Lecture HSE · May 23, 2026

Cloud Technology Basics

A basic introduction: what cloud is, which service models exist, and why it matters for AI business

Alexander Polomodov

Speaker | Context

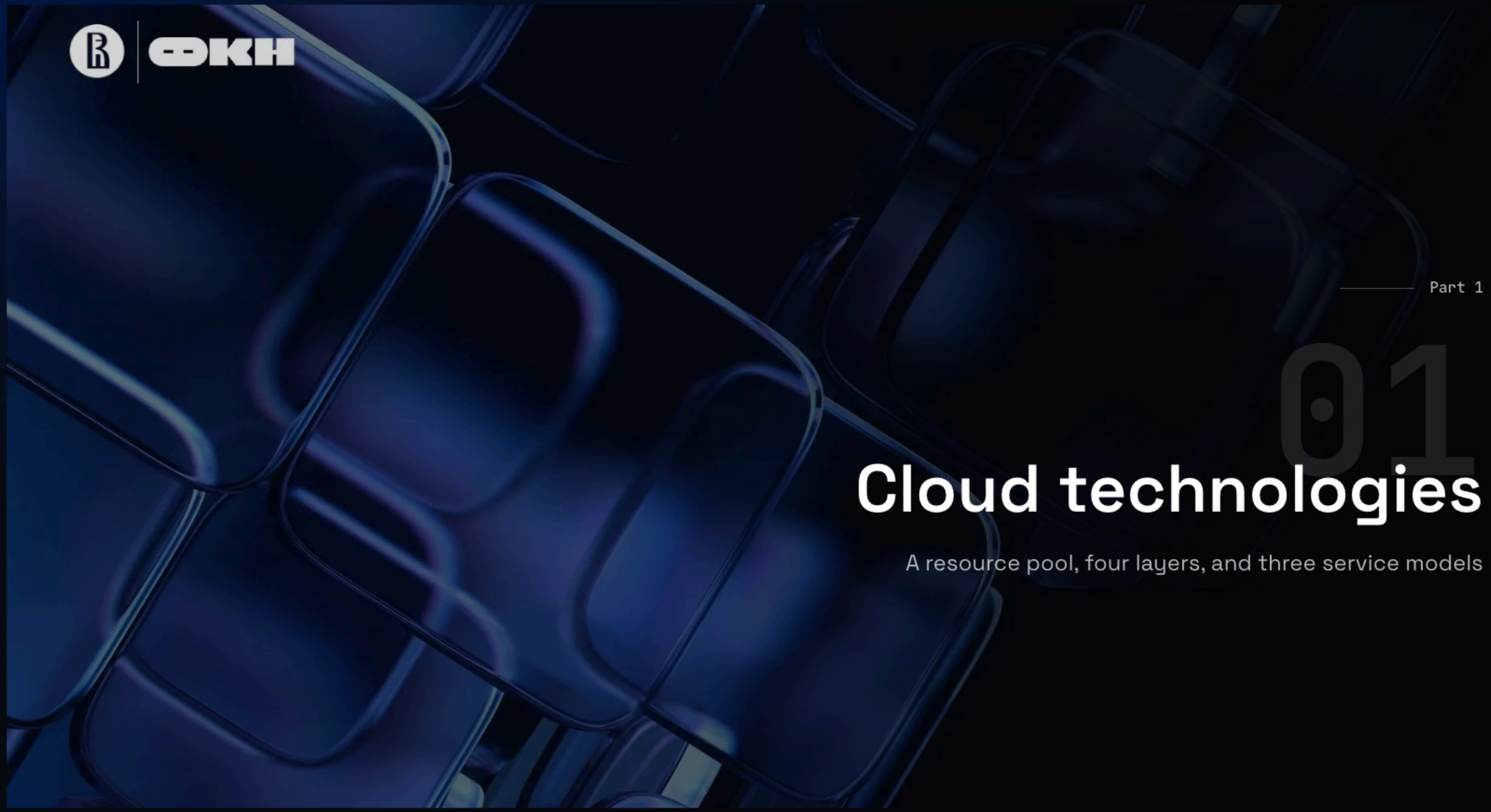
Technical Director & Fellow, T-Technologies

- Architecture and engineering practices
- AI in SDLC and R&D
- Basic vocabulary for cloud

From cloud mechanics to financial markets

Navigation 5 parts

- Four cloud layers
- Why platforms attract
- Cloud in financial markets
- Edge and blockchain



Part 1

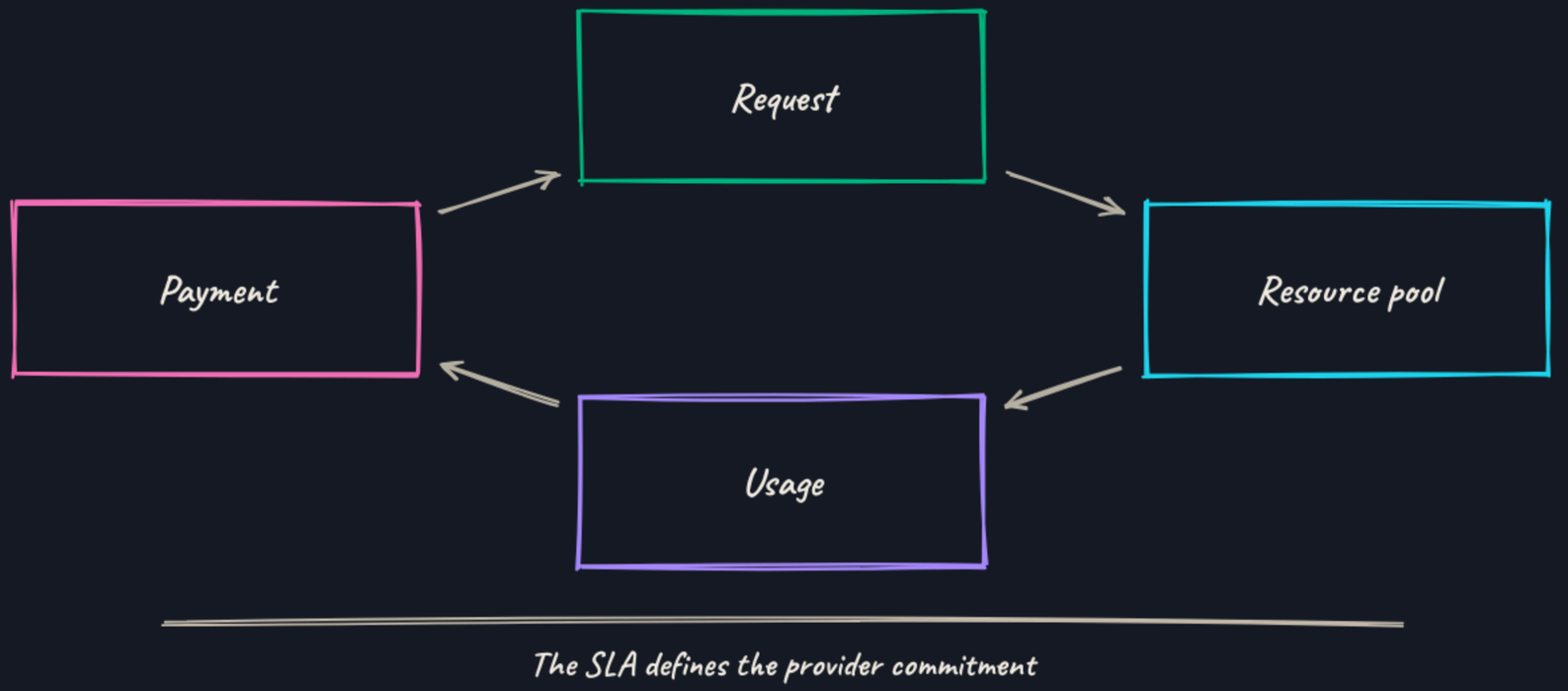
01

Cloud technologies

A resource pool, four layers, and three service models

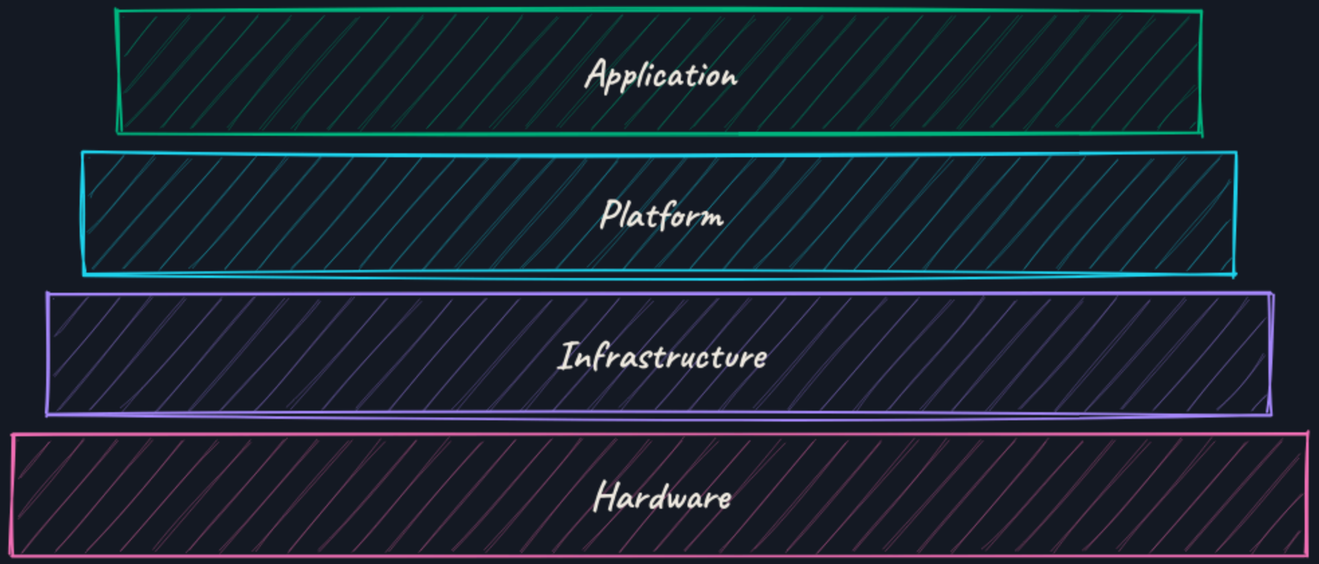
The cloud is a dynamic resource pool

Definition Cloud computing



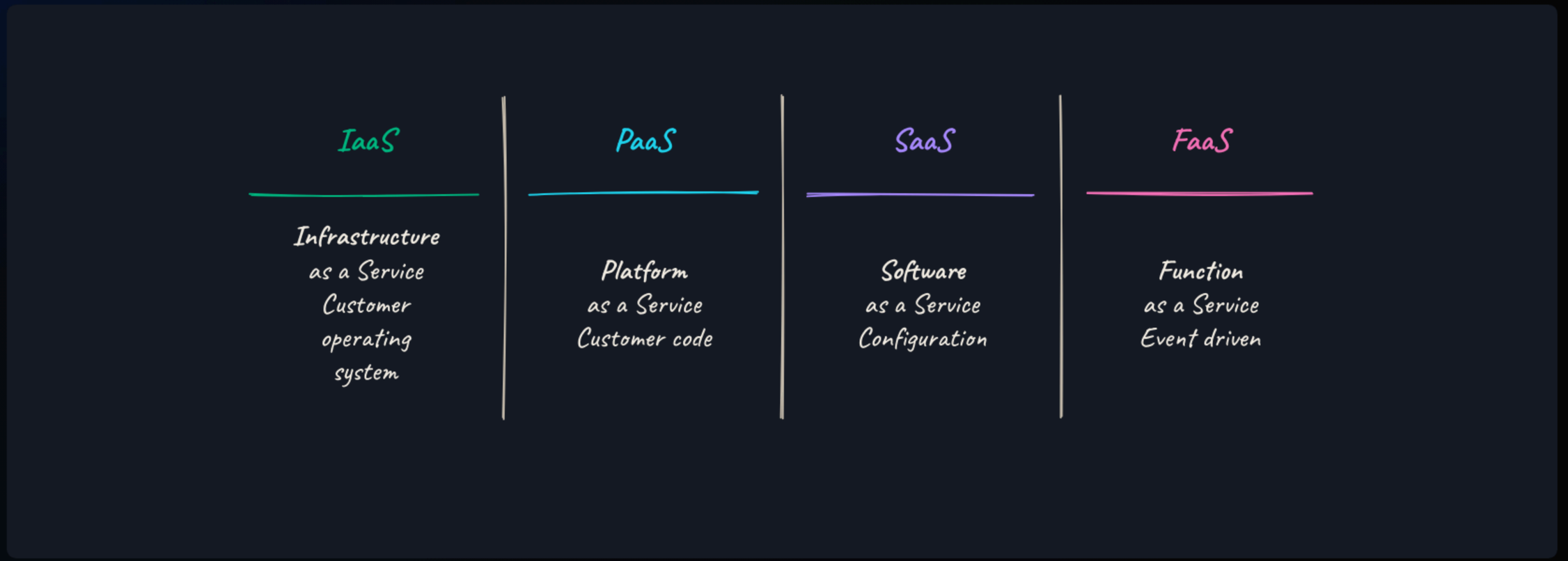
Each layer screens off the complexity below

Architecture 4 layers



The service model sets the responsibility boundary

Service models IaaS/PaaS/SaaS/FaaS





Part 2

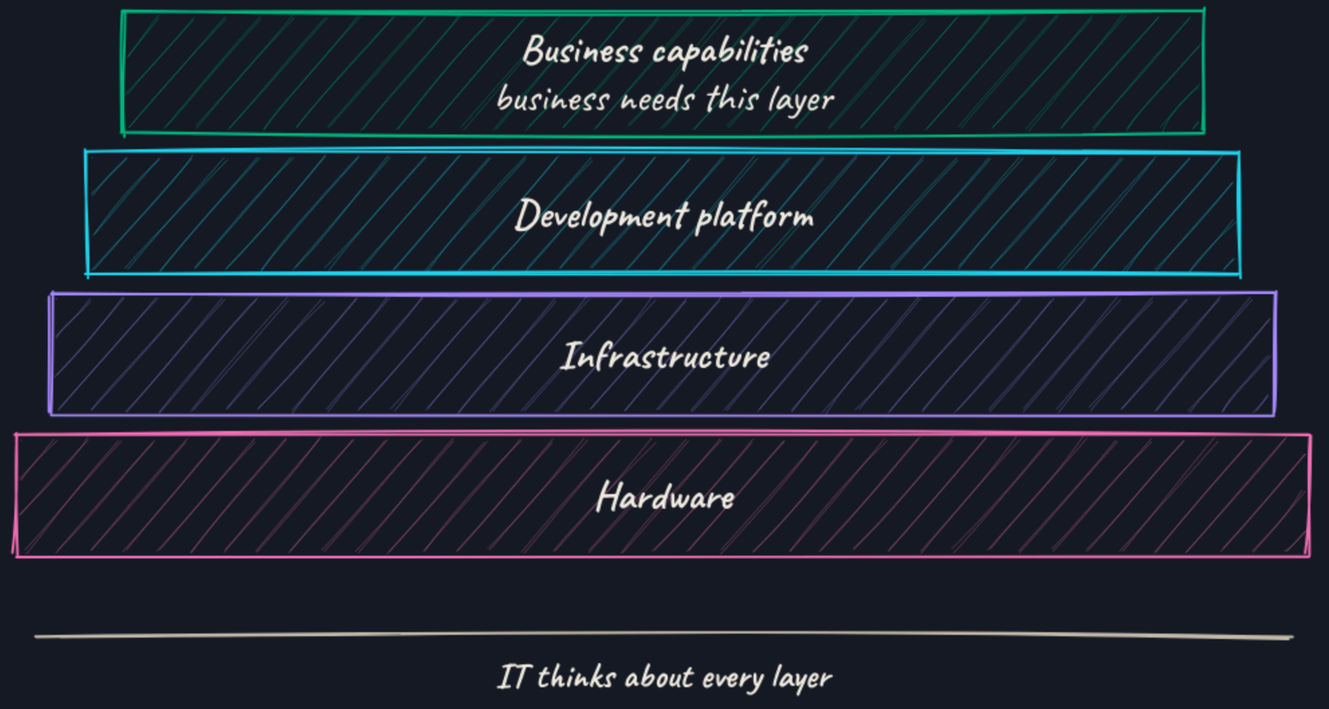
02

Why cloud is attractive

Business needs the top; the platform owns the base

Business only needs the top layer

Metaphor: Maslow's pyramid



Kubernetes screens off lower layers

Runtime platform Kubernetes



Platform frees product at a cost

Trade-off Platform

Product	Platform
Business features	Reliable foundation
User	Support and complexity



Part 3

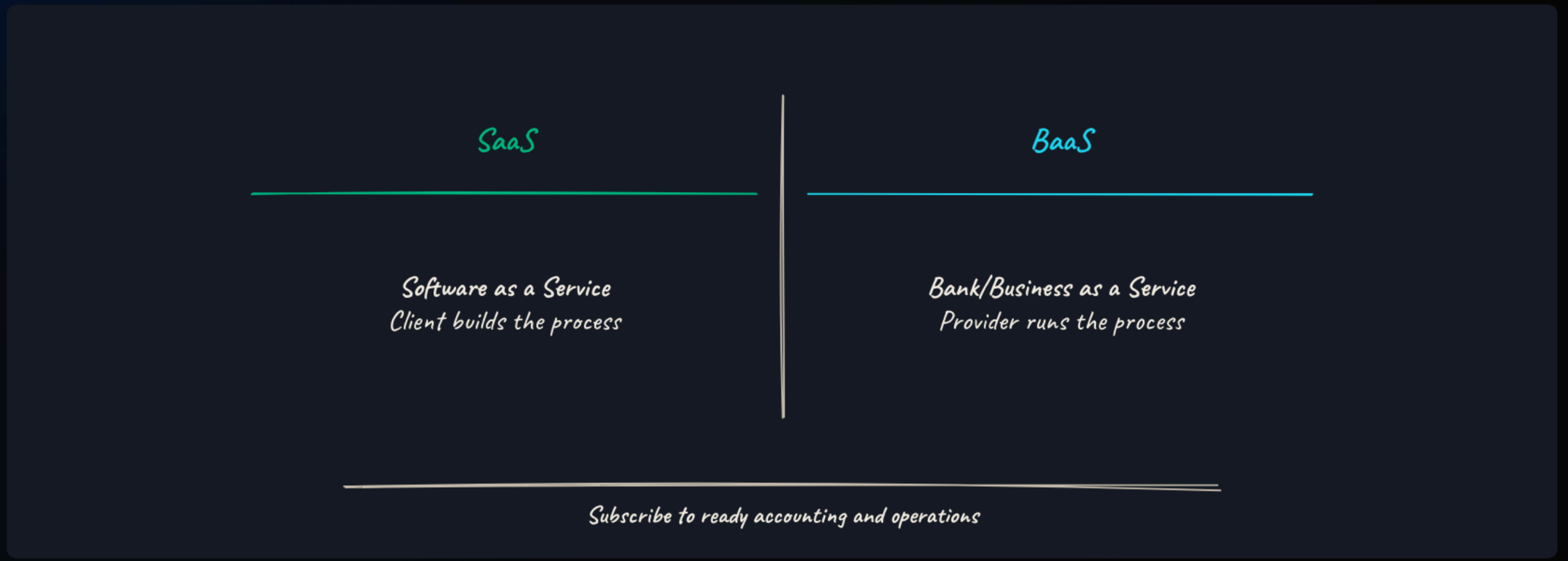
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Cloud in financial markets

BaaS, nine services, and four market roles

BaaS sells a ready business process

Regulator layer BaaS



The regulator counted nine cloud services

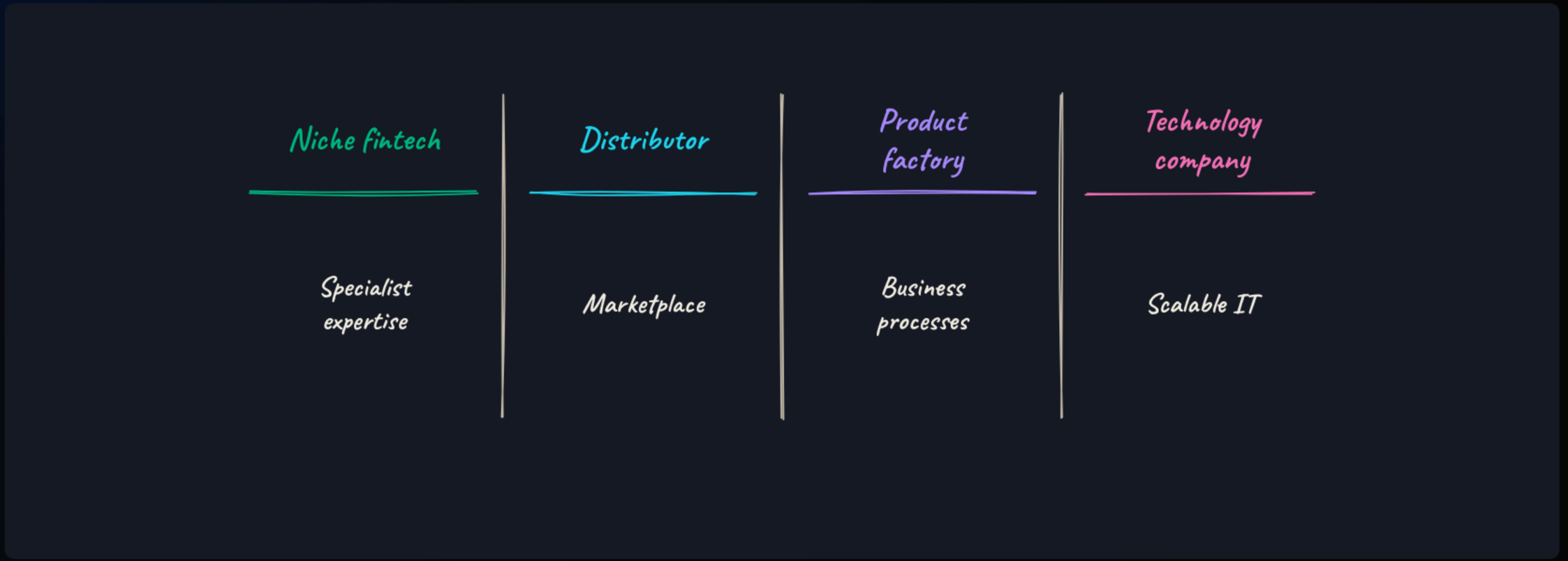
From infrastructure to a cloud marketplace

- Infrastructure, security, data exchange
- Accounting and payment access
- Blockchain applications and RegTech
- Financial supermarket and marketplace

Classification Bank of Russia, 2018

Roles differ by their core competence

Market | 4 player types



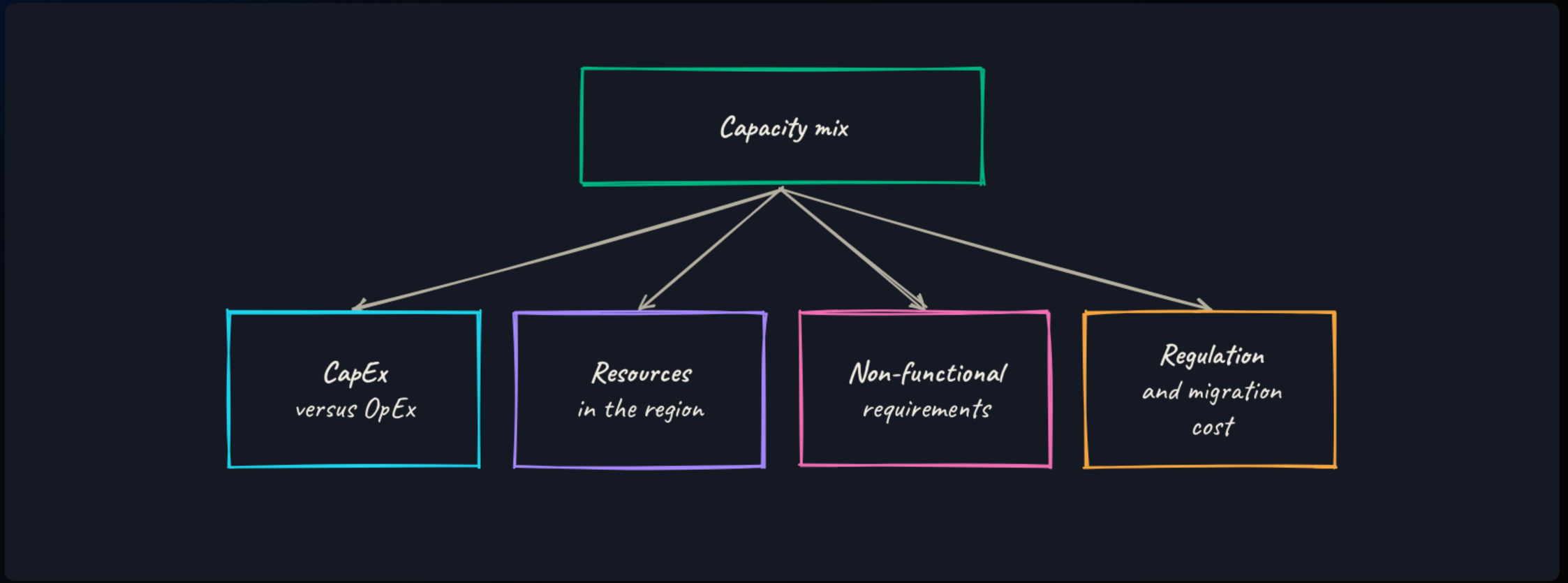
Rules are catching up with technology

Regulation | Financial market

- Adoption was low in 2018
- Risk-management rules were missing
- Restrictions later became softer
- Hybrid choice remains contextual

Four constraints shape the capacity mix

Decision: Own capacity + cloud





Part 4

04

Additional context

Edge computing and distributed ledgers

Compute stretches from devices to the cloud

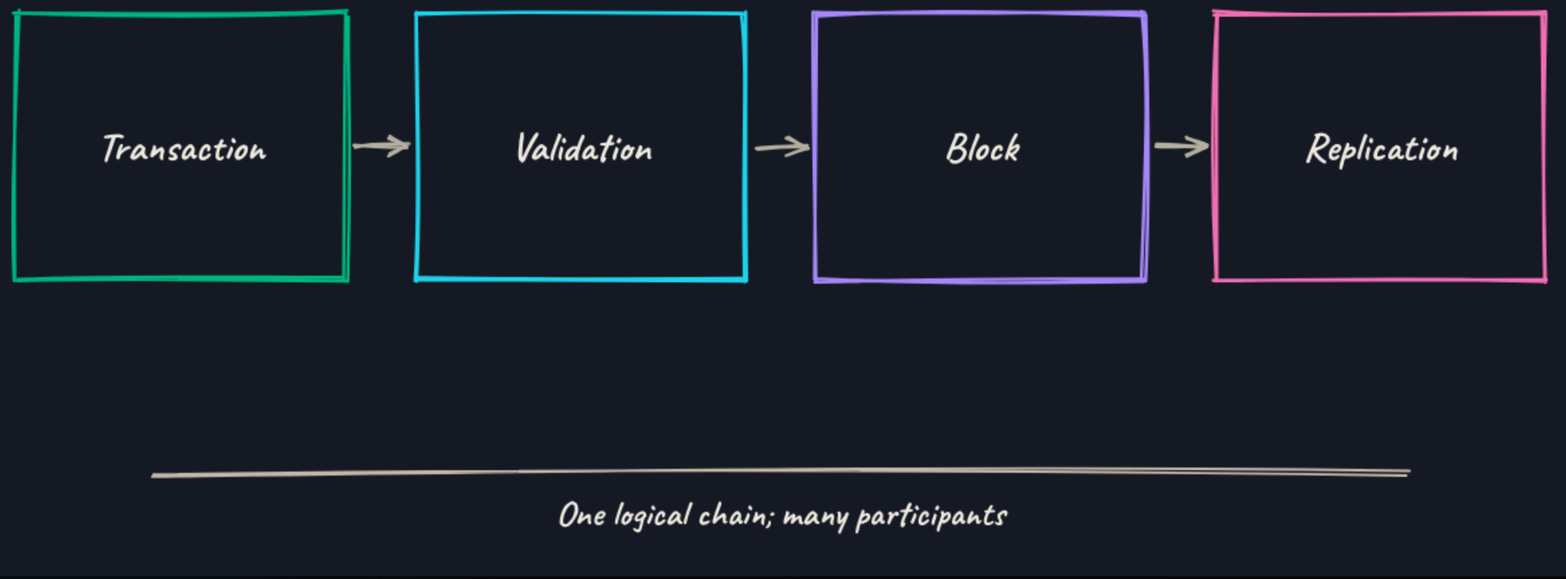
Edge computing IoT



Compute placement changes latency and transfer volume

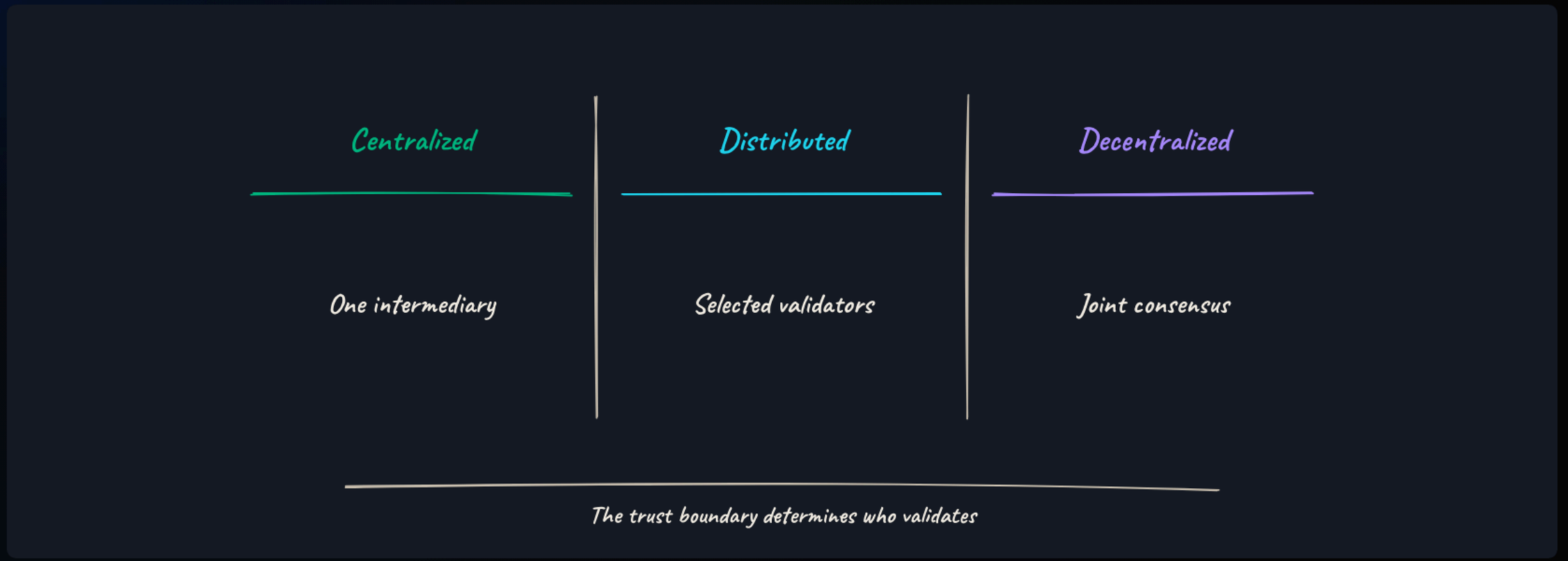
Blockchain registers and validates transactions

Blockchain Distributed ledger



The difference is the trusted third party

Validation 3 models





Part 5

05

Further reading

Sources explicitly named in the talk

Four anchors for continuing

Sources | Further reading

- van Steen, Tanenbaum — Distributed Systems
- Bank of Russia — cloud in finance
- Maslow’s hierarchy of needs
- Blockchain Basics — book review

Cloud moves responsibility upwards

Summary Take-aways

- Layers separate apps from hardware
- Platforms free product teams
- BaaS abstracts a business process
- Finance constrains choices through risk
- Edge and ledgers widen distribution