Intraway

4 Use Cases to Support CSPs' Digital Journey

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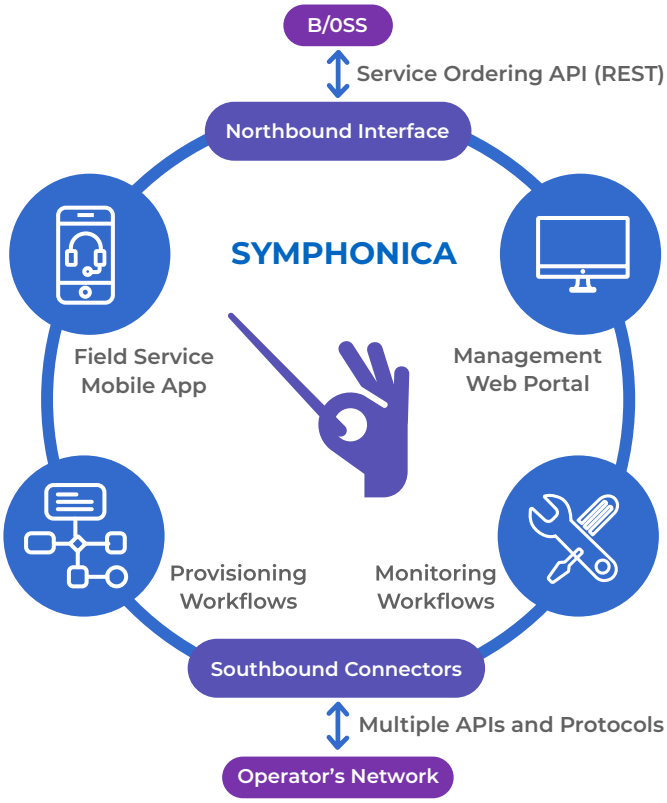
As an efficient business growth engine that manages orders, end users and devices at internet scale (millions), every day, Intraway's Symphonica reflects how modern, no-code cloud-native software design and lifecycle management principles can meet Communications Service Providers' (CSPs) forward-looking operational needs in service provisioning, activation, and orchestration while resetting to an improved technological and economic trajectory.

With Symphonica, CSPs can integrate their business support systems with any network access technology. Moreover, Symphonica contributes to CSP's business success through:

- Helping to grow revenue, EBITDA, and Free Cash Flow Enabling faster customer & revenue growth through real-time integration and automation
- Reducing customer churn through a positive provisioning experience
- Allowing wider and faster expansion of the product portfolio.
- Establishing and extending self-service capabilities of field/ customer operations, direct customers, and operations partners.



In this white paper, we discuss the strengths Symphonica brings to CSPs as we explore use cases ranging from Metro Area Networks Ethernet E-line and SD-WAN to GPON and 5G network slicing.

Use Case: Orchestrating Services with a No-Code Cloud-Native Solution

No-code, cloud-native orchestration and provisioning solutions are designed and developed to accelerate CSPs' transformational goals in developing robust, future-proof networks.

This means that the solution can support them with multiple deployment scenarios and use cases if they have to deploy GPON, SDWAN/SASE, 5G uCPE, or Remote PHY. CSPs can therefore automate service lifecycle management more effectively without investing in time-consuming and expensive projects.

There are many benefits of using no-code with orchestration. A key benefit of leveraging this solution is agility. Using graphical tools considerably simplifies creating and modifying business processes that drive network services provisioning.

Empowering CSPs with No-Code Orchestration

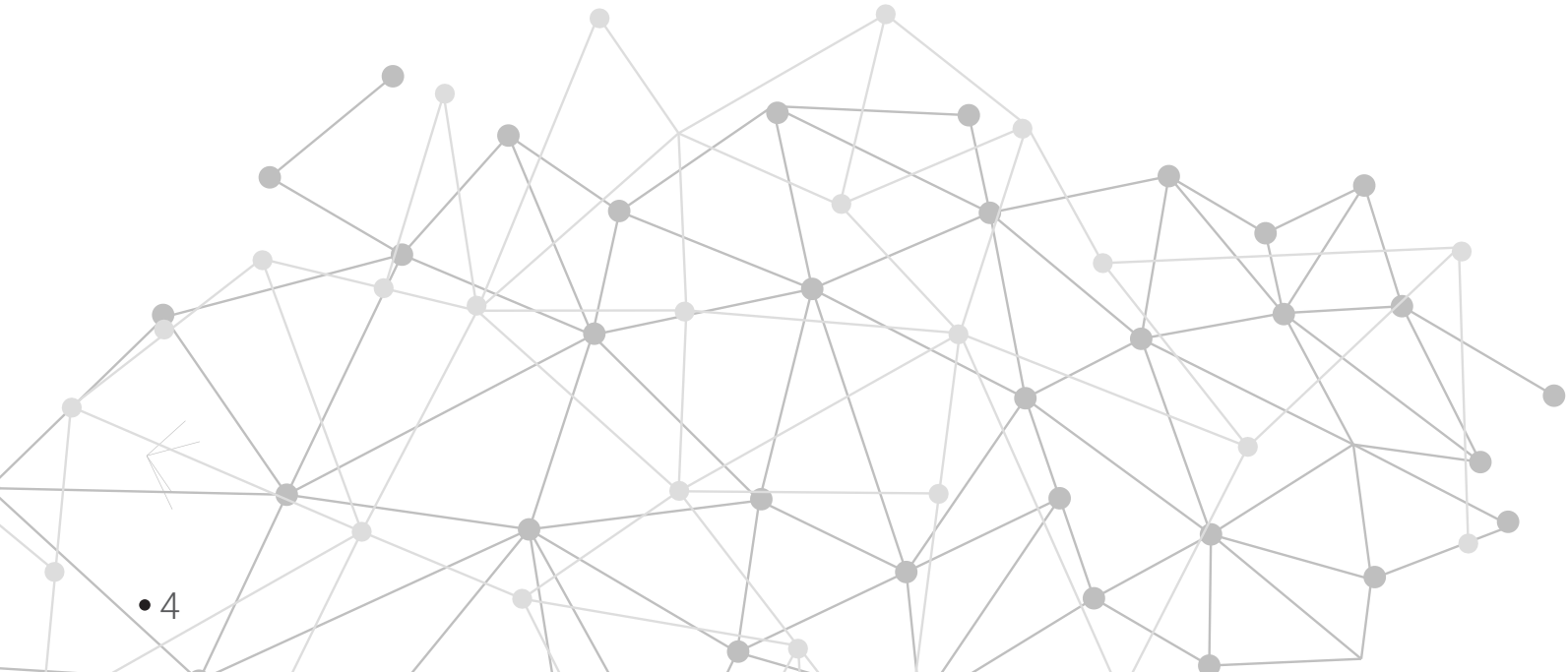
The demand for connectivity services and traffic has been exponentially growing for decades, and telecommunications operators worldwide have responded to it.

There is also the added pressure and expectation to deliver new and customized services that anticipate and meet customers' needs and preferences immediately.

It is clear that this market demand puts more pressure on communication service providers' business operations, requiring them to be agile, flexible, and move towards autonomous networks. A no-code cloud-native service orchestration and provisioning solution, such as Symphonica, can enable CSPs to move toward autonomous networks.

Through this solution, CSPs can successfully navigate the uncertain and complex path to a more flexible BSS architecture while meeting customer demand expectations efficiently.

No-code service orchestration plays an essential role in developing, designing, and deploying new and improved digital services quickly, which create more efficient digital operations.



Use Case: Provisioning for Next-Gen Broadband

The automation of provisioning and activation will be central to meeting customer experience targets as service providers increasingly roll out DIA over GPON and other next-gen broadband services.

As volumes scale up, interest in GPON continues to increase. As a result, the global GPON market is projected to grow from roughly $10 billion to more than $30 billion by 2028 (Source: Global Market Insights). GPON is one of several next-generation broadband solutions that have gained market momentum. It uses an efficient 2-tier architecture designed to support multiple, interactive services on a common fiber.

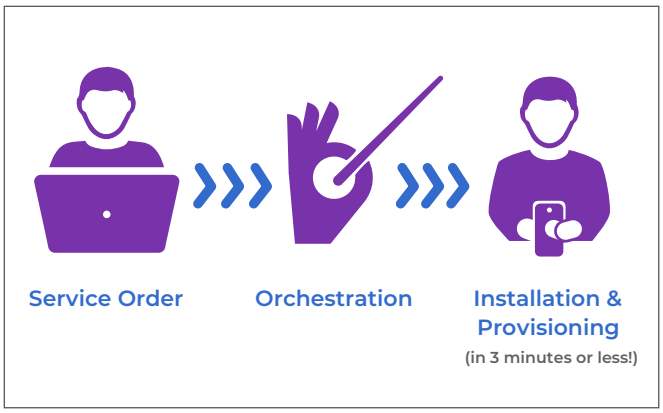
$30 Billion

Global SD-WAN Market by 2028

Source: Global Marketing Inside

Automating the process at scale

It is natural to look at things one order at a time when breaking down and decomposing any provisioning process. But it is important to remember that, at any given moment, there might be thousands of different types of order flows. Also, any one customer order can comprise multiple business, service, and technical orders that must be fulfilled for the service to be delivered to the customer. This mass of complex processes can quickly scale and become cumbersome without automation.



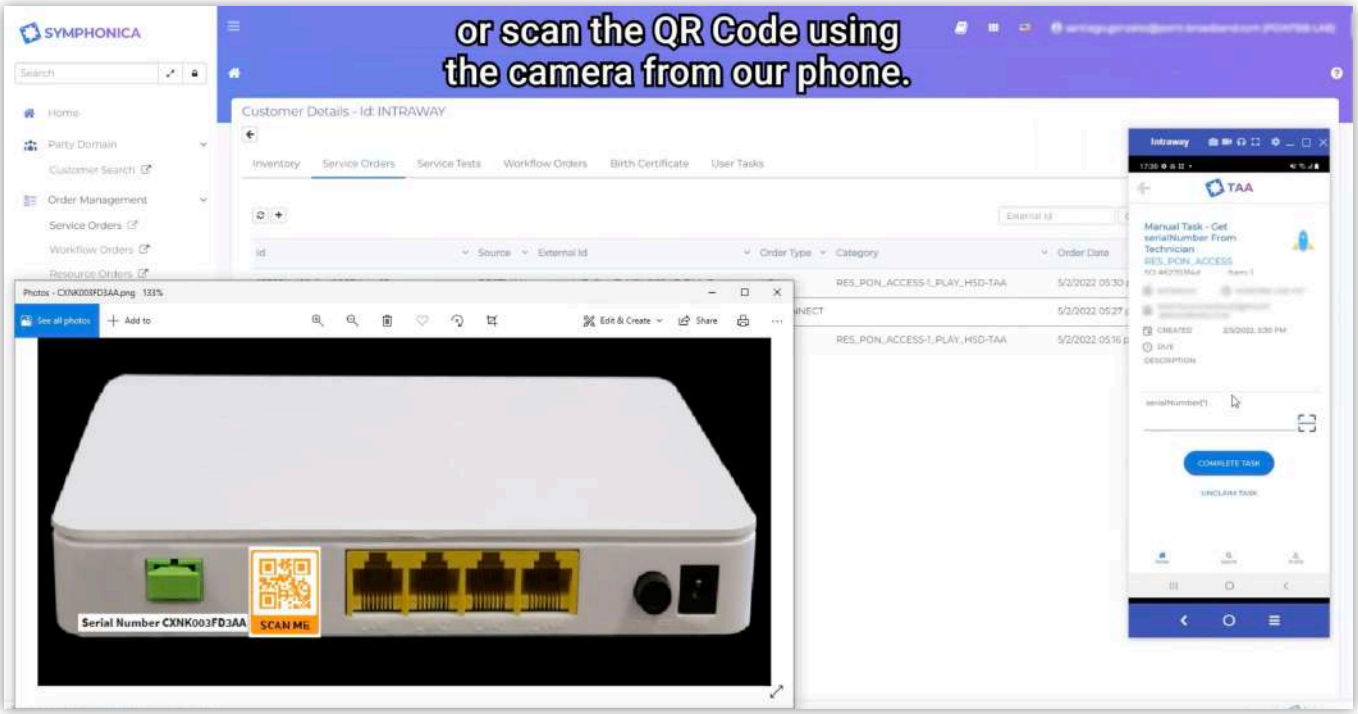
From service order to activation in a few minutes.

In this example, Symphonica receives a service order from a customer relationship management (CRM) system or other business support system (BSS) for a DIA over GPON service. Symphonica's subscriber management component utilizes a CRM emulator, which allows the system user to see order and customer details, gain context around the customer scenario, and visualize all the steps and dependencies involved in delivering the ordered service.

As soon as Symphonica receives the service order, it orchestrates and activates multiple services across the OLT manager, the edge router, the customer premises component, and the core network.

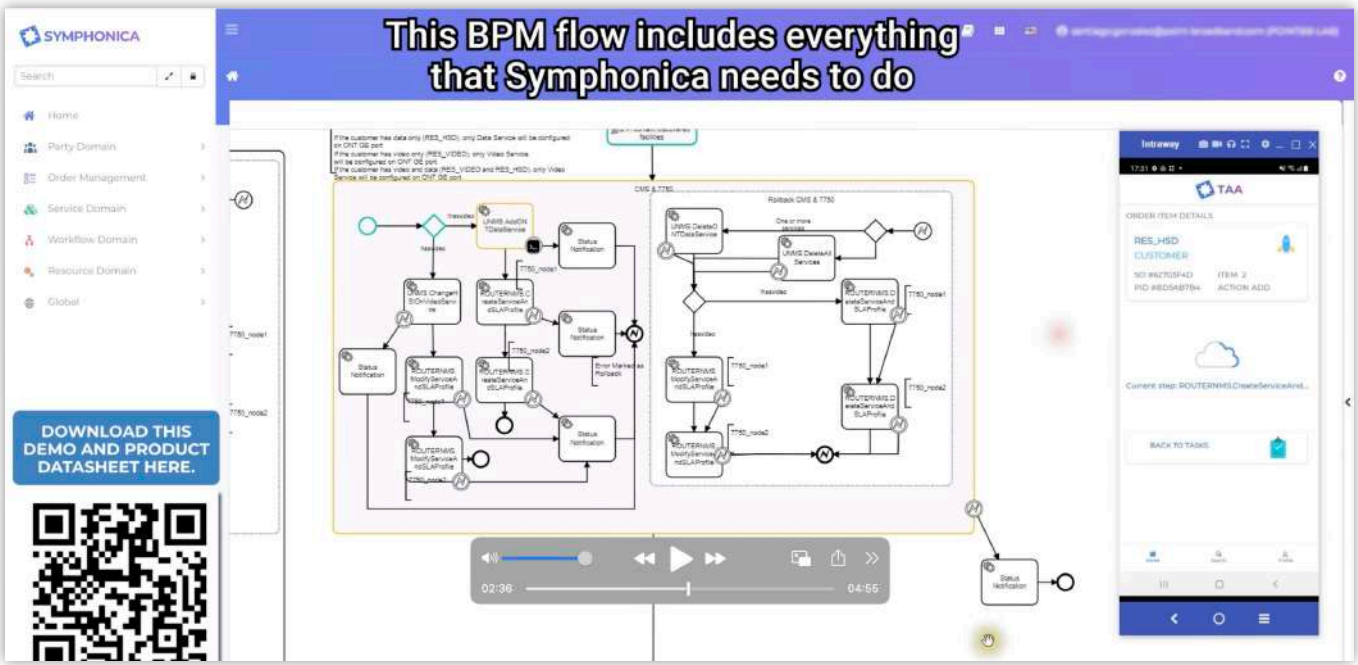
Configuring the service

An order will generate tasks that technicians can claim via the Symphonica Tech Assist app. One of the primary tasks is installing an optical network terminal (ONT) for the customer. Then, using the app, the tech can scan a QR code on the device to capture its serial number and associate it with the order in progress so it can be zero-touch activated.



Now, while the end-user device is ready to be activated, the service depends on sophisticated provisioning both in the core network and the GPON controller. For example, Symphonica configures the GPON manager with a series of commands sent via SOAP using a Symphonica connector.

But Symphonica also provides the core design and visualization capabilities needed to automate the process, understand sequences and dependencies, and monitor the execution of visualized process flows in real time.



Assuring it works

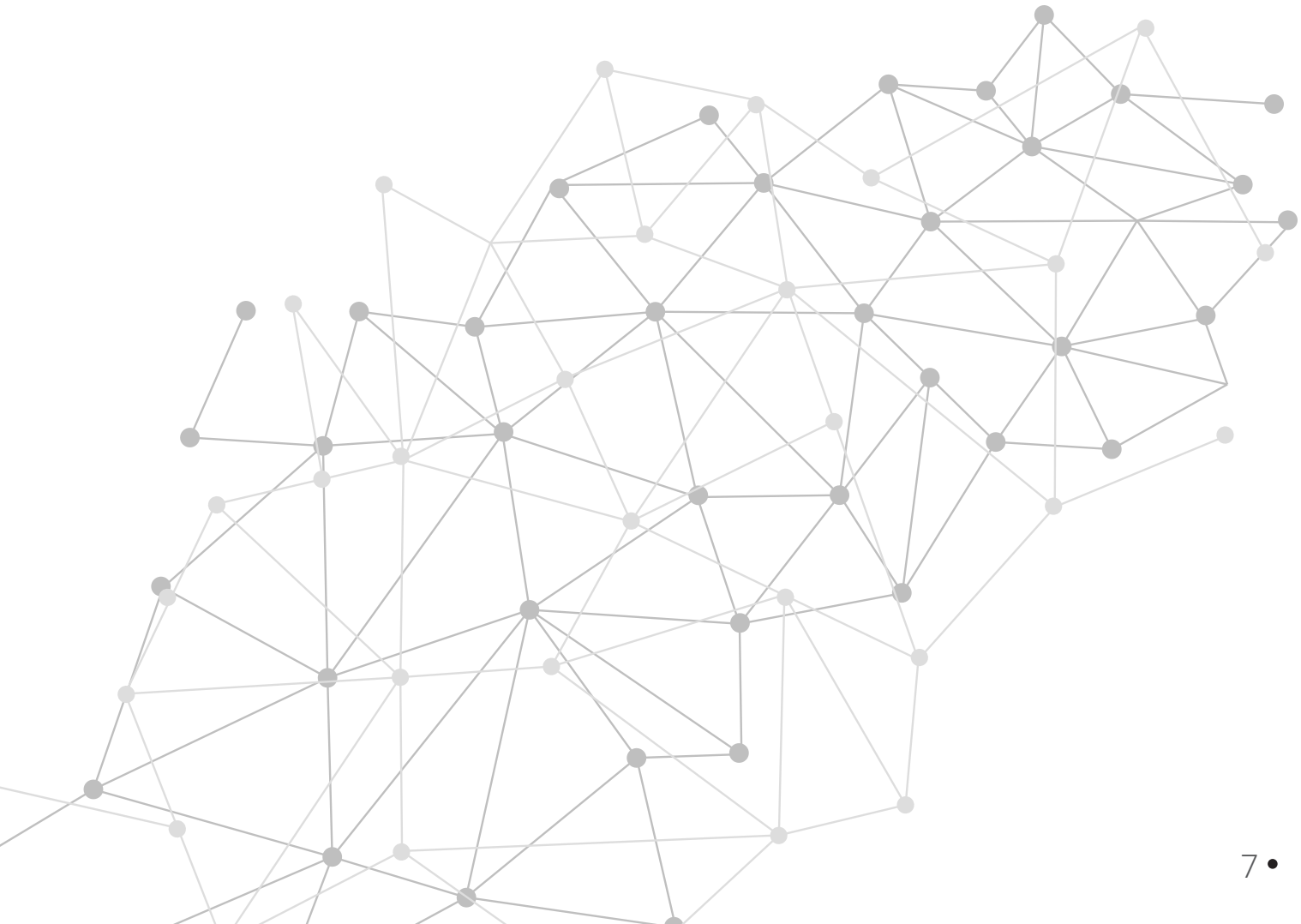
As process flows execute, technicians can be prompted automatically with notifications, via the Tech Assist app, of order execution status, when their next tasks are ready to be performed, or if other follow-up actions – like total or partial fallout processes – are necessary. Techs also have the option, via the app, to investigate every component of the order to see its status and whether there are any issues associated with it.

Once the configurations are complete, the process flows query information from the network and installs the device itself. With installation and activation complete, the service can be validated as active and accurately provisioned from the customer's perspective, after which the order can be closed. Symphonica stores all the relevant order information in its inventory to associate services with devices and customers, thus offering an up-to-date customer-centric record that reflects the actual state of the network.

In the end, this automated approach turns what can be a multi-day service activation process into a 5-minute exercise in which every step but physical device installation is automated end-to-end.

Gearing up for growth

In order to grow their revenue, service providers face many new market opportunities and threats. Broadband is driven by demand, but delivering a world-class customer experience, at scale, to various customer types, with many configuration possibilities, is a challenge. Moreover, for it to work continuously, it needs automation, observability, and the ability to adapt process flows via configuration, not customization.



Use Case: Automating SD-WAN provisioning

The global SD-WAN market is slated to grow at a nearly 35% compound annual growth rate (CAGR) through 2025, expanding from $1.9 billion in 2020 to $8.4 billion in 2025, according to Markets and Markets. Communications service providers (CSPs) want to benefit from this growth and win as significant a share of the expanding market as possible. This puts SD-WAN service delivery, time to market, and customer experience in the spotlight for CSPs who face strong competition for sophisticated customers who want more autonomy in how they consume technology services.

Automating SD-WAN delivery has become imperative for CSPs because it is a dynamic service based on virtualization technology that has blazed the path to cloud-native enterprise networking. Intraway's Symphonica provides a textbook example of how a true, no-code, cloud-native service provisioning, activation, and orchestration solution automates SD-WAN service delivery to underpin a world-class customer experience in this rapidly growing service category.

$8.4 Billion

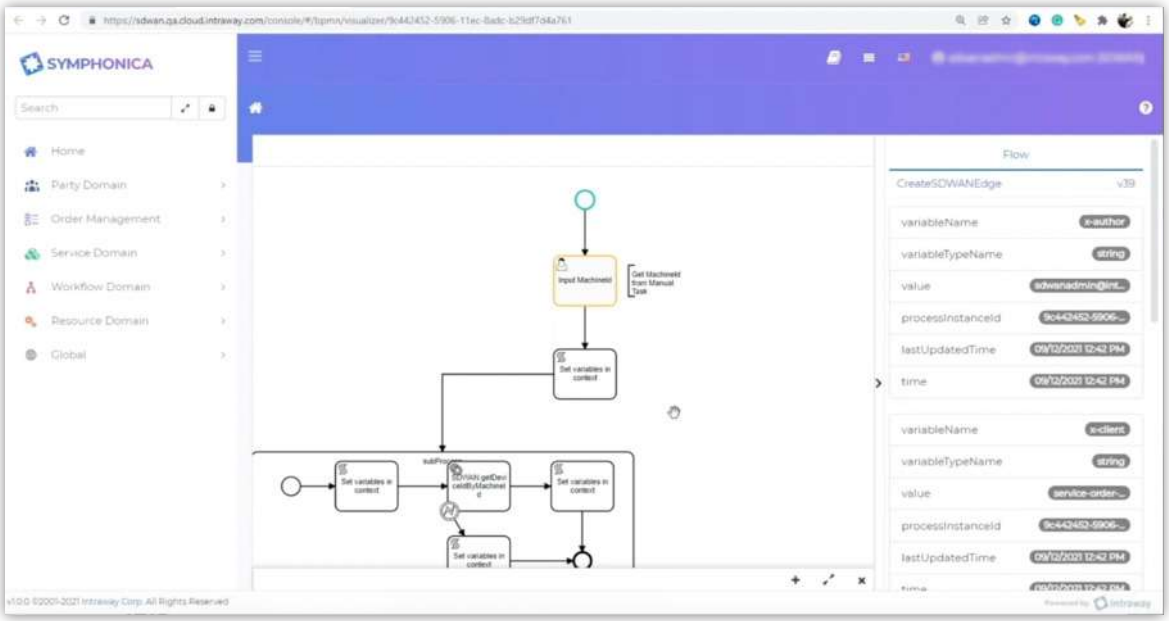
Global SD-WAN Market by 2025

Source: Markets and Markets

Start with an order

Symphonica is always ready to act in response to an event, like an order for SD-WAN service passed to it from a digital experience layer, CRM component, or billing platform. Symphonica is open and TM Forum compliant, so orders can be exchanged using the TM Forum Service Ordering Open API (641). As a result, Symphonica can be agnostic as to the type of system that sends it an order.

An order for SD-WAN service can kick off a series of predictable tasks, each of which Symphonica manages. The key is how many edge endpoints need to be configured and how many tunnels will connect them. In a basic example, we have two edge sites connected by a tunnel. As a result, the order decomposes into three key activities – provisioning each edge site and connecting them with a tunnel.

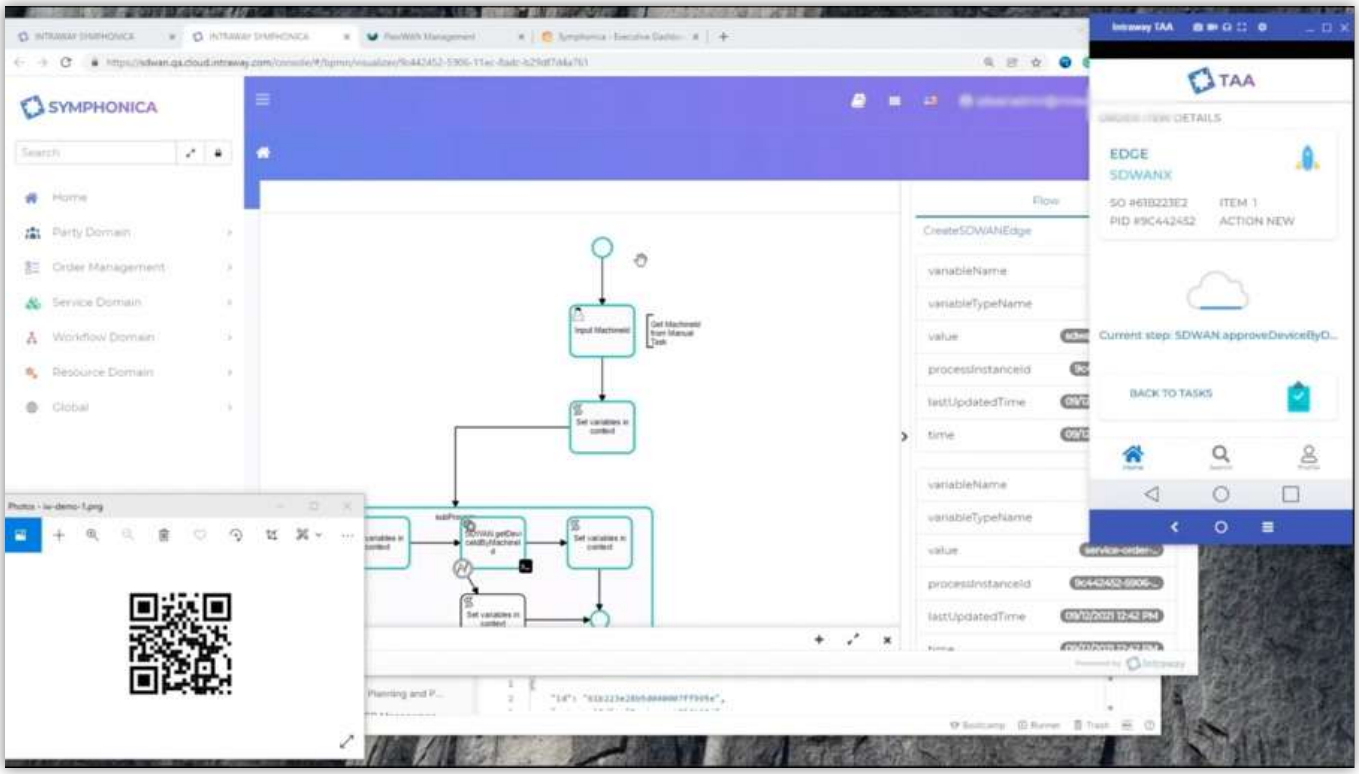


One of the important sidenotes for this kind of order is that it involves linear dependencies; the tunnels cannot be configured until the edge sites are in place. This contrasts with an order for a SIM and mobile device, for example, as either order can be executed independent of the other component, through the service will not be complete until both are joined and active. Symphonica can manage and automate either type of order – those with and without linear dependencies.

Visualize and Automate the Process

The individual process components and dependencies are visualized with Symphonica's design tools. In addition to providing a drag-and-drop style design with no coding required to create new provisioning flows, Symphonica's process visualizer also provides live status for any order. In this case, provisioning tasks can be color-coded, such as black for "pending," yellow for "needs doing next," and green for "complete." This makes it easy for a technician or other user to see exactly where any order is in its automated provisioning process, whether it is waiting on any dependencies, and whether those dependencies might require intervention.

Any task in the process is accessible from the Symphonica Tech Assist app. From this app, techs can claim tasks by scanning a QR code, which will provide information like site or node IDs, and follow those tasks through to completion. Task progress and status can be tracked step by step, with notifications of any additional tasks a tech might need to complete to close the order. In this case, the tech's job is largely to ensure that step-by-step, automated provisioning of the edge sites is completed successfully.



Finish the job

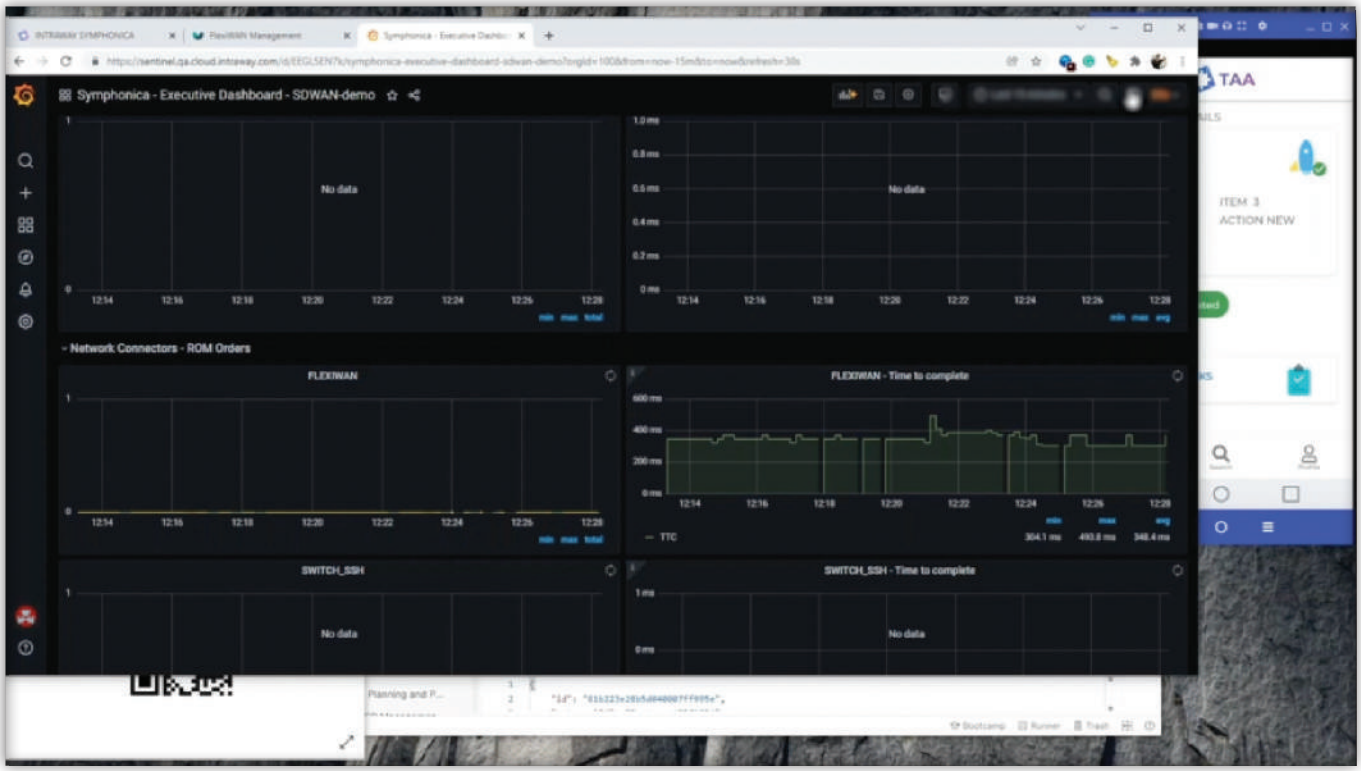
Once the edge sites are configured and validated by Symphonica as active, the tunnel between the edge sites can be configured. Once again, the tech can achieve all these steps through the app. To the user, the automation is nearly zero-touch, other than having an expert technician supervising its progress and potentially intervening in case of trouble.

Once the end-to-end service has been configured and activated, Symphonica can show the console or Tech Assist app user that each step in the process has been completed and validated to result in an active service. A check of the Intraway customer inventory will show an active end-to-end service, with detail for each of its constituent pieces, as a live record of the completed provisioning process and the current, still-active status (or not) of the service itself.

At this point, the service order is complete, and billing can start.

Measure results and improve

Stepping beyond the process itself, Symphonica provides the necessary tools to measure performance and diagnose issues in individual order flows or end-to-end processes. The Symphonica dashboard provides order-specific views, like activation and processing status, and organizational views that show overall performance for various orders for different customers or localities. The additional insight into the crucial operations processes Symphonica fuels cloud-native ways of working, like continuous improvement methodologies. As a result, CSPs can leverage Symphonica not only as a way to automate core processes and support improved customer experiences but also to improve them continuously over time.



Use Case: Automating provisioning to capture double-digit growth in metro-ethernet services

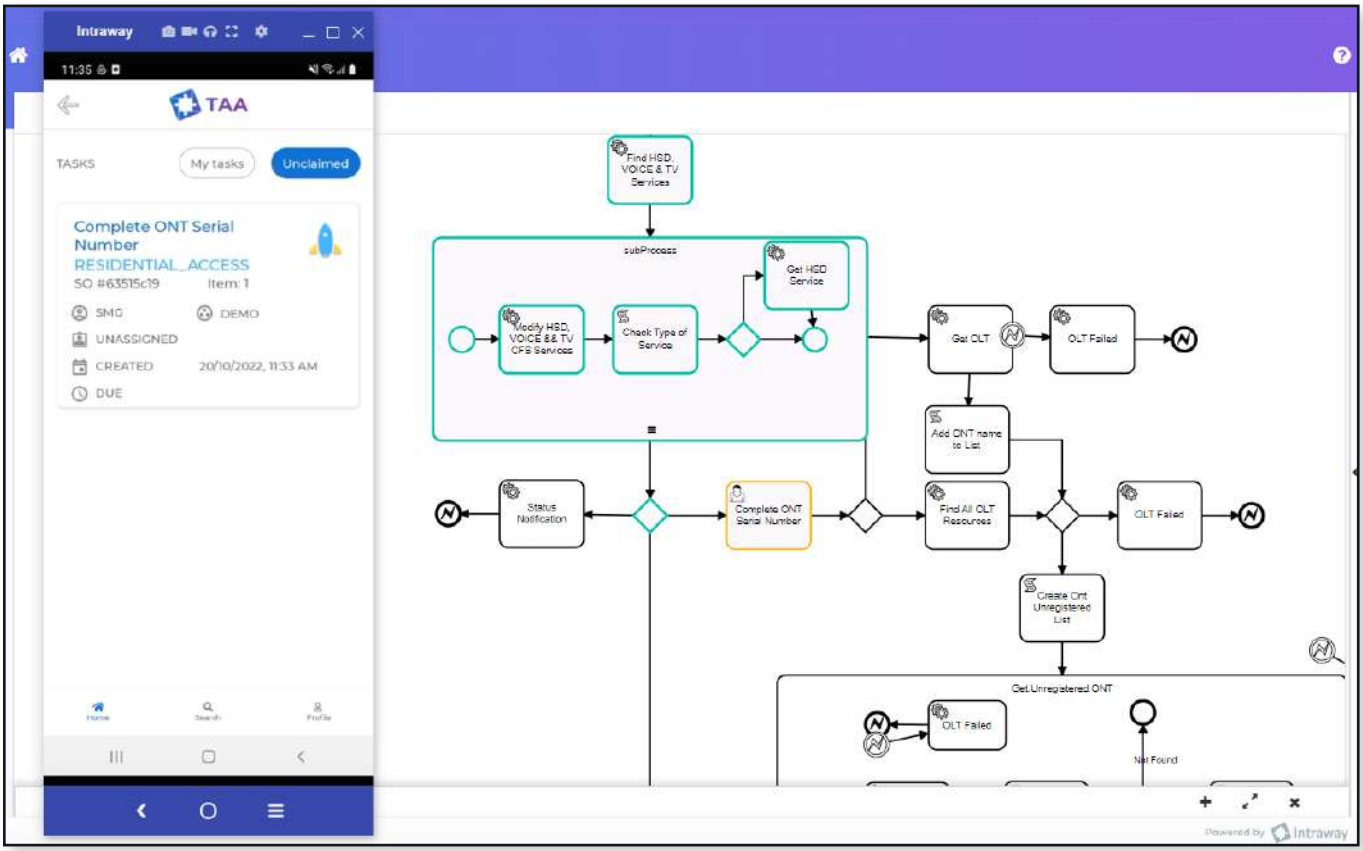
Metro-ethernet services are often used to create logical, private networks between offices or data centers moving large traffic volumes. Provisioning and managing complex, secure, logical services is conceptually like creating and managing network slices in the 5G world.

Intraway's Symphonica provides the out-of-the-box ability to automate metro-ethernet services provisioning and can offer a model for automating network slicing in the immediate future.

Here, we look at how Symphonic automates the most common metro-ethernet service, e-line. This creates a robust, configurable, point-to-point, private metro-ethernet connection between sites. In this example, we consider a customer that has the physical connectivity in place over which orders for services like ethernet can be provisioned.

Start with an order

As always, our provisioning example starts with an order which may be passed to Symphonica from any external system, typically a BSS or CRM. In our demos, we show Postman passing orders and inputs to Symphonica, but any external system can pass an order via Symphonica's TM Forum 641 service order API.



Using the Intraway Tech Assist App, a technician can claim a task or tasks related to provisioning this Ethernet service. Several components or domains need to be configured:

- The service domain, where the service's specifications are configured.
- The workflow domain, where the workflow and rules for fulfilling the service can be configured and monitored.
- Resource inventory, specifications, orders, and commands are configured in the resource domain.

The first task is to install a demarcation device, which Symphonica's connector can communicate with using multiple options, including APIs. In this case, it uses SSH protocol for secure remote log-in. Then, working from the order specifications, Symphonica can identify and configure each of the ports, including the aggregator port, the Link Aggregated Group (LAG), which links ports together, and the demarcation port.

Configure the service

The next step is to fulfill the access and direct-internet-access (DIA) service orders – two component orders related to the composite order. According to Tech Target, DIA is an ethernet-based service delivered over a single fiber optic connection that can support configurable upstream and downstream capacities ranging from 1 Mbps to 10 Gbps. DIA was conceived, at least partly, to fill enterprise needs for bandwidth as they outgrew traditional T-1s and sought a configurable layer 2 solution with less management complexity than layer 3 multi-protocol label switching (MPLS) services.

Whenever Symphonica receives an order, it assigns a token that is then attached to the header of every component order, request, or input related to the composite order. This is especially important as composite orders, and the sequencing of their component services become more complex. Using the Tech Assist app, a technician can review and execute all the component orders that make up the composite E-line service.

View execution in real-time

As Symphonica fulfills each part of each service component, it visualizes processes via the console or Tech Assist app so stakeholders can track the live status of every provisioning step. Users can see the process flow being executed at run time and in real-time, with simple color coding to denote status. For example, a green process block is done; a black process block is not yet in play; and a yellow block is pending completion, like manual equipment installations.

The user can click “complete task” to finalize the order when all processes are complete. The process visualization tool also provides access at this point to relevant information from any component, such as the input, output and logs recording the messaging between Symphonica and the network. This granular visibility provides added benefits like easier troubleshooting and simpler validation that commands were sent to the network correctly.

Important information like this persists in Symphonica’s service and resource inventory. Once orders are executed, all their detail can be found in Symphonica’s service inventory, which shows the activated and suspended services associated with any customer, including each component of the composite service and its service characteristics, sub-characteristics, and relationships to other components.

Don’t write code

For Symphonica, every aspect of this scenario can be designed and automated through configuration. Absolutely no new code needs to be written to deliver these services. Instead, operations are configured in Symphonica and sent to the network, with all related information received from both the service order and the network stored in Symphonica’s inventory.

The automation and repeatability this approach permits can be seen in the ease with which Symphonica can issue suspend, restore, and cancel orders for this complex service. The user can click on the customer’s service, click suspend, and the rest executes itself. The service can be restored just as easily or deleted in the case of a terminate order.

Reap benefits and repeat

With this kind of user-friendly facilitation, Symphonica automates not only the complete lifecycle for metro-ethernet services but for all such composite services, including 5G network slicing. For CSPs, the benefits are measured in faster order-to-cash processes, more rapid rollouts of new services and features, lower operations costs and overhead behind every provisioned order, and far superior customer experiences as a result of process visibility, timing, notification, and automated fulfillment.

Symphonica’s fundamental capabilities provide what service providers need to design, provision, activate, and ultimately closed-loop manage complex network services at scale, including E-line and the various forms of network slicing many are excited to bring to market. The types of component and composite service models and provisioning automation described here can be configured, repeated, and scaled to deliver new automation rapidly and enable complex services like 5G slicing.

Use Case: Delivering Assurance with Closed-Loop Automation

5G and fiber networks are being deployed rapidly by many communications service providers to build compelling market propositions based on ubiquitous 5G coverage. There have been over 26,000 commercial 5G rollouts worldwide, according to Ookla. In addition, it is estimated that over 250 5G trials have taken place in Europe alone, with trial activity increasing recently in 5G standalone networks.

Consumers may not be willing to pay significantly more for 5G services, even though there are a few notable exceptions, such as 5G cloud gaming. CSPs are now focused on enterprises in vertical markets instead of consumers. These enterprises also have access to WiFi 6 and private LTE/5G deployments to address their next-gen connectivity needs. CSPs must offer compelling, cost-effective, and industry-tailored 5G solutions to attract enterprise customers. As well as specifying the business intent, they should govern how the service operates when competing priorities exist (e.g., meeting financial margins versus guaranteeing a VIP customer experience, etc.).

As a result of the complexity of tailoring 5G to different industries at scale, closed-loop automation (CLA) with comprehensive service and network orchestration will become essential.

Closed-loop automation delivers end-to-end assurance

To optimize the performance of services and networks, 5G service assurance solutions need to be driven by actionable insights and automation. Also, a 5G solution needs to be capable of monitoring and managing the complexities and scalability demands that come with it.

It is crucial to automate processes to prevent incidents like traffic overload that negatively affect service quality. By using predictive analytics and automation, the solution CSP need should be able to identify and address incidents in real-time before they impact services.

Whenever a network failure is unavoidable, the service assurance solution must act quickly to resolve service-impacting issues proactively and in real-time to protect the customer experience.

The gold standard for this type of solution is closed-loop service assurance. The network's performance is automatically monitored, identified, adjusted, and optimized. By observing the network, correlating incidents, and providing insights, a next-generation solution can drive smart fulfillment, self-scaling, and self-healing actions. It results in end-to-end service management and self-service capabilities and will enable zero-touch operations in the future.

Symphonica offers closed-loop service assurance

Symphonica provides fault, performance, topology, and service management functionality in a unified, open and highly-performant platform. It applies advanced correlation, root cause analysis and automation across domains — in real-time and at scale.

It handles the explosion of data brought by 5G that surpasses the human processing ability — delivering actionable insights and closed-loop service assurance at reduced costs.

No matter how complex the environment is, Symphonica monitors and manages networks and services to ensure they perform well at all times. An automated closed-loop brings them back to operation with speed and accuracy if they fail.

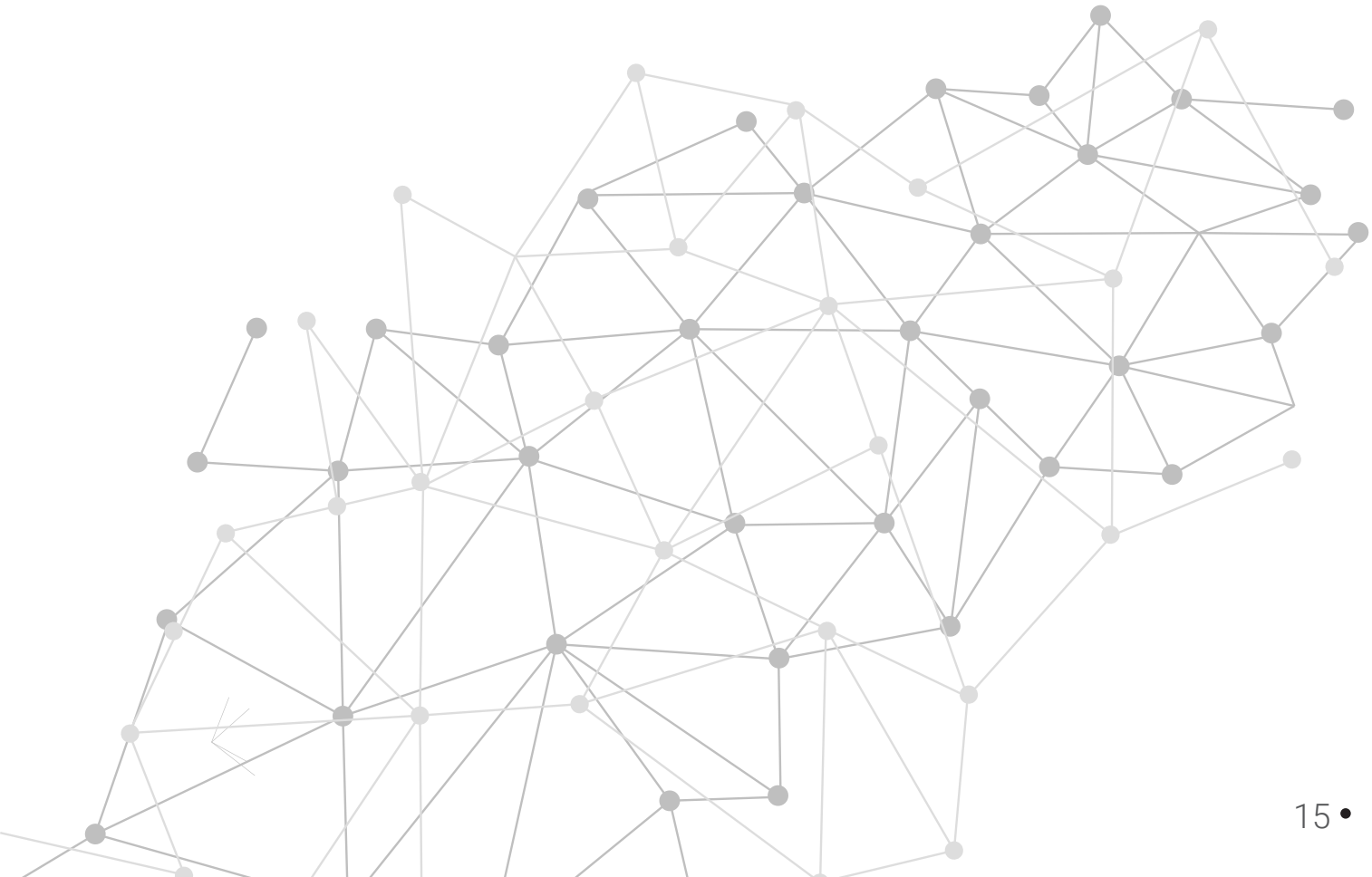
Intraway's platform delivers closed-loop service assurance for the 5G era, automating multi-domain network services delivery processes while reducing operational costs, improving service quality, and accelerating delivery. It maximizes the uptime of critical networks and services and future-proofs the network infrastructure for new business demands at scale. It enables autonomous operations and a path to a zero-wait, zero-touch, and zero-touch environment.

To watch Symphonica in action, you can access all these demo videos at
www.intraway.com/symphonica-demo-series-2022

Intent-Driven Autonomous Networks

New Application

Learn how Symphonica supports a zero-touch customer experience, self-healing and self-optimization capabilities in multi-vendor, autonomous domains.



Intraway

Intraway has radically simplified Telecom OSS

With over 40 million subscribers successfully served in more than 20 countries over three continents, **Intraway** specializes in driving fixed-line and wireless operators' Digital Transformation projects with a 100% success rate. Supported by a staff that clients claim is a natural extension of their team, Intraway supports telco cloud initiatives for operators looking to reduce OpEx and migrate BSS/OSS functions to the Cloud.

Our globally deployed, award-winning Business Process and Service Orchestration platform, **Symphonica**, is a no-code, cloud-native, telco-grade orchestration and service activation platform for automating the entire life cycle of services orchestrated across multiple networks and technology domains. Whether Communications Service Providers (CSPs) want to increase agility through automation, modernize their operations or embrace digital transformation, Symphonica has them covered.

www.intraway.com