Go Cloud or Go Home!

Honoré LaBourdette

Acting SVP, Global Telco, VP, Telco Partner Ecosystem

Red Hat

Colin Bannon

CTO

BT Global

BT Global Fabric

New models for combined TCO are evolving

Application Workloads

Calculate costs of: processor, disk, memory, data egress

Compute

Calculate the most efficient: power, cooling, GPU, DPU, NIC

New global Hyperscaler network

Latency, egress, transit, circuit cost, port cost, security, SDN

▶ Application Workload Layer
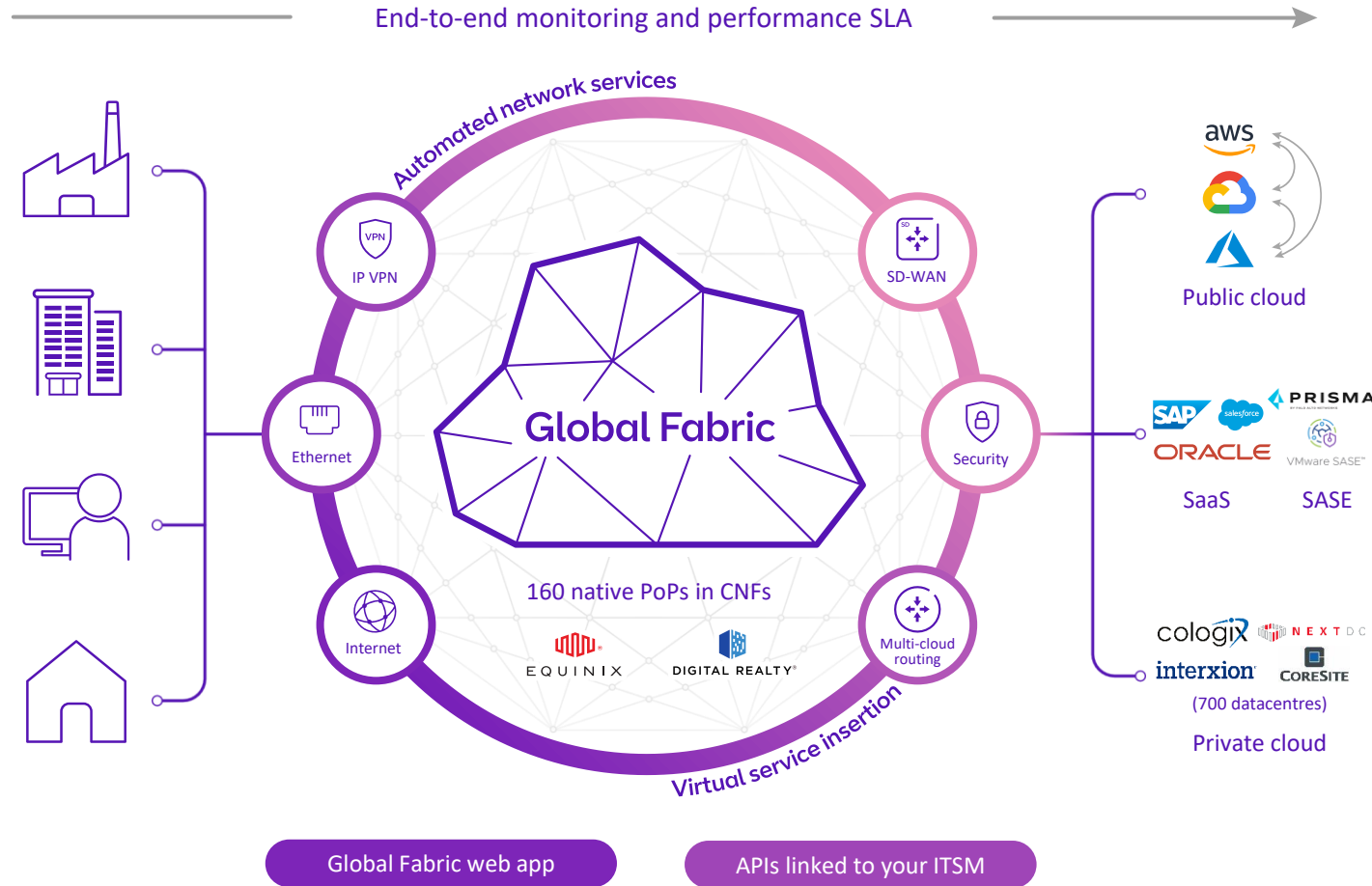
▶ Infrastructure Layer

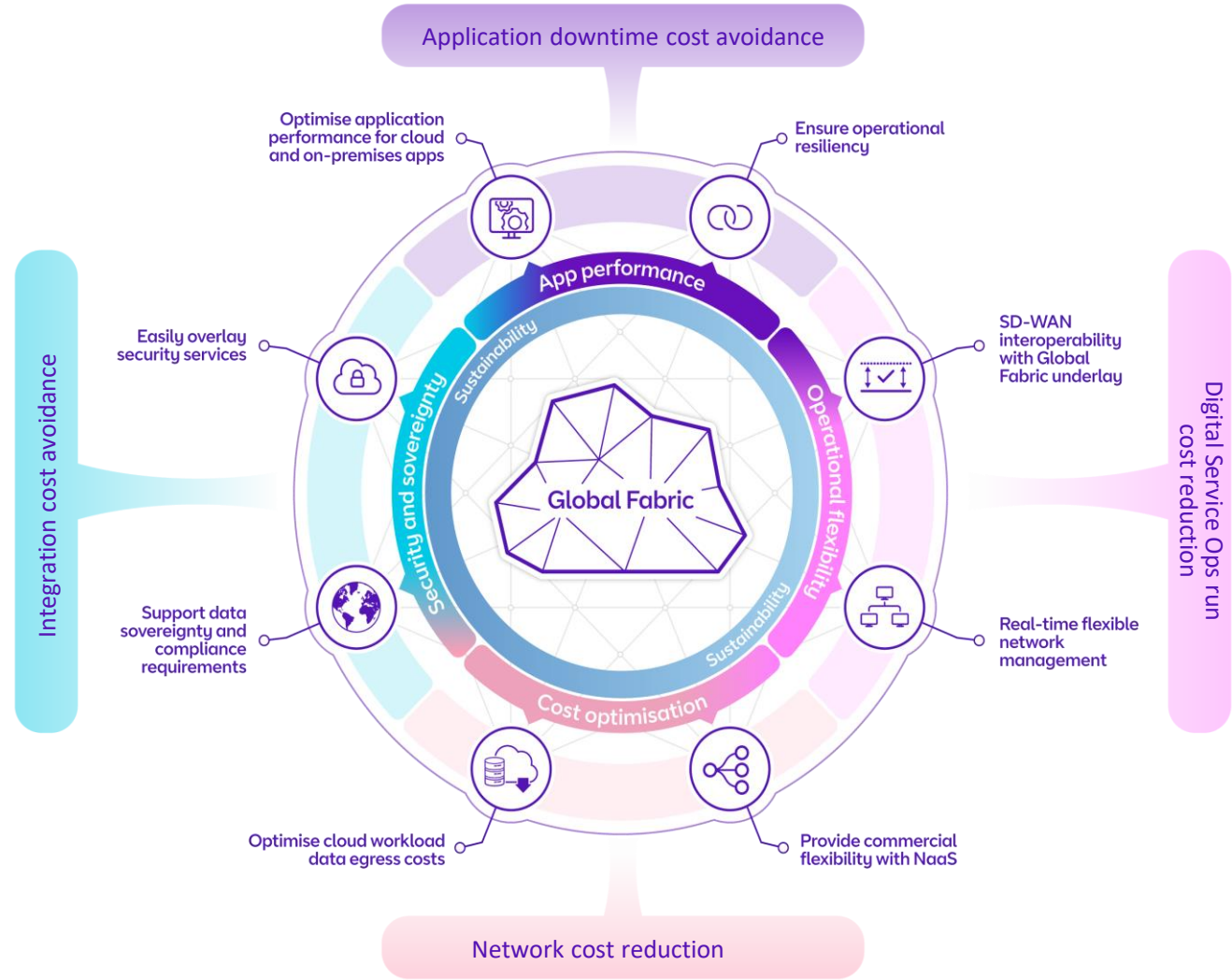▶ Network

Holistic calculation of value

Global Fabric is architected to be cloud centric:

- Programmable platform
- High capacity core
- Optimised global footprint for cloud on-ramps
- Performant connectivity for distributed workloads
- Direct peering with SaaS, SASE & ISPs
- Dense metro architecture for performance under failure
- Both physical and logical service diversity
- Built-in DDoS
- Class-leading sustainability

End-to-end monitoring and performance SLA

Automated network services

Virtual service insertion

IP VPN

SD-WAN

Ethernet

Security

Internet

Multi-cloud routing

Global Fabric

160 native PoPs in CNFs

EQUINIX

DIGITAL REALTY®

Public cloud

aws

SaaS

SASE

SAP   salesforce   PRISMA

ORACLE   VMware SASE™

cologix   NEXT DC

interxion   CORESITE

(700 datacentres)

Private cloud

Global Fabric web app

APIs linked to your ITSM

BT

Our Advisory services supports you to to calculate your combined TCO across all layers of your infrastructure

- Application
- Compute
- Network

Application downtime cost avoidance

Optimise application performance for cloud and on-premises apps

Ensure operational resiliency

App performance

SD-WAN interoperability with Global Fabric underlay

Easily overlay security services

Sustainability

Operational flexibility

Global Fabric

Integration cost avoidance

Security and sovereignty

Digital Service Ops run cost reduction

Real-time flexible network management

Support data sovereignty and compliance requirements

Sustainability

Cost optimisation

Optimise cloud workload data egress costs

Provide commercial flexibility with NaaS

Network cost reduction

8

BT

How to simplify your network deployment with Global Fabric
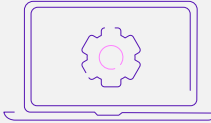
Where do you want to connect from?

1	Plan connectivity

How do you want to connect?
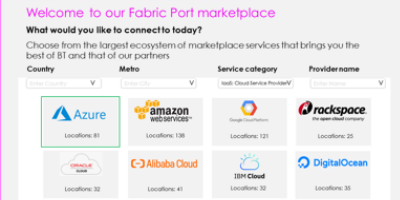
2,3	Configure	Price	Deploy	Monitor

App | API | SNOW

What do you want to connect to?

4,5	Connectivity Marketplace

Plan your network deployment with our interactive location tool.

#2. Buy ports. Buy Access.

Buy and configure access from your sites to our CNF-hosted PoPs.

#3. Attach services

Instantiate and associate network services to your ports.

#4. Connect to Cloud

Connect to around 700 data centres with either dedicated or shared connectivity.

#5. Additional products

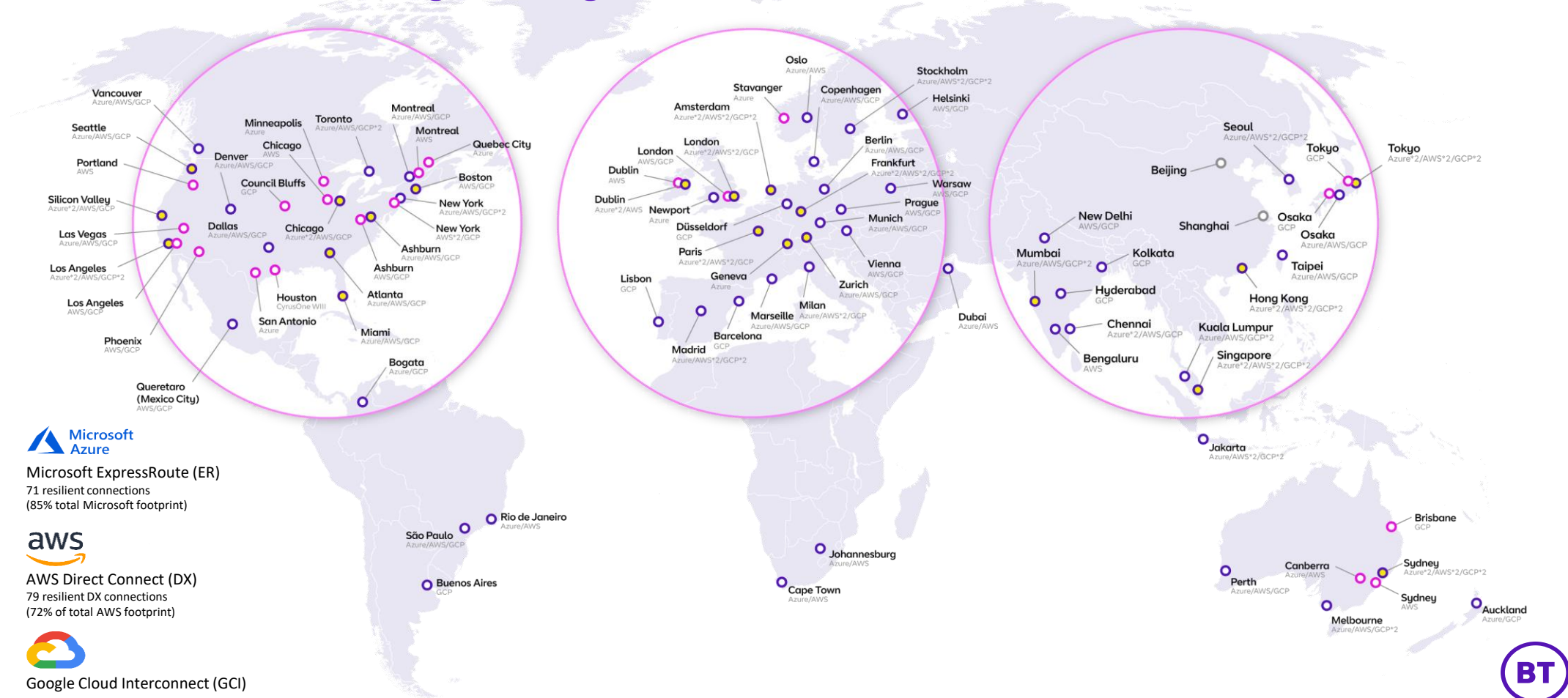Easily add further services through our Marketplace app.

Order journey options

Global Fabric app	API integration	Bulk upload

BT

Future cloud coverage through Cloud Fabric

Vancouver
Azure/AWS/GCP

Seattle
Azure/AWS/GCP

Portland
AWS

Silicon Valley
Azure*2/AWS/GCP

Las Vegas

Los Angeles
Azure*2/AWS/GCP*2

Los Angeles
AWS/GCP

Phoenix
AWS/GCP

Queretaro
(Mexico City)
AWS/GCP

Denver
Azure/AWS/GCP

Council Bluffs
GCP

Dallas
Azure/AWS/GCP

Chicago
Azure*2/AWS/GCP

Houston
CyrusOne WIII

San Antonio
Azure

Minneapolis
Azure

Chicago
AWS

Toronto
Azure/AWS/GCP*2

Montreal
Azure/AWS/GCP

Montreal
AWS

Quebec City
Azure

Boston
Azure/AWS/GCP*2

New York
Azure/AWS/GCP*2

New York
AWS*2/GCP

Ashburn
Azure/AWS/GCP

Ashburn
AWS/GCP

Atlanta
Azure/AWS/GCP

Miami
Azure/AWS/GCP

Bogata
Azure/GCP

São Paulo
Azure/AWS/GCP

Rio de Janeiro
Azure/AWS

Buenos Aires
GCP

Oslo
Azure/AWS

Stavanger

Amsterdam
Azure*2/AWS*2/GCP*2

London
AWS/GCP

London
Azure*2/AWS*2/GCP

Dublin
AWS

Dublin
Azure*2/AWS

Newport
Azure

Düsseldorf
GCP

Paris
Azure*2/AWS*2/GCP

Lisbon
GCP

Geneva
Azure

Madrid
Azure/AWS*2/GCP*2

Barcelona
GCP

Marseille
Azure/AWS/GCP

Milan
Azure/AWS*2/GCP

Copenhagen
Azure/AWS/GCP

Berlin
Azure/AWS/GCP

Frankfurt
Azure*2/AWS*2/GCP*2

Warsaw
AWS/GCP

Prague
AWS/GCP

Munich
Azure/AWS/GCP

Vienna
AWS/GCP

Zurich
Azure/AWS/GCP

Stockholm
Azure/AWS/GCP*2

Helsinki
AWS/GCP

Dubai
Azure/AWS

Johannesburg
Azure/AWS

Cape Town
Azure/AWS

Beijing

Shanghai

New Delhi
AWS/GCP

Mumbai
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Kolkata

Hyderabad
GCP

Chennai
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Bengaluru
AWS

Seoul
Azure/AWS/GCP*2

Tokyo
GCP

Tokyo
Azure*2/AWS*2/GCP*2

Osaka
GCP

Osaka
Azure/AWS/GCP

Taipei
Azure/AWS/GCP

Hong Kong
Azure*2/AWS*2/GCP*2

Kuala Lumpur
Azure/AWS/GCP

Singapore
Azure*2/AWS*2/GCP*2

Jakarta
Azure/AWS*2/GCP*2

Perth
Azure/AWS/GCP

Canberra
Azure/AWS

Brisbane
GCP

Sydney
Azure*2/AWS*2/GCP*2

Sydney
AWS

Melbourne
Azure/AWS/GCP*2

Auckland
Azure/GCP

Microsoft Azure

Microsoft ExpressRoute (ER)
71 resilient connections
(85% total Microsoft footprint)

aws

AWS Direct Connect (DX)
79 resilient DX connections
(72% of total AWS footprint)

Google Cloud Interconnect (GCI)
81 resilient GCI connections
(65% of total GCI footprint)

10

● BT direct   ● 100G available   ○ Partner port

BT

MWC24

Shawn Hakl

VP, 5G Strategy

Microsoft

Go cloud or go home

Operators in the Age of AI

Microsoft

How do we unlock the value of the network as a platform?

Microsoft partner economic value expands with IP focus

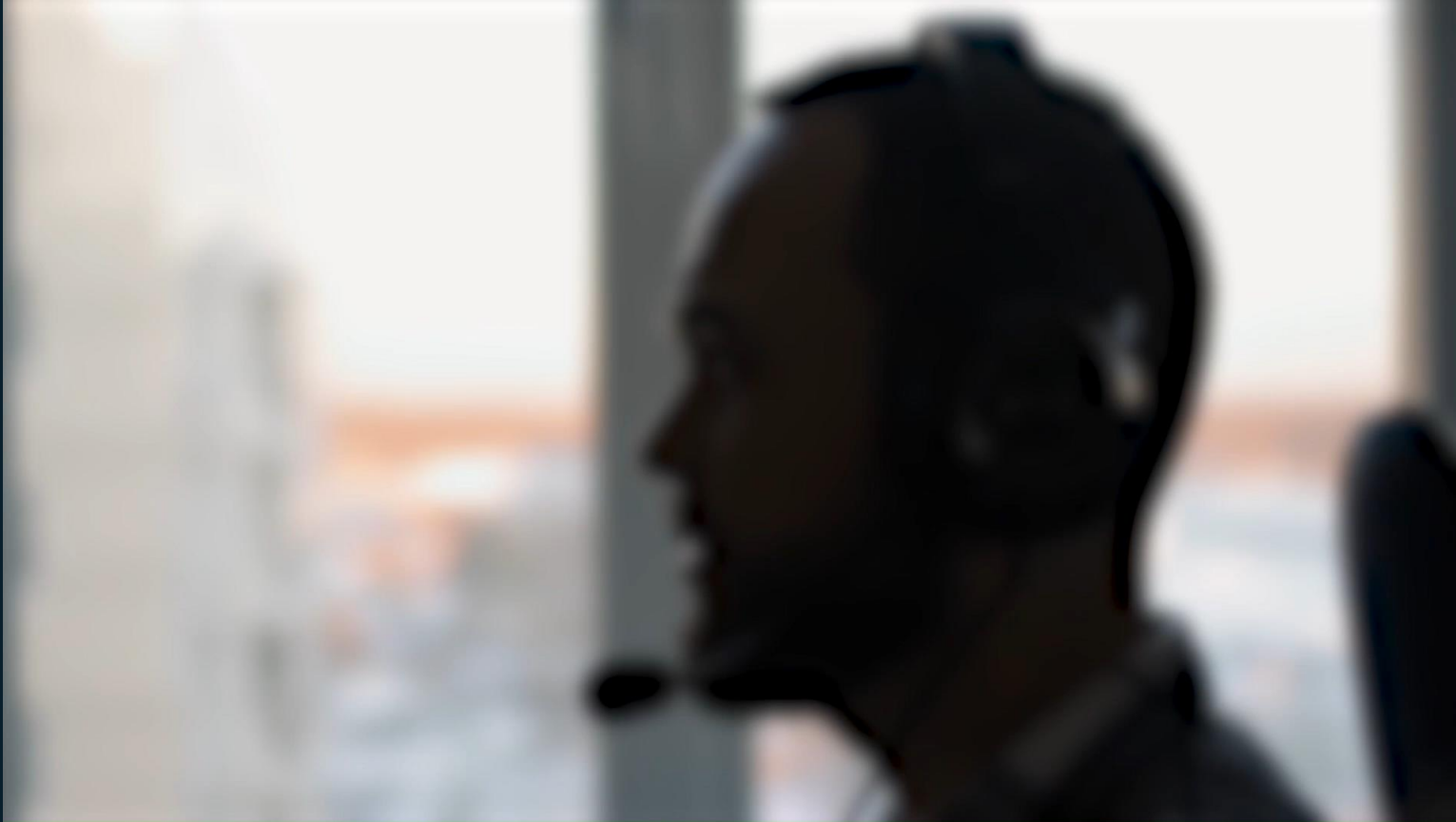**For every $1 of Microsoft revenue**

Service-led partners make
$7.63
in economic value

Software-led partners make
$10.11
in economic value

Source: IDC's Microsoft Partner Economic Value Indicator Survey

Monetize with AI, Programmable Network, Edge Compute

New Azure Operator Call Protection demo

Customers are modernizing and monetizing the network with cloud-based technology

AT&T — Accelerating time to market using hybrid cloud for 5G SA network

etisalat by e& — Driving innovation using hybrid cloud for 5G SA network

Three.co.uk — Using power of AIOps to develop powerful customer insights

BT Group — Creating a more secure network experience with AI

vodafone — Opening new routes to market and expanding capabilities using AI and cloud

Lessons learned from transforming the network to the cloud

- Security
- Operations maturity
- Vendor lock in
- Legacy integration
- Talent / Skills
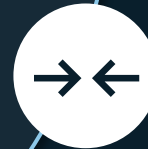
Next steps in monetizing network services

Cloud Networking Insights

Composable Network services integrating network and cloud

- Cloud platform (DevSecOps)
- Orchestration
- Software defined services

Make differentiated networks consumable by developers

- Network API exposure

Use AIOPs to build a better service

- Complex solutions at scale
- Expertise on tap
- Better customer experience
- Reduced operation expense

Azure uniquely meets operators' business needs

36% OpEx savings compared to private cloud option

58% operation efficiency improvement thru automation

90+ compliance certifications—more than any other public cloud provider

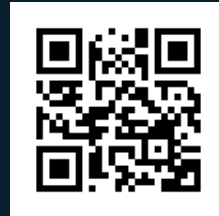**68,000+** partners, largest in the industry

10s of millions of subscribers on platform

Deep telco DNA

Next steps

Power your network transformation and monetization with AI and cloud-based technology

Learn more about our announcements here:
aka.ms/OMB blog

See demos and speak to SMEs in Microsoft Booth
(Hall 3, Booth 3H30)

Microsoft Azure

Thank you.

Anita Döhler

CEO

NGMN Alliance
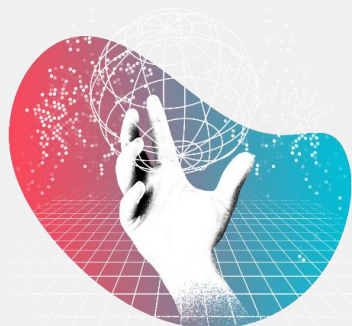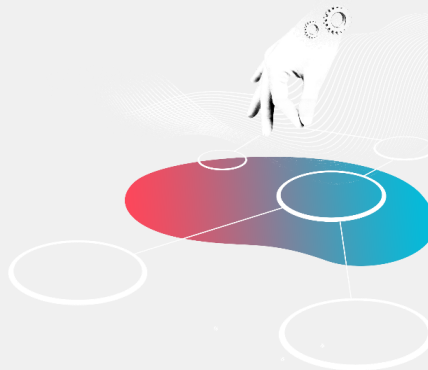
NGMN CLOUD NATIVE MANIFESTO

"Go Cloud or Go Home" @ MWC 2024

ngmn.org
anita.doehler@ngmn.org

NGMN

WE MAKE BETTER CONNECTIONS

STRATEGY

Alongside with projects supporting 5G's full implementation, the focus of NGMN's Work Programme since 2021 is on three Strategic Focus Topics with different time horizons

ROUTE TO DISAGGREGATION

Leading in the development of open, disaggregated, virtualised and cloud native solutions with a focus on the E2E Operating Model

GREEN FUTURE NETWORKS

Building sustainable and environmentally conscious solutions

6G

Emergence of 6G highlighting key trends across technology and societal requirements plus use cases, requirements and design considerations

GLOBAL PARTNERSHIP

OVER 80 COMPANIES SHAPING THE FUTURE OF THE INDUSTRY

MEMBERS

1&1 · A1 Telekom Austria Group · Bell · BT · 中国移动 China Mobile · 中華電信 Chunghwa Telecom · T · kpn · Liberty Global · MTN · NTT docomo

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SUTD SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN · Technische Universität Braunschweig · TECHNISCHE UNIVERSITÄT DRESDEN · TNO innovation for life · UNIVERSITÄT DUISBURG ESSEN Offen im Denken · UNIVERSITY OF TORONTO

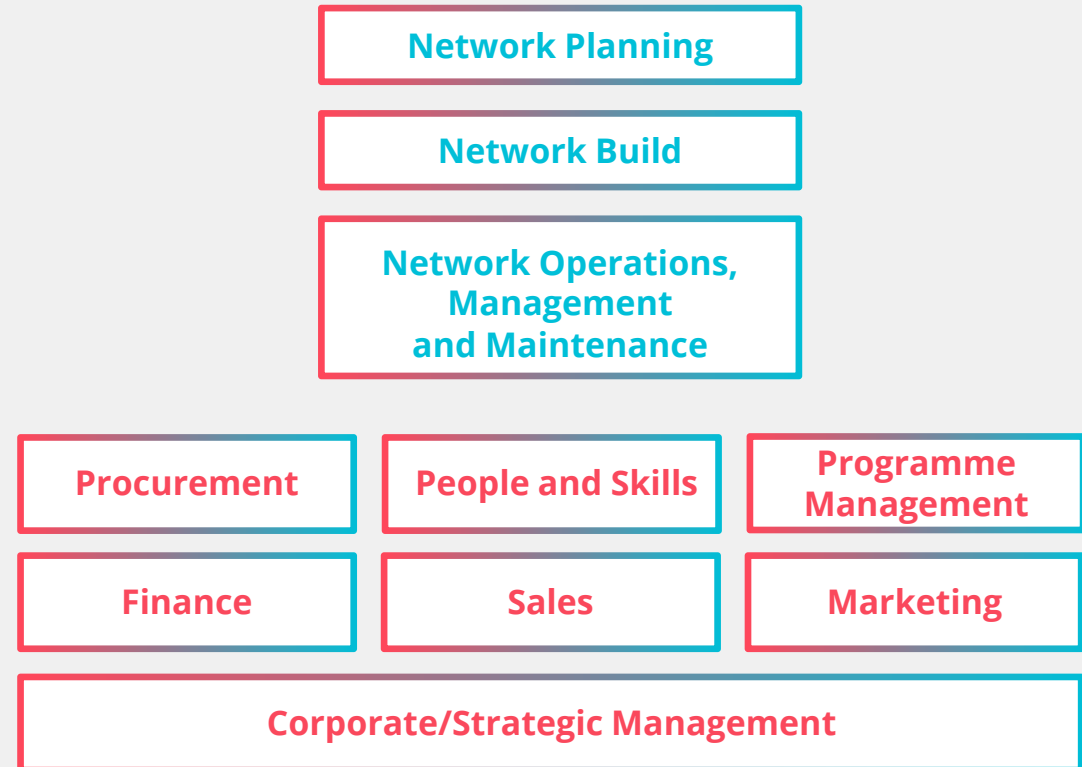# OPERATING DISAGGREGATED NETWORKS (ODiN)

NGMN

WHY WE NEED OPERATING MODELS

Complexity

- Networks and IT

- Organisation and People

- Range and scope of suppliers

Operating models reduce complexity
by defining the right 'target' organisation
to match the technology and operations
roadmap

Network Planning

Network Build

Network Operations, Management and Maintenance

Procurement	People and Skills	Programme Management
Finance	Sales	Marketing

Corporate/Strategic Management

ODiN PUBLICATIONS

2021	2022	2023	2024
ODiN - Operating Disaggregated Networks V1.0	Operating Disaggregated Networks V2.0	NGMN Cloud Native Manifesto	Operating Model Blueprints – planned in Q3-2024

ROUTE TO DISAGGREGATION

CLOUD NATIVE MANIFESTO

AN OPERATOR VIEW

NGMN
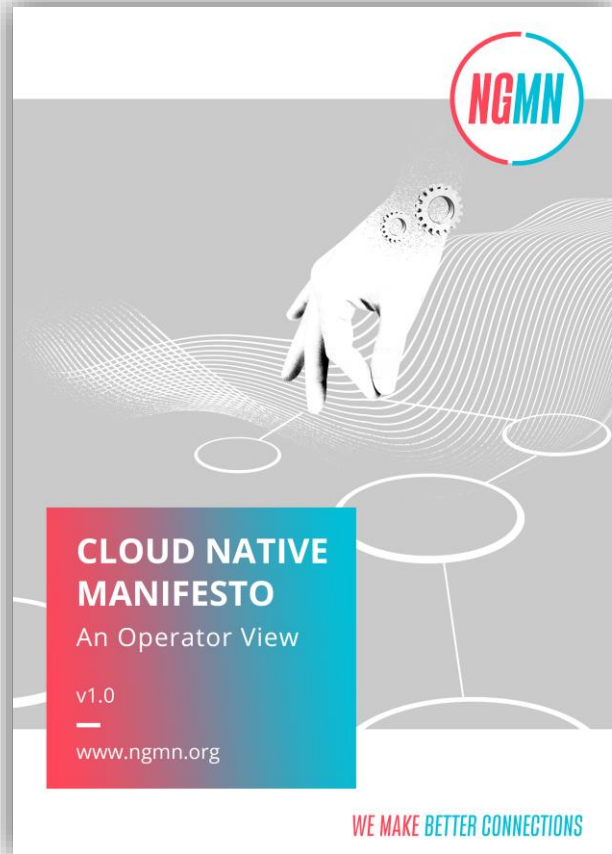
CLOUD NATIVE MANIFESTO
PUBLISHED SEPTEMBER 2023

1. Decoupled infrastructure and application lifecycles over vertical monoliths

2. 'API first' over manual provisioning

3. Declarative and intent-based automation

4. GitOps principles

5. Unified Kubernetes (or the like) resource consumption patterns

6. Unified Kubernetes (or the like) closed-loop reconciliation patterns

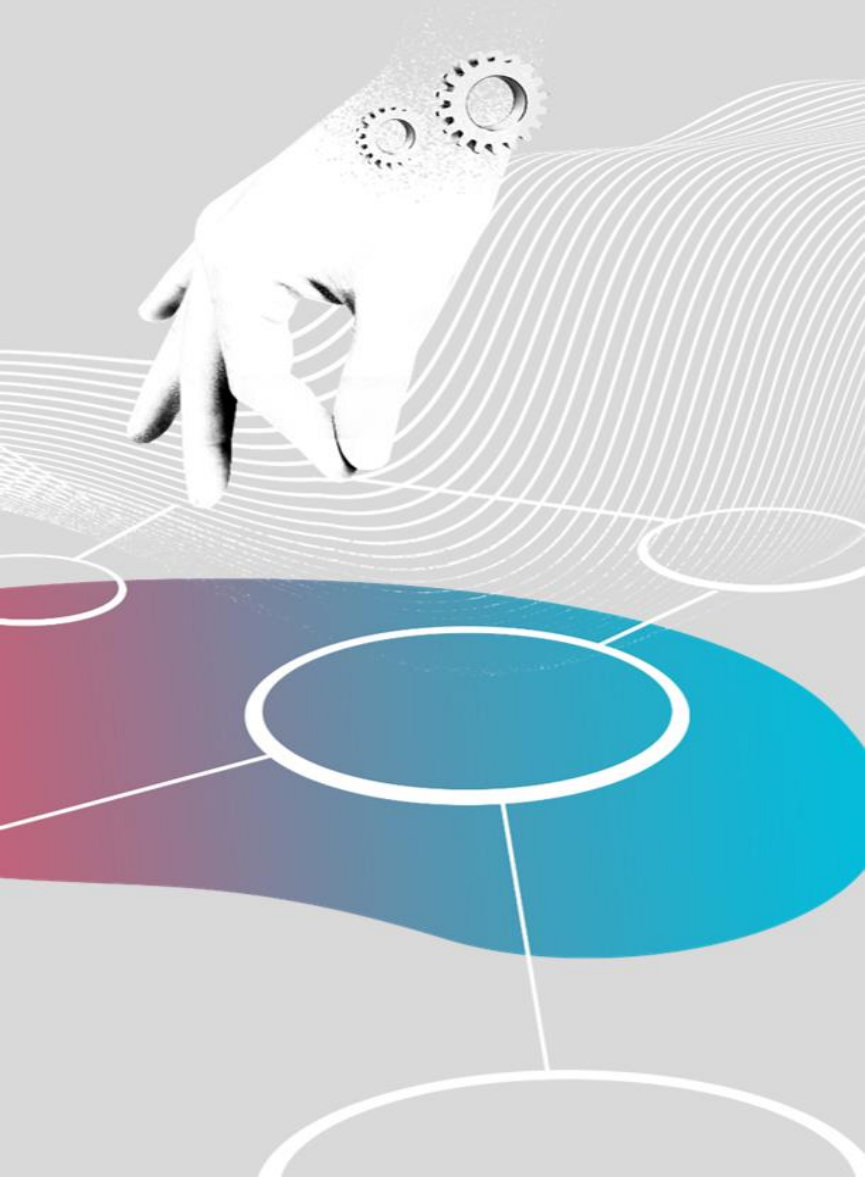7. Interoperability by well-defined certification processes

Open. Interoperable. Highly scalable.

DECOUPLED INFRASTRUCTURE AND APPS
OVER VERTICAL MONOLITHS

- Expose infra (K8S or similar) in a standard way to Apps

- Any software, app, network function to be on-boarded by any hardware, container platform or public domain
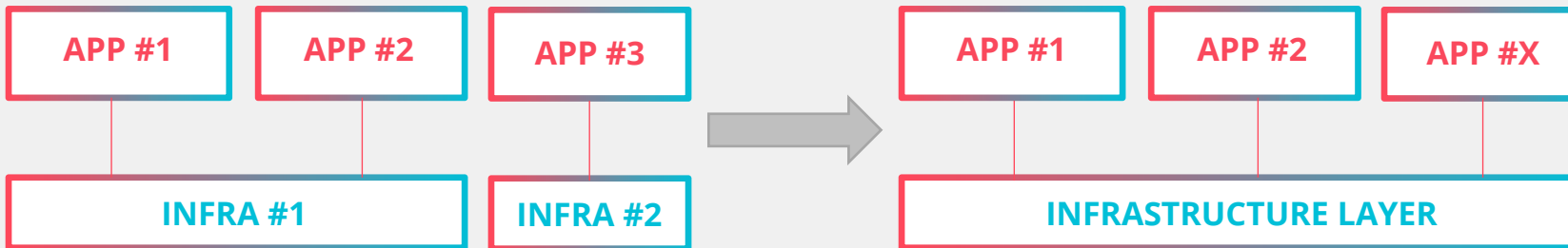
DECLARATIVE AND INTENT-BASED OPERATION

APIs AND AUTOMATION OVER MANUAL OPERATIONS

- Application description based on standards

- Define services in a declarative way and expose them via API

- Intent-based rather than imperative / instruction-based workflows

Reduce OPEX and ready for AI driven Automation and Lifecycle Management
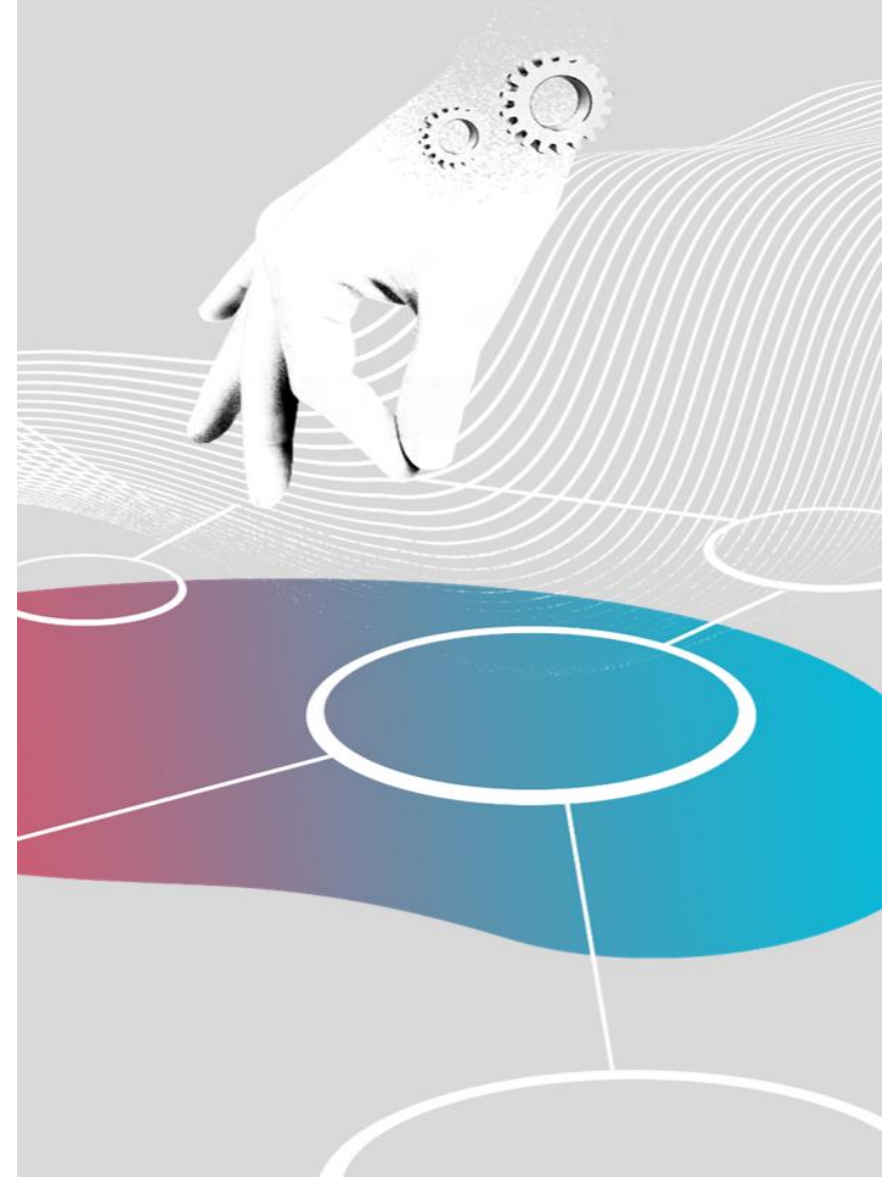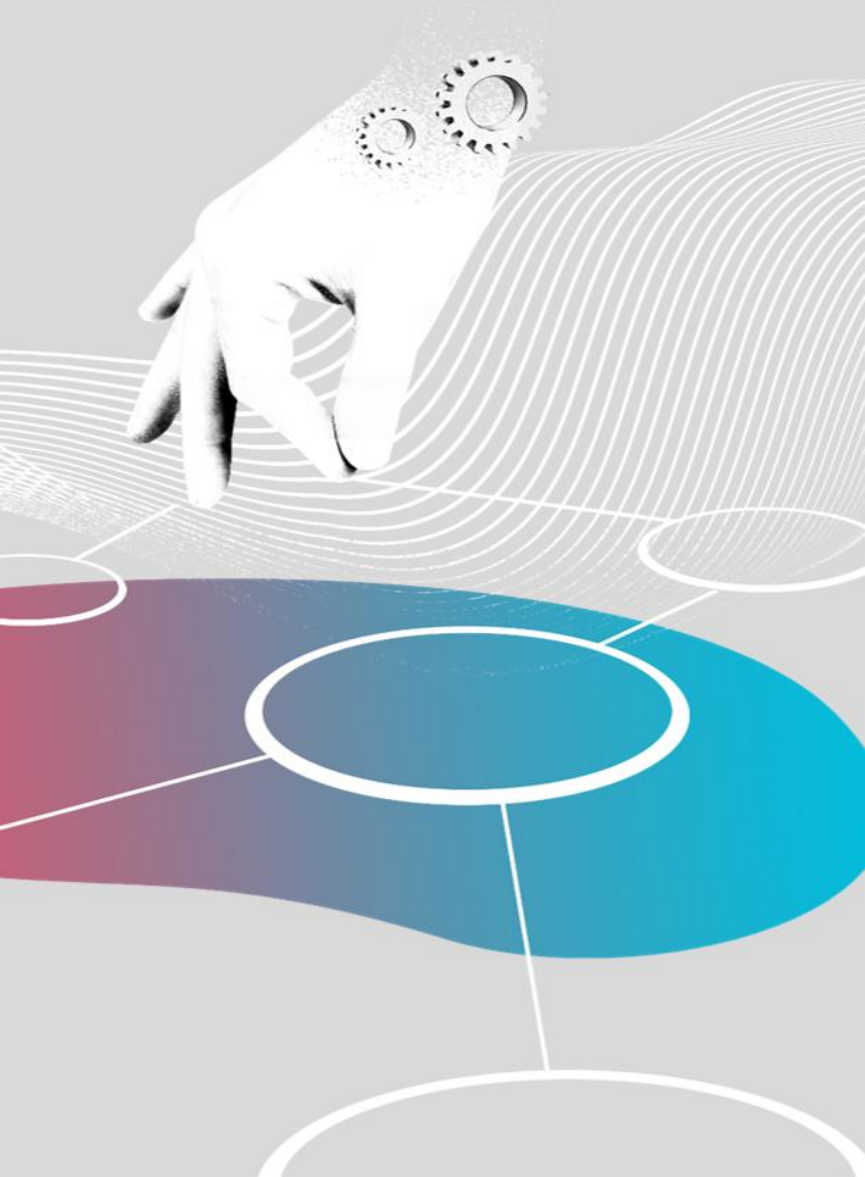
GITOPS PRINCIPLES
MANAGING LIFECYCLE AND RELEASES

Application lifecycle management is entirely automated through a digital pipeline process

Source of truth repository driving automatic deployment

Pipelines must be interoperable, through GitOps repositories and integration labs

UNIFIED KUBERNETES (OR SIMILAR)

NORMALISING THE RUNNING ENVIRONMENT FOR CLOUD NATIVE APPS

- No vendor or domain specific resource controllers or element management practices for the infrastructure layer

- Microservices architecture

- Horizonal scalability

- Auto-healing

WELL DEFINED CERTIFICATION PROCESSES

- To ensure interoperability

- To reduce testing and integration costs

- To reduce time to market and increase adoption

THANK YOU

In case of further questions please contact
office@ngmn.org

 Follow us on LinkedIn

NGMN

KEY PUBLICATIONS

ITU-R Framework for IMT-2030: Review and Future Direction — v1.0 — www.ngmn.org

Reducing Environmental Impact — v1.0 — www.ngmn.org

Network Energy Efficiency Phase 3A — v1.0 — www.ngmn.org

Network Energy Efficiency Phase 2 — v1.0 — www.ngmn.org

6G Trustworthiness Considerations — www.ngmn.org

6G Position Statement — An Operator View — v1.0 — www.ngmn.org

RECOMMENDATION ON BASE STATION ACTIVE ANTENNA SYSTEM STANDARDS — V3.0 — www.ngmn.org

CLOUD NATIVE MANIFESTO — An Operator View — v1.0 — www.ngmn.org

Green Future Networks: KPIs and Target Values for Green Network Assessment — v1.0 — www.ngmn.org

6G Requirements and Design Considerations — v1.0 — www.ngmn.org

Green Future Networks — Telco Supply Chain Sustainability — v1.0 — www.ngmn.org

Definition of the Testing Framework for the NGMN 5G Trial and Testing Initiative Phase 2 — v 1.8 — www.ngmn.org

Pre-commercial Network Slicing Trials Major Conclusions — v 1.0 — www.ngmn.org

Automation and Autonomous System Architecture Framework — v1.0 — www.ngmn.org

Results of our Work-Programme:

Internationally recognised requirements, recommendations and guidance to the industry and for standardisation

https://www.ngmn.org/publications.html

NGMN IC&E 24 -

INDUSTRY CONFERENCE AND EXHIBITION

NGMN IC&E 24

10 - 12 SEPTEMBER 2024 @ BMW WELT, MUNICH/GERMANY

- A highly recognized biennial global industry event

- Spotlight on NGMN's Strategic Focus Topics

- Platform for unique networking opportunities with global industry leaders from operators, telco & IT vendors, academia

- Conference and exhibition demonstrating state of the art concepts, key trends, innovations and challenges shaping the mobile landscape

- 300+ top management level participants

- Premium facilities @ BMW Welt

- Valuable marketing opportunities

Mallik Rao

Chief Technology & Information Officer

Telefónica Germany GmbH & Co OHG

HOW TELCOS ENGINEER THEIR SUSTAINABLE FUTURE THROUGH THE CLOUD

Mallik Rao
Chief Technology & Information Officer
O$_2$ Telefónica

27th February 2024
MWC

OUR JOURNEY

CLOUD CENTER OF EXCELLENCE

165
apps in
production

47
apps in
pipeline

80%
target for apps
in the cloud

30^x
increased
cloud consumption

WHAT'S IN THE CLOUD?

- Transformed IT full stack
- 5G packet core
- 2 data warehouses
- Finance systems, internal tools, workplace, development functions

LEARNINGS

Data security &
sovereignty

Upskilling of
people & organization

Network load
on cloud

Financial efficiencies

O₂ Telefónica

WHAT'S NEXT

TELCO CLOUD
in combination with
network & operations
transformation

AI CAPABILITIES
as scale

CLOUD NATIVITY
across the whole organization

MWC24

Moderator: Honoré LaBourdette

Red Hat

Colin Bannon

BT Global

Shawn Hakl

Microsoft

Anita Döhler

NGMN Alliance

Mallik Rao

Telefónica Germany GmbH & Co OHG

Up Next

Ink, Wear, Touch: Evolution of Personal Tech

13:15 - 14:15

MWC24