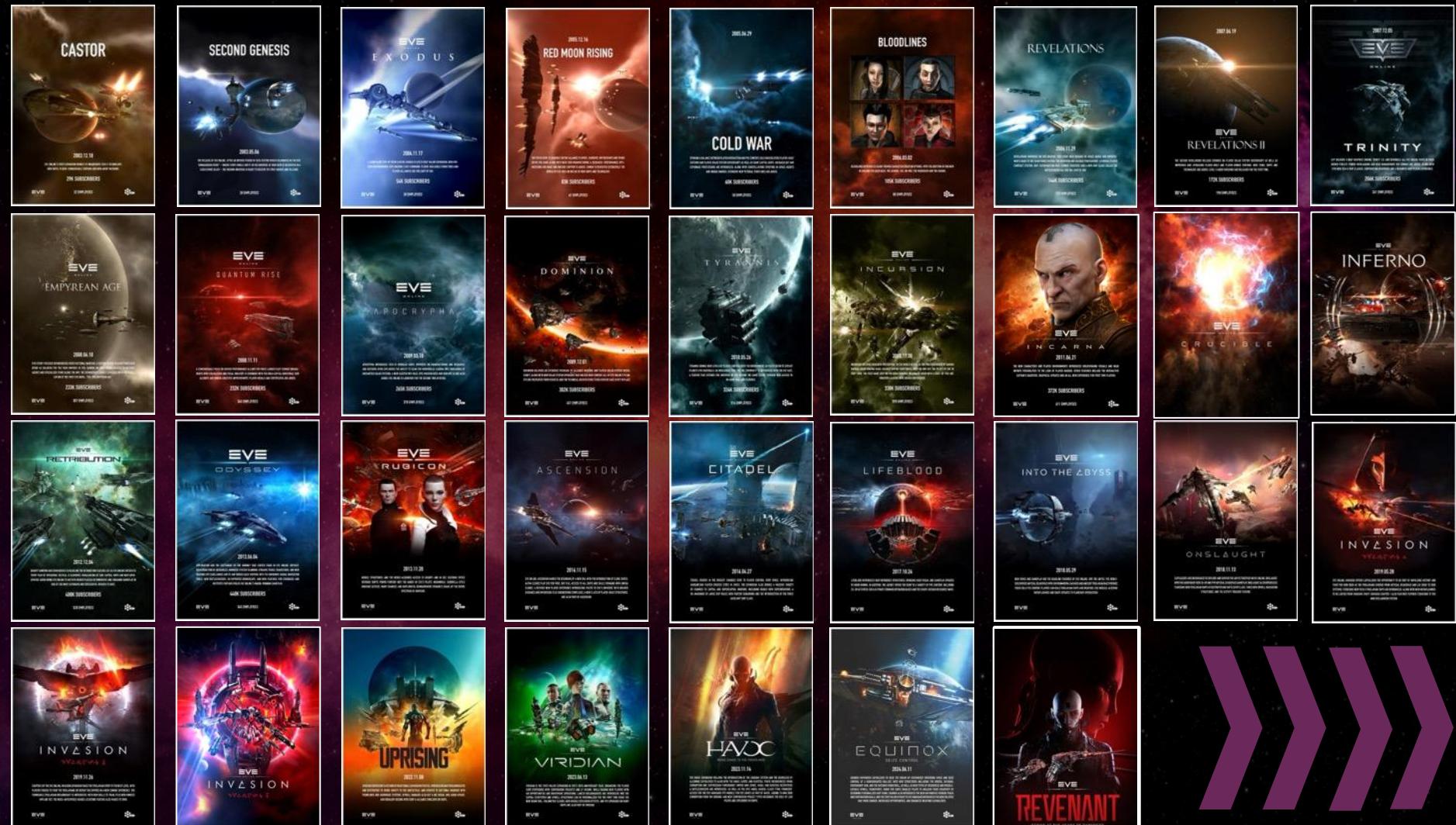
EVE
GALAXY
CONQUEST

星战前夜
EVE
INTENSITY



In the beginning it
looked a lot
simpler







EVE
ONLINE

REVENANT

STRIKE AT THE HEART OF DARKNESS

The Players make the world what it is

In **2010** EVE Players had put in the labour equivalent of
The Great **Pyramid of Giza**.

In **2023** time spent on EVE Online would have sufficed to
build almost **TEN** of them!

236,101,001,989 login minutes or 2,113,896 man-years*



*Man-year: 111.690 minutes



ASSASSINATION

Murder Incorporated

Contract killers devastate mega-corporation

At 5am on April 18, 2005, the CEO of the Ubiquia Seraph corporation (EVE's equivalent of a guild) emerged through a staircase in the Haras system, accompanied by her personal bodyguards. The guards didn't leave alive. CEO Mirial didn't know it, but the contract on her life had been signed more than a year ago. Over the past 12 months, agents of the Guiding Hand Social Club (speciality: assassination to order) had infiltrated every level of Mirial's powerful organisation.

The proud and plotting her prime target: Heretic - the New Apocalypse, worth billions. Her colleague - Arenix Xemadal - flew an Imperial Apocalypse, an unimaginably valuable craft of which only two are known to exist.

**CULTURE
GUNS FOR HIRE**

ON THE DISC The full Q&A with the conspirators themselves - Resources, and insights from the insubious > cultures

On arriving, CEO Mirial encountered a known Guiding Hand operative named Uuve Sivello. And, for the first time, noticed her colleague Xemadal was strangled.

By 5am it was over. Every Ubiquia Seraph office in the galaxy was raided, the contents of every hangar - including the corporate coffers - ransacked. Mirial's ship was destroyed, her escape pod maimed and her vacuum-frozen corpse scooped into the cargo bay of a Guiding Hand Scion Class freighter.

This was the only proof their client had requested.

FROZEN CORPS!

The ambush and galaxy-wide hangar theft inflicted financial damage upwards of 30 million ISK (\$16,500 USD at JG.com's prices), the value of the stolen assets utterly dwarfing the original bid for the job.

"When we got the contract, we requested 30 billion ISK," says Guiding Hand CEO Istraw.

Shogatsu, "which was a large sum at the time. We could not have foreseen the gains upon execution... we found ourselves staring at Fort Knox with the key in our hands."


DRAMATIS PERSONAE

Who's who in this story?

Meet the key players in a betrayal of intergalactic proportions



CEO of Ubiquia Seraph, a wealthy and respected corporation who has been the target of a plot by the highest class of criminal syndicate in the game. Mirial's race - a contentious issue. Rumours abound of Mirial's indiscretions, but none have been substantiated.



Under Arenix, Arenix was known as one of the highest class of criminal syndicate in the game. He is liked by his members and close advisor to Mirial - both personally and in rank - to challenge her decisions.



He's bad news, indeed. He's the mastermind behind the criminal plot against Mirial. He's been described as the underworld offices or corporations in the game. Arenix's true employer. And just look at him.

PC GAMER

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Billions stolen in online robbery

Space trading game Eve Online has suffered a virtual version of the credit crunch.



One of the game's biggest financial institutions lost a significant chunk of its deposits as a huge theft started a run on the bank.

One of the bank's controllers stole about 200bn kredits and swapped them for real world cash of £3,115.

As news of the theft spread, many of the bank's customers rushed to remove their virtual cash.

Space scandal

The theft from EBANK took place in early June but only now have details emerged about the amount of money stolen and why it was taken.

The theft was carried out by EBANK's chief executive, a player known as Riddic, now known to be a 27-year-old Australian who works in the technology industry. His full identity has not been revealed save that his first name is Richard.

The stolen kredits amounted to 8% of the 2.6tn that EBANK had in its virtual vaults.

"Basically this character was one of the people who had been running EBANK for a while. He took a bunch of (virtual) money out of the bank, and traded it away for real money," Ned Coker, of Icelandic company CCP which runs Eve, told the Reuters news agency.

Eve Online has about 300,000 players all of whom inhabit the same online universe. The game revolves around trade, mining asteroids and the efforts of different player-controlled corporations to take control of swathes of virtual space.

It has now emerged that Riddic used the cash to put down a deposit on a house and to pay medical bills.

"I'm not proud of it at all, that's why I didn't brag about it," Riddic



Don't Buy Bitcoins?



Test Booster Takes GNC By Storm



New Rule in Las Vegas NV



The End of Obama?



Public Las Vegas Arrest Records

MediaForYou

Plugged In

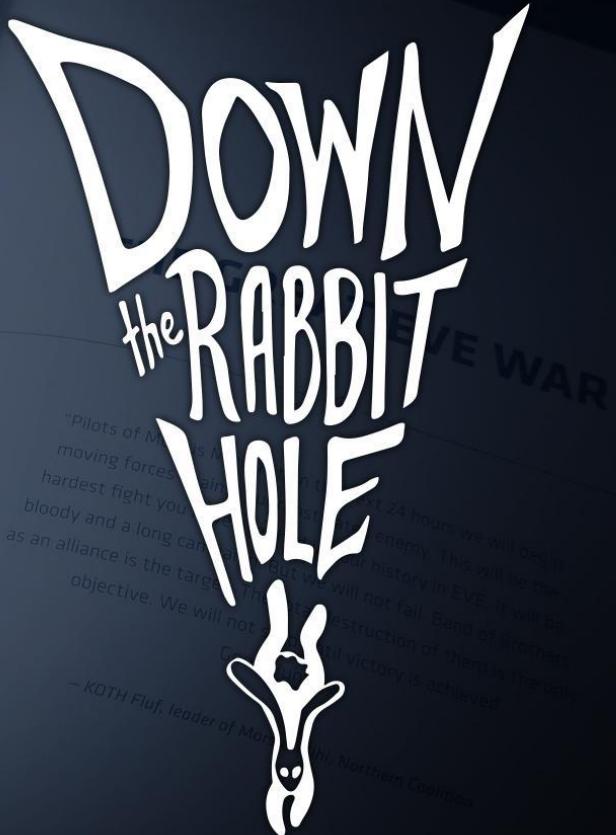
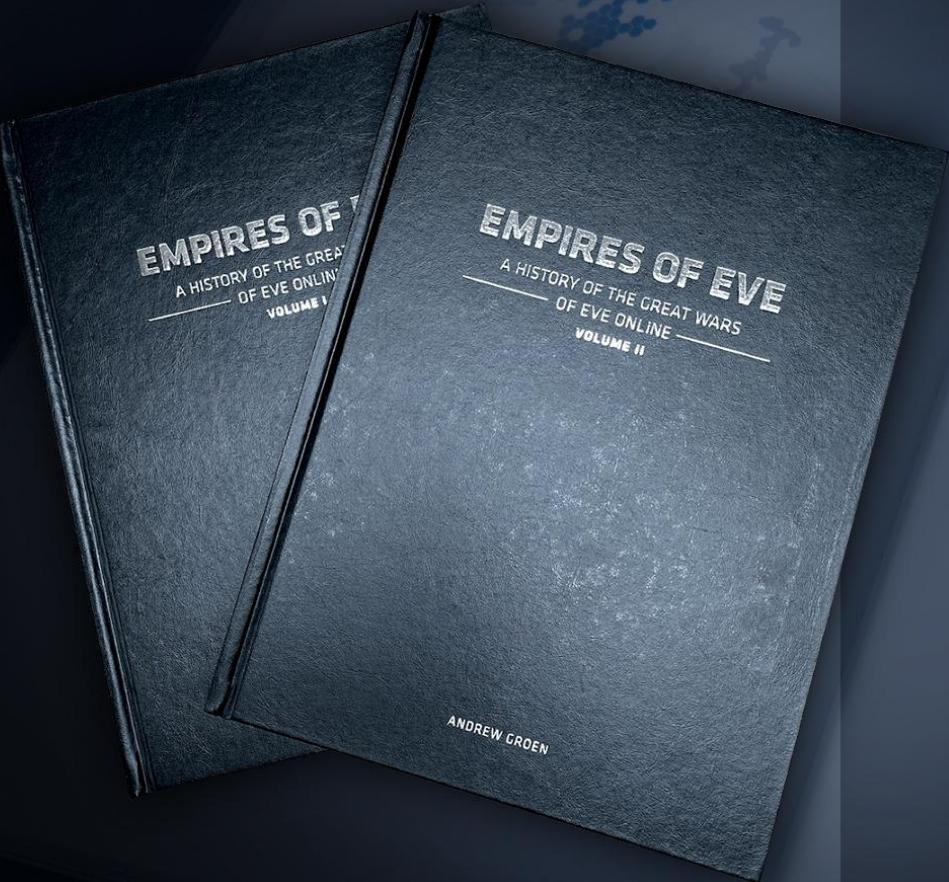
Massive EVE Online war destroys over \$300,000 worth of virtual goods

By Chris Morris
January 28, 2014 12:41 PM
Plugged In





OCCUPY WALL ST.





YEARS IN SPACE



SJÓMINJASAFN Í REYKJAVÍK
REYKJAVÍK MARITIME MUSEUM



The EVE Effect: Under the hood

THE FRIENDSHIP MACHINE



“My best bros
helped me when I
was down”

Self-actualization

Self-esteem

Love & belonging

Safety & fairness

SKILLS FOR LIFE



“EVE helped me get
ahead in my
professional life”

73% of EVE players have made new friends
as a result of playing the game.





The best ship in EVE
is the friendship

Loneliness is becoming an epidemic

All the lonely people

Loneliness is a serious public-health problem

The lonely are not just sadder; they are unhealthier and die younger. What can be done?

55,000 people took part in the BBC's Loneliness Experiment in collaboration with Wellcome Collection, making it the largest survey of its kind in the world. And now we can reveal the results!

Here are some of the key findings:

1. Young people are the group who feel loneliest

There's often a stereotype that loneliness mainly strikes older, isolated people. And of course it can. But we found higher rates of self-reported loneliness among younger people.

40% of 16 to 24-year-olds who took part told us they often or very often feel lonely, compared with 27% of over 75s. We saw higher levels of loneliness in young people across cultures, countries, and genders.

This is higher than in other surveys, but because the survey was online we had a self-selecting sample and might have attracted more people who feel lonely.

Our survey shows that loneliness can affect people of all ages.



The New York Times

Opinion

How Loneliness Is Tearing America Apart

When people have a hole in the politics.



By Arthur C. Brooks

Mr. Brooks is the president of the

Nov. 23, 2018

PERSONAL HEALTH

To Counter Loneliness, Find Ways to Connect

Much of modern life, though seeming to promote connectivity, has had the opposite effect of fostering social isolation and loneliness, experts say.



Human interaction theory

4 things needed to establish a **strong social connections** that lead to **friendship**

$$\text{Friendship} = \text{Proximity} + \text{Frequency} + \text{Duration} + \text{Intensity}$$



Proximity: Proximity is the distance between you and another individual and your exposure to that individual over time.



Duration: Duration is the length of time you spend with another individual over time.



Frequency: Frequency is the number of contacts you have with another individual over time.

Intensity: Intensity of the connection greatly accelerates friendship forming.

Devastating loss or Social event was a **turning point**

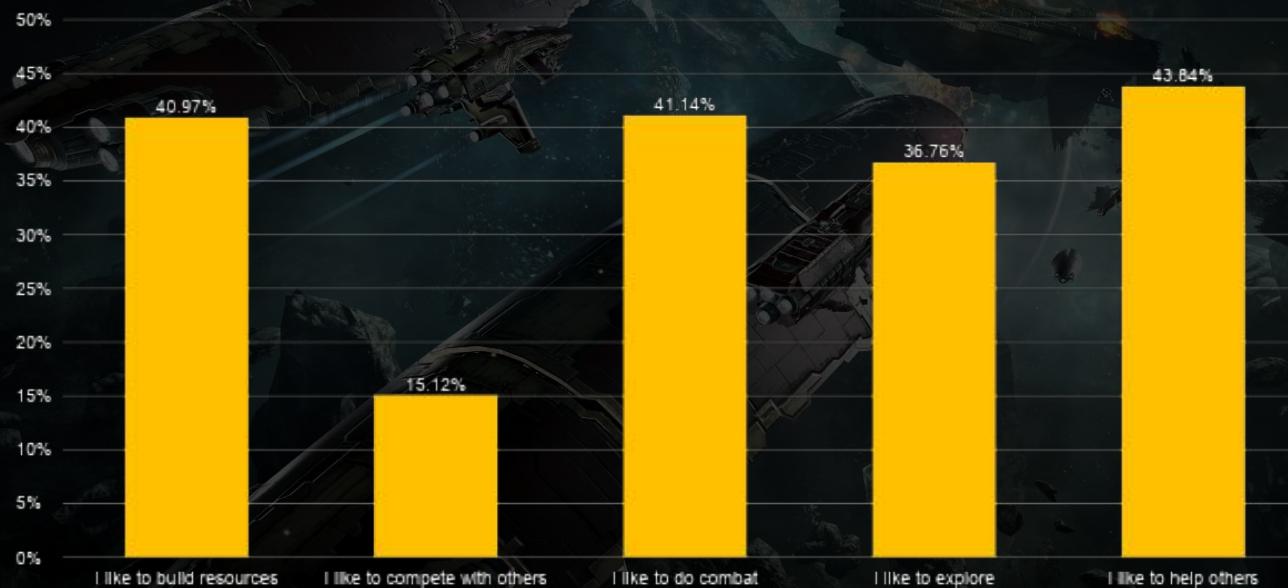
Devastating loss is a key molding moment but requires...

- Understanding
- A ray of hope that you can respond or get back on your feet
- Social support

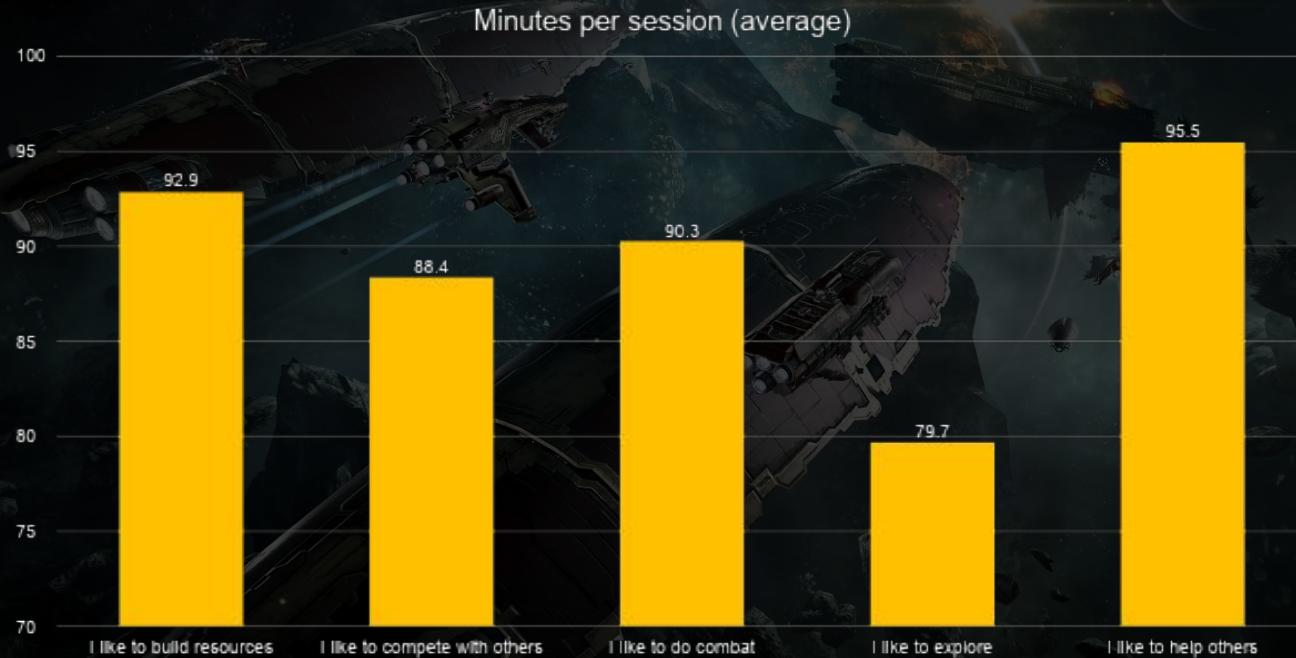


Most of our players describe themselves as helpers...

Which of the following best describes you as a player?
(You can select up to 2 items).



Helpers have the highest engagement...



EVE builds relationships

Outside the game



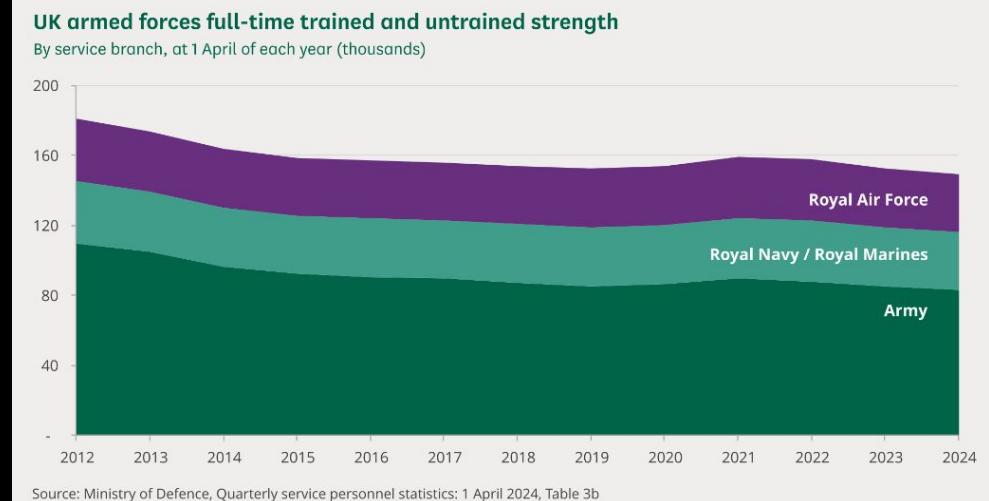
NATIONAL OFFICE TOUR AT 12:40
ORDINGS AT 15:00-16:00

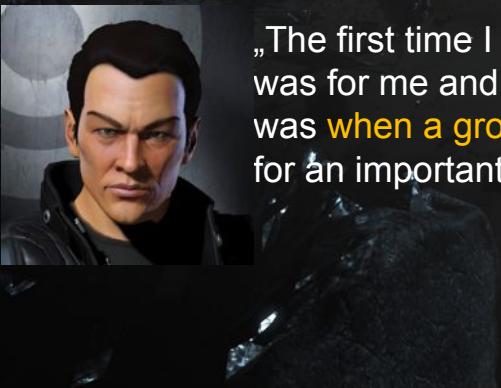


Social organisations at scale

The membership of the top three Alliances in EVE Online combined exceeds the total UK armed forces

	Alliance	Systems	Members	Corps
1.	Pandemic Horde	525	49895	149
2.	Goonswarm Federation	304	48710	601
3.	Fraternity.	337	39372	190





„The first time I realized this game
was for me and I would stick around
was when a group depended on me
for an important task.“



EVE ONLINE IS BIGGER THAN THE GAME

MERCHANDISE



LEARNINGS



BOOKS



GOVERNANCE



ART



MEDIA



EVENTS



CHARITY



PARTNERS



DOCUMENTARIES



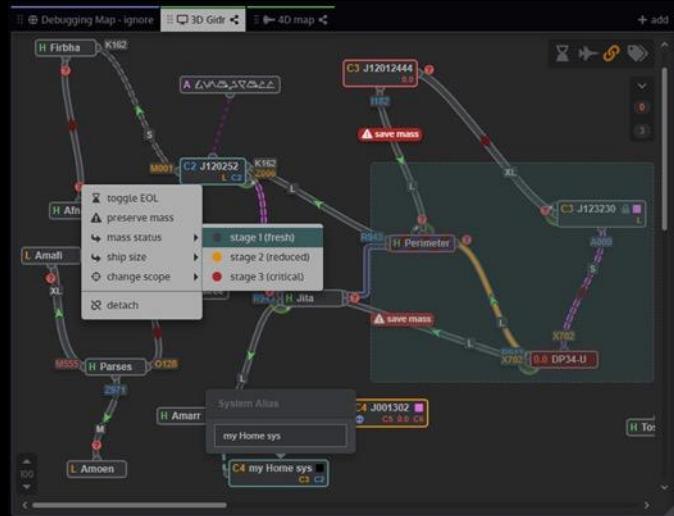
EVE API GATEWAY

In the beginning

- Before EVE was even released, there was a vibrant ecosystem of 3rd-party developers around EVE.
- It started with players creating corporation websites, recruiting players and meta-gaming on the forums as early as the year 2000

Now

- Our main database gets between 6-10k calls per second. More than half is from the EVE API by 3rd party developers
- Thousands of developers have over time interacted with it.
- EVE's global market system does up to 1,000.000 transactions per 24 hours
- Some of the 3rd party sites and apps have over a million page views per month
- These 3rd party tools were a game changer in hostile new systems.

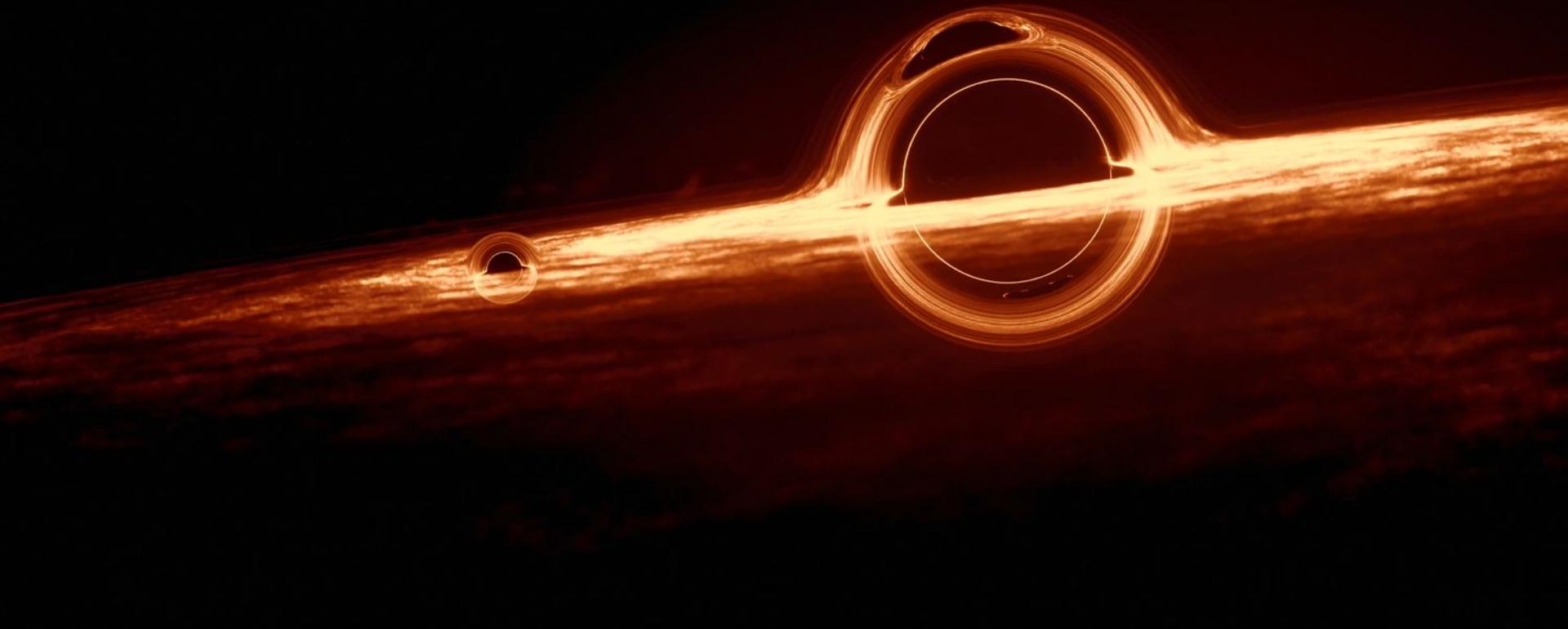


EVE



F O R E V E R

≡ V ≡
F R O N T I E R



The journey to this point has been long

- 2000: EVE's Technical foundation laid, first MMO built as a native relational database application
- 2003: EVE Online releases as the first single sharded MMO
- 2003: CSM is established, giving players direct access to future governance
- 2004: Alliance system released.
- 2007: API Gateway introduced to EVE Online
- 2008: CSM becomes democratically elected
- 2009: PLEX is introduced as a currency to EVE, allows for “foreign direct investment”
- 2013: DUST 514 releases on PS3 with economy integration to EVE Online on PC
- 2015: Exploration into storing spaceships on the bitcoin protocol
- 2017: New Eden eXchange Token (NEXT) litepaper exploration
- 2021: NFT based kill certificates for EVE Alliance Tournament (esports)
- 2021: Justin and Hilmar talk for the first time
- 2022: EVE Frontier team is formed
- 2023: EVE Frontier is announced as Project Awakening and 40 mils USD raised
- 2023: EVE Frontier's Smart Assemblies on MUD
- 2024: EVE Frontier's playtest on Garnet, with Smart Assemblies on MUD

Frontier's players are **rebuilding a broken world**. We need to give them the tools to do so.

- In the long run, **we want Frontier to outlast and outgrow CCP games.**

How Eve Frontier works

We want the rules of the world to be grounded in **Digital Physics**. This is where Ethereum comes in.

- Ethereum provides a **multiplayer computer** that lets players build on top of the rules
- In the long term, Ethereum provides **guarantees** that the rules will be executed correctly; meaning Eve Frontier can grow beyond CCP Games.

Less is more

The rules being grounded in Digital Physics enables CCP to provide **less** and let players create **more**.

A shared layer of rules prevent game-breaking creations:

- and at the design level
- both at the infrastructure level

Digital Physics: today

Core Assets

- \$EVE
- Important market resources (Fuel, Crude, etc)
- Smart Characters

High throughput / information asymmetry / stuff we haven't time to put onchain yet

- Space combat
- Space travel
- Some markets
- Industry
- NPCs, missions

Third party developers

- Smart Assemblies
 - Smart Gate
 - Smart Storage
 - Smart Turret
- Custom currencies
- Commodity market
- Corporation infra

Digital Physics: tomorrow

Core Physics

- \$EVE
- Important market resources (Fuel, Crude, etc)
- Smart Characters
- Mining
- Industry
- Private Inventories (w/ ZKPs)

High throughput / information asymmetry

- Space combat
- Space travel

Third party developers

- Smart Assemblies
 - Smart Gate
 - Smart Storage
 - Smart Turret
- Custom currencies
- Commodity market
- Corporation infra
- Missions

Digital Physics: later

Core Physics

- \$EVE
- Important market resources (Fuel, Crude, etc)
- Smart Characters
- Mining
- Industry
- Private Inventories (w/ ZKPs)
- Space combat / Space travel (w/ advanced crypto)

Third party developers

- Smart Assemblies
 - Smart Gate
 - Smart Storage
 - Smart Turret
- Custom currencies
- Commodity market
- Corporation infra
- Missions



Drekavac Blueprint (Auction)

Info by Issuer	(None)
Type	Auction
Issued By	Udan Borg
Availability	Public - Region: The Forge (Other Region)
Status	Items not yet claimed
Location	• Jita IV - Moon 4 - Caldari Navy Assembly Plant 17 jumps away
Date Issued	2020.03.05 14:14
Date Completed	2020.03.06 17:36

Starting Bid	1,000,000 ISK (1.00 Million)
Buyout Price	(None)
Current Bid	10,200,000 ISK (10.20 Million) (17 bids so far)
Time Left	Finished
	Saltwater fish Oriki won this auction

You Will Get



Drekavac Blueprint x 1 ⓘ
Blueprint / Battlecruiser Blueprint
BLUEPRINT COPY - Runs: 1 - Material Efficiency: 0 - Time Effici



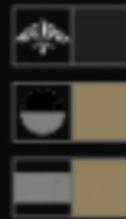
Digital Physics:

- Check that stuff happened (=read data)
- Asset transfer



⇒ Players can build their own contracts and make them as exotic as they want.

Edit Corporation Details



Member limit

6300

[Update With My Skills](#)

Tax Rate

0.1



Homepage

<http://www.eveuniversity.org>

Description

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1054/4000 EN

**EVE University – EVE's premier
teaching organization**

Successfully teaching players since 2004

For the past twelve years, EVE University has provided

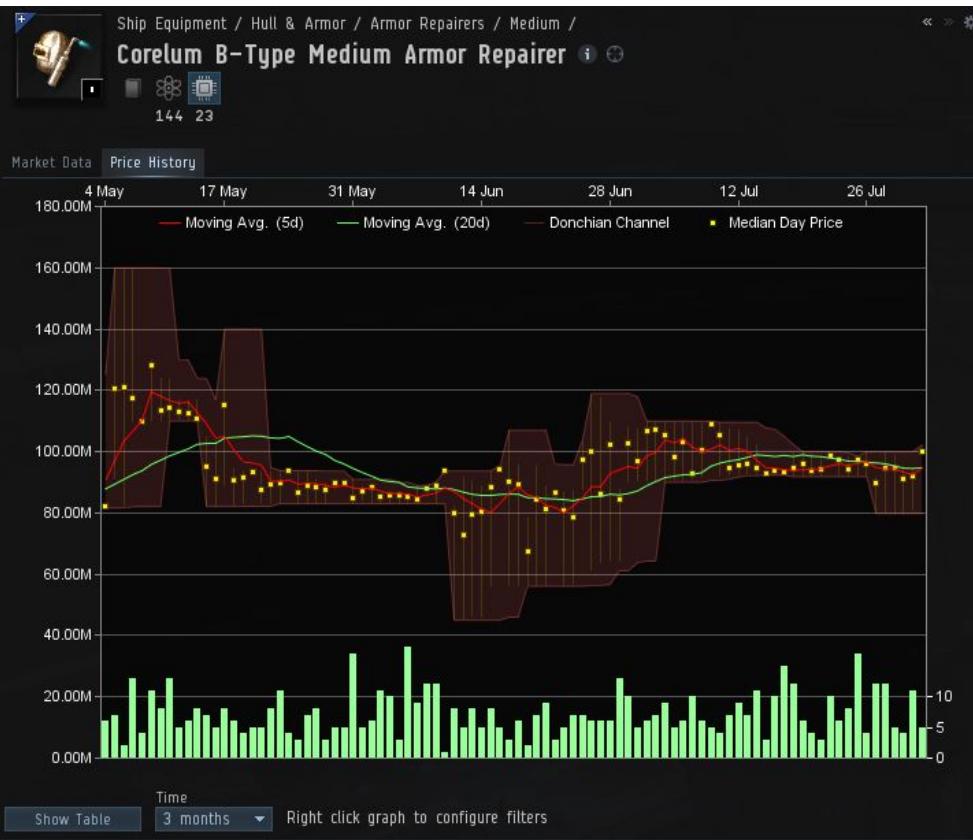
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Digital Physics:

- Identifying players
- Control other subsystems (turrets, storage, etc)



⇒ Players can build their own organizations: – corporation, tribe, cult, dictatorship, etc. With any governance system and any ownership structure.



Digital Physics:

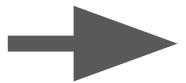
- Asset ownership
- Asset transfer (based on location)



⇒ Players can build their own markets

"I want my own structure in space and
I want it to do whatever I program it to
do"

???



“I want my own structure in space and I want it to do whatever I program it to do”

???



- Structures, with APIs (attack / transfer item / warp)

⇒ Players can control structures via code and turn them into whatever they see fit: vending machines, defenses, mini-games, etc



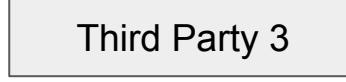
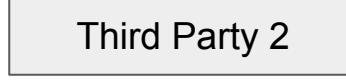
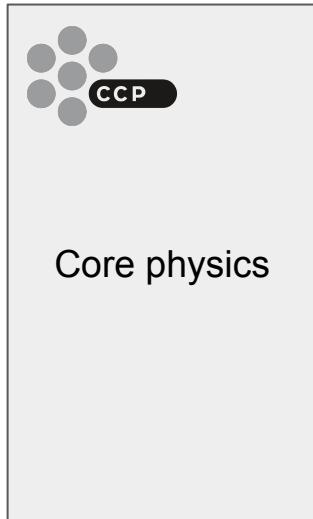
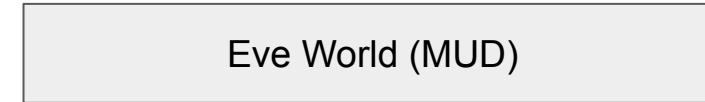
Frontier's physics is on MUD

MUD is a framework for building **large** applications on Ethereum with state and logic shared between many participants.

Frontier's assets, logic, state, and third party extensions are all centralized in one MUD deployment.

It accelerates first-party development and makes scalable third-party extensions possible

Eve Frontier: architecture 101



Chips

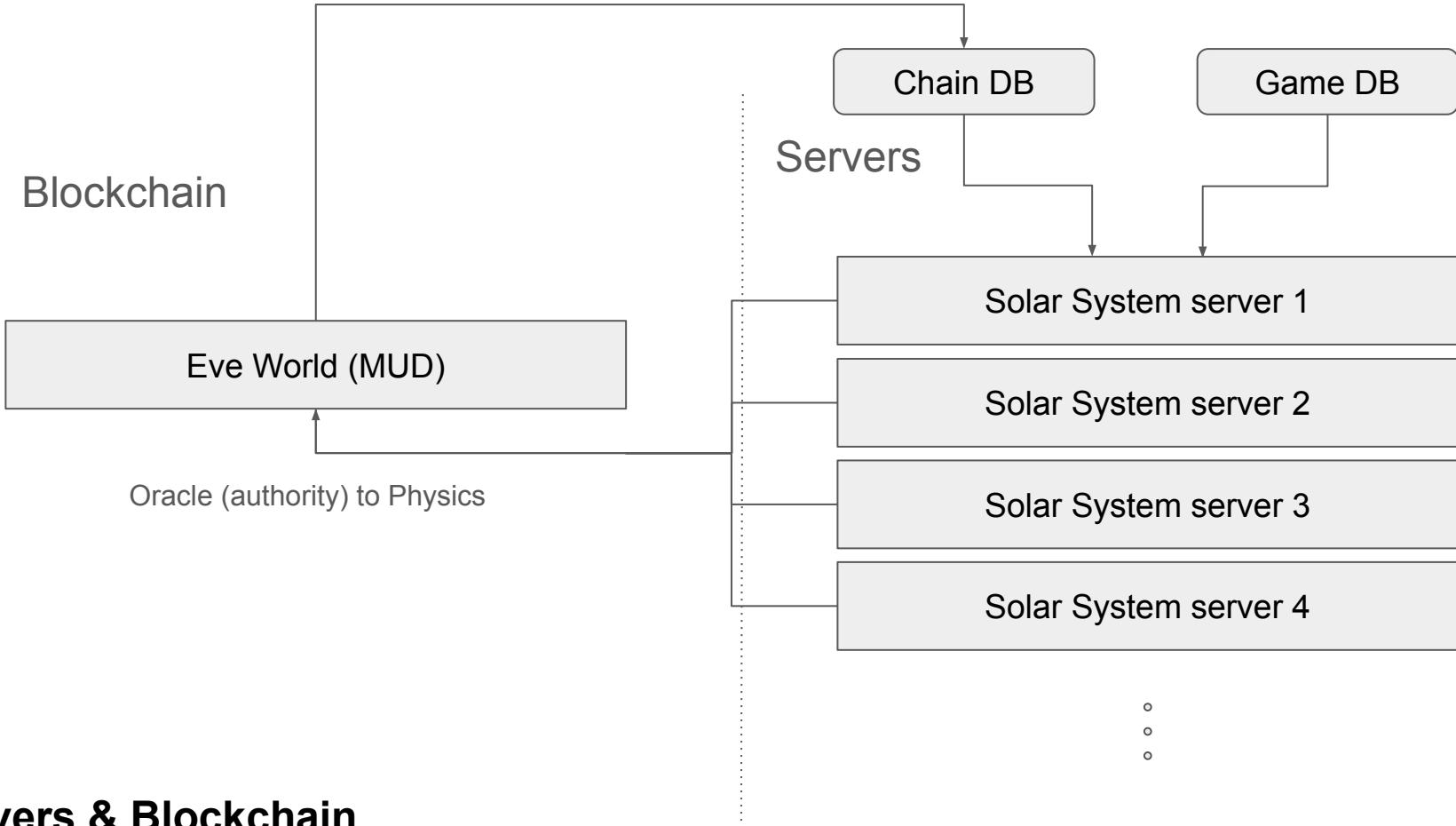
Leaderboard



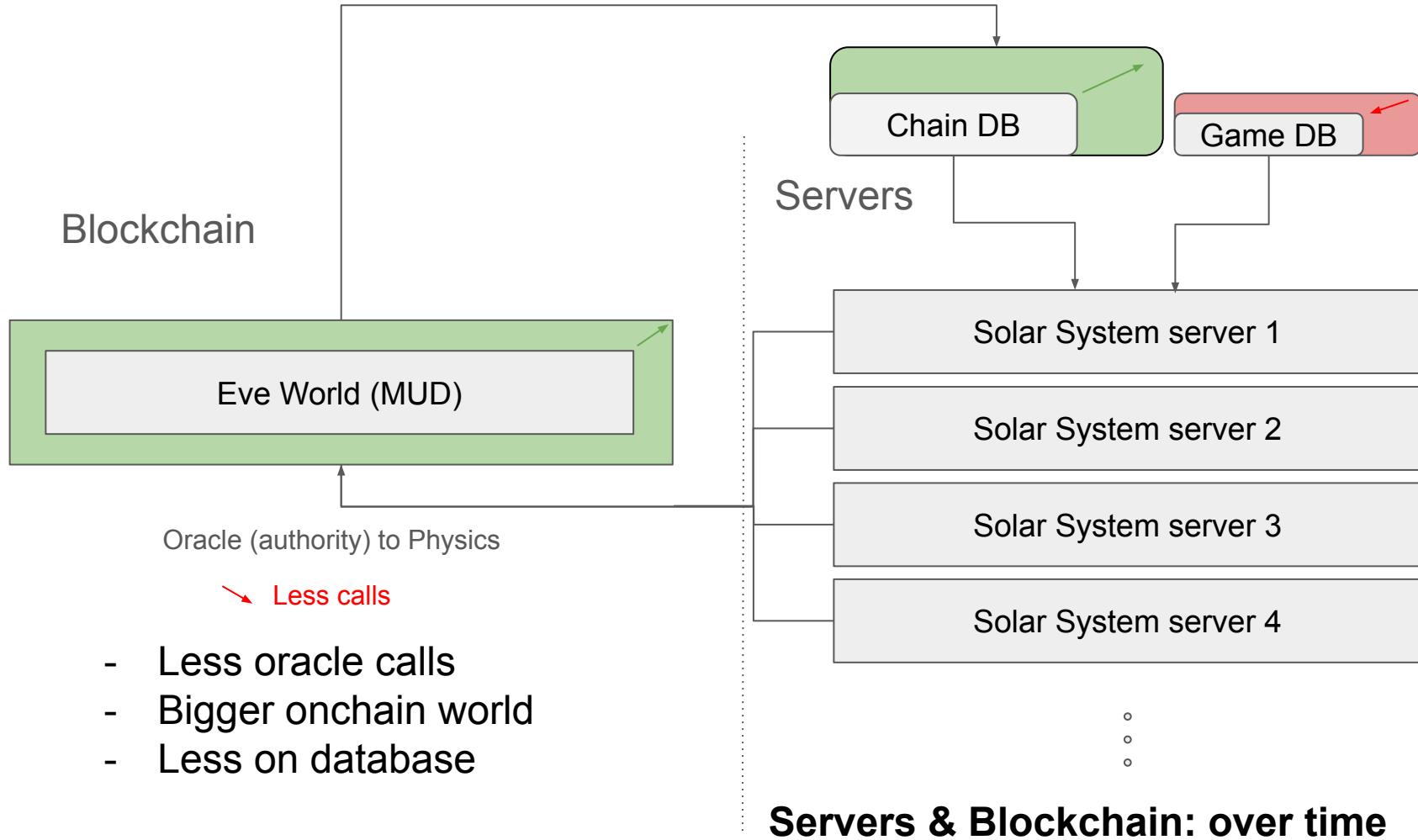
Mission

Reward

Shared data layer:



Servers & Blockchain





“Other games focus on having people going up against monsters, maybe in small groups.

EVE is focused on **building a society** and **supplying the tools and the rules** to operate it.”



Tools to Build Societies

We are creating an open environment which empowers players with access to open-source code and tooling, freeing them from restrictive EULAs of traditional game operation.

Our vision is that EVE Frontier will be in players' hands.

As players take a greater role in the evolution and growth of EVE Frontier, the amalgamation of this creativity **will result in their own societies and ultimately, civilization.**



Creating the future – with players



EVE

FRONTIER

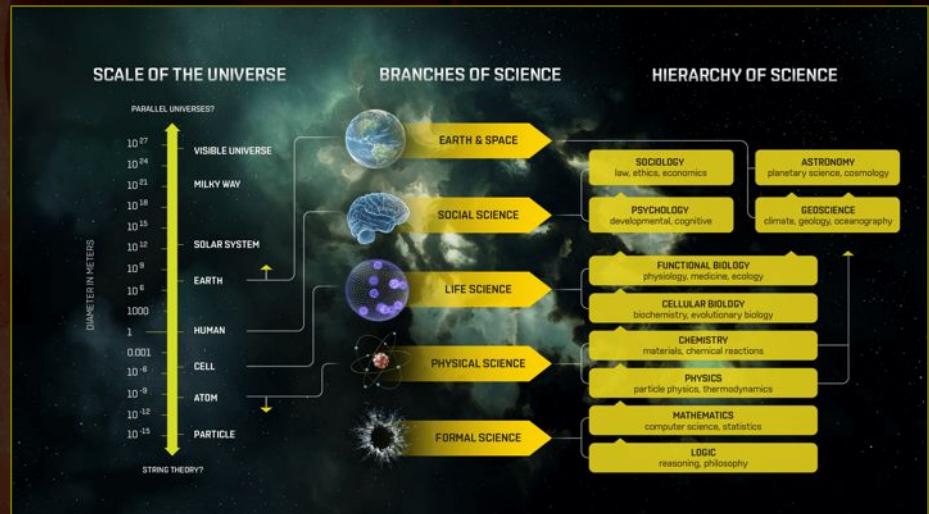
Rooted in Reality

The world of EVE Frontier is governed by a set of immutable principles, like our material world. We collectively call those principles 'Digital Physics'.

All entities on the Frontier are beholden to the Digital Physics of the world itself. All game activity obeys its immutable digital laws.

Players can't change them – neither can we.

We want the Frontier to *be real*.



EVE

FRONTIER

Open World = Open Economy

Program your own currencies or turn your assets, services and reputation into real-world value.

We believe that participants and contributors to a persistent virtual universe should have rightful ownership over the digital property they create, or that emerges from their collective achievements.

Ultimately, the vision is to transfer full control of the economy to players.

This player-driven economy will be the cornerstone of EVE Frontier's evolving world





Open Source

The game client, as well as the Carbon engine will be open sourced over time.

We will give players the ingredients and freedom to shape and recivilize the world as they see fit: a moddable layer to the entire universe and single-shard server itself.

We are building this for everyone who wants to exist within the Frontier: a world built for future decades in the hands of players.

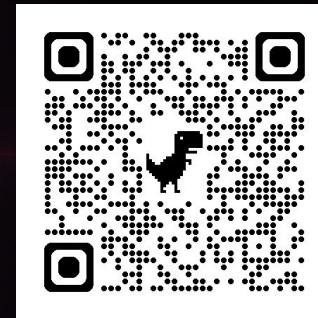
Closing: Eve Frontier and Ethereum

- We are in the sticks and stones era of digital civilization, yet the digital is becoming more important and valuable.
- I see Eve Frontier as a testbed for exploring how significant Worlds can be when made out of bits.
- Fronter can be a massive stress test to Ethereum: technologically & culturally.
 - **Ethereum as the home of Worlds that Matter.**
- Eve Online was rooted in the philosophy of “Worlds over Theme Parks”. Eve Frontier will be able to explore this even deeper with digital physics and real assets.



F R O N T I E R

Alpha Phase VI - December 5th



<https://www.evefrontier.com>