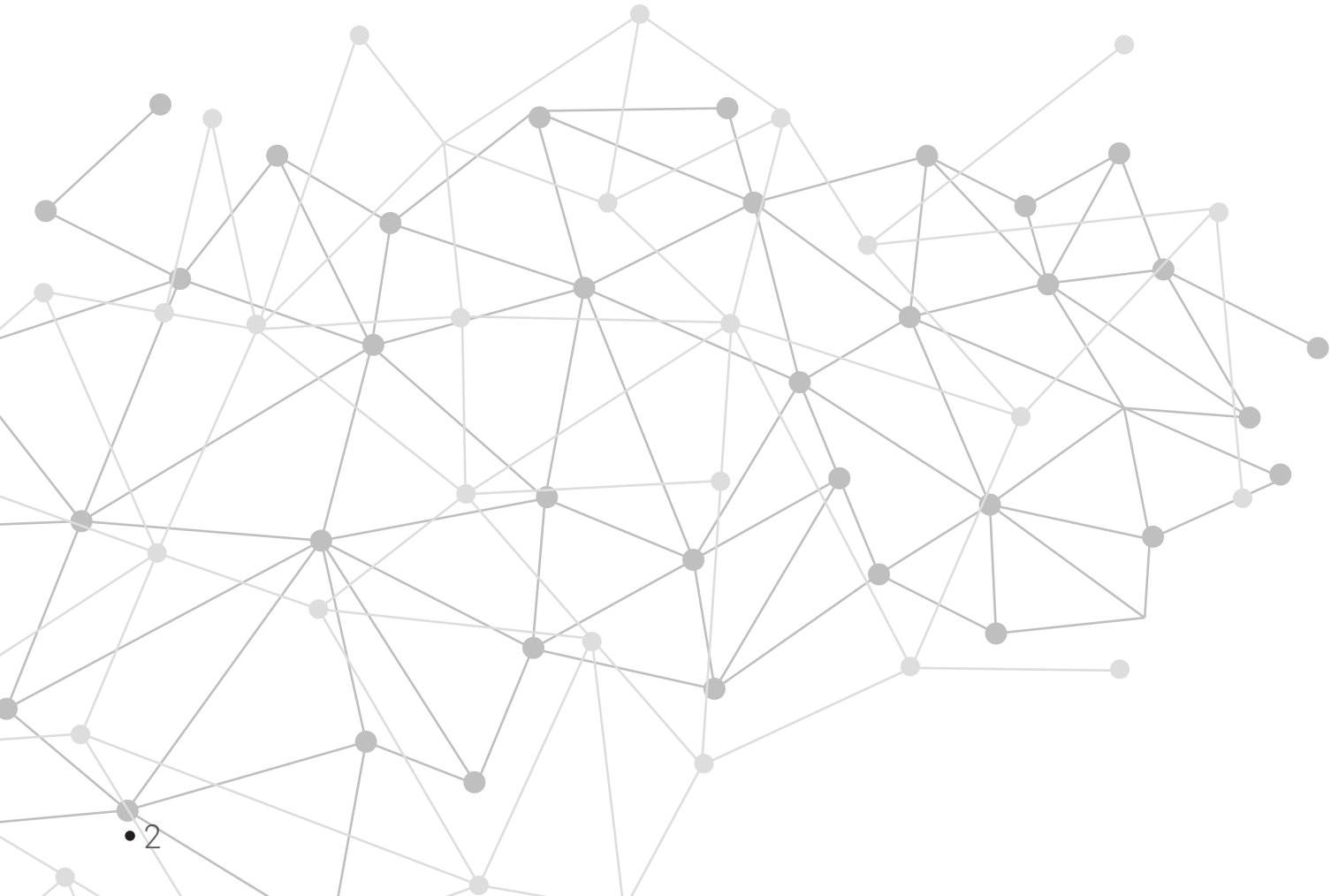
Intraway

Closed-Loop Automation: Upsell Services and Solve Network Issues Faster!

Two use cases to grow your business, increase customer satisfaction and reduce costs.



Closed-Loop Automation: Upsell Services and Solve Network Issues Faster!

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Automating operations and delivering profitable services has become a strategic priority for all network operators. From custom scripts and zero-touch provisioning to automating basic administrative and configuration tasks that improve service agility and control, a growing number of network operators are moving toward closed-loop automation, resulting in a reduction in manual intervention in key operational processes.

In this white paper, Intraway describes a closed-loop orchestration system that allows operators to leverage real-time information to effect changes to the network through the initiation and management of provisioning flows based on detecting specific network performance data.

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Closed-Loop Definition

It's the action of regulating a process or operation by implementing an automatic control systems to use feedback to address that objective.

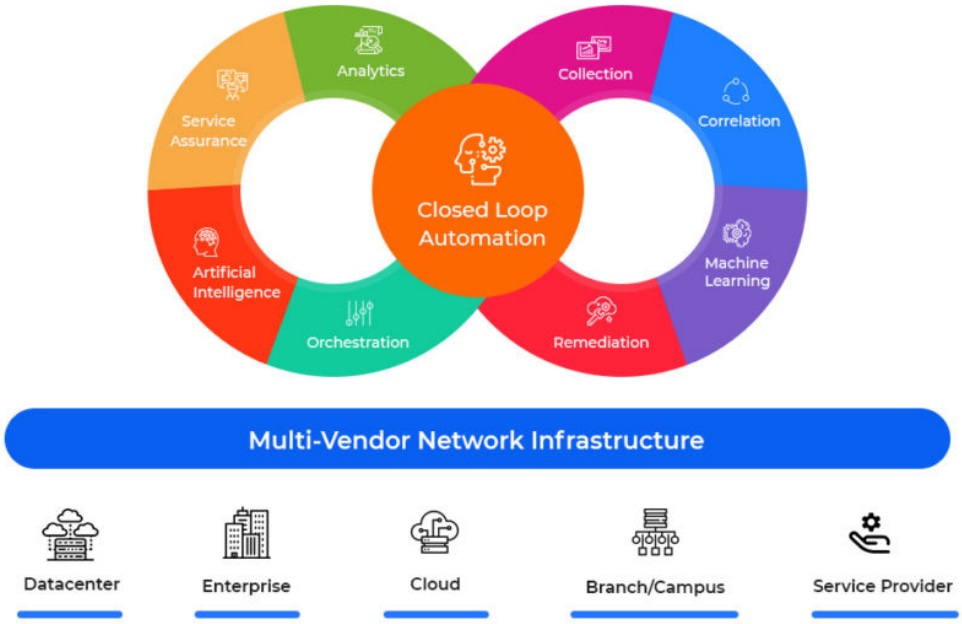
Closed-Loop implementations allow systems to trigger auto-healing processes and other actions, minimizing human intervention and reducing downtime.

Background

Physical networks must become virtual due to the complexity fueled by 5G, IoT, and increasing numbers of devices. This means that various new software-defined capabilities, including service assurance, orchestration, analytics, and data-centric processing come into the picture. However, this wide array of new capabilities can become a minefield if they are not addressed as appropriate. The key to success is automating networks, so CSPs can simplify services and operations, build rock-solid reliability, and satisfy their end-users while overcoming this immense challenge.

An automation and management capability does not operate alone but rather under the watchful eye of a closed-loop automation system. Using data and analytics, the close-loop automation system monitors and assesses faults, congestion, and other network occurrences. The loop refers to the communication that monitors, identifies issues, adjusts parameters, and optimizes the network's performance to enable self-optimization. It is essentially the solution that paves the way for self-driving networks.

4 Real-World Applications for Closed Loop Automation



Communications Service Providers

The rollout of 5G begins today in both fixed and mobile networks, and mobile networks must be ready for this transition. Service providers are preparing to support 5G use cases such as massive machine-to-machine connectivity, ultra-low latency, network slicing and flexible bandwidth.

While the central data center is essential, edge or cell sites play an important role in 5G connectivity. Hundreds of thousands of cell sites are expected to be required for densification to provide seamless connectivity. Each cell site will be connected to the network core via IP RAN. Manual configuration and management of networks of this scale are tedious and virtually impossible without an automated solution.

Closed-loop automation performs mass provisioning of network devices and ensures dynamic and consistent device configuration across the network. The analytics capabilities of closed-loop automation also provide key insights into network activity and ensure near 100 percent uptime, avoiding potential customer churn and lost revenue.

Service assurance is critical in managing CSP daily operations. For example, consider a network with hundreds of thousands of multi-vendor CPEs. Monitoring and servicing complex networks demand frequent configuration changes that could result in temporary service disruptions, triggering SLA penalties and the like.. Customarily, the CSP service desk goes through a manual configuration, notification, recording, prioritization, troubleshooting, and escalation processes. Unfortunately, these tasks are prone to human errors and have limitations.

With its orchestration, collection, correlation, and remediation capabilities, closed-loop automation takes operational pressure off network administrators and increases their productivity. The provisioning time also rapidly accelerates from hours to minutes. CSPs can also integrate incident management tools into the closed-loop automation workflow to automate the escalation and approval process. The service assurance factor of closed-loop automation provides proactive control and satisfies service-level agreements ensuring the high availability of networks.

Financial Services Enterprise

Digitization is changing the benchmarks of the financial services industry. Such companies' networks are mission-critical, with low latency and high availability the benchmarks for managing their IT infrastructure. Imagine a case where there are network issues from any number of sources - Manual troubleshooting methods would be time-consuming.

Closed-loop automation, making use of data analytics, machine learning and artificial intelligence capabilities, provides actionable insights into these network events and can take remedial action within milliseconds, such as providing additional bandwidth, bringing up alternative circuits, setting off other workflows to actively re-configure network elements, etc. This scenario contributes to high availability and service assurance.

Application Delivery

Networks must be ready for digitization. New applications are flooding the industry, and application delivery has become more of a focus in recent years. Application delivery must be automated in the data center, and each application requires differentiated treatment in the form of end-to-end QoS from the data center to the edge. In addition, network device configurations must be automated during application provisioning. Closed-loop automation can serve as a bridge between the application and the network. The application deployment triggers the closed-loop automation system to configure all required devices - a successful configuration results in the application and the network coming full circle.

Hybrid Cloud Deployments

As workloads move to public clouds, so does the network. Cloud providers offer services to connect branch offices at WAN. Branch offices connect to the cloud provider's hub via the Internet, VPN or other means. CPEs from multiple providers in a branch office present a significant challenge and have required manual intervention in the past. Closed-loop automation can help automate connections between branch offices. It can communicate with the cloud provider's hub and use the information to provision CPEs in remote branch offices.

It can also perform pre- and post-provisioning to ensure error-free service delivery. For example, if the connection between the branch office and the cloud provider is through a VPN service, the closed-loop automation orchestration assurance engine can verify that the VPN tunnel is working. Functions such as correlation and analysis can further ensure the uptime of the service.

Symphonica

Traditionally, launching a new product is a time-consuming and complex project. But with Symphonica, and our ability to connect any business system to any networking technology, we vastly accelerate time to market and time to revenue.

Our service orchestration engine is ready to serve with pre-configured workflows and pre-built endpoint integrations that securely facilitate a faster and simpler service launch.

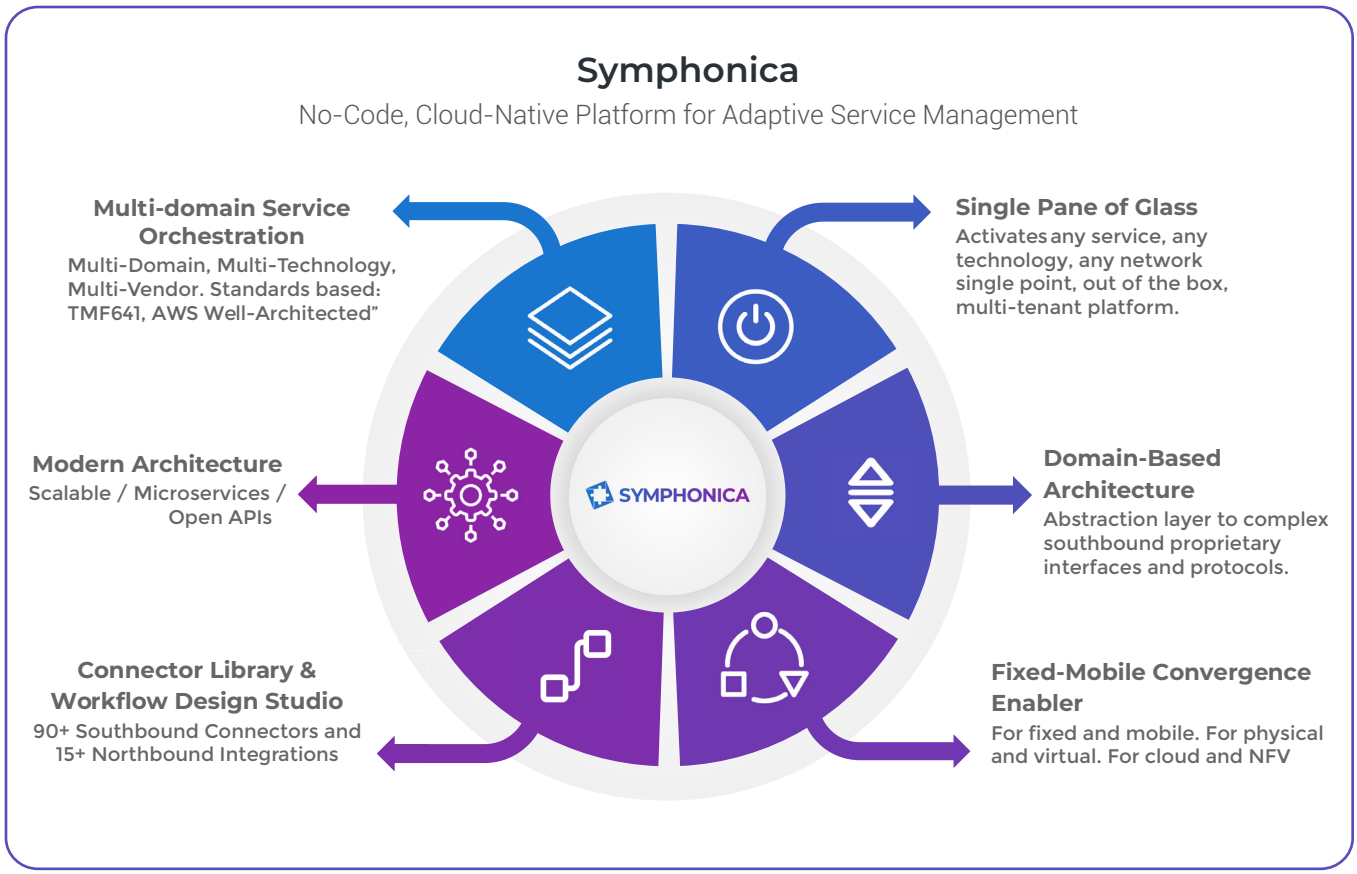
In addition, Symphonica provides a no-code design studio that enables a quick and easy configuration and deployment of new orchestration and automation processes, no coding needed and no risky software upgrades required.

With Symphonica, you can decrease deployment and service launch times, reduce deployment and maintenance costs and, with our SaaS subscription-based model, you don't have to worry about system administration software upgrades and platform availability and scalability.

Adopt Symphonica as a Key Element in your Digital Transformation Program

- With the advent of Telco Cloud, our SaaS-based offer can help you transition to Cloud-based solutions.
- Deep catalog of certified integrations and pre-defined workflows, a graphical UI to support customization, along with a robust partner network to help build/verify/operate it all.
- Our own highly recognized systems experts to engage with you every step of the way.
- Sales, Operations (Customer, Field, Technical), IT, and Engineering disciplines are just some of the key functions we support every day through our native tools and innovative solutions.
- Position peace of mind, knowing that you are leveraging a platform and team that has never failed to deliver, sets some of the highest standards you may ever experience, and expects to get it right the first time, every time.

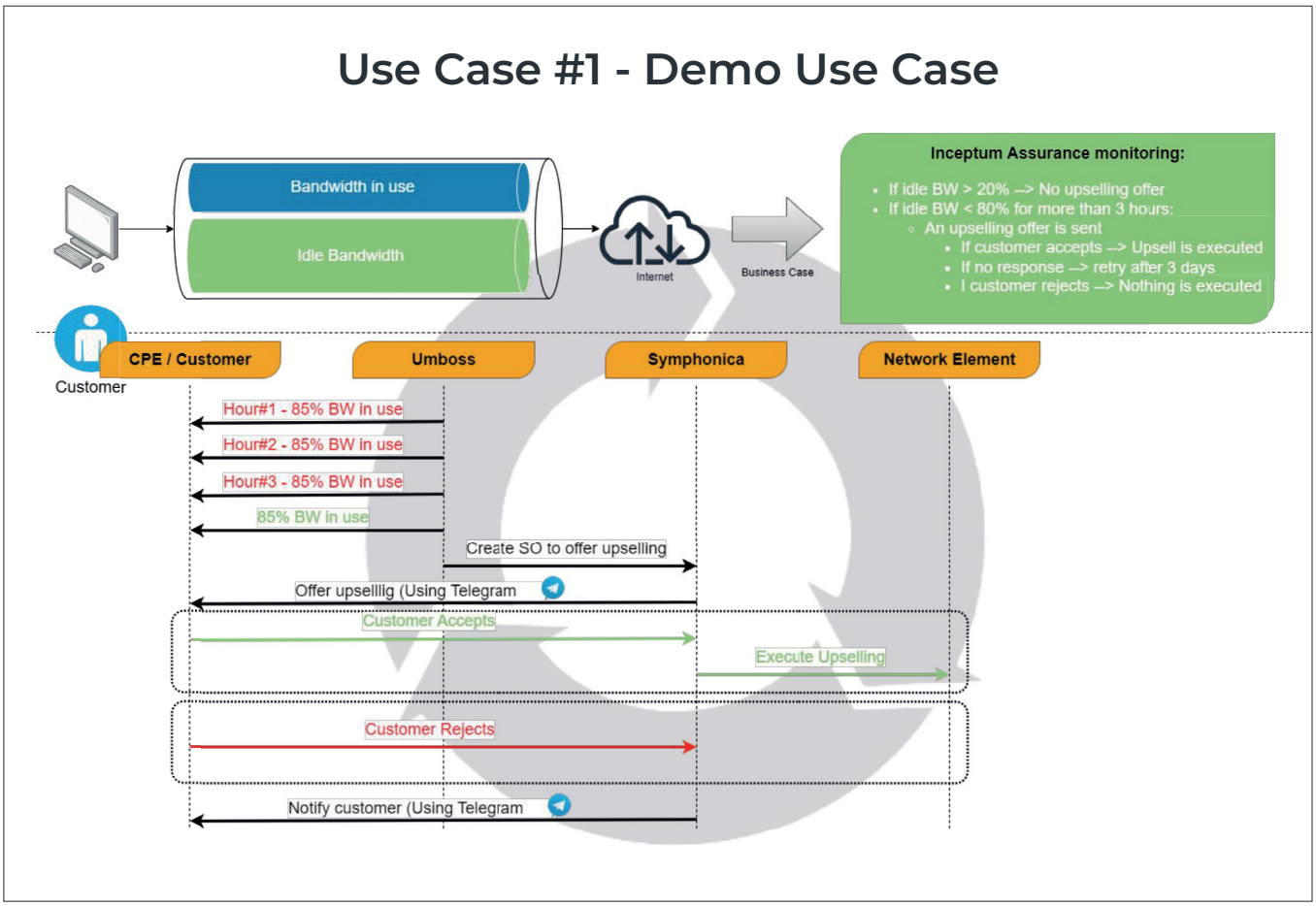
Architecture Highlights Symphonica Overview



Let's see how two Closed-Loop Automation uses cases are resolved using Symphonica.

Use Case 1: Upselling Process based on Service Usage KPIs

Closed-loop Use Case 1 illustrated below shows an upselling process based on service usage KPIs that will be detected by a **Service/ Resource Assurance platform and orchestrated by a Service Orchestrator (Symphonica).**



In the upper section of the above, you will find the conditions for triggering the upselling offer and a brief explanation of the use case. If the unused bandwidth is more than 20%, no upselling offer is triggered, but if the unused bandwidth is less than 20% for three hours, the upselling process is triggered and closed loop automation starts.

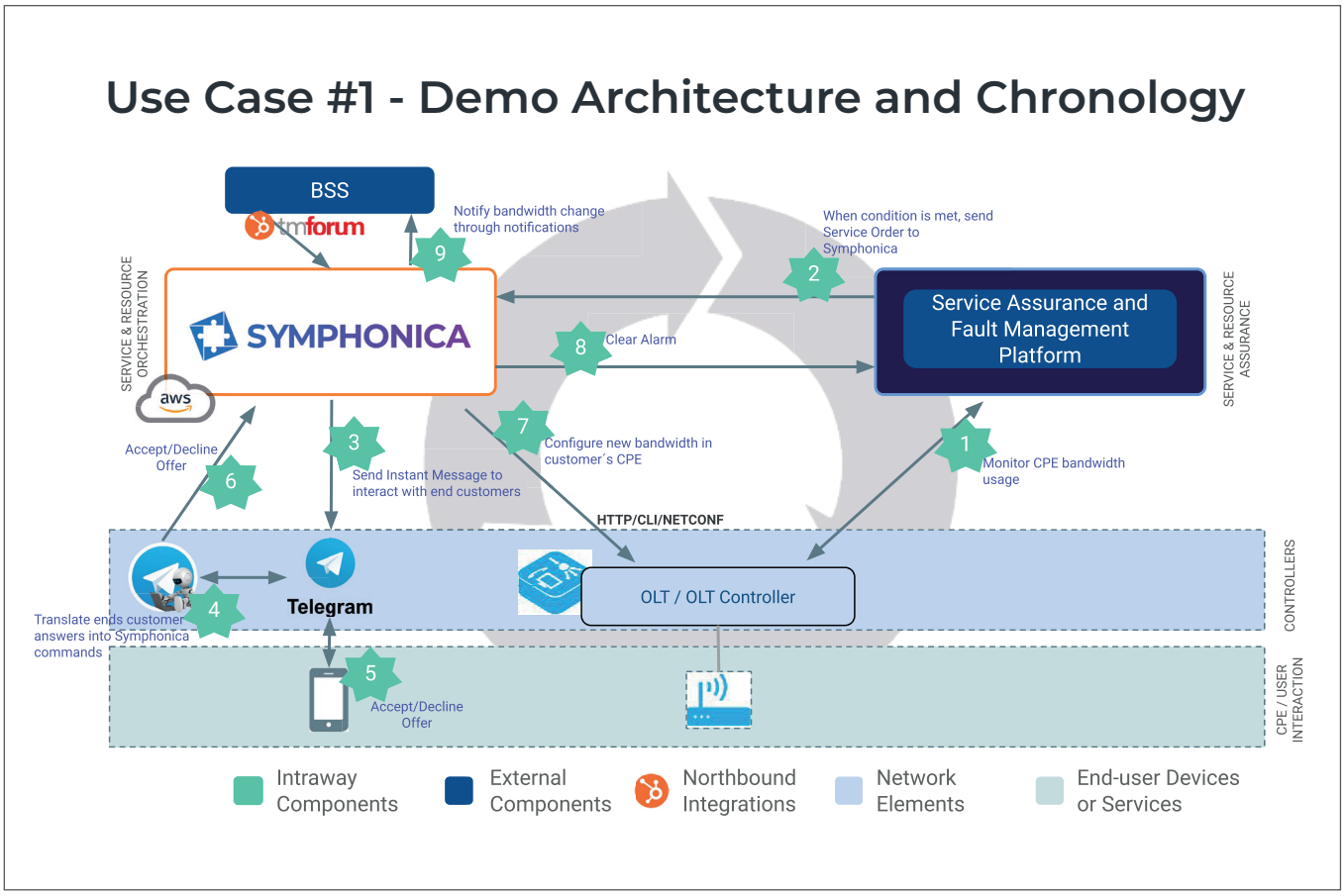
So when the condition is met, the service/resource assurance platform creates a service order in Symphonica and lets Symphonica orchestrate all the interactions between the end customer and the device provisioning.

We can make the offer to the client through any messaging means of notification, which shows how Symphonica can manage each API.

Then there are two options:

- If the customer accepts the offer, the CPE is configured and notifications are sent to the end customer and the billing system.
- However, if the customer does not accept the offer, the process is terminated without any changes to the network.

In both cases, the alert is cleared in the service/resource assurance platform and the loop is closed.



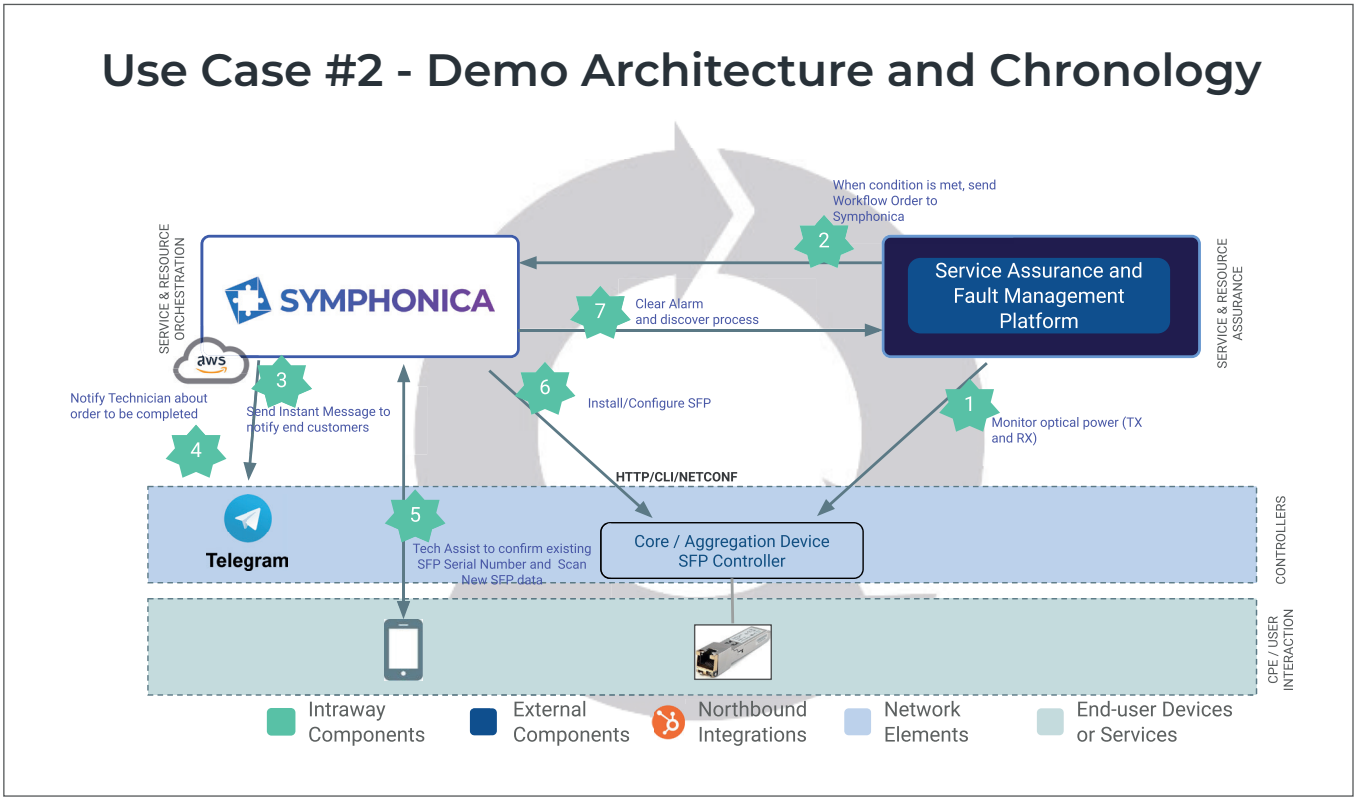
To illustrate the use case more clearly, we have this demo architecture and chronology diagram where the actions are ordered and described.

As you can see, both systems run in different cloud environments.

1. The service/resource assurance platform monitors CPE bandwidth usage.
2. Based on certain rules and when the conditions are met, the service/resource assurance platform creates a service order in Symphonica, the service orchestrator platform.
3. Once Symphonica receives the service order, it starts orchestrating the process and sends an instant message to the end customer to start an interaction and offer upselling.
4. Using a bot developed for this use case, the end customer's responses are translated and sent to Symphonica.
5. When the end customer receives the offer via Messenger, he can accept or reject it.
6. As described in point 4, all interaction between the end customer and Symphonica is performed by a bot. So the responses are sent to Symphonica to continue the flow.
7. If the offer is accepted, Symphonica adjusts the CPE configuration to match the new service characteristics.
8. After all the new configurations are transferred to the network, the alarm is cleared in the service/Resource assurance Platform. This closes the loop and the service/resource assurance platform begins monitoring that device again, applying the new parameters.
9. And since the customer has accepted the upsell offer, the billing system is notified by subscribing to Symphonica's Notification Manager. With this notification, the biller learns about the new business condition.

Use Case 2: Manage hardware repair and customer notification based on network monitoring

Closed-loop use case 2 shows how to manage a hardware repair process and customer notification based on network monitoring, that will be detected by a Service/ Resource Assurance platform and orchestrated by a Service Orchestrator (Symphonica).



As mentioned earlier, this use case monitors the optical performance of a core or aggregation device and sets a threshold to detect the faulty device. If the threshold is violated, the service/ resource assurance platform triggers a workflow in Symphonica to start a repair process and notify the customer and the technician.

To illustrate the use case more clearly, we have this demo architecture and chronology diagram. As you can see, both systems run in different cloud environments.

1. The service/resource assurance platform monitors the optical performance of an SFP controller.
2. When the condition is met, the service/resource assurance platform creates a workflow task in Symphonica, the service orchestrator platform, based on certain rules.
3. Once Symphonica receives the workflow order, it begins orchestrating the process and sends an instant message to the end customer to inform them that a repair needs to be performed by an on-site technician.
4. Symphonica also sends an instant message via Telegram to inform the technician that a task needs to be completed after the repair.
5. The technician uses Intraway's TAA (Tech Assist App on an Android or iOS device) to confirm the existing SPF serial number and upload the new SFP information.
6. After the technician loads the SFP data, Symphonica configures the SFP on the network.
7. After the technician replaces and confirms the SPF, Symphonica clears the alarm and starts the discovery process.

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.