

# The Decentralization and Protocolization of On-chain Gaming

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# 10 trending topics from Paradigm

A few areas we've been exploring:

- **Intent-centric protocols and infra**
- **Hooks on top of Uniswap v4** (especially ones that focus on LP profitability and loss-vs-rebalancing)
- **Infra for a rollup-centric, multi-chain world**
- **Shared sequencers**
- **Onchain games** (something we would enjoy playing)
- **Crypto-native social apps**
- **Prediction markets** (creating markets with real liquidity)
- **Stablecoin payments/fintech** (as stablecoins mature and banking becomes more troublesome)
- **Onchain treasuries** (a natural step after stablecoins and before other real world assets)
- **ZKP apps** (there is a ZKP capability overhang: science is ahead of applied research, which is ahead of applications)

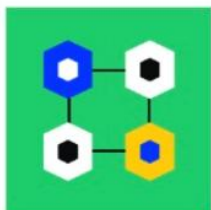
# 10 trending topics from Coinbase



Flatcoin



Onchain Reputation  
with DID



Onchain Adwords



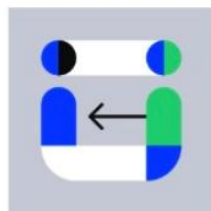
AngelList + Stripe Atlas  
for Crypto



Job/Task Marketplace  
for Crypto



Privacy for Layer2



P2P Exchange  
Fully Onchain



Onchain Games



Tokenizing Real  
World Assets



Network States



[Add Your Idea Here]

# What is fully on-chain game?

- An on-chain game is a game where: All game logic, state (assets and others) are on-chain, implemented via smart contracts.
- Sometimes we use "on-chain game" for short.
- Other terms that we often see in the on-chain gaming literature is that of an "Autonomous World" or equivalently an "On-Chain Reality" .

	Web 2.0 Game	Web 2.5 Game	Web 3.0 Game
How it works?	No blockchain	On-chain Asset Off-chain Logic	On-chain Asset On-chain Logic
Terms	Traditional Game	GameFi	FOC Game

# One question

- Why Fully On-chain Game?
- Why DeFi?
- The answer is not that simple

# Back to 2012 - 2018

- No concept like "DeFi", "Web3"
- Mainstream narrative of cryptocurrencies was "payment"
- BTC was considered as "e-cash" payment
- One chain with one coin. POW-based chains without smart contract

Enterprise

## **Dell Now Accepts Bitcoin For All Online U.S. Purchases**

Alex Wilhelm @alex / 5:25 AM GMT+7 • July 19, 2014

 Comment

# ICO and Ethereum

- Ethereum is actually a smart contract platform (2015)
- ICO means "Initial Coin Offering", but how it works?

	Before	After
Medium	BTC	ETH
Procedure	Sending BTC to one person's address and receive altcoins manually	Sending ETH to ICO contract address and receive tokens automatically
Altcoin term	Coin (LTC, Doge)	Token (USDT, UNI)
Paradigm norm	Centralized Investment	Decentralized Investment

- DeInvest

# Back to 2019 - 2022

- Several crucial infrastructures for DeFi started to emerge.

- | Onchain Exchange:           | Uniswap           |
|-----------------------------|-------------------|
| Onchain Lending             | AAVE and Compound |
| Onchain Stablecoin(payment) | MakerDAO          |

- Open Finance vs. Decentralized Finance

## Announcing De.Fi, A Community for Decentralized Finance Platforms



Brendan Forster · Follow

Published in Dharma Blog · 2 min read · Aug 30, 2018



# Summary for DeFi

- How Finance and Blockchain are integrated with each other?

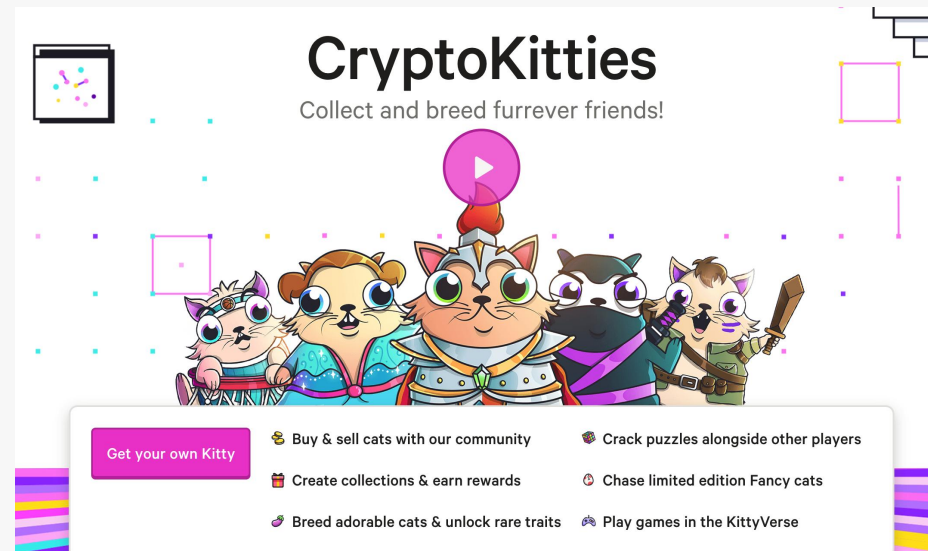
	Before	After
How to utilize	Token	Smart Contract
Method	Tokenization	Write Financial rules into smart contract
Narrative	Open Finance	DeFi

# Fusion of Game and Blockchain

- Token or smart contract?
  - Token means FT and NFT, but both are still tokens.
  - Currencies and securities used in finance are fungible, whereas in-game assets and characters are non-fungible.
  - Now we have, FT, NFT and Smart Contract for blockchain game to utilize.
- 
- Which one is the easiest way to build?

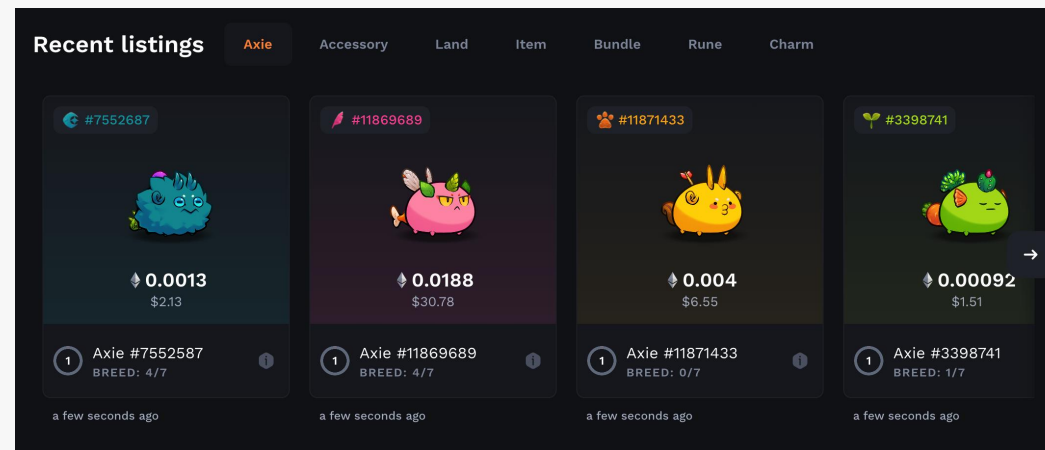
# Back to 2017 - 2020

- CryptoKitties was created on 2017.
- Kitties are NFTs.
- Breeding rules are written into smart contract.
- No ERC20 token.



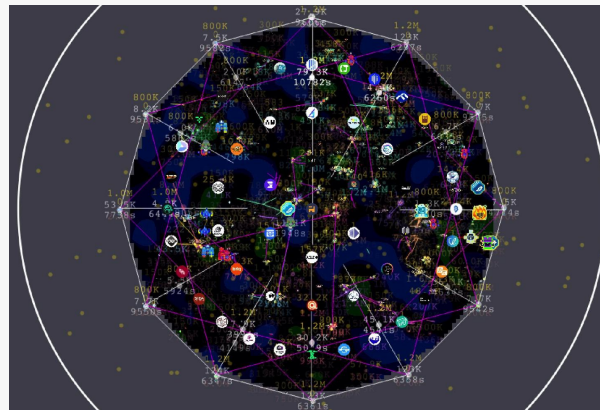
# Back to 2020 - 2022

- Rising of GameFi. Axie Infinity, Starsharks, Metamon, StepN...
- NFTs, ERC20 Tokens and no smart contract (only breeding rules in Axie are using smart contract, and other rules like fighting system are still off chain).
- They are all Centralized Games (CeGame).



# Crypto Winter in 2023

- 90% of GameFi projects are dead.
- Blockchain gaming just means "Issuing tokens with game"?
- How about writing game rules into smart contract like DeFi? DF.
- Should we call it DeGame like the term "DeFi"?
- That's our chain of thought and now we are all-in FOCG



# Decentralization and Protocolization of Gaming

## ■ Statement:

Fully on-chain game makes gaming decentralized and protocolized.

## ■ Decentralization:

Rules controlled by codes and codes managed by DAO.

## ■ Protocolization:

DeFi has DeFi protocol and game has game protocol. "Protocolization" is the process of standardizing a particular function or operation method. Such standardization means that this function or mode of operation is no longer private or proprietary but becomes a "public good" or standard that can be adopted and used by a broad range of developers or organizations.

# Why DeFi and Why Fully On-chain Game?

- Eternal: No centralized entities or servers
- Trustless: Code is law
- Permissionless: Any people can participate
- Interoperability: Different systems, devices, or applications can communicate and interact effectively.
- Composability: Various components or systems can be combined, laying the foundation for larger or more complex systems.
- Fostering Innovation: Any developers can create new applications or services without having to start from scratch. Avoiding "Reinventing the Wheel".

# All types of game can go to FOC?

- My idea is

Games with relatively simple rules

Games that don't require instant feedback

PvP not PvE

An open system

Online games, not single player games



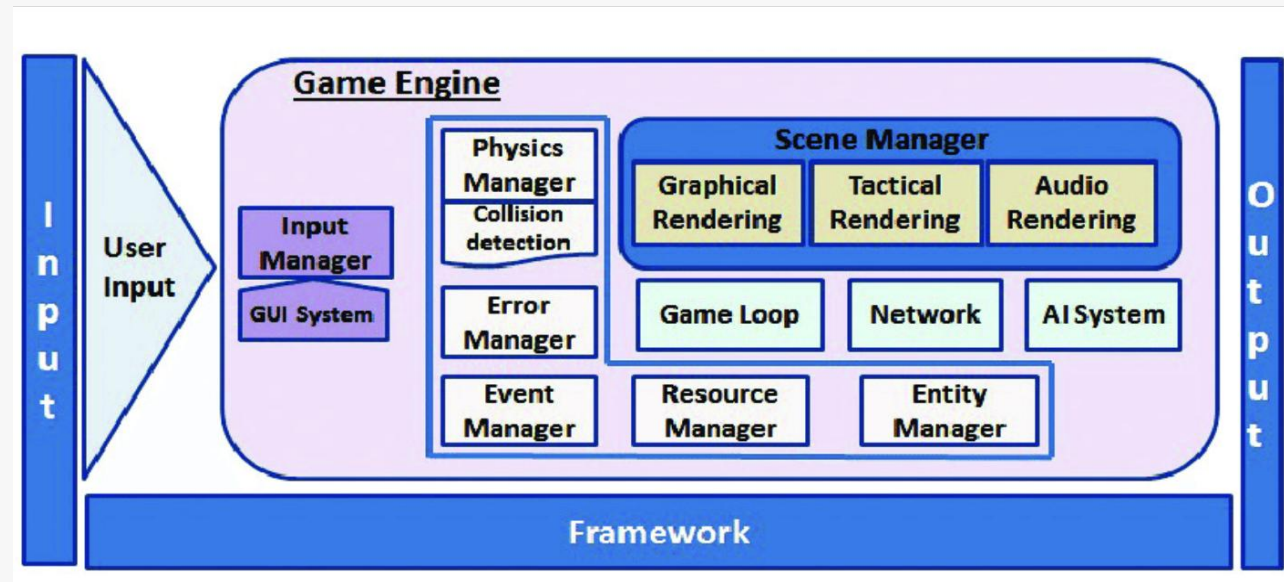
# Narratives

- Fully on-chain game: technical description.
- Autonomous World: a digital world managed by a Decentralized Autonomous Organization (DAO).  
*Reference: <https://0xparc.org/blog/autonomous-worlds>*
- Decentralized Game: DeGame, similar with Decentralized Finance (DeFi).  
*Reference: <https://captainz.xlog.app/The-Evolution-Of-DeGame-And-The-Protocolization-Of-Gaming>*

■ Which one do you like?

# Web2 Game Engine

- A software framework used for developing and creating electronic games, features like a rendering engine, audio processing, physics simulation, and animation systems, among others. Developers are able to focus on game design without the need to build the entire technical infrastructure from scratch.

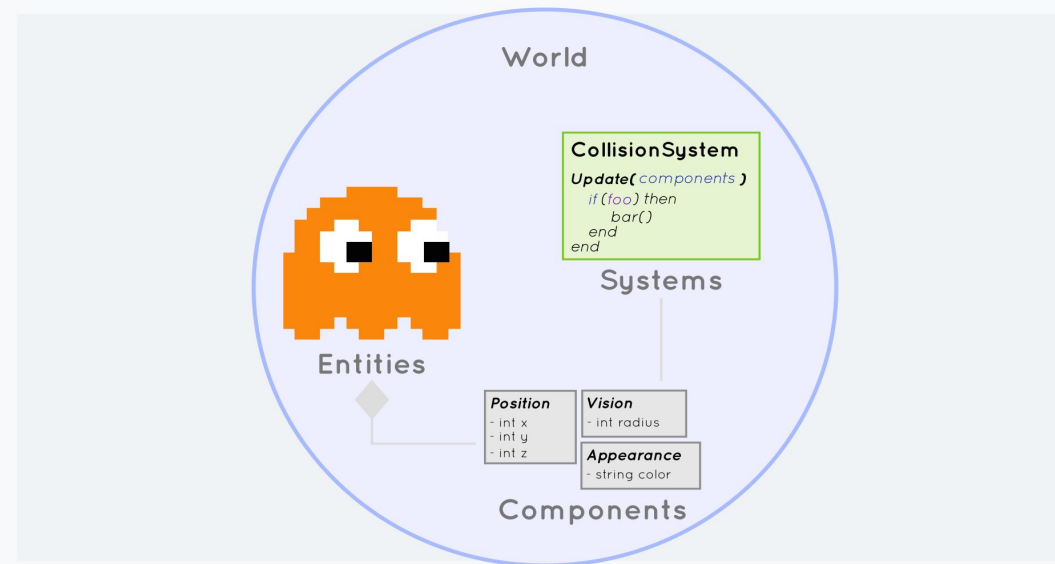


# FOC Game Engine

- FOC game engine is a framework for applications on Ethereum. Its core consists of a set of contract interfaces and conventions for using them. These core interfaces and libraries facilitate a smoother operation of a range of peripheral tools, integrations, and libraries, thereby simplifying the development of on-chain applications.
- One of the biggest challenges encountered during game engine development is how to represent game objects.
- Object-Oriented Programming (OOP) to Entity Component System (ECS).

# ECS

- Entity: An entity is a fundamental object in the game world, such as characters, props...
- Component: Components are used to store attributes and data for entities. Each component is responsible for representing a specific characteristic or function, such as location, velocity...
- System: Systems are responsible for managing game logic and behavior. They perform operations based on the components that an entity possesses.

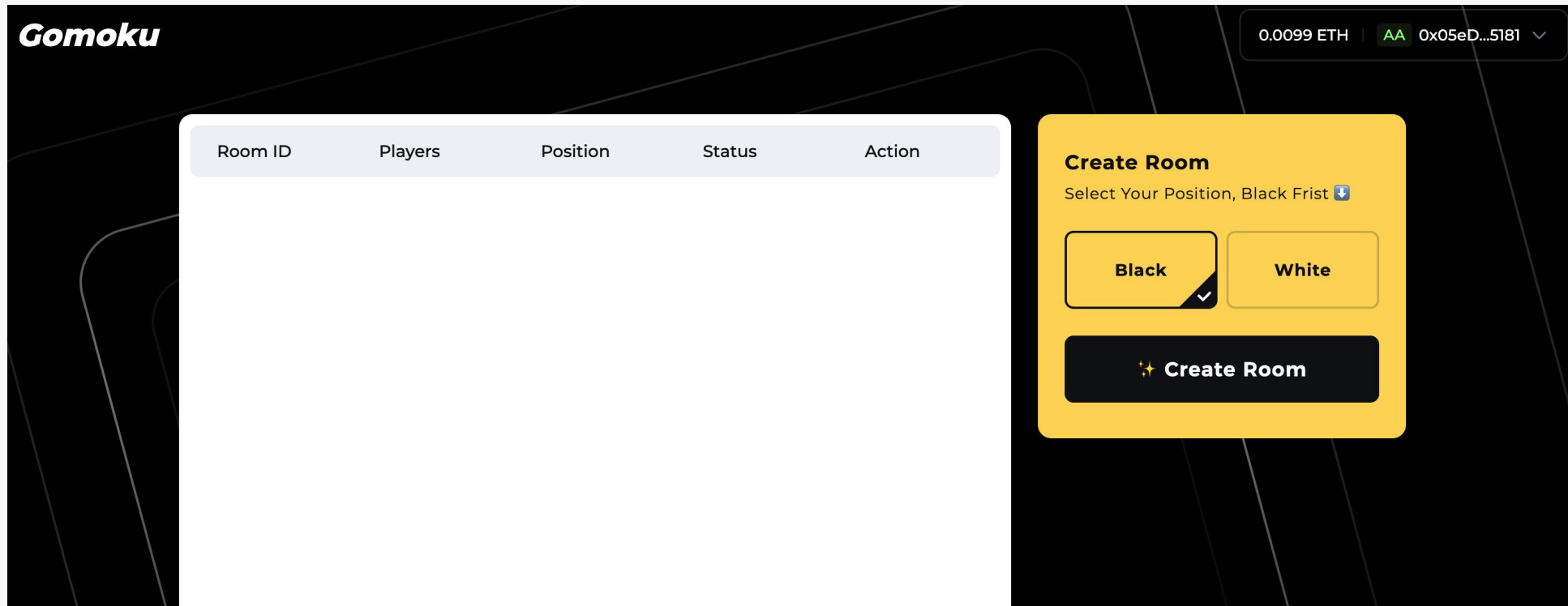


# Comparision of Engines

	L1	L2	L3	ECS Types	Language
MUD	EVM	None	None	Archetype	Solidity
Dojo	Ethereum	Starknet(ZKR)	None	Unknown	Cairo
Argus	EVM	Customized L2(Polaris)	Customized L3	Archetype	Go
Curio	EVM	Customized L2(OPStack)	None	Sparse Set	Go

# Gomoku Protocol

- <https://gomoku3.xyz/>
- The first ever game protocol using AA wallet (EIP-6551)



Thank you !