Cisco Ultra Cloud Core
Taking 2G, 3G, 4G and 5G towards a common cloud-based future

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BRKSPG-2038

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Agenda

- 5G market status

- Why is 5G SA adoption so slow?

- Cisco's path to 5G stand alone

- What comes next?

- Wrap-up

5G commercialization

eighteen percent

Source: GSMA Intelligence, December 2021

172 operators in 68 markets launched mobile 5G
63 operators in 46 markets have plans to launch mobile 5G

5G SA commercialization

three percent

22 operators in 16 markets operate commercial 5G SA
9 operators in 9 markets have plans to launch 5G SA service

Why adoption at a snail's pace?

- **Lacking convincing business justification**
  - Both for operators and vendors
  - Flat or declining ARPU environment

- **Technology complexity**
  - Control and user plane separation
  - Service based architecture
  - Micro-service container-based infrastructure
  - Delayed BSS ecosystem induced complexities

- **Parity & continuity conundrum**
  - "No baggage left behind"

Despite these challenges, we need 5G SA

Cost revolution. 5G does not only bring about an architectural step change, but it also brings with it an expectation of a step change in cost to build and operate 5G infrastructure.

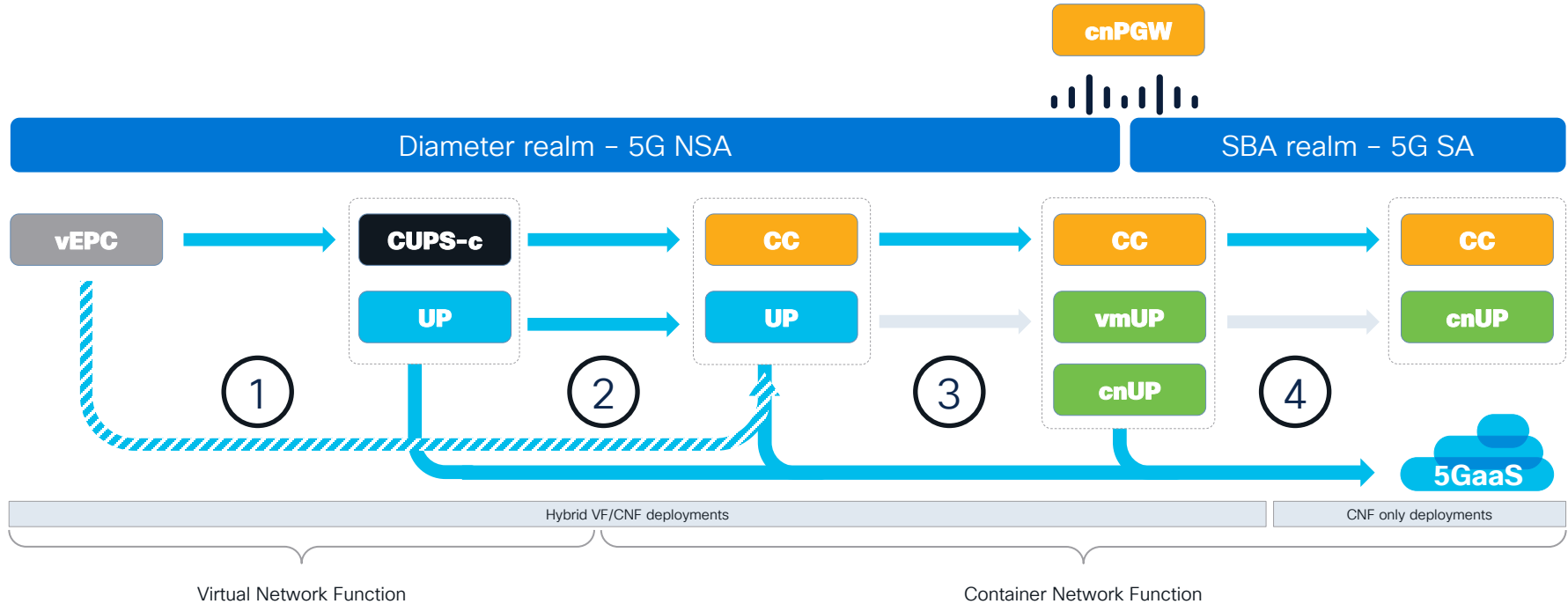Increased capacity & bandwidth

Lower cost per bit

Lower operational cost

New technology for a new generation

Cisco strategy is to drive accelerated adoption of 5G SA by overcoming adoption hurdles
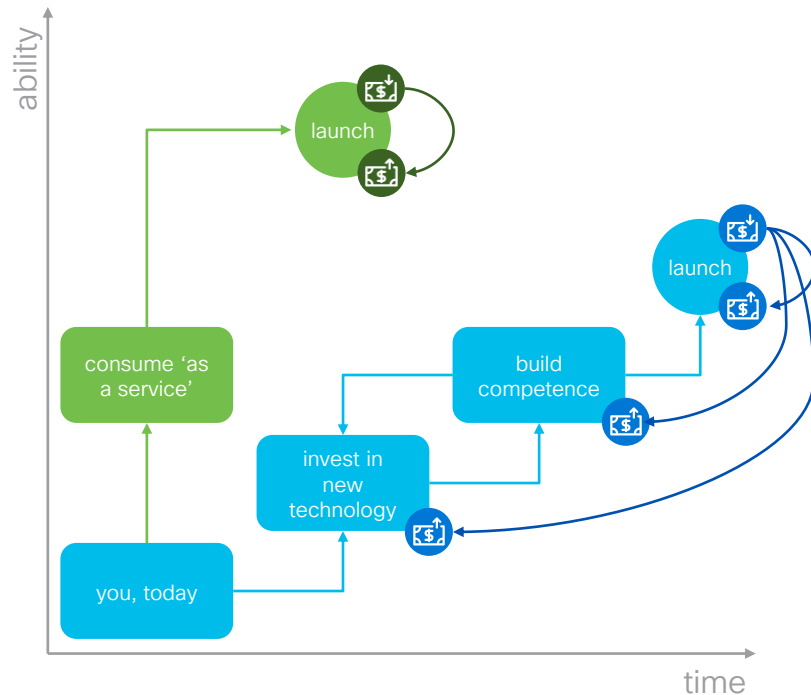
Steps to 5G SA

Change of plans...

```
vEPC  →  ┌─────────────┐
         │  CUPS-c     │    ┌──────────────────────────────────────────────┐
         │             │    │  Cisco's 5GC will only be made available as  │
         │  UP         │    │  "5G Converged Core as a Service"*            │
         └─────────────┘    └──────────────────────────────────────────────┘
```

① ②

5GaaS

Why as a Service?

- Faster time to market

- Higher level of ability sooner

- Cost aligned with revenue

One platform, multiple service offers

enterprise & service provider market – B2B & B2B2X

today's focus

IoT
connected car & assets

Private 5G
private network

Public 5G
mobile broadband

Future Services
other target segments

Platform X

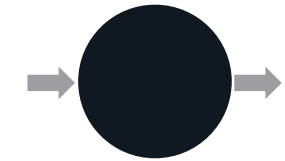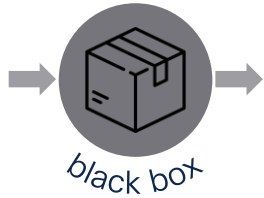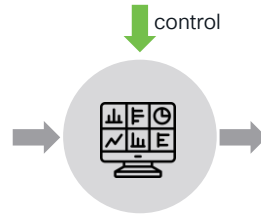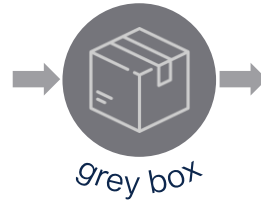| core network | billing | customer experience | enterprise services | operations | subscriber & SIM management | cloud management | open API | automation |

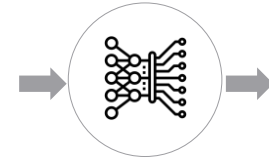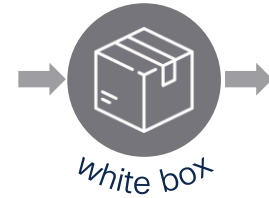public & private hybrid infrastructure deployment models

Let's talk boxes

black box

internal visibility: ✗
influence behavior: ✗

grey box

control

internal visibility: limited
influence behavior: limited

white box

internal visibility: ✓
influence behavior: ✗

Cisco's Mobile Broadband as a Service

Your access

Wi-Fi

4G & 5G

standards-based demarcation contracts

roaming

control plane

user plane

Cisco hosted and operated converged core

5G Service Dashboard & APIs
Automation – Assurance – Provisioning – Billing mediation

5G Converged Core as a Grey Box

Cisco provided templated subsets of 3GPP standards interfaces plus RAN topology API

open API contract

spotlight

LI

voice & text

user plane

Your core & IT

Provisioning & orchestration

Performance & fault management

CRM & billing

Operational visibility & support

Lawful intercept

IMS & SMS core

internet

Cisco's 5G as a Service – under the hood

Your access

Wi-Fi

4G & 5G

standards-based demarcation contracts

roaming

control plane

user plane

Cisco hosted and operated converged core

5G Service Dashboard & APIs
Automation – Assurance – Provisioning – Billing mediation

| udm | udr | sgw | car[1] | sepp |

internal interfaces

| amf | ausf | smf | pcf | epdg |

| mme | hss | upf |

central

edge

upf

Cisco provided templated subsets of 3GPP standards interfaces

open API contract

spotlight

LI

voice & text

user data

internet

Your core & IT

Provisioning & orchestration

Performance & fault management

CRM & billing

Operational visibility & support

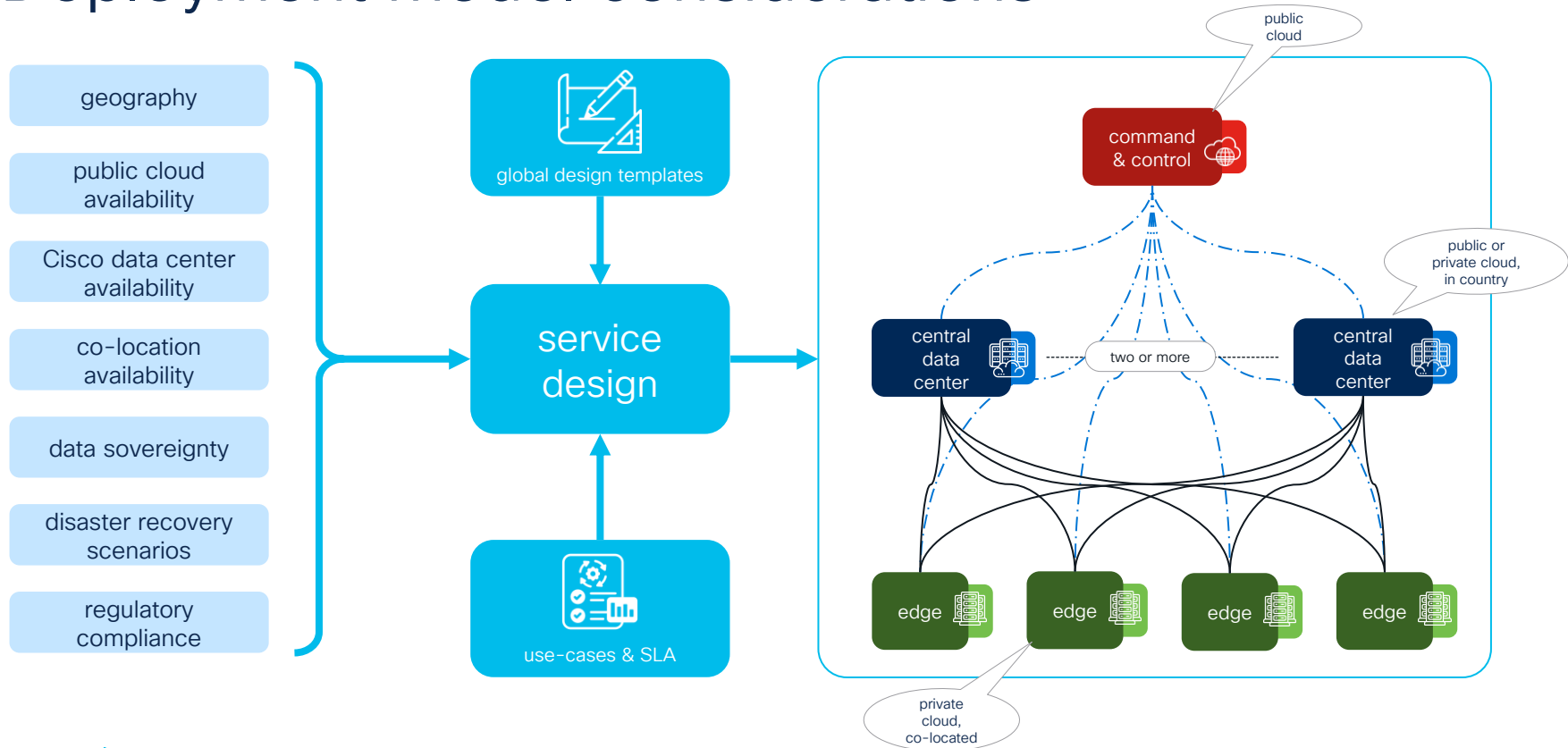Lawful intercept

IMS & SMS core

[1] Charging, account balance and rating

Debunking a common misconception

"5G as a Service" does not imply everything runs in a public cloud

Deployment model considerations

geography

public cloud availability

Cisco data center availability

co-location availability

data sovereignty

disaster recovery scenarios

regulatory compliance

global design templates

service design

use-cases & SLA

public cloud

command & control

public or private cloud, in country

central data center

two or more

central data center

edge

edge

edge

edge

private cloud, co-located

Wrap-up & call to action

- 5G SA adoption has been slow because of complexity and challenging business case

- Cisco's strategy is to speed up 5G SA adoption by eliminating complexity and addressing the business case challenges by offering its 5G SA portfolio 'as a service'

- Call to action: envision a future where you work towards outcomes using services rather than re-inventing architecture wheels

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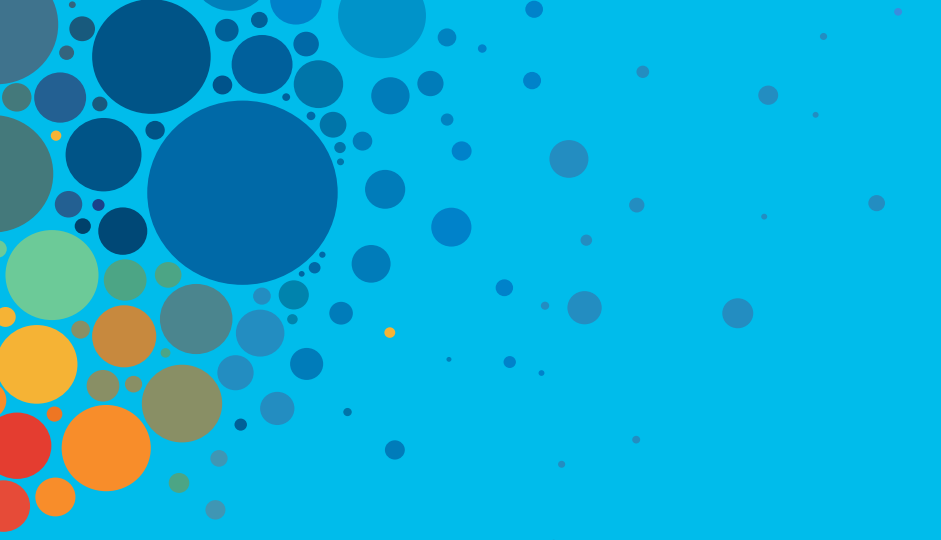
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