



PoW mining vs data-backed coin mining

How PoW miners can supplement their revenue by
mining data-backed coins



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How PoW and data-backed coin mining compare

PoW mining is an R&D bounty on energy

To maximize profits, PoW mining incentivizes for the acquisition of the **cheapest** forms of **energy/electricity** and **faster and cheaper ASICs**.

Data-backed coin mining is also an R&D bounty on energy

To maximize profits, data-backed coin mining incentivizes for the acquisition of the largest **capacity** and cheapest forms of **energy, storage, memory, CPU, bandwidth, and more**.

Did you know?

Data center mining is the single largest source of energy consumption in the world. It is 3% today and expected to grow to 8% by 2030.

PoW mining is a race

Winners take the trophy home and losers return to the starting line.



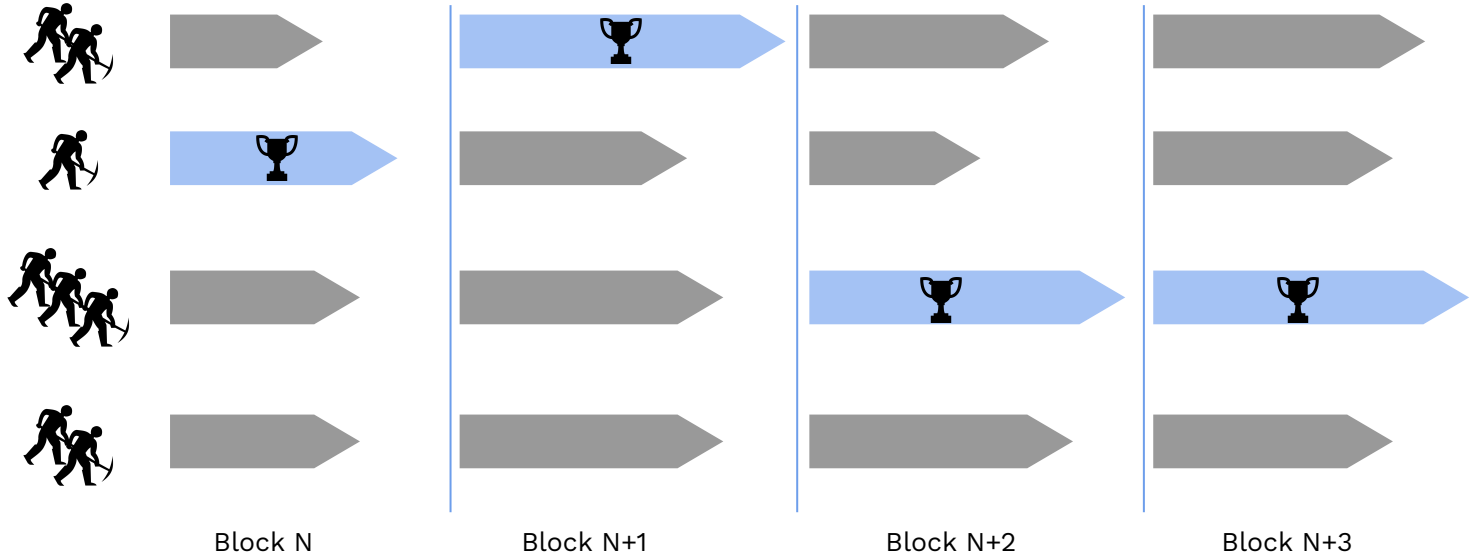
Miners

Compute hashes to meet the target set based on current difficulty

The race repeats every block duration (~10 minutes in Bitcoin).

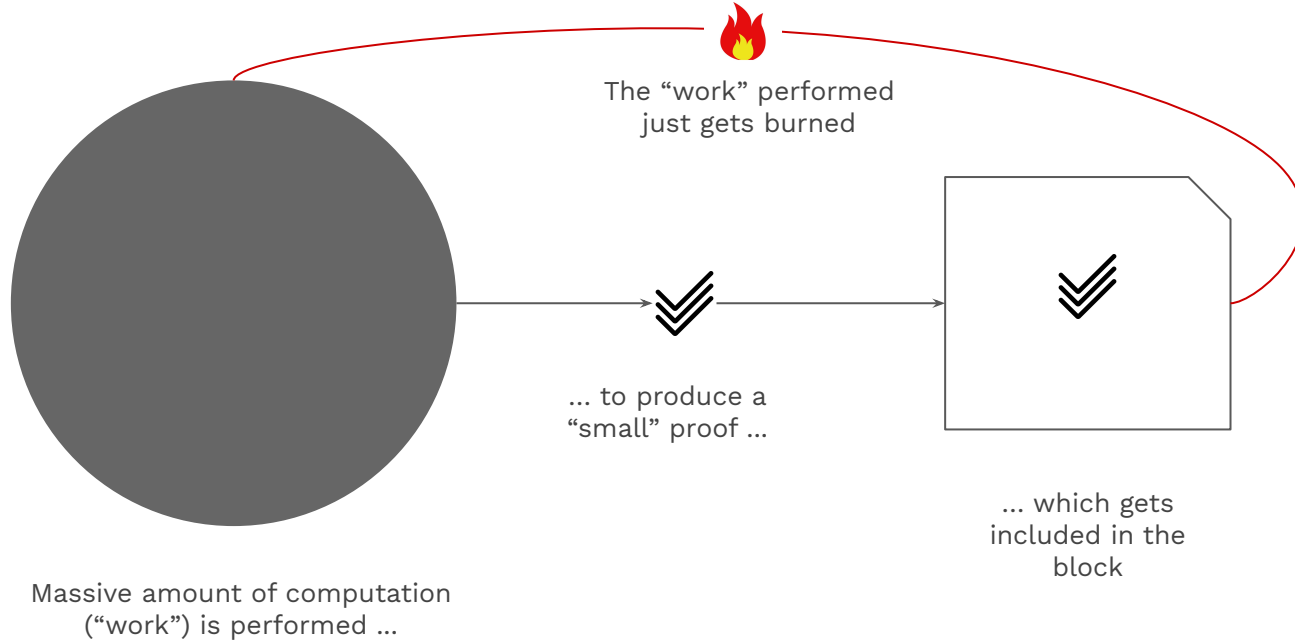
PoW miners repeatedly do just one thing — compute hashes

But they need to do this faster and cheaper than others.



Different miners may win the race for different blocks.

PoW secures the underlying network, but
the “work” is discarded after every block.



Losing miner's “work” is worthless, beyond helping securing the network collectively.

Compute and storage mining with data-backed coins

By 2025, it is estimated that the world will emit 175 zettabytes of data^[1].



- Most of this data is unstructured, unlabeled, and hard to even discover.
- AI/ML algorithms require massive amounts of structured and labeled data^[2]. Cleaning and preparing data is both time consuming and expensive.
- In today's world apps use data streams from other apps, but there is no universal approach to discover, pay for, and use those data streams.

PoW miners can provide these services in exchange for revenue in data-backed coins.

1. <https://www.networkworld.com/article/3325397/idc-expect-175-zettabytes-of-data-worldwide-by-2025.htm>

2. <https://techcrunch.com/2019/08/05/scale-ai-and-its-22-year-old-ceo-lock-down-100-million-to-help-label-silicon-valleys-data/>

What are data-backed coins and how are they issued?

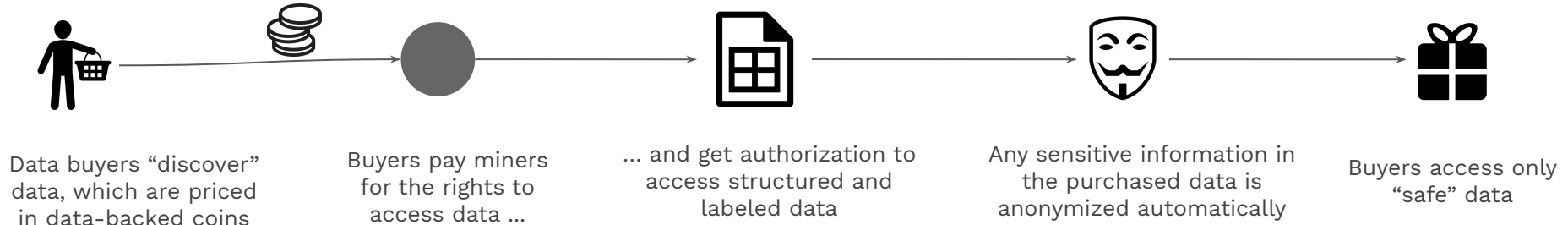
Coins are emitted based on the unit of data created by various entities.



Data-backed coins can be thought of as private keys for the data they represent.

Data buyers pay in these coins to access and use data

If “data is the new oil”, data-backed coins derive their values from the data.



User and data privacy is ensured even when sensitive information is traded.

Data-backed coins address user privacy and data security

Data access is controlled, monitored, and audited via data-backed coins.

Complaint alleges that Google is circumventing GDPR with RTB personal data sharing

Brave's Dr. Johnny Ryan argues Google is enabling non-consensual data transfers with "hidden push pages."

Greg Sterling on September 4, 2019 at 12:33 pm

Source:
<https://marketingland.com/complaint-alleges-that-google-is-circumventing-gdpr-with-rtb-personal-data-sharing-266637>

Facebook–Cambridge Analytica data scandal

From Wikipedia, the free encyclopedia

Source:
https://en.wikipedia.org/wiki/Facebook%E2%80%93Cambridge_Analytica_data_scandal

The data-driven world will be **always on, always tracking, always monitoring, always listening and always watching** – because it will be **always learning**.

Source:
<https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf>

Achieves incentive compatibility ^[1] between data creators, miners, and app developers.

How's this different from decentralized storage services?

Think decentralized AWS vs decentralized Box.

- Decentralized storage services use a **File-based model** to store data, whereas data-backed coins represent **rich datasets**.
- Decentralized storage services usually use **spare storage** available on users' devices with no guaranteed quality of service. Miners hosting the data backed by coins operate **globally distributed, replicated, high performance data centers, with predictable quality of service**.
- Decentralized storage services decentralize **only storage**. Data-backed coins decentralize data computing — **both storage and computing**.
- Miners can provide **specialized services with data-backed coins** — such as GDPR compliant data protection, streaming services, bring compute to where the data is, and so on.
- Data-backed coins **create a marketplace for structured and labeled data** where data can be discovered, paid for, and accessed by anyone.
- Decentralized storage services target end users and provide cheaper storage options whereas data-backed coins target developers and data platforms to create real-time data exchanges.

Energy use with PoW mining vs data-backed coin mining

Energy used to mine data-backed coins is not **wasted**.

- In Pow mining, the **utility** for the energy spent is **securing the network**. The **work** itself is **discarded** after every block. This is why most people equate PoW with wasted energy.
- In data-backed coin mining, the **utility** for the energy spent is **data trading**. The energy used is constantly being utilized because the data is constantly being streamed (created, discovered, purchased, and used) among different tokenized apps. So, there is "utility" for the energy spent beyond it is spent.
- Almost all other PoS "hosting" (for Cosmos, EOS, etc.) have no utility because other than currency transactions and simple smart contracts nothing is being traded on these platforms. This is evident from the fact that when the token value drops (as happened with EOS^[1] and Cosmos, for example) people talk about exiting the network because it is not profitable to run the Validator nodes.
- Data-backed coins allow **data-rich applications** vs **data-light dApps** on smart-contract platforms. The profitability is thus decoupled from the price of the token and is based purely on the utility of data itself.

Why is this attractive to PoW miners?

No wasted “work”. Incentive compatibility. Specialization.

- Mining pools already have the expertise to run massive, decentralized mining operations.
- Data-backed coins revolutionize data computing — they decentralize data, enable transparency, and enable data privacy while allowing data to be traded.
- Data computing economy targets developers and applications instead of end users to store just files.