
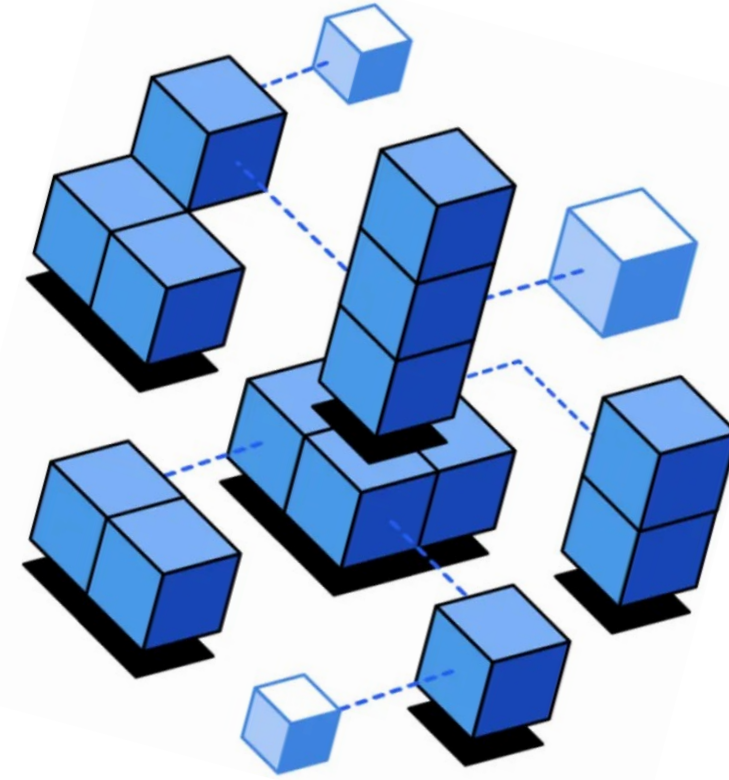
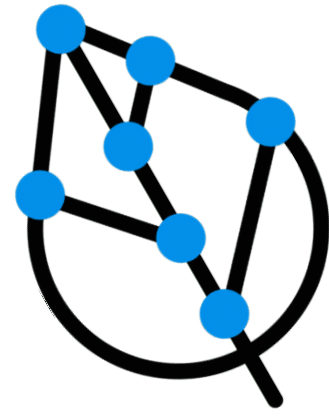
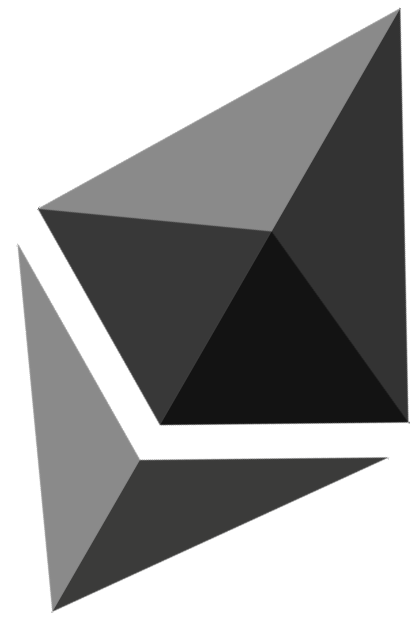
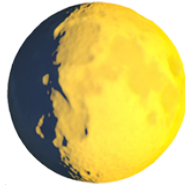



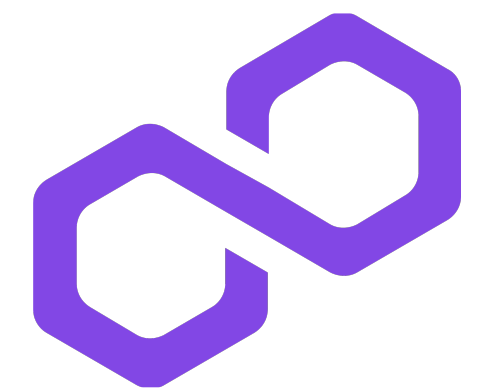
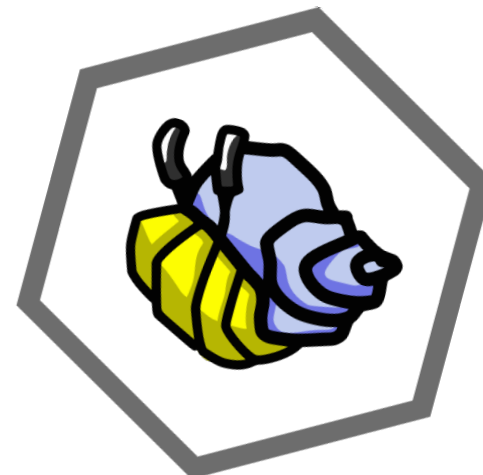
# *Web3 for Fun & Profit*

  **Agency · Openness · Re-decentralization**  



# Web3 for Fun & Profit

  **Agency - Openness - Re-decentralization**  





***Brooklyn Zelenka***

**@expede**





# *Brooklyn Zelenka*

@expede

- CTO at Fission
  - <https://fission.codes>, @FISSIONCodes
  - Deep tech, distributed systems R&D
  - Infra & browser SDK for "edge (web3) apps"
  - Standards: DIF, UCAN, Ethereum, Filecoin, others
- Meetups: VanFP, Code & Coffee





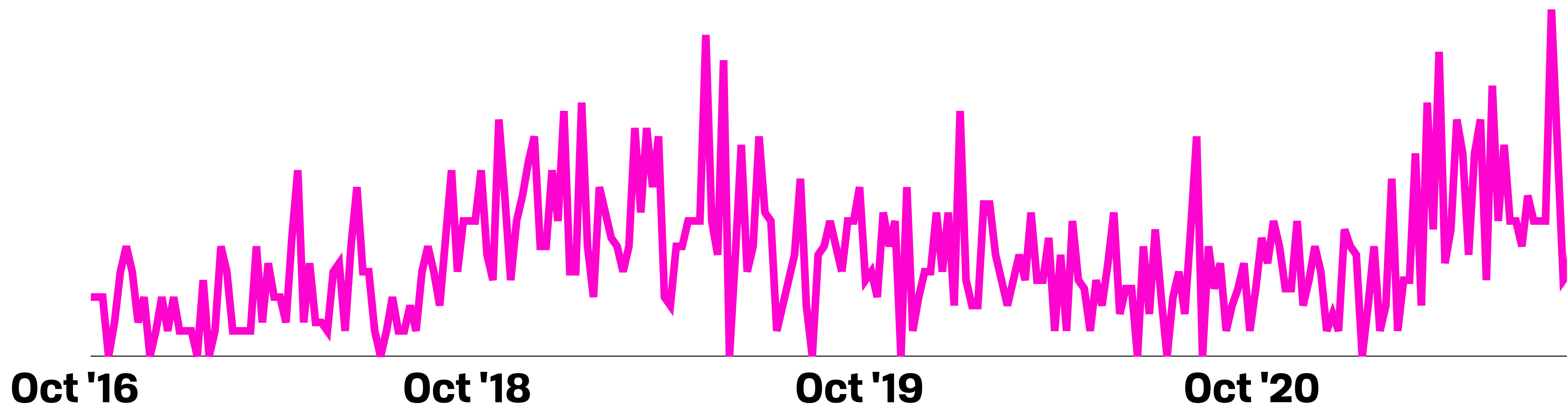




Search Traffic: **Web3**



# Search Traffic: Web3





# Search Traffic: Web3

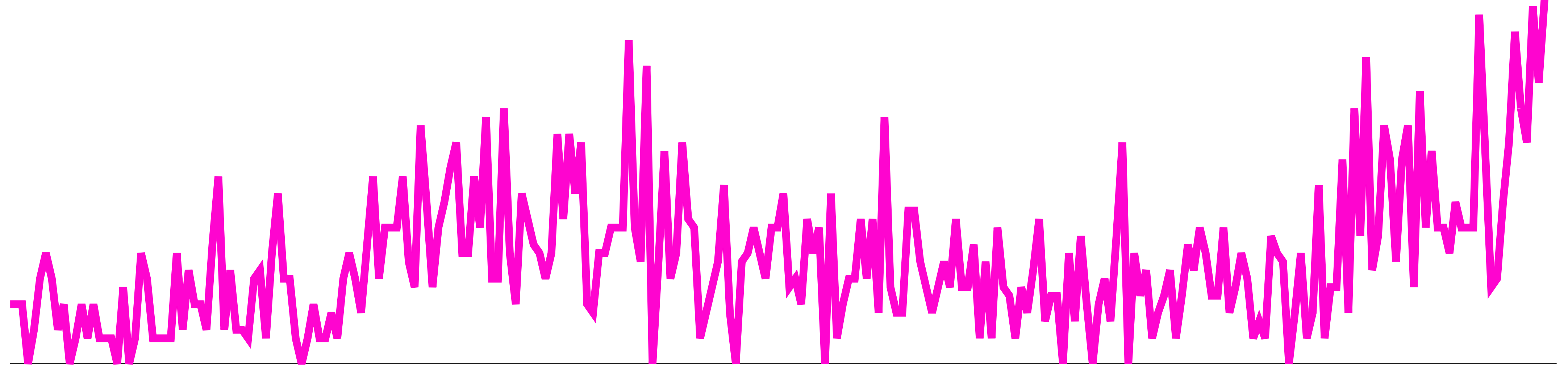
Oct '16

Oct '18

Oct '19

Oct '20

Oct '21

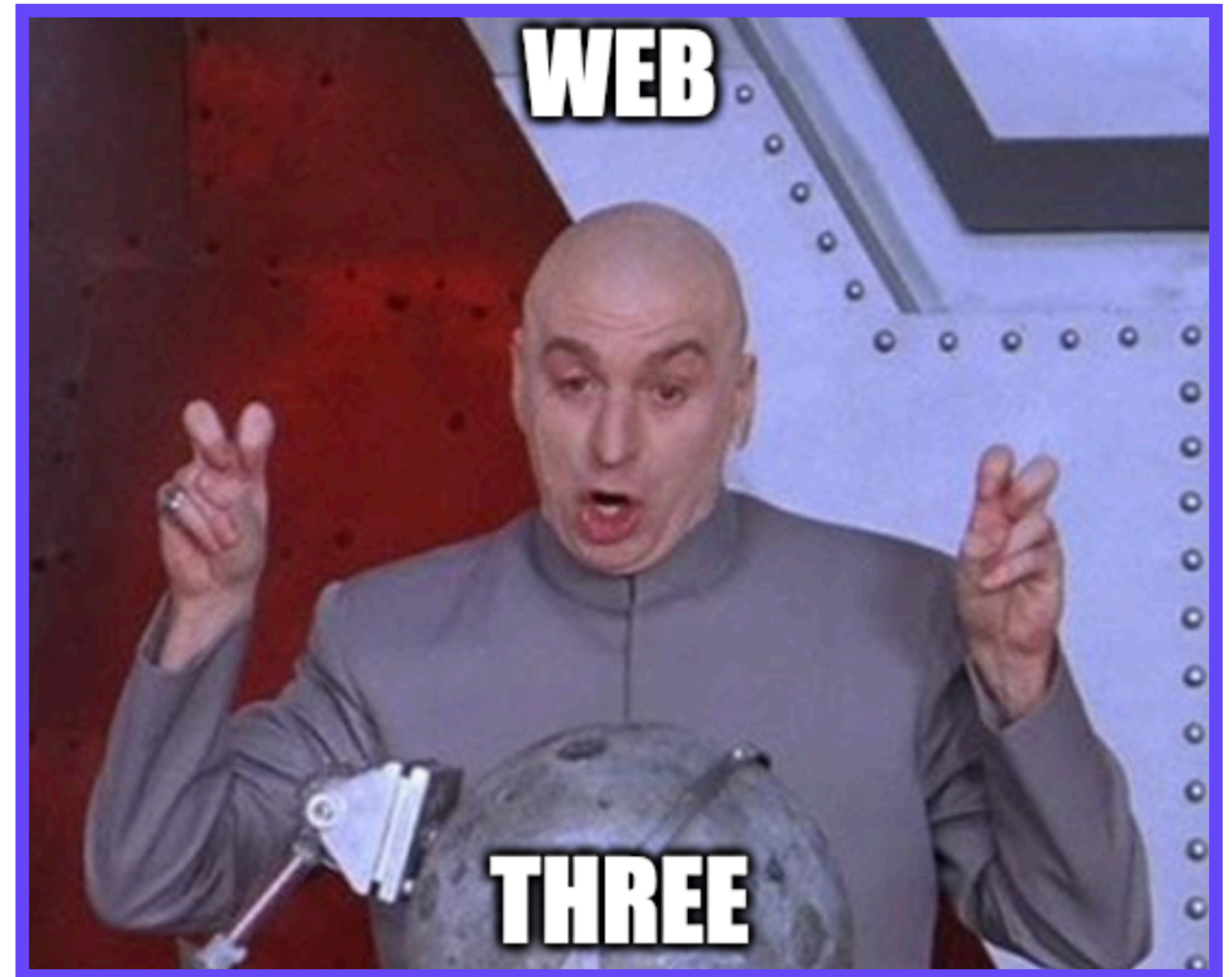




What is a "Web3"?

*So Many Questions! So Much Anxiety!*

- What is even happening?!
- Is this a pyramid scheme?
- Am I being left behind?
- Isn't Web 3.0 semantic tags?







**DAMMIT JIM  
I'M A WEB DEV**

**NOT AN ECONOMIST**

***What the #\$\$%@&  
is Even Happening?***

**Don't Panic!**







***This has all happened before***



A circular graphic composed of two hands holding each other, forming a ring. The hands are rendered in a light gray, stylized line-art style. The fingers are interlocked, and the palms are facing each other, creating a continuous loop. The background is white.

***This has all happened before  
...and will happen again***

What is Even Happening?


*Just a Fad*

Daily Mail, Tuesday, December 5, 2000

# Internet 'may be just a passing fad as millions give up on it'

By **James Chapman**  
Science Correspondent

**Net loss: Two million Britons have logged off the Internet**



**EXCLUSIVE!**

**NOW THERE'S ANOTHER  
INTELLIGENT FUTURE  
COULD MAKE YOU**

THE Internet may be only a passing fad for many users, according to a report.

Researchers found that millions were turning their back on the world wide web, frustrated by its limitations and unwilling to pay high access charges.

They say that e-mail, far from replacing other forms of communication, is adding to an overload of information.

Experts from the Virtual Society project, which published the report, say predictions that the Internet would revolutionise the way society works have proved wildly inaccurate.

Many teenagers are using the Internet less now than previously, they conclude, and the future of online shopping is limited. Steve Wedgar, director of the society, said: "We are often presented with a picture of burgeoning Internet use, but there is evidence already of drop-off and saturation among users.

"Teenagers' use of the Internet has declined. They were energised by what you can do on the Net but they have been through all that and then realised there is more to life in the real world and gone back to it."

The project, sponsored by the Economic and Social Research Council, gathered together research by 25 universities across Europe and the U.S.

It estimated that in Britain alone there could be more than two million people who regularly used the Internet but had now given up.

Analysts say some simply became bored.



What is Even Happening?

*What's In a Name?* 🌹


# What is Even Happening?

## *What's In a Name?*

### Web geeks need to practice the art of plain speaking

© Fri, Jun 9, 2006, 01:00

Karlin Lillington

 **Net Results:** I have a theory that the amount of resistance put up by the corporate sphere to a new technology or a new tech concept, and the length of time it will take the mainstream business world to adopt any such tool, is directly proportionate to how stupid the name for the new technology or concept is.

Evidence for my theory includes: wiki, blog, mashups, Web 2.0. Oh dear.

These may all cut ice among the digirati/technorati - those who could in the past be conveniently categorised as the tech trendoids who religiously read *Wired* magazine, back when it was annoyingly but often brilliantly cool rather than, as it is now, navel-gazingly irrelevant. But such terminology is a major barrier to mainstream adoption for businesses. It is the tech equivalent of body piercings, magenta hair, miniskirts and manbags. In other words, not in the boardroom, please.

Now I know the whole Web 2.0 thing - the catch-all term for hyper-interactive net technologies such as wikis, blogs and mashups - is supposed to be the buzzword du jour in Silicon Valley. Goodness, there have even been conferences organised around the topic, which means it is pinging the semi-mainstream radar somewhere.

<https://www.irishtimes.com/business/web-geeks-need-to-practice-the-art-of-plain-speaking-1.1014319>



# What is Even Happening?

# What's In a Name?

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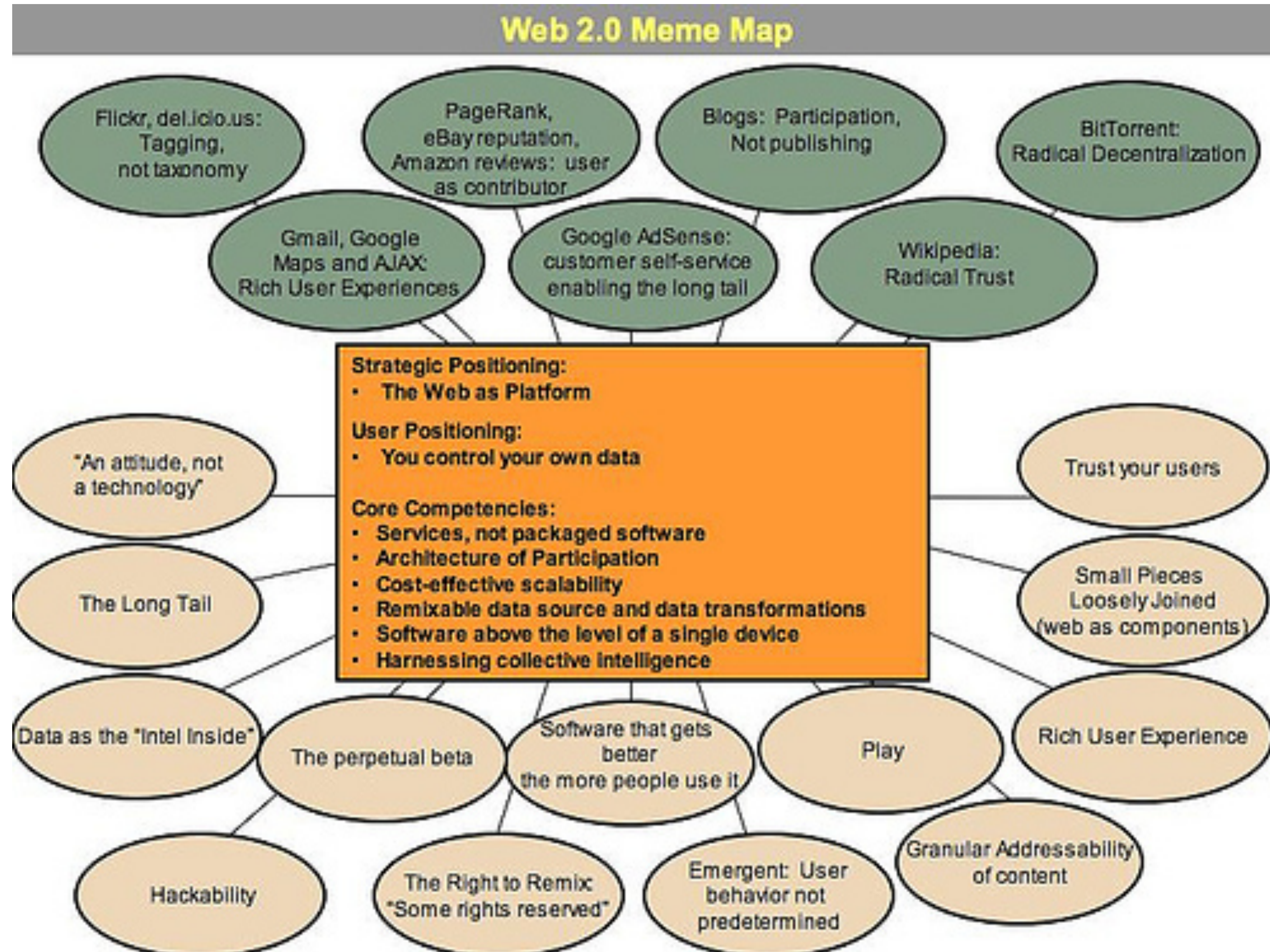
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# What is Even Happening?

## Web 2.0 Was Hard, Too!





# Web3

A technological & social movement characterized by ***openness, interoperability,*** and ***user agency***





**1. *Decentralization***

**2. *Non-discrimination***

**3. *Bottom-up Design***

**4. *Universality***

**5. *Consensus***

~ World Wide Web Foundation, "History of the Web"

**1. Decentralization**

**2. Non-discrimination**

**3. Bottom-up Design**

**4. Universality**

**5. Consensus**

Layer		Protocol data unit (PDU)	
Host layers	7	Application	Data
	6	Presentation	
	5	Session	
	4	Transport	Segment, Datagram
Media layers	3	Network	Packet
	2	Data link	Frame
	1	Physical	Bit, Symbol

[en.wikipedia.org/wiki/OSI\\_model](https://en.wikipedia.org/wiki/OSI_model)

~ World Wide Web Foundation, "History of the Web"

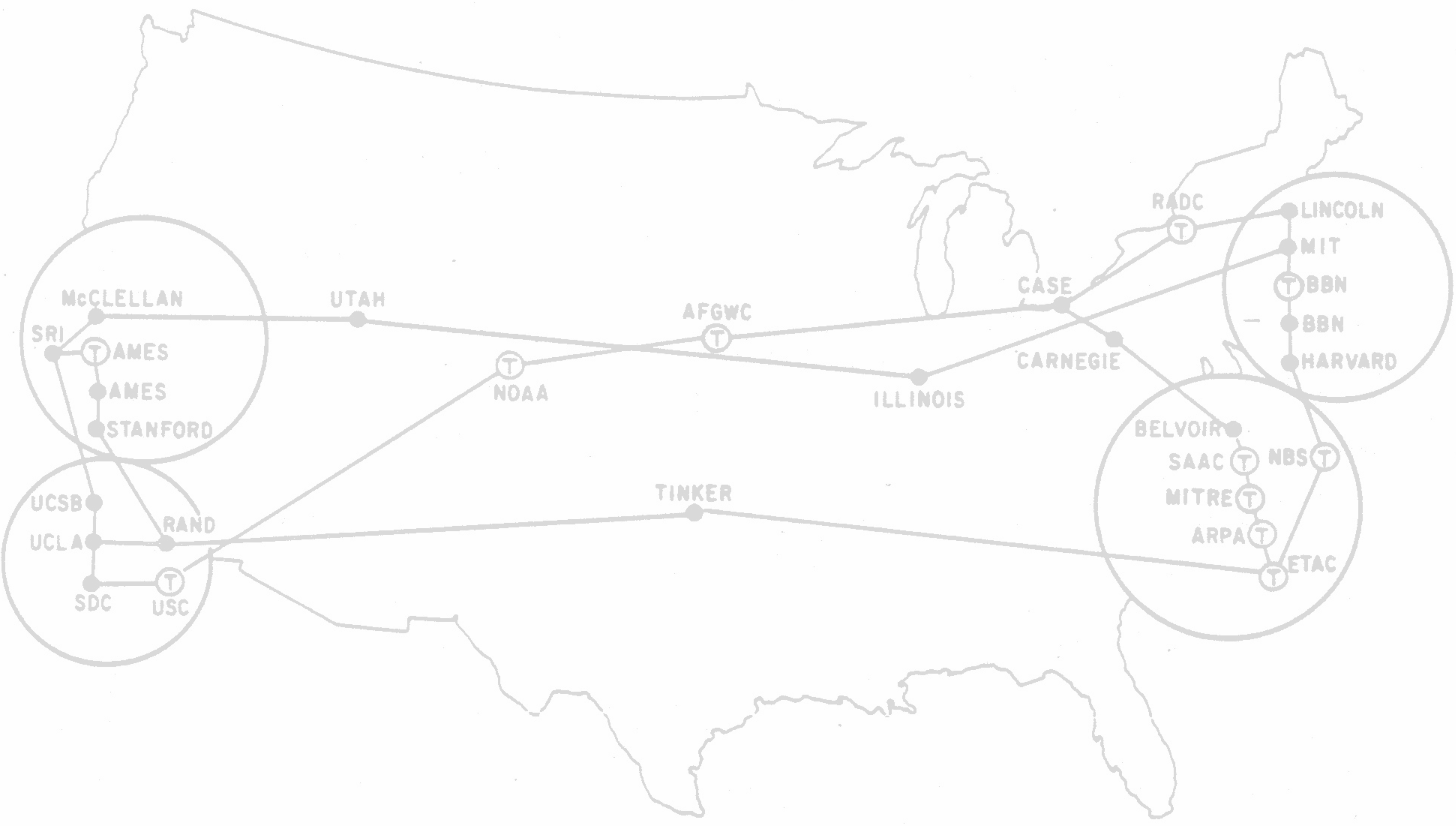
***"It's decentralized"***

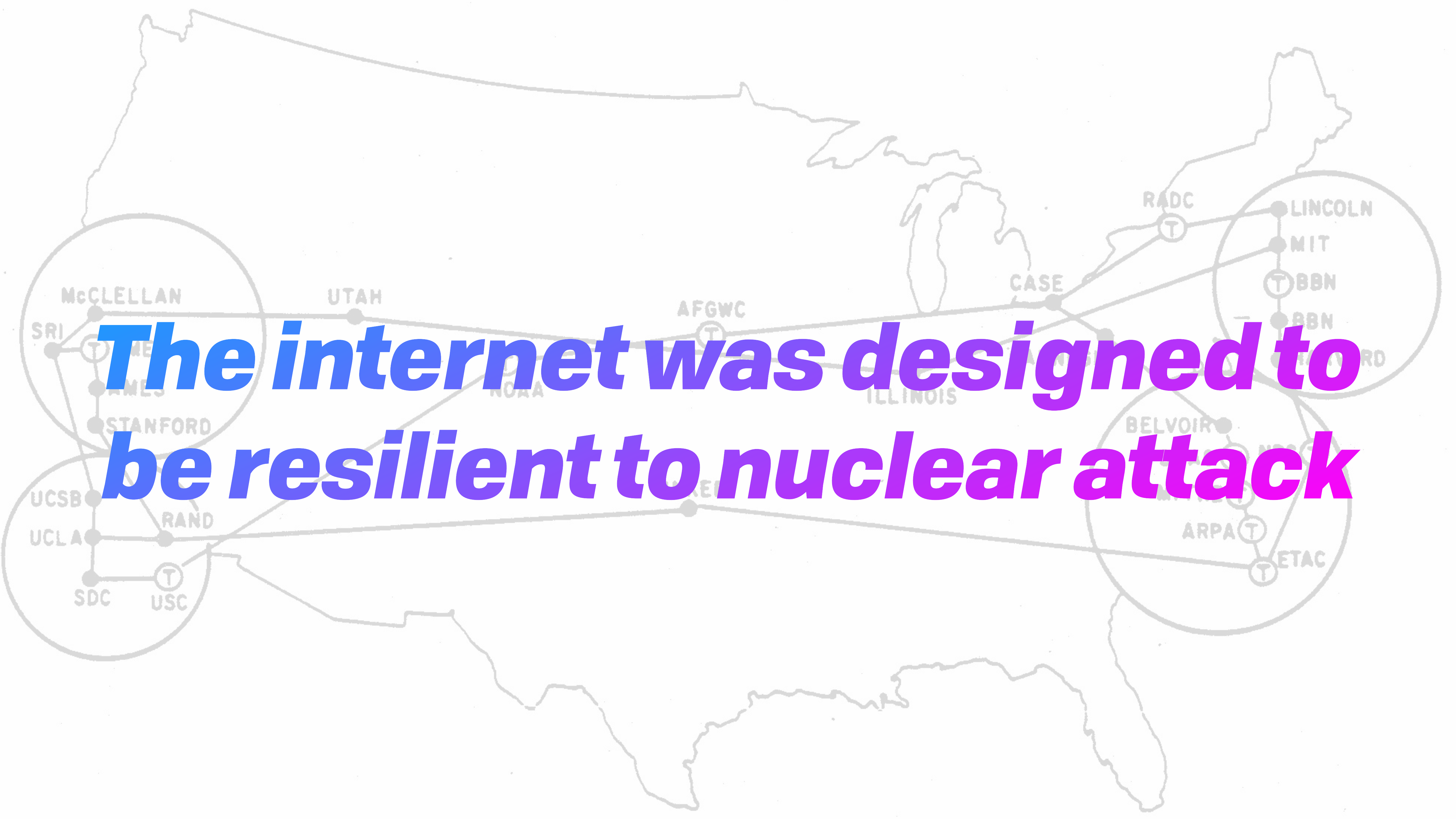


***"It's decentralized"***

***Sure, but why?***







***The internet was designed to be resilient to nuclear attack***

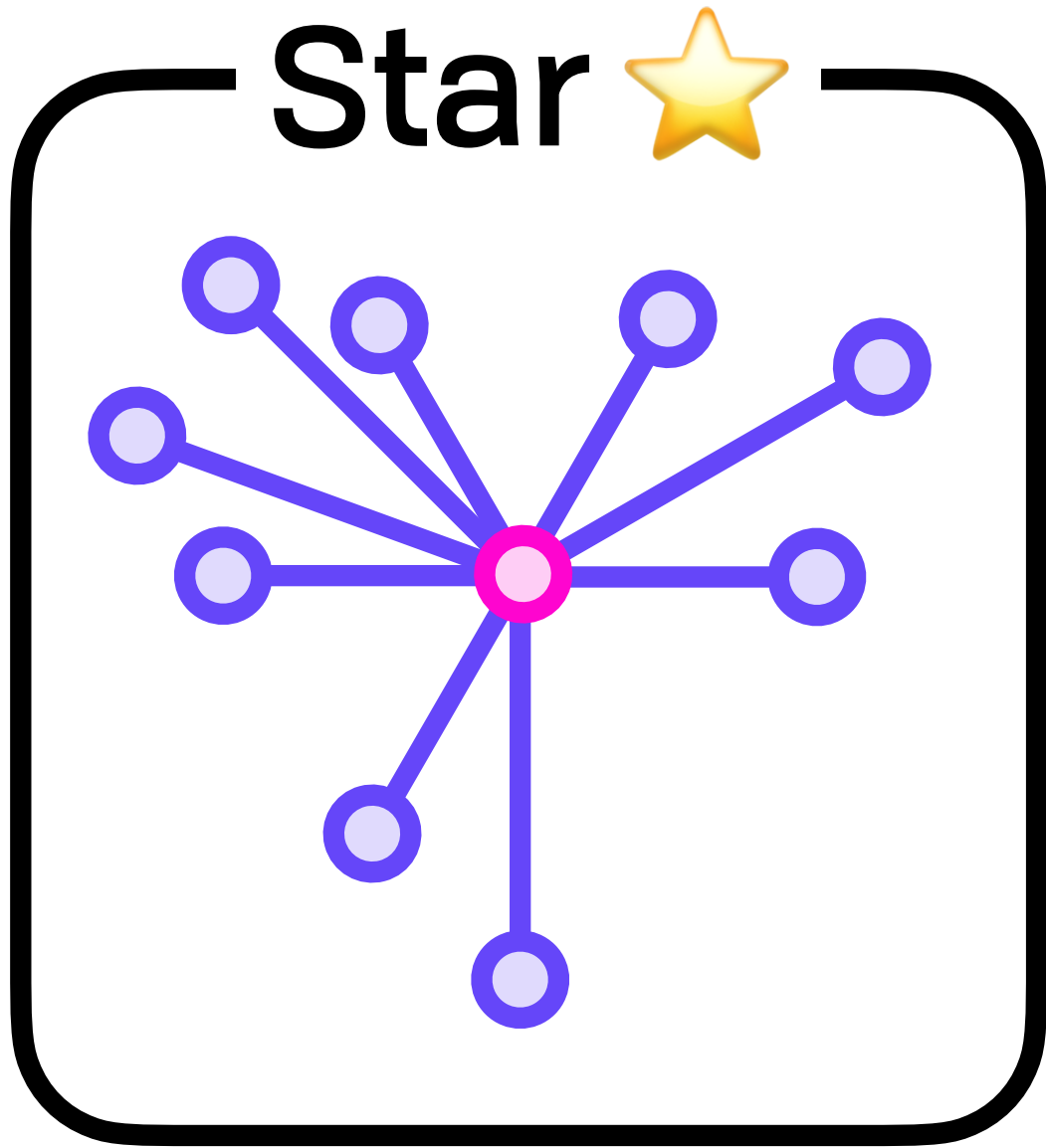


What is Even Happening?

# *Network Topologies*

What is Even Happening?

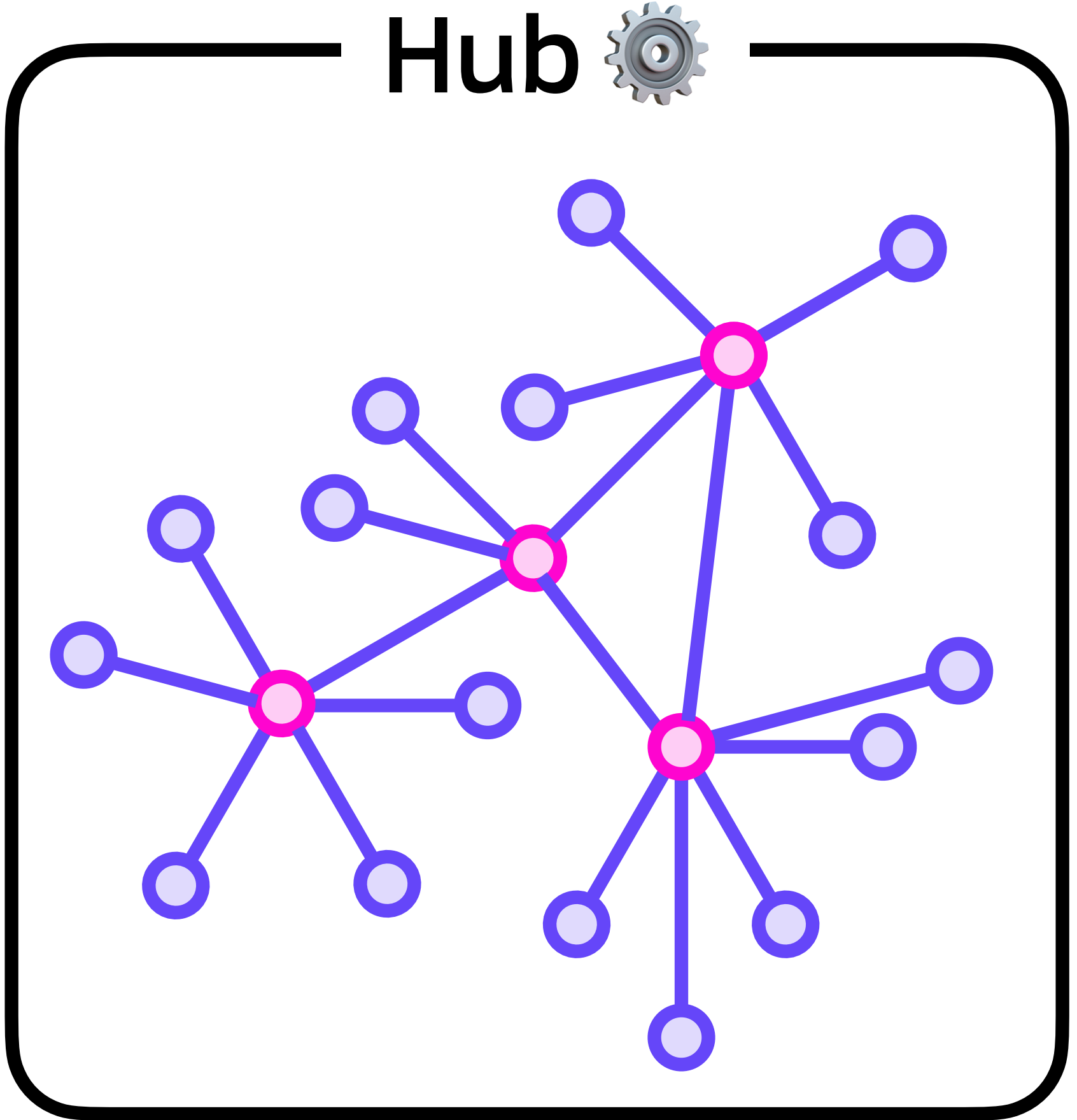
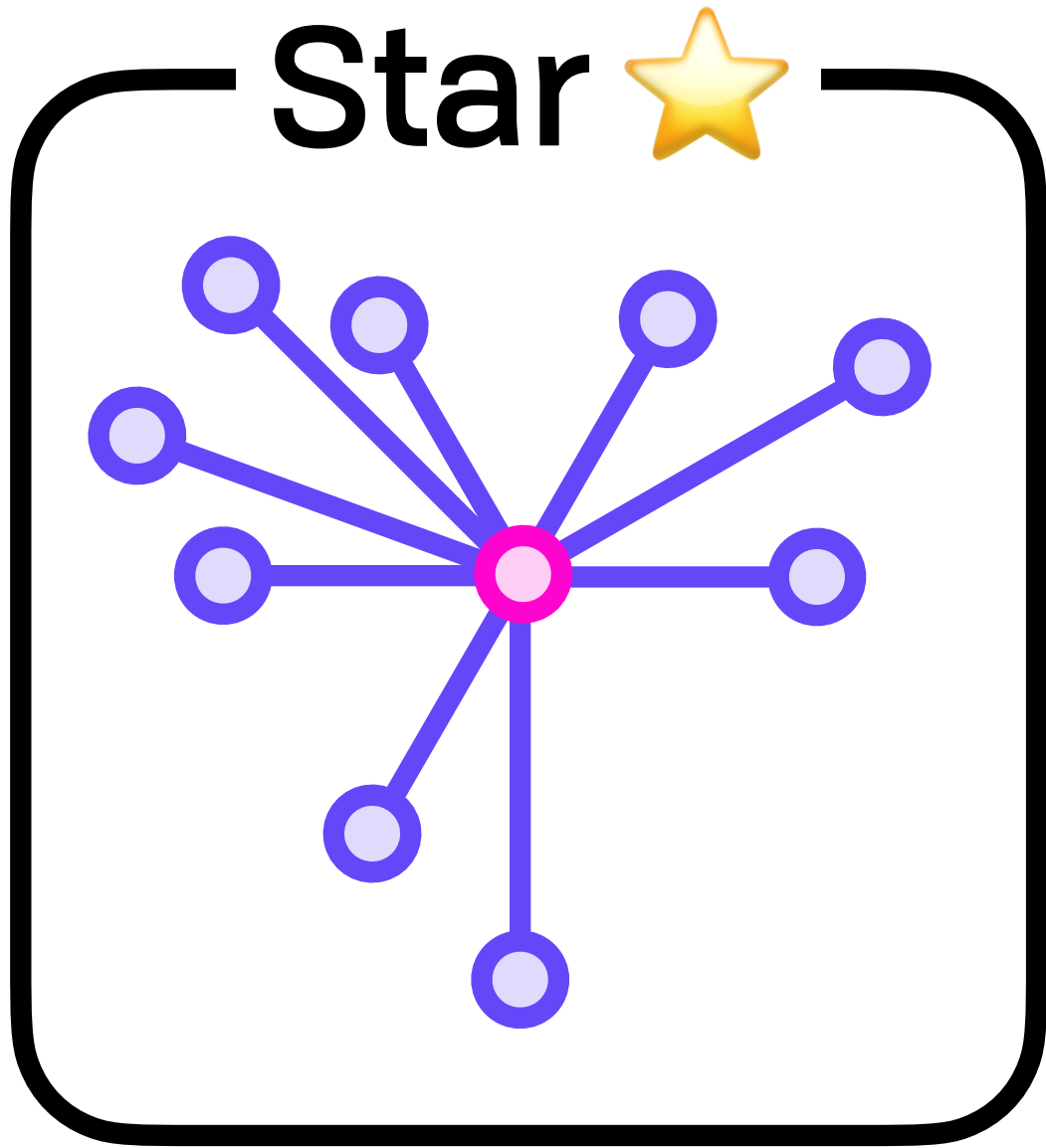
# *Network Topologies*



Centralized

What is Even Happening?

# Network Topologies



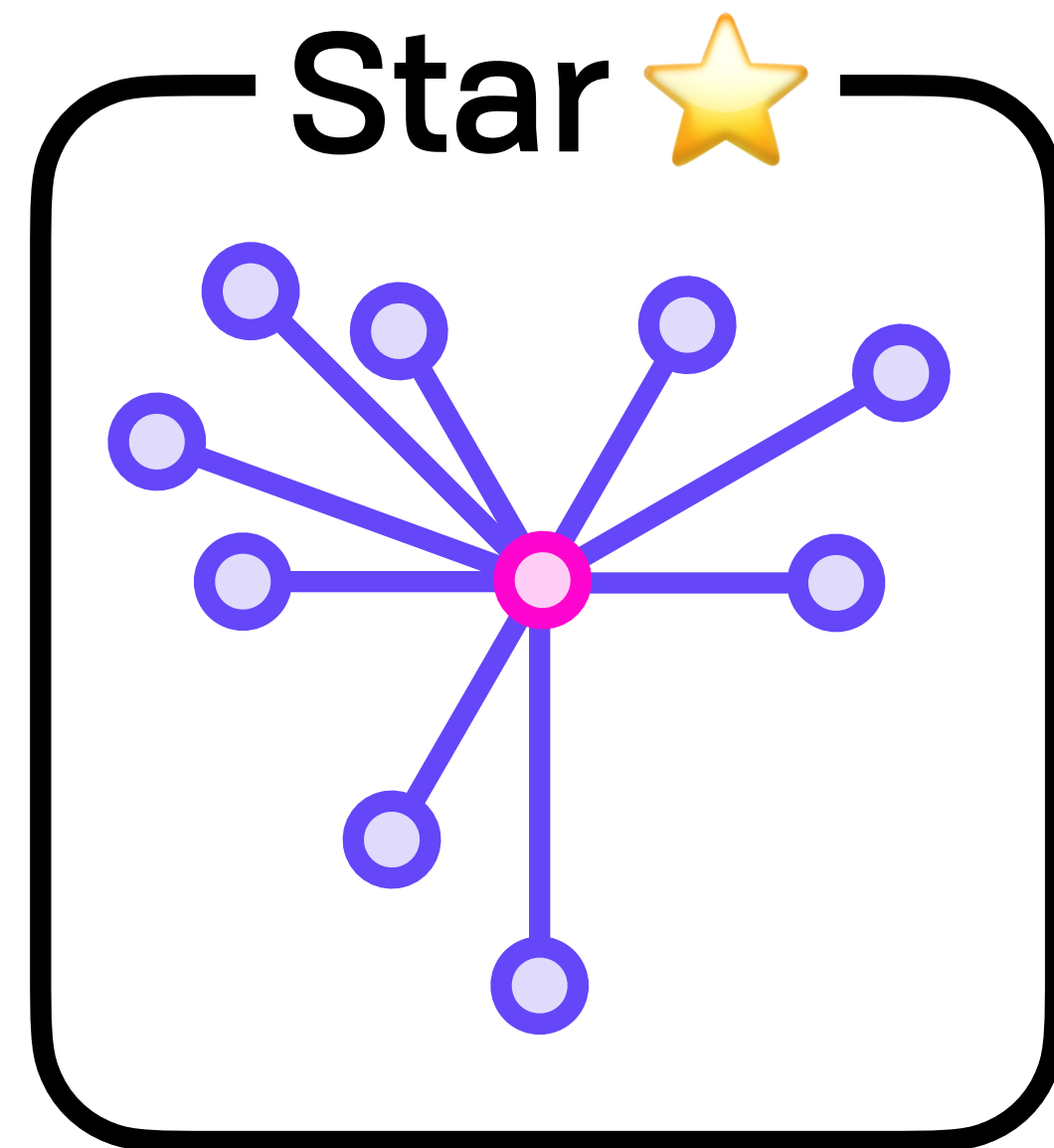
Centralized

Decentralized

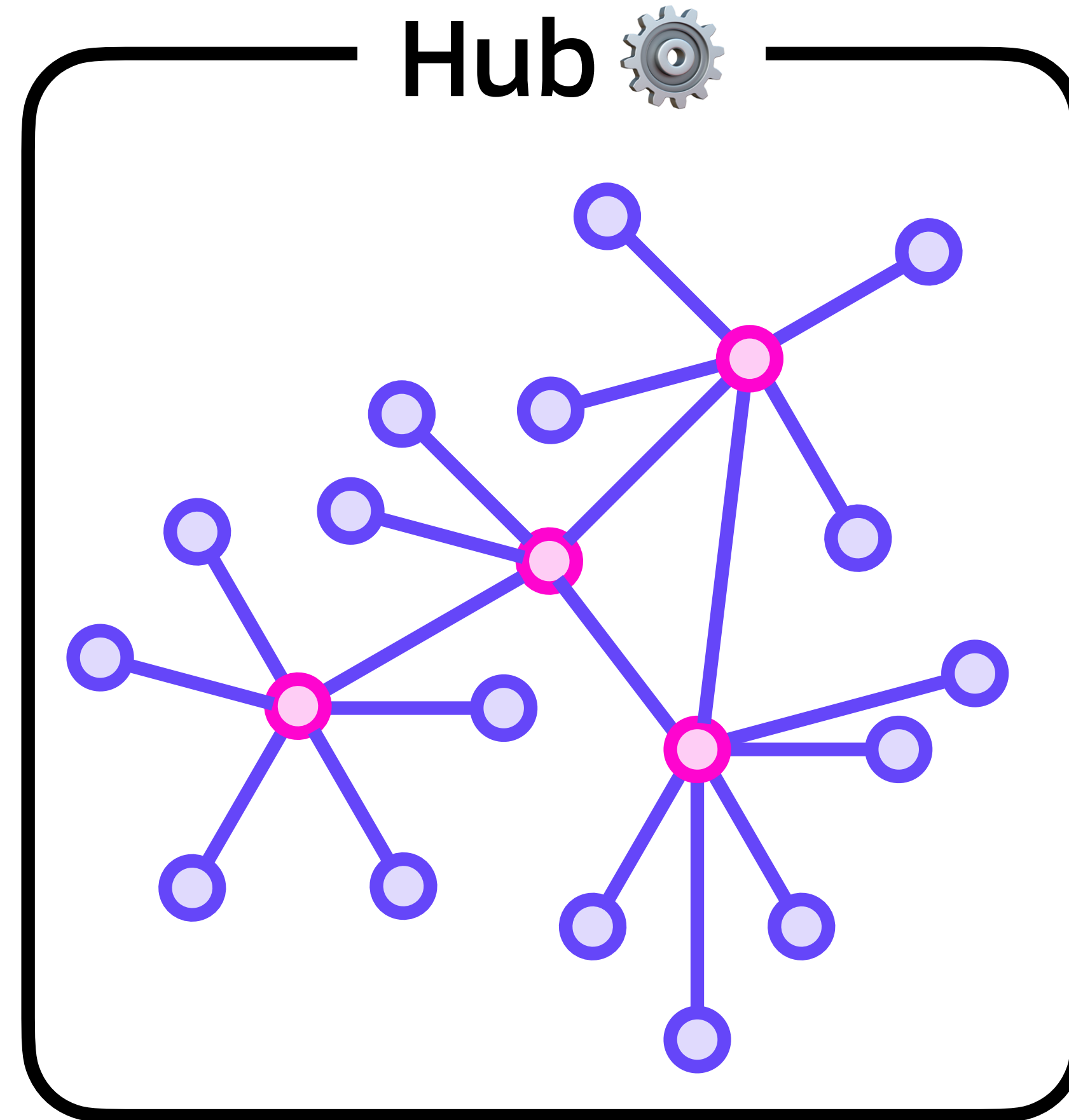


What is Even Happening?

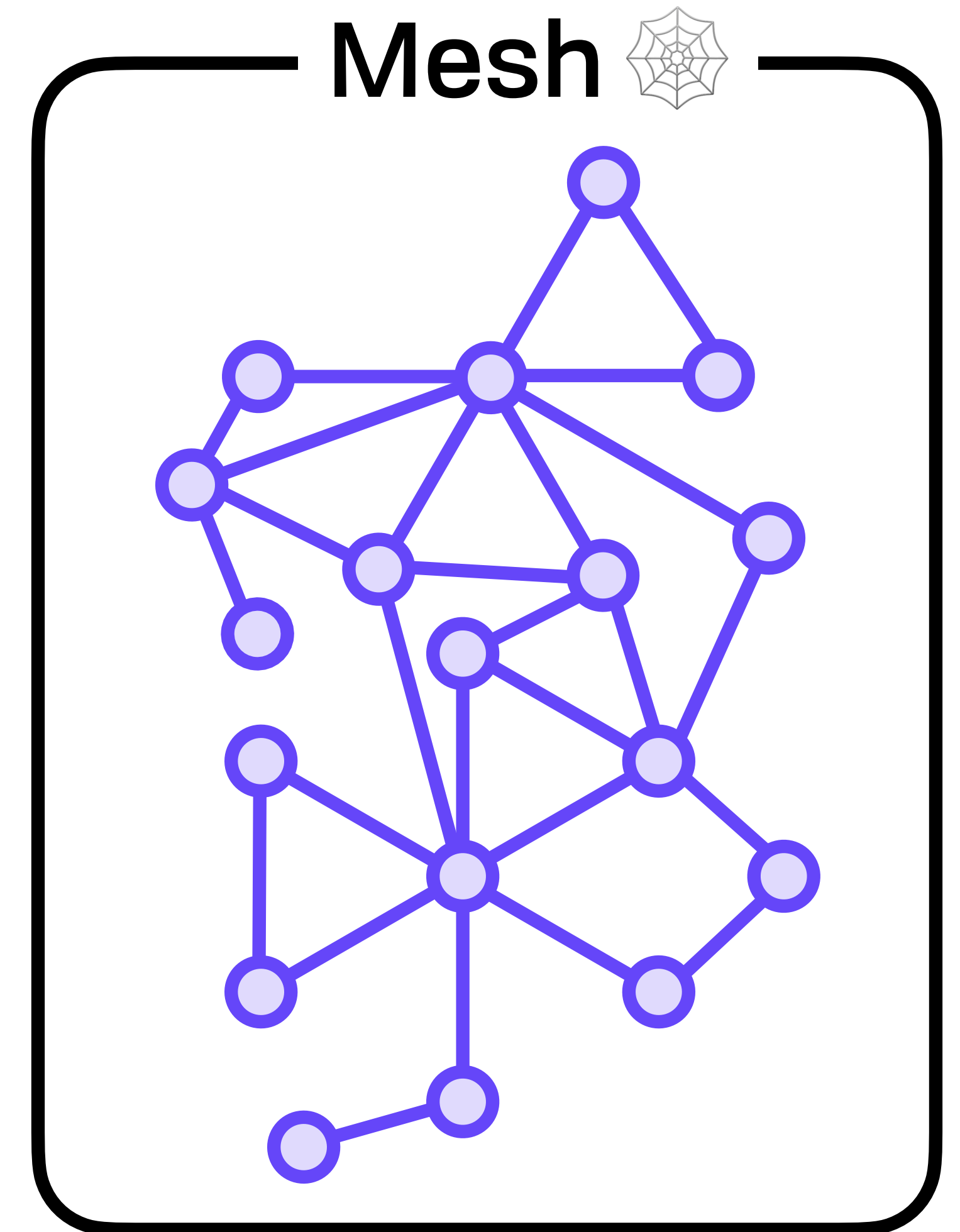
# *Network Topologies*



Centralized



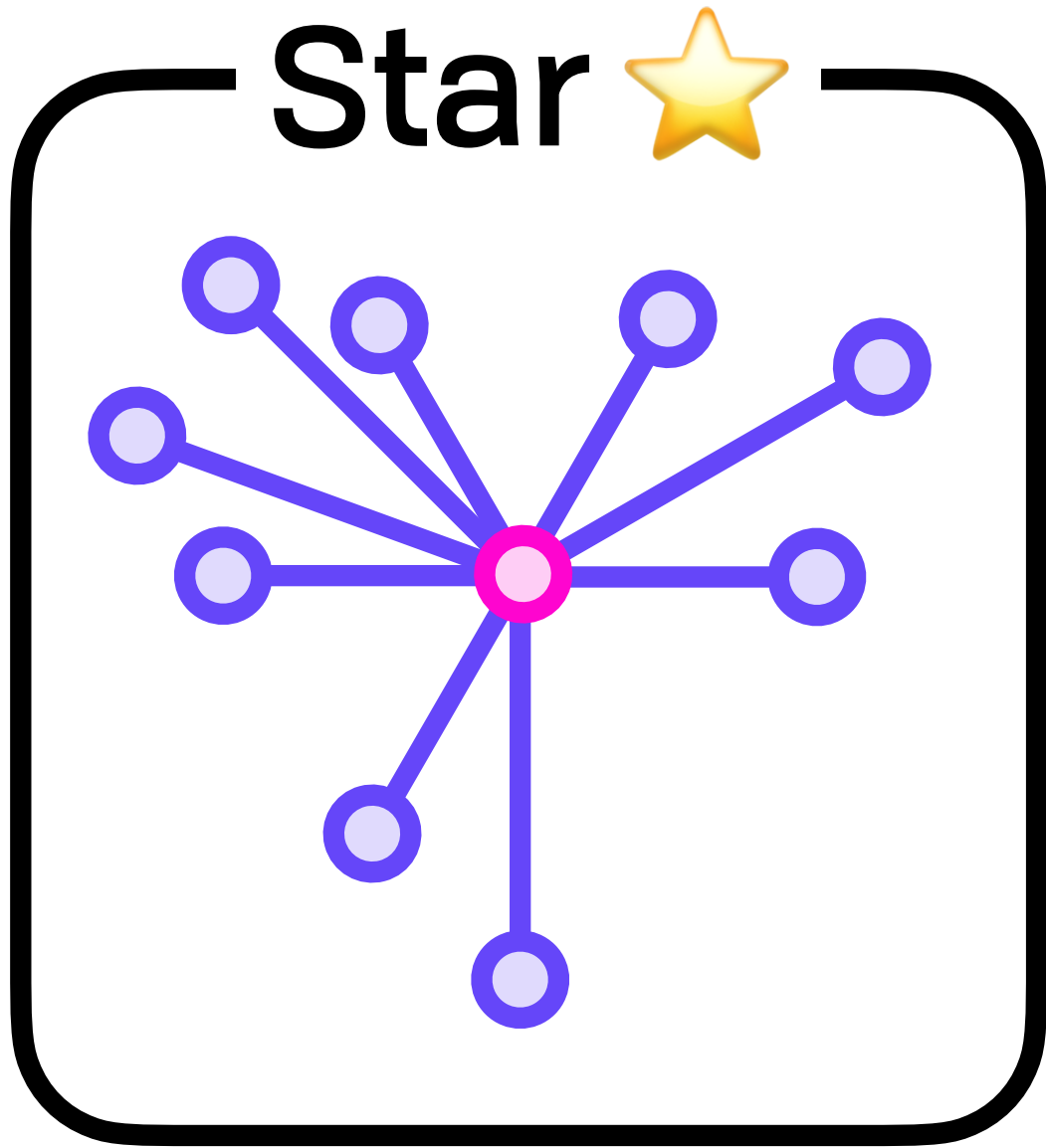
Decentralized



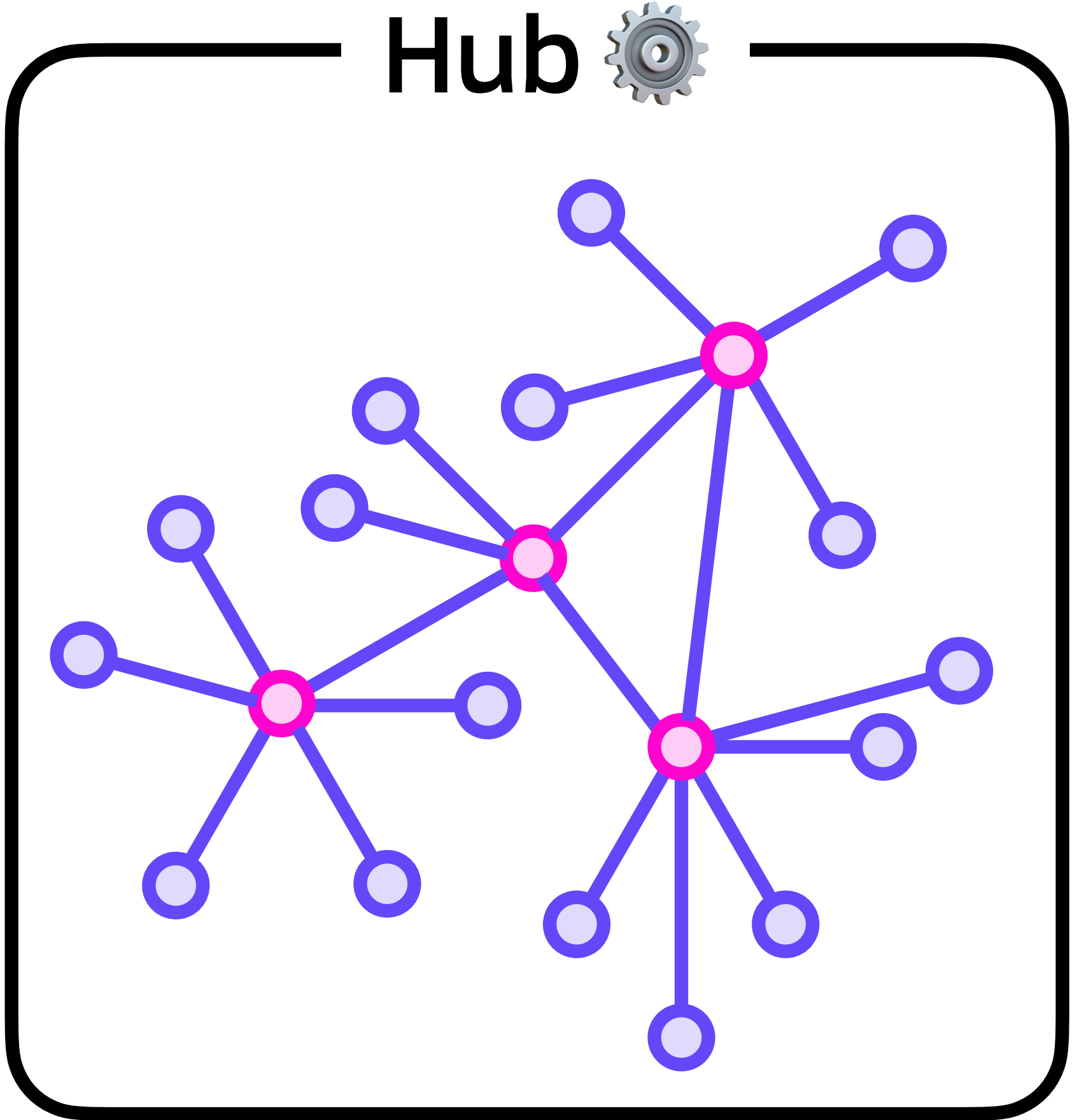
Distributed

What is Even Happening?

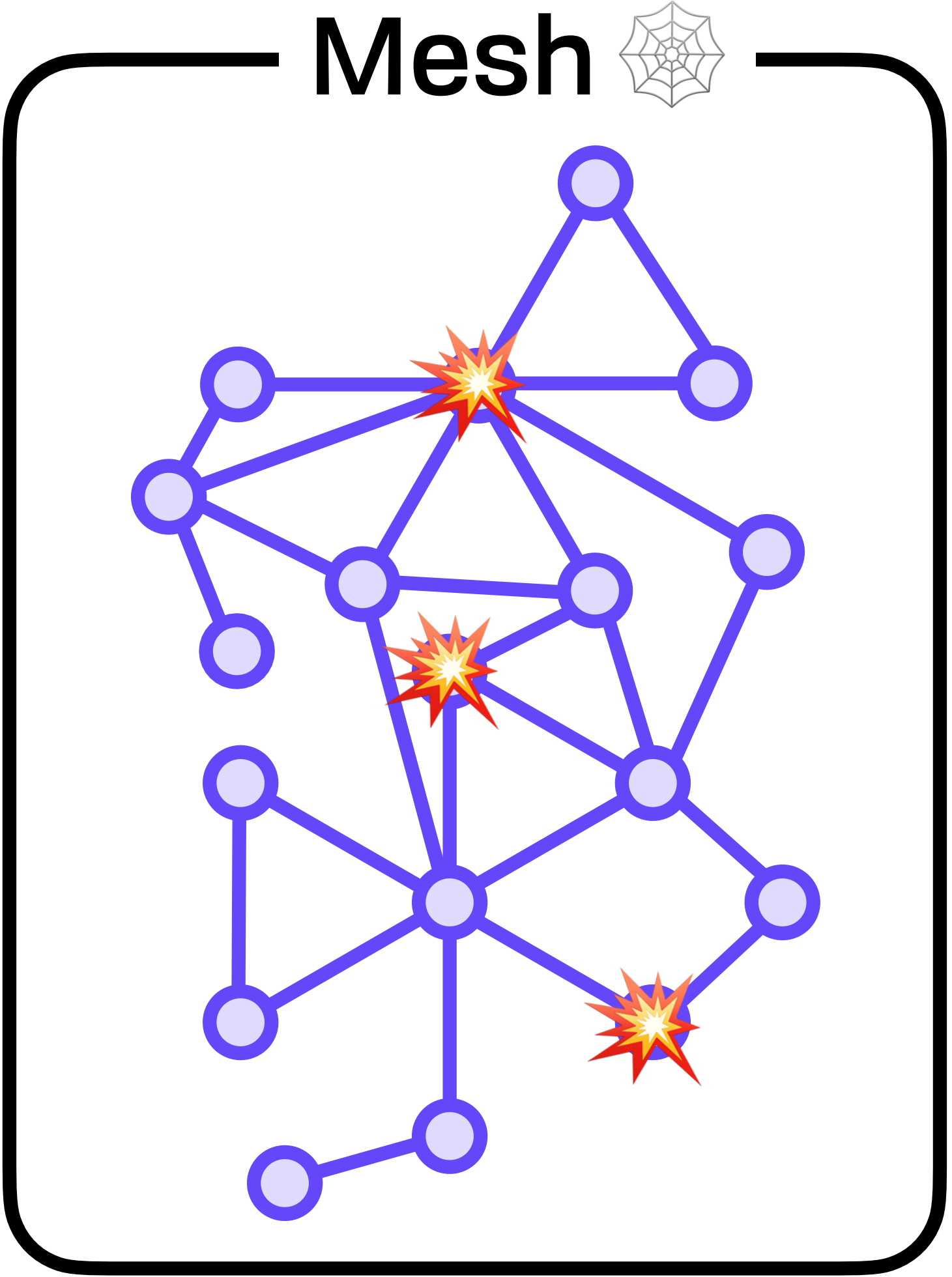
# Network Topologies



Centralized



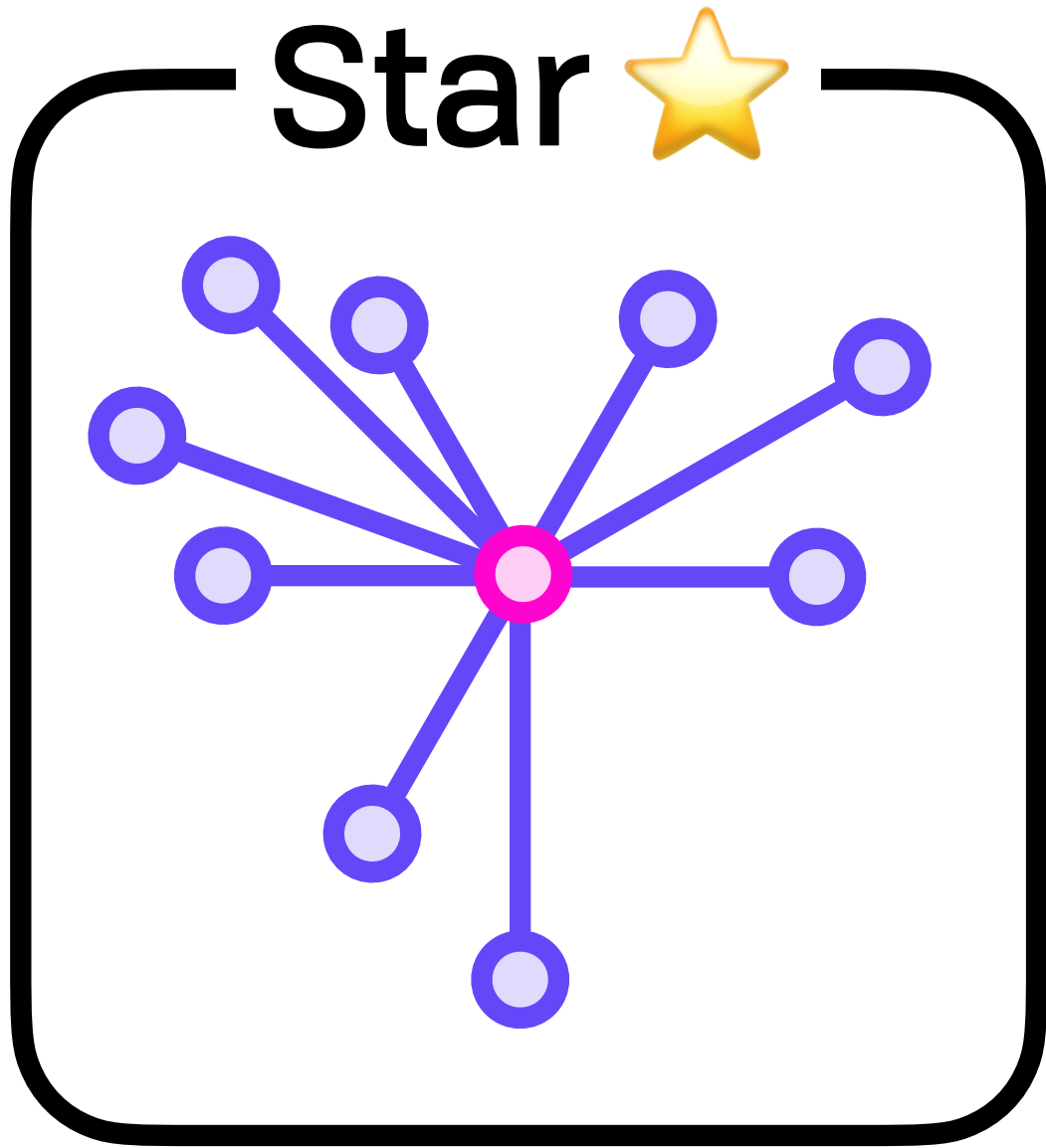
Decentralized



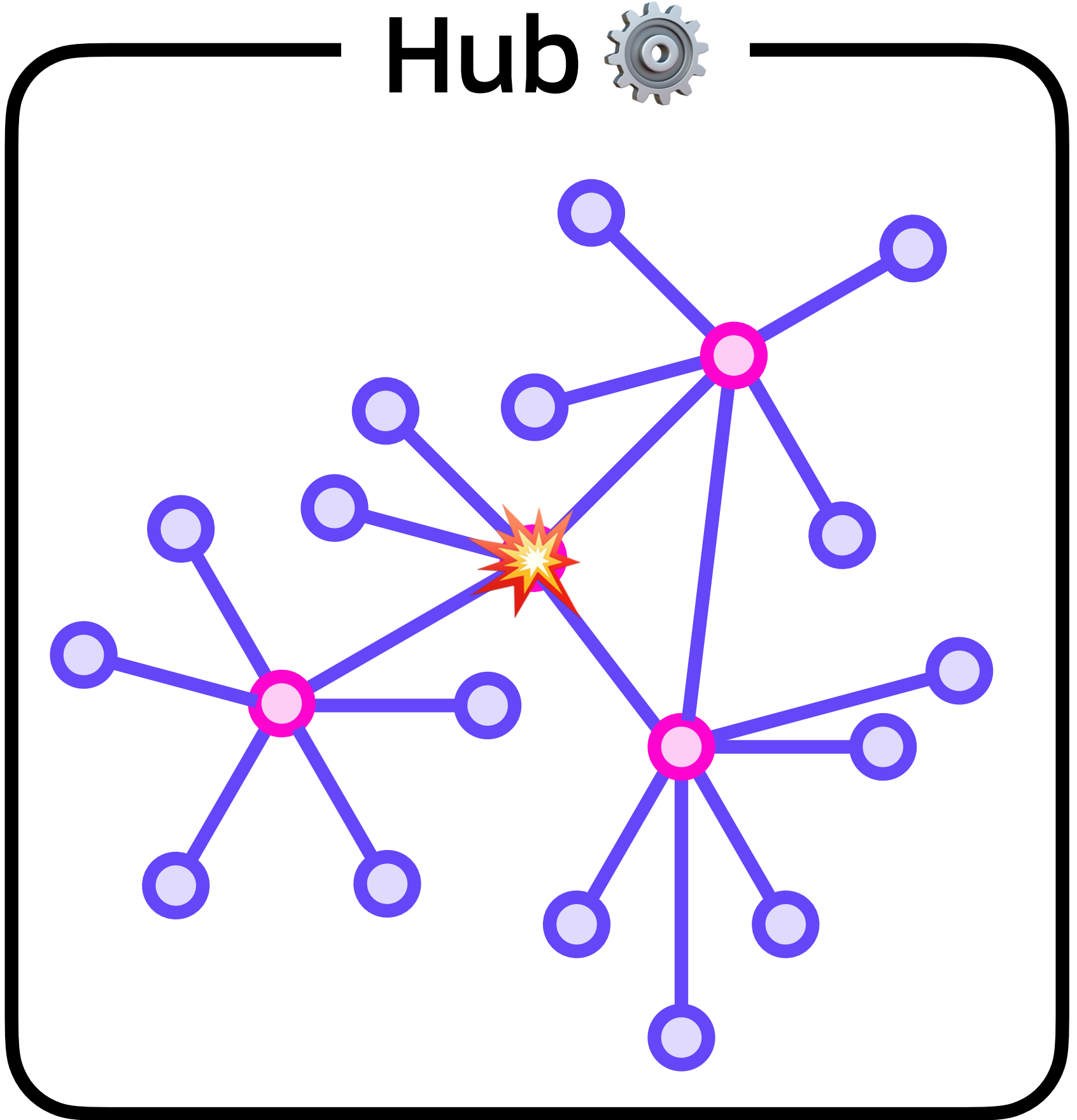
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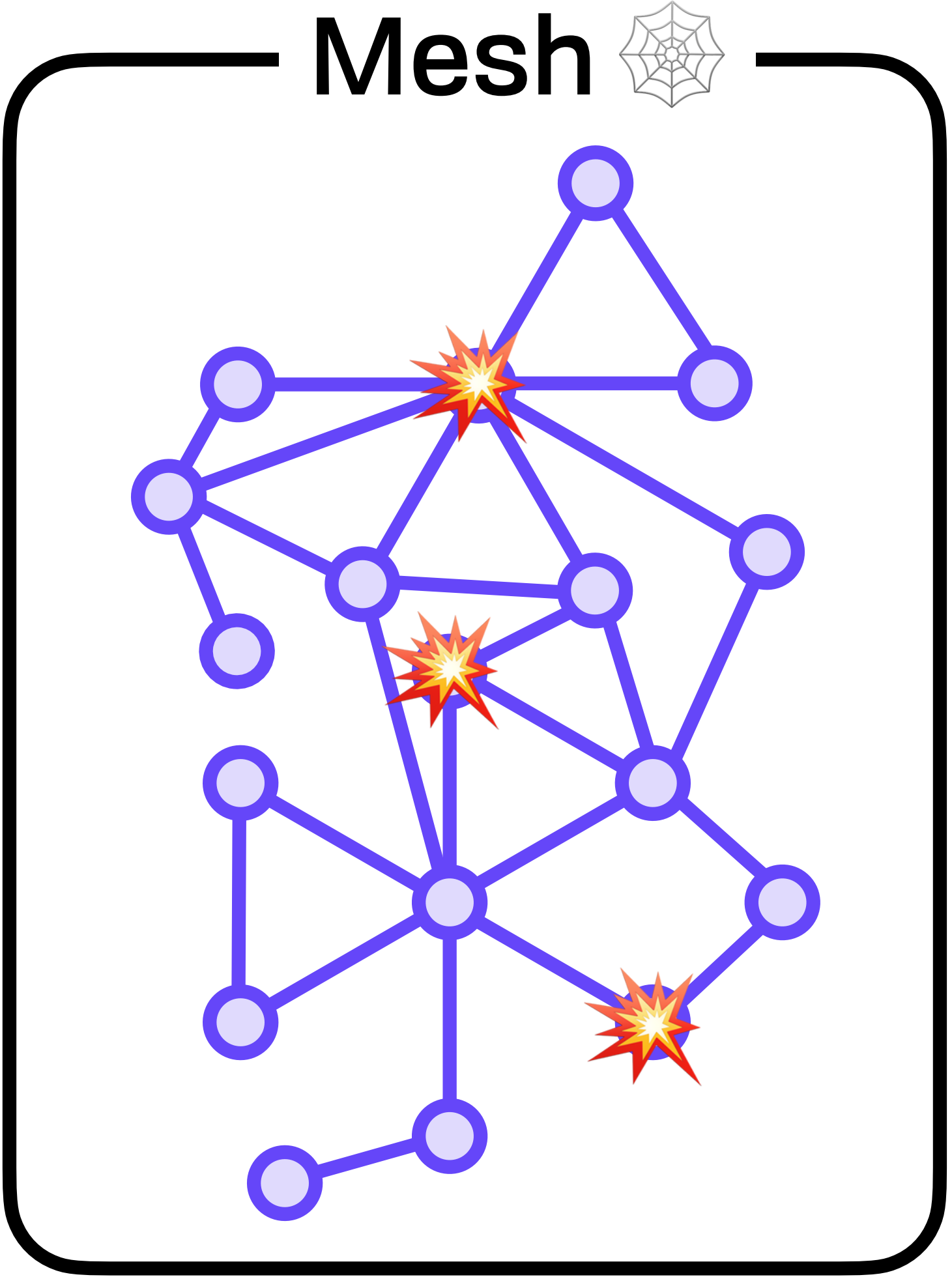
# Network Topologies



Centralized



Decentralized

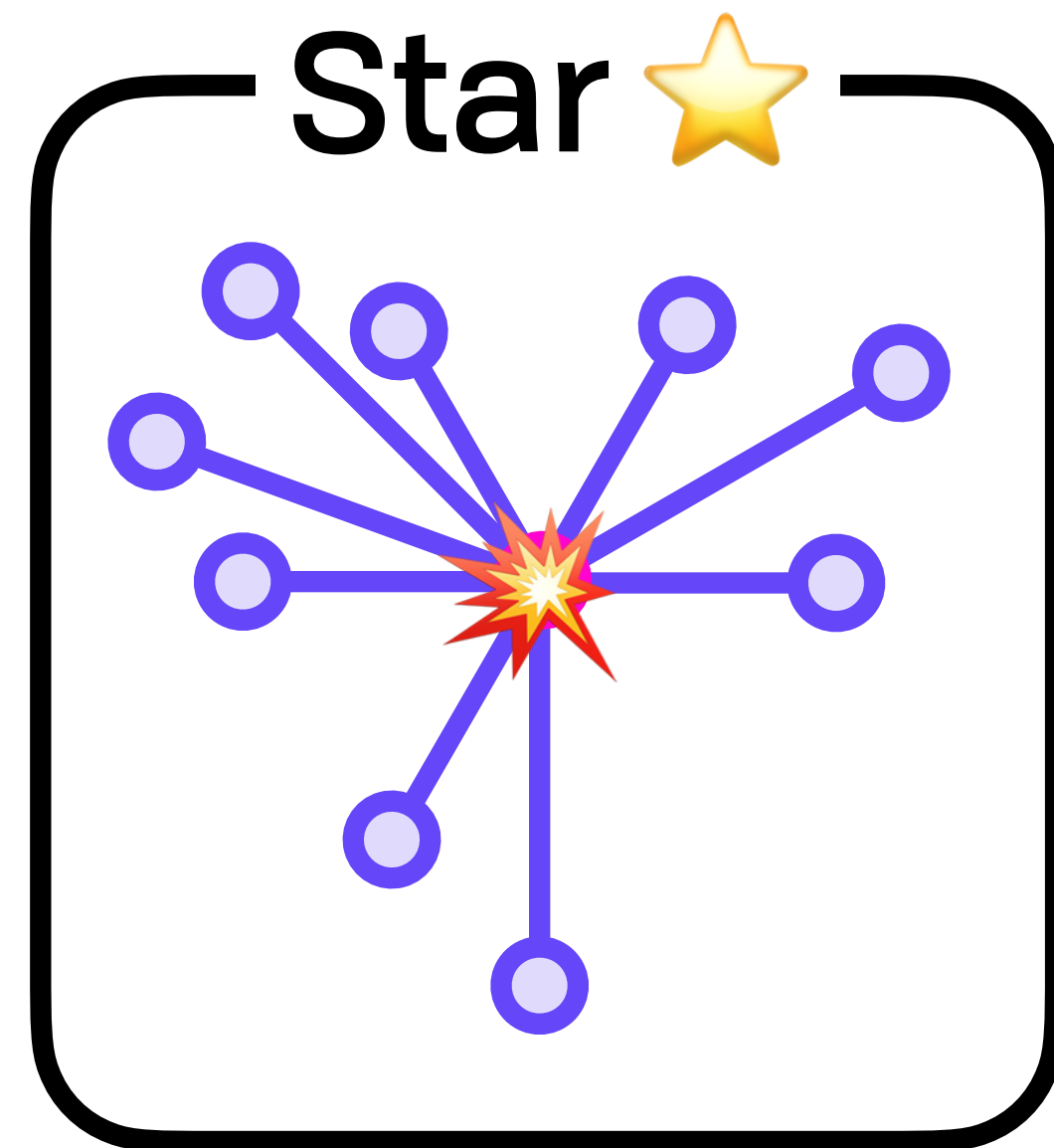


Distributed

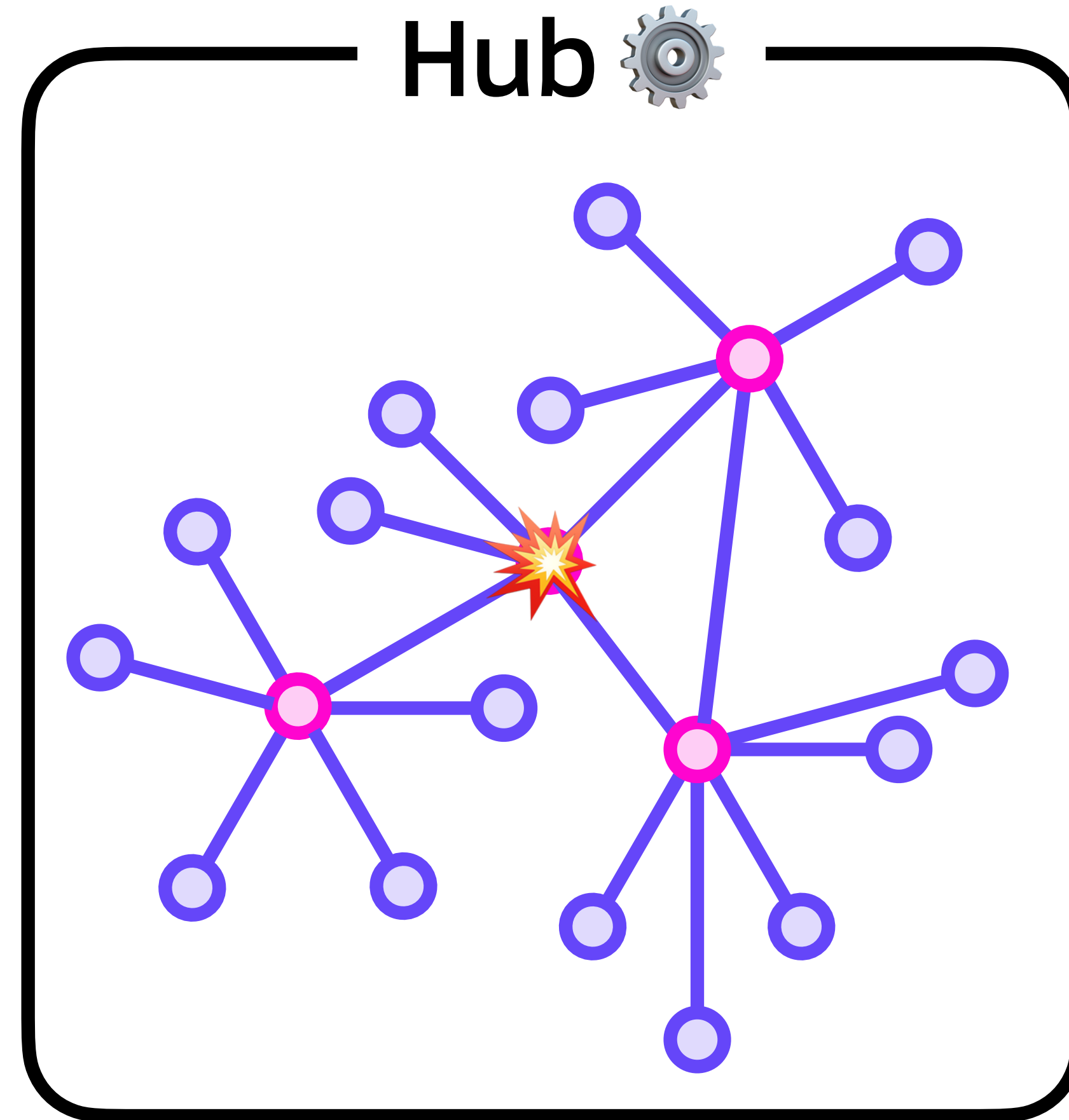


What is Even Happening?

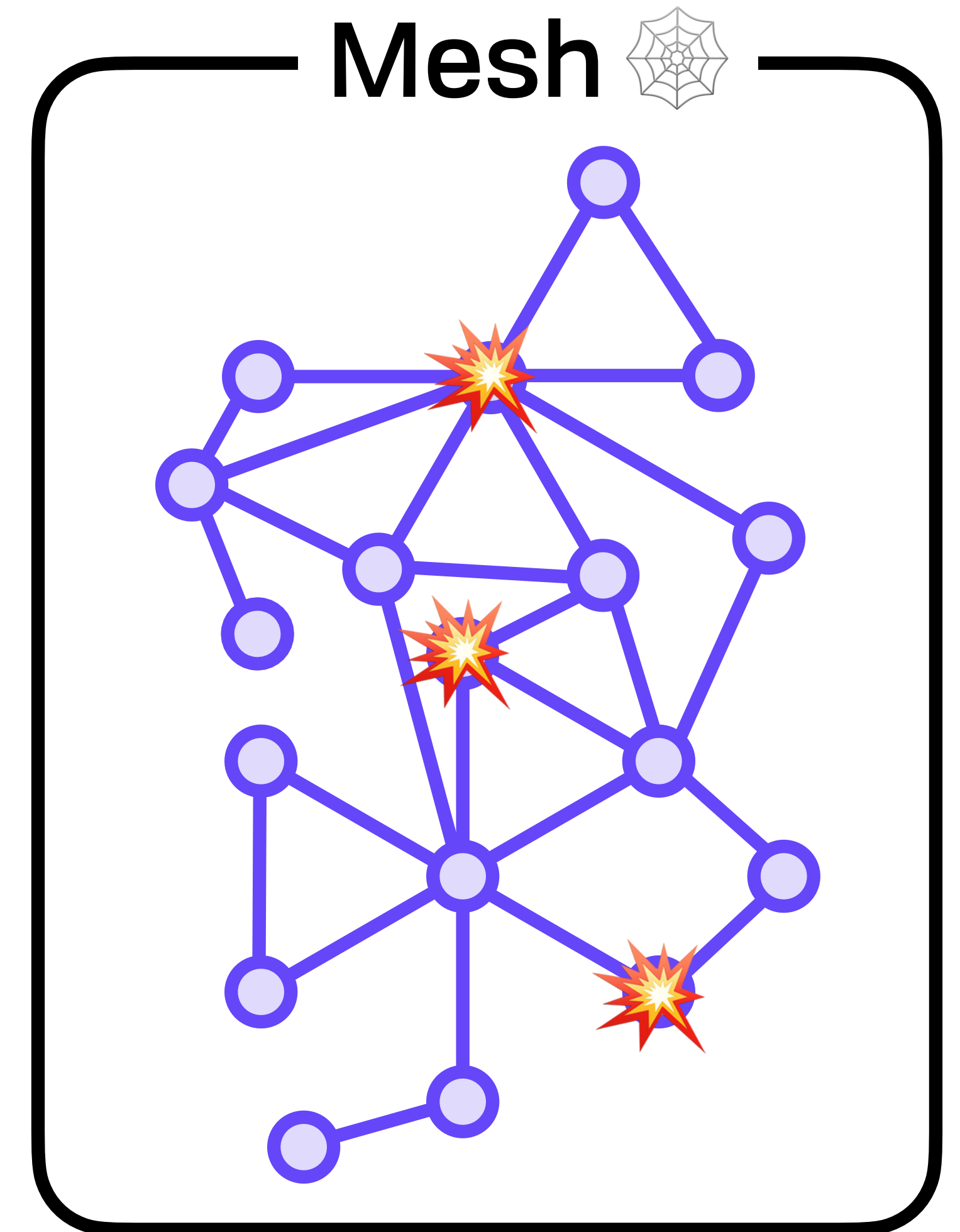
# *Network Topologies*



Centralized



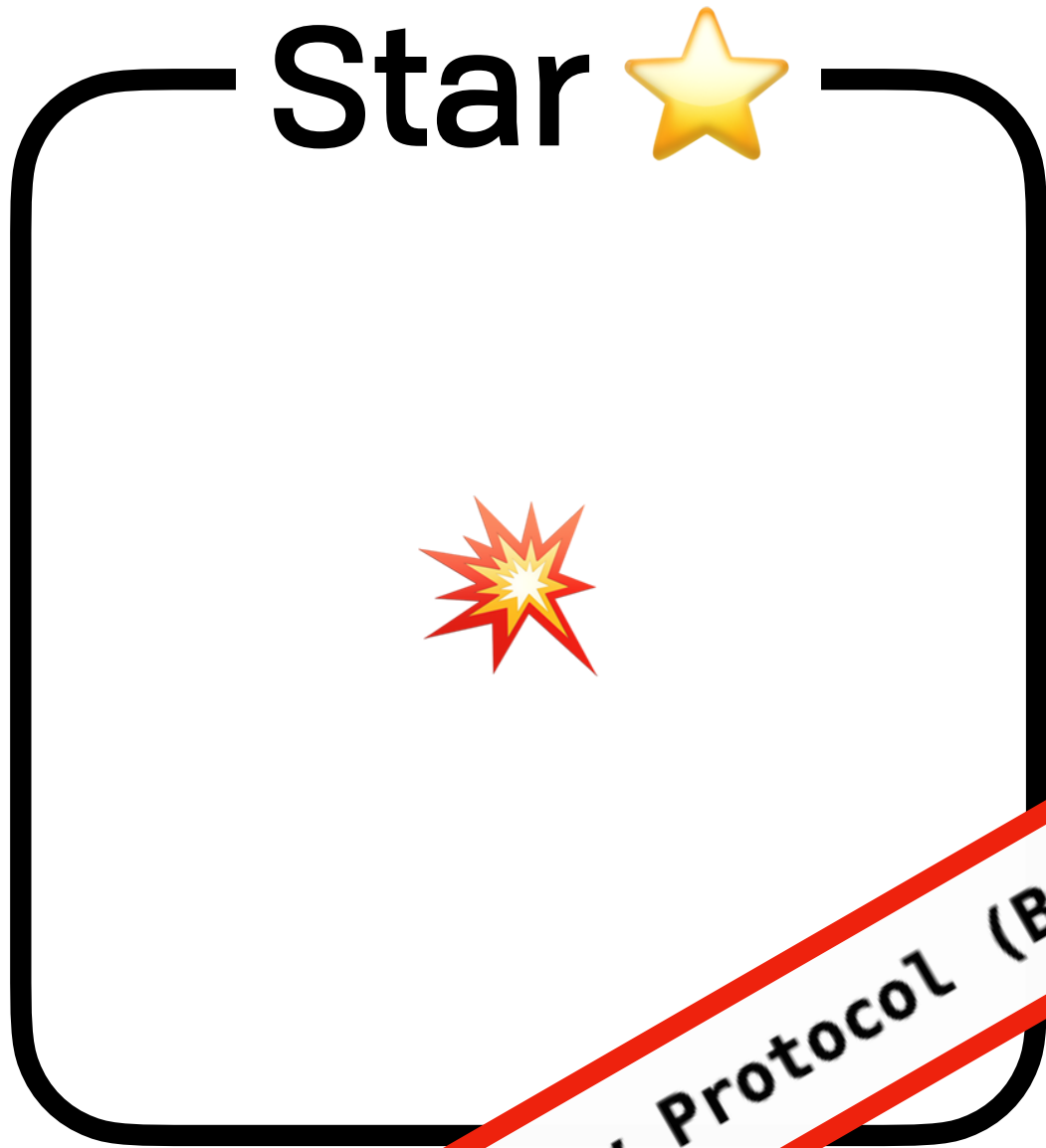
Decentralized



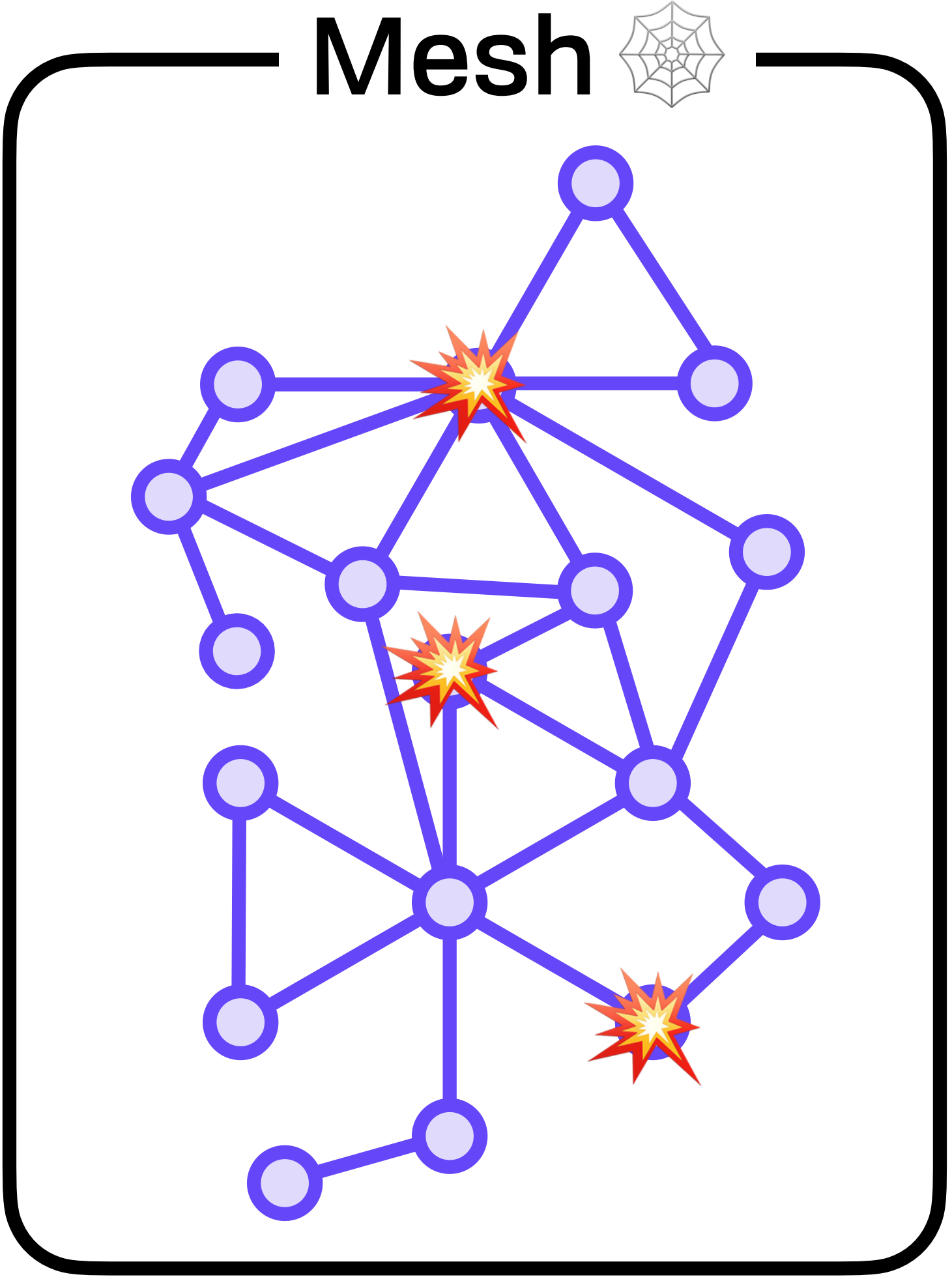
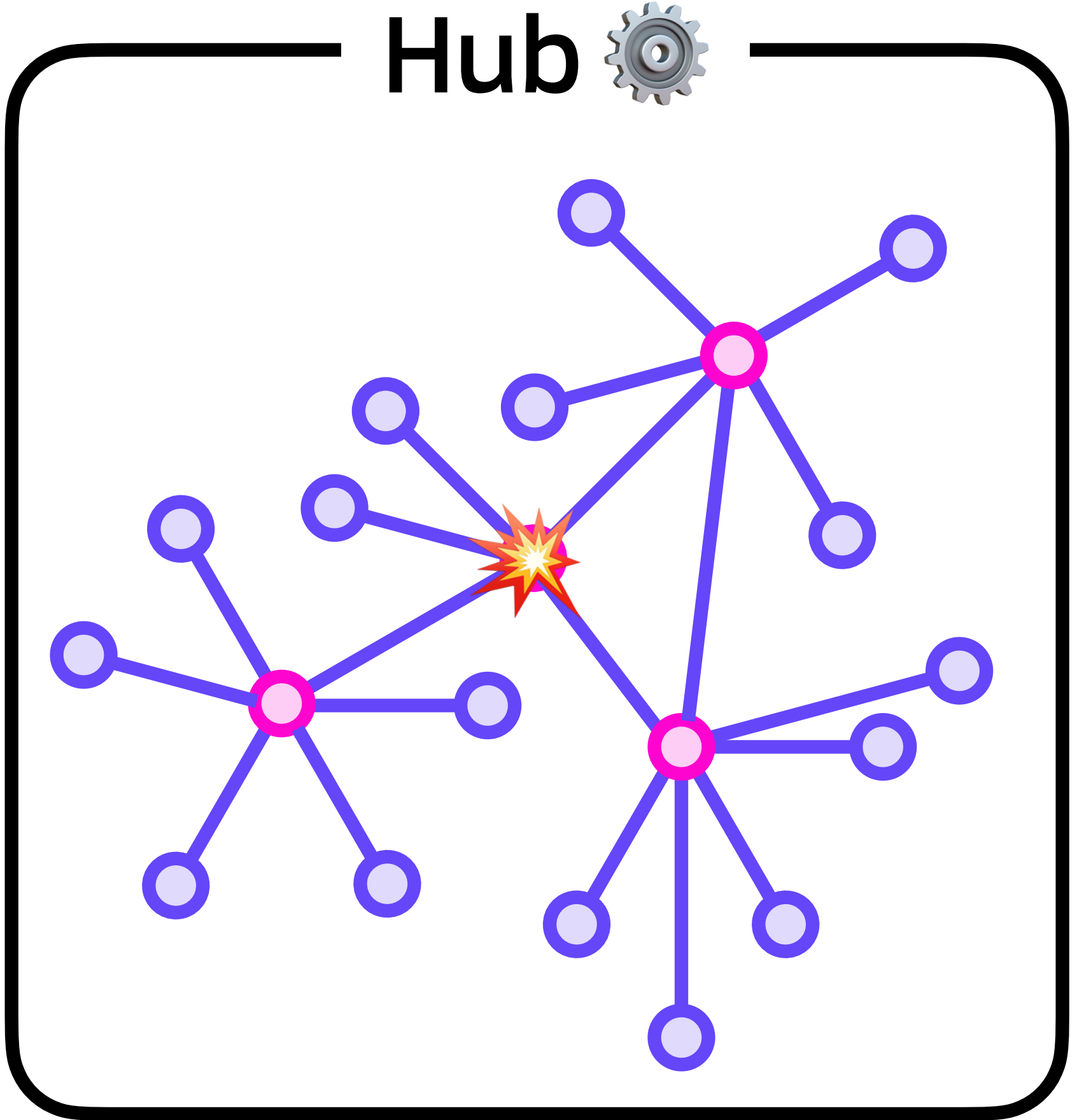
Distributed

What is Even Happening?

# Network Topologies



A Border Gateway Protocol (BGP)



Centralized

Decentralized

Distributed





[...] **existing infrastructure**  
will not be able to handle  
**the volumes or the rates**

We are absolutely going to return to a  
**peer-to-peer** computing [...] **not unlike distributed computing**

~ a16z, "The End of Cloud Computing"

What is Even Happening?

*Evolution* 🦎🦖🕊️

What is Even Happening?

*Evolution*



*The Web*

*Web 2.0*

*Web3*



# What is Even Happening?

# *Evolution*

	<i><b>The Web</b></i>	<i><b>Web 2.0</b></i>	<i><b>Web3</b></i>
<i><b>When</b></i>	1989 onward	2005 onward	2020 onward

# What is Even Happening?

# *Evolution* 🦎🦖🕊️

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<i><b>User Role</b></i>	Consumer	Creator	Owner

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<i><b>Content</b></i>	Linked, Static	Interactive	Generative, Repurposed



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# *Evolution* 🦎🦖🕊️

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<i><b>Interop</b></i>	Siloed	Pre-negotiated	Permissionless

# What is Even Happening?

# Evolution

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<i><b>Infrastructure</b></i>	Self-Hosted	Trusted Provider	Trustless Commons

# What is Even Happening?

# *Evolution* 🦎🦖🕊️

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<i><b>Interop</b></i>	Siloed	Pre-negotiated	Permissionless
<i><b>Infrastructure</b></i>	Self-Hosted	Trusted Provider	Trustless Commons
<i><b>Monetization</b></i>	(Closed) eCommerce	Ads & Attention	Open Markets

**More Than DeFi**

***Agency & Ownership***



## Agency & Ownership

# *User Agency*

- Lower the barrier to entry
- Empower users to participate (entry)
- Option to leave (exit)
- Control your data
- Provable ownership



# Agency & Ownership

## *Digital Scarcity*

- Control your ID
- Own your data
- Provable uniqueness

### EXAMPLE 2: Minimal self-managed DID Document

```
{
  "@context": "https://w3id.org/did/v1",
  "id": "did:example:123456789abcdefghi",
  "publicKey": [{
    "id": "did:example:123456789abcdefghi#keys-1",
    "type": "RsaVerificationKey2018",
    "owner": "did:example:123456789abcdefghi",
    "publicKeyPem": "-----BEGIN PUBLIC KEY...END PUBLIC KEY-----\r\n"
  }],
  "authentication": [{
    // this key can be used to authenticate as DID ...9938
    "type": "RsaSignatureAuthentication2018",
    "publicKey": "did:example:123456789abcdefghi#keys-1"
  }],
  "service": [{
    "type": "ExampleService",
    "serviceEndpoint": "https://example.com/endpoint/8377464"
  }]
}
```



[bcgov / did-auth-extension](#)

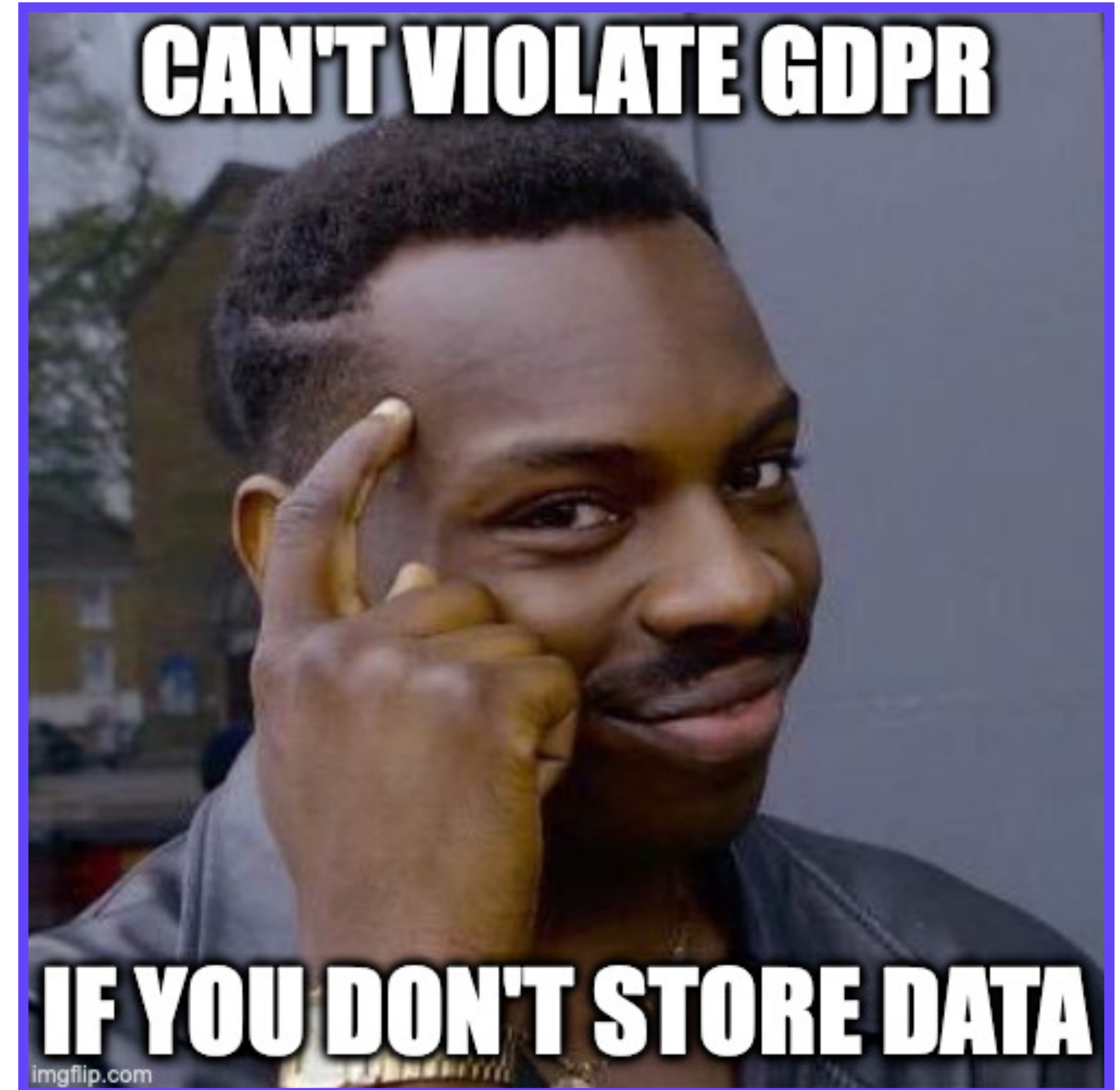
Public



## Agency & Ownership

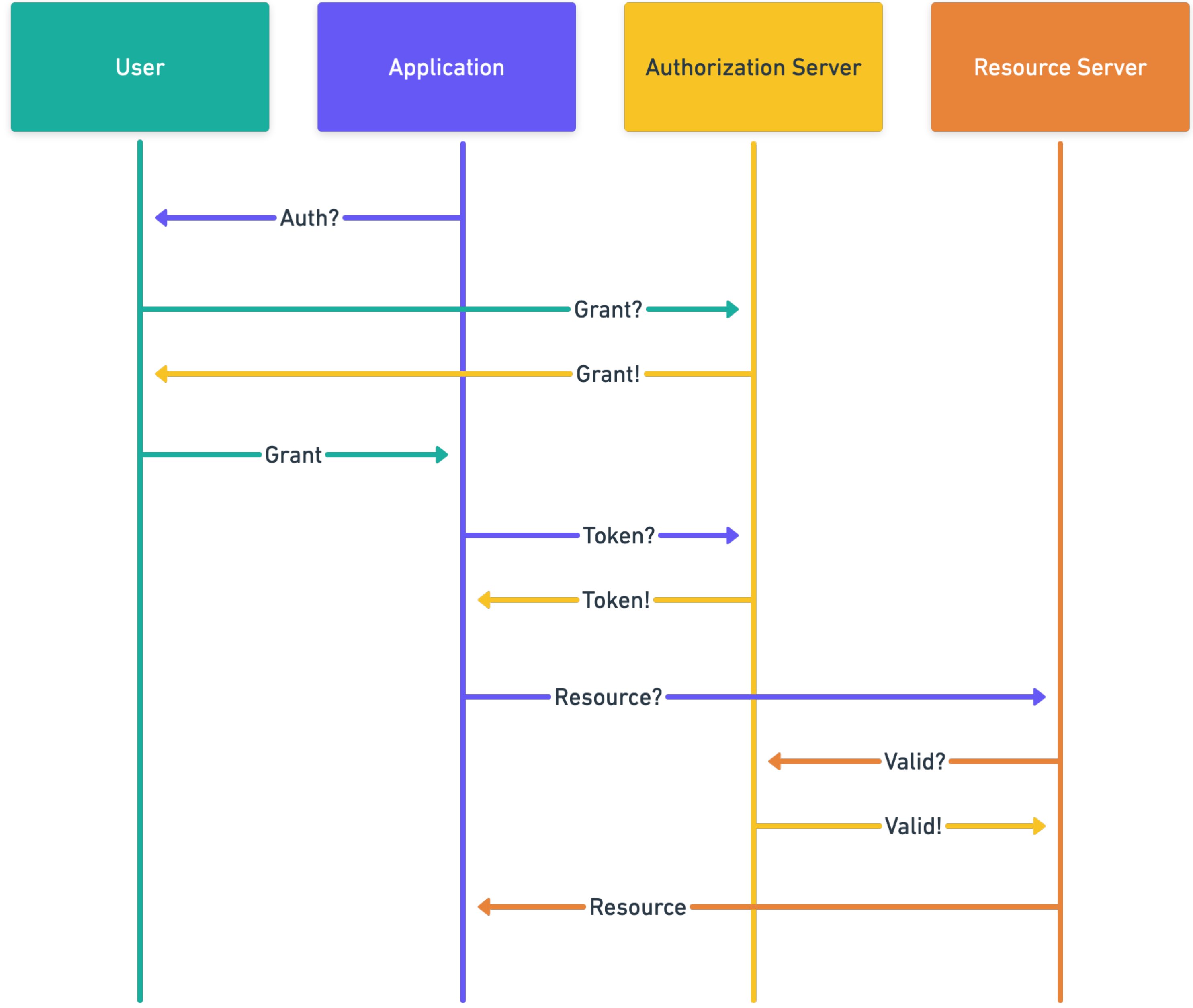
# *User-Controlled Data*

- 2001 — Credit card info in DB
- 2011 — Store personal info in DB
- 2021 — User-managed encryption



# Agency & Ownership

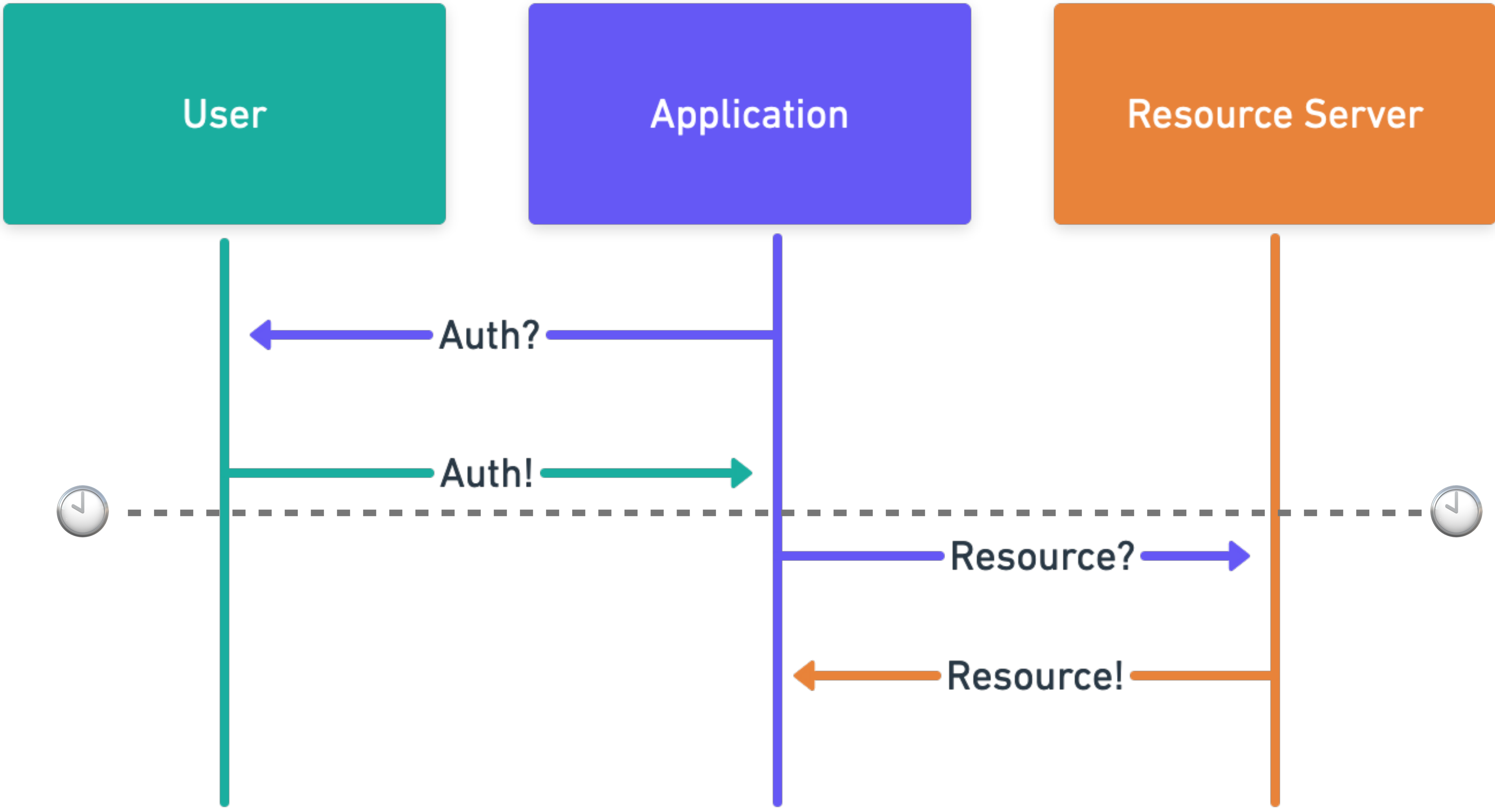
# *OAuth Sequence*





# Agency & Ownership

# UCAN Sequence



# Agency & Ownership

**JWT++**

```
{
  "aud": "did:key:zStEZpzSMtTt9k2vszgvCwF4fLQQSyA15W5AQ4z3AR6Bx4eFJ5crJFbuGxKmbma4",
  "iss": "did:key:z5C4fuP2DDJChhMBCwAkpYUMuJZdNWWH5NeYjUyY8btYfzDh3aHwT5picHr9Ttjq",

  "nbf": 1611204719,
  "exp": 1611300000,

  "fct": [
    {
      "sha256": "B94D27B9934D3E08A52E52D7DA7DABFAC484EFE37A5380EE9088F7ACE2EFCDE9",
      "msg": "hello world"
    }
  ]

  "att": [
    {
      "wnfs": "boris.fission.name/public/photos/",
      "cap": "OVERWRITE"
    },
    {
      "email": "boris@fission.codes",
      "cap": "SEND"
    }
  ],

  "prf": [
    "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCIsInVhdidiI6IjAuMS4wIn0.eyJhdWQiOiJkaWQ6a2V5Onp"
  ]
}
```

# Agency & Ownership

**JWT++**

```
{
  "aud": "did:key:zStEZpzSMtTt9k2vszgvCwF4fL00SvA15W5A04z3AR6Bx4eFJ5crJFbuGxKmbma4",
  "iss": "did:key:z5C4fuP2DDJChhMBCwAkpYUMuJZdNWWH5NeYjUyY8btYfzDh3aHwT5picHr9Ttjq",
  "nbf": 1611204719,
  "exp": 1611300000,
  "fct": [
    {
      "sha256": "B94D27B9934D3E08A52E52D7DA7DABFAC484EFE37A5380EE9088F7ACE2EFCDE9",
      "msg": "hello world"
    }
  ],
  "att": [
    {
      "wnfs": "boris.fission.name/public/photos/",
      "cap": "OVERWRITE"
    },
    {
      "email": "boris@fission.codes",
      "cap": "SEND"
    }
  ],
  "prf": [
    "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCIsInVhdDI6IjAuMS4wIn0.eyJhdWQiOiJkaWQ6a2V5Onp"
  ]
}
```



# Agency & Ownership

**JWT++**

```
{
  "aud": "did:key:zStEZpzSMtTt9k2vszgvCwF4fL00SvA15W5A04z3AR6Bx4eFJ5crJFbuGxKmbma4",
  "iss": "did:key:z5C4fuP2DDJChhMBCwAkpYUMuJZdNWWH5NeYjUyY8btYfzDh3aHwT5picHr9Ttjq",

  "nbf": 1611204719,
  "exp": 1611300000,

  "fct": [
    {
      "sha256": "B94D27B9934D3E08A52E52D7DA7DABFAC484EFE37A5380EE9088F7ACE2EFCDE9",
      "msg": "hello world"
    }
  ]

  "att": [
    {
      "wnfs": "boris.fission.name/public/photos/"
      "cap": "OVERWRITE"
    },
    {
      "email": "boris@fission.codes",
      "cap": "SEND"
    }
  ],

  "prf": [
    "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCIsInVhdDI6IjAuMS4wIn0.eyJhdWQiOiJkaWQ6a2V5Onp"
  ]
}
```



# Agency & Ownership

**JWT++**

```
{
  "aud": "did:key:zStEZpzSMtTt9k2vszgvCwF4fL00SvA15W5A04z3AR6Bx4eFJ5crJFbuGxKmbma4",
  "iss": "did:key:z5C4fuP2DDJChhMBCwAkpYUMuJZdNWWH5NeYjUyY8btYfzDh3aHwT5picHr9Ttjq",

  "nbf": 1611204719,
  "exp": 1611300000,

  "fct": [
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}
```

New Tools

***Interoperability***

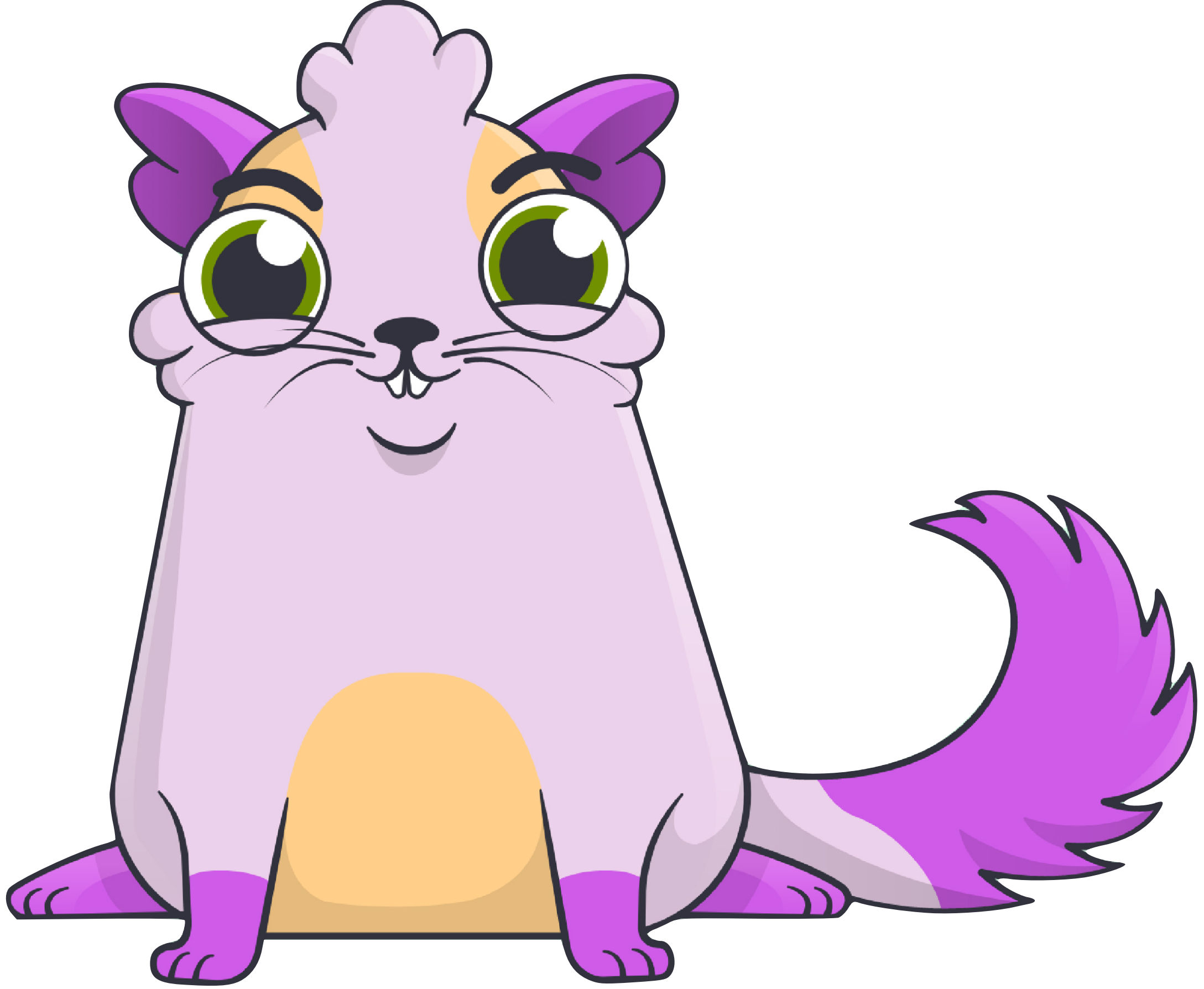


Interoperability

*Permissionless*

Interoperability

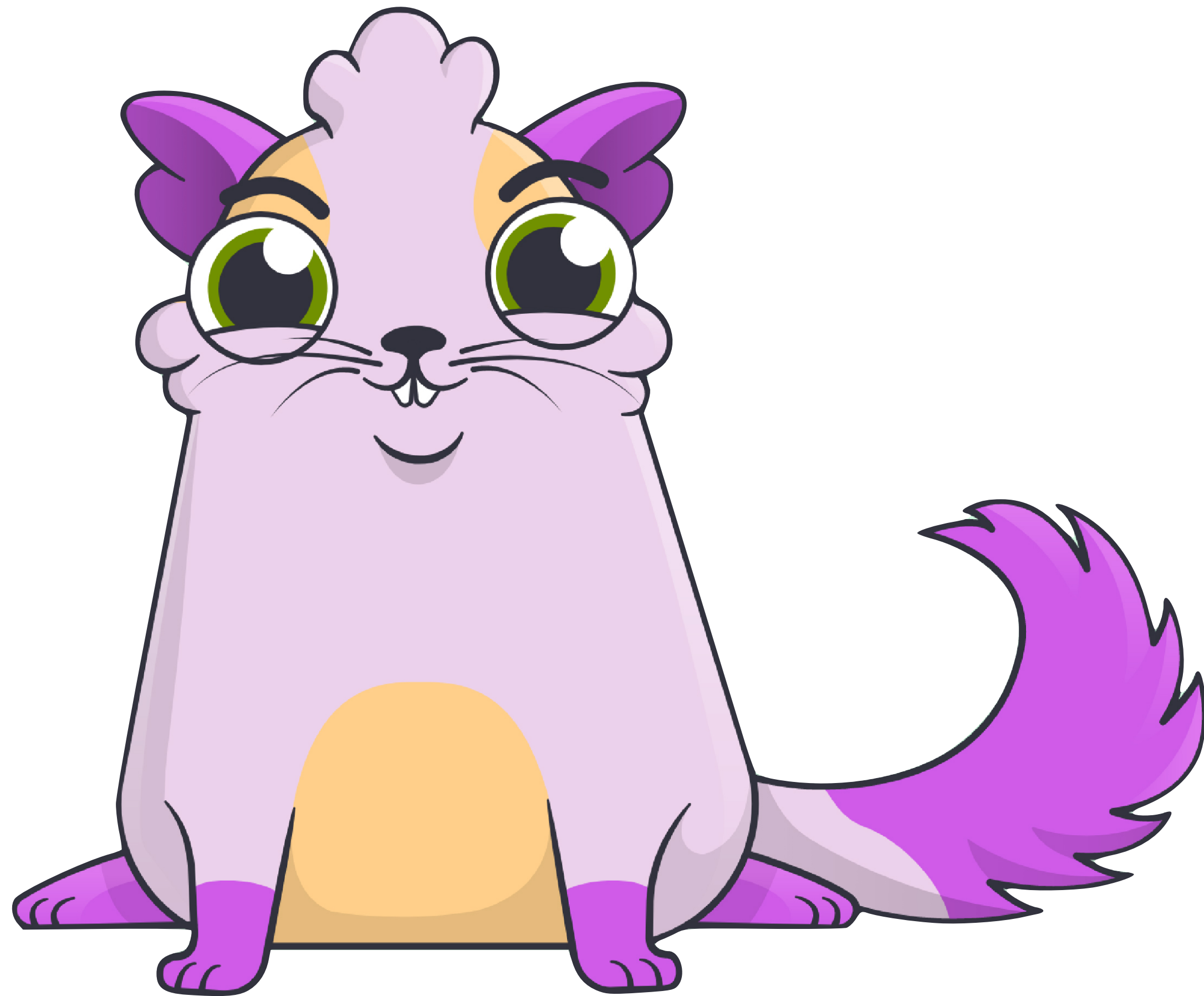
# *Permissionless*





Interoperability

# Permissionless



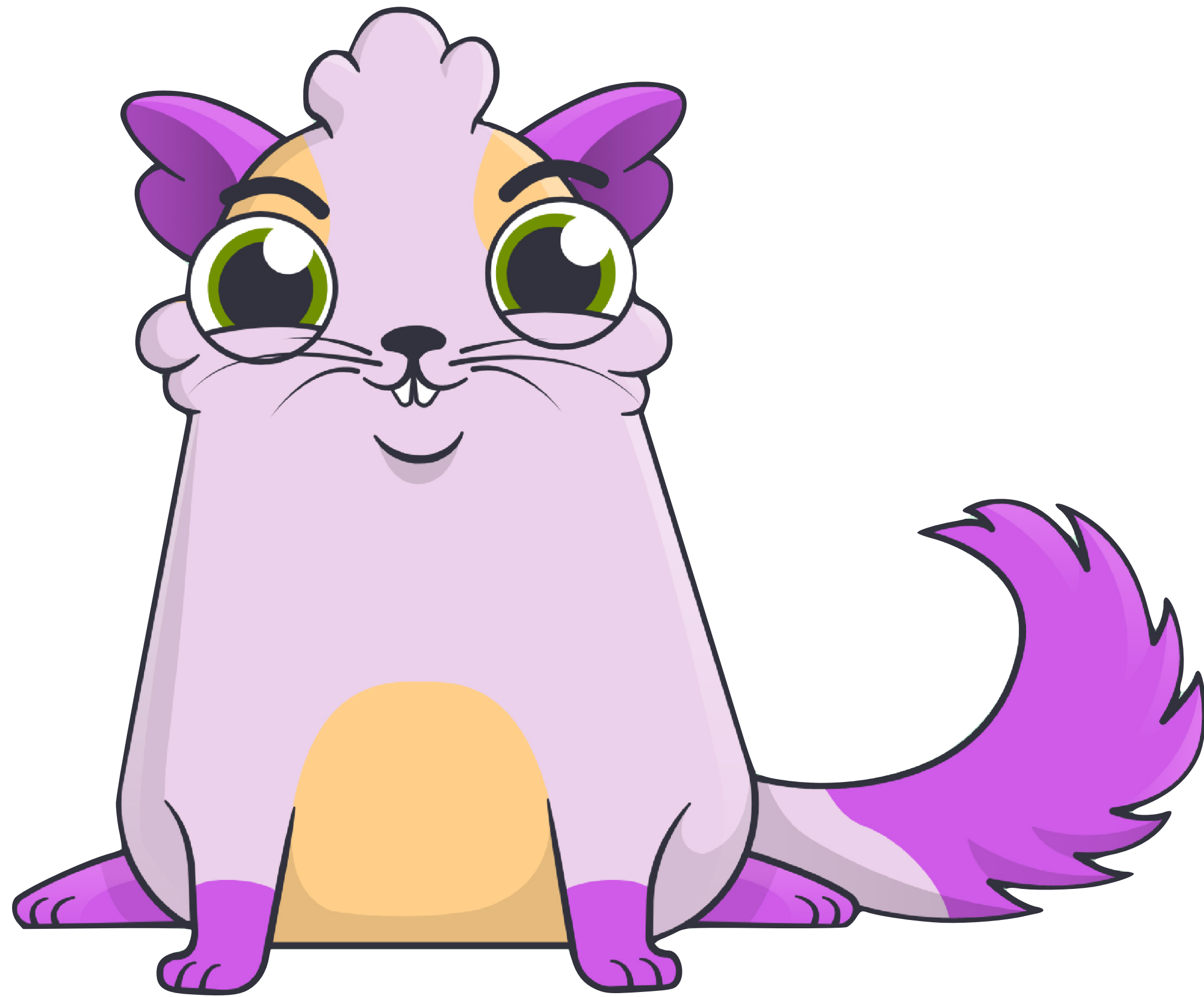
[www.cryptokitties.co](http://www.cryptokitties.co)

```
struct Kitty {  
    // Random generated attrs  
    uint256 genes;  
  
    // More data  
    uint64 birthTime;  
    uint64 cooldownEndTime;  
    uint32 matronId;  
    uint32 sireId;  
    uint32 siringWithId;  
    uint16 cooldownIndex;  
    uint16 generation;  
}
```

[github.com/dapperlabs/cryptokitties-bounty/blob/master/contracts/KittyBase.sol](https://github.com/dapperlabs/cryptokitties-bounty/blob/master/contracts/KittyBase.sol)

# Interoperability

## *Permissionless*



[www.cryptokitties.co](http://www.cryptokitties.co)

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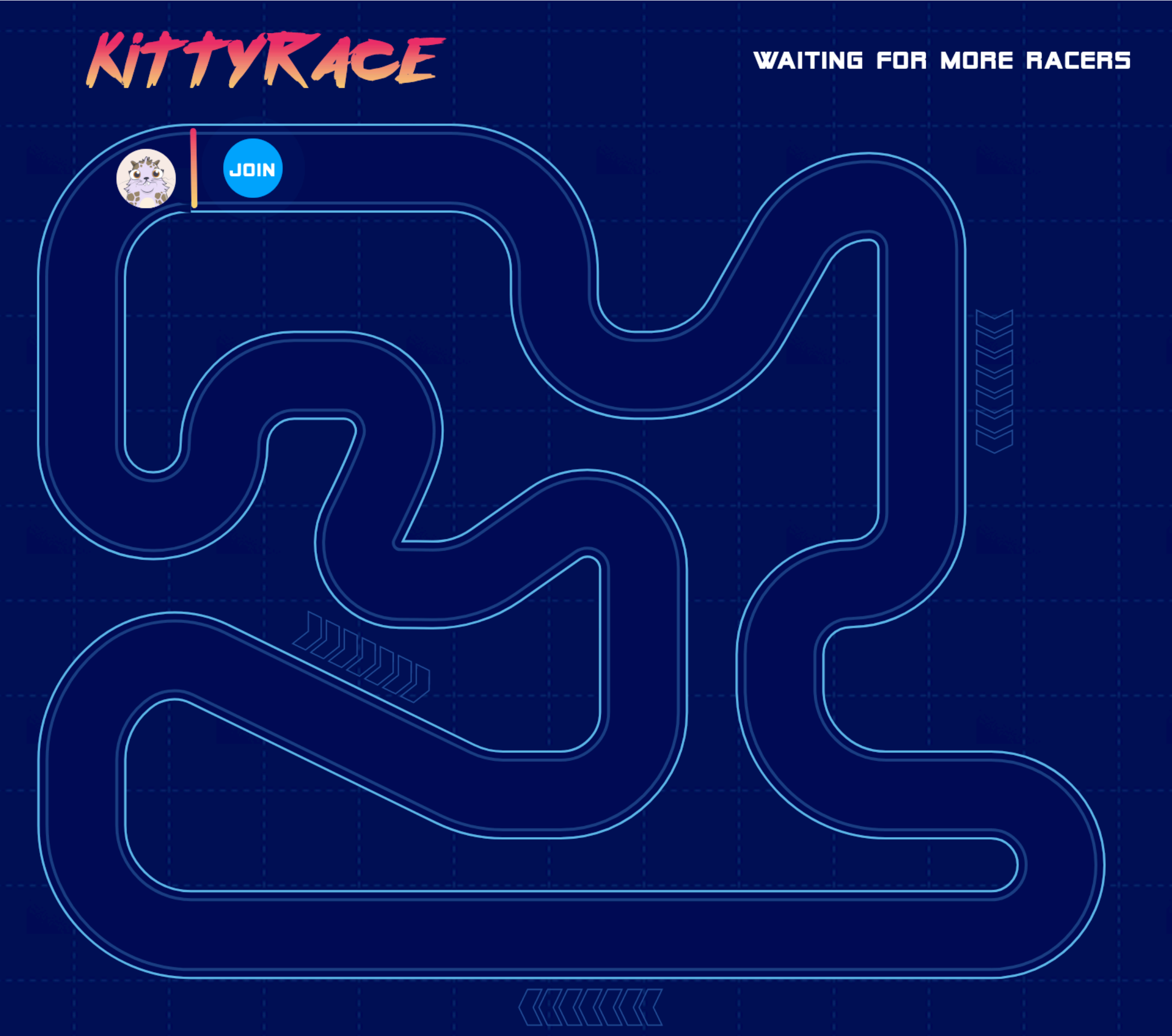
[github.com/dapperlabs/cryptokitties-bounty/blob/master/contracts/KittyBase.sol](https://github.com/dapperlabs/cryptokitties-bounty/blob/master/contracts/KittyBase.sol)

Interoperability

*Permissionless*

Interoperability

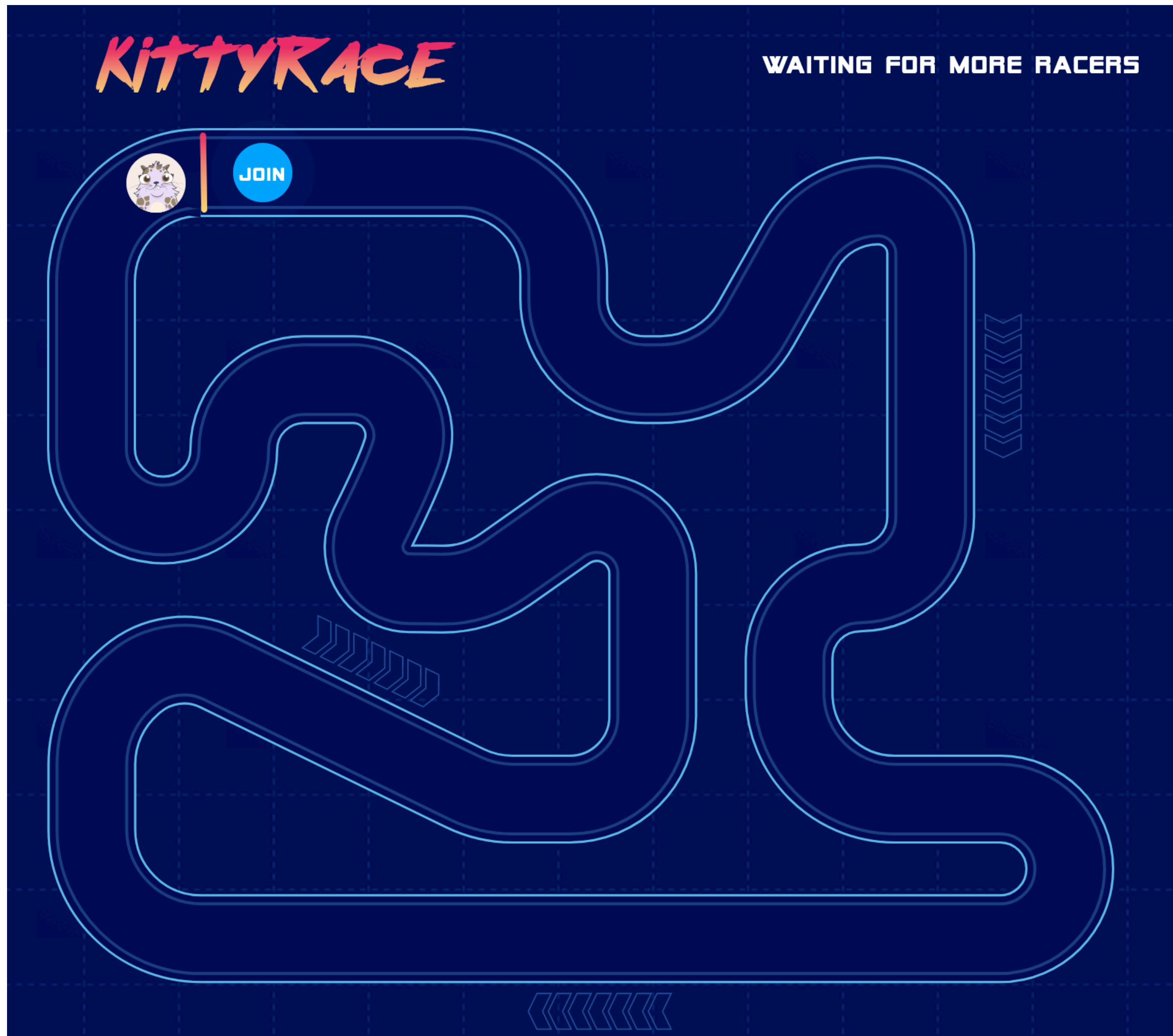
# Permissionless



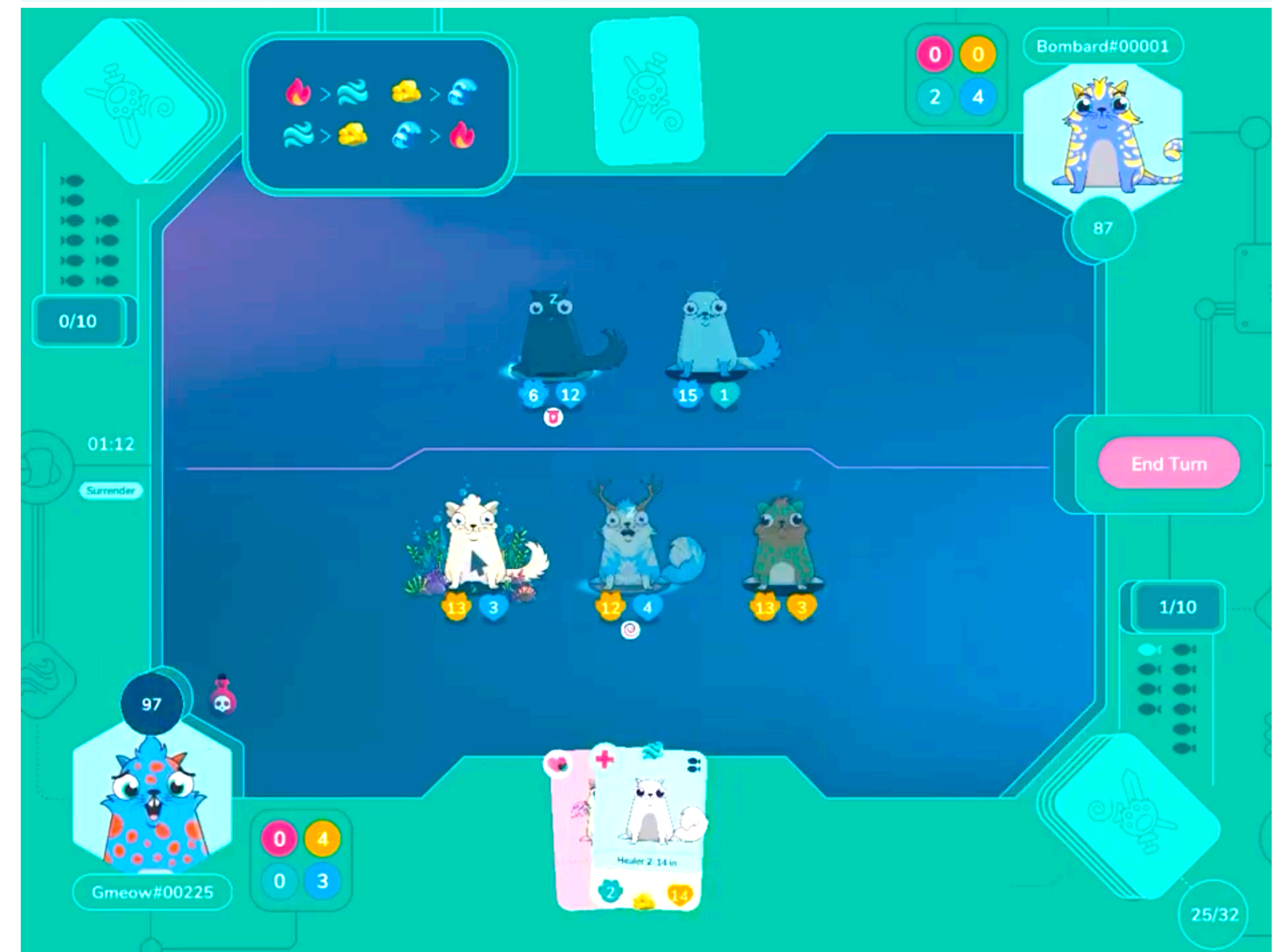
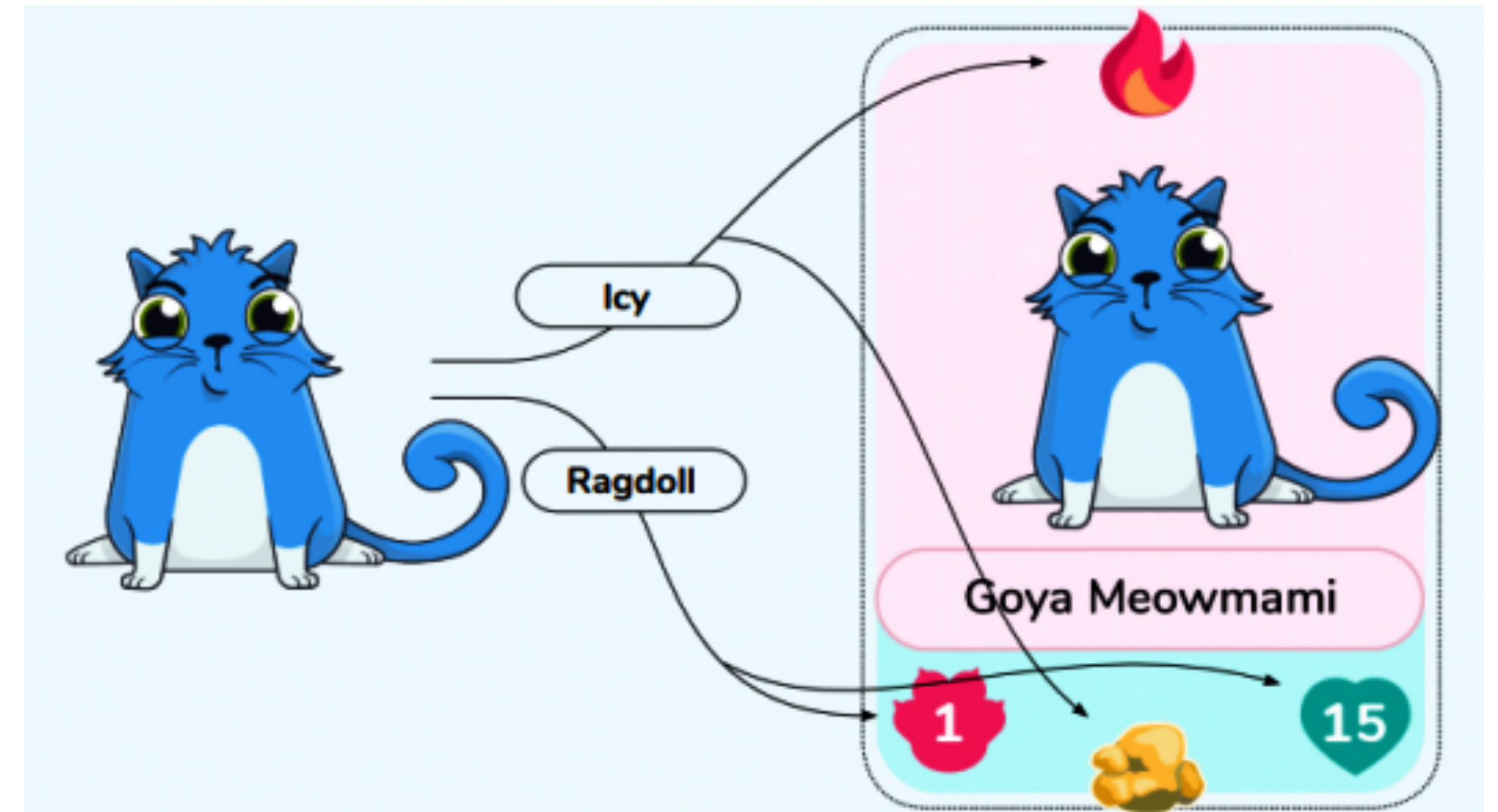


# Interoperability

# Permissionless



www.kittyrace.com



kotowars.com



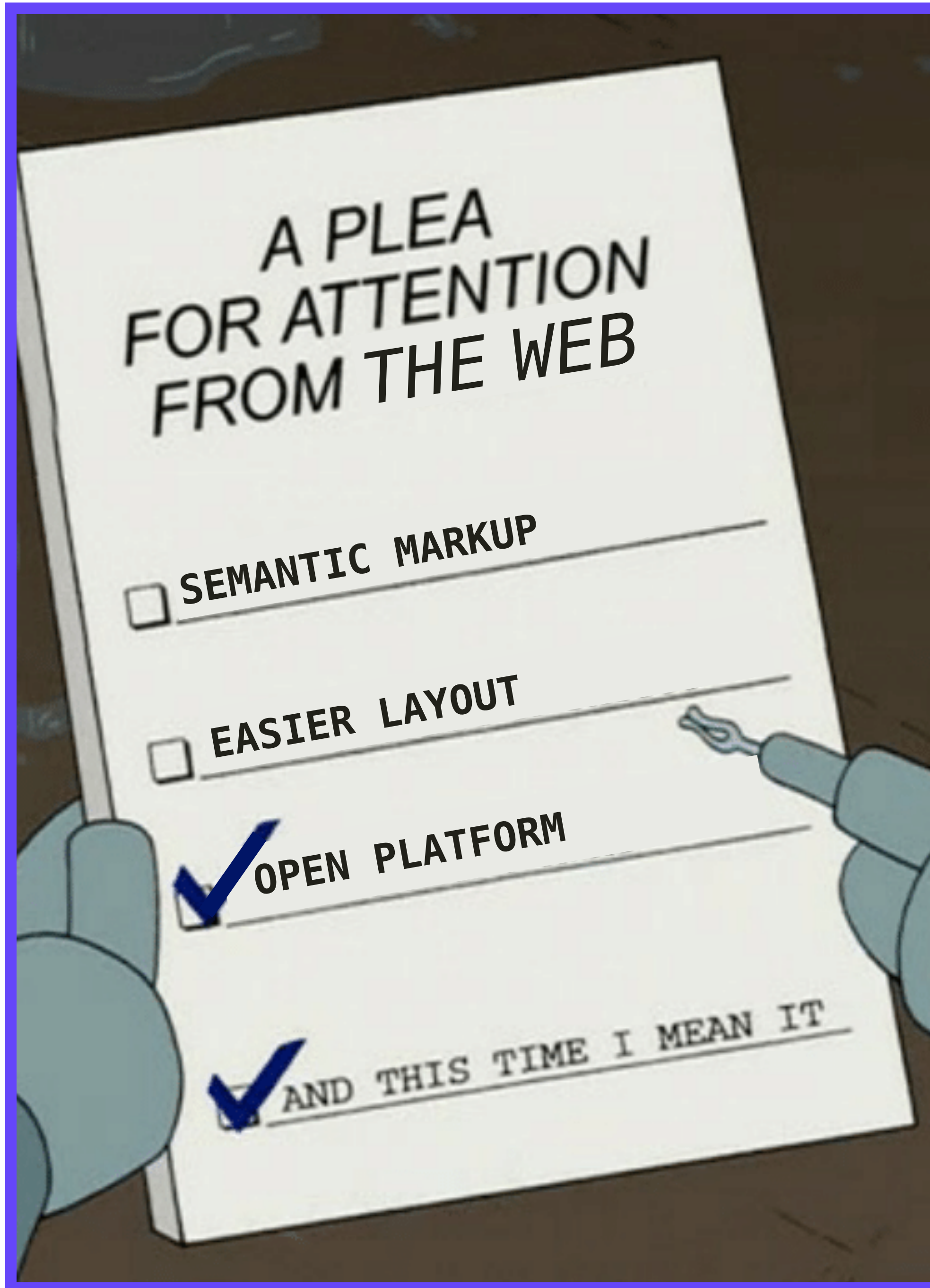
# A PLEA FOR ATTENTION FROM THE WEB

SEMANTIC MARKUP

EASIER LAYOUT

OPEN PLATFORM

AND THIS TIME I MEAN IT



Open Infra, Better Together

# *Commons Networks*



Better Together

*Open Source*



Better Together

# *Open Source*

***Lots of people work on it,  
everybody benefits*** from it,  
and then people can ***build upon it***  
(even in a revenue generating fashion)

~ Ted Leung, Commons Based Peer Production (2005)

Better Together

*Commons Networks*

Better Together

## *Commons Networks*

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Better Together

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By **participating**  
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Better Together

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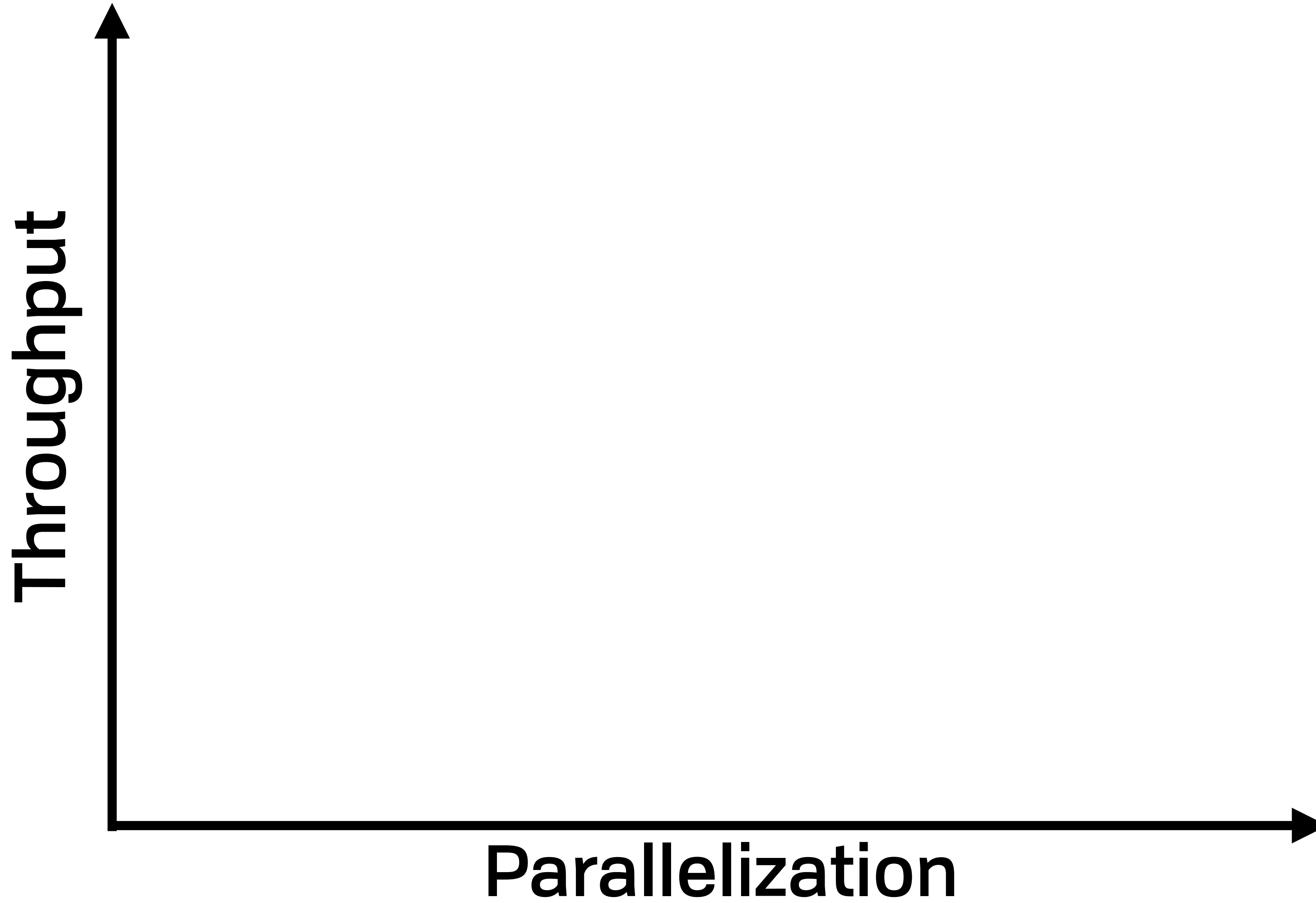
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**Better Together**

***"With a Little Scale From My Friends"***

Better Together

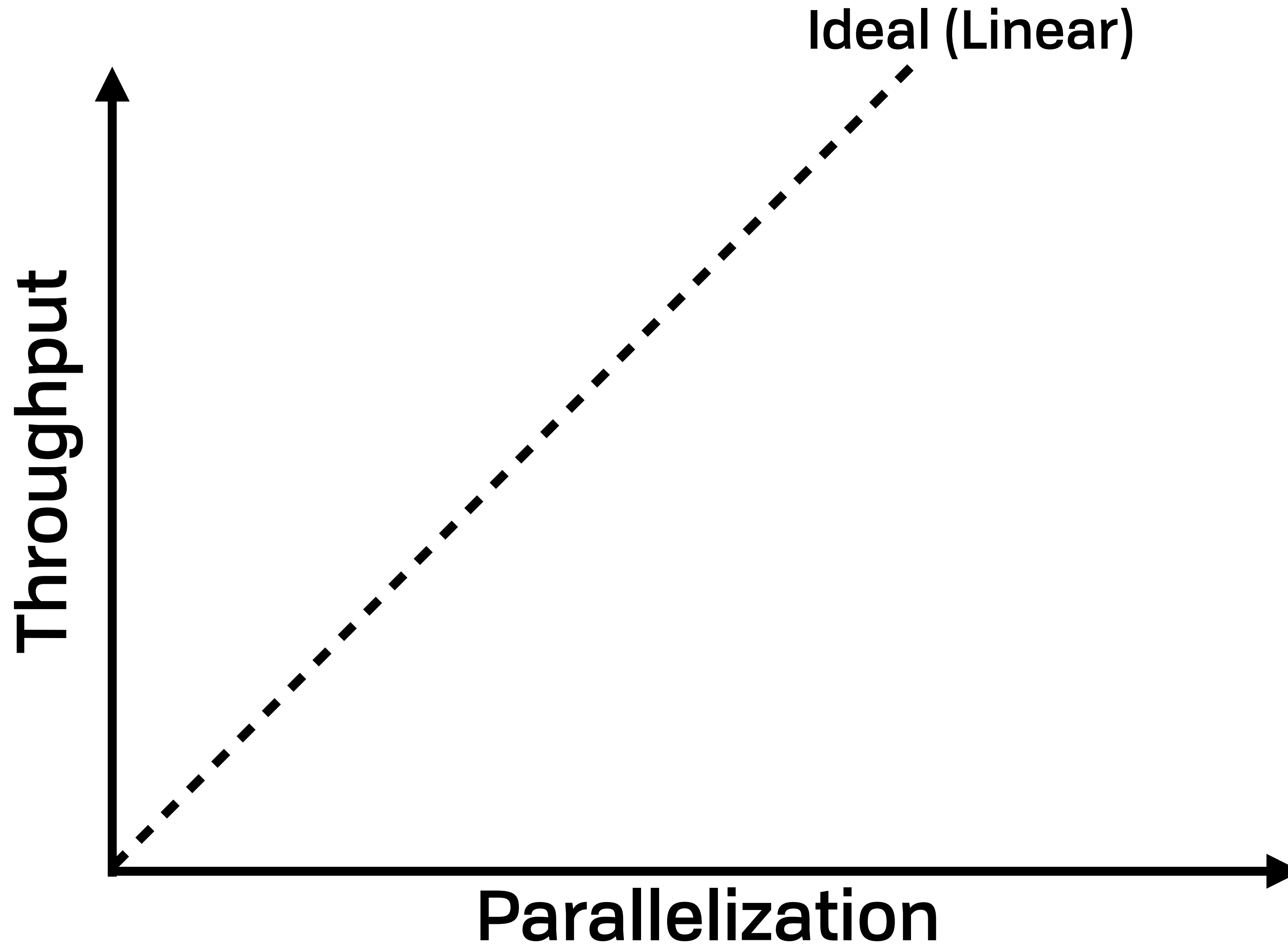
*"With a Little Scale From My Friends"*





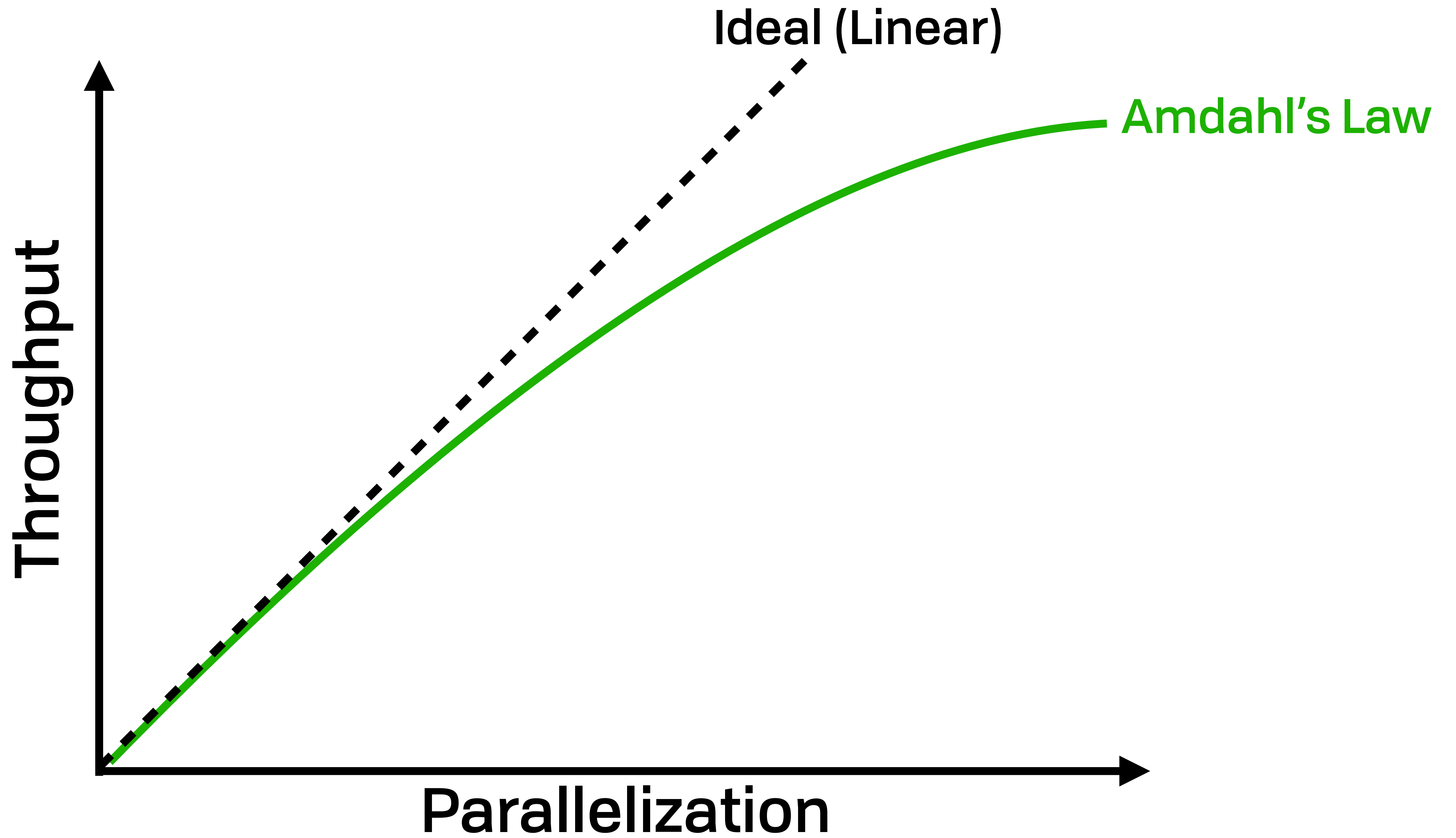
Better Together

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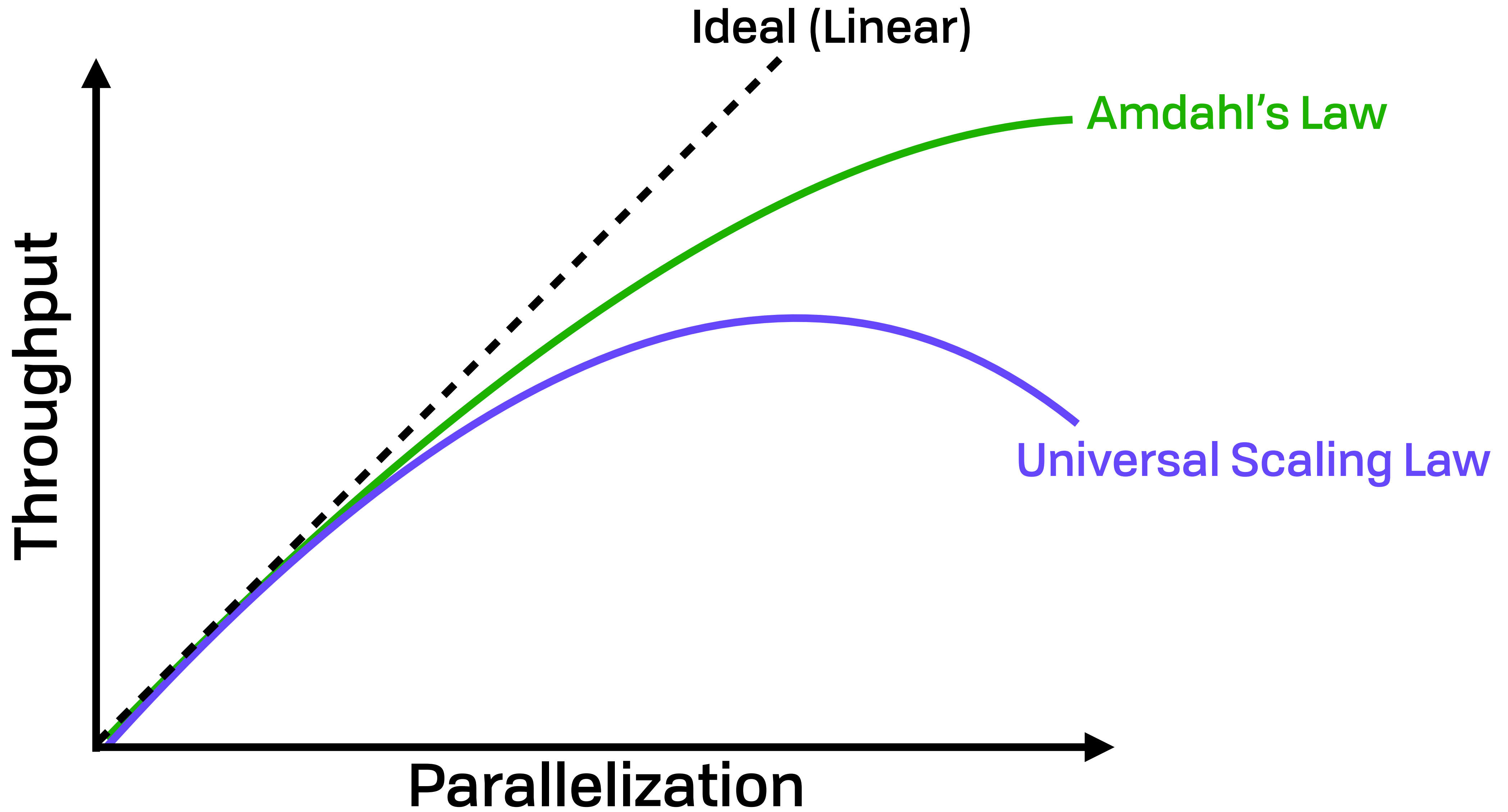
Better Together

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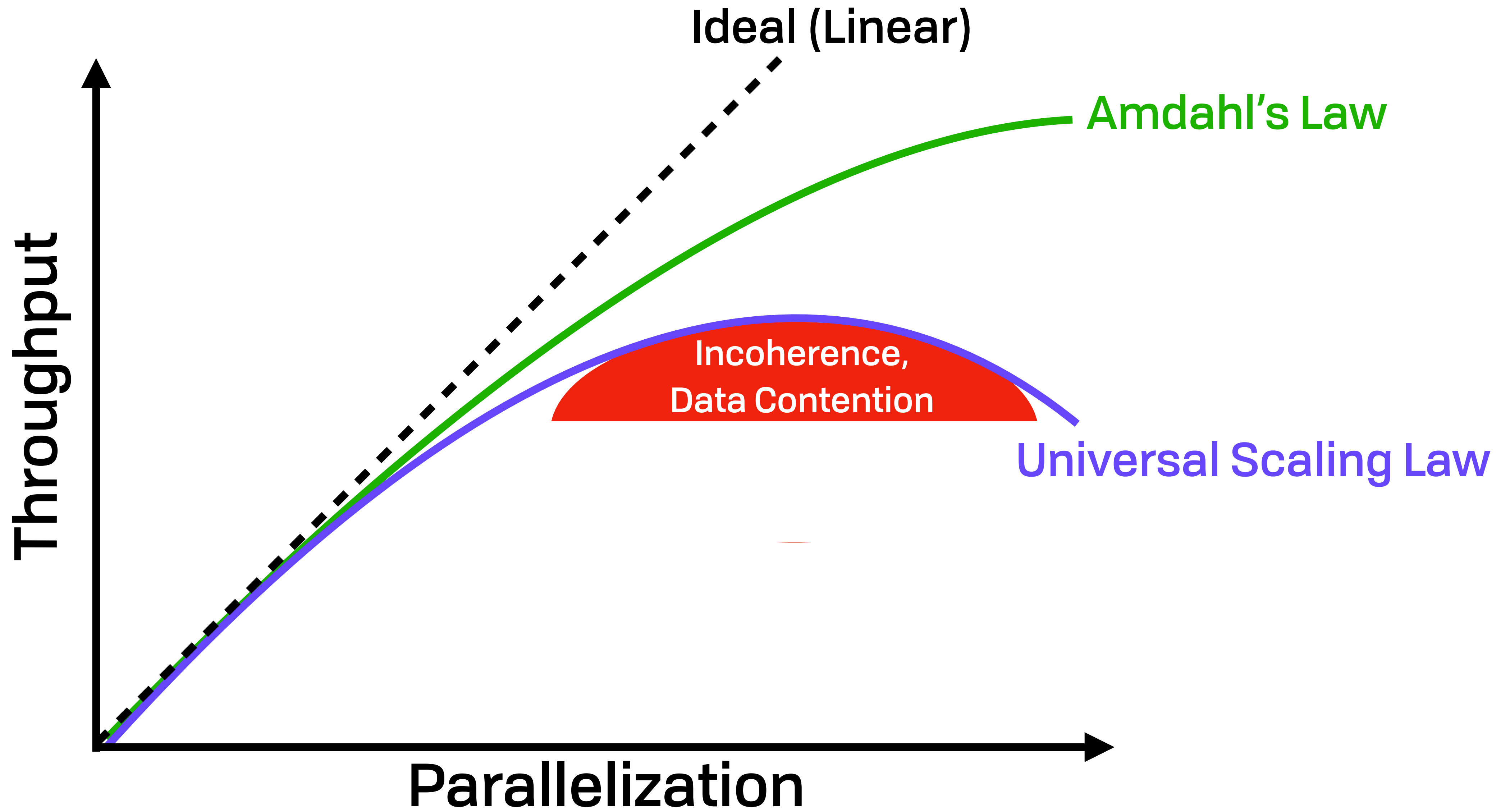
Better Together

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Better Together

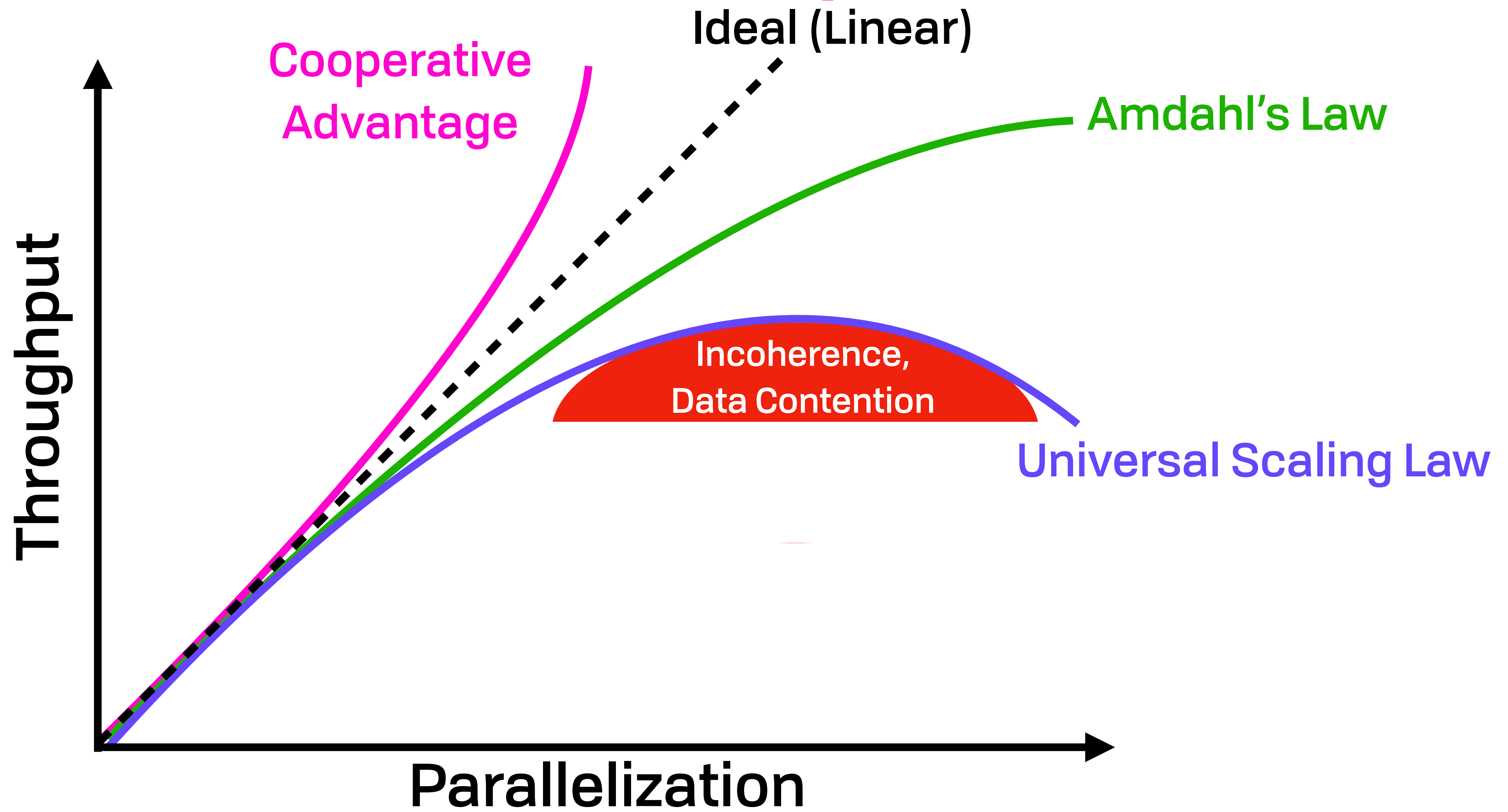
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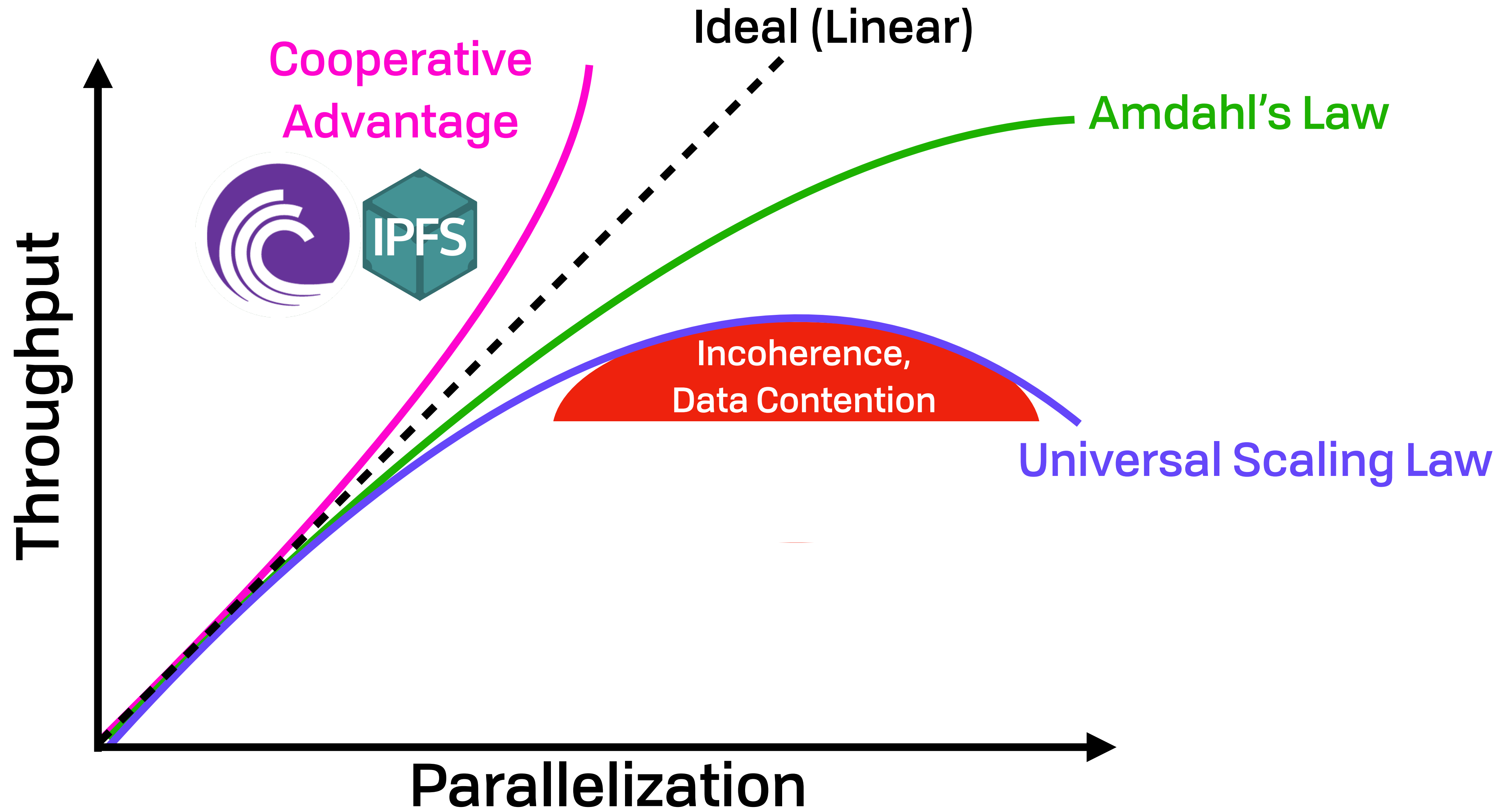
Better Together

*"With a Little Scale From My Friends"*



Better Together

# "With a Little Scale From My Friends"



Better Together

*The End of (Infra) History*

Better Together

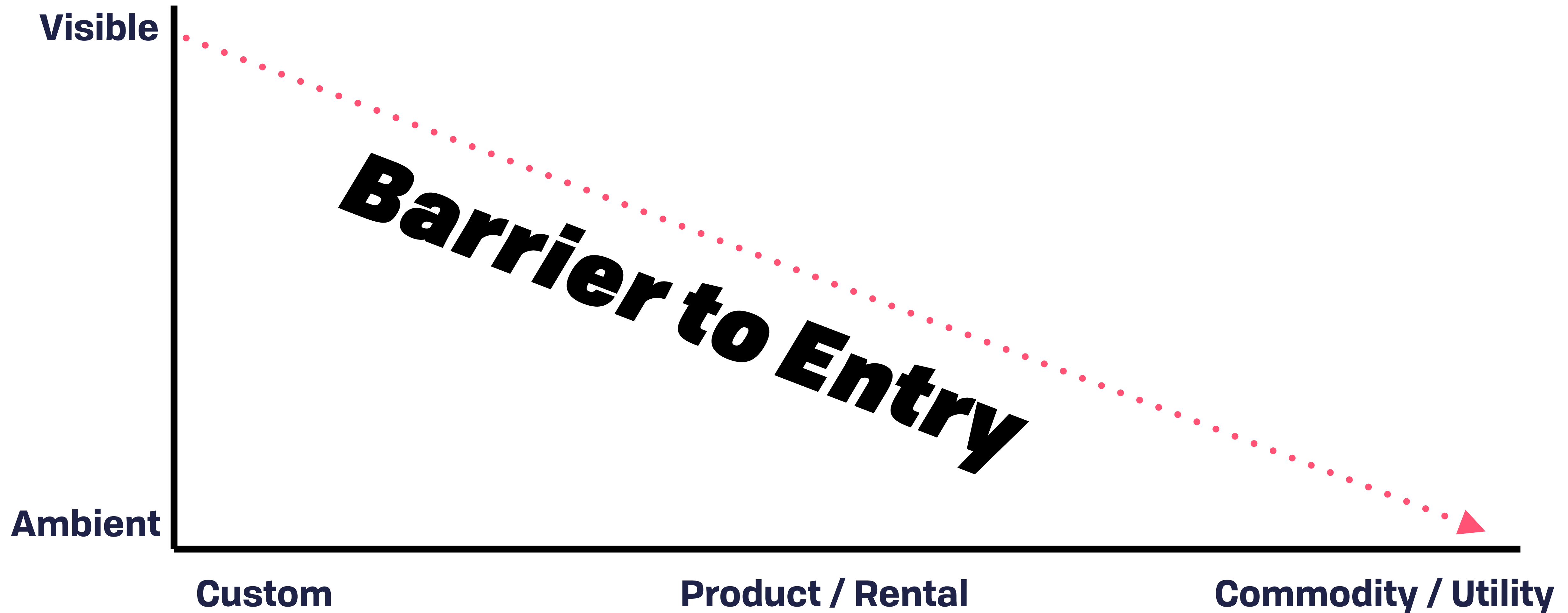
# *The End of (Infra) History*





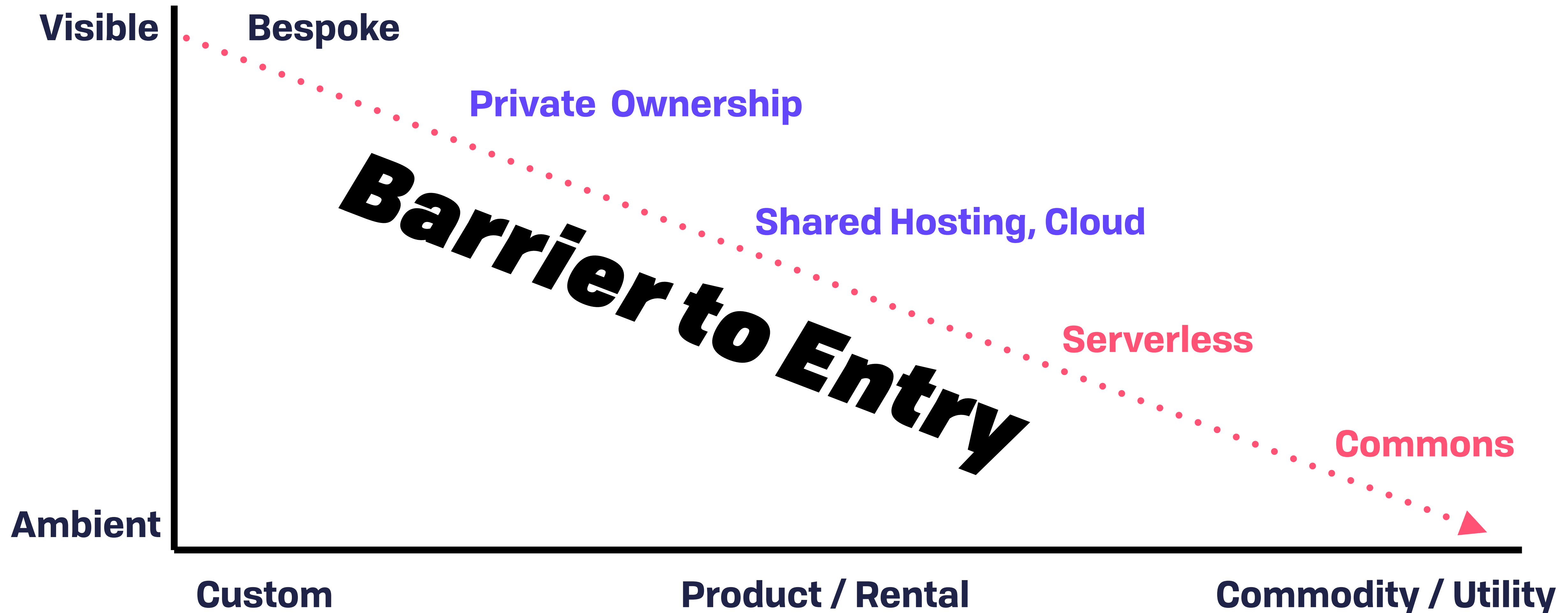
Better Together

# *The End of (Infra) History*



Better Together

# *The End of (Infra) History*



To the Moon

*What Now?*



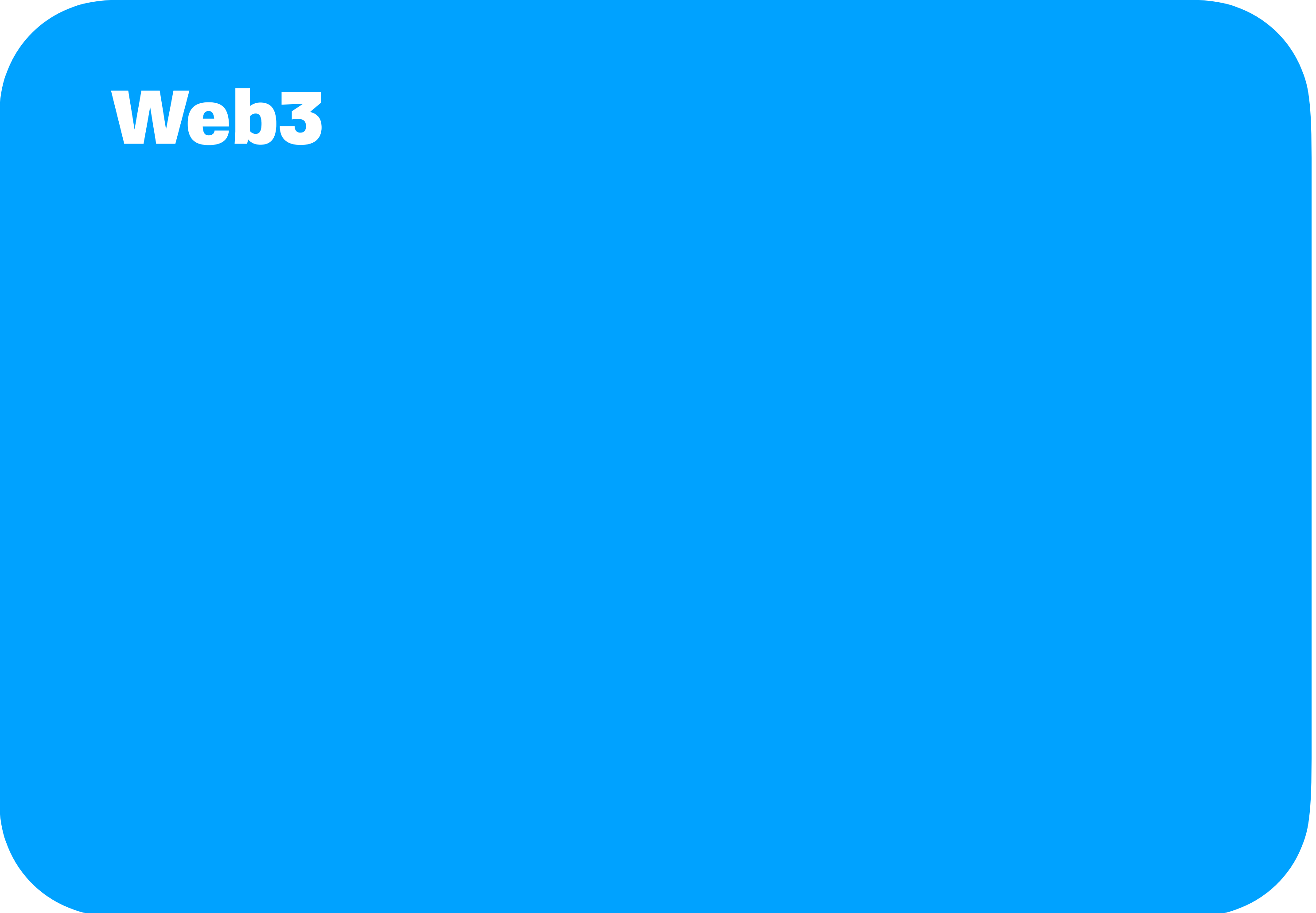
Where to Start

*Ever Growing Toolbox*



Where to Start

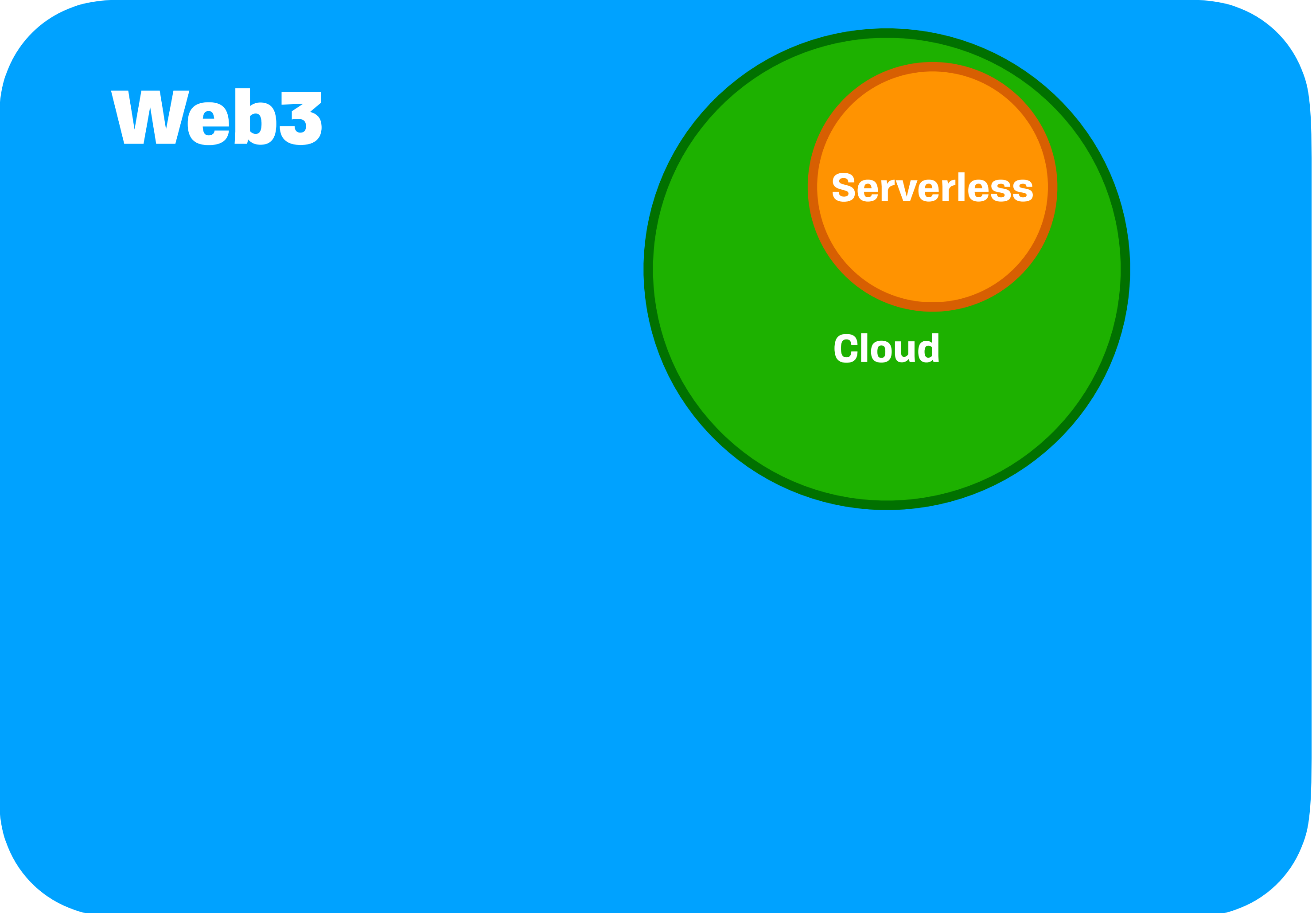
*Ever Growing Toolbox*



**Web3**

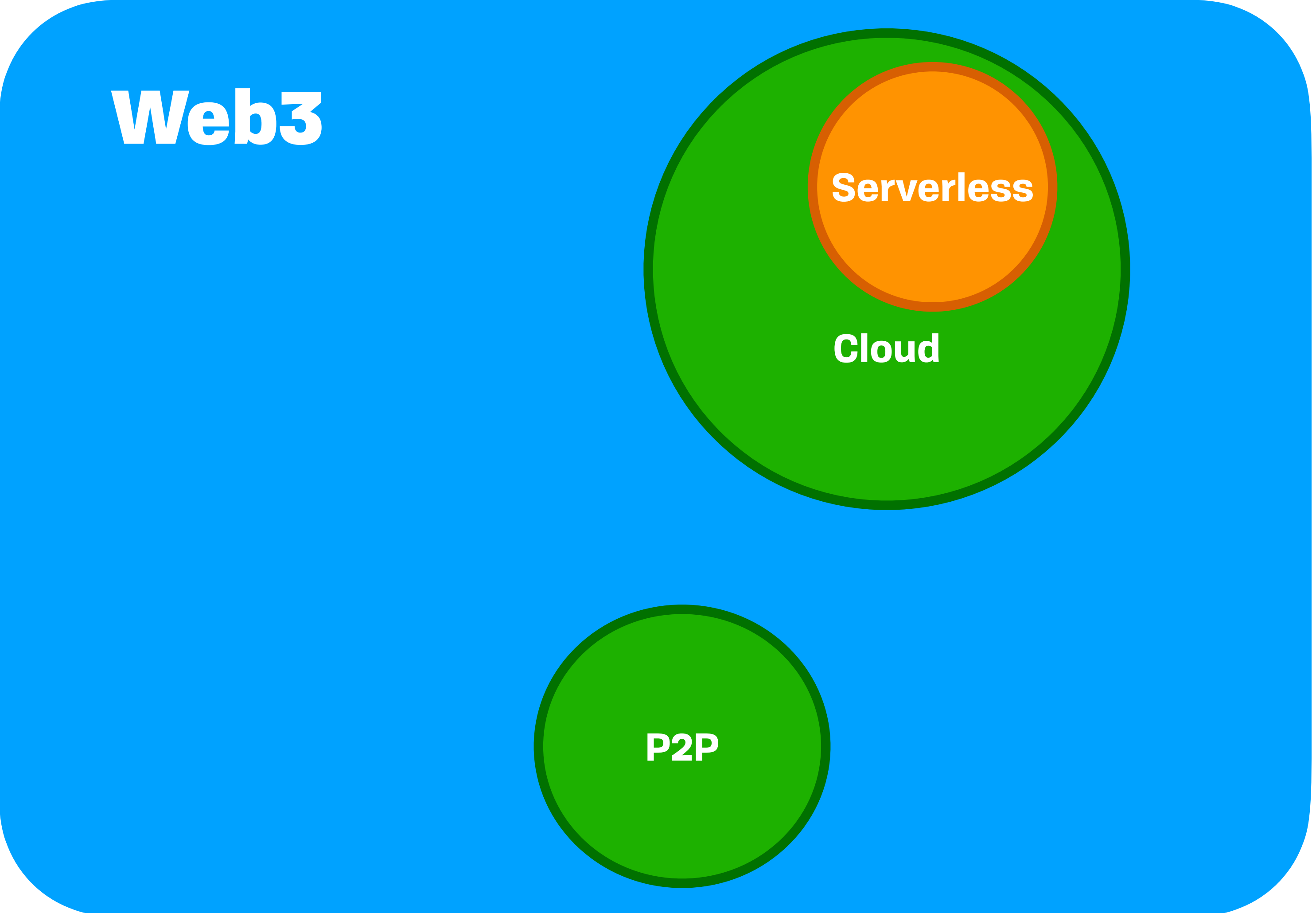
Where to Start

# *Ever Growing Toolbox*



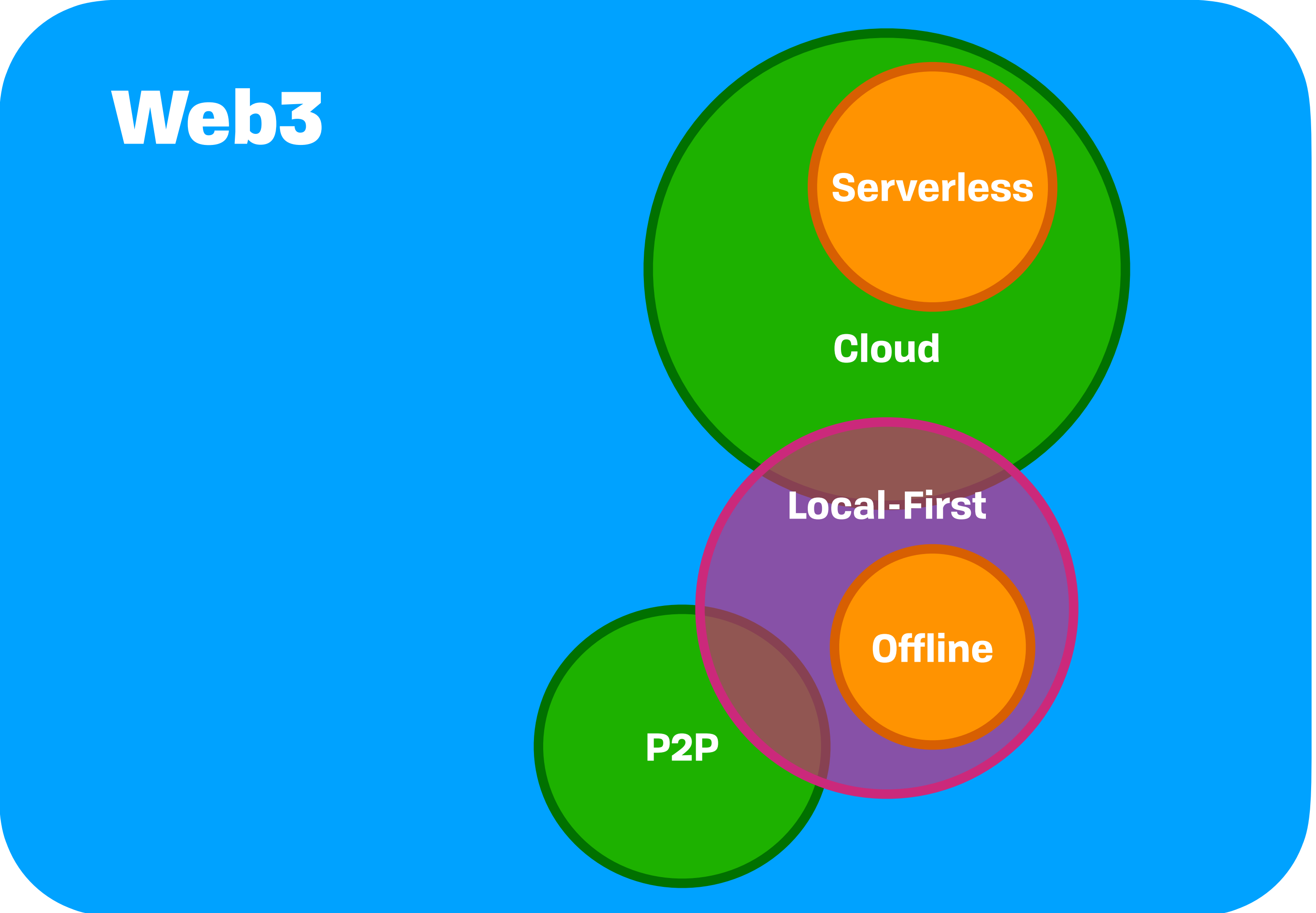
Where to Start

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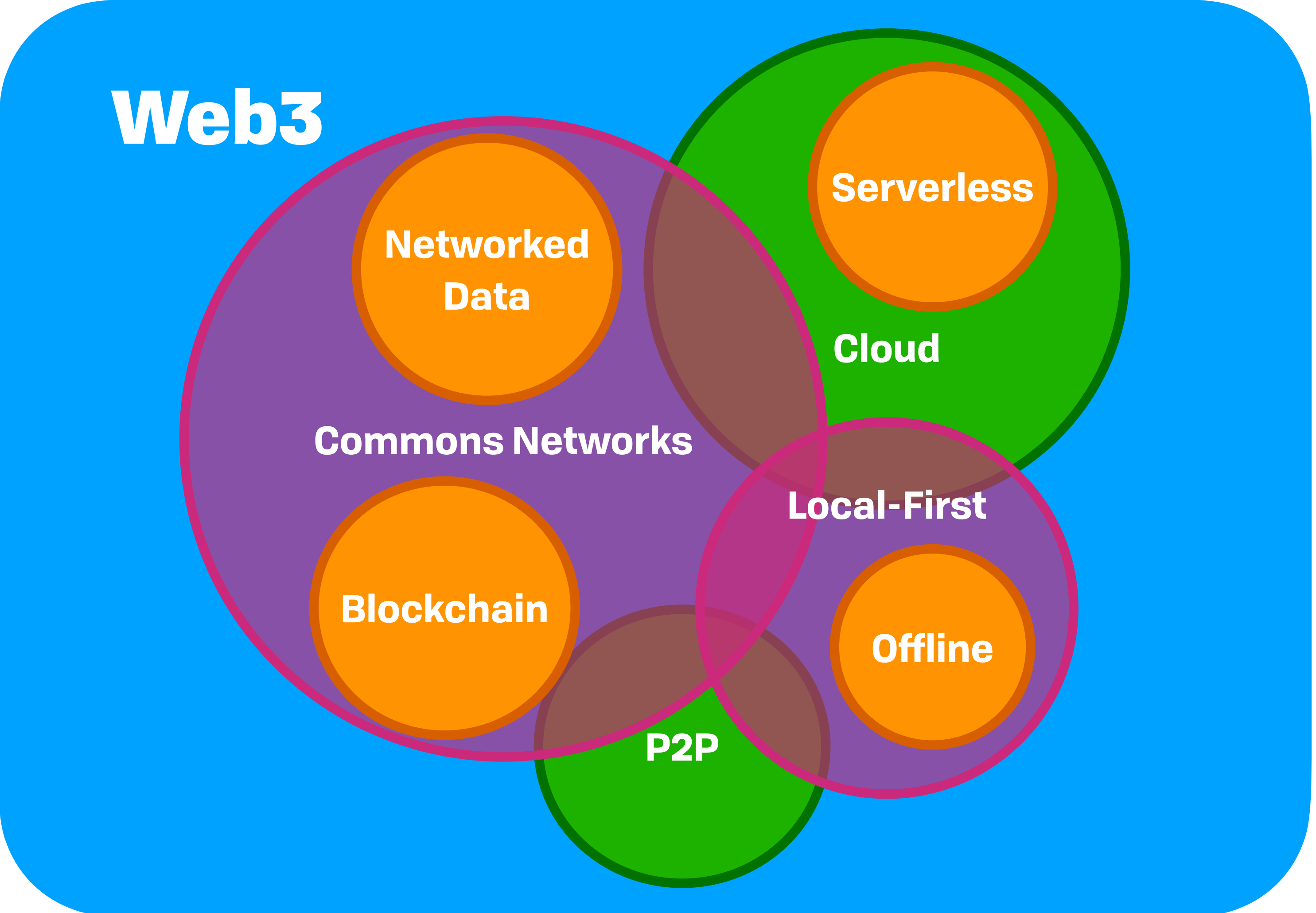
Where to Start

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## Where to Start

# *Ever Growing Toolbox*

- [proto.school](https://proto.school)
- [js.ipfs.io](https://js.ipfs.io)
- [ethereum.org/en/developers](https://ethereum.org/en/developers)
- [github.com/automerge/automerge](https://github.com/automerge/automerge)
- [npmjs.com/package/ucans](https://npmjs.com/package/ucans)

# ***Web3***

***1. Openness***

***2. Interoperability***

***3. User Agency***



It's moving **fast**...  
but still **early**

It's moving **fast**...  
but still **early**

**Open problems** means there's  
**low hanging fruit** and you can  
have **real impact**



 ***Thank You,*** 

***CascadiaJS***

**brooklyn@fission.codes**

**<https://fission.codes>**

**[github.com/expede](https://github.com/expede)**

**@expede**