P2N: Cloud Control

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Problem

- Everyone loves the cloud
- No one in this room would use it as their primary storage.
- Would anyone use it as a long term preservation storage solution?

More Questions

- Does the cloud do backup/replication/ multi-site replication?
- Where are my files stored (geographically)?
- What is the long term pricing strategy of the cloud?

Influences

- Simplistic Cloud API
- High resilience and distribution of resources
- Transparent Expansion
- Low Barrier to Entry

The API

- Amazon S3
- PUT, GET, POST, HEAD, DELETE
- HTTP has all the tools we need!

High Resilience & Distribution

- Erasing coding (Honeycomb & RAID)
  - More efficient than replication
- Resilience of Bit Torrent
- Nodes in the network are geographic aware

Transparent Expansion

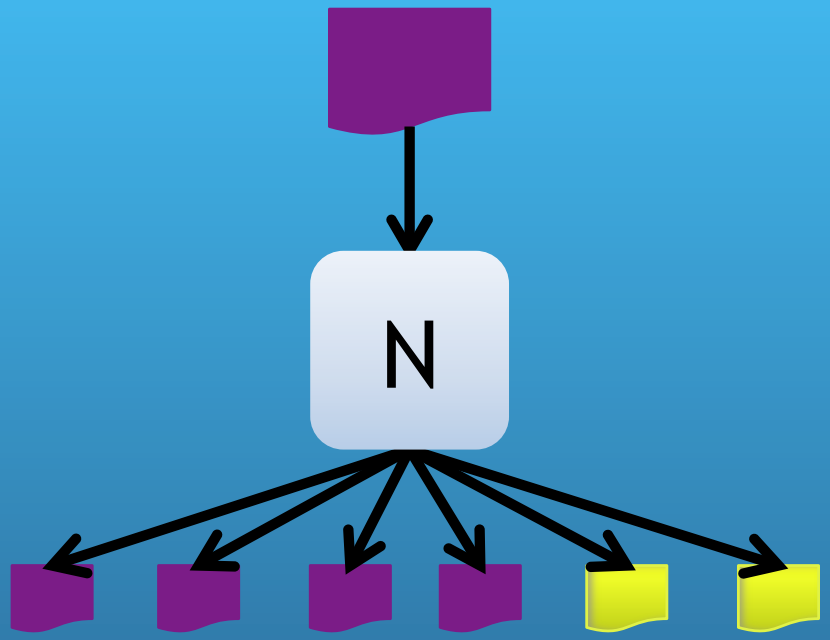
- Nodes can be added to the network arbitrarily
- Network re-distributes data for even spread

Low Barrier to Entry

- Provide a node
  - Full machine
  - Spare space on an existing machine

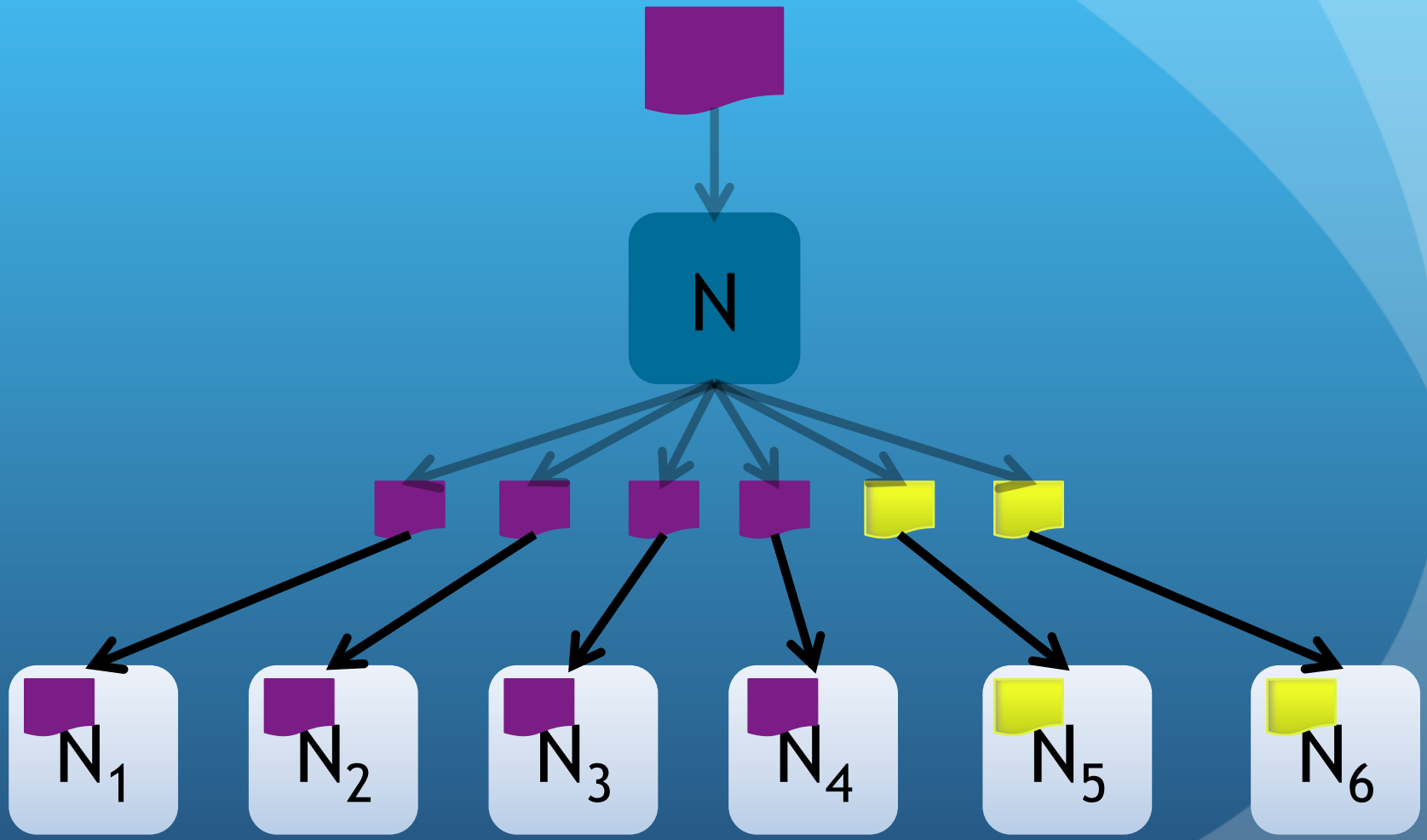
The P2N

The P2N



N_1 N_2 N_3 N_4 N_5 N_6

The P2N



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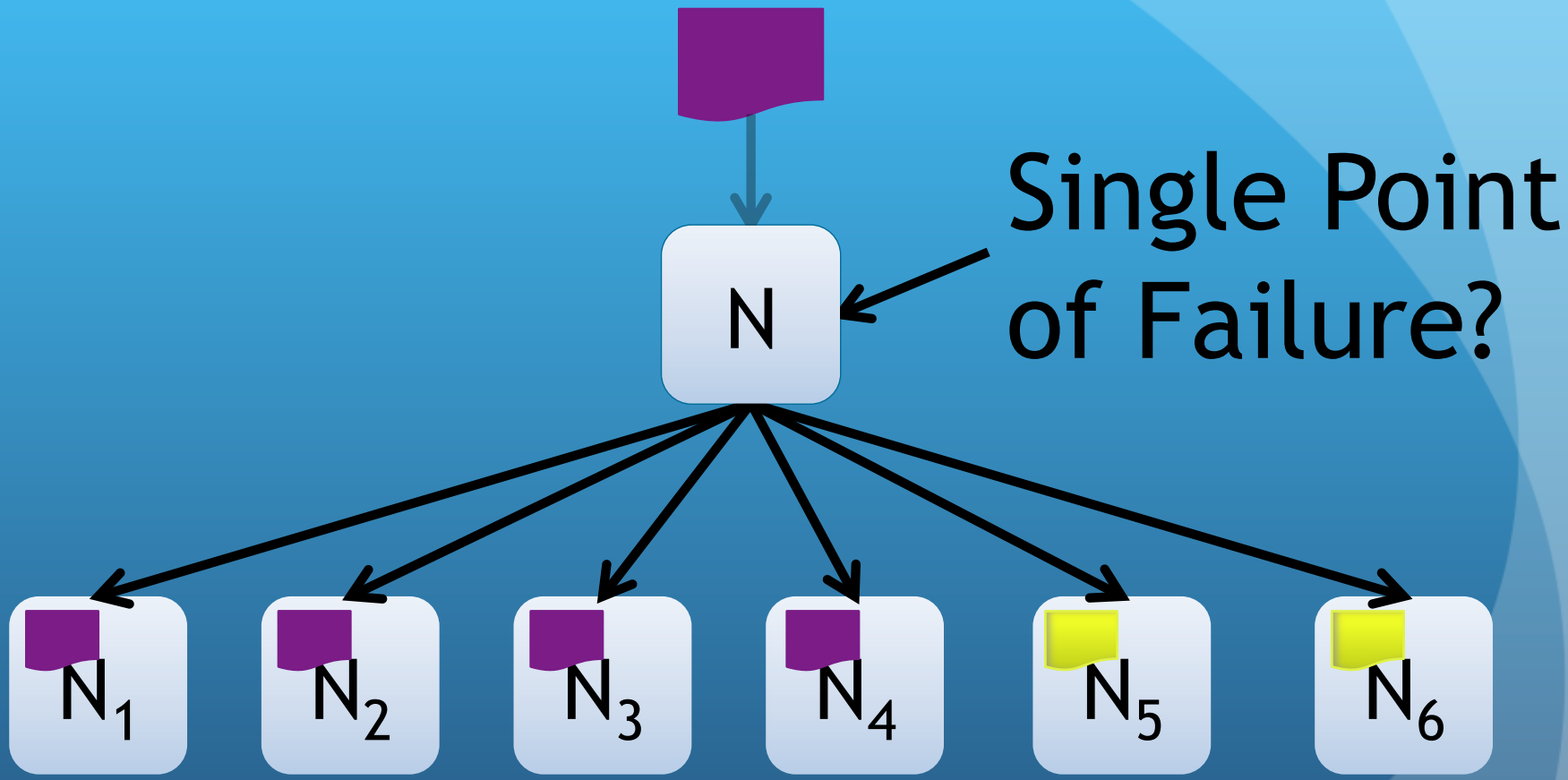

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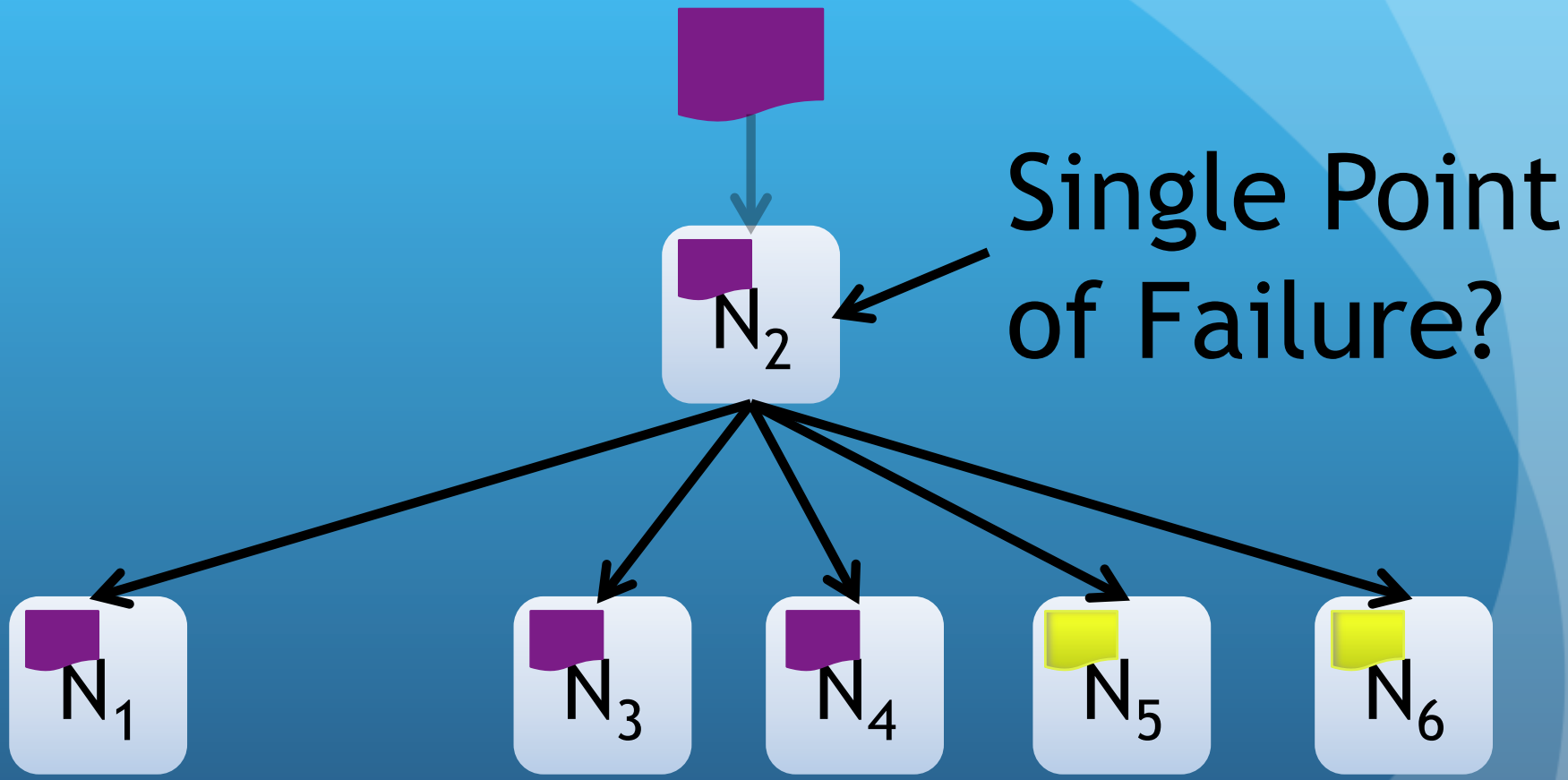
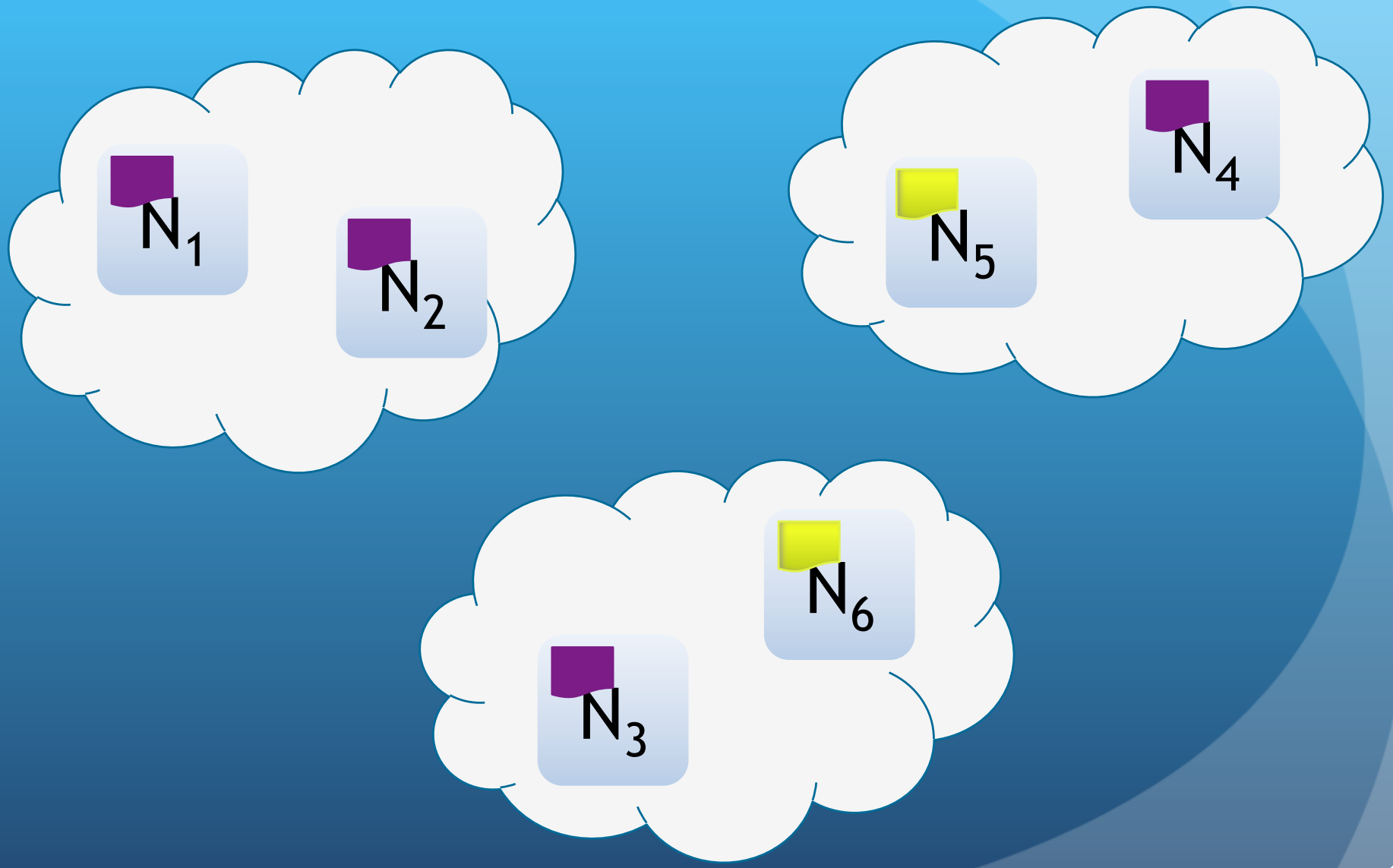


Institutional Distribution



Flexability

- Object level granularity
- Basic metadata support (through POST, HEAD)
- Object reporting, available via HEAD (single object) or GET (network report)
- Extensions to S3 API without breaking core functionality.

Progress so far

- Feasibility study has been done
- Now re-modularising the core
- P2N1 – Localised Network (Spare space)
- P2N2 – Thumper Network (200Tb+)

Thank-You
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