

# A Public Database for the Planet



Trent McConaghy  
@trentmc0

iPDB BIGCHAIN<sup>DB</sup>



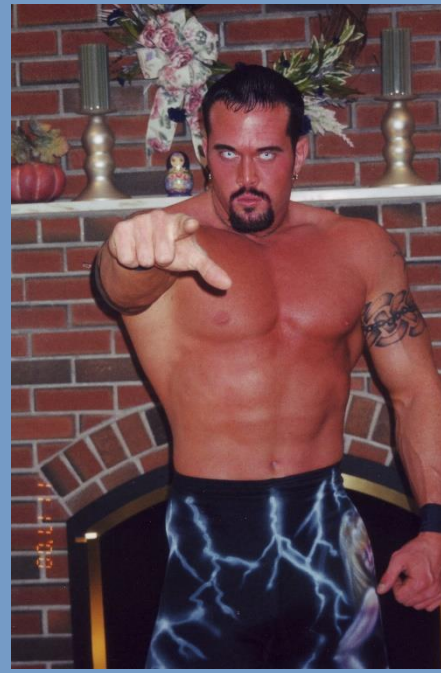








# How did we get here?







ARPAnet





CSnet





TCP/IP



## CERN

The European Laboratory for Particle Physics, located near Geneva[1] in Switzerland[2] and France[3]. Also the birthplace of the World-Wide Web[4].

This is the CERN laboratory main server. The support team provides a set of Services[5] to the physics experiments and the lab. For questions and suggestions, see WWW Support Contacts[6] at CERN

---

About the Laboratory[7] - Hot News[8] - Activities[9] - About Physics[10] - Other Subjects[11] - Search[12]

---

## About the Laboratory

Help[13] and General information[14], divisions, groups and activities[15] (structure), Scientific committees[16]

Directories[17] (phone & email, services & people), Scientific Information Service[18] (library, archives or Alice), Preprint[19] Server

1-45, Back, Up, <RETURN> for more, Quit, or Help: █



# ASK Dr. Internet

INDEX



[Project Gutenberg WWW site](#)

[Last Issue](#)

Copyright © 1995, 1996

Last Update:

20 Dec 1996

[FTP site](#)

Download Original Plain Text  
Issues of "Ask Dr. Internet"

[Ask here](#)

Submit your question to the Dr.  
Internet!

[Disclaimer](#)

Please Read Our Disclaimer!

<a href="#">20th Issue</a>	<a href="#">19th Issue</a>	<a href="#">18th Issue</a>	<a href="#">17th Issue</a>	<a href="#">16th Issue</a>
<a href="#">15th Issue</a>	<a href="#">14th Issue</a>	<a href="#">13th Issue</a>	<a href="#">12th Issue</a>	<a href="#">11th Issue</a>
<a href="#">10th Issue</a>	<a href="#">9th Issue</a>	<a href="#">8th Issue</a>	<a href="#">7th Issue</a>	<a href="#">6th Issue</a>
<a href="#">5th Issue</a>	<a href="#">4th Issue</a>	<a href="#">3rd Issue</a>	<a href="#">2nd Issue</a>	<a href="#">1st Issue</a>

You are visitor number #COUNT since Jun 27, 1995




## BackRub Query Results

### BackRub's Highest Ranked Sites


---

University of Illinois at Urbana-Champaign

 <http://www.uiuc.edu/>


694.687 8460 backlinks 12k - 10/25/96 - 11/1/96

Stanford University Homepage

 <http://www.stanford.edu/>

609.303 8857 backlinks 4k - none - 11/1/96

Stanford University: Portfolio Collection

 <http://www.stanford.edu/home/administration/portfolio.html>

167.919 34 backlinks





university



All

Images

Maps

News

Videos

More ▾

Search tools

About 2.800.000.000 results (0,60 seconds)

## University - Wikipedia, the free encyclopedia

<https://en.wikipedia.org/wiki/University> ▾

A **university** is an institution of higher (or tertiary) education and research which grants academic degrees in various subjects. **Universities** typically provide ...

[University of Bologna](#) · [Lists of universities](#) · [Educational institution](#)



### University of Antwerp Faculty of Applied Engineering

2 reviews · University

2000, Paardenmarkt 92 · 03 265 41 11



WEBSITE



DIRECTIONS

### University of Antwerp

4.3 ★★★★★ (31) · University

Campus university with 9 faculties

Prinsstraat 13 · 03 265 41 11



WEBSITE



DIRECTIONS

### Aula Rector Dhanis

1 review · University Department

Kleine Kauwenberg 14 · 03 265 41 11



WEBSITE



DIRECTIONS





facebook



The image shows four large, cylindrical industrial storage tanks made of corrugated metal, arranged in a row. A blue metal walkway with railings runs horizontally across the top of the tanks. In the background, there is a large, light-colored industrial building with a corrugated metal roof. The sky is clear and blue. The text 'Here's your personal data' is overlaid on the tanks in a white, sans-serif font.

Here's

your

personal

data



# The centralized internet

Creative works are backwards

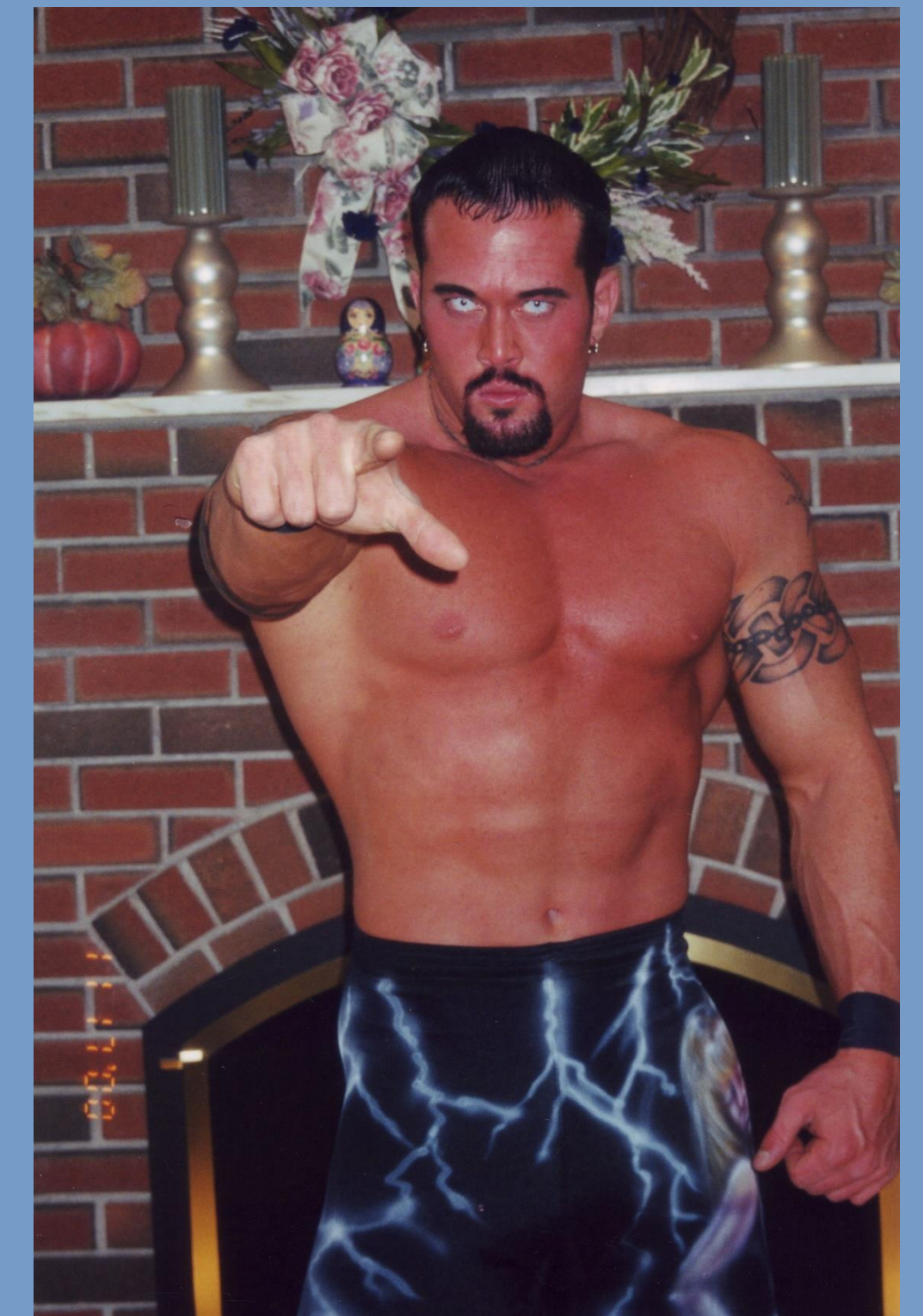
Others' stuff — hard to use legally, pay \$

Your stuff — hard *not* to lose

Your data isn't really yours

Walled gardens — you can't share how you want

Data silos — You can't take it with you if you want to leave







# A vision for a better internet

## Creativity is encouraged

- Creators are fairly compensated
- The cultural commons is protected

## Your identity is yours

- You own your personal data
- You manage your reputation
- You choose what to share and what stays private

## And more

- Equal opportunity for banking
- Know where your atoms come from



# A new hope









# Blockchain: A Special “Spreadsheet in the Sky”

What's special:

- no one owns it
- anyone can add to it
- no one can delete from it
- Writing to a blockchain is like etching in stone.
- Which allows us to issue assets, and transfer them







# Building a better internet

What can help?

## Shared global compute infrastructure

- Decentralized: No single entity owns or controls
- Shared: Resources and control shared among participants
- Self-sustaining
- Planetary scale



# Shared global compute infrastructure



## APPLICATION

## PLATFORM

ID

IP

FIN

EN

PHYS

## PROCESSING

- "If this then that" in the ether
- Legal contracts, automated
- Massive compute jobs

## STORAGE

### FILE SYSTEM

- Media blobs

### DATABASE

- Queries
- "Global truth" registry

## LOWER-LEVEL PROTOCOLS (TCP/IP)



# Shared global compute infrastructure



APPLICATION

PLATFORM

ID

IP

FIN

EN

PHYS

PROCESSING



STORAGE

FILE SYSTEM



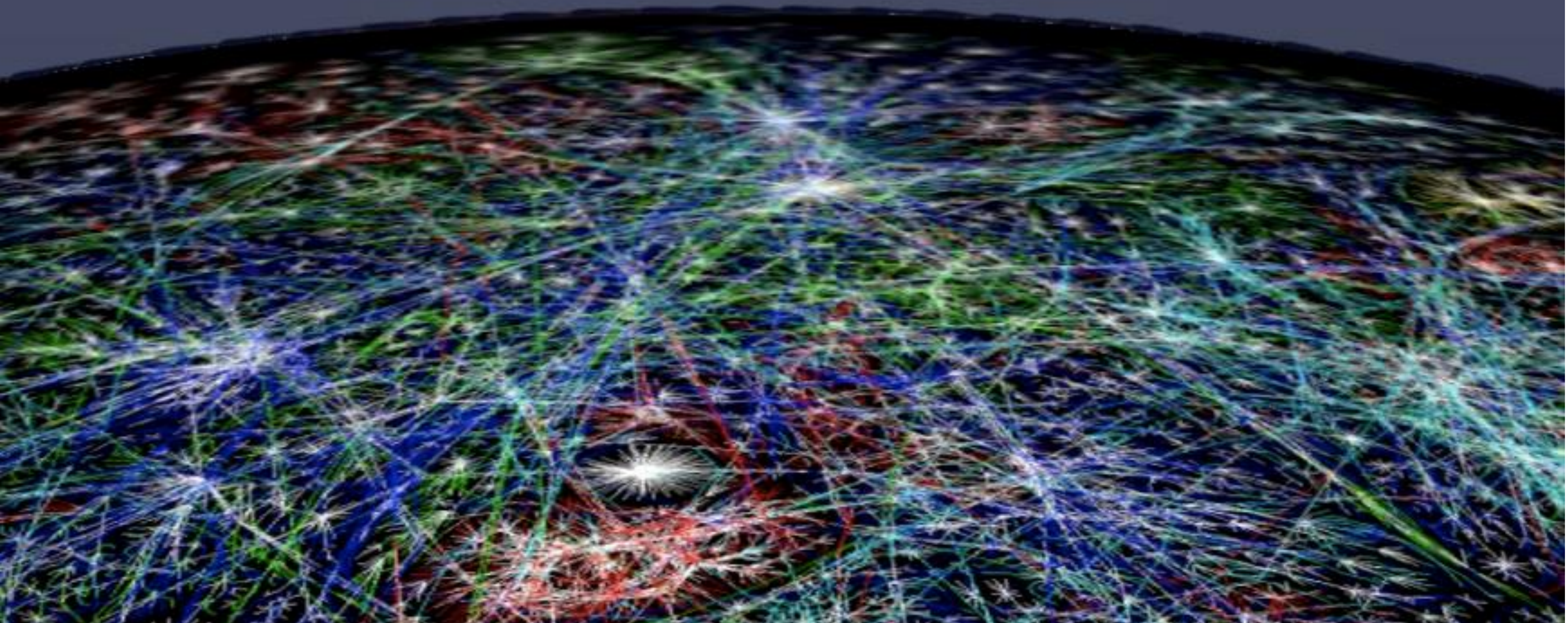
DATABASE

“Who owns what”  
Scale, querying

LOWER-LEVEL PROTOCOLS (TCP/IP)



**Bitcoin?**  
**1.5 tx/s, 70GB**





Yet...

Netflix uses 37% of Internet bandwidth



Yet...

Netflix uses 37% of Internet bandwidth

How?

Big data databases



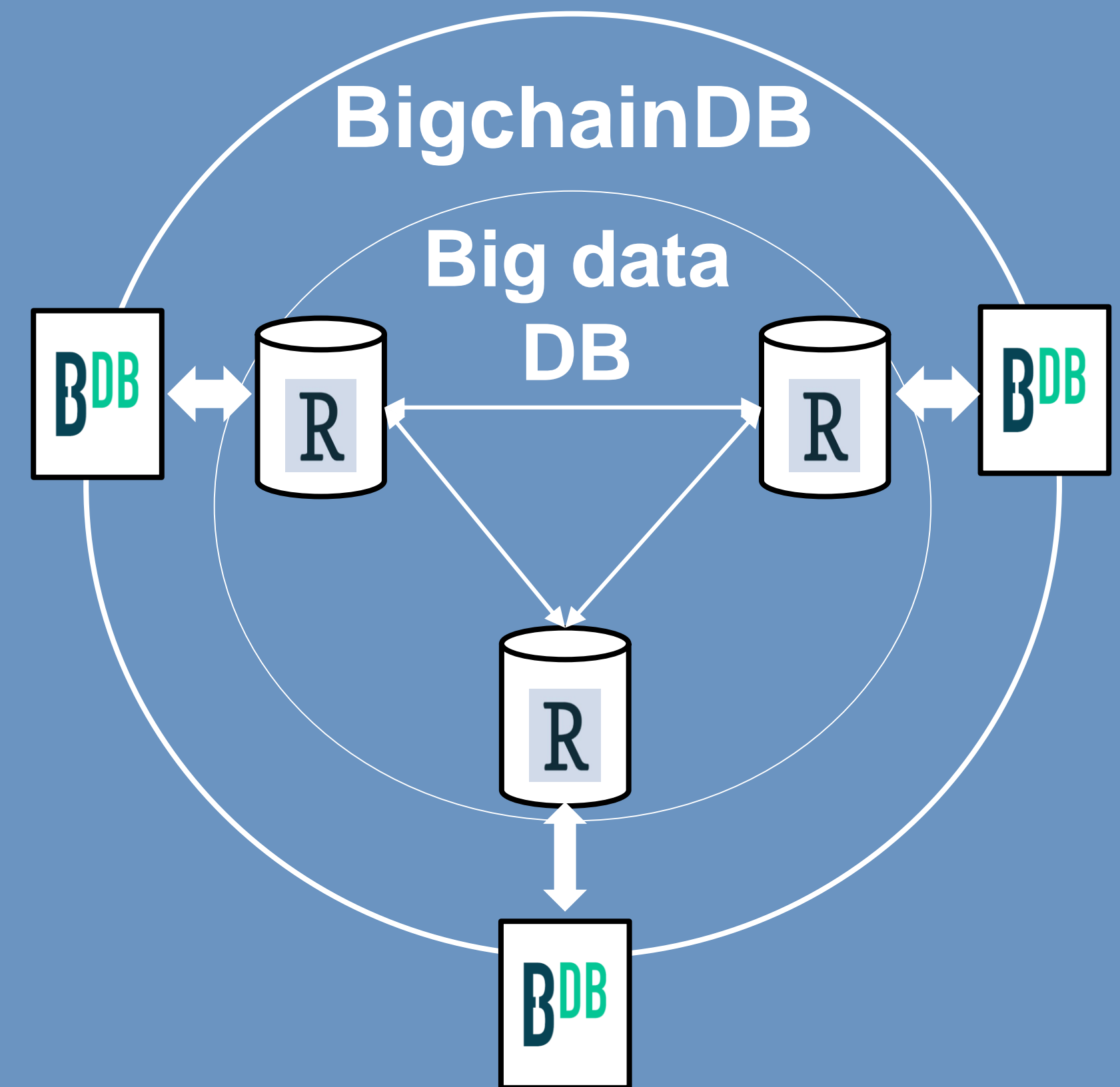
# BigchainDB: A Big Data *Blockchain* Database

How:

- Blockchain-ify an existing big data DB

Best of both worlds:

- Blockchain: decentralized, immutable
- Big data DB: queryability.  
*And planetary scalability...*



[bigchaindb.com/whitepaper](http://bigchaindb.com/whitepaper)  
[github.com/bigchaindb](https://github.com/bigchaindb)





# IPDB: Interplanetary Database

1. A network running a public decentralized database (using BigchainDB)

2. A non-profit foundation governed by the network







# IPDB

INTERPLANETARY DATABASE



- For everyone, everywhere
- Free until heavy usage, then pay web service style
- Member caretakers operate validating nodes



# Governance: Mission Statement

“The IPDB Foundation will promote the decentralized internet, with the goals of increasing transparency and accountability while challenging censorship and surveillance.”







# Governance:

## Criteria for IPDB Caretakers



Long-standing commitment to the  
decentralized internet

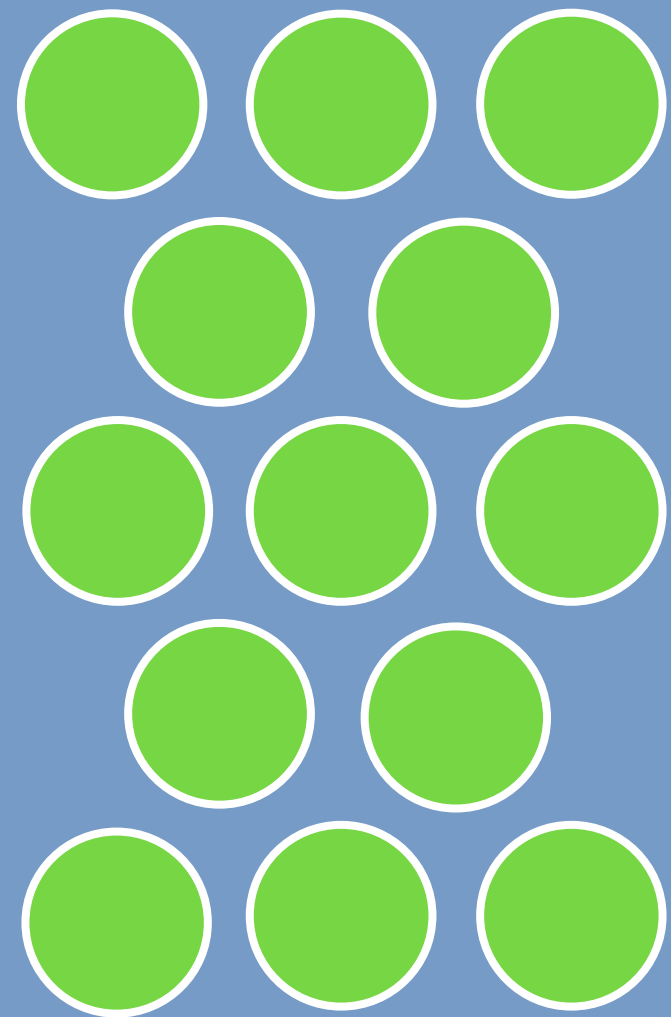
At least half non-profit

Fewer than half in any given country





# Caretakers (so far)



## Not-for-profit

Blockstack  
COALA  
Dyne.org  
Internet  
Archive  
OpenMedia  
UnMonastery

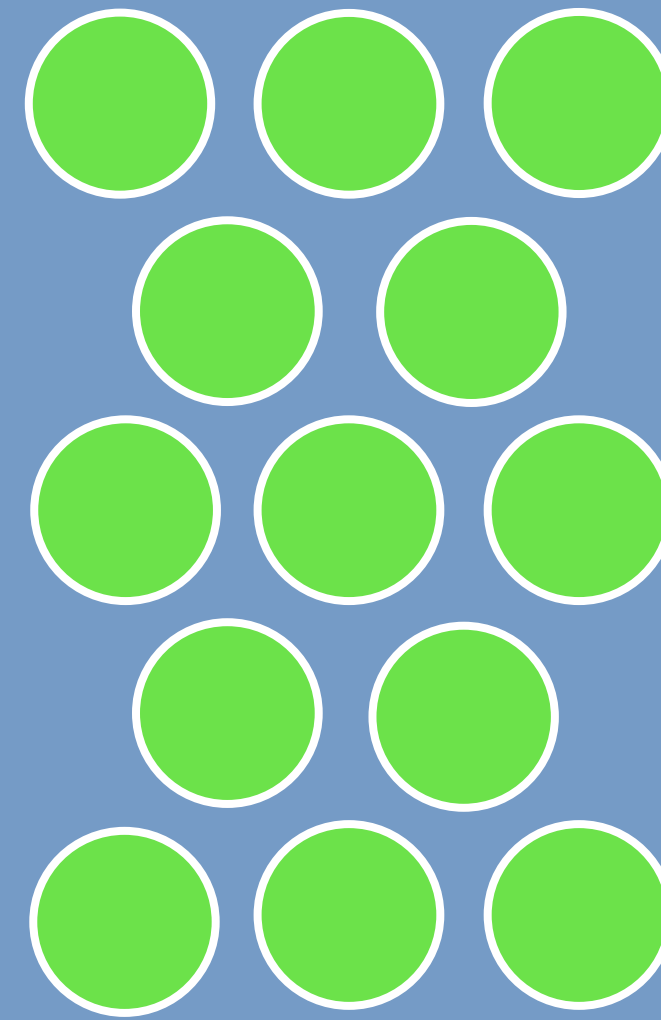
## For-profit

BigchainDB  
ConsenSys  
Eris Industries  
Protocol Labs (IPFS)  
SmartContract.com  
Synereo  
Tendermint



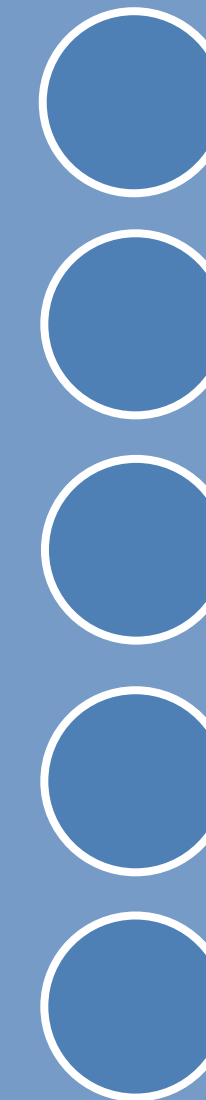
# Caretakers are the Heart of IPDB Governance

Caretakers vote  
caretakers in or out of  
the IPDB Foundation.



... And operate the  
validating nodes in  
the network.

Caretakers  
elect a board.

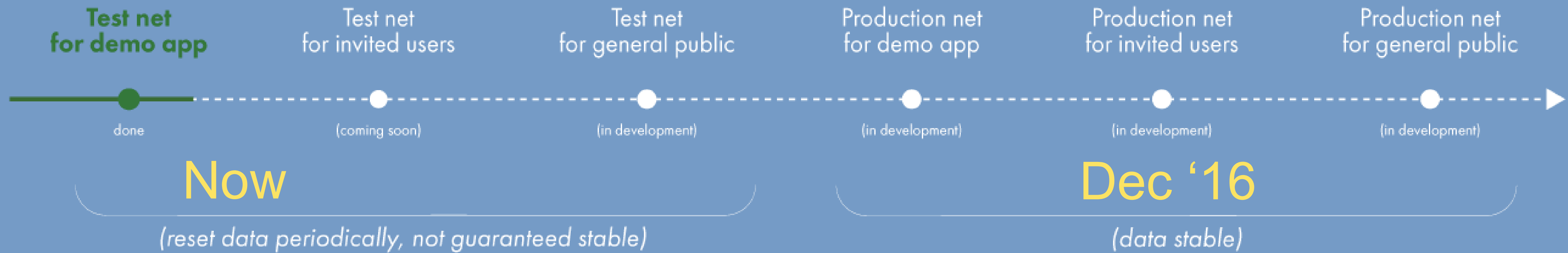


Board hires a  
director for  
management  
duties.





# IPDB Roadmap





# Shared global compute infrastructure



## APPLICATION

## PLATFORM

ID

IP

FIN

EN

PHYS

## PROCESSING



## STORAGE

### FILE SYSTEM



### DATABASE



## LOWER-LEVEL PROTOCOLS (TCP/IP)



The internet is getting upgraded, driven by the winds of blockchain.

Old + new guard are joining forces!

DWebSummit,  
Internet Archive,  
W3C, IETF,

...

← → ↺ www.nytimes.com/2016/06/08/technology/the-webs-creator-looks-to-reinvent-it.html?\_r=0

☰ 🗞 🔍 TECHNOLOGY | The Web's Creator Looks to Reinvent It

TECHNOLOGY

## *The Web's Creator Looks to Reinvent It*

By QUENTIN HARDY JUNE 7, 2016



A group of top computer scientists gathered in San Francisco on Tuesday to discuss a new phase for the web. Jason Henry for The New York Times



The internet is getting upgraded, driven by the winds of blockchain.



iPDB  
BIGCHAIN<sup>DB</sup>

✓ Creativity is encouraged

- Creators are fairly compensated
- The cultural commons is protected

✓ Your identity is yours

- You own your personal data
- You manage your reputation
- You choose what to share and what stays private

✓ And more

- Equal opportunity for banking
- Know where your atoms come from