

A stylized illustration of a hand with gears for fingers, reaching out to interact with a digital landscape of white lines and circles on a grey background. The hand is positioned in the upper right, with the gears visible on the fingers. The digital landscape consists of various lines and circles, some of which are connected by thin lines, suggesting a network or data flow.

**MASTERING THE ROUTE  
TO DISAGGREGATION**

**OPERATING MODEL #4:  
OPERATOR LED PLATFORM  
COMMERCIALY OFFERED  
TO OTHERS**

—  
v 1.0

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# MASTERING THE ROUTE TO DISAGGREGATION

## OPERATING MODEL #4: OPERATOR LED PLATFORM COMMERCIALY OFFERED TO OTHERS

by NGMN Alliance

Version: 1.0

Date: 18 December 2024

Document Type: Public

Confidentiality Class: Final Deliverable

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Approved by / Date: NGMN Alliance Board, 10 December 2024

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All operator and vendor examples mentioned in this publication are provided solely for illustrative purposes, serving to clarify the model through concrete examples. References to specific brands or company names are not intended as endorsements or recommendations. NGMN neither endorses nor promotes any particular operator or vendor and has no intention of doing so.

# 01 EXECUTIVE SUMMARY

This publication outlines a telco operational model where an operator or group of operators develop and maintain an open platform for adoption by other operators. This strategy allows the operator or operator group to control technology and operations, while sharing expertise and fostering a mutually beneficial ecosystem. The model can vary from selling a product to co-developing a platform.

Three sub models were identified.

## **(1) End-to-End Platform Development and Maintenance:**

The operator manages the entire lifecycle of the platform, from planning and design to deployment and maintenance. This requires specialised R&D and operations teams, significant resource investment, and internal collaboration. Adopting agile development processes and CI/CD is essential. Operators need to develop skills in virtualisation, cloud technologies, and automation.

## **(2) Operator-Driven Platform with Vendor Collaboration:**

The operator develops the core platform while collaborating with vendors for specific components. This approach combines operator expertise with best-of-breed solutions. This involves managing vendor collaborations, ensuring component compatibility and integration, and maintaining high-quality standards. Operators need to adopt new skills and working methodologies, such as DevOps.

## **(3) Joint Development Initiatives:**

Multiple operators collaborate to co-develop a platform, sharing resources, expertise and risks. It involves complex considerations for development authority, support, maintenance, and market strategy by considering competition aspects.

## **Conclusions:**

From the perspective of the operator or operator group, that develops and sells the platform, the following conclusions can be drawn. Operators developing their platforms have the most freedom but face reduced flexibility, when bringing the platform to market. They need to consider market segments, customer requirements and trends. The platform should be modular and open for vendor integration and customer adoption. The risk of commercialising the platform should be mitigated. This operational model can enhance technological advancement, reduce vendor lock-in, and foster market competition and innovation.

## 02 INTRODUCTION

In this operational model, the telecom operator (or group of operators) takes the lead role and is responsible for developing and maintaining an open platform that can be adopted by other operators. This approach allows the lead operator to maintain control over the technology, solutions and operations, while sharing its expertise and platform technology with other operators, creating a mutually beneficial ecosystem. Different flavours are indeed possible with this model, spanning from the selling of a product to the co-development of a platform in an open ecosystem.

Such platforms are usually highly flexible and scalable, capable of supporting a diverse range of hardware and software components, and can adapt to the specific requirements of different operators. The operator or group of operators developing the platform, also have the ability to test the underlying solution in their own networks to prove functionality and performance. This could help prove that the solution is indeed working and performing well.

These platforms typically cover key areas, such as core networks (CN), Radio Access Networks (RAN), Operations Support Systems (OSS), and Business Support Systems (BSS), and supports open standards and interoperability. In the future, transport could be covered too.

# 03 OPERATING MODEL: OPERATOR DEVELOPED PLATFORM COMMERCIALY OFFERED TO OTHERS

A telecom operator takes on the primary responsibility of developing and maintaining an open platform/solution that can be adopted by other operators. This approach allows the telecom operator to retain control over the technology and operations, while also sharing their expertise and platform technology with other operators, developing a mutually beneficial ecosystem. It also allows the operator to share the platform, partnerships, solutions and services they developed, that made success in deploying disaggregated network in their own network, to other operators who are looking to get solutions and services that have already worked. There are several specific operating models within this category that an operator can choose from, based on their unique circumstances:

## **(1) End-to-End Platform Development and Maintenance**

The telecom operator is responsible for the entire life cycle of the platform, including planning, design, development, interoperability testing, deployment, integration and maintenance. This model is ideal for operators with strong technical capabilities and sufficient resources to invest in comprehensive platform management.

Example:

A large telecom operator with extensive R&D facilities might develop an open platform and offers it, as a product, package or a service, to smaller regional operators, or operators that do not have R&D, providing continuous support and updates.

## **(2) Operator-Driven Platform with Vendor Collaboration**

The telecom operator develops the core platform but collaborates with multiple hardware and software vendors, as well as SI's, for specific components and functionalities. This model leverages the operator's expertise, while integrating selected solutions from various vendors, promoting flexibility and innovation.

Example:

An operator might develop the core network management platform and integrate RAN solutions from different vendors, ensuring interoperability and flexibility. In this scenario the platform is offered as a product or a service. The operator could also develop an Open RAN ecosystem and solutions to use in its own network, then offer the solution to other operators as package.

## **(3) Joint Development Initiatives**

Multiple telecom operators collaborate to co-develop a platform, sharing resources, expertise and risks. This approach can lead to more robust and widely accepted solutions due to the combined input and investment from several operators in a pre-competitive environment.

Example:

A consortium of telecom operators might come together to develop an open platform for 5G networks, pooling their R&D efforts to create a standardised solution. On top of the co-developed platform, the operator can create a product, service or solutions, and offer it with customisations and support.

# 04 IMPLICATIONS OF OPERATOR PLATFORM

## 4.1 END-TO-END PLATFORM DEVELOPMENT

### 4.1 End-to-End Platform Development

#### EXAMPLE:

One example for this sub model is AT&T's Network Cloud platform. This platform has been running AT&T's 5G core network at scale since the company launched 5G in 2018. [1]

#### 4.1.1 Target Organisation to Support Operating Model

This model targets operators with specialised R&D and operations teams, that could handle all stages of the platform development, including design, development, testing and maintenance. Significant resources need to be invested in platform and solutions development and continuous improvement to maintain technological leadership. Strengthened internal collaboration between departments is necessary to ensure seamless integration and optimisation of platform functionalities. This organisation also needs to have a strong DevOps team.

#### 4.1.2 Process Changes

This model enables the adoption of agile development processes to meet the demands of market changes and rapid technological iterations. It requires the implementation of CI/CD processes to ensure continuous improvement and rapid deployment of the platform.

#### 4.1.3 People (Skills) Changes

Developing and managing a disaggregated network platform requires significant changes in skills and organisational format and culture:

#### (1) Skill Development:

Operators need to invest in training programs to develop skills in virtualisation, cloud technologies, automation, and orchestration tools for managing containerised network functions.

#### (2) New Working Methodologies:

Adopting methodologies like DevOps and CI/CD pipelines is essential, requiring a shift in mindset from traditional telecom environments to more collaborative and agile ways of working. This would also require changes in the organisational format.

#### 4.1.4 Other Aspects

The target customers will be fellow operators in a similar stage and working at a similar scale as the lead operator.

Since the lead operator holds the sole right to the platform, profit, risk and maintenance will be entirely his own. The lead operator would also be responsible for managing the platform roadmap.

Maintenance and support for the product (or service) must be in place with a strategy for release management, updates distribution, technical support to the customers.

## 4.2 OPERATOR-DRIVEN PLATFORM

#### EXAMPLE:

One example for this sub model is NTT Docomo Orix brand [2]. This brand delivers full Open RAN service, including integration, that was developed by NTT Docomo through collaboration with several global hardware, software, container platform vendors. They provide several pre-integrated solutions with combinations from different partners and tested in their own laboratory and network. Aside from offering solutions, they also offer services and SMO.

#### 4.2.1 Target Organisation to Support Operating Model

This model targets operators that has dedicated partnership management teams and solutions teams that could handle collaborations with multiple vendors, ensuring compatibility and integration of various components. Technical oversight of vendor-provided solutions is required to ensure compliance with platform standards and operational requirements. This also requires a strong R&D team as well as strong laboratory for testing interoperability.

#### 4.2.2 Process Changes

Establishment and optimisation of vendor management processes is needed to ensure seamless integration of vendor solutions. Implementation of strict quality control processes is needed to ensure that vendor-provided components and services meet platform standards. There also needs to be a strong certification process and mechanism to ensure different combinations are working well and are stamped with a seal of approval.

#### 4.2.3 People (Skills) Changes

Same as 3.1.3 – except that an overarching organisational and collaboration structure needs to be put in place to allow the lead operator development teams to interact with the developing entities of the various vendors. One example could be a “SCRUM-like” approach.

#### 4.2.4 Commercial Aspects

Two models are possible:

1. The lead operator only brings the core platform to market, leaving risk and profit entirely its own control. However, it ensures the maintenance of the open interfaces as well as providing a list of tested / supported vendors.  
This also provides flexibility to the customers to integrate their already existing vendor landscape via the open interfaces – however ensuring the interoperability would be on the customers behalf (or a service offered by the vendor).

2. The lead operator takes the lead and takes a “partnership” approach, reselling the modules of the vendors and involving them for maintenance while acting as a single point of contact to the customers.

#### 4.3 Joint Development - An Outlook

A joint development of a platform will enable operators and vendors to complement capabilities, accelerate development roadmap and manage a prioritisation of features in the product backlog within a joint governance and based on a joint GTM strategy.

This model holds a multitude of aspects that would exceed the scope of this paper and are worth to be discussed in depth in a separate effort.

#### Just to highlight only the main questions raised in a multi-operator co-developed platform:

- **Development:**  
Will a single operator hold authority of the development and capabilities roadmap, or will this be split? If shared / split among several operators how will feature development, roadmap planning and interoperability be organised? What would be a clear demarcation principle between a common carrier grade architecture that is still flexible to allow customisation of the product?
- **Support and Maintenance:**  
If offered to the market as a commercial platform, support needs to be provided. Will each operator support the modules/ functionalities he contributed to? Would it make sense to find a separate entity to offer complete support, and how will that deal with change requests towards the consortium of operators?
- **Market Strategy:**  
When brought to market, how will profit and risk be split among the operators? How will the GTM portfolio investment be managed, prioritising features with an agnostic business case and framework which relates to how the licensing structure will be priced and mapped, aligned with Product IP ownership, all of the before based on compliant structures?



# 05 CONCLUSIONS

While the operator developing its own platform has the most freedom, this freedom is reduced when bringing the platform to market.

The lead operator has to choose to what market segment the platform is to be offered, and needs to consider requirements of his potential customers, as well as market trends, like:

- brownfield or greenfield
- operator tier.

Offering the platform to the market will, of course, leverage the development cost and allow vendors or even peer operators to contribute to the platform, enhancing its capabilities, but also opening questions like:

- development authority
- support/maintenance.

Recommendation:

- modular and open design to allow for vendor integration and customer adoption.

# 06 LIST OF ABBREVIATIONS

<b>BSS</b>	Business Support System
<b>CI/CD</b>	Continuous integration continuous deployment
<b>CN</b>	Core Network
<b>DevOps</b>	integrating and automating the work of software development and IT operation
<b>GTM</b>	Go To market
<b>OSS</b>	Operations Support System
<b>R&amp;D</b>	Research and Development
<b>RAN</b>	Radio Access Network
<b>SI</b>	Systems Integrator
<b>SMO</b>	Service Management and Operation

# 07 REFERENCES

- [1] AT&T, "AT&T Moves 5G Mobile Network to Microsoft Cloud," 30 June 2021. [Online]. Available: [https://about.att.com/story/2021/att\\_microsoft\\_azure.html](https://about.att.com/story/2021/att_microsoft_azure.html). [Accessed 5 Nov 2024].
- [2] NTT DOCOMO, "OREX Official Site," NTT DOCOMO, 2024. [Online]. Available: <https://ssw.web.docomo.ne.jp/orex/en/>. [Accessed 5 November 2024].

# NEXT GENERATION MOBILE NETWORKS ALLIANCE

NGMN is a forum established in 2006 by world-leading Mobile Network Operators. NGMN is a global operator-led alliance comprising nearly 70 companies and organizations, including operators, vendors and academia.

Its objective is to ensure that next generation network infrastructure, service platforms, and devices meet the requirements of operators and address the demands and expectations of end users.

## VISION

The vision of NGMN is to provide impactful industry guidance to achieve innovative, sustainable and affordable mobile telecommunication services for the end user with a particular focus on Mastering the Route to Disaggregation, Green Future Networks and 6G, whilst continuing to support 5G's full implementation.

## MISSION

The mission of NGMN is:

- To evaluate and drive technology evolution towards the three **Strategic Focus Topics**:
  - **Mastering the 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:**

Developing sustainable and environmentally conscious solutions
  - **6G:**

Anticipating the emergence of 6G by highlighting key technological trends and societal requirements, as well as outlining use cases, requirements, and design considerations to address them.
- To define precise functional and non-functional requirements for the next generation of mobile networks
- To provide guidance to equipment developers, standardisation bodies, and collaborative partners, leading to the implementation of a cost-effective network evolution
- To serve as a platform for information exchange within the industry, addressing urgent concerns, sharing experiences, and learning from technological challenges
- To identify and eliminate obstacles hindering the successful implementation of appealing mobile services.