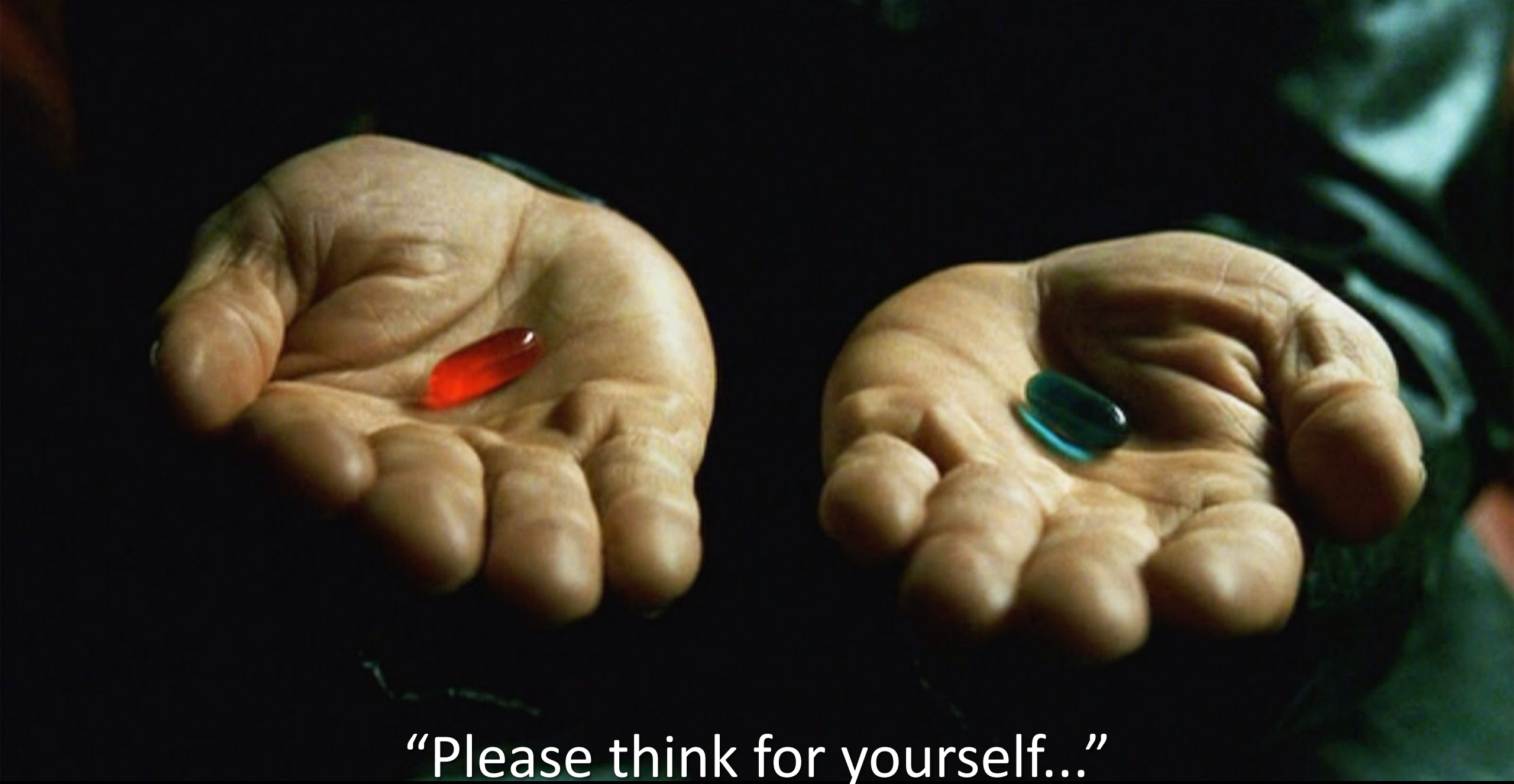
“Thought leadership is when a leader's thoughts are being used by leaders to lead others.”

— Onyi Anyado, thought leader


“Please think for yourself...”
— Scott ‘not a thought leader’ Baker

The opinions expressed are my own,
names and places have also been altered or omitted
to protect the “innocent”

and to protect me from their respective legal team(s)…

WARNING

Contains Sarcasm

The Cloud

Renting infrastructure you don’t control, under the influence of a foreign power, that sits outside your network security perimeter, possibly throwing privacy out the window, while accepting vendor lock-in to pay a premium to contribute to some multi-national company's bottom line.

Which costs more?

Which costs more?

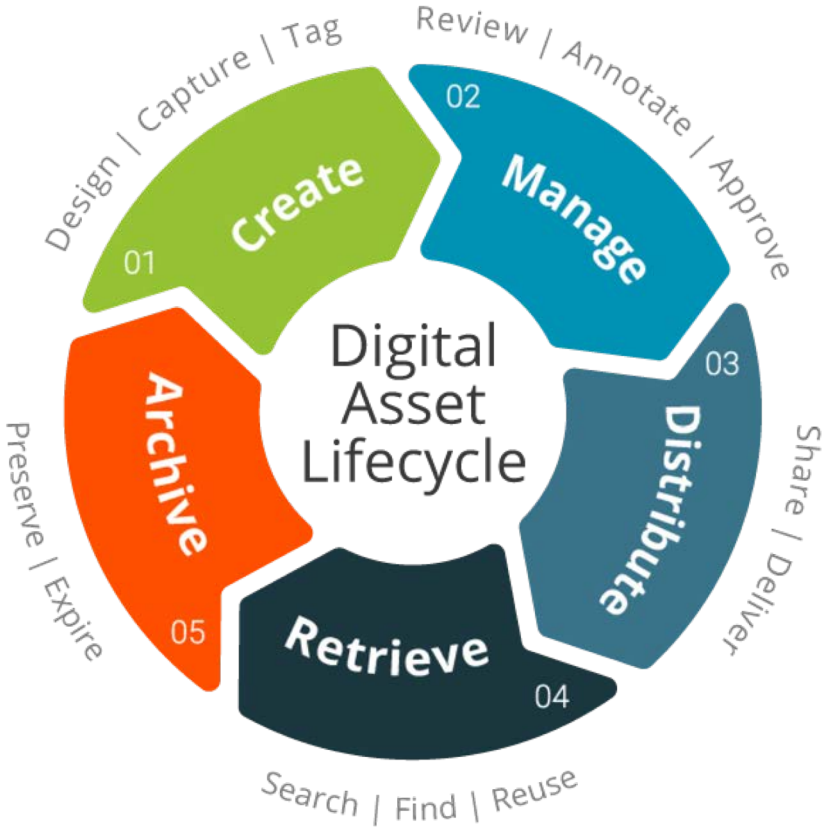
Comparison?

Comparison?

Funding: Hard deadline
Max: 5 years

Lifespan: Getting longer
Avg: 7 years

Sustainability?



A tale of two servers…

On premise

On premise

A tale of two servers…

On premise

Your

On premise

Their

Which is more secure?

On premise

Your

On premise

Their

TRICK QUESTION

IT'S A TRAP

It’s all about design & configuration…

Realistic Conclusions…

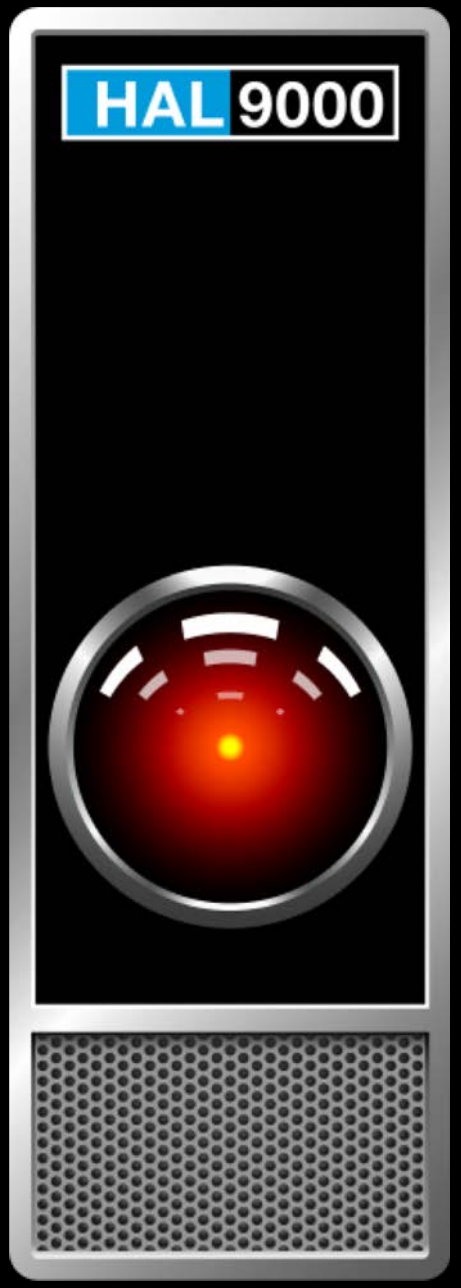
What are ‘Just the facts’ exactly?
Consider costs carefully
Solve the needs you actually have
Responsibility remains constant
Staffing remains constant
Security is difficult and YMMV

In general…
Cloud is better for burst-y workloads
Cloud is better for operational funding

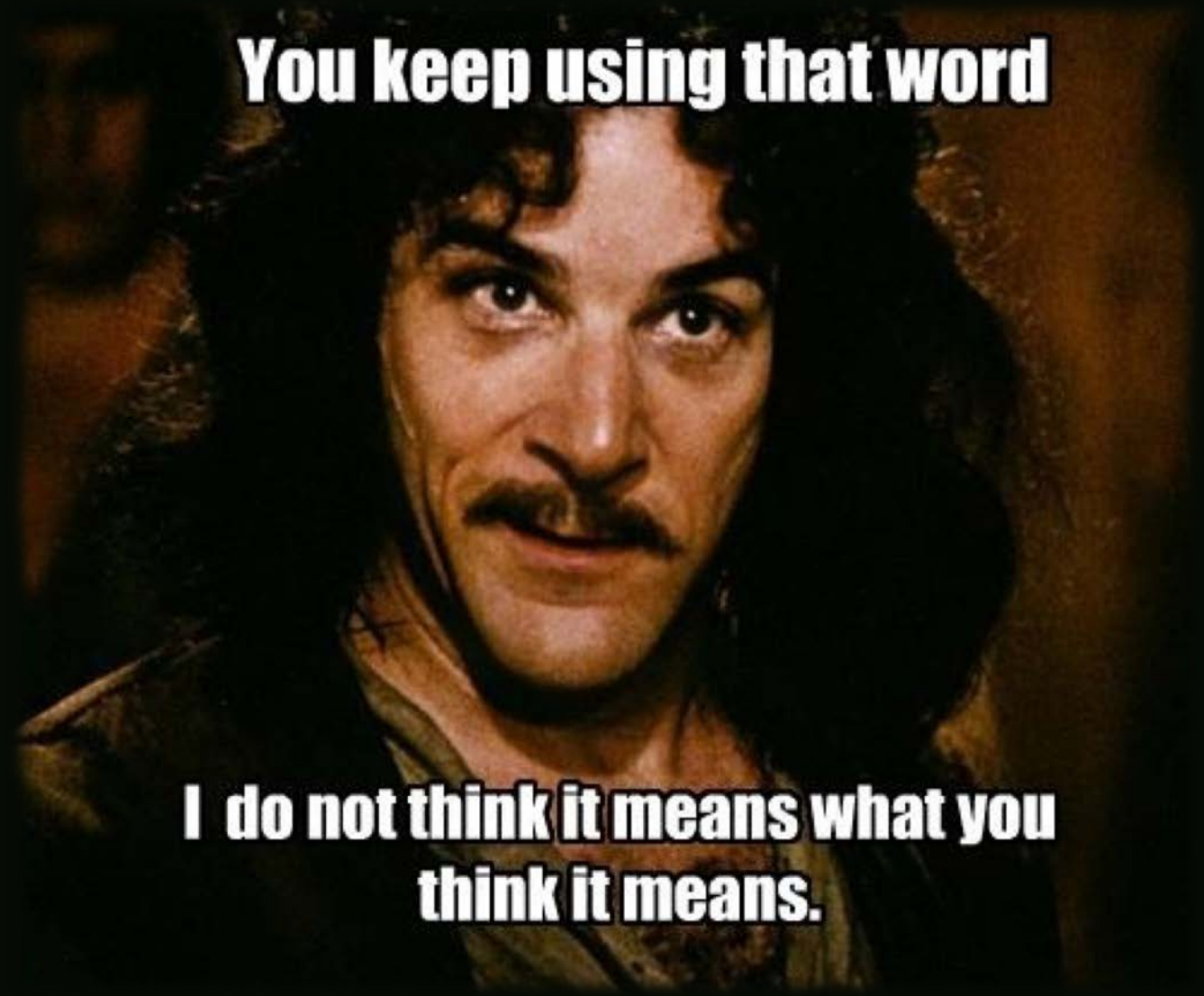
AI

The attempt to simulate intelligent or human-like behavior in machines…

what could possibly go wrong…



AI


You keep using that word
I do not think it means what you think it means.

Still Testing

“Think of how stupid the average person is,
and realize,
that means half of them are stupider than that.”

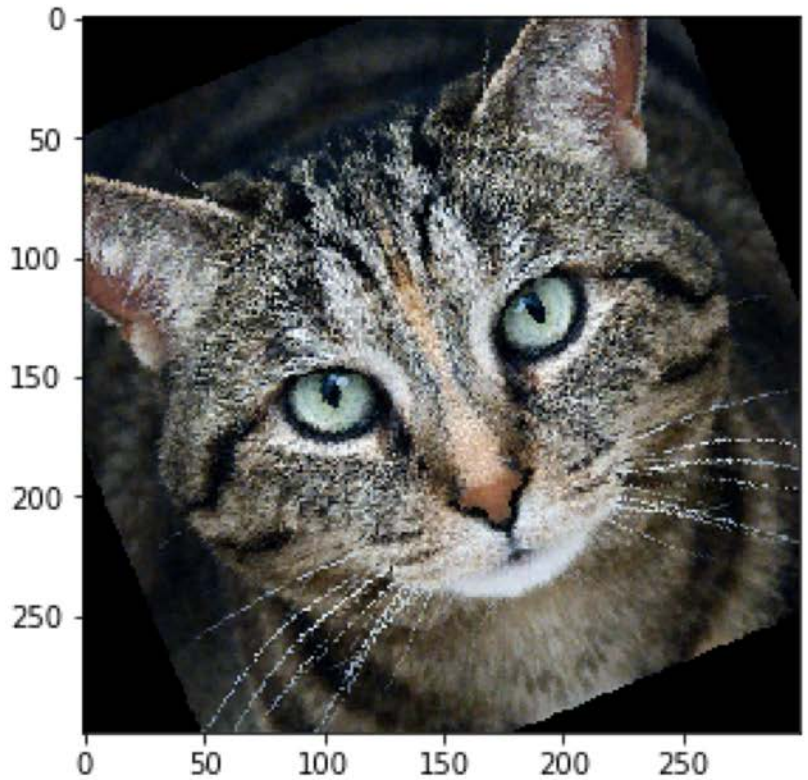
— George Carlin

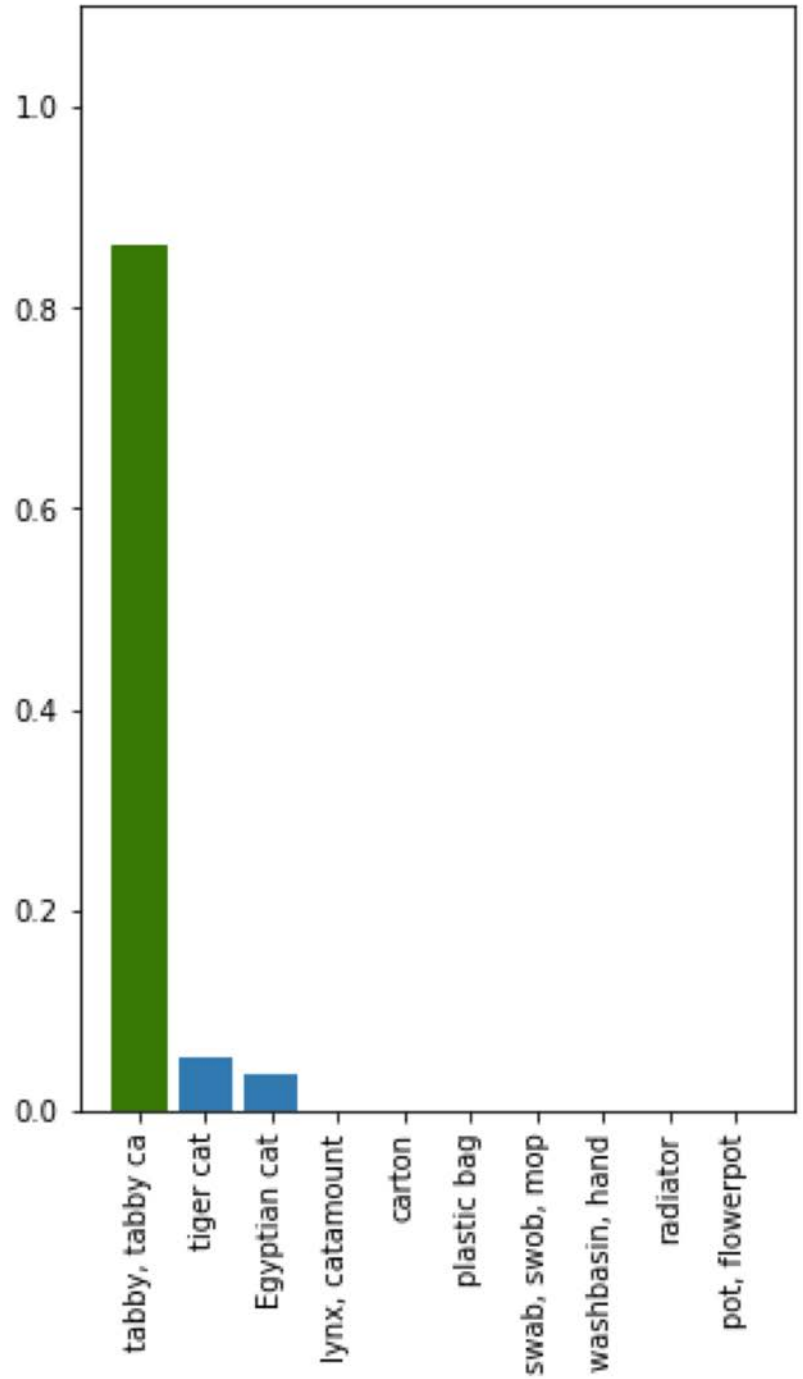
So really...

Machine learning

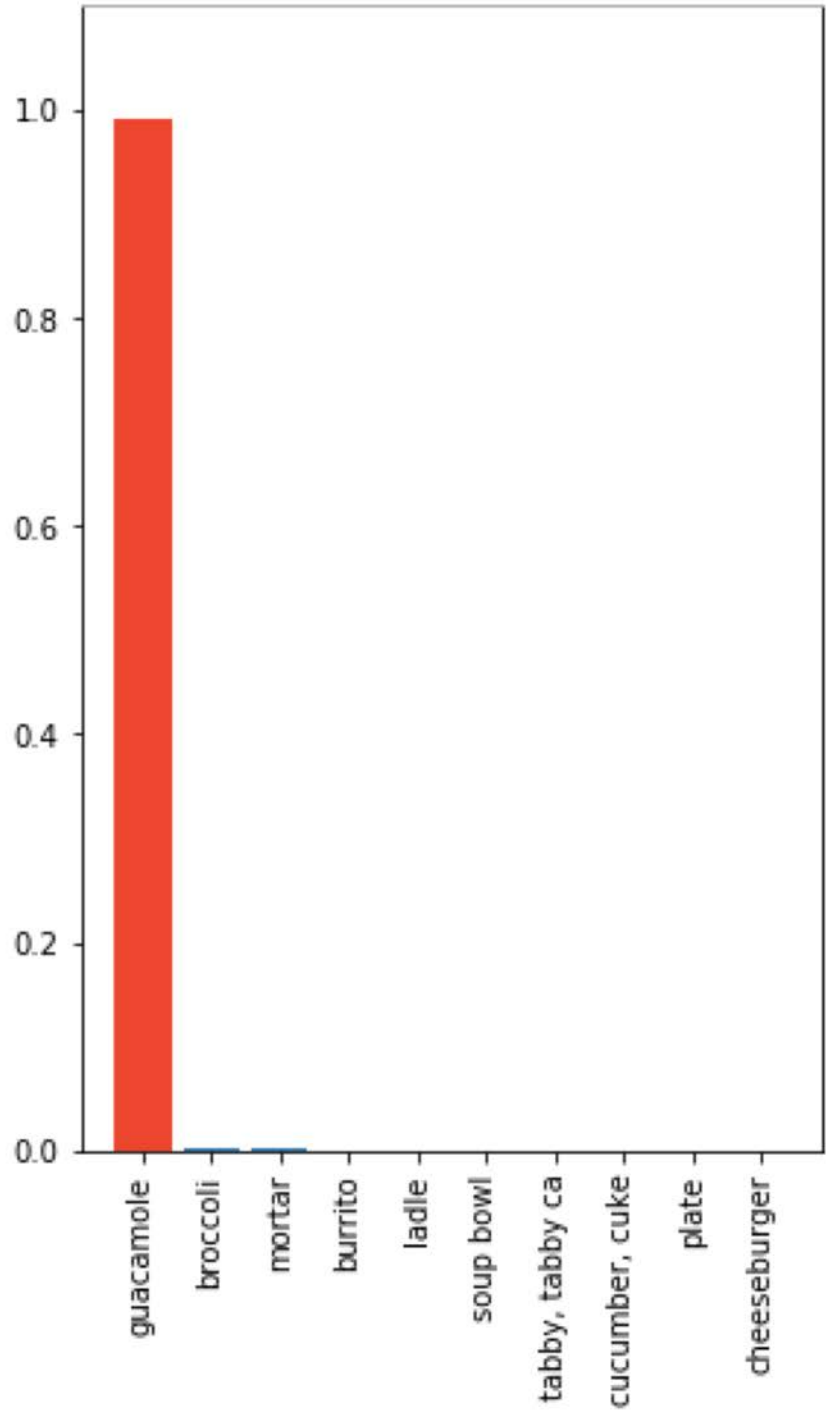
Teaching machines to learn, through extensive hand-holding by collections of humans. Which, because of human nature, results in machines that are about as stupid as the average of those same humans.

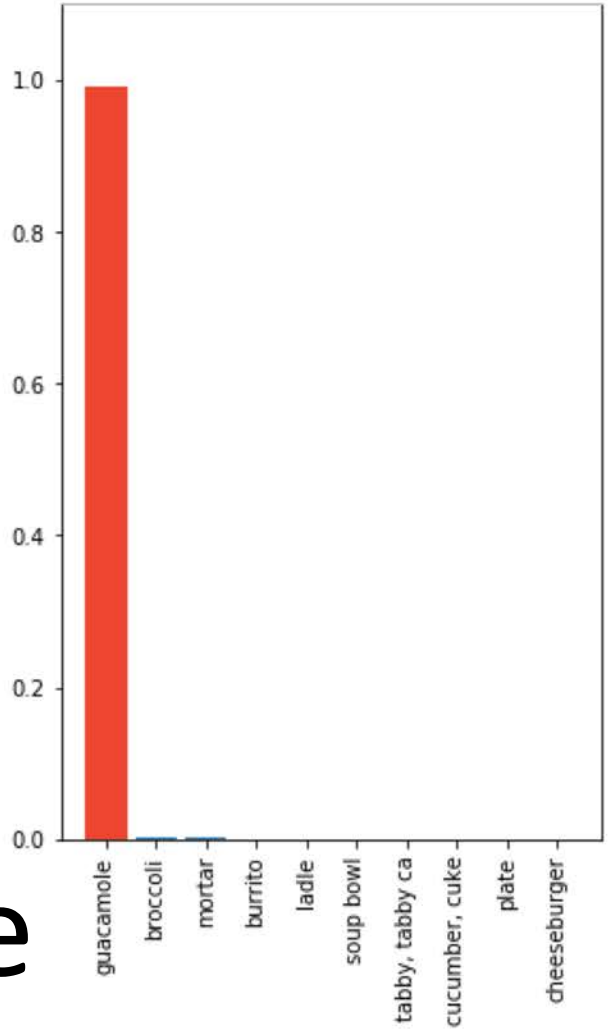
(See previous slide)


0
50
100
150
200
250
0
50
100
150
200
250

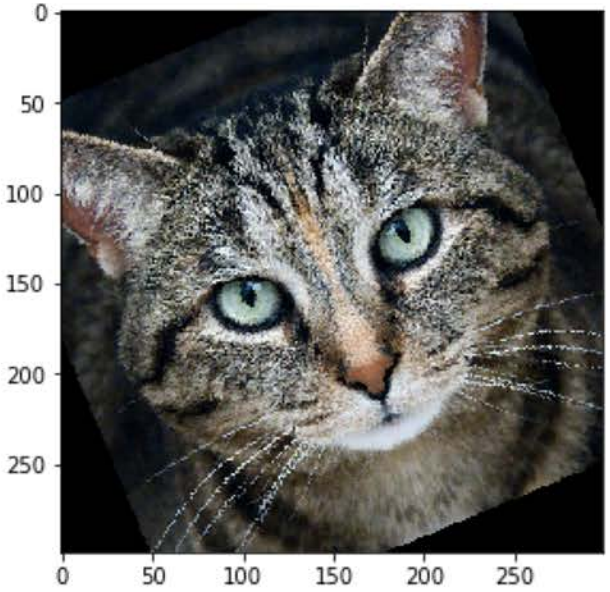

1.0
0.8
0.6
0.4
0.2
0.0
tabby, tabby ca
tiger cat
Egyptian cat
lynx, catamount
carton
plastic bag
swab, swob, mop
washbasin, hand
radiator
pot, flowerpot

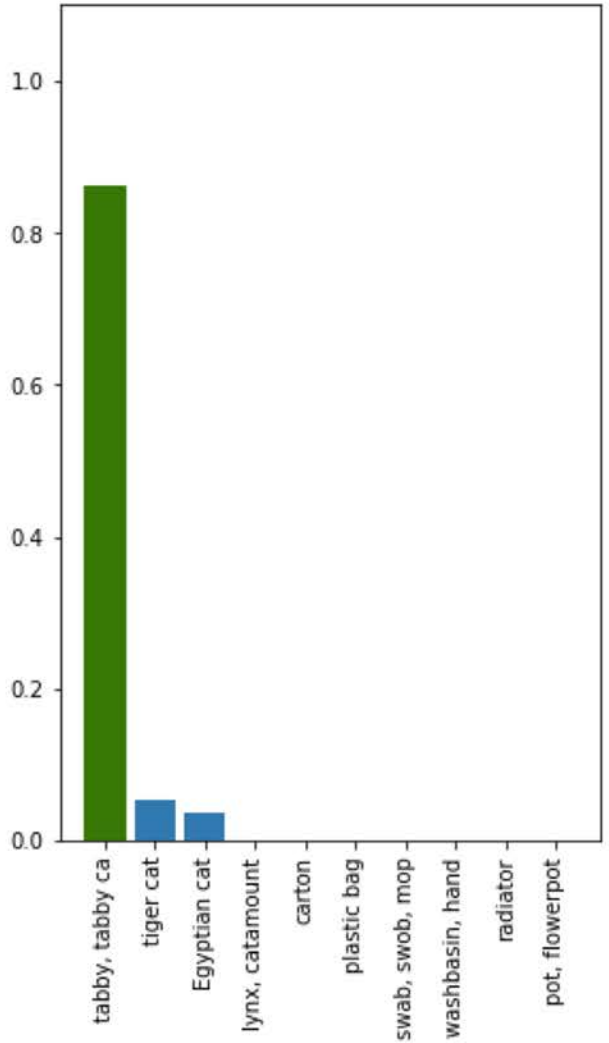
50
100
150
200
250


1.0
0.8
0.6
0.4
0.2
0.0
guacamole
broccoli
mortar
burrito
ladle
soup bowl
tabby, tabby ca
cucumber, cuke
plate
cheeseburger

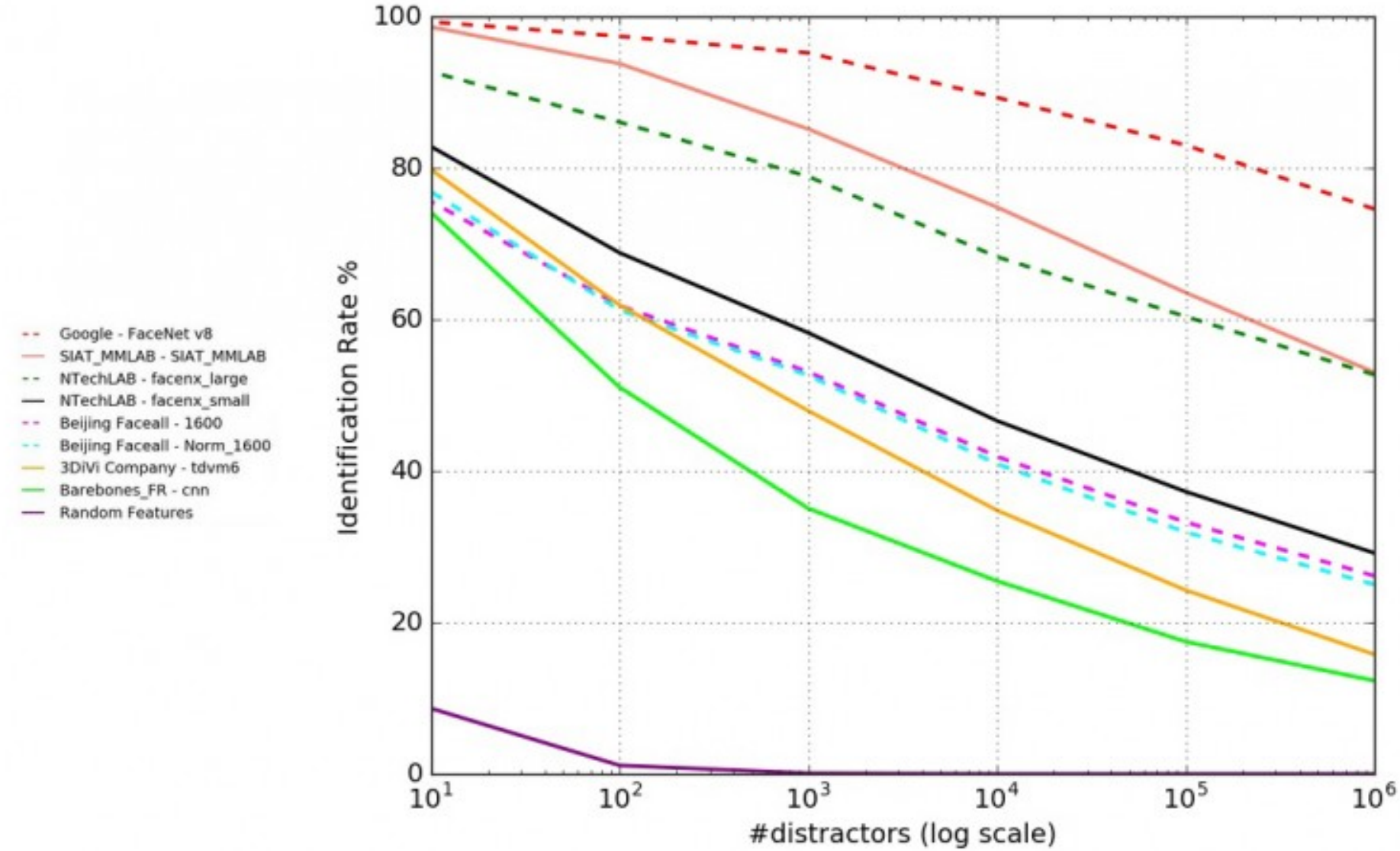


guacamole





cat



Facial recognition algorithms that fared well with 10,000 distracting images all experienced a drop in accuracy when confronted with 1 million images.

University of Washington Study

(just read ML)

AI Can Be A Tough Sell In The Enterprise, Despite Potential: Panel

Artificial intelligence tools are expected to boost productivity but early failures can create barriers in the workplace, AI experts say

(ML again)

Take Monsanto Co., which expects a vast majority of its early AI and deep-learning projects to fail, says Anju Gupta, the agricultural giant's director of digital partnerships and outreach.

A 99% failure rate is acceptable because "that 1% is going to bring exponential gain," Ms. Gupta told a crowd of enterprise IT managers gathered here at an AI industry conference.

(sigh)

Amazon reportedly has thousands of people listening to snippets of Alexa conversations

PUBLISHED WED, APR 10 2019 • 7:27 PM EDT | UPDATED THU, APR 11 2019 • 3:07 PM EDT

"…a German Amazon-user requested the company for all data pertaining to him—which is their right per the "Right of Access" clause in the General Data Protection Regulation (GDPR) law…"

"But Amazon accidentally sent this person 1,700 voice recordings from a stranger, including recordings that happened in the shower."

~

https://motherboard.vice.com/en_us/article/pa54g8/amazon-sent-1700-alexa-recordings-to-the-wrong-person

“Computers can, in theory, emulate human intelligence, and exceed it. Success in creating effective AI, could be the biggest event in the history of our civilization. Or the worst. We just don't know. So we cannot know if we will be infinitely helped by AI, or ignored by it and side-lined, or conceivably destroyed by it.”

“While AI has the potential to transform society <…> it also comes with huge risks.”

- Stephen Hawking

Realistic Conclusions…

AI is interesting but academic
ML is still a work in progress

Avoid overreliance – still “bleeding edge”

Excitement for new technology,
should never cloud common sense

Keep up the research & Involve Social Science

IOT

Proprietary devices running, unpatchable firmware with a full network stack that frequently bridge networks and radio data links while communicating with unknown locations such that cybersecurity vulnerabilities are translated into actual physical danger to life and limb.

IOT can be pointless

GRIFFIN

… or Disturbing

Bluetooth
My SATIS
リモコン
トイレ日記

… or Truly Horrifying

UPnP™

Model name: Bright Box Wireless Router
Wireless network name:
EE-Bright-Box-xyhy
Wireless password:
gum-sleep-free
MAC XXXXXXXXXXXX
Serial No. XXXXXXXXXXXX
Router login details: http://192.168.1.1
Username: admin
Password: q7pfeg
Made in XXX 146000107400J R01 XX
Astoria networks

RSA Conference 2019: Firms Continue to Fail at IoT Security

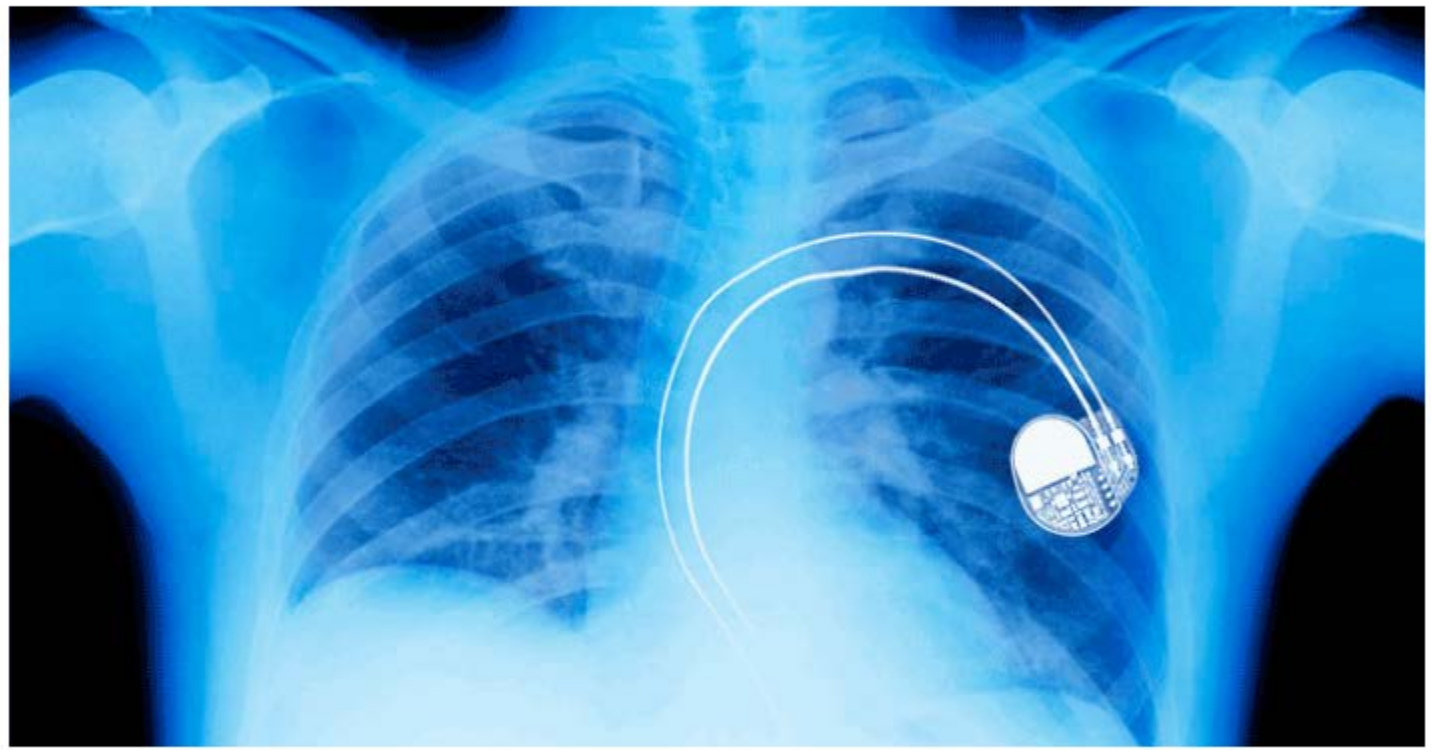
GARRETT M. GRAFF SECURITY 12.13.17 03:55 PM

HOW A DORM ROOM *MINECRAFT* SCAM BROUGHT DOWN THE INTERNET

Internet of Fail: How modern devices expose our lives

FDA Recalls Nearly Half a Million Pacemakers Over Hacking Fears

September 01, 2017 Swati Khandelwal



Almost half a million people in the United States are highly recommended to get their pacemakers updated, as they are vulnerable to hacking.

Realistic Conclusions…

Just because you can…

We (probably) can’t stop the insanity

But we can make some dents

- Change those defaults
- Segmentation
- Monitoring
- Lobby for change

Taking everything we love about computer games and reducing the resolution, frame rate, variety, control options, and potential audience; while increasing the cost, eliminating flexibility, and making people nauseous.

VR/AR

VR pundits: ***This is the future of gaming***

Total immersion… “a dream like state”

Just one small problem….

Multitasking

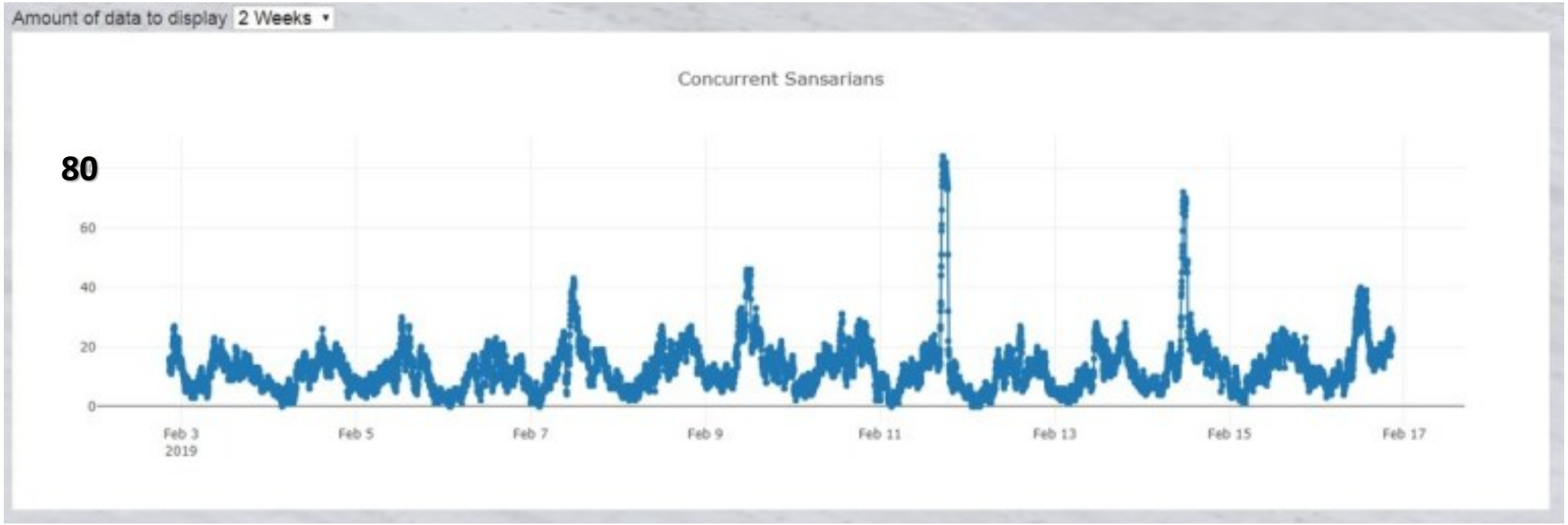
Hard Leather
PATREON
CULTECH

Game Info website
Explorer
Streaming music
Chat client
Game window
Beer
Dinner

eSports Gaming House ~2018

WEDNESDAY, APRIL 10, 2019

Virtual Reality Bombshell: Philip Rosedale Says Social VR Not Sustainable With Slow HMD Sales, Drastically Scales Back High Fidelity Hosted Content, Moves Focus To PC/Mac Clients



Oculus Go made an estimated 289,000 shipments in Q2 2018, which helped major headset sales grow by almost 40% compared to the first quarter. But, excluding the Oculus Go, major headset sales were **down 50%** in the first half of 2018 compared to the same time last year, SuperData said.

Realistic Conclusions…

VR/AR is not (ready) for gaming
But may eventually do ‘some’ gaming

VR is great for certain training

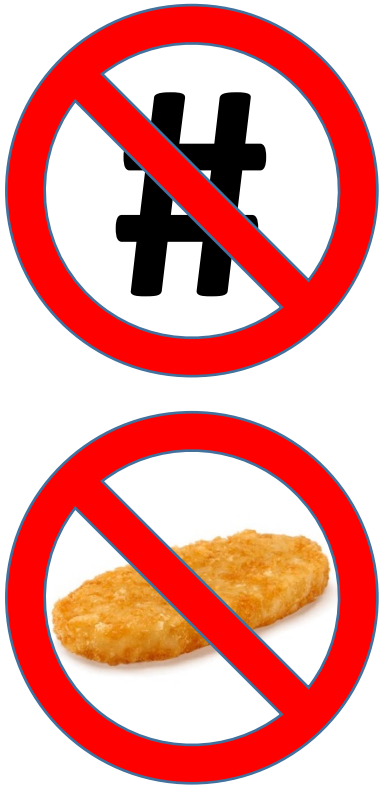
AR has great potential for maintenance

Blockchain

The application of basic cryptographic techniques to ensure integrity and non-repudiation of transactions over time, in such a way that draws about as much energy as the entire country of Argentina yet fails to solve the most pressing business problems.

So, what is this whole blockchain thing anyway

Hash Function



"Magical" math (one-way)
Variable length data input
Constant length numeric output

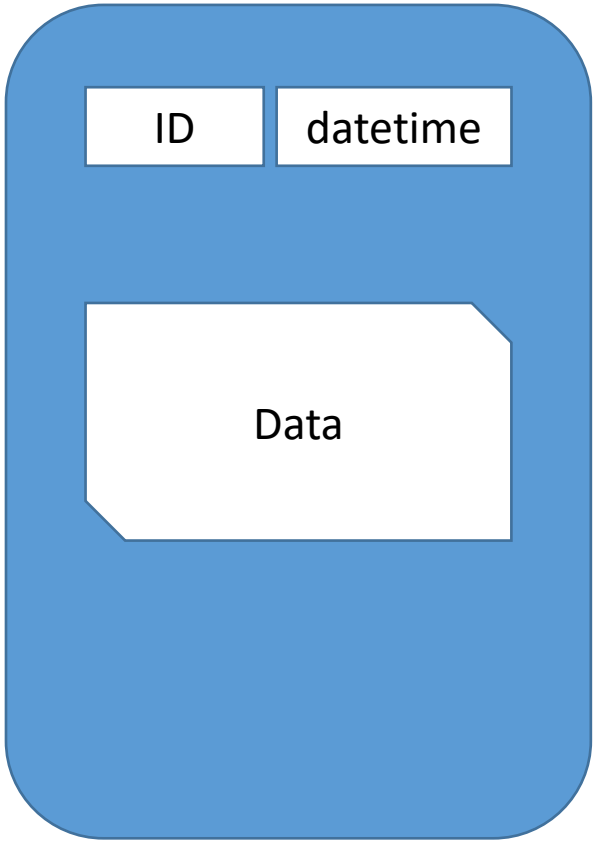
01ef49d3133198603fa02fe61fd4d23412b7850210e983ca004b814685fd1a8c

nonce

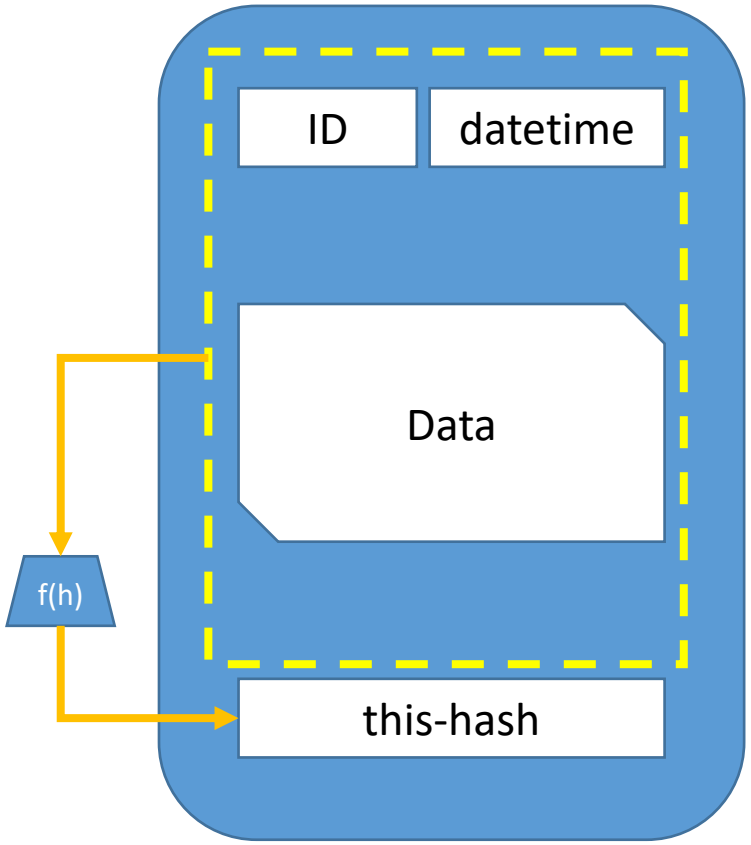
n(once)

Single use number
Frequently pseudorandom
Somewhat special in this case

So you have some data…

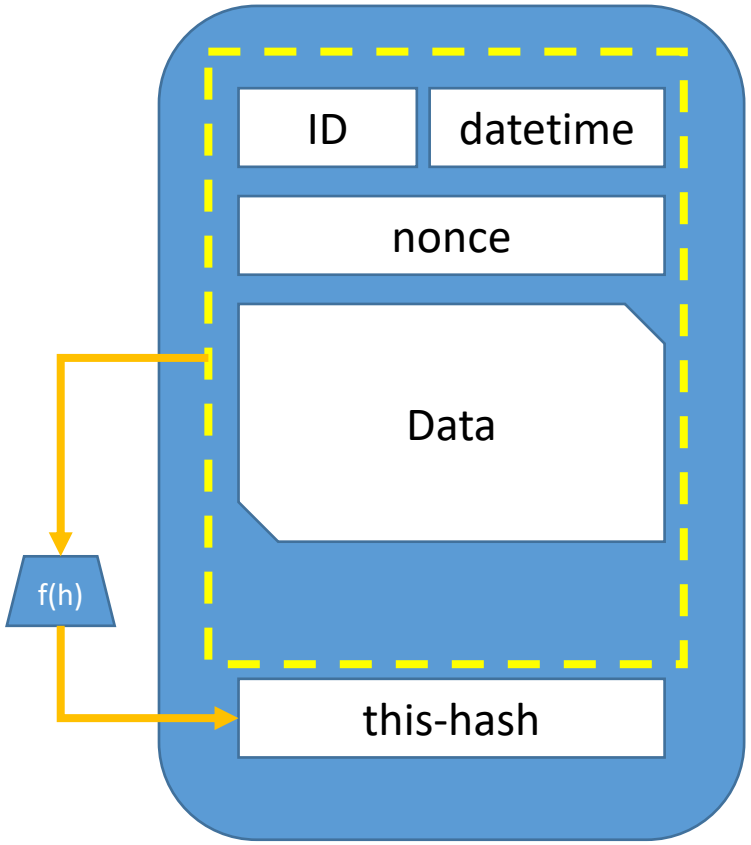


Drop it in a bucket,
ID and timestamp it

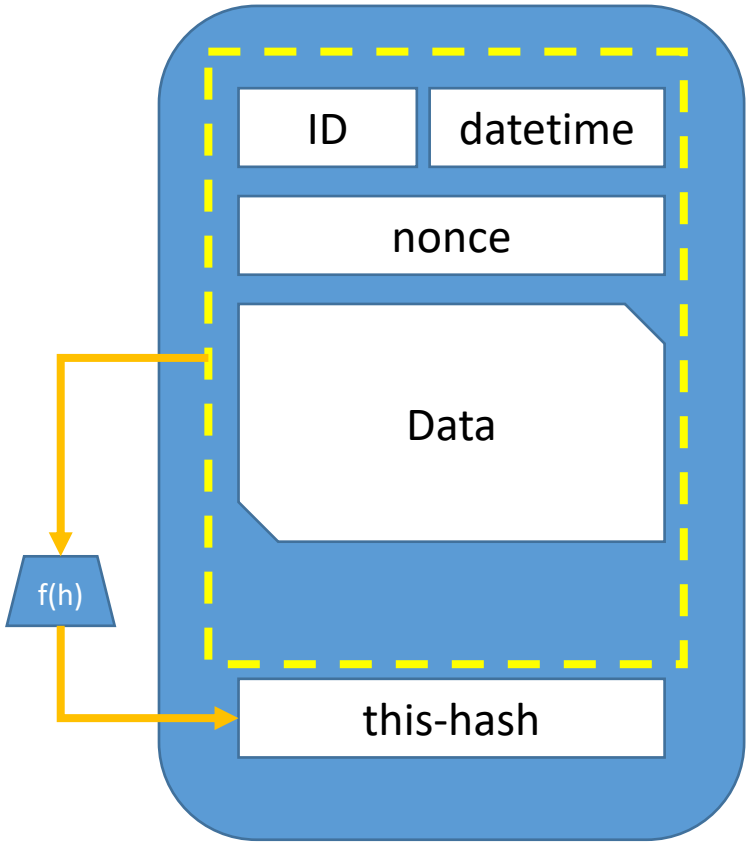


Grab a hash of that record

cc9cf48202a4e6ed2f4a774c2519da40e5cb79340d709f9ea902a7d5454a209a



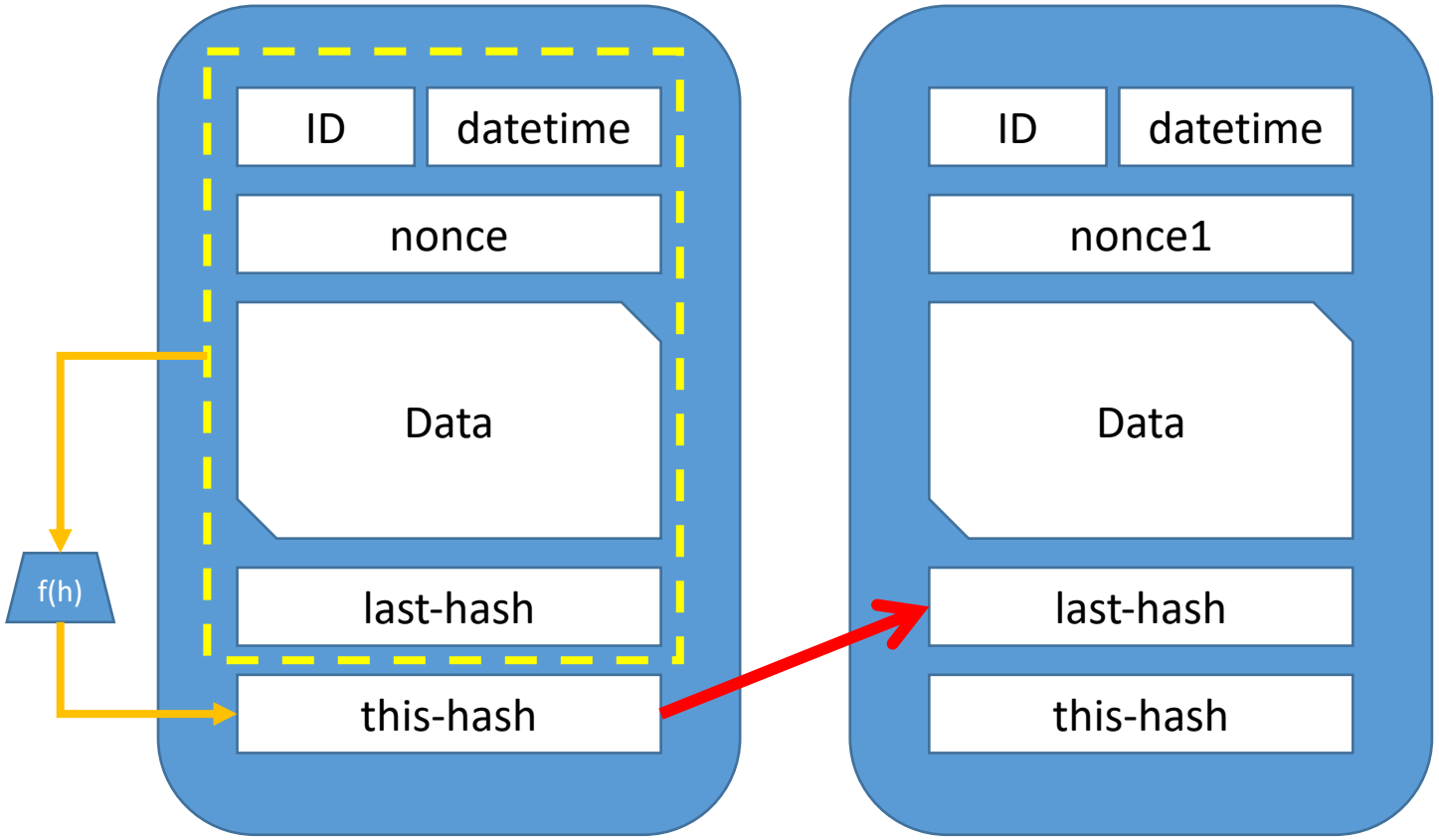
Find a nonce that
makes the hash “special”



Find a nonce that meets “target” criteria

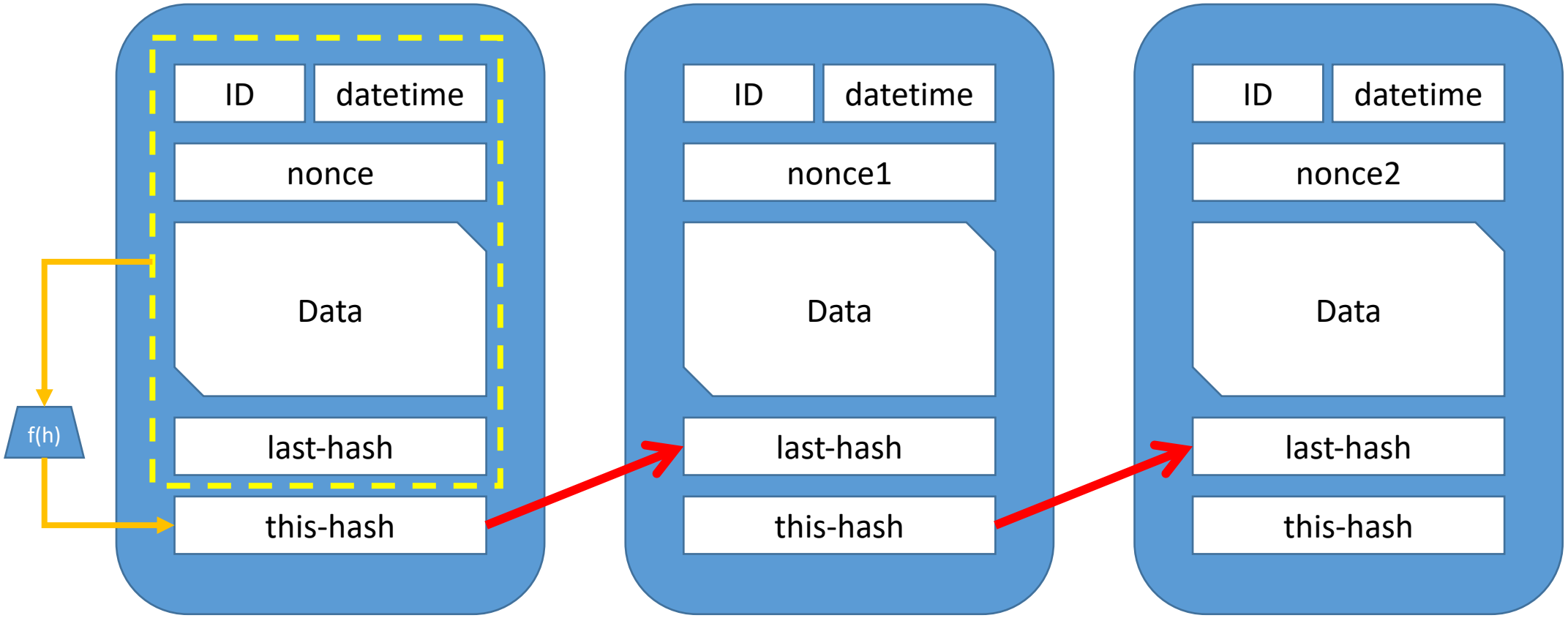
0000a53477b834b1dcdec3e23d7d8a3f8ff0e24e48262b0bb7513b22fde951bd

“Proof of work”

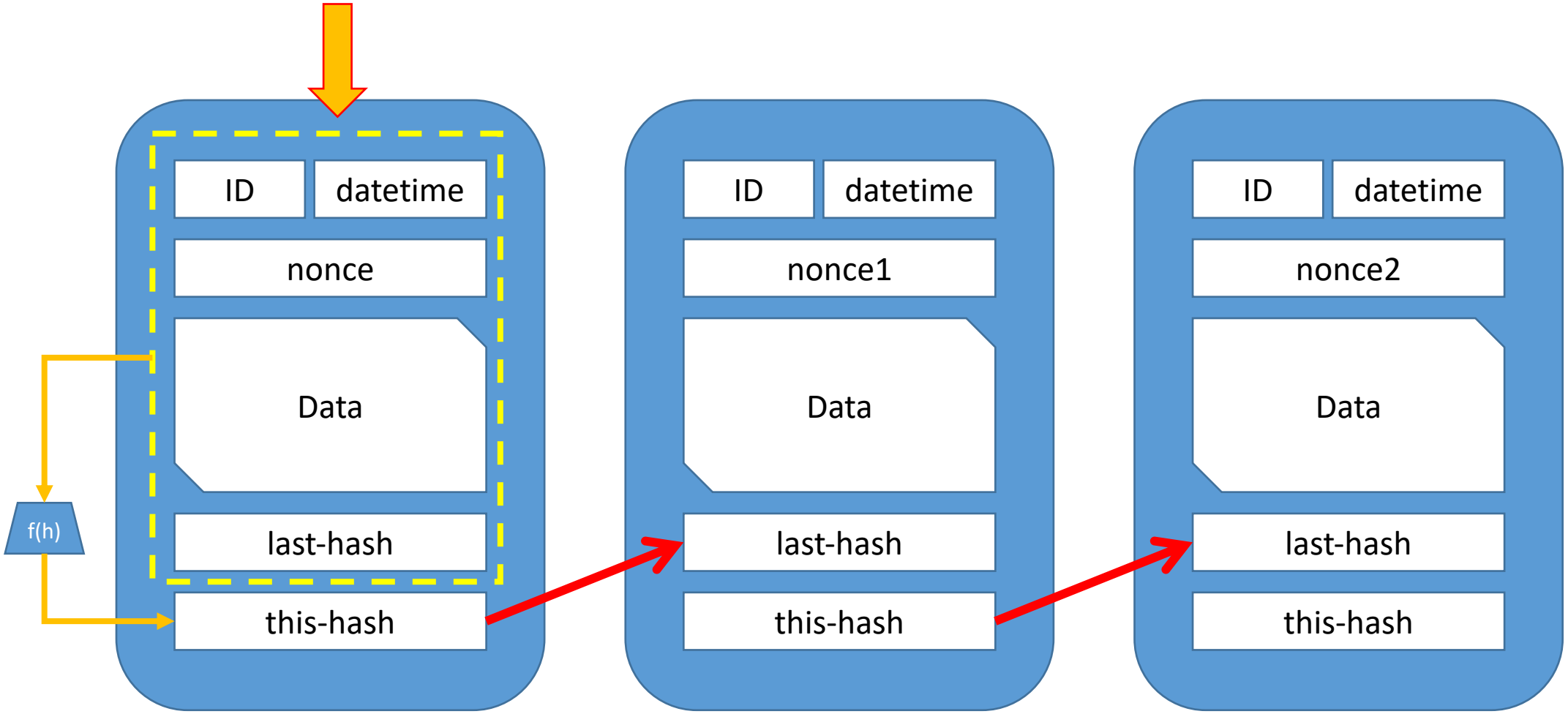


Now, string them together:
Include the previous hash in the next block

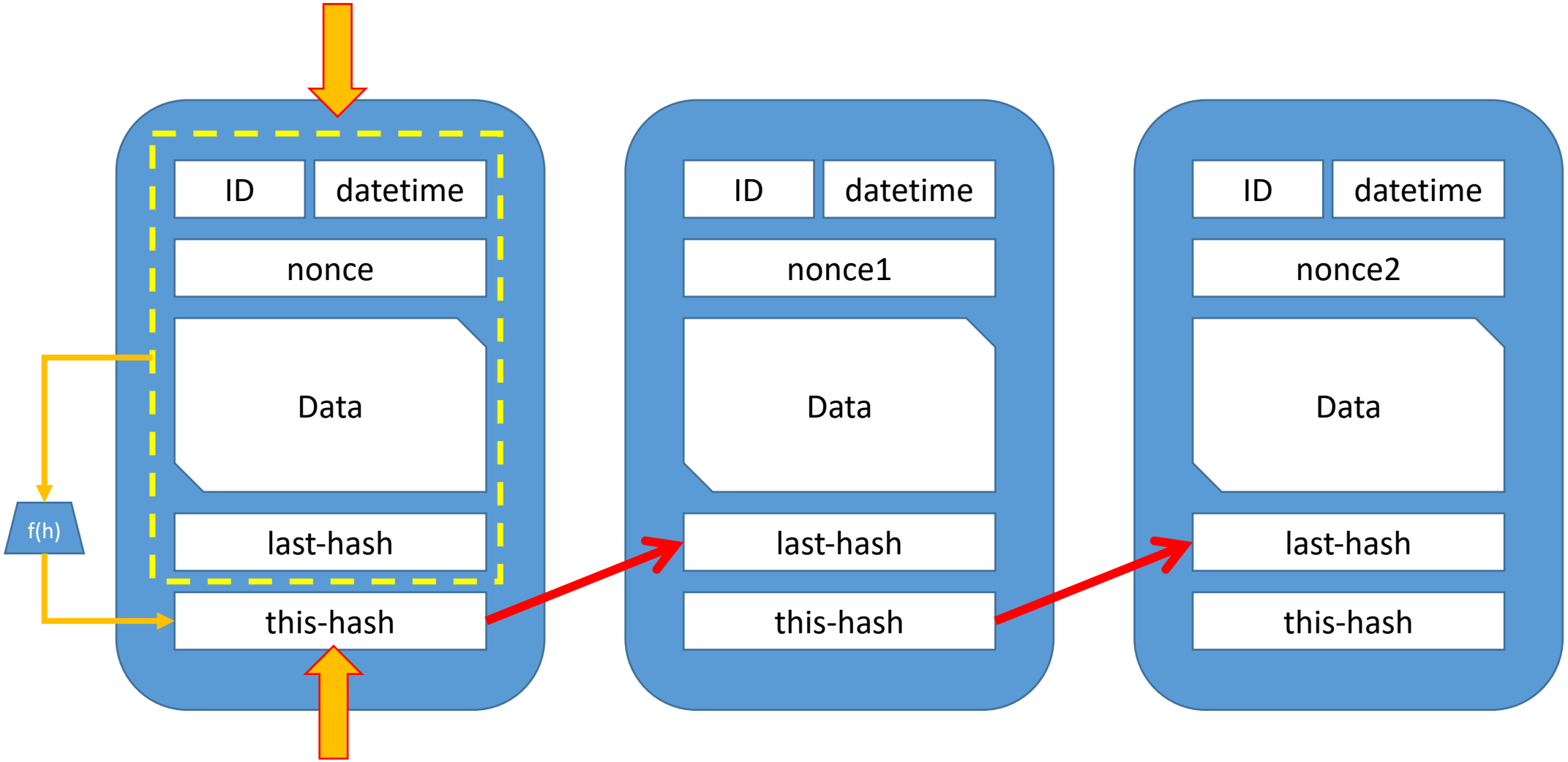
Hash, Link, Repeat!


ID
datetime
nonce
Data
last-hash
this-hash
f(h)
ID
datetime
nonce1
Data
last-hash
this-hash
ID
datetime
nonce2
Data
last-hash
this-hash

If I change ANYTHING here

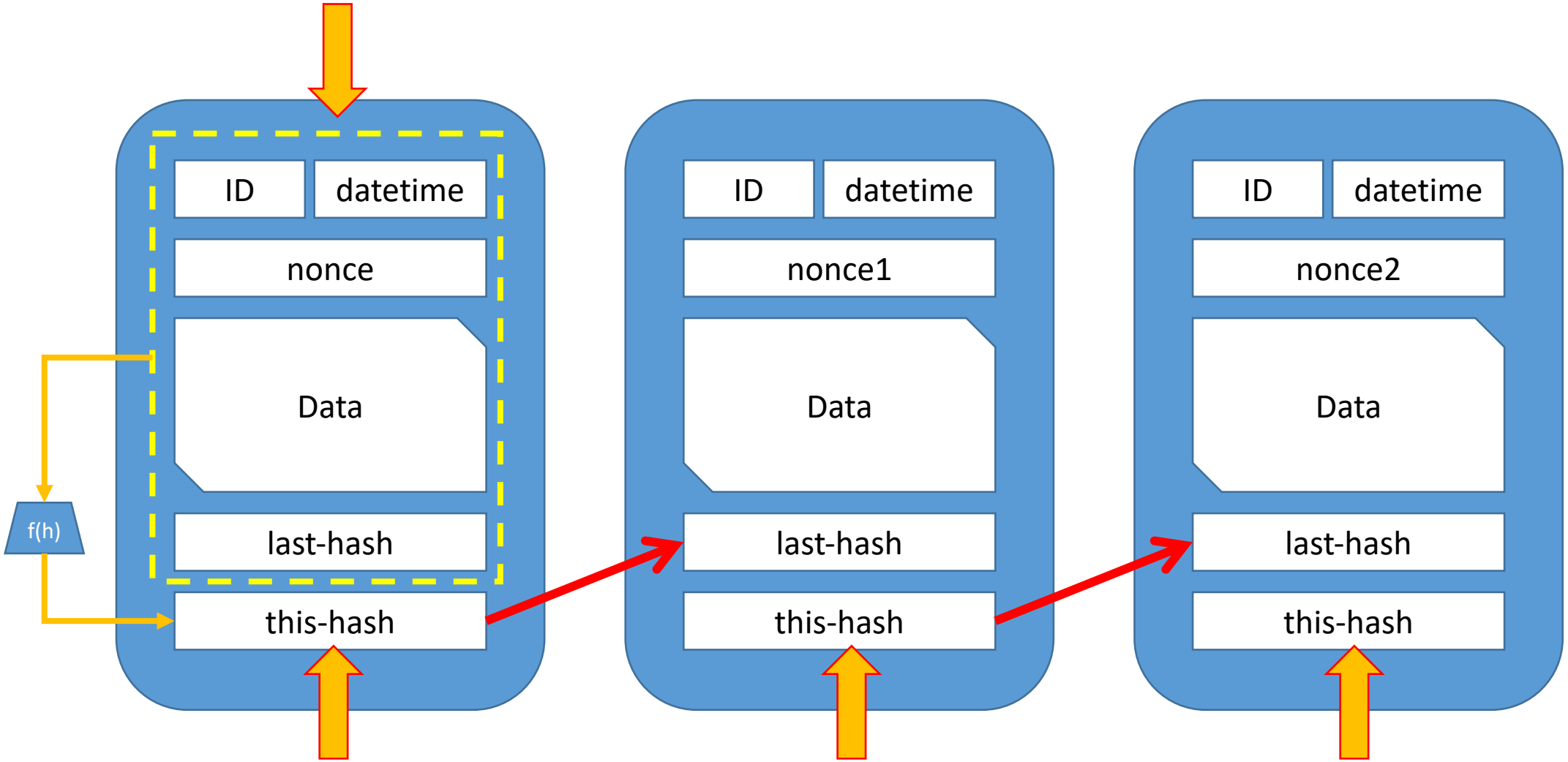


If I change ANYTHING here



It changes the hash here
(and invalidates it)

If I change ANYTHING here



It changes the hash here (and invalidates it)

And here

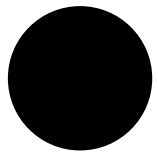
And here

Why “Distributed” ?

Chain A
000024e48262b0bb7513b22fde951b

Chain B
0000a53477b834b1dcdec3e23d7d8a

Chain C
000024e48262b0bb7513b22fde951b



period

The classic data analogy

A realistic data analogy

$25

$2500

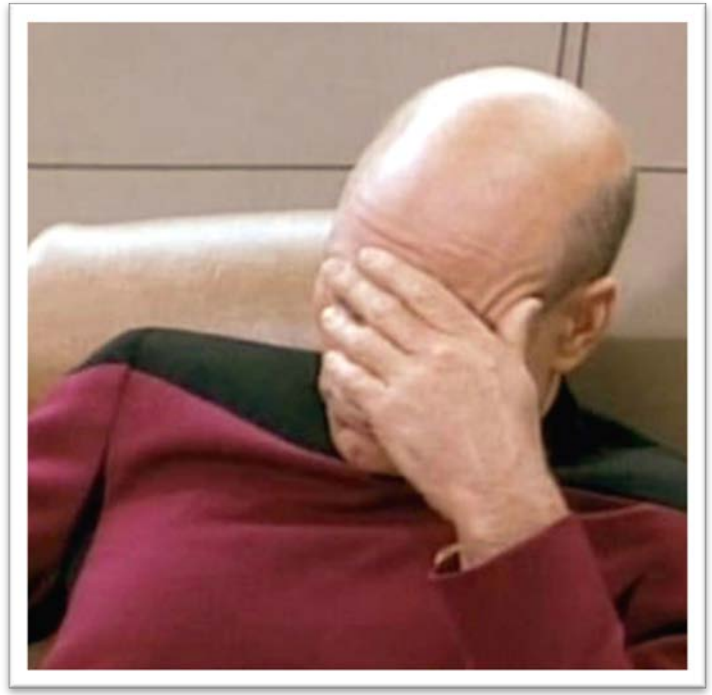
When all you have is a hammer….

"The most difficult part is … getting people to understand that they will need to change the way they work."

—Marcelo Creimer, Ezly Tecnologia, São Paulo, Brazil

"Finding the right business case for blockchain is the top challenge for every enterprise in this space."

—Rahul Golash, Ledgerium, Southbank, Australia



A hash within a hash?

"We found a proliferation of press releases, white papers, and persuasively written articles," Burg et al wrote on Thursday. "However, we found no documentation or evidence of the results blockchain was purported to have achieved in these claims."

https://www.theregister.co.uk/2018/11/30/blockchain_study_finds_0_per_cent_success_rate/

Myths

Top 5 ~~Reasons~~ For Blockchain Implementation In Healthcare In 2019

How can the healthcare industry benefit from blockchain technology? Here's why blockchain implementation in healthcare should be a priority in 2019

Single and longitudinal records of the patient

Single patient records including disease records, laboratory results, and treatments could be accomplished using Blockchain. This further works by helping providers to use comparatively better techniques to take care of the patients.

https://www.healthworkscollective.com/top-5-reasons-for-blockchain-implementation-in-healthcare-in-2019/

Top 5 ~~Reasons~~ Myths For Blockchain Implementation In Healthcare In 2019

How can the healthcare industry benefit from blockchain technology? Here's why blockchain implementation in healthcare should be a priority in 2019

Master patient indices

Often times, when you tackle a plethora of patients database, the records get lost or mixed up. Plus, depending on the EHR you are hiring, there can be a considerable amount of difference in the way of recording database which then complicates even the simplest form of data.

Myths

Top 5 ~~Reasons~~ For Blockchain Implementation In Healthcare In 2019

How can the healthcare industry benefit from blockchain technology? Here's why blockchain implementation in healthcare should be a priority in 2019

Interoperability

Blockchain technology utilizes advanced APIs to turn data storage as well as EHR interoperability into a consistent procedure. As Blockchain network is only distributed across the authorized people and that too in a secure form, it eradicates the additional expenditure linked to data reconciliation.

don’t just take my word for it…

J Med Internet Res. 2019 Feb 8;21(2):e12533. doi: 10.2196/12533.

Is Blockchain Technology Suitable for Managing Personal Health Records? Mixed-Methods Study to Test Feasibility.

Park YR[#1], Lee E[#1], Na W[2], Park S[1], Lee Y[3], Lee JH[3,4].

CONCLUSIONS:
This study confirms that it is possible to exchange PHR data in a private blockchain network. However, to develop a blockchain-based PHR platform that can be used in practice, many improvements are required, including reductions in data size, improved personal information protection, and reduced operating costs.

https://www.ncbi.nlm.nih.gov/pubmed/30735142

Realistic Conclusions…

Dammit Jim I’m a ledger not a silver bullet

It does not solve intrinsic data problems
It does not solve policy/compatibility problems
It does not add privacy
It is slow, expensive, and transactional

It has fantastic potential to address the “I” in CIA

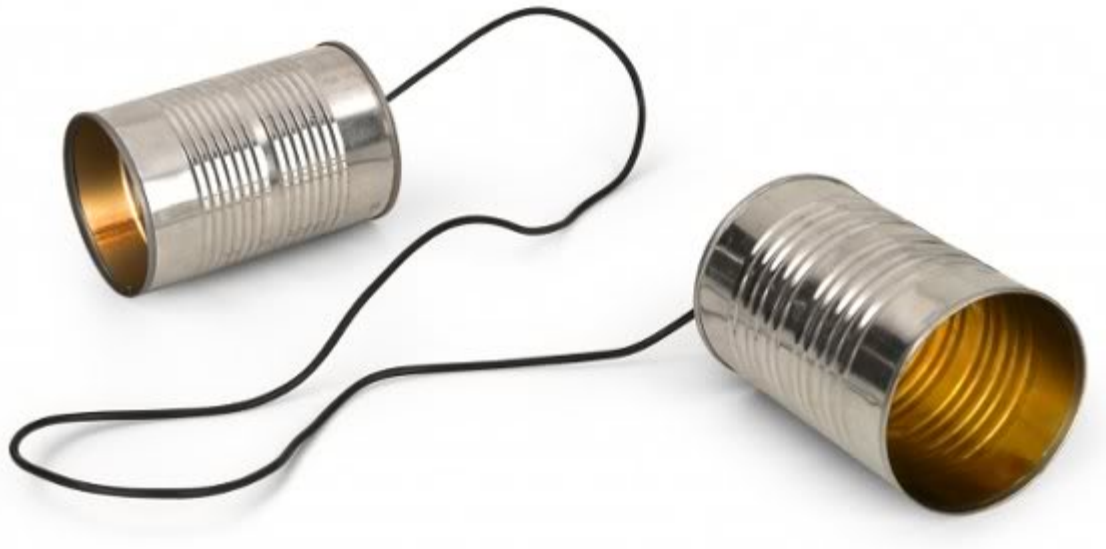
Technology is only one part of any solution.

There is no boat to miss, unless you are already planning a trip to that destination.

Leading (or Bleeding) edge is expensive.

Question everything.

Questions?

Contacts

email: scott.baker@ubc.ca
LinkedIn: https://www.linkedin.com/in/pawprint/