

Implementation problems and design principles



Operating at intergalactic scale

- Many data centers
- Hundreds of thousands of servers
- Many exabytes of storage
- Many gigabytes of transcontinental bandwidth



Ingest

- New phases of data centers
- Thousands of servers
- Many petabytes
- New bandwidth



Decom

- Old phases of data centers
- Thousands of servers
- Many petabytes
- Old bandwidth



Supply chain

- Vendors and suppliers coordination
- Infrastructure build out to support the infrastructure
- Decom timing, when does a server no longer have value?
- Time from desire to production



Scale out

- Scale out without the costs scaling out
- Reduce unit cost without sacrificing functionality
- Constant reinvention
- Nothing is sacred,
 - › except the shareholder value
 - › and functionality to the user

