

Decentralizing the Semantic Web through incentivized collaboration

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Web

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**Massive data centralization
bears responsibility for
important socio-economic
issues today.**

**We don't have to store
all our things in one place.**

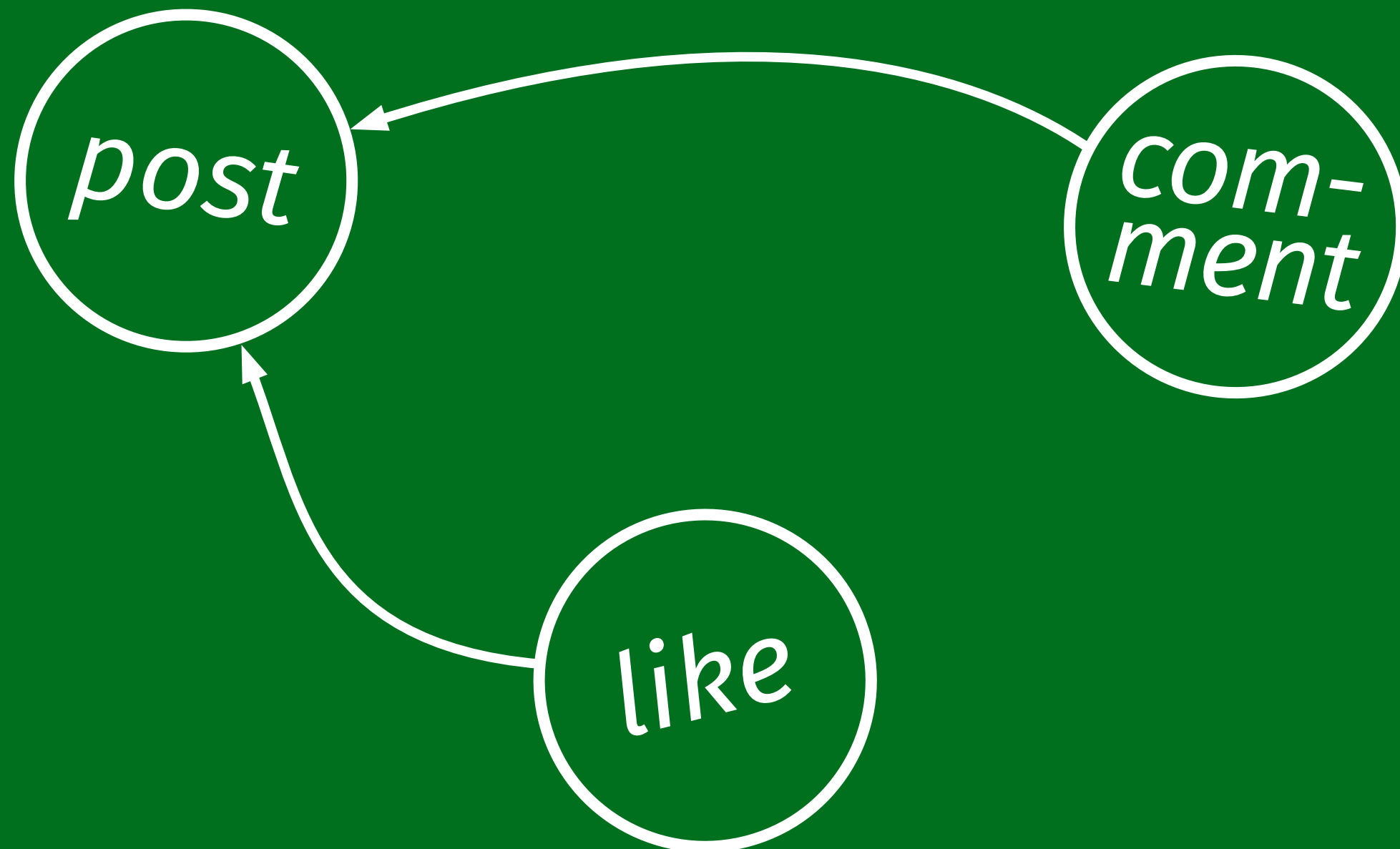
post

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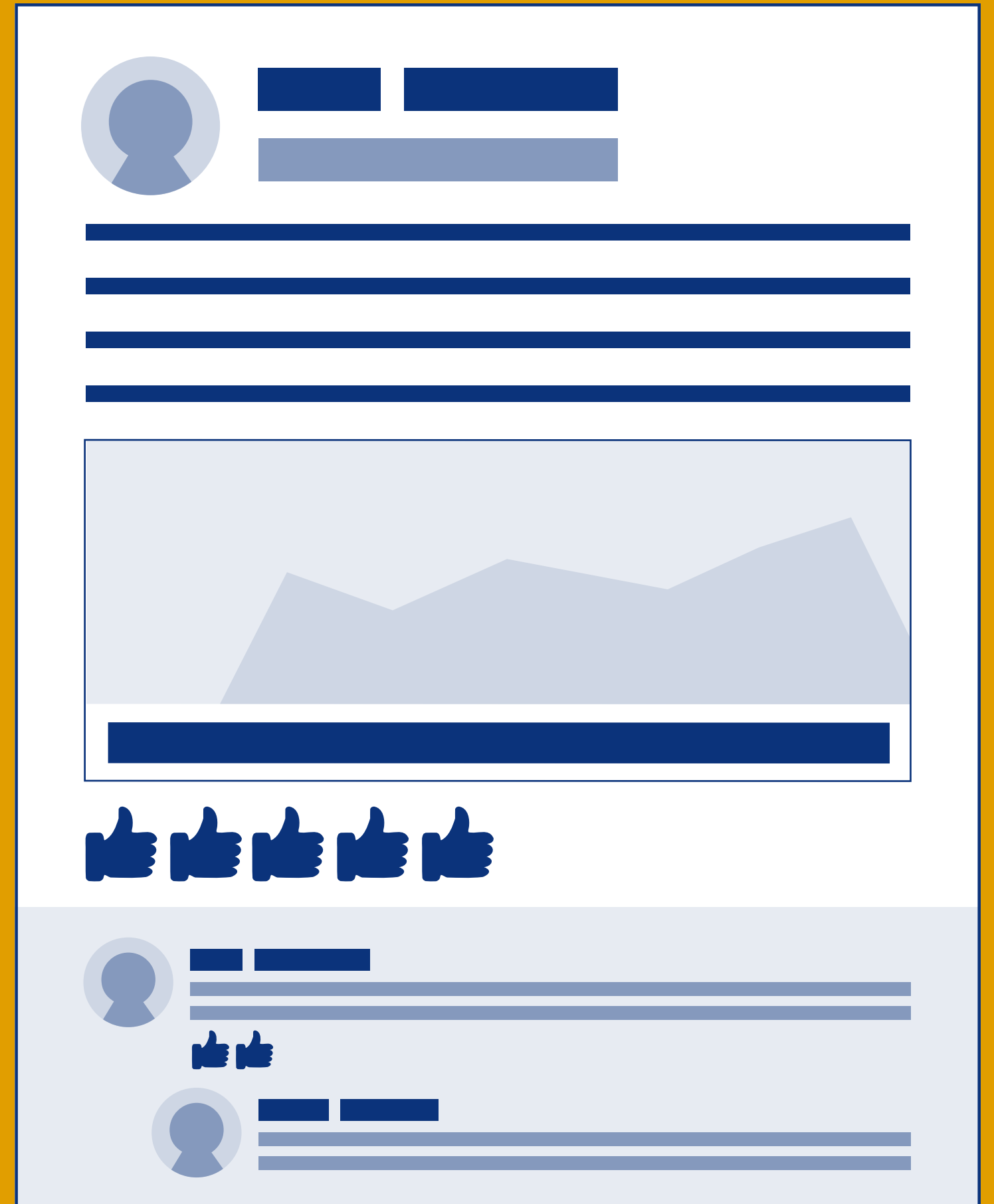
comment

*Linked Data
can help.*

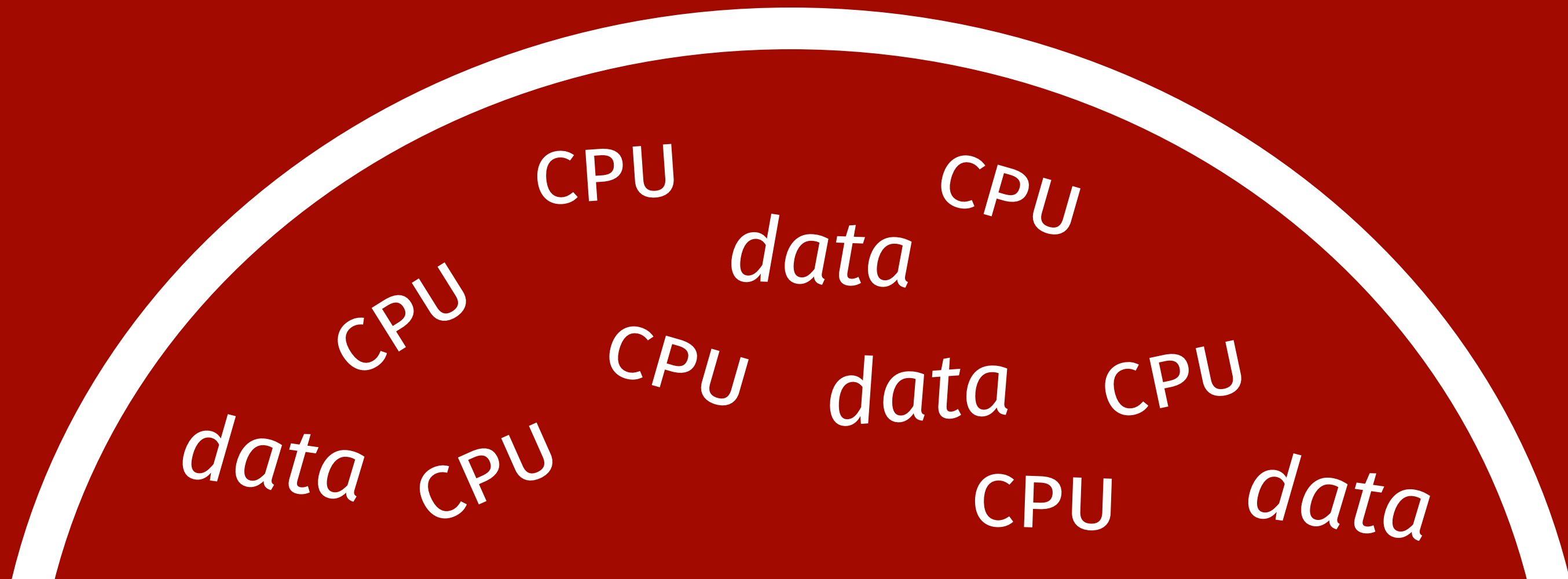
**Store things in your own place
and *link* to others—like the Web.**



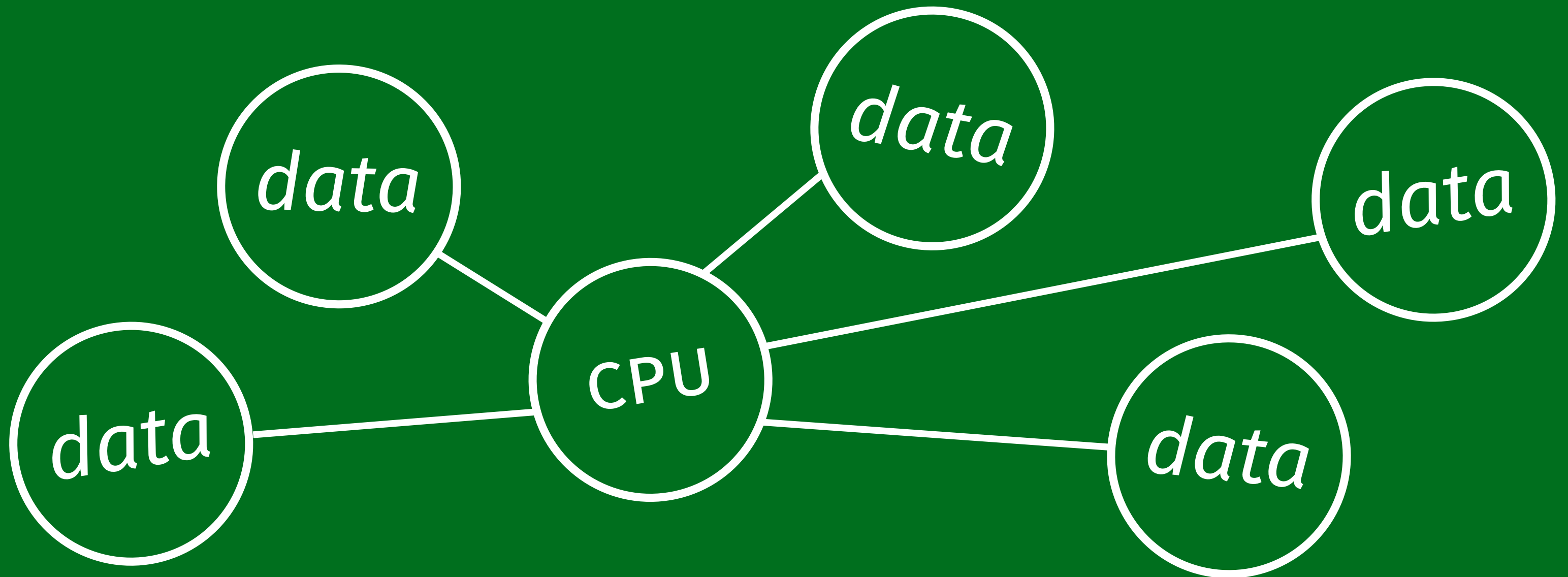
Can we still
give people
the *same*
app experience
if data is
decentralized?



**Centralized systems have
easier algorithms
*and more CPU power.***



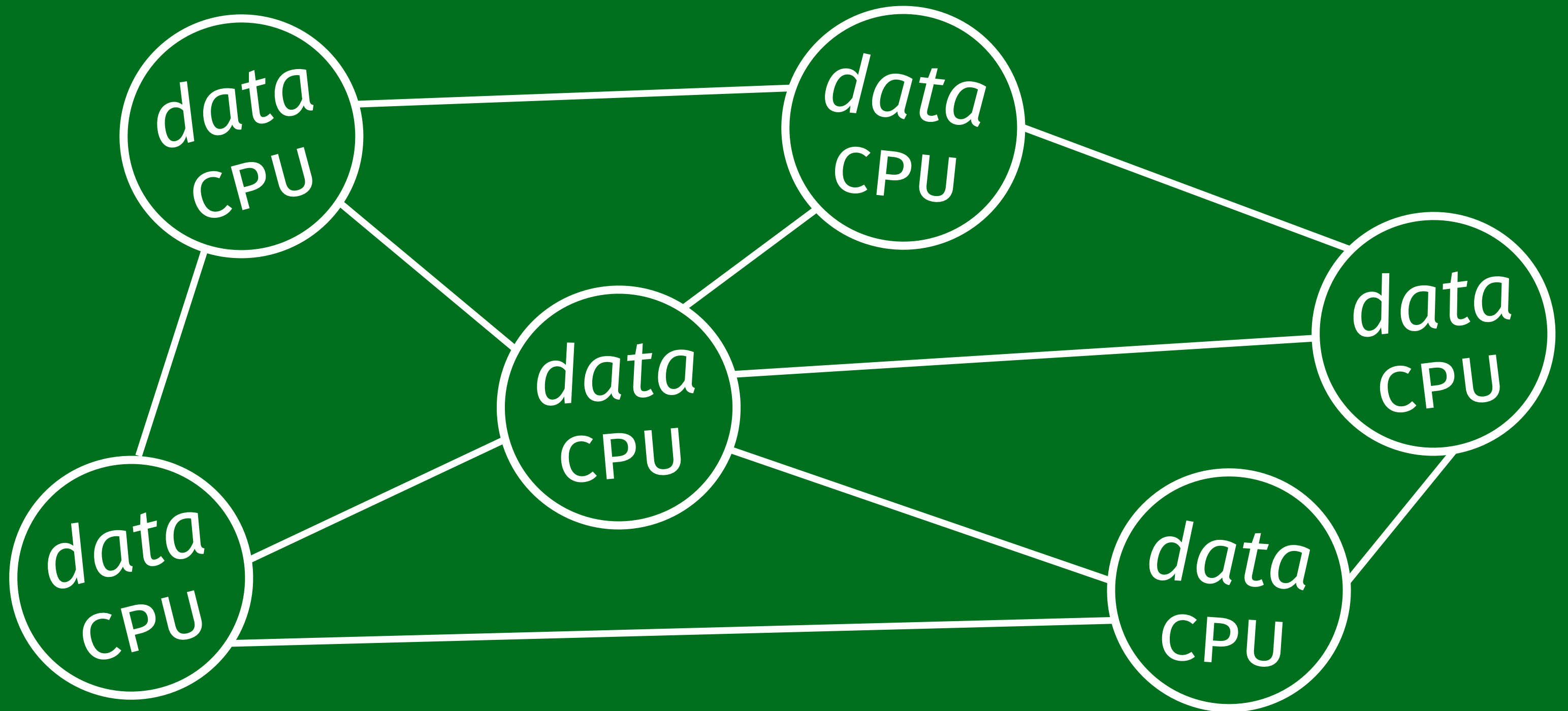
**Decentralized systems require
more complex algorithms
but nodes have *less CPU power*.**



We cannot compete
with centralized systems

We cannot compete
with centralized systems
unless we *collaborate*.

**Nodes help each other
execute SPARQL queries.**

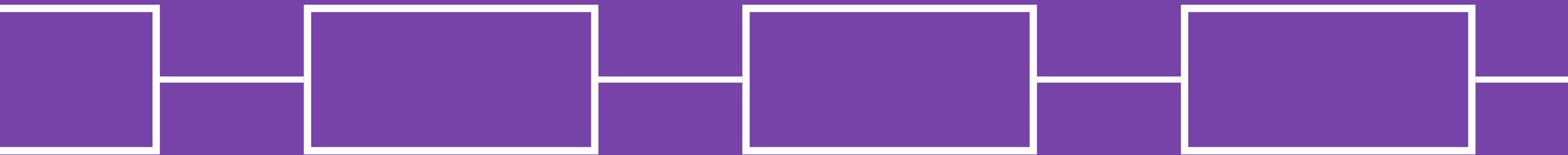


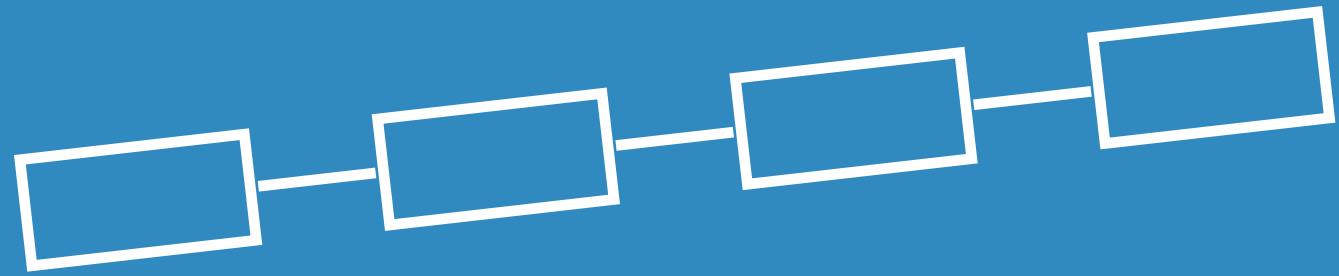
*How can we know results
are correct and complete?*

*How do I know you'll help me
if I helped you?*

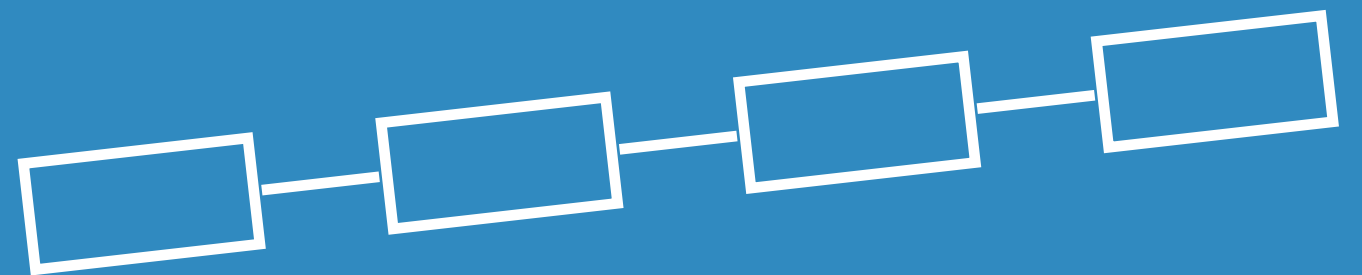
**Nodes receive *incentives*
as a reward for performing
query-related tasks.**

*Performed work is registered
on a **distributed ledger**
using a **proof-of-query-results**.*

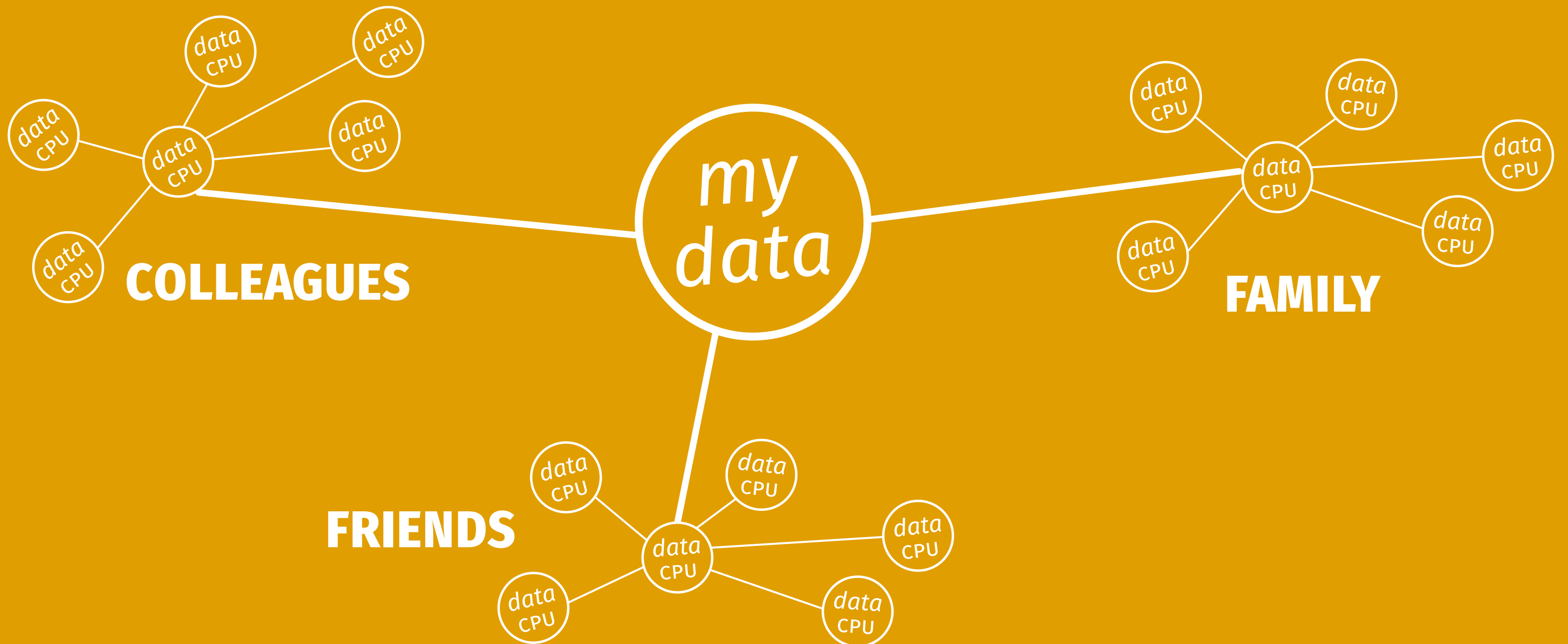




*Ledgers can be short-lived,
as they just keep track of
nodes helping each other.*



Data and query networks will spontaneously emerge.



Why is this a new problem?

it taps into the emerging
re-decentralized Web

focuses on collaboration

collaborators are incentivized

Which ideas do we build upon?

Linked Data markets

FileCoin – incentivized data storage

SPARQL query execution in networks

Where do we start?

scaling federated and collaborative
data publication and querying

developing incentive models

analyzing data shapes

Which research is impacted?

Web-scale federated query execution

reasoning and proof

privacy and policies

When will this be mainstream?

it's already happening,
but we need a more coordinated effort

the data is there,
the problems are there

we need to focus on the Web

**Linked Data
can help us
take back control
of the Web.**

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<https://ruben.verborgh.org/articles/incentivized-collaboration/>