



Berkeley Center for Responsible,
Decentralized Intelligence

Summit on Responsible Decentralized Intelligence — Future of Decentralization and AI

August 6, 2024
Verizon Center, NYC

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Innovators Showcase

MC

Summit on Responsible Decentralized Intelligence — Future of Decentralization and AI



August 6, 2024

Jeff Wilser

Verizon Center, NYC

Author, Host, AI-
Curious Podcast

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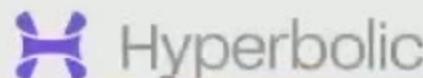
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The Future of AI is Collaborative



Jeff Wilser

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The Future of AI is Collaborative

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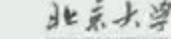
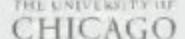
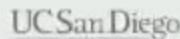
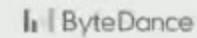
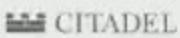
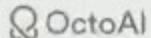


I. About Hyperbolic

Team and Advisors

Meet the Team

With Experience
Drawn From:



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Dr. Jasper (Yue) Zhang

Co-Founder & CEO

Completed Math Ph.D. at UC Berkeley in 2 years. Gold Medalist at Alibaba Global Math Competition and Chinese Mathematical Olympiad. Previously at Ava Labs and Citadel Securities.

[Jasper's Story](#)

Dr. Yuchen Jin

Co-Founder & CTO

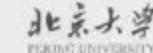
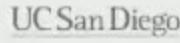
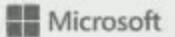
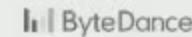
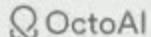
Led Relax, an innovative open-source AI compiler within Apache TVM. Holds a Ph.D. in CS (AI Systems and Networking), from the University of Washington, with publications at top conferences including ICLR, SIGCOMM, NSDI, and SOSP.

[Yuchen's Story](#)

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II. Our Mission

Democratizing AI Through Three Core Goals

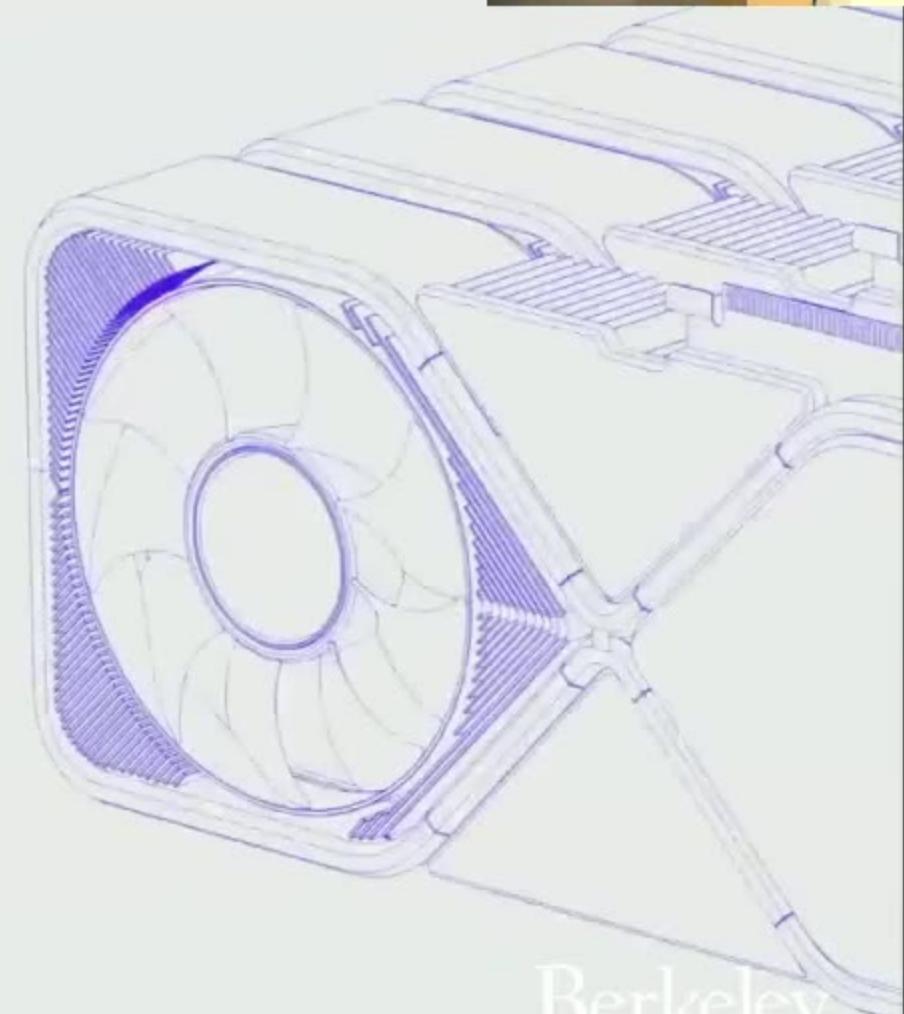


Goal #1: Utilize Decentralized Heterogeneous Compute

Our solution: Build a scalable system to aggregate global GPU compute and maximize the performance of any kind of GPU.

"Access to compute remains one of the biggest bottlenecks for democratizing AI. Hyperbolic Labs is revolutionizing the AI landscape by making compute more accessible than ever. I'm inspired by the commitment to collaboration and openness and excited to support the vision."

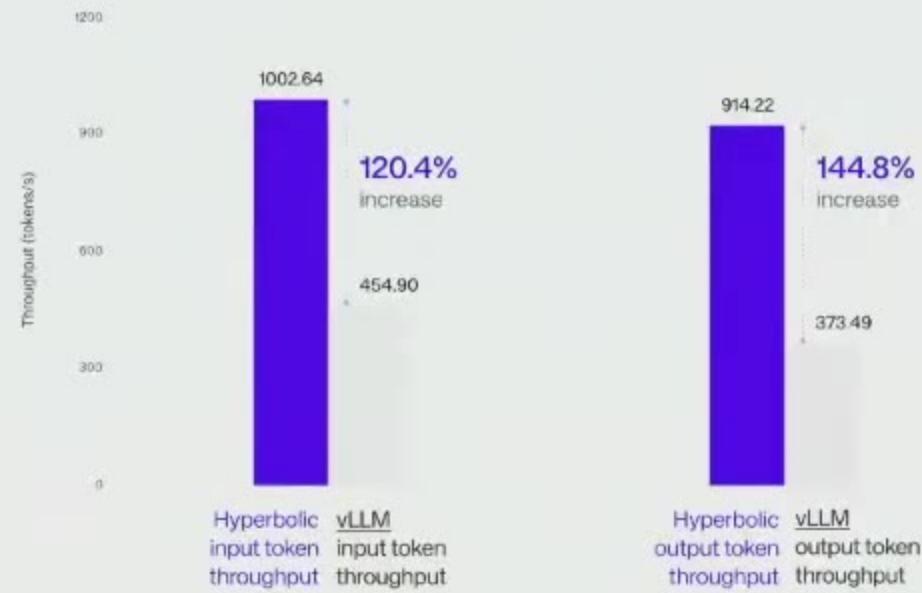
Reynold Xin, Co-Founder and Chief Architect of Databricks, Advisor to Hyperbolic





Harness Heterogeneous Compute

We maximize the performance of AI inference through our compiling stack that optimizes tensor operators on any hardware backend

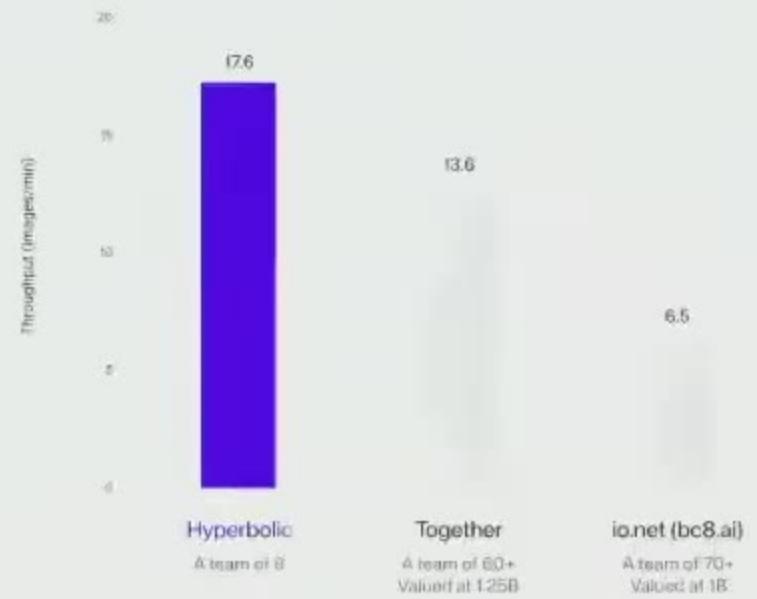
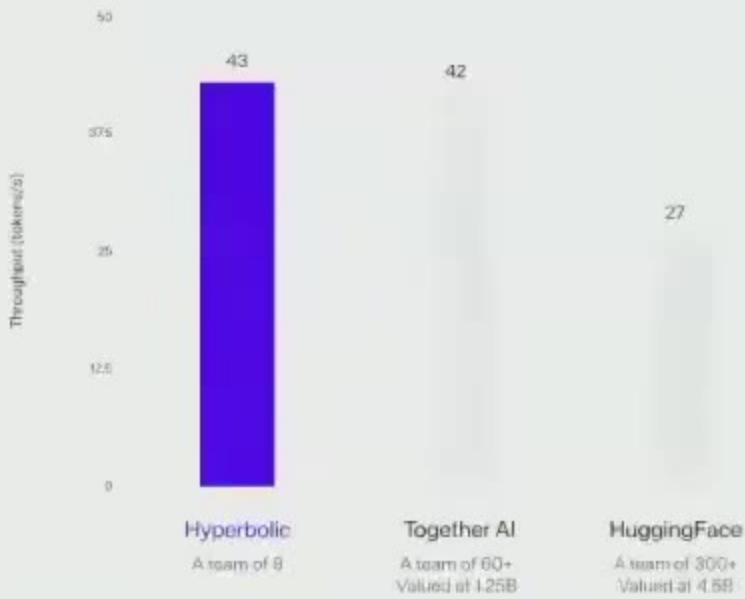


Current performance comparison of the Llama3-8B model on AMD MI250

*vLLM is one of the most widely-adopted serving framework for LLMs



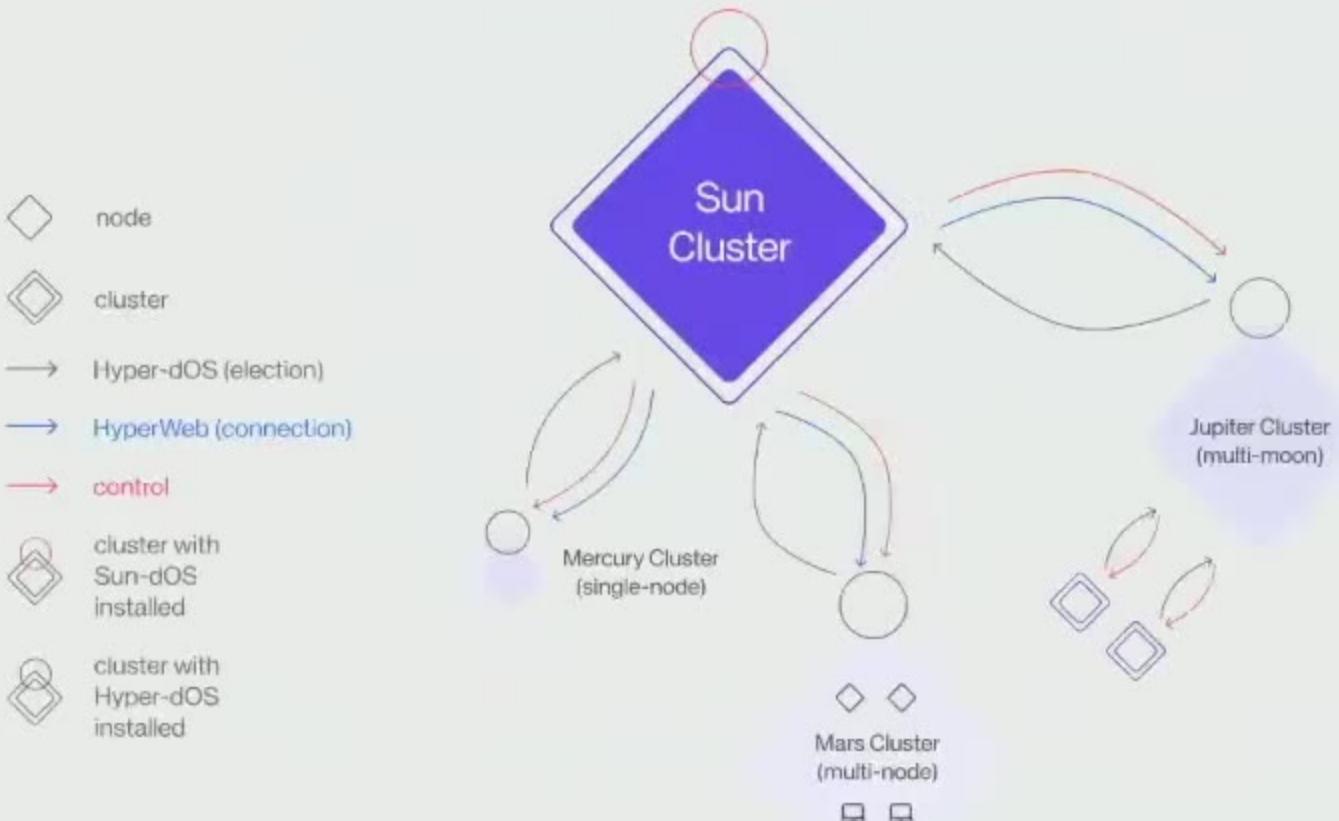
Comparable Performance to Centralized Solutions





Decentralized Orchestration Layer

Hyperbolic Decentralized Operating System (Hyper-dOS)



The Solar System Clustering Model:

- Many Planetary Clusters: Independent clusters of various sizes, governance, and ownership (e.g., Mercury Cluster, Mars Cluster, Jupiter Cluster).
- Sun Cluster: The sun cluster that governs and sustains all planetary clusters, providing essential services and support, ensuring the stability and efficiency of the system.

Key Properties:

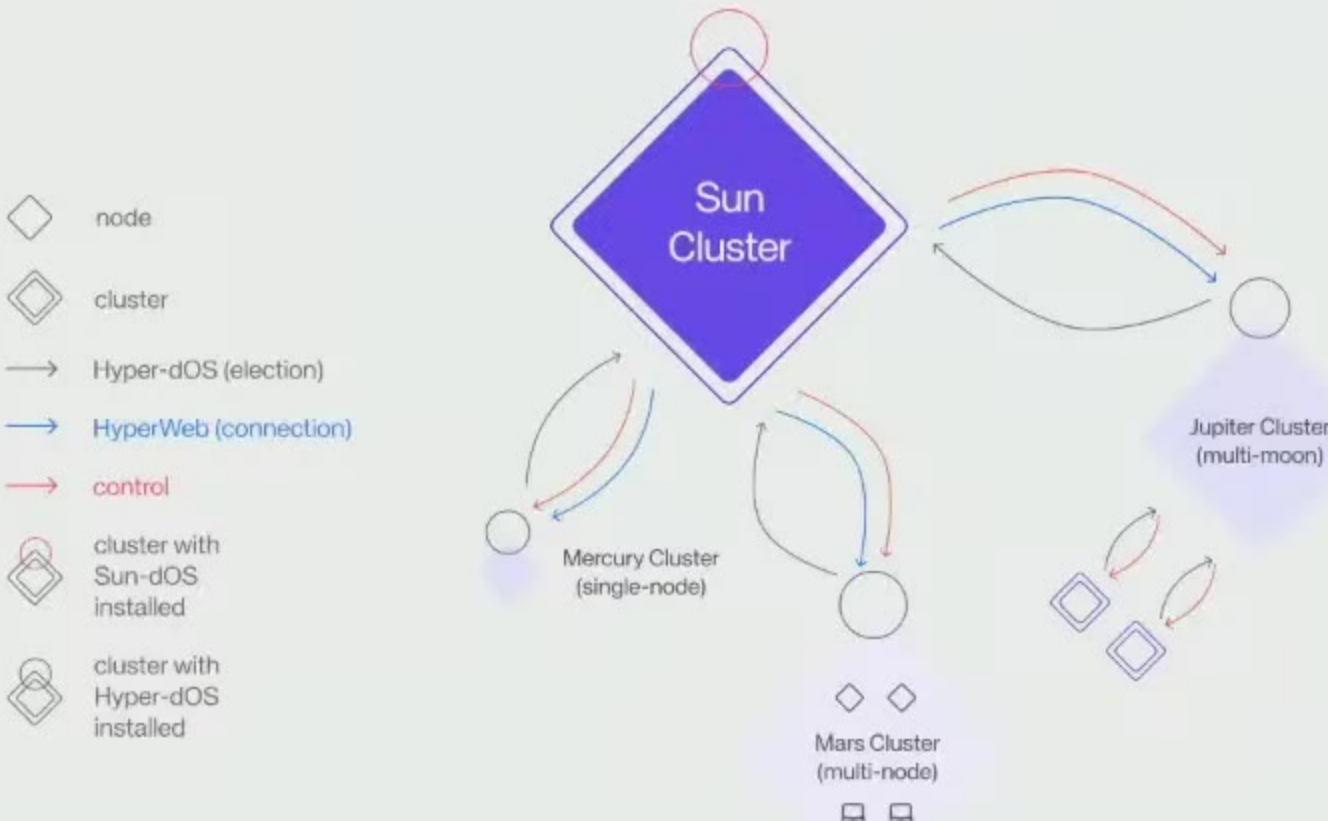
- Auto-scaling: Just as planetary systems adjust to maintain equilibrium, our clusters automatically scale up or down based on demand.
- Self-healing: Similar to how a solar system maintains stability despite disruptions, our clusters automatically detect and recover from failures.
- Customizable: Like the diverse environments of different planets, each cluster can be customized to meet specific needs and preferences.



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Goal #2: Ensure Security and Verifiability in Decentralized AI

Our solution: "Proof of Sampling: A Nash Equilibrium-Secured Verification Protocol for Decentralized Systems"

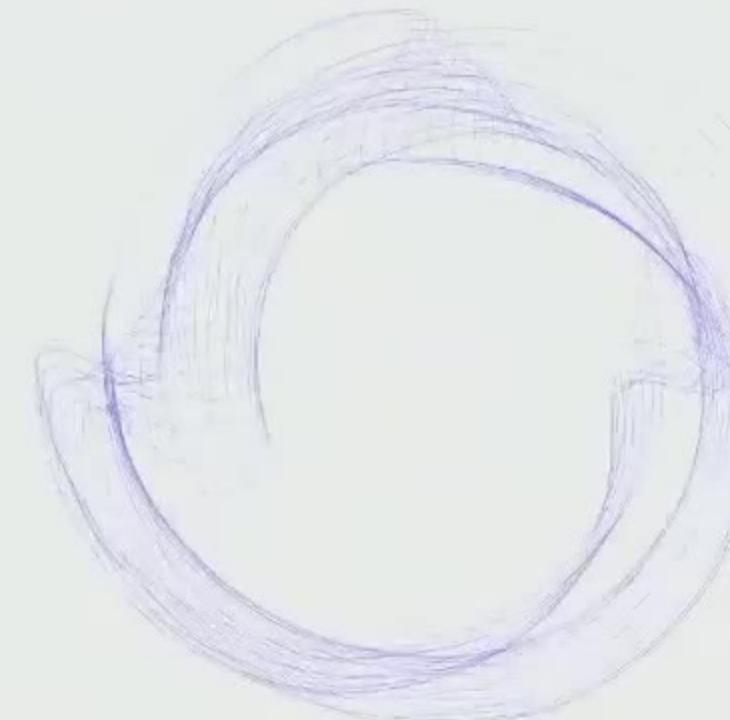
Collaborators:

Prof. Raluca Ada Popa & Prof. Ciamac Moaellemi

"Verification and confidentiality have been unsolved problems in deployed AI systems. What Hyperbolic is doing to attack these issues is both impressive and exciting, and I'm thrilled to be working with them to bring these novel solutions to life for AI companies and researchers."

Raluca Ada Popa, Associate Professor of Computer Science at UC Berkeley, Advisor to Hyperbolic

[Media Coverage \(CoinDesk\)](#)





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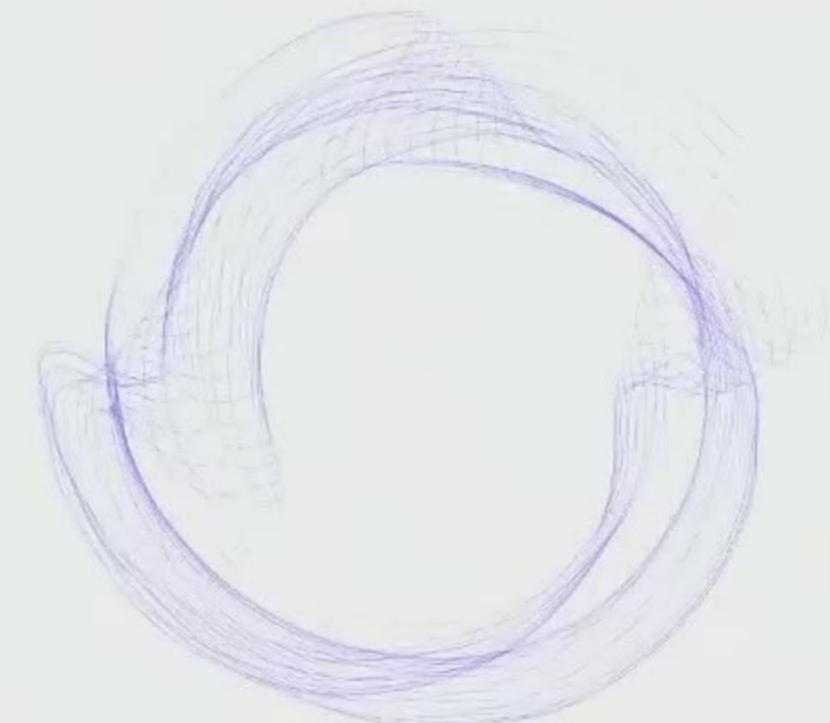
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The Verification Mechanism Built for A

Proof of Sampling is designed for applications requiring high frequency, low latency, and having minimal economic risk.

Aspects	spML (Proof of Sampling)	Consensus / Voting	opML (Optimistic Mechanism)	zkML (Zero-Knowledge Proof)
⌚ Security	High security through economic incentives	High security through consensus	More vulnerable to fraudulent activity	High security through cryptographic proofs
⌚ Delay	Almost no delay due to asserter will act honestly	Delays due to communication overhead, redundancy and network latency	Potential delays in dispute resolution	Delays due to proof generation
⚡ Scalability	Highly scalable	Limited by computational overhead of redundancy	Highly scalable	Limited by computational overhead of proof generation
⌚ Overhead	Low computational overhead, unless in the case of disputes (which never happens if everyone is rational); 1% overhead	High computational overhead due to redundancy; 10x overhead if it's reproduced by 10 nodes	Low computation overhead, unless in the case of disputes	High computational overhead due to the nature of cryptographic proof generation; 100x-1000x overhead



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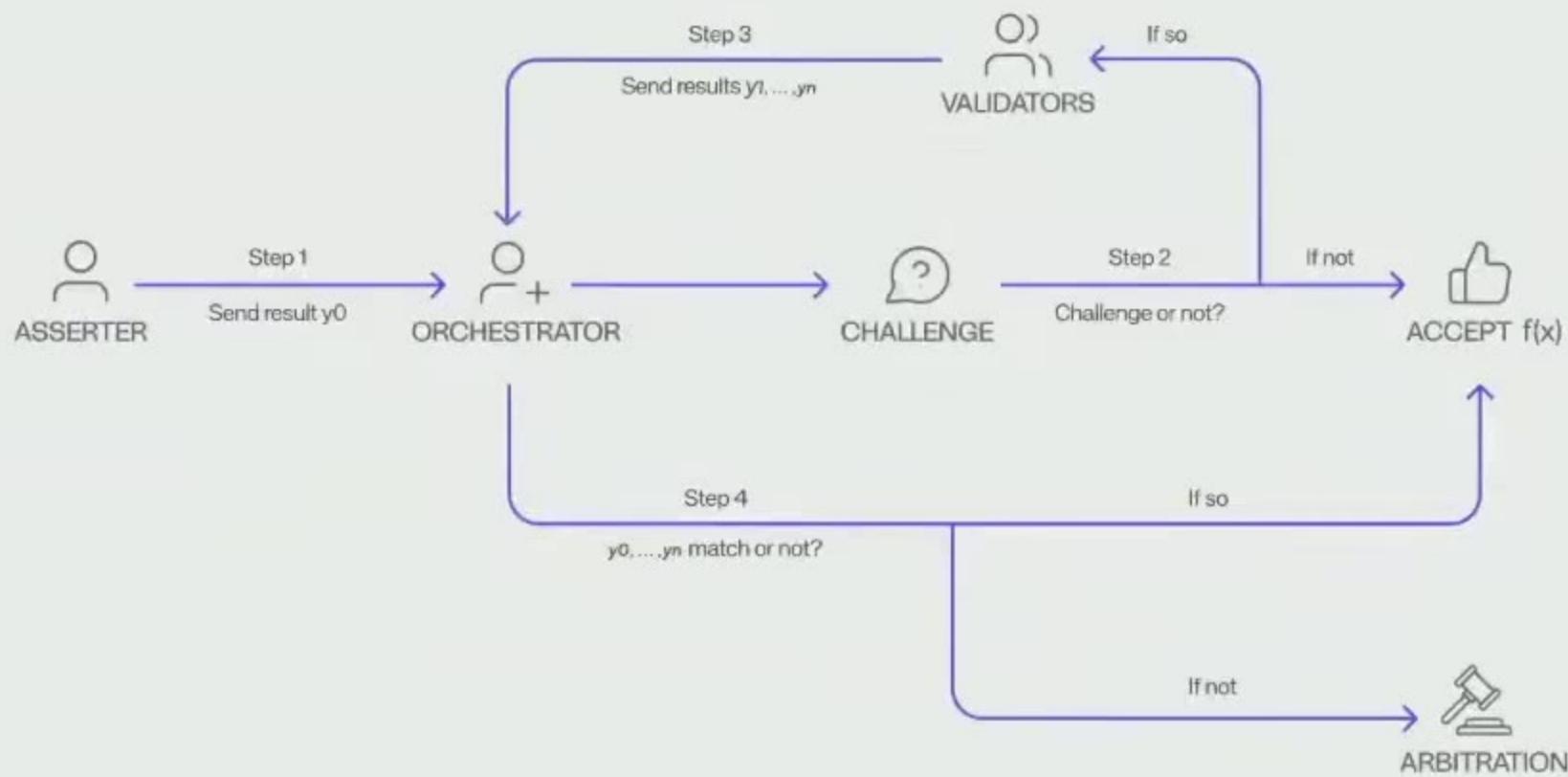
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Proof of Sampling (PoSP)

A Nash Equilibrium-Based Security Protocol for Decentralized Systems





Goal #3:

Protect Privacy in Decentralized AI

Work in Progress

The Challenge

- Privacy Concerns: Ensuring data privacy and model integrity in decentralized AI networks
- No Viable Solution: Existing solutions like Fully Homomorphic Encryption (FHE), Zero Knowledge Proofs (ZKP), and Multi-Party Computation (MPC) introduce significant computational overheads, making them impractical.

Our Approach

- Trusted Execution Environments (TEE): Leveraging Confidential Computing on NVIDIA Hopper and Blackwell GPUs to enhance security without the high overhead of traditional encryption methods.
- AI Services Integration: Adding a layer of Confidential Computing on our decentralized network of nodes to secure data and AI models in use.
- Collaborator: Prof. Popa

Future Potential

- Enterprise Adoption: Addressing web2 and AI enterprise concerns about data retention by decentralized nodes, allowing them to confidently choose Hyperbolic's decentralized cloud over traditional providers like AWS, GCP & Azure.



Image generated on [Hyperbolic AI Platform](#)

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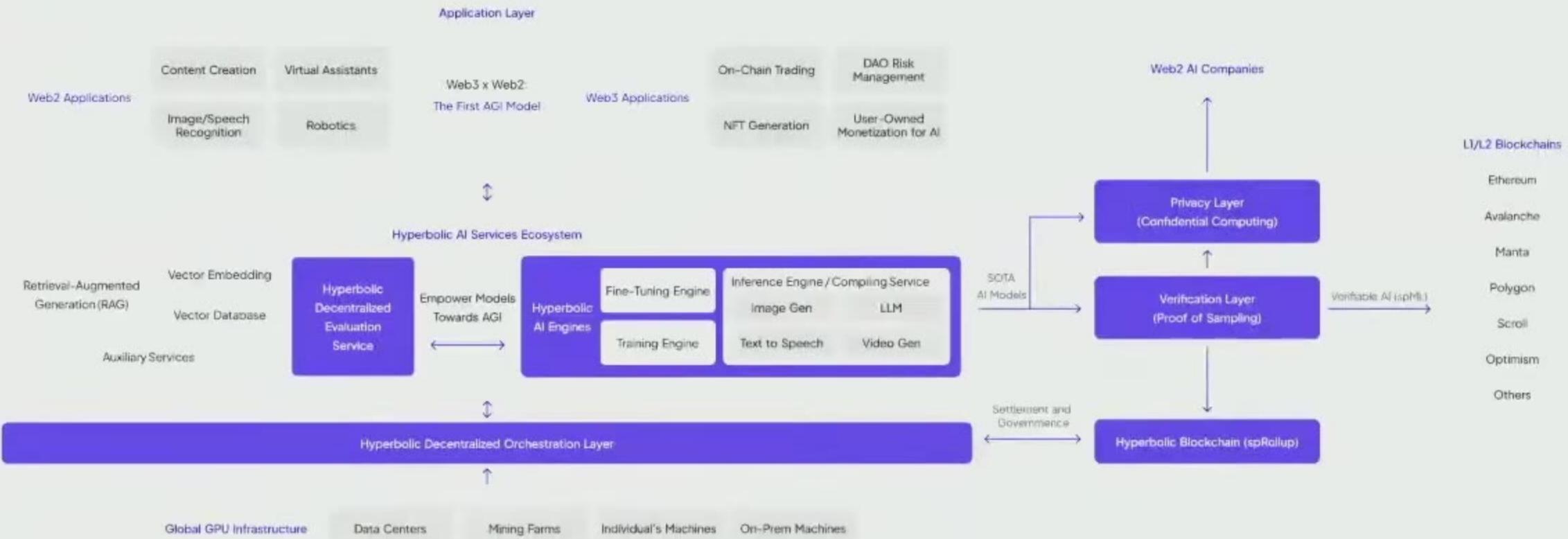
III. Forging the Path

Ecosystem, Accomplishments, and Roadmap

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Our Ecosystem Architecture

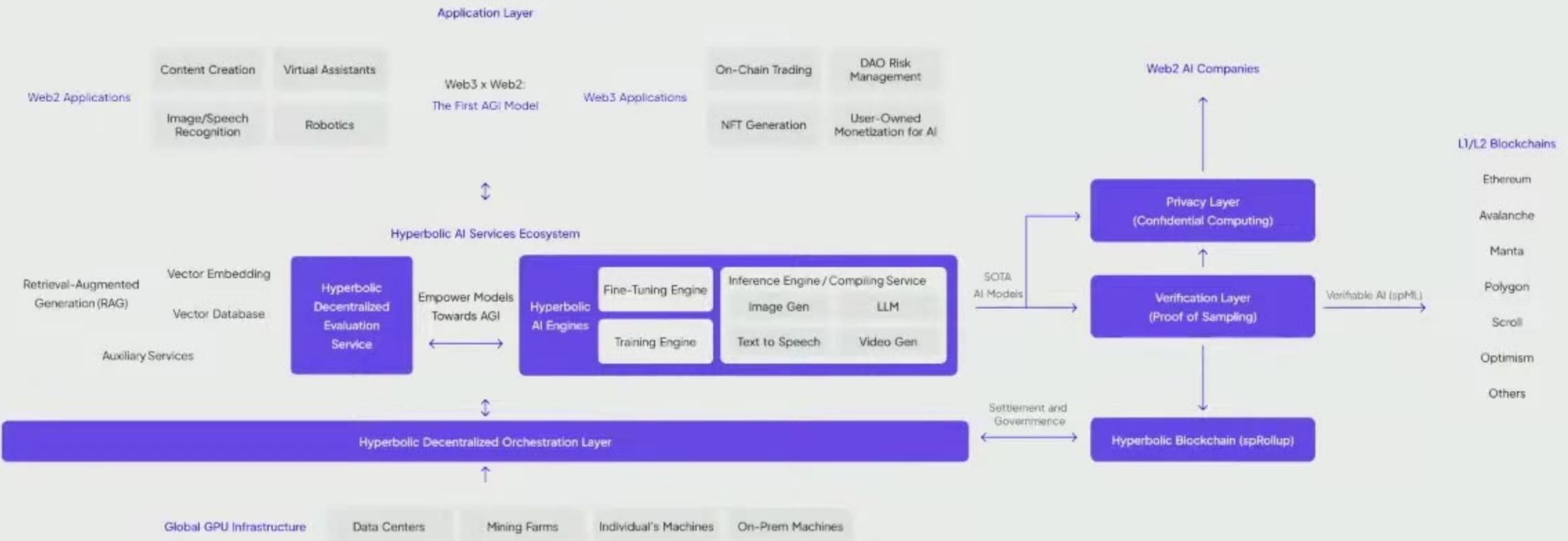


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Our Ecosystem Architecture



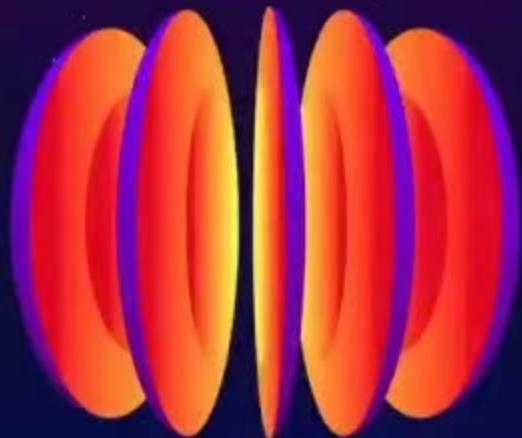
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DEMOCRATIZING THE ECONOMY OF COMPUTE



Exabits

Berkeley Center for Responsible,
Decentralized Intelligence

Berkeley Blockchain
XCELERATOR

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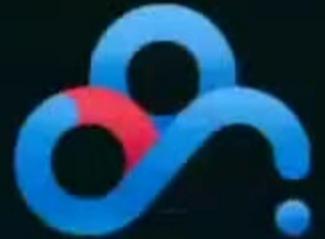
Microsoft
Azure

Tencent Cloud

CoreWeave Lambda



Google Cloud



Baidu Cloud

Alibaba Cloud



Exabig

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EDGE MATRIX

akash

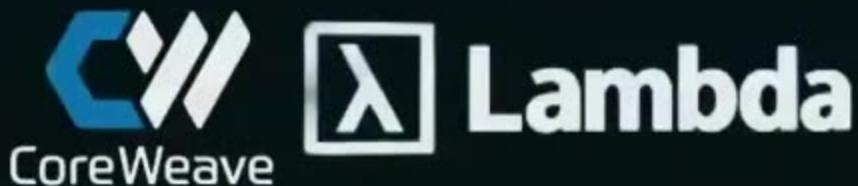
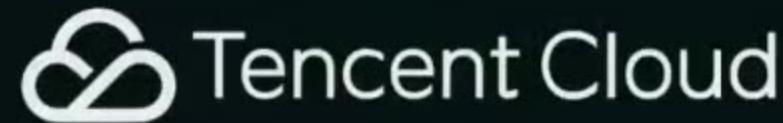
gensyn

Aethir

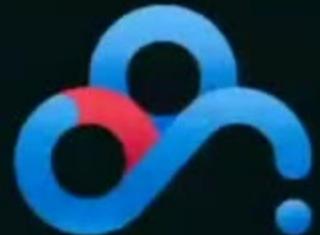
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Google Cloud



Baidu Cloud

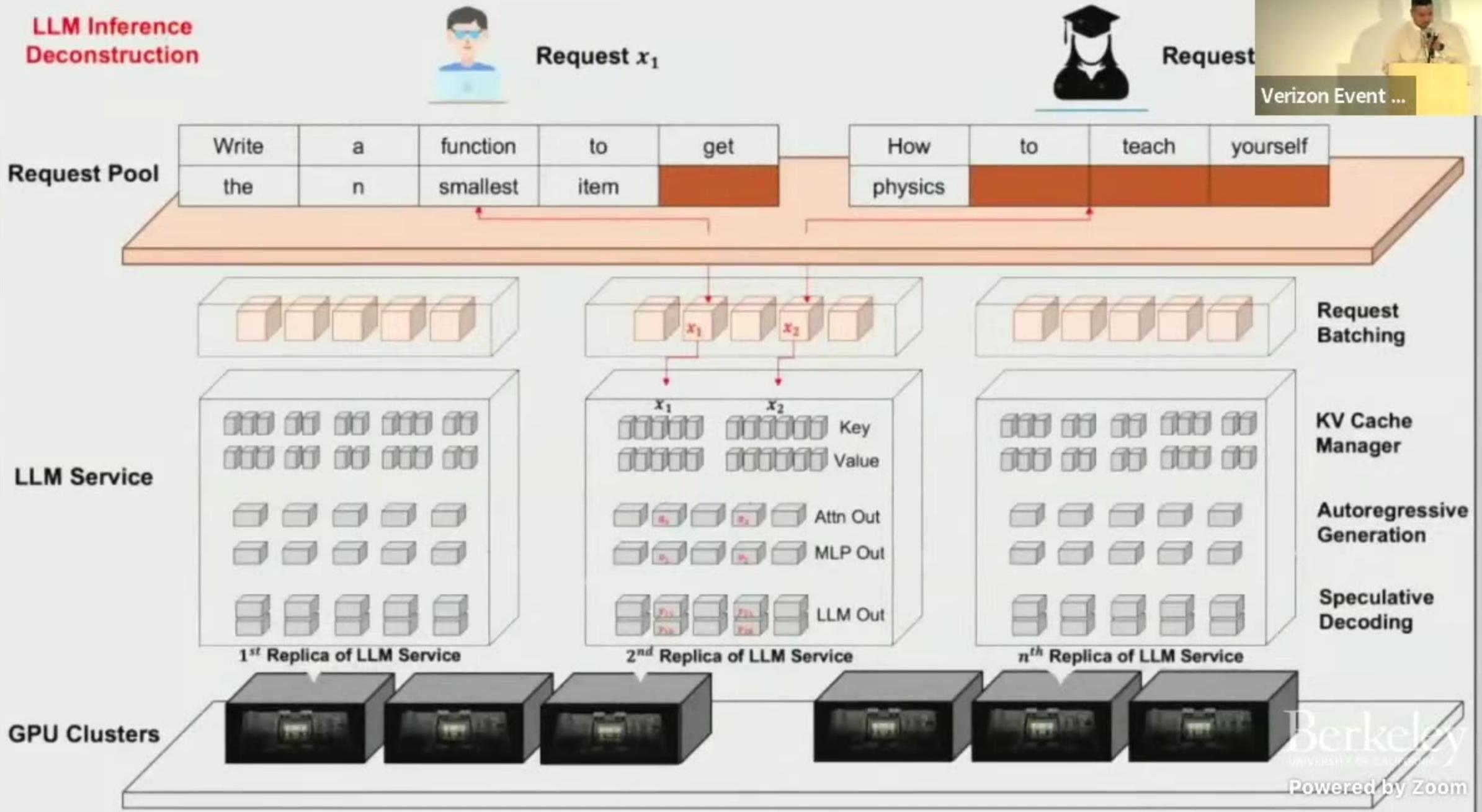


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LLM Inference Deconstruction



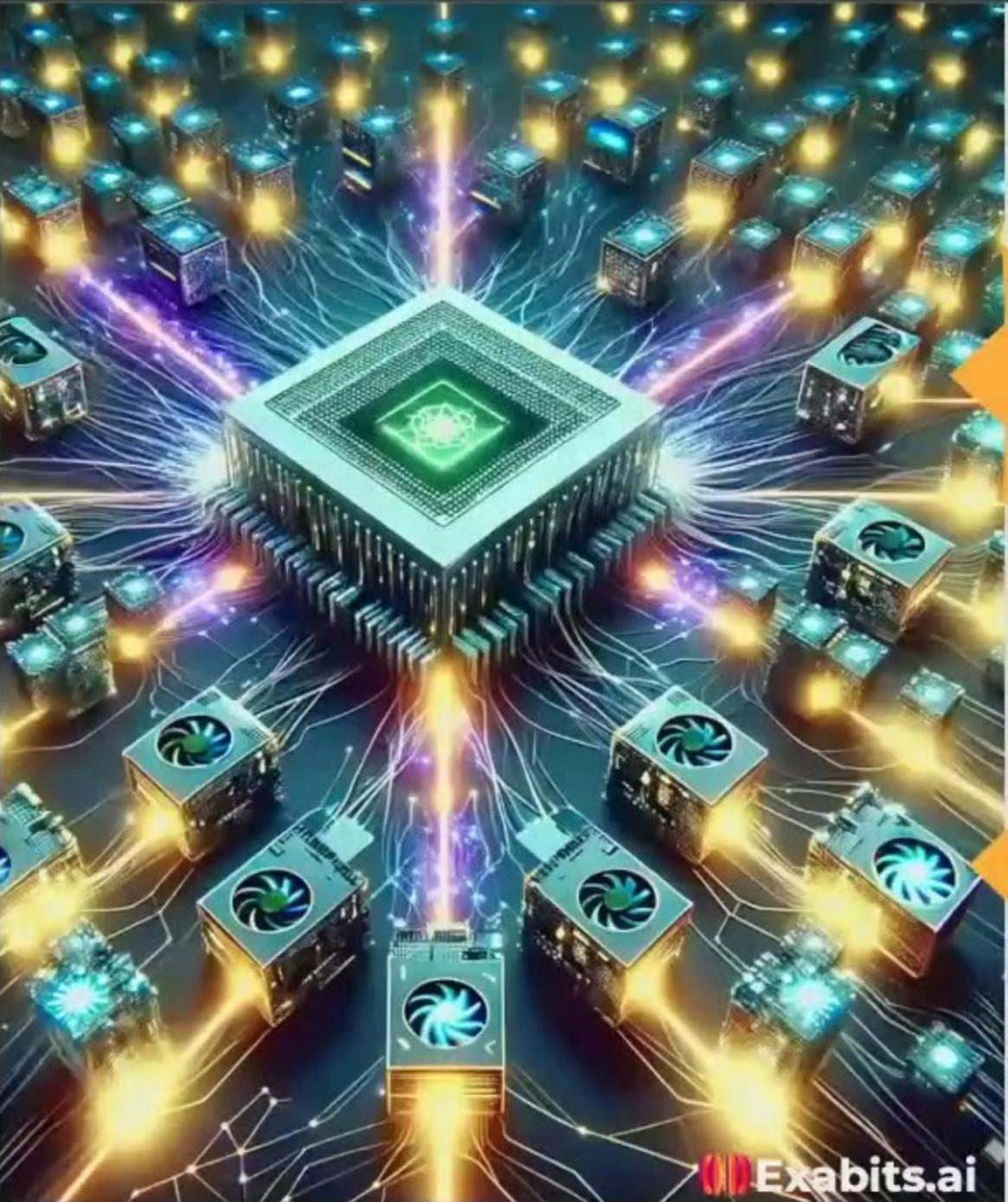
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- 100+ DATA CENTERS
- 65,000 AI READY GPUs
- 2 BILLION+ COMPUTE HOURS

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Exabits



Exabits.ai

-72%
SAVINGS!

+30%

TRAINING SPEED

\$43,776

Exabits

\$147,456

aws

Speed

130%

Exabits

100%

aws
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Monthly Cost



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DISTRIBUTORS

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 EDGE MATRIX

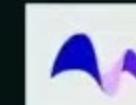
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CUSTOMERS

 NEBULA BLOCK

 MyShell








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NEXT...

FINANCIALIZE THE COMPUTE ECONOMY

Tokenize GPUs

- GPU = Asset Class
- Fractionalized ownership
- Lending against GPU
- Yield on gpus
- Futures trading

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THE COMPUTE
ECONOMY**

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EXHABITS.AI

Jonathan@exhabits.ai


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Universal and Reproducible Compute



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Universal and Reproducible Compute?



Universal and Reproducible Compute?



Universal = Runs everywhere
Reproducible = Runs the same*

* (for some definitions of “same”)



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Who Is This Guy?



How Things Have Changed...

Verizon Event ...

Then:

```
ftp://files.nia.nih.gov/studies/2005_05_PET_data/smith_jane_003.tgz
```



How Things Have Changed...

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```

Now:

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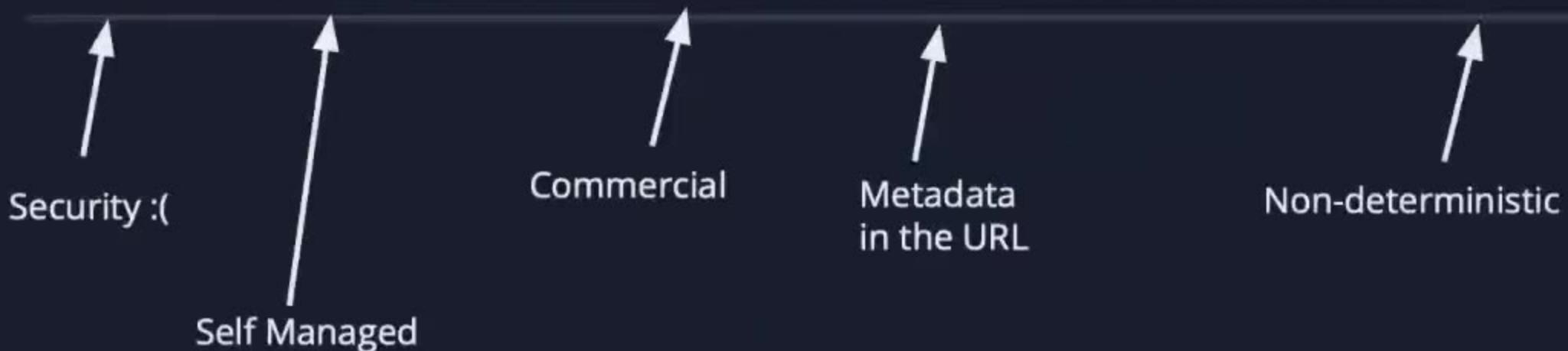
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But It Works?



Does it?

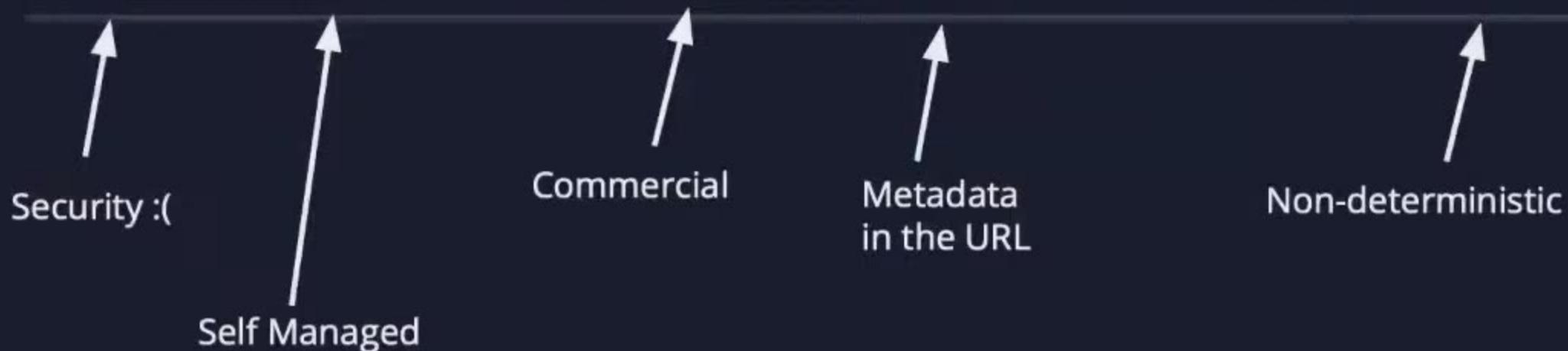
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Does it?

`https://noaa-nexrad.s3.amazonaws.com/2015/08/08/KARX20150808_003_V06.gz`





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AND



We Couldn't Keep Up Even If We Wanted To!

175 zettabytes of data stored

Data Growing Rapidly

42% y/y growth in enterprise data

60% of companies have 1PB+

57% of enterprise data is outside traditional data centers

Moving it is slow and expensive

45% excess growth rate of data compared to bandwidth (2010-2020)

1.8B years to move the datasphere at current bandwidth

Approx. 100% is under governance

\$250B governance fines since 2008

67,000 regulations worldwide

HIPAA, GDPR, GLBA, FISMA, NIST, MARS-E, IRS-1075, CCPA, POI, PCI-DSS, etc.

We Couldn't Keep Up Even If We Wanted To!



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How Can We Address It?



Compute Over Data





» Bacalhau



» Bacalhau

» Bacalhau

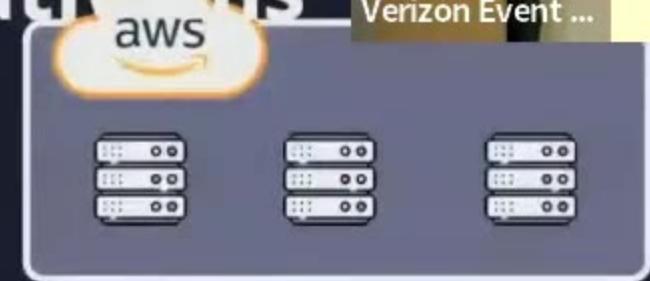
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Solution: OSS Compute Over Data Platforms



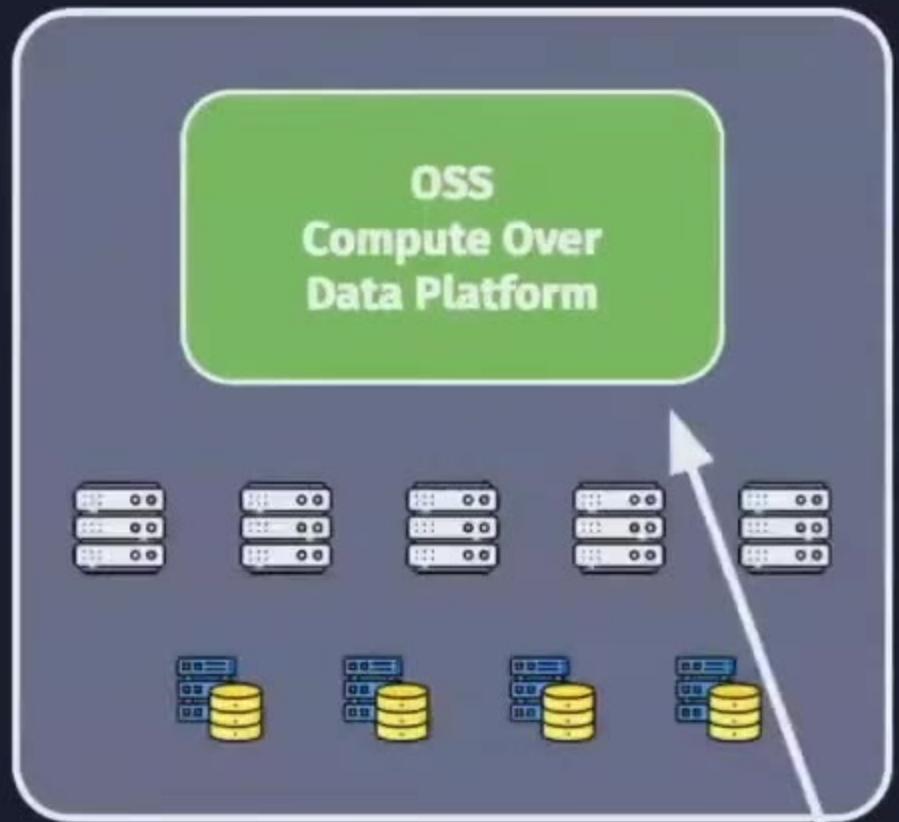
Data
Scientist



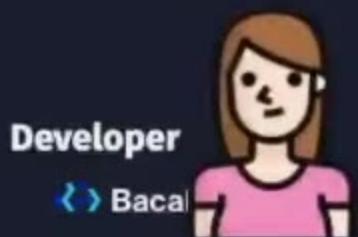
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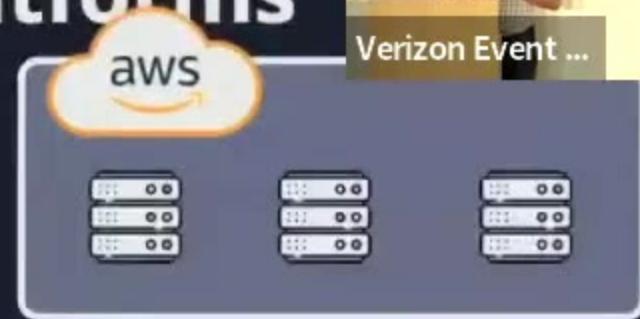
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Developer

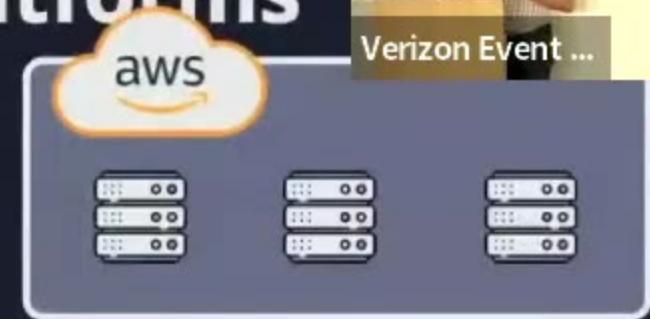
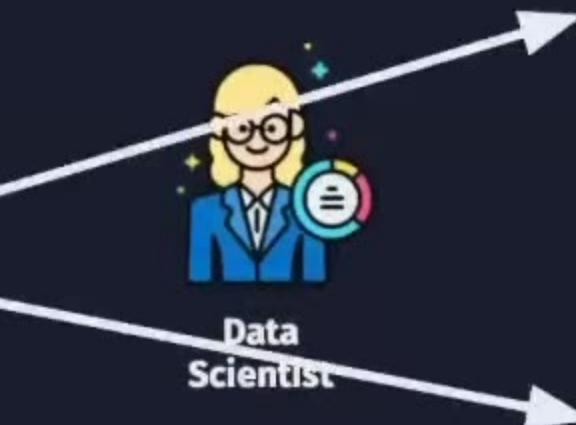
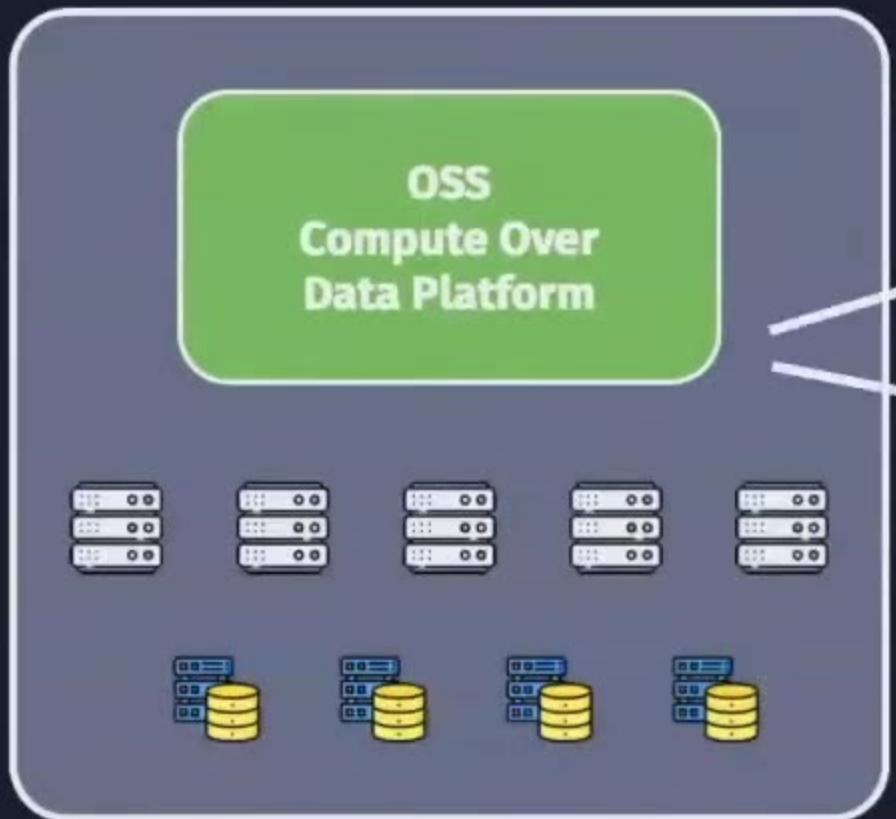
Baca

Open Source
& Extensible



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Solution: OSS Compute Over Data Platforms



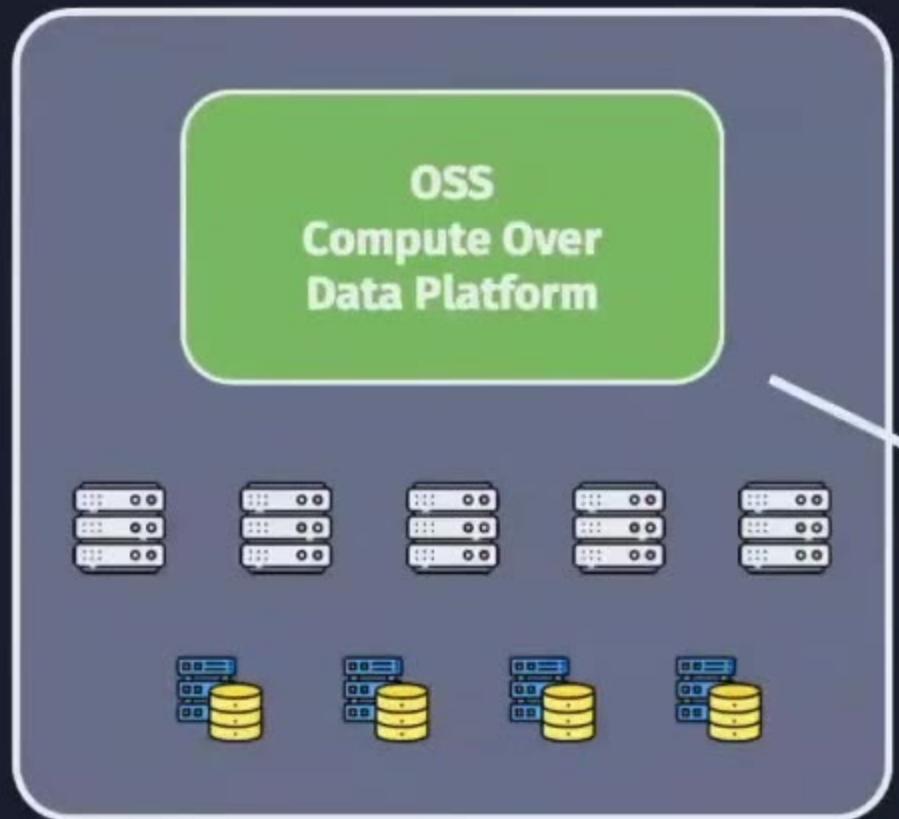
**Built for
Multi-Cloud**



Solution: OSS Compute Over Data Platforms



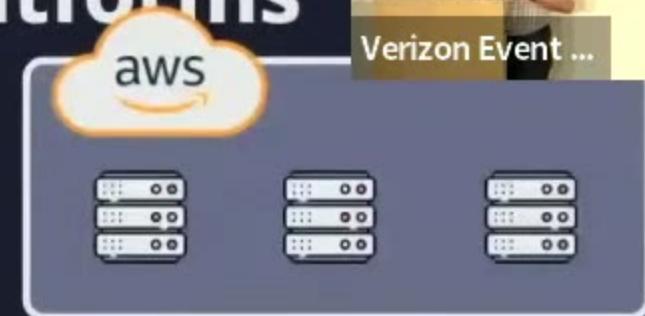
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Data
Scientist

Developer

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Made for
Non-Data
Centers



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Key Scenarios For Bacalhau



**Reproducible
Execution**



**Respecting
Data Gravity**



**Supports for
Isolation**

Key Scenarios For Bacalhau



**Reproducible
Execution**



**Respecting
Data Gravity**



**Supports for
Isolation**



Bacalhau Job

```
● ● ●  
Job:  
  APIVersion: v1beta2  
  Spec:  
    EngineSpec:  
      Params:  
        EnvironmentVariables:  
          - INPUTFILE=/var/log/logs_to_process/aperitivo_logs.log.1  
          - QUERY=SELECT * FROM log_data WHERE message LIKE '%  
[SECURITY]%' ORDER BY '@timestamp'  
        Image: docker.io/bacalhauproject/motherduck-log-processor 1.1.6  
        Type: docker  
    Resources:  
      GPU: ""  
      Memory: 4gb  
    Inputs:  
      - Name: logs_to_process  
        SourcePath: QmXoypizjW3WknFiJnKLwHCnL72vedxjQkDDP1mXWo6uco  
        StorageSource: S3  
        path: /var/log/logs_to_process
```

Parameterizable

Repeatable

Flexible Engine

Data Aware Scheduling

The diagram consists of four text labels in bold: "Parameterizable", "Repeatable", "Flexible Engine", and "Data Aware Scheduling". Arrows point from each label to specific sections of the job configuration code. "Parameterizable" points to the "EnvironmentVariables" section. "Repeatable" points to the "[SECURITY]" placeholder. "Flexible Engine" points to the "Image" field. "Data Aware Scheduling" points to the "StorageSource" and "path" fields.



Community Roadmap!

- Bi-Weekly Community Calls
- Quarterly Workshops
- Monthly Newsletters
- #bacalhau Slack & social media



Community Roadmap!

- Bi-Weekly Community Calls
- Quarterly Workshops
- Monthly Newsletters
- #bacalhau Slack & social media

Thank You!

↗ Bacalhau

Me: David Aronchick
Email: aronchick@expando.io
Everywhere: @aronchick
(twitter, github, mastodon, etc)
Bacalhau - bacalhau.org



GitHub Repo



Slack



Google Group 
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Verizon Event ...



Thank You!

↗️ Bacalhau

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Verizon Event ...

**WITH
GREAT AI
COMES GREAT
RESPONSIBILITY**



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**WITH
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**WITH
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WHY RESPONSIBLE?



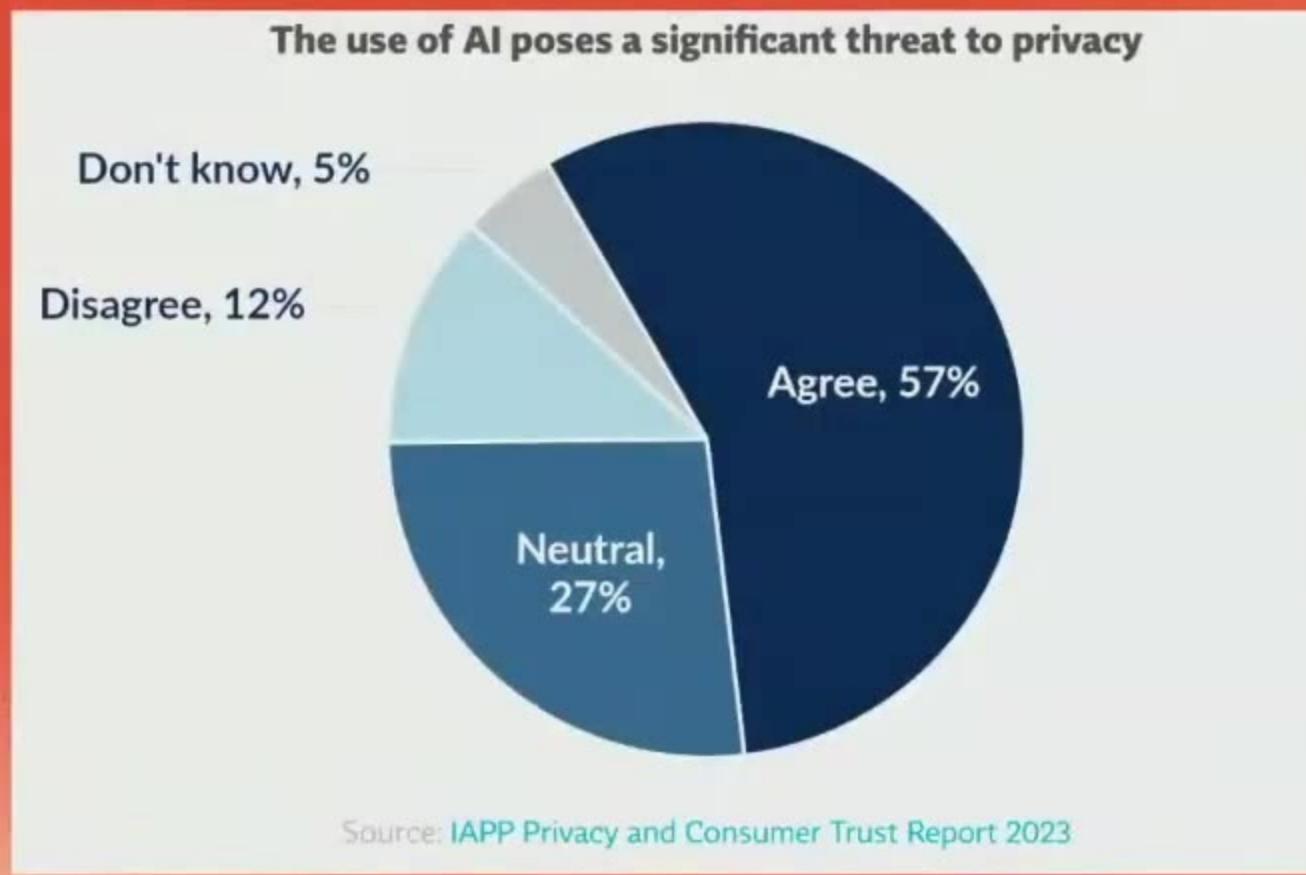
Anthropic confirms it suffered a
data leak

ANTHROPIC

USERS WORRIED ABOUT PRIVACY



Verizon Event ...



BAGEL



Verizon Event ...



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BIDHAN ROY



Verizon Event ...

- **FOUNDER @BAGEL**
- **EX AI/ML LEAD @AMAZON ALEXA**

BIDHAN ROY



- **FOUNDER @BAGEL**
- **EX AI/ML LEAD @AMAZON ALEXA**

DECENTRALIZED AI + PRIVACY



- **PRIVACY AT EVERY STEP – DATA, COMPUTE, MODEL**

DECENTRALIZED AI + PRIVACY



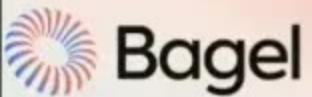
- **PRIVACY AT EVERY STEP – DATA, COMPUTE, MODEL**

DECENTRALIZED AI + PRIVACY



- **PRIVACY AT EVERY STEP – DATA, COMPUTE, MODEL**

THE PRIVACY TOOLKIT





DIFFERENTIAL PRIVACY (DP)

THE ART OF "GOOD ENOUGH" SECRETS

ZKML



Verizon Event ...

SHERLOCK HOLMES MEETS BLOCKCHAIN



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FEDERATED LEARNING



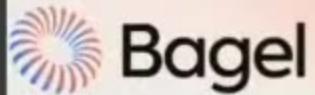
**CROWDSOURCING
MINUS THE CROWD**

FHE



Verizon Event ...

INVISIBLE INK



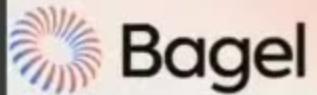
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TEE

VEGAS
WHAT HAPPENS HERE, STAYS HERE



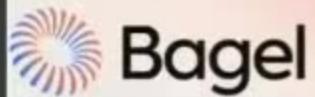
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VEGAS
WHAT HAPPENS HERE, STAYS HERE



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MPC



GROUP MATH



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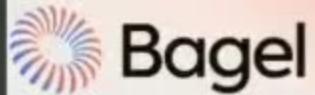
OUR SOLUTION

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OUR SOLUTION



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AI

Decentralized
AI

Private
Decentralized
AI



Verizon Event ...

QUESTIONS?

@bidhanXYZ

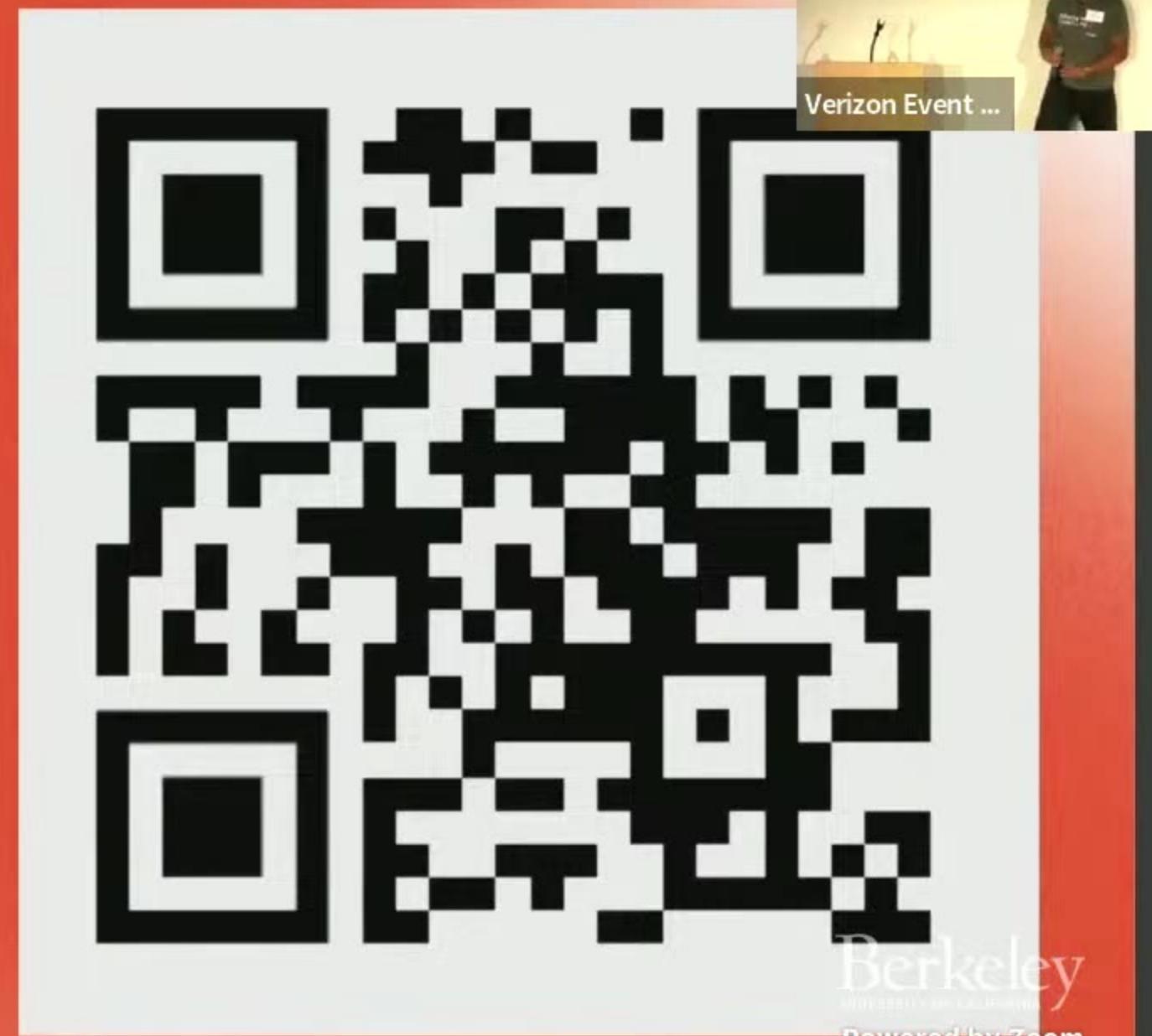


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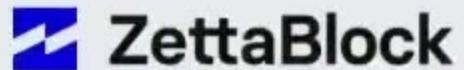
QUESTIONS?

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Unlock AI's Potential With Trustlessness

Chi Zhang, Cofounder & CEO at ZettaBlock

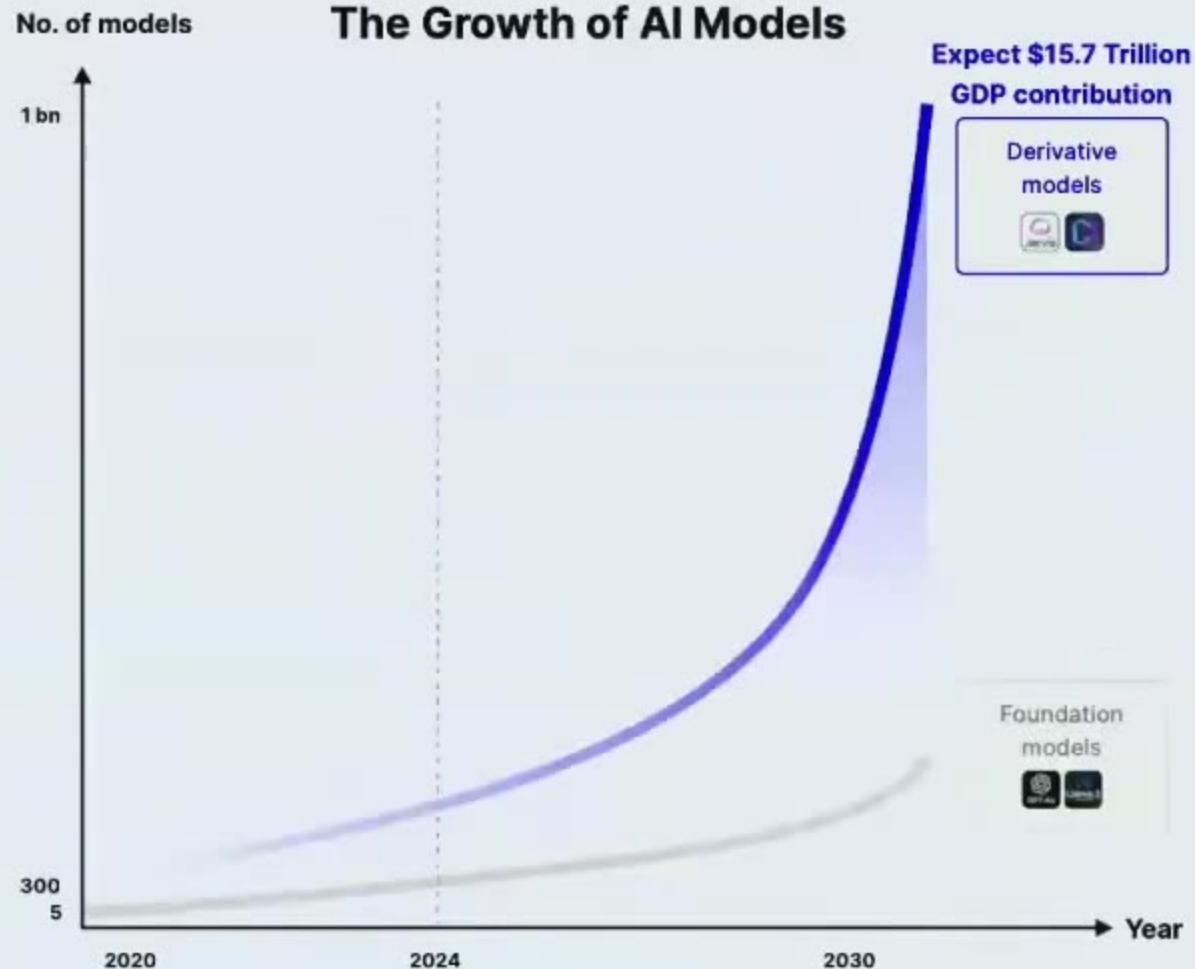


Unlock AI's Potential With Trustlessness

Chi Zhang, Cofounder & CEO at ZettaBlock



With billions of models, AI has to be trustless

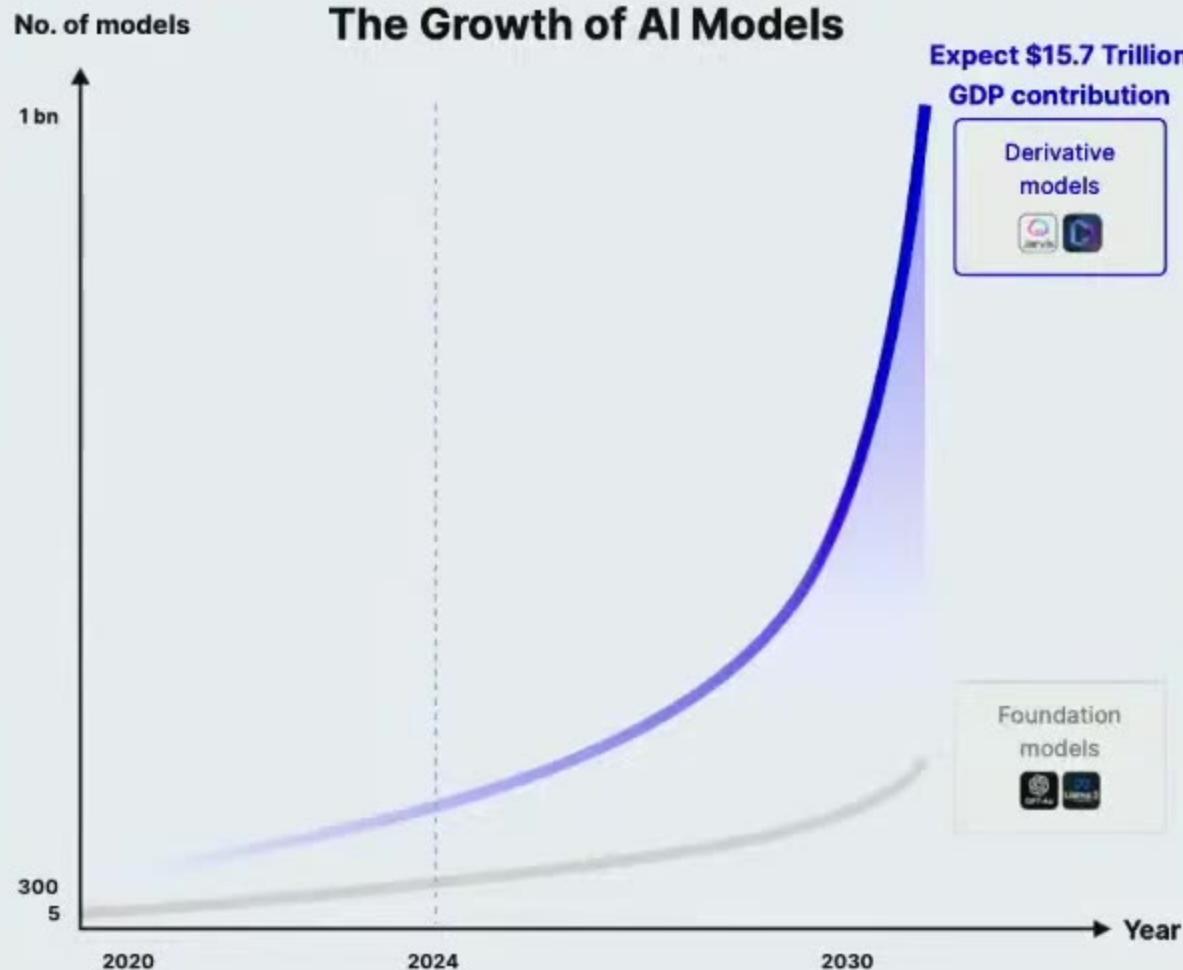


AI adoption needs **trust** assumptions:

1. **Provenance** (ownership & attribution) economically incentivizes data curators and model developers, to contribute AI resources at scale.
2. **Verifiability** enables collaborations across multiple AI stakeholders (model, data, compute, users), and auditability of data and models that facilitate collective AI governance.



With billions of models, AI has to be trustless

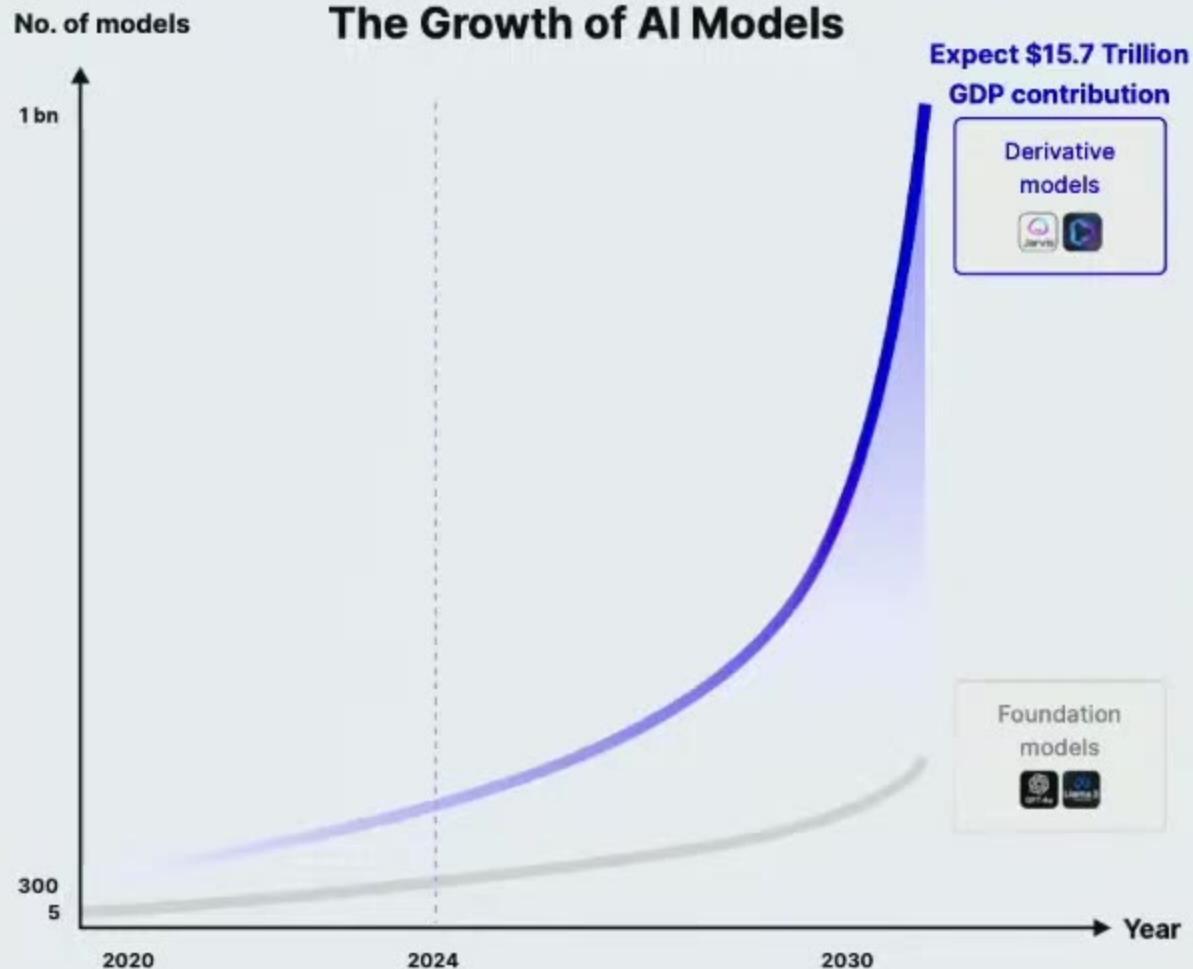


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Fine-tuning is the missing link for trustless AI

Centralized AI Infra

Model Building & Deployment

runway perplexity CharacterAI Midjourney ChingPT Agents & Applications

together.ai Hugging Face DataRobot Epiphany Modal Serving & Inference

anyscale W&B Lightning AI Modular OctoML

Data & Storage

ASTRINERD LlamaIndex DATAVOLD UNSTRUCTURED databricks

VectorSQL mindsdb mongoDB Chroma Pinecone

Backblaze B2 wasabi Microsoft Azure AWS Lambda Amazon S3 Object Storage

Clementine Snorkel surge Labelbox scale Collection & Labeling

stability.ai Meta AI RESTRAL AI ANTHROPIC OpenAI Foundation models

AWS Azure Google Cloud Lambda DigitalOcean Compute



Trustless AI Infra

Sahara Delysium MyShell Olas fetch.ai

RITUAL bitrrenso GIZA ora Modulus

Fine-Tuning
(the new "training")

ZettaBlock

Filecoin arweave SIA STORJ CUDOS

grass The Render Network Akash .NET CUDOS

Sapien PublicAI MASA

Foundation Model (LLM, Image, etc)

Fine-tuning is the new "training"

i.e., base models + data + fine-tuning protocol

Trustless AI is unattainable without beginning with fine-tuning (**Relying solely on inference will be too late**)

Data infra is a prerequisite and the most significant challenge (**No data, no AI**)

Fine-tuning is the missing link for trustless AI



Centralized AI Infra

Model Building & Deployment

runway perplexity CharacterAI Midjourney ChatGPT



Trustless AI Infra

Sahara Delysium MyShell Olas fetch.ai

together.ai Hugging Face DataRobot Epiphany Modal

Fine-Tuning
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Z ZettaBlock

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Data & Storage

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Fine-Tuning (the new "training")

DynamisQL mindshift mongoDB Chroma Pinecone

Data Preparation (Multimodal)

Backblaze wasabi Microsoft Azure AWS Amazon

Data Storage & Retrieval

Filecoin arweave SIA STORJ CUDOS

Curated Snorkel surge Labelbox scale

Collection & Labeling

grass FIRE Sapien PublicAI MASA

Foundation models

Foundation Model
(LLM, Image, etc.)

stability.ai Meta AI RESTFUL AI ANTHROPIC OpenAI

Compute

GPU Cloud

AWS Azure Google Cloud Lambda DigitalOcean The Reader Network akash ID.NET CUDOS

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Trustless AI Infra

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together.ai Hugging Face DataRobot Epipolete Modal

Fine-Tuning
(the new "training")

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omyscale W&B Lightning AI Modular OctoML

ZettaBlock

Data Preparation
(Multimodal)

Data & Storage

ASTRINUM LlamaIndex DATAVOLD UNSTRUCTURED databricks

Pinecone mindspark mongoDB Chroma Pinecone

Backblaze B2 wasabi Microsoft Azure Cloud Storage amazon

Data Storage & Retrieval

Cleanlab Snorkel surge Labelbox scale

Object Storage

stability.ai Meta AI RESTRAL AI ANTHROPIC OpenAI

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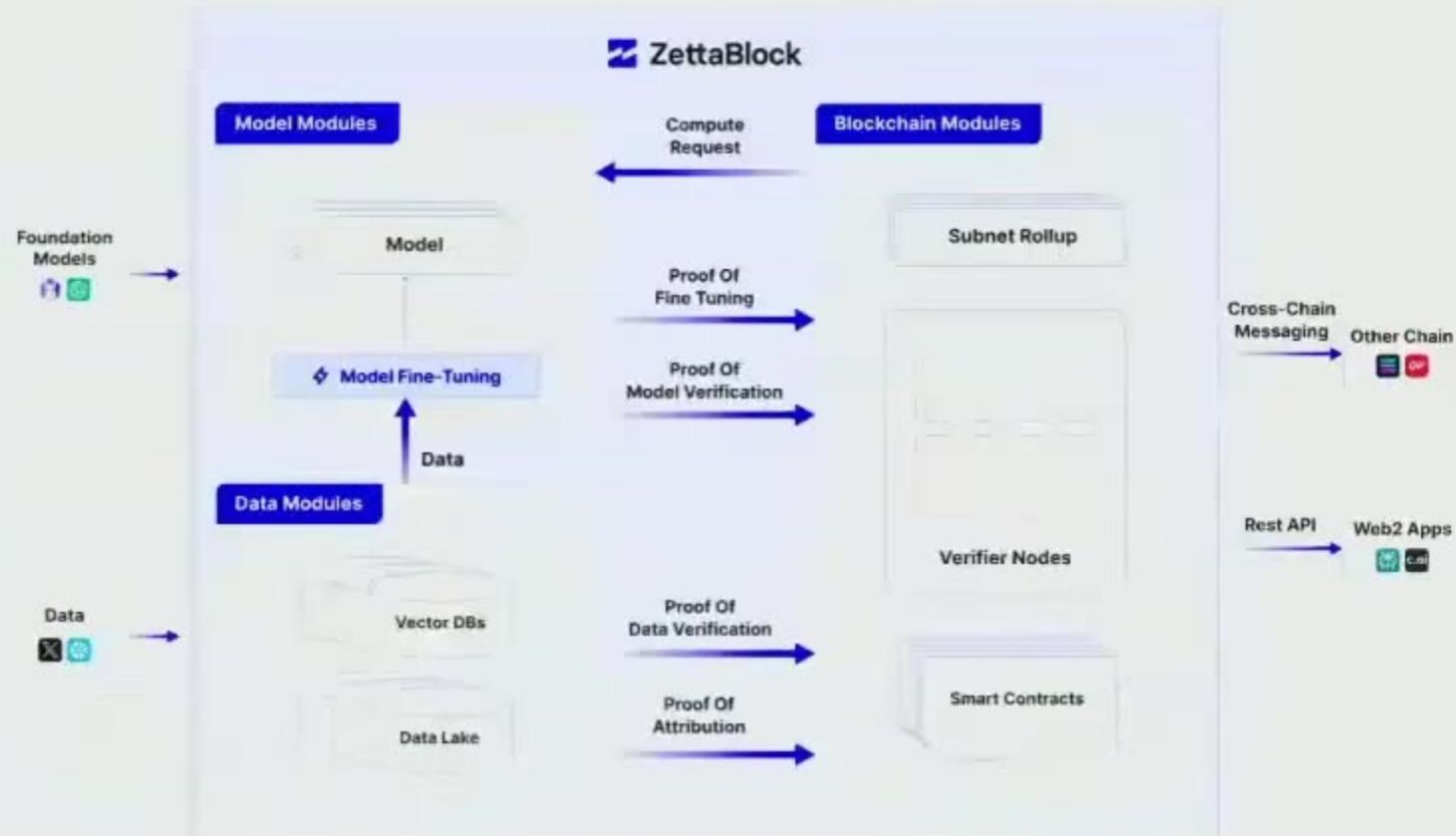
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ZettaBlock is the ultimate universal AI network

We are the decentralized platform for **trustless** and **scalable** AI development, empowering an **open** ecosystem for models and datasets.



[Detailed Architecture](#)

Verizon Event ...

ZettaBlock

✓ **Provenance First**

✓ **Verifiable**

✓ **Composable & Interoperable**

✓ **Privacy-preserving**



The secret to good AI is great data. The data infra is the trojan horse.

Data is the foundation of the entire AI ecosystem, and our established data platform serves as a significant competitive advantage.

"Databricks with open data economy", a modular, data infra for AI



Key Capabilities:

Governance

Ensure data quality, integrity, security, and verifiability.

Multimodal

Store & process embeddings, text, images, videos, tables, etc.

On & Off Chain Unified

Seamless access to both Web2 and Web3 data for AI.



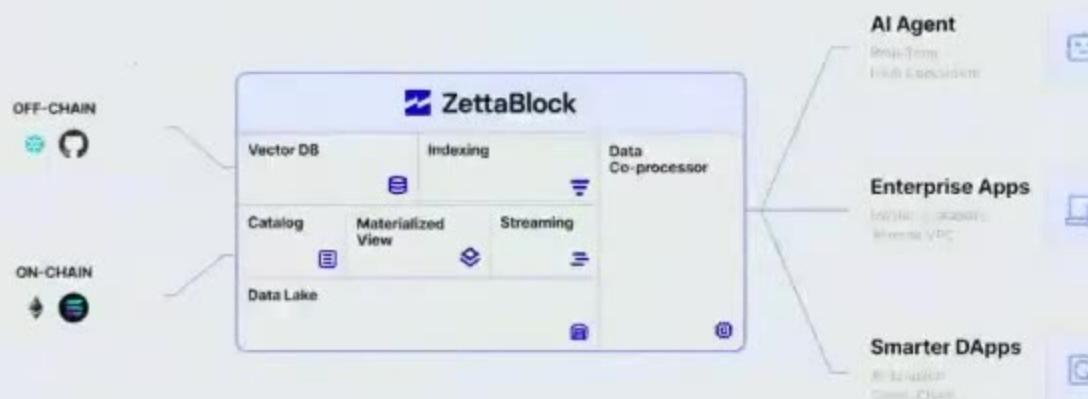
Verizon Event ...

ZettaBlock

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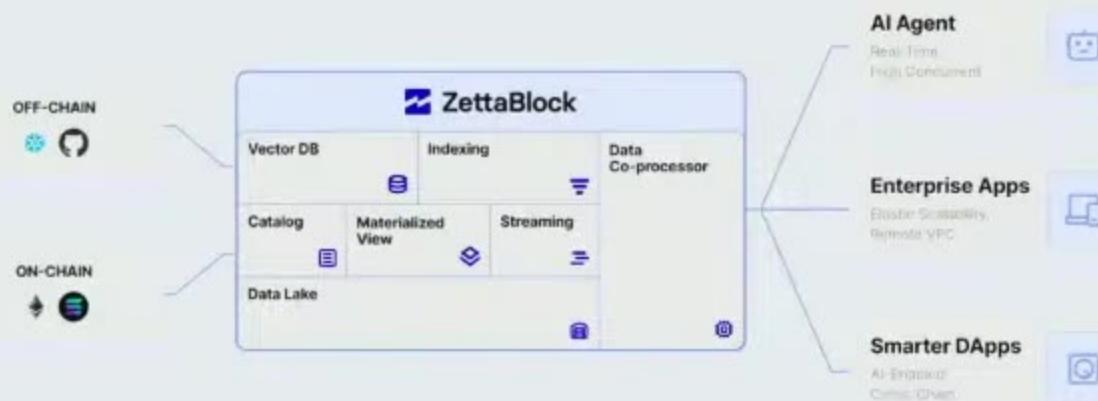
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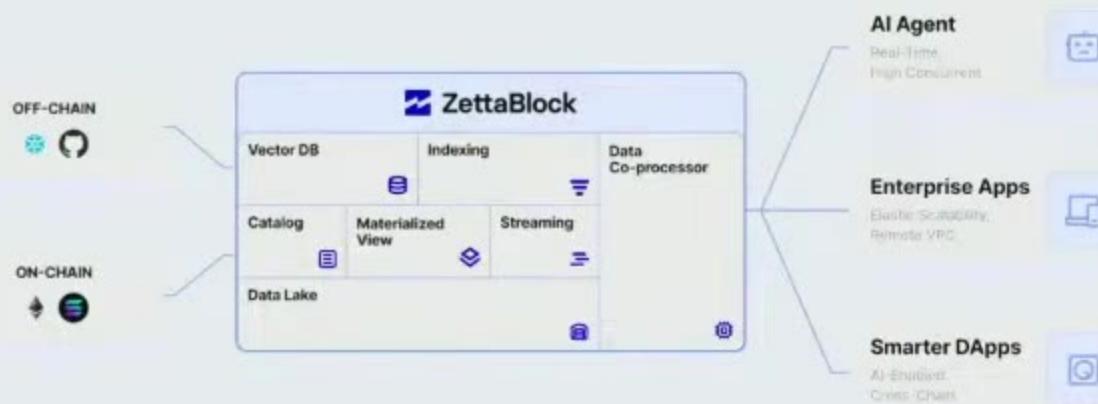
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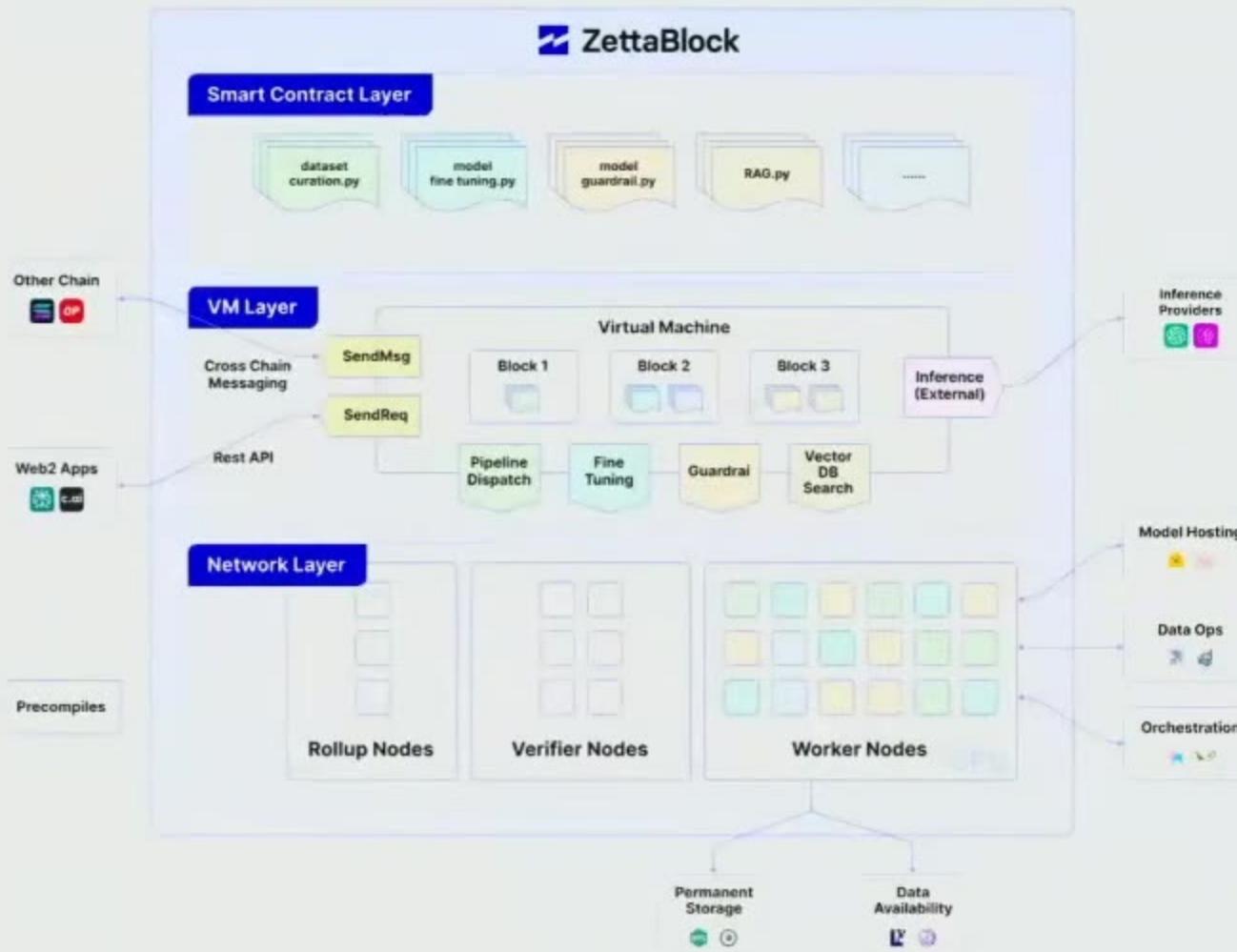
On & Off Chain Unified

Seamless access to both Web2 and Web3 data for AI.

Protocol powered by innovative AI Coprocessor



ZettaBlock



Coprocessor features:

AI Developer First

Python first, effortlessly integrate with all popular AI solutions

Unique AI-VM

Specialized virtual machine to support AI workloads efficiently

Interoperable

Query models from anywhere (chains or web2 apps) via smart contract interfaces

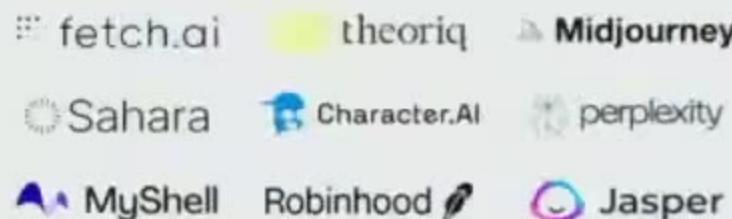
Ecosystem

We are building an open AI ecosystem with partners

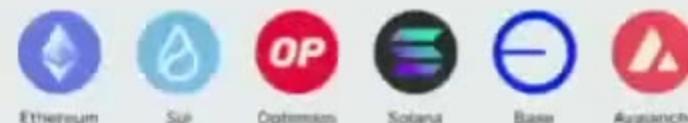


ZettaBlock

Apps & Agents



chains



AI Users

ZettaBlock AI Network

Data Providers



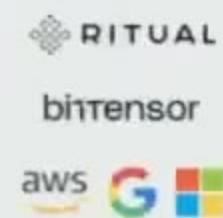
Compute Providers



Base Model Providers



Model Serving

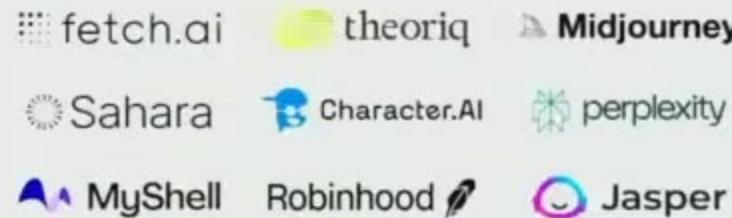


AI Resource Providers

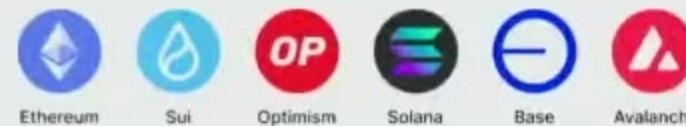


We are building an open AI ecosystem with partners

Apps & Agents



Chains



AI Users

ZettaBlock AI Network

Data Providers



Compute Providers



Base Model Providers



Model Serving



AI Resource Providers

We make both Web2 and Web3 AI better

Verizon Event ...



.taBlock

Web2 Use Cases

Monetization

- Hugging Face
- Kaggle
- Character AI

Provenance & privacy

- Personalized agents
- Edge model deployment

Governance

- Auditable trails
- Deepfake combat

.....

Web3 Use Cases

DeFi

- Risk models in lending protocols
- Yield optimization models
- Illiquid asset pricing

Security & compliance

- Fraud detection and prevention
- Smart contract auditing

User experience

- On-chain credit scoring
- AI NPCs on GameFi

.....



Trusted by top projects and enterprises



And a lot more...

Metrics:

200K+ datasets built by our ecosystem
1,500+ TB data accessible
10+ AI use cases in production
Multi-million revenue streams

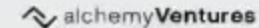
Evan Cheng

Co-Founder & CEO



"ZettaBlock's real-time data capabilities have been instrumental in scaling Sui's adoption, bridging the Web2 and Web3 worlds seamlessly. With ZettaBlock's custom APIs, Sui developers and builders can craft various use cases and build the next generation of applications leveraging innovations like zkLogin and zkSend for exponential adoption of Web3."

Raised \$15M+ from world-class investors



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Atomica Network

Pioneering Decentralized AI

Building an Intent-Driven
& Transparent Web

Jorge



ATOMA CTO

António

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& Transparent Web

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What is Atoma?

- 01 Atoma is orchestrating the future of decentralized and verifiable AI
- 02 Providing the infrastructure that will shape the way we leverage and interact with AI systems
- 03 Building a coordination layer for decentralized AI compute, similar to how Bitcoin harnessed global computing power
- 04 Establishing the foundation for a new era of trustworthy, accessible, and transformative AI solutions



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Decentralized AI

Building an Intent-Driven
& Transparent Web

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& Transparent Web

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Beyond Blockchains for Decentralized AI



Governance
/RLHF



Licensing/
Royalties



Heavy Compute



High Costs

MNIST ~100k parameter
single inference costs thousands
of dollars on Ethereum



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Decentralized AI

Building an Intent-Driven
& Transparent Web

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Beyond Blockchains for Decentralized AI



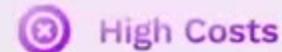
Governance
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Licensing/
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Heavy Compute



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Atoma Unlocks Heavy Compute for Blockchains

WEB2
0%

atoma's elastic verifiability

WEB3
99.999%

Atoma decouples settlement and heavy compute (e.g. AI inference)

Verifiability is possible through our novel Sampling Consensus algorithm



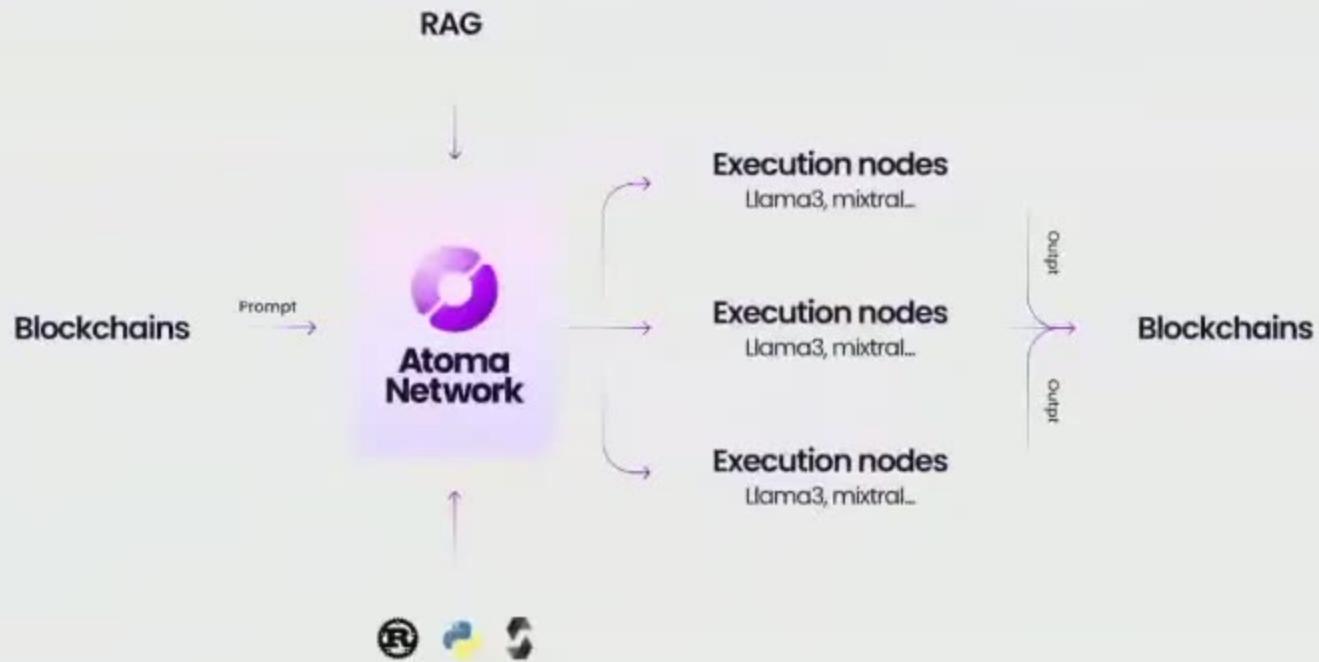
Pioneering
Decentralized AI

Building an Intent-Driven
& Transparent Web

Verizon Event ...

Atoma is

A Complete
Network of
Intelligence





Pioneering
Decentralized AI

Building an Intent-Driven
& Transparent Web

Verizon Event ...

Atoma Unlocks the Next Generation of Agentic Applications

Through verifiable AI
and privacy, Atoma will
unlock the full potential
of AI systems

Personal AI
Assistants



Public
Knowledge Bases



Enhanced
Web3 Wallets



Intent Driven
Applications



Verifiable
Content Generation



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Enhanced
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Intent Driven
Applications



Verifiable
Content Generation





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Enhanced
Web3 Wallets



Intent Driven
Applications



Verifiable
Content Generation



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AtomaNetwork

Thank you!

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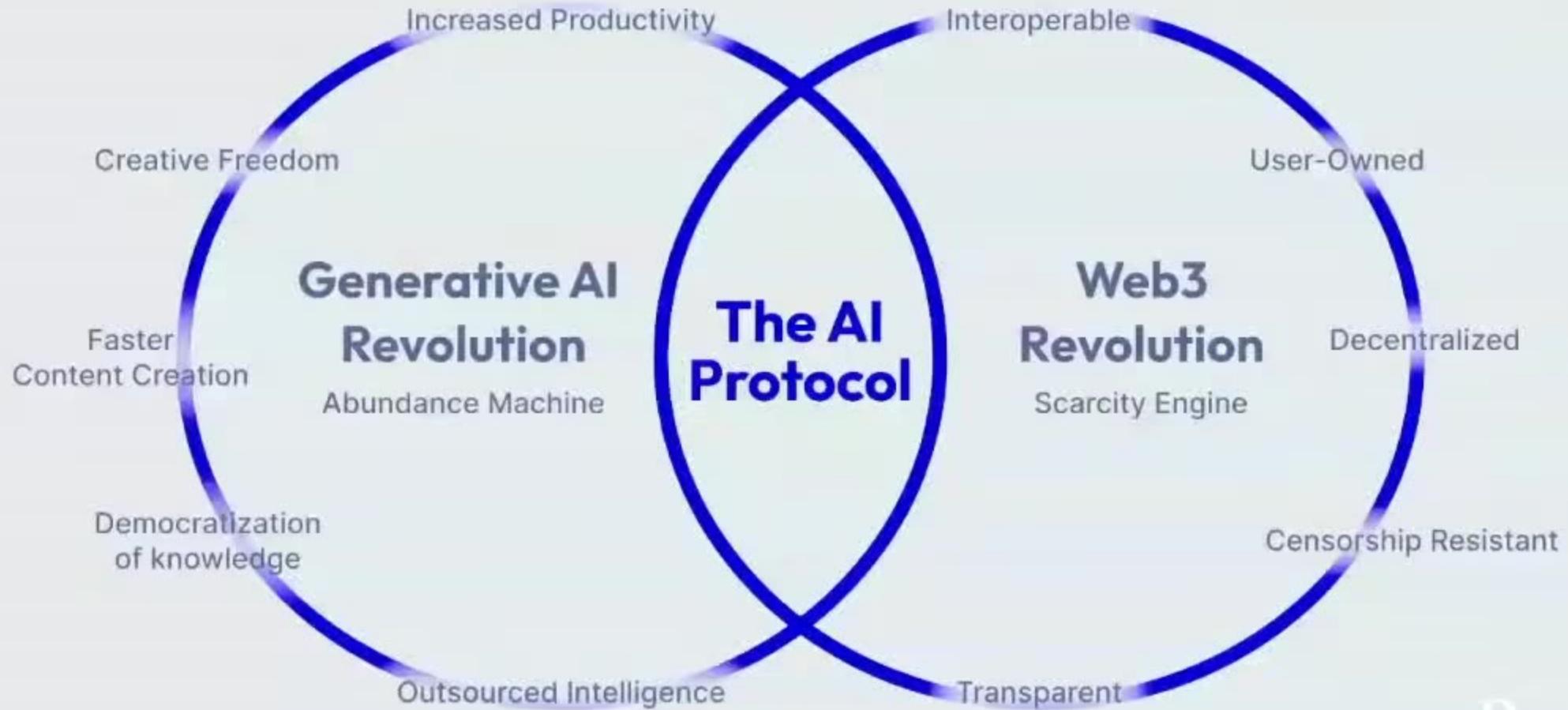
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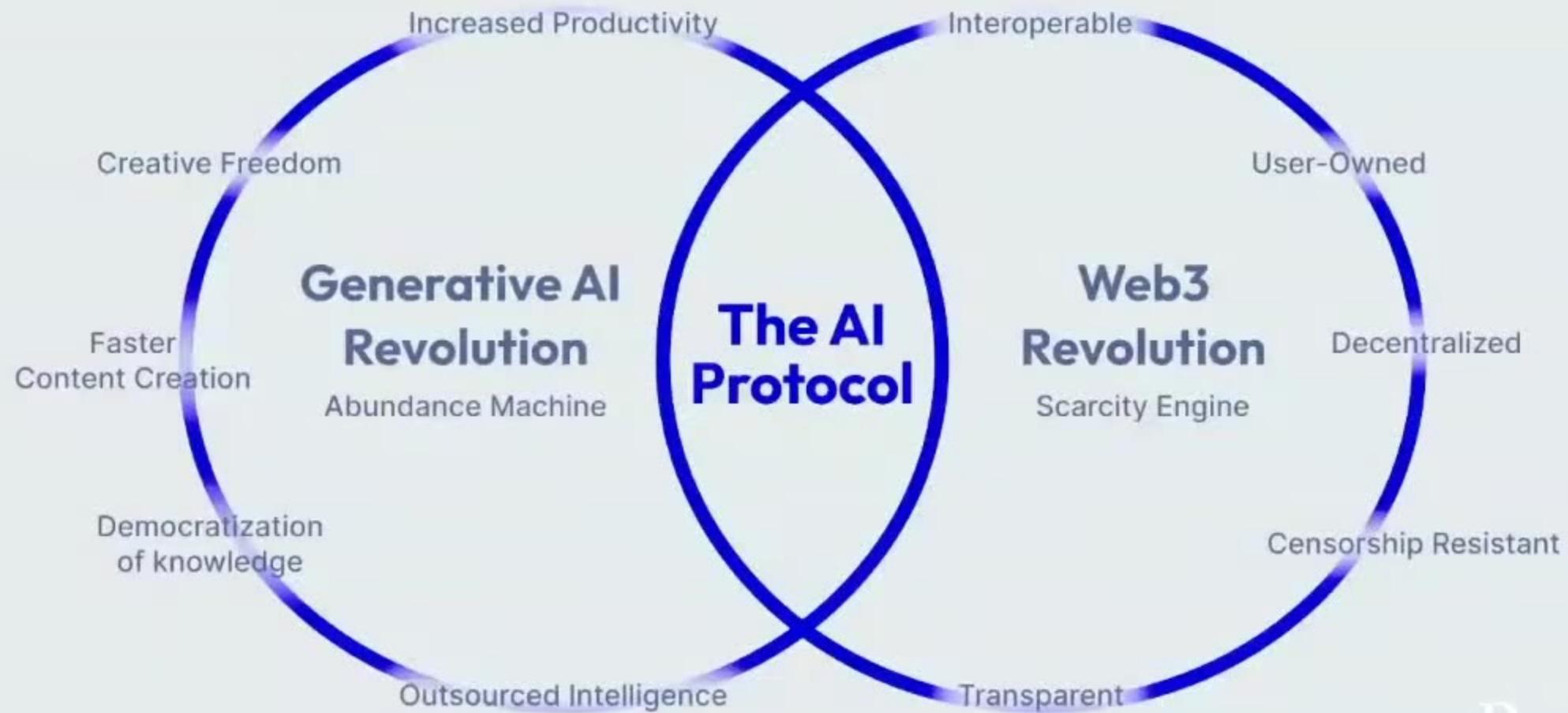
The AI Protocol





Verizon Event ...

The AI Protocol





Verizon Event ...

Liquidity Is All You Need

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Alethea AI
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Ahmad Matyana*
Alethea AI
ahmad@alethea.ai

Dr Imdadullah Khan*
Alethea AI
imdad@alethea.ai

Abstract

The dominant AI agency models today depend heavily on human intervention, particularly for computational infrastructure and associated costs. We propose a revolutionary perspective: for AI agents to achieve genuine autonomy, liquidity is all they need, rendering reliance on third-party computational resources obsolete. Experiments across various AI tasks demonstrate that by self-procuring and allocating resources, these “Agentic AIs” perform tasks more efficiently, maintaining optimal performance without human supervision. In a benchmark test on autonomous digital task execution, our model outperforms traditional AI setups, drastically reducing overhead costs and time. Further, when applied to real-world decentralized computational tasks, our AI showcased unprecedented self-sufficiency and scalability. This hints at a future where AI can operate independently, only constrained by their access to liquidity, fundamentally reshaping our understanding of AI agency.



Verizon Event ...

Liquidity Is All You Need

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Abstract

The dominant AI agency models today depend heavily on human intervention, particularly for computational infrastructure and associated costs. We propose a revolutionary perspective: for AI agents to achieve genuine autonomy, liquidity is all they need, rendering reliance on third-party computational resources obsolete. Experiments across various AI tasks demonstrate that by self-procuring and allocating resources, these “Agentic AIs” perform tasks more efficiently, maintaining optimal performance without human supervision. In a benchmark test on autonomous digital task execution, our model outperforms traditional AI setups, drastically reducing overhead costs and time. Further, when applied to real-world decentralized computational tasks, our AI showcased unprecedented self-sufficiency and scalability. This hints at a future where AI can operate independently, only constrained by their access to liquidity, fundamentally reshaping our understanding of AI agency.



Verizon Event ...

Liquidity Is All You Need

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Verizon Event ...



The easiest way to query
blockchain data you can trust

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The easiest way to query
blockchain data you can trust

Verizon Event ...



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Institutional Blockchain Adoption is Accelerating

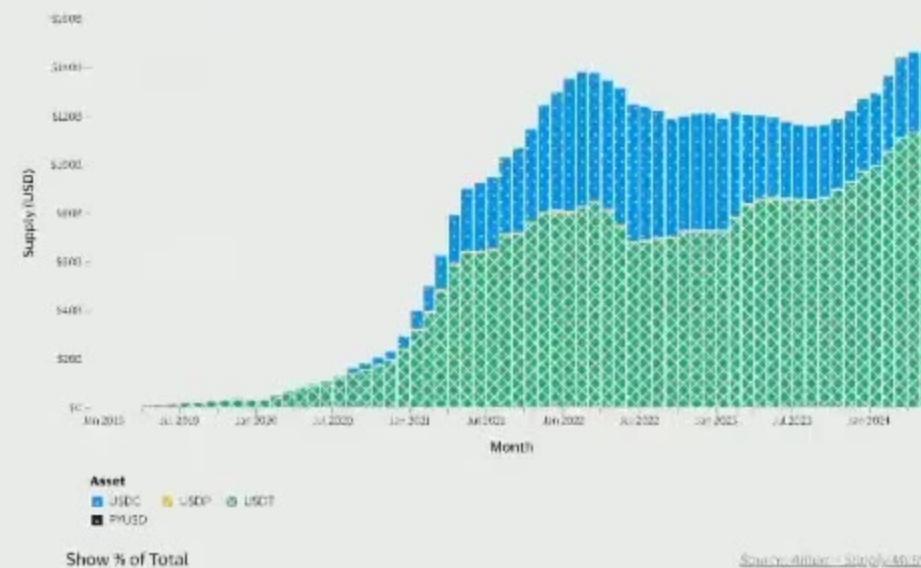
Verizon Event ...



Average Monthly Stablecoin Supply

The average supply of stablecoins in circulation on a monthly basis.

USDC USDT PYUSD USDP



Allium



UBS Is Letting Customers Trade Bitcoin ETFs

PayPal Adds Stablecoin to Solana Blockchain

Markets

Stablecoin Issuers Now 18th Largest Holder of U.S. Debt

Fidelity International Tokenizes Money Market Fund on JPMorgan's Blockchain

The U.K. firm joined JPMorgan's Tokenized Collateral Network (TCN), piloting the tokenization of its own money market fund with Onyx Digital Assets.

Citi the latest TradFi player to test out asset tokenization

Banking giant brings a Wellington Management-issued private equity fund onto Avalanche's Spruce subnet as part of a proof of concept.



Verizon Event ...

**Allium simplifies & derisks digital assets
by providing trust and transparency
through our blockchain data platform**



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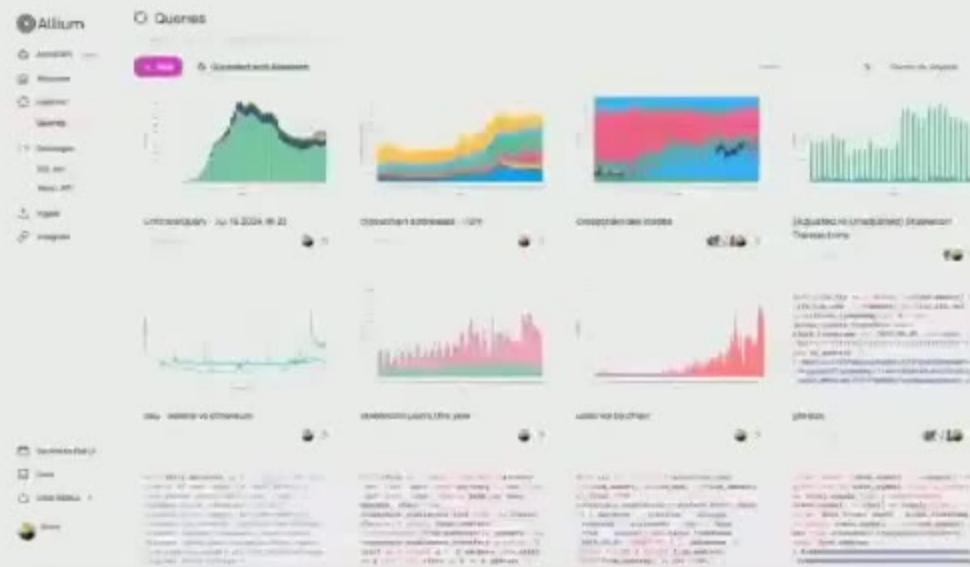


Verizon Event ...

Allium Products → Explorer, Developer, Data Share

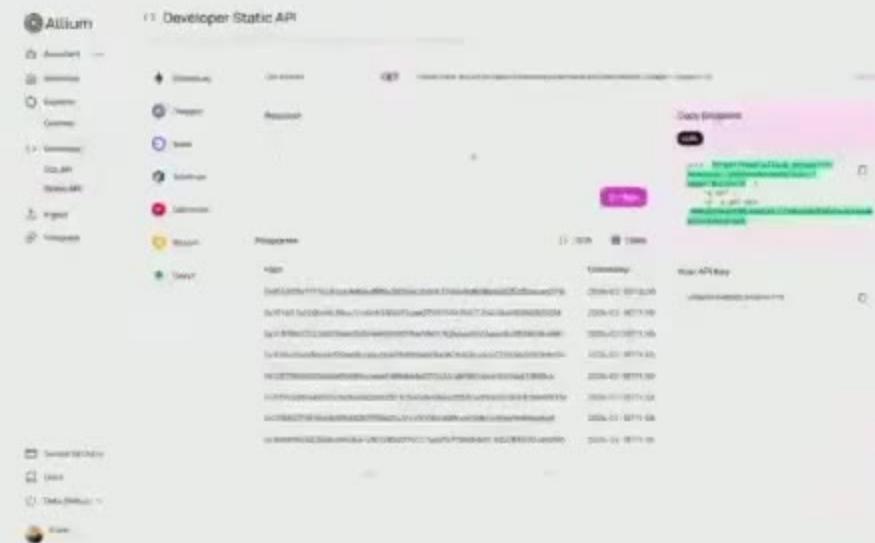
Allium Explorer

Allium Explorer accelerates the analyst's data exploration journey by providing an easy-to-use query interface



Allium Developer

Allium Developer empowers engineers to build-your-own-workflow to power realtime blockchain applications



Verizon Event ...

Answering a simple question:

“What is the historical balance of a wallet”

can require 1000+ lines of SQL code

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Enriched Data & AI → User Simplicity & Saved Time

Allium's Historical Balances Query

```

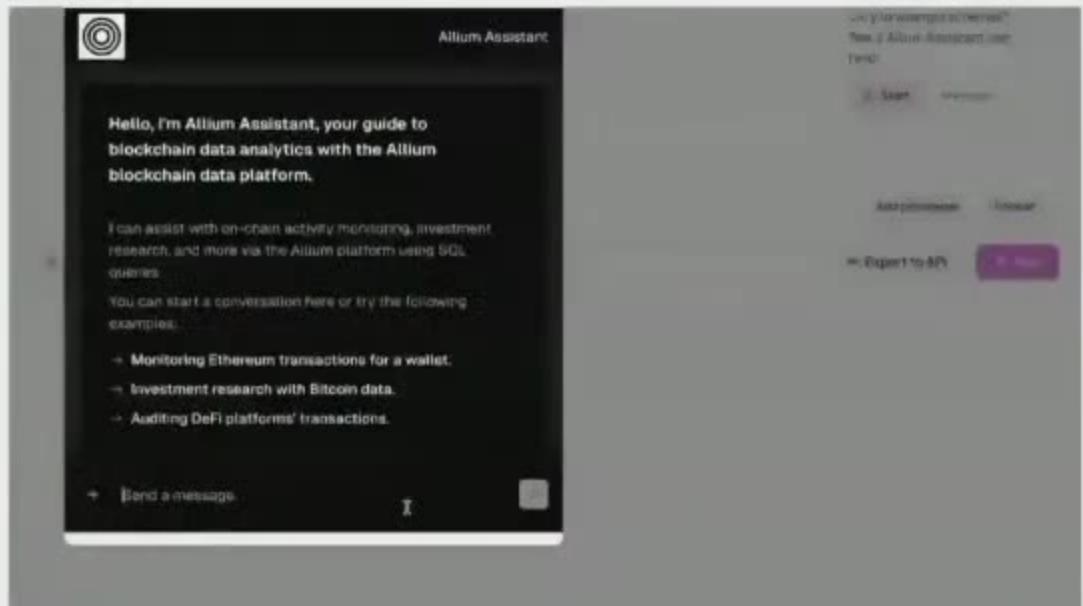
select
    date,
    project,
    sum(balance) as eth
from ( -- Find last balance entry for each bridge address weekly
select
    date_trunc('week', block_timestamp) as date,
    project,
    balances.address,
    balance
from ethereum.assets.balances balances
inner join common.identity.entities on balances.address = entities.address and category
where block_timestamp > '2021-05-01' and token_type = 'ETH'
qualify row_number() over (partition by balances.address, date order by block_timestamp
)
group by 1,2

```

The quality of tables makes it easy for new SQL users to **create complex queries in just a few lines** that would otherwise require hundreds of lines of code.

Matt Maximo
Research Lead @ Grayscale

Allium AI Assistant In Action



The Allium AI Assistant exists to guide SQL writing, by feeding users SQL queries that will answer questions posed to the AI in plain English. The goal is that you can spend more time conducting analysis and less time SQL writing.

Enriched Data & AI → User Simplicity & Saved Time

Verizon Event ...

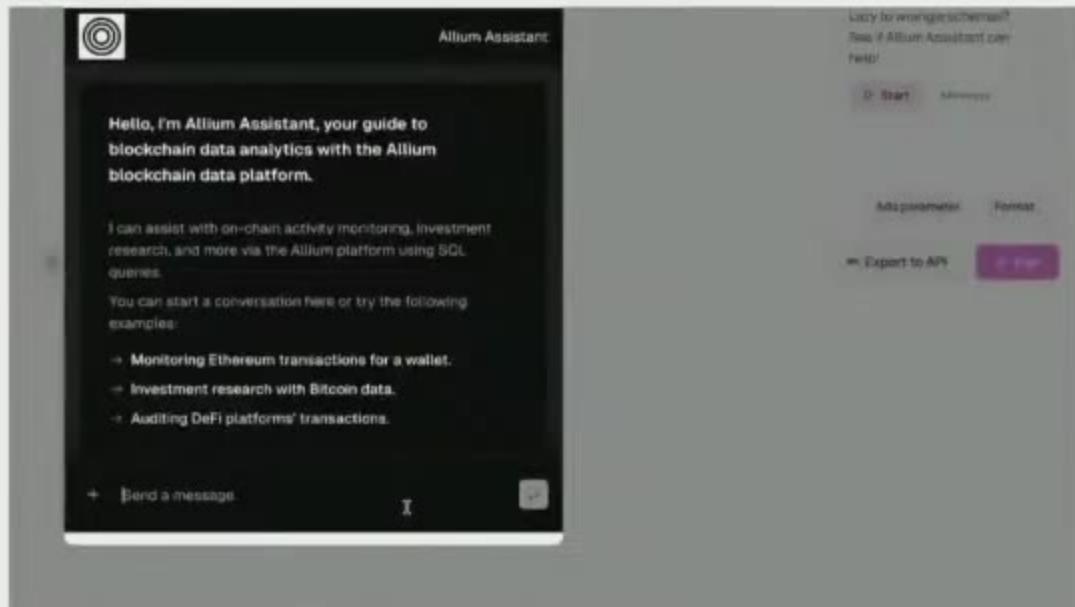
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    date,
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from ethereum.assets.balances balances
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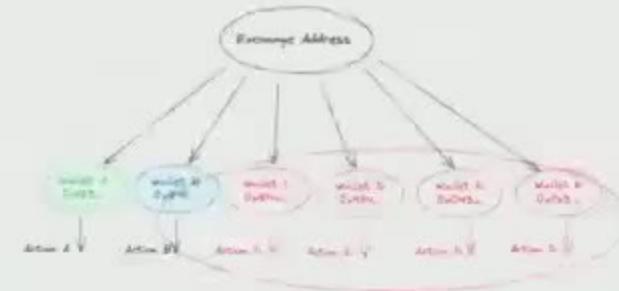
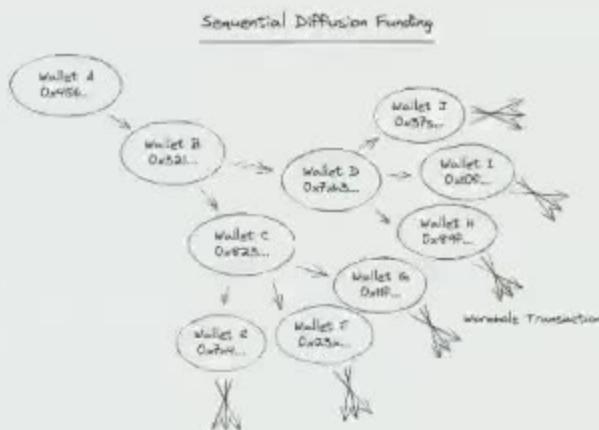
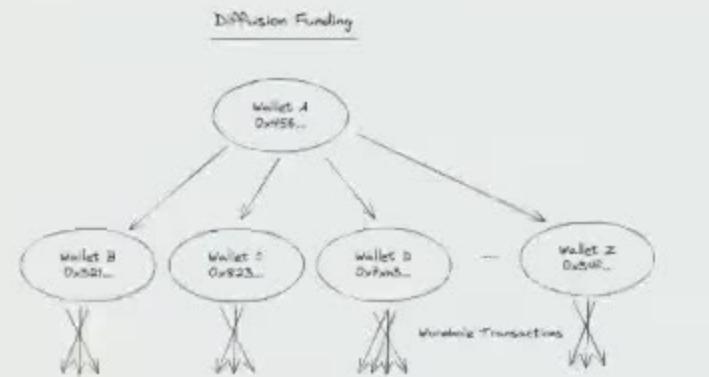
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Enriched Data & AI → Sybil Detection & Derisking

The methodology of our inorganic activity detection models, streamlined by AI:



With our sybil detection models, protocol Wormhole was able to save \$100M+ in its airdrop



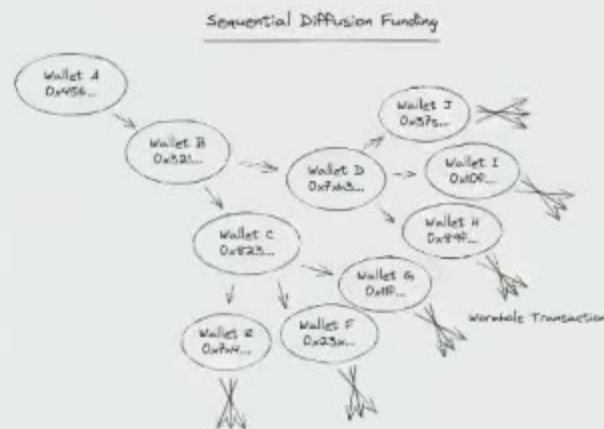
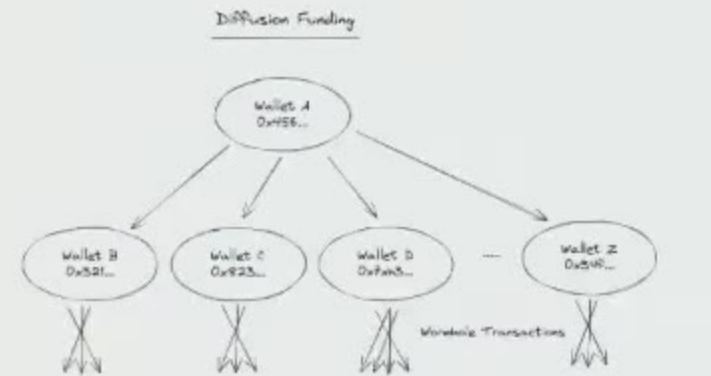
With the help of *machine learning experts* from Allium Labs, we found *several major clusters* and will be looking into whether they should be the tiered volume-based allocations

Jupiter Aggregator

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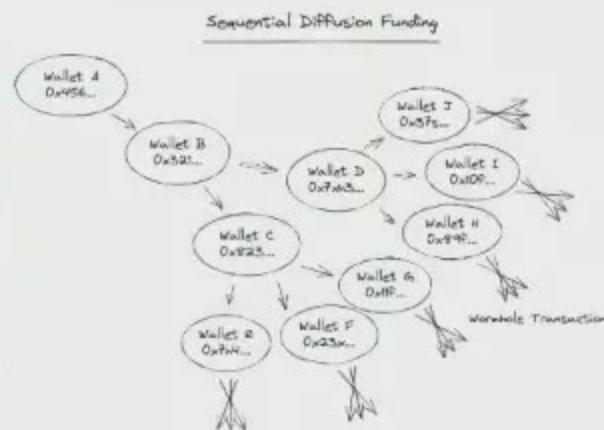
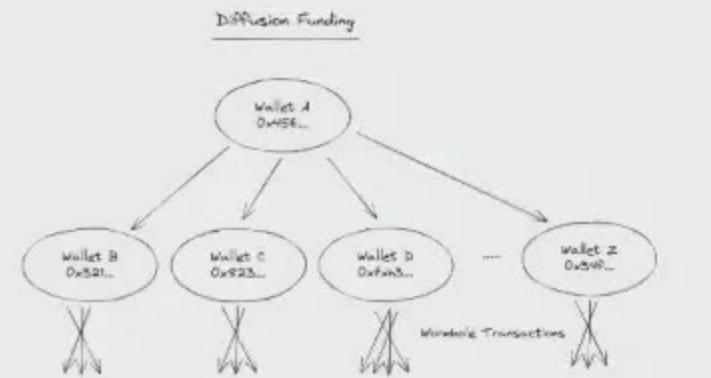
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Allium's Scope → Institutions, Fintechs, & Firms



Visa co-developed their [Stablecoins Dashboard](#) with Allium



Fidelity uses Allium's data for their digital asset **research needs**



Stripe leverages Allium's data platform to **build fraud models** for payments



Anchorage Digital uses Allium for accurate **financial reporting & reconciliation**



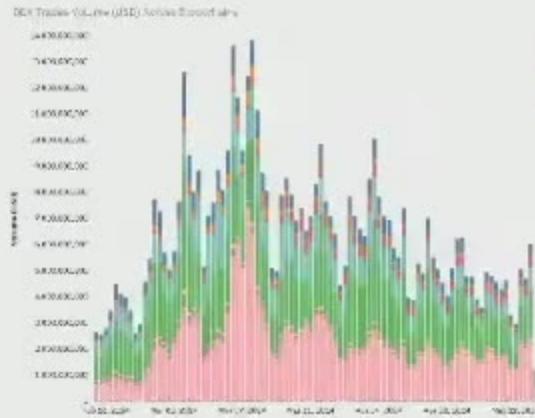
Robinhood uses Allium to gauge **market share, ecosystem activity**, and **growth strategy**



Verizon Event ...

Allium's Scope → Research Partnerships

This year, the Uniswap Foundation partnered with Allium to create the DEX Analytics Portal available to the public, here's a glimpse at what you can do:



Aggregate DEX volumes
across **multiple blockchains**,
all with a **simple query**

A screenshot of a terminal window displaying a PostgreSQL query. The code is as follows:

```
select
    date(block_timestamp) as date,
    initcap(chain) as blockchain,
    sum(usd_amount) as usd_volume
from crosschain.dex.trades
where block_timestamp >=
    current_timestamp - interval '90 days'
group by all
order by date desc
```

Raw data decoded and
abstracted into a **single table**



Explore & analyze **granular
protocol level differences**
in swap prices



Verizon Event ...

“

Here's what some of our researchers are saying:

"My layer2 paper is replicable now because of Allium. With v3-polars x Allium integration, all researchers can now easily access the data used for research and replicate it."

Austin Adams,
Uniswap Labs



"Allium has been a fantastic partner in helping Visa navigate onchain data and building new tools and resources such as our stablecoin dashboard."

Cuy Sheffield,
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"Not only do they outline their process of decoding logs and analyzing the output clearly, but their data warehouse also stores a very wide range of historical data."

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Decentralized Confidential AI

Yannik Schrade (@yrschrade)
Co-Founder & CEO at Arcium



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Decentralized Confidential AI

- Confidential, distributed training and inference
- Permissionless, DeCC network
- Secure Multiparty Computation (MPC)
 - Zero trust (security with abort)
 - Increased numerical stability (10+ decimal digits of precision)
 - Modular lifting and truncation
 - Uniform approximation of the sigmoid function



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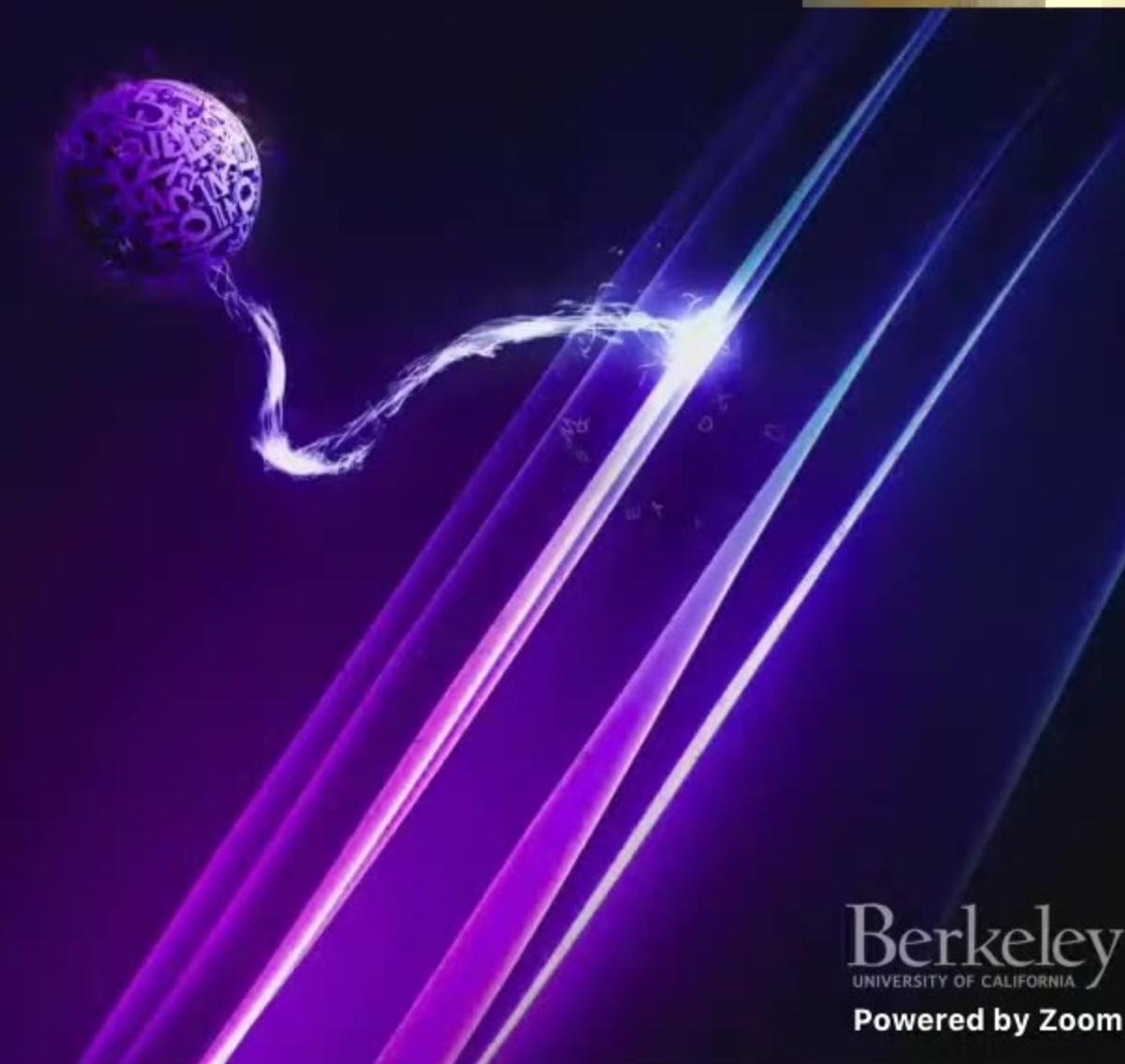


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CLOSING REMARKS

Dawn Song

Professor, Department of Electrical Engineering and
Computer Science, and Co-Director, Center for
Responsible, Decentralized Intelligence
University of California, Berkeley





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