

AWS re:Invent

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BLC303-R

Reimagining your supply chain with blockchain technology

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Agenda

The challenges supply chains face today

How blockchain technology addresses these challenges

Illustrating best practices with a real-world example

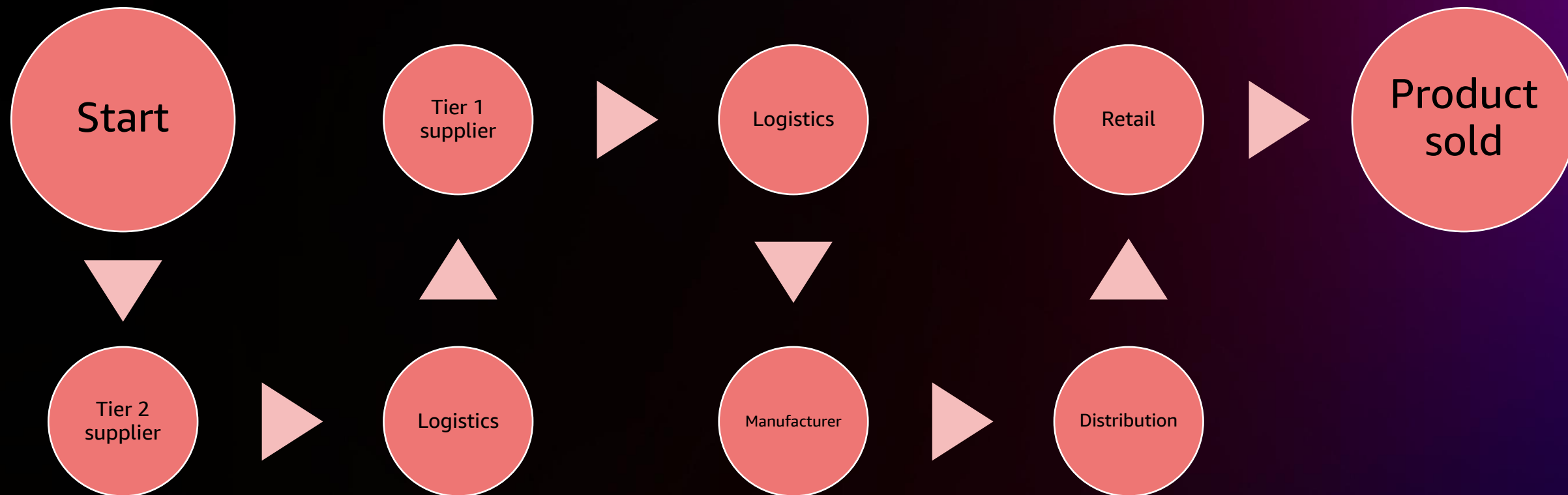
Supply chain challenges



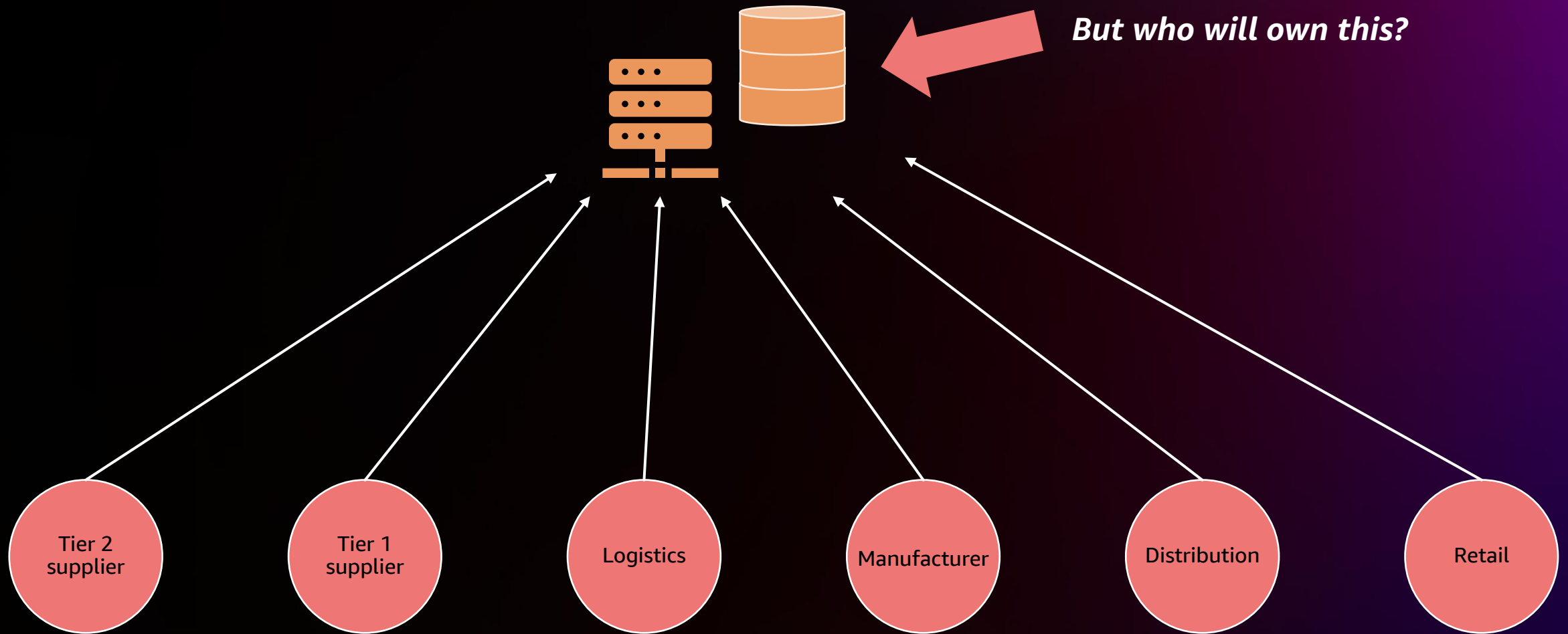
Balancing several priorities

- Sustainability
- Provenance
- Business intelligence
- Process efficiency
- And more

Supply chains are complex, collaborative systems



The goal: A unified single source of truth



What is blockchain?



What is blockchain?

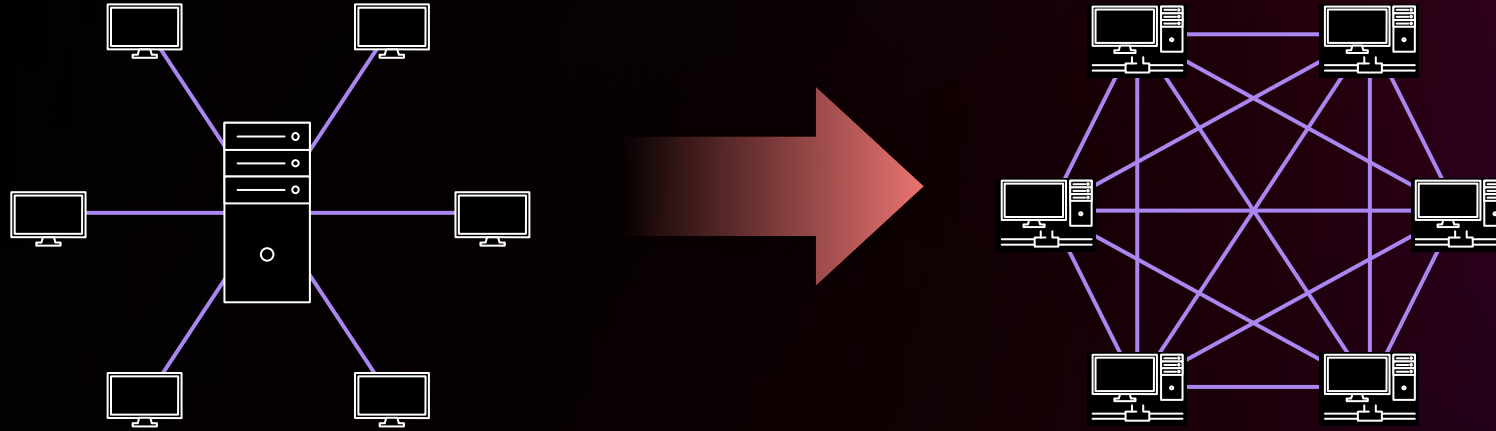
Entries in the ledger cannot be modified or deleted after recordation

An **immutable ledger** shared among a distributed group of participants where updates to the ledger by way of transactions are agreed upon via **network consensus**

The distributed group of participants in a blockchain keep an independent copy of the ledger and agree to updates on a rolling basis

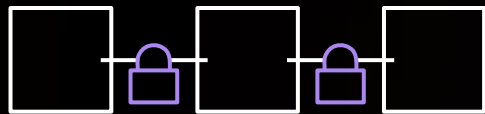
What is blockchain?

Blockchain enables a shift from the traditional client-server approach for a business network to a peer-to-peer, decentralized approach...



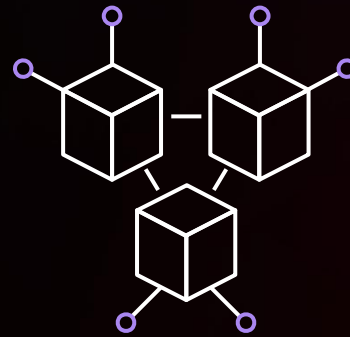
What is blockchain?

Tamper-evident ledger



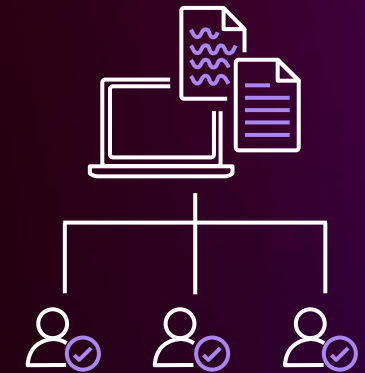
Immutable, append-only, cryptographically verifiable ledger

Decentralization



Distributed trust and data replication across multiple peers

Consensus algorithms



No intermediaries in decision process, support for smart contracts

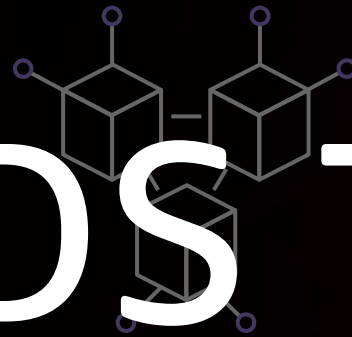
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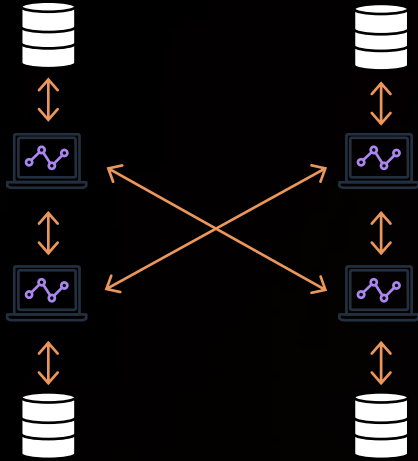
No intermediaries in decision process, support for smart contracts

BUILDS TRUST

**Blockchain enables
deeper collaboration
and connectivity**



Removing barriers to collaboration



Decentralized blockchain network



No single organization has full ownership or control; the decentralized nature of the network provides mutual accountability between the multiple entities in the supply chain

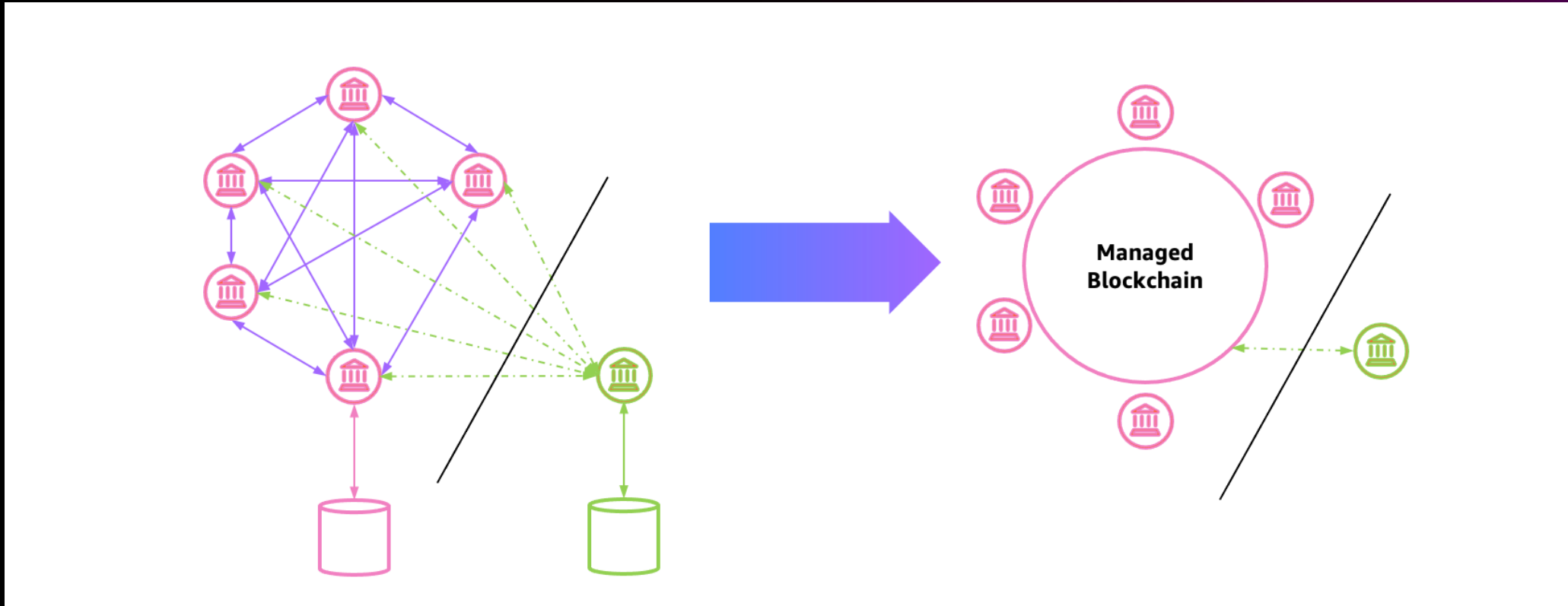


High availability and fault tolerance are implicit in decentralized systems; if one organization's node(s) were to fail, they can be brought back up to speed by other nodes on the network



Cryptographic non-repudiation is a capability native to blockchain protocols, as core identity and security models rely on common digital signature algorithms (e.g., ECDSA)

Achieving a single source of truth



A practical example

Imagine a supply chain for pharmaceuticals

Scenario:

Goal:

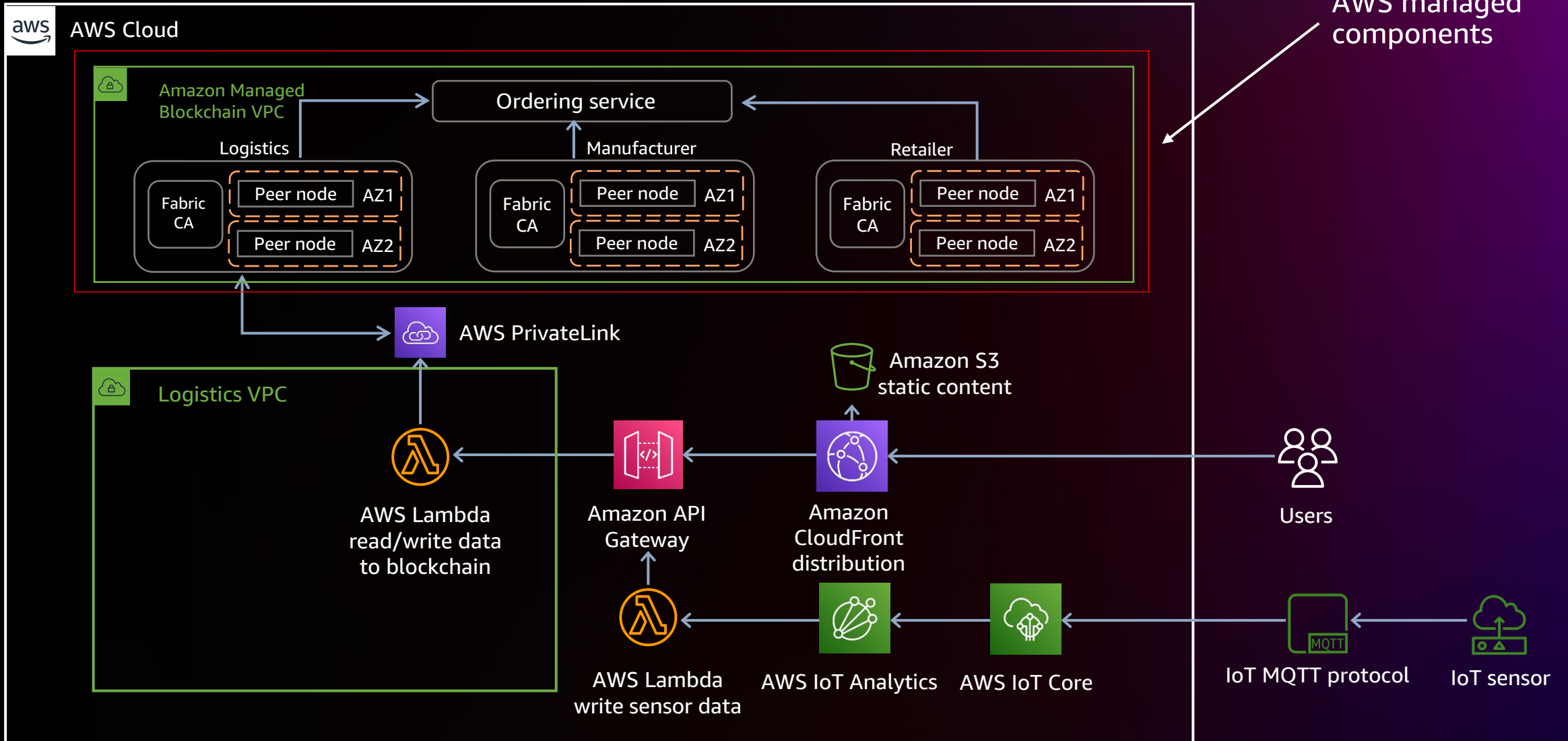
Aligning incentives enables deep collaboration



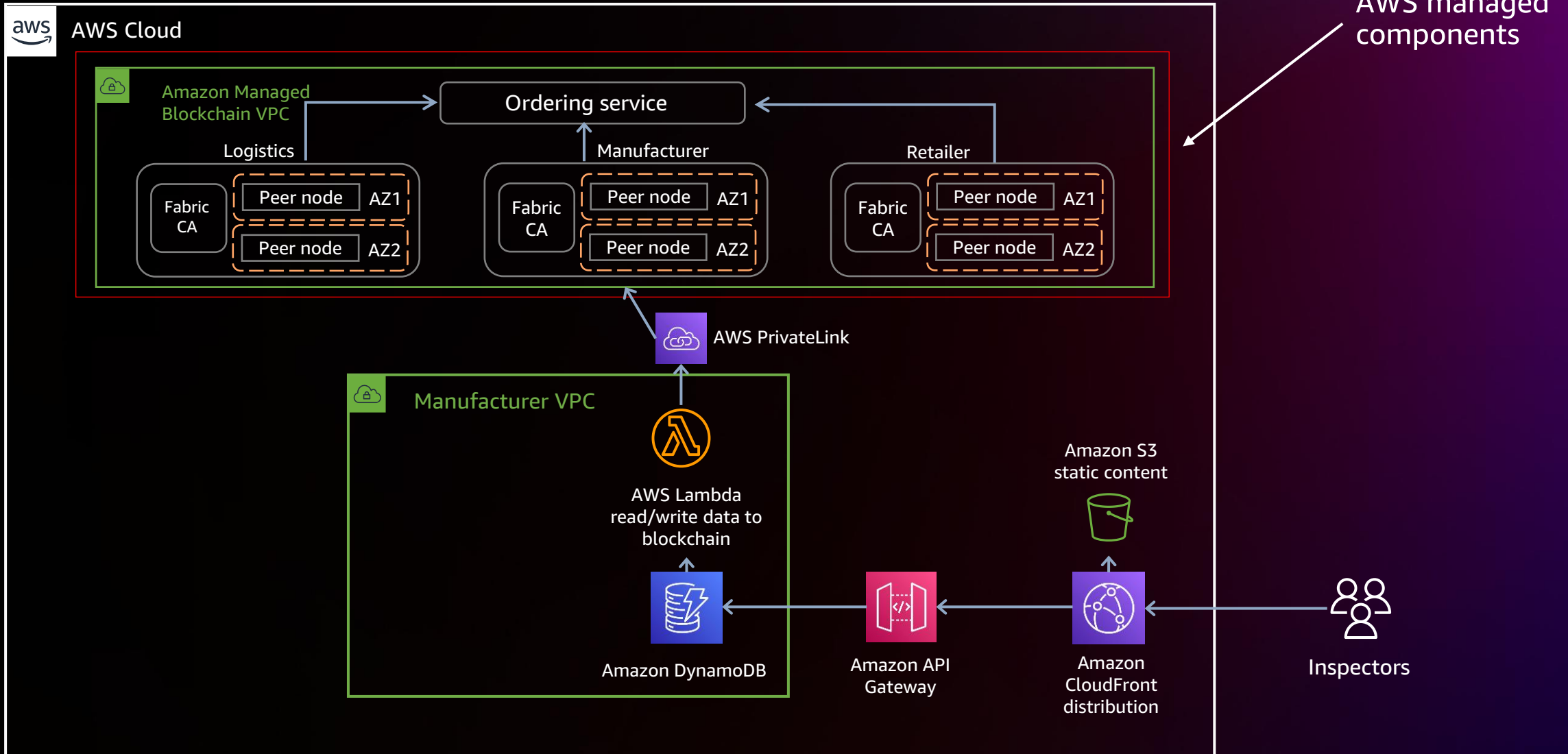
Common challenges to adoption



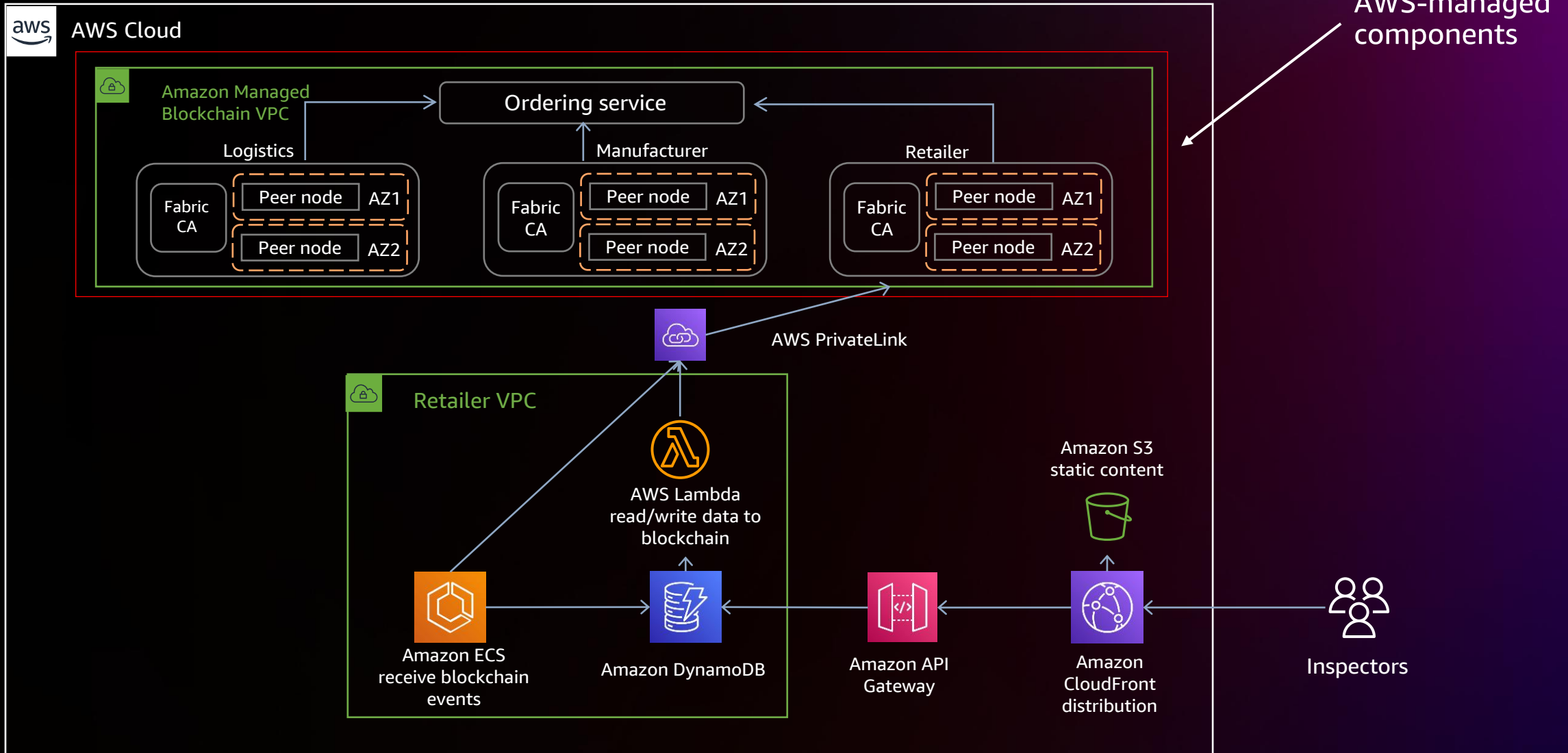
A sample architecture



A sample architecture



A sample architecture



Thank you!

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