Intraway

Empowering Next-Gen Networks with No-code Orchestration

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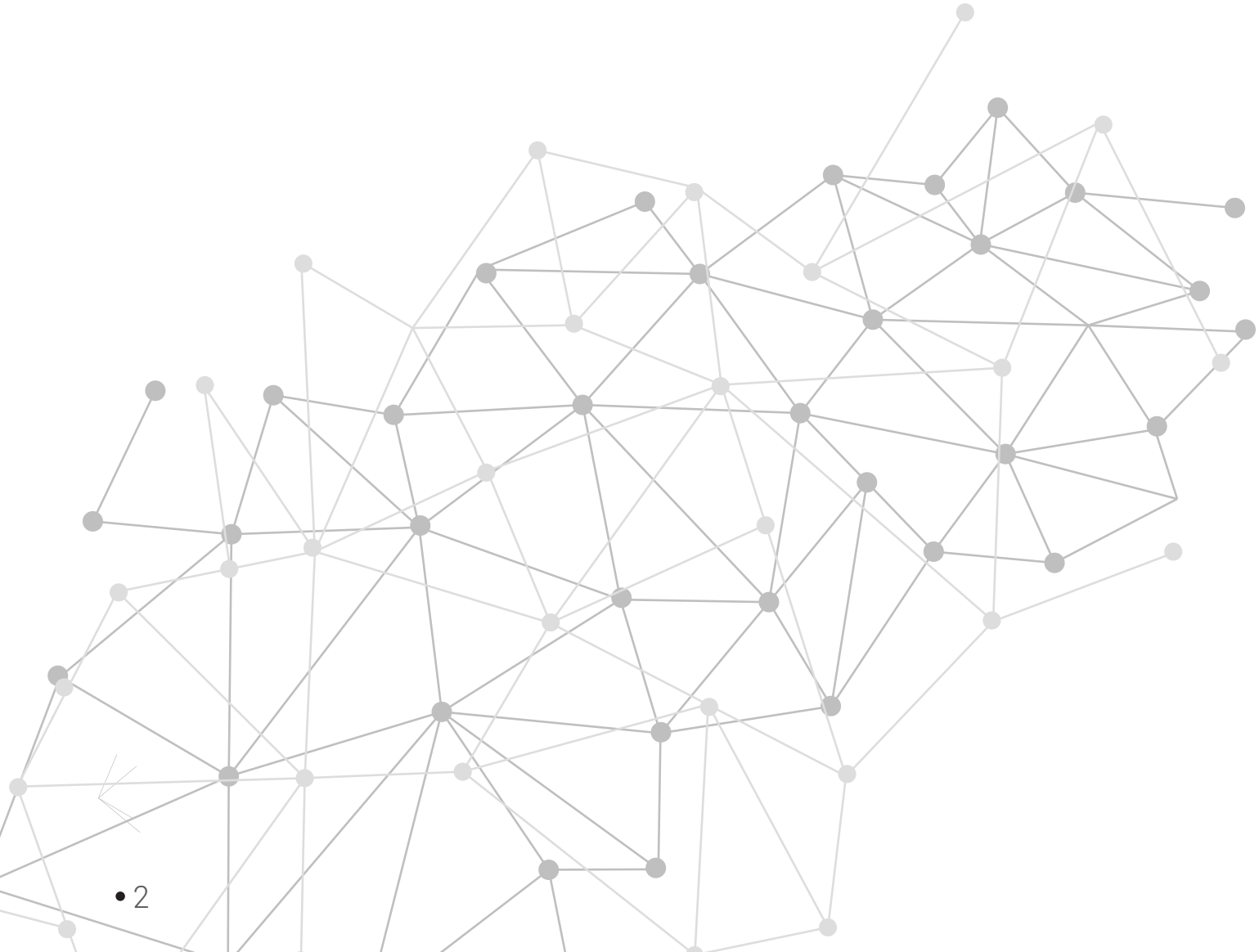


Empowering Next-Gen Networks: A Vision for 2022

Demands Soar, Revenue Lags

We are all aware that for the last few years, the telecom industry has found itself in a situation where traffic and connected devices grow exponentially while revenues maintain linear growth. **On one hand, the traffic growth curve is showing behavior similar to that of Moore's law: it doubles every 2 two years. While on the other hand, revenue growth remains below 3% per year.**

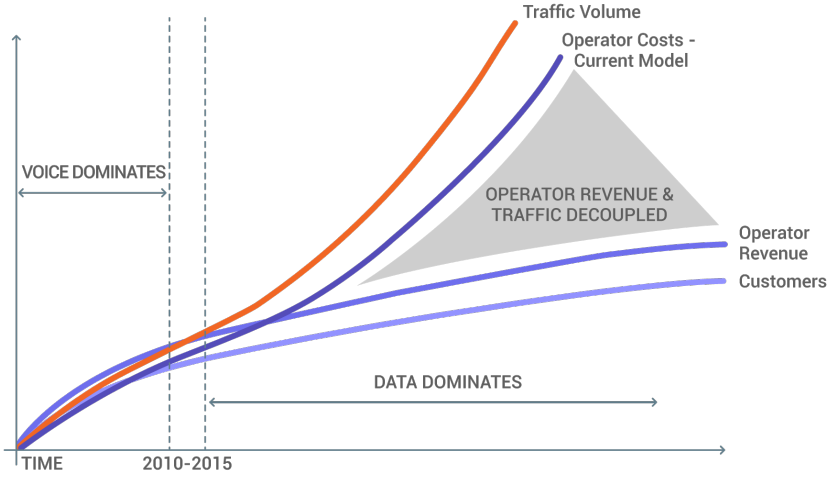
Although networks are evolving and the cost per giga of traffic is reduced year after year, this is still not enough to offset the traffic growth. Clearly, this combination reduces the business margin as traffic grows.

The market is saturated, and competition between operators is fierce. Customers have evolved and now demand new, innovative and customized products that anticipate and fulfill their business needs immediately.

This market demand exerts extra pressure on the business and the operation, which must constantly invest in the design and introduction of new products, while bringing them to market quickly, placing additional pressures on the company to be flexible and agile.

Revenue and traffic decoupling

The great challenge



Key Challenges

- Market saturation
- Legacy systems and processes (need to evolve fast)
- Fast-changing customer expectations
- Differentiated offer

*Discrepancies between traffic growth and revenue growth (Source: Accenture).

Further, there has been a massive explosion in the introduction and rollout of OTT platforms. Bandwidth has become a commodity, and CSPs must rethink in order to expand their offer and generate new sources of revenue in an extremely agile way. For example, if Netflix launches its 4K service and the CSP does not have sufficient capacity, the subscriber will most likely migrate to another CSP that offers what they need.

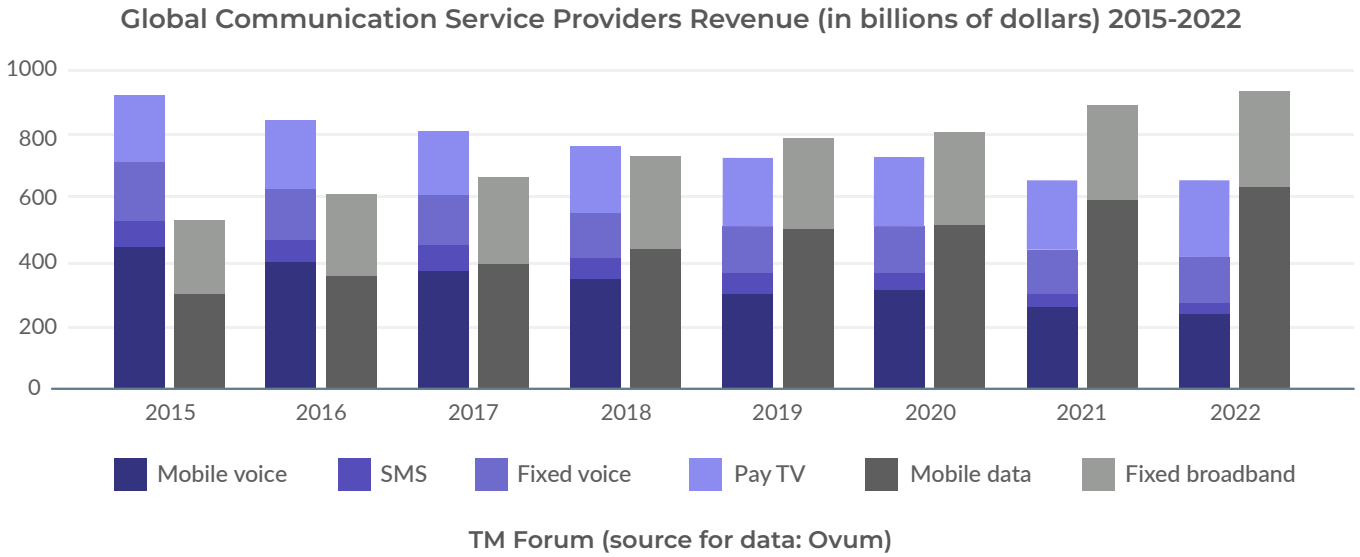
For Telcos, the competition for "the customer's wallet" has widened. They no longer compete against other Telcos, but also against other software platforms.

The reality is that traditional communications services as offered by today's consumer outlets are being cannibalized by OTTs. They have to be ready to launch new, differentiated services, quickly and automatically.

Voice, messaging, video and business services, as well as no-ad and music services, are beginning to be provided by digital companies riding on their data networks, which generate a much greater demand for bandwidth and ubiquitous access.

New Technologies, More Competition

Cannibalization of traditional services



How income related to data services - both mobile and fixed - grows while the income from Voice, SMS and Television services decreases.

Given this scenario, **we will discuss how Intraway supports CSPs in their path to becoming Digital Service Providers by adapting their processes, platforms, and systems to achieve automation and obtain immediate benefits:**

- Agility: A key factor to adapt to growing demand and constant changes.

- Operational excellence: The fact that processes are automated makes it possible to improve the operation radically.

- Reduce time-to-market, efficient value streams, and lean operations.

- Speed up product creation and offer.

A View on Digital Transformation

A survey conducted in 2020 by Harvard Business Review magazine revealed that 84% of those surveyed consider that digital transformation brings with it the opportunity to develop new businesses and, in line with this, the majority (70%) understand that digital transformation is key to the development and evolution of the business. As a result, 75% of those surveyed value the ability to respond quickly to the demands of their customers.

Digital transformation is seen as a critical process for the generation and success of new businesses. Being agile to meet the growing and constant demands of subscribers is key.

"86% of nearly 700 respondents in a recent survey by Harvard Business Review Analytic Services say transformation requires a combination of the right culture, revised business processes, and new technology. However, only 20% of them — not many more than in the recent past - rate their transformation strategies as being effective."

Also, TM Forum stated that CSPs must transform into DSPs. If they do not take this seriously, many business opportunities and market penetration against competitors will be lost, together with the agility to embrace changes.

Progress in addressing these challenges is so slow that Gartner predicts that by 2025, technical debt will consume more than 40% of operators' current IT budgets. CSPs often struggle to balance 'quick fix' changes to meet short-term business needs (which only increase their technical debt) with investing in the sustainable long-term transformation of the business and the software that runs it.

> ***"CSPs are transforming too slowly to capture the new value they are helping create"***

"Migration lessons for modernizing CSP IT", TM Forum

Three Pillars for Digital Transformation

Digital Services	Digital Network	Digital Operations
5G	Flexible	5OSS/BSS
IoT	Programmable	Evolution
Broadband	SDN/NFV	
Mobile	Network Slicing	
B2Bs	New Operational Model	
	Active Inventory	

*"Cloud Native OSS/BSS" TM Forum

The previous image shows the pillars or central ideas on which the TM Forum proposes that Telcos (or CSPs) successfully carry out their digital transformation process.

When digital services are mentioned, it refers to the services/products that CSPs are contemplating launching (they could be existing technologies such as GPON, HFV or in the development/deployment process such as 5G, IoT, etc.). In terms of digital transformation, today's subscribers expect to access these services immediately, under a simple, frictionless process. If that can be accomplished via self-service, even better. **Acquiring services autonomously is one of the fundamental pillars of digital transformation.**

In order to meet business demand, it is necessary to rethink the network. It should not be seen as something rigid or static. Digital networks have a high software component, which provides exciting features, considering flexibility, resource optimization and incorporation of new functionalities.

Today, network automation involves complex orchestration processes across multiple network devices (physical & virtual). Moreover, these processes must be executed on time, in full, error-free, and at scale.

The third pillar is Digital Operations, which suggests modernizing the OSS/BSS systems that allow the definition, creation, commercialization and operations of digital services and orchestration/activation of new platforms/technologies operating on digital platforms networks.

This new context requires B/OSS systems with greater advanced capabilities and modern, standards-based, open, flexible, and scalable architectures.

Definitely, the networks of the future will have a high degree of automation. As Jeff Bezos says, agility is an essential characteristic to differentiate ourselves from the rest, to be able to satisfy the demands and expectations of our clients.

To say that something is automatable implies that it is programmable, and if something is programmable, we have in our hands a tool that can undoubtedly provide agility and flexibility.

The advantages of automation are so relevant that we cannot conceive of a future network that cannot be programmed. Network elements/systems that do not support this interoperability concept are less likely to last. **The trend is clear towards an open, interoperable, standards-based ecosystem that allows "everyone with everyone" communication.** If something does not have API / interfaces, it will be isolated and obsolete in the short term.

The future networks will be governed by autonomous processes that allow the allocation and release of resources. Automation will help to drastically reduce errors due to manual tasks.

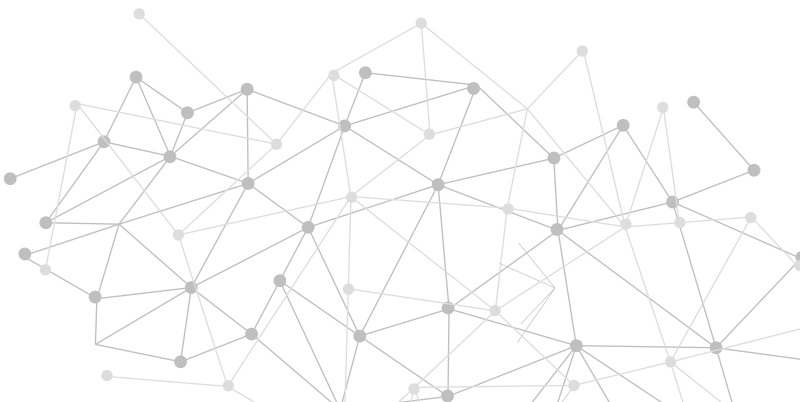
Meanwhile, the concept of Zero-Touch service orchestration takes hold: no type of manual intervention is necessary to deploy new equipment (either on the network or at the customer's residence).

These concepts directly impact various business KPIs, ranging from Operational Excellence, Time to Market, and OPEX reduction.

The networks of the future are no longer static, rigid systems—quite the opposite. Instead, the networks of the future are software-driven and will be as flexible as the business requires.

The Next-Gen Network

Two concepts are constantly present and set the course on the path to digital transformation: Automation and Serviceability.



Automation = Programmable ⟶ Agility + Flexibility

Zero-touch (frictionless) service orchestration.

Eliminate error prone manual tasks on service.

No-Code Orchestration: Expanding the Possibilities

An orchestrator is a tool that manages end-to-end business processes, such as the activation of services for a client, and coordinates the execution of all the tasks to fulfill this process.

A "no-code" orchestrator provides a graphical component, a visual tool that is very simple and fast to design new business processes or integrations. This agility is key because it is one of the characteristics that businesses demand today.

What other tools are part of a modern OSS?

- Service Orchestrator
- Services
- Inventory
- Resource Orchestrator
- Resources Catalog

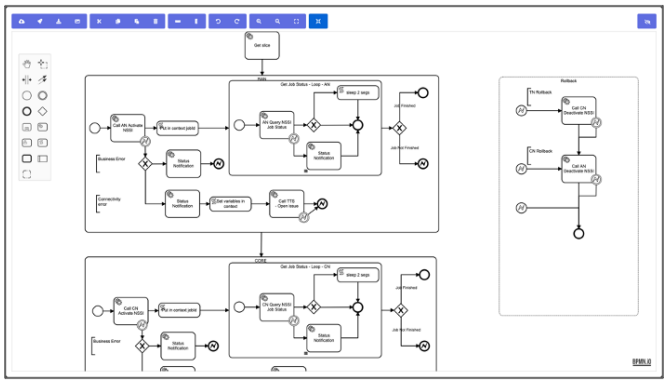
The following image illustrates what we mean when we talk about no-code.

On the left, we see the classic image of any code. It is evident that it is complex to read, and you must have a trained mind to "interpret" what this code does.

On the right, we see the image of a flow developed on a no-code platform. On no-code platforms, the development process is significantly more agile. Being mostly a visual tool, the creation of routines or flows can be carried out by network engineers (not developers), and the "development" process is carried out mainly by "drag & drops" and connecting "boxes."

TRADITIONAL CODE SAMPLE

LOW-CODE SAMPLE



Benefits of a No-Code Orchestration Platform

One of the most important benefits of a no-code orchestration platform is agility. The use of graphical tools significantly simplifies the effort required to create/modify business processes, which implies that launching a new service is measured in terms of hours rather than weeks. Hyper-specialized development resources are no longer required, but instead, a trained user (operations) to perform the modeling.

Also, CSPs can avoid vendor lock-in. A no-code orchestrator allows breaking this dependency by adding support for multiple vendors for a specific technology (i.e. SD-WAN). This is accomplished through configuration. It is not necessary to change the orchestrator code itself.

No-code orchestration platforms are designed to connect any element, whether software or hardware, with a communication interface. The no-code platform supports multiple out-of-the-box protocols, guaranteeing that integration with future platforms/network elements is simple and straightforward, leveraging industry standards (TMF, etc).

We see no-code orchestration systems as the future. These platforms provide outstanding flexibility and agility in creating business processes. Moreover, they are necessary tools to support high user demand for new products, delivered "instantly". Creating service-oriented automation processes with a no-code platform is a snap and, in many cases, a few clicks away. The platform provides a wide range of tools that allow you to orchestrate and integrate very complex activation flows, multi-vendor network devices and virtual services without writing a single line of code and without really having to hassle with the underlying details of the network protocols.

Orchestration capabilities must evolve to handle the end-to-end service lifecycle, collecting information from the network and automatically acting accordingly to dynamically adapt resources to demand and automatically optimize configuration.

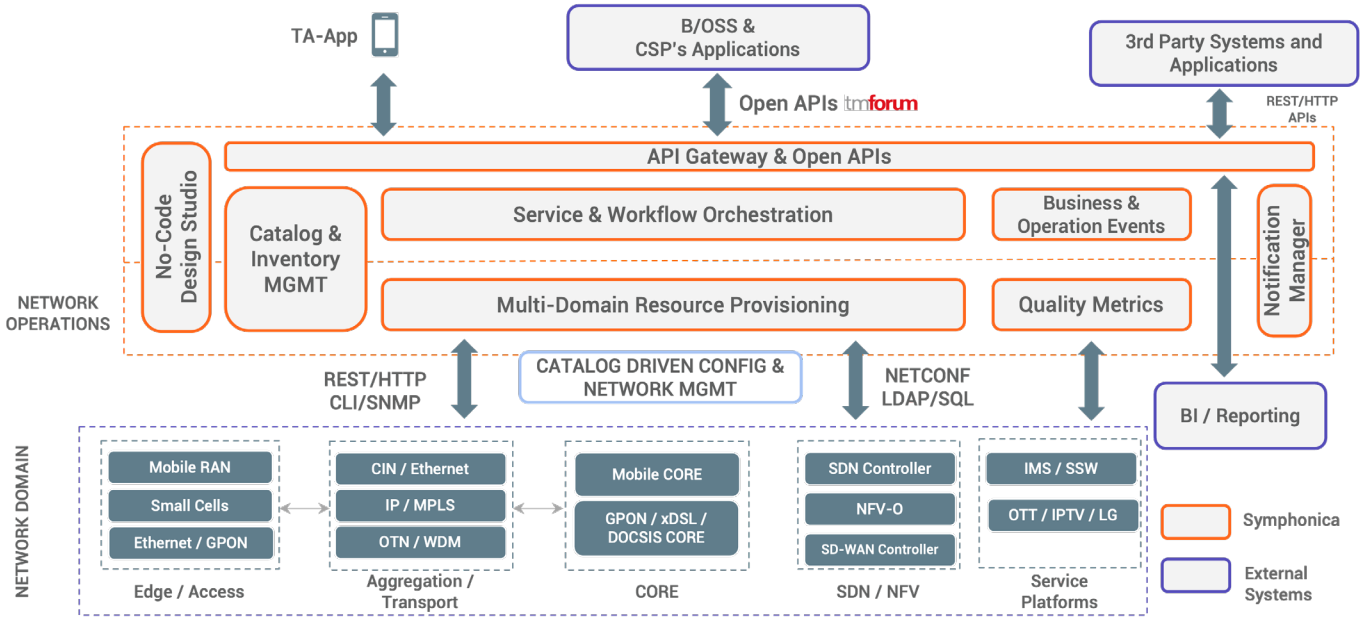
This new paradigm of self-adaptive networks and zero-touch automation will be essential to support the scale of 5G networks and massive deployments of IoT.

Intraway's No-Code Cloud-Native Orchestration Platform: Symphonica

Intraway's no-code cloud-native provisioning and orchestration solution, Symphonica, is designed to accelerate CSPs transformational goals in building future-proof networks. Whether they need to deploy SD-WAN/SASE, GPON, 5G Small Cells, or Remote PHY, or other technologies, Symphonica SaaS stands ready to support them with multiple use cases and deployment scenarios. It is designed to allow CSPs to automate service lifecycle management without investing in time-consuming and budget-heavy projects.

The following diagram shows how Symphonica is compatible with a wide variety of vendors across many different technologies. **Symphonica is orchestrating various networks and technologies, abstracting the BSS from all the complexity of the network. The BSS carries out the sale of a specific service and sends Symphonica the service order to be executed. Symphonica then disaggregates that order into multiple smaller operations and drives all the necessary network/platform elements to provision an end-end service.**

Symphonica High level Architecture



Symphonica was born and designed to make the most of the attributes and facilities of cloud environments and is certified by Amazon.

Symphonica Highlights

- **Northbound Interface:** Simplify integration with operator's B/OSS systems. Based on TM Forum Open APIs.
- **Field Service App:** Provides end-to-end automation, simplifying & certifying installations.
- **Provisioning workflows:** Pre-built and ready-to-deploy designed and tested following industry best practices.
- **Southbound Connectors: O**ff-the-shelf, ready-to-use integrations with the industry's main vendors.
- **Monitoring Workflows: A**utomated processes support remote diagnosis and management of service.
- **Management web Portal:** Operate the service and self-manage configuration.

Onto the Digital Transformation Path

Automation and service availability enable operators to develop network capabilities such as dynamic provisioning, autonomous networks and network as a service (NaaS). These capabilities provide the benefits of operational excellence, OpEx reduction, and faster time to market.

On your journey towards becoming a Digital Service Provider, Intraway's Symphonica plays a key role in developing and deploying new (and changing) digital services quickly, creating a more efficient Digital Operation:

- **Dynamic Provisioning:** The efficient use of network resources. In general, the virtualization of network functions and distributed architectures, such as RPD or Small Cells, enable virtual resources as required (vCCAP, virtual routers, virtual switches, etc.) and, in turn, release them when demand decreases.
- **Autonomous Networks:** Networks are no longer passive and are increasingly "intelligent". They have the ability to collect and correlate metrics (based on data or events) and trigger optimization actions (Self-healing, Self-optimization).
- **NaaS:** With virtualization, networks add the ability to expose certain "functionalities" as a service and provide an interface to be consumed by any platform. By exposing the network as a service, a variety of new and powerful business models are enabled, including the ability for end-users to configure and operate the network through APIs.

With these concepts in mind, we hope you embark on the journey to become a DSP sooner rather than later. At Intraway, we are ready to be your partner in your digital transformation journey.

Intraway
AMAZING DELIVERY

Intelligent Automation for the Autonomous Network

Supporting the service of over 40 million subscribers in more than 20 countries over three continents, Intraway's mission-critical solutions help global telecommunications operators create the network of the future, today. By unleashing the full potential of networks, Intraway's no-code provisioning automation solutions add the latest, cutting-edge functionalities to speed up time-to-market, reduce operational costs, and advance customer-centricity.

Not only do we empower leading communications service providers with innovative, highly configurable, and ready-to-deploy cloud-native solutions that enable seamless provisioning, orchestration, and first-rate service assurance, we do it while guaranteeing Amazing Delivery. This means that from our first handshake through deployment and beyond – we are a trusted partner for the complete service life cycle that is working side-by-side with leading operators towards their success.

Join us and secure your position as a key player in the global digital transformation.

www.intraway.com