CUSTOMER CASE STUDY

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**Implementing SONiC has been crucial in the communication strategy and expansion of SKY with neutral networks in Brazil.**

# SKY Accelerates Its Expansion Strategy with SONiC

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## I. Introduction

Connectivity has emerged as a distinct component of the contemporary digital economy and is currently a company priority.

We are accustomed to considering telecommunications services in Latin America as an entirely commercial and competitive industry. Nonetheless, it is imperative to bear in mind that in the past 30 years, most providers were public enterprises controlled by the governments of their respective nations. In the mid-1990s, various privatization initiatives were initiated in the region, beginning with fixed telephony. By the end of the first decade of 2000, the majority of operators had already been privatized. This was greatly aided by the international capital of global telecommunications companies, which began to invest heavily in new mobile phone networks.

This transition from public to private demonstrates the resilience and adaptability of the telecommunications sector. The Brazilian governmental regulatory agency provided a highly competitive environment. For instance, the level of competitiveness in the broadband services industry was even more remarkable, and regional providers held significant prominence in the overall market.

According to Anatel, out of the total 47.2 million broadband subscribers in Brazil in December 2023, more than 7,000 ISPs represented a market share of 52%. Over the past decade, the growth rate of these ISPs has been about 5x greater than that of traditional carrier groups. This demonstrates the efficacy of a tactical approach, particularly in Brazil's less dense urban areas. Simultaneously, concerns regarding the optimization of investments in telecommunications infrastructure arise.

### AT A GLANCE

#### ORGANIZATION:

SKY, a digital content platform, enhanced its strategy of offering broadband services through new means, including neutral networks.

#### ORGANIZATION CHALLENGES:

- Creating a robust connectivity foundation ready for expedited future expansion.
- Fulfilling the market demands required further agility and flexibility in the provision of services.
- Achieving accelerated growth required IT investment.

#### SOLUTION:

- A network design focused on open-source and API expansion.
- Dell switches with integrated SONiC technology.
- Dell services, implementation, testing, training, and support.

#### EXPECTED BENEFITS:

- Go-to-market with further agility.
- Integration with neutral network operators.
- Monitoring with centralized, intuitive tools.
- Reduced Total Cost of Ownership (TCO).

Due to the rapid acceleration of digital transformation owing to the COVID-19 pandemic effects and the emergence of novel technologies such as Artificial Intelligence (AI) and Edge Computing, the Brazilian telecommunications market is undergoing a significant transformation. IDC[1] estimates that by 2027, the combined growth potential of these areas will reach USD 23 billion in Latin America. Similar to other major companies in the industry, SKY has faced challenges due to modifications in its business models, necessitating a heightened focus on enhancing its competitiveness.

This reality encompasses at least four primary business initiatives:

1. The offering of new products and services.
2. Integration with neutral telecom network operators.
3. Optimization of the monitoring and expansion of the use of APIs.
4. Reduction in Total Cost of Ownership (TCO).

Therefore, technology teams seek to upgrade and enhance infrastructures by implementing a hybrid management approach encompassing IT and cloud computing. This approach aims to maintain the operational resilience of the business and improve its customer experience. This case study illustrates the strategic integration of technology and business objectives.

## *SKY Brazil*

SKY, one of Brazil's largest satellite pay TV operators, has expanded its range of products and services by integrating an optical fiber network and a streaming platform. This expansion was made feasible by establishing a strategic partnership with the Werthein Group, a prominent investment organization that acquired VRIO in 2021. VRIO comprises Direct TV Latin America and SKY Brazil; its acquisition by the Werthein Group has significantly leveraged its expansion efforts.

SKY's strategic alliance with the Werthein Group has expanded its infrastructure and opened new opportunities to deliver a wide range of content to subscribers in 4K format. This demonstrates the strength of SKY's partnership potential for future growth, inspiring optimism among stakeholders and potential customers.

The expansion of SKY's optical fiber service represents a forward-thinking business move and a testament to its unwavering commitment to innovation and technology in Brazil. Furthermore, SKY's goal is to expand service coverage and enhance the value of its products to end customers. This strategy is not solely focused on business but also on bridging the digital divide in Brazil and Latin America, further highlighting SKY's commitment to technological advancement and connectivity in the region.

By entering into agreements with neutral network operators—independent entities that provide network services to multiple service providers; SKY and the Werthein Group, the owner of VRIO, have strengthened their commitment to investing in Brazil and established themselves as national internet players. This initiative necessitated new investments in IT, with microservices serving as one of the primary pillars.

SKY has over 10 million customers in Latin America, with more than three million in Brazil. These consumers are not mere figures but potential direct customers for novel SKY products. In Brazil, SKY FIBRA currently has coverage in over 220 cities, potentially reaching over 30 million homes and 100 million people. This potential should inspire the audience to explore future offerings from SKY.

[1] *Source: IDC Artificial Intelligence Spending Guide Aug 2023 / IDC Edge Spending Guide Aug 2023.*

## II. Transformations in SKY's Core Network Architecture

In order to offer novel services to the market, SKY was confronted with the challenge of sustaining the operation of its product portfolio while developing a platform centered on innovation and novel technologies. This would trigger new loads at the network level, especially on 10/40G switches and the operating system, which could limit the use of VLT (Virtual Link Trunking). Furthermore, modifications were required to facilitate the integration of other networks (neutral networks) and to create APIs. Given the above, it was necessary to pursue a more comprehensive solution.

The strategic decision to establish alliances with neutral network operators necessitated an effective integrated switching solution that offered flexibility for future expansion. However, it was essential to maintain operational continuity between legacy environments while building a new platform that could scale into the future to support the evolution of the neutral network sector. The duality of requirements underscored the intricate nature of the operational landscape and emphasized the strategic significance of a solution capable of effectively balancing the present and the future.

In this scenario, ensuring efficient business processes using neutral networks would require a high demand for APIs, with integration as a key factor. These automated processes would support customer lifecycles, from omnichannel service to service delivery, billing, operations, and more. The challenge was to invest and integrate diverse APIs and partner systems into SKY's systems harmoniously and comprehensively. A crucial step in this process was the preparation of the BRM (Business Relationship Management) and the CRM (Customer Relationship Management) with the chosen technological solution to integrate network engineering with the business area.

### Environment Preparation

The stipulated plan included the construction of an API HUB, which translated all systems into the SKY internal language using Kamunda. This provided a robust approach to address the diversity of systems and partners while ensuring effective management.

SKY was looking for a specific solution to address its challenges, which included transforming a legacy environment into one that was future-ready and aligned with its vision. The proposals for network restructuring comprised crucial technology components such as EVPN (Ethernet Virtual Private Network) and VXLAN (Virtual Extensible LAN) within the context of the core network. The optimal solution would provide:

- Engineering control API.
- Smooth integration of BNG (Broadband Network Gateway) into the infrastructure.
- Commands reception directly from CRM and API.

These were key factors for network virtualization and integrated management, enabling a unified and highly effective overview of all processes. This approach aligned with SKY's vision of pursuing open-source and community-based technologies.

This strategy also matched the growing demand for free software technologies worldwide and has brought subsequent advantages[2]:

- Community-driven innovation.
- Reduction of blockage risk.
- Ease of integration with other open-source environments.

- Improved development productivity.

Hence, by adopting an innovative and integrated approach based on the effective utilization of APIs, SKY would be adequately equipped to confront the challenges of the digital era.

These integration and functionality challenges required technology, services, and specific developments. With this in mind, the SKY team sought a solution to integrate the system seamlessly without compromising productivity.

[2]*Source: DevOps and Accelerated Application Delivery Survey Telcos, Jan 2021*

## *III. Dell's Solution*

Introducing the Enterprise SONiC Distribution by Dell Technologies solution at SKY marked a significant milestone in implementing a resilient and adaptable network infrastructure. Indeed, the SONiC solution has emerged as the appropriate response to the complexity of SKY's operational environment, as it promptly addresses its distinct technical prerequisites. The Dell/Augtera collaboration outcome encompasses multiple networks, ports, and switches. Furthermore, it is notable for its ability to respond to current and future needs, given the technological legacy of the organization, which includes support for Artificial Intelligence components and machine learning processes.

Dell also provides laboratory testing to help design, plan and execute the migration strategy, with local and global teams supporting Dell's telecommunications sector expertise. This minimizes risk and ensures seamless integration while avoiding any adverse effects on SKY's operations and customers.

### *Introducing SONiC*

The Linux Foundation is responsible for maintaining the Software for Open Networking in the Cloud (SONiC), an open-source network operating system (NOS) primarily utilized on top-rack (ToR) Ethernet switches in cloud-scale data centers. Given the ongoing industry support and resources, its reach extends beyond cloud data centers to converged networks, WANs, and other routing use cases.

SONiC is structured as Containers and is ready to integrate management, observability, and AI tools, allowing SKY to:

- Identify anomalies within the network proactively.
- Integrate visualization platforms and expand telemetry capabilities.
- Correlate events, thereby providing assertiveness in operational actions.
- Provide holistic data ingestion.
- Create network self-discovery models.
- Have multi-layer automatic correlation.
- Power workflow automation.

The foundation of SONiC, which constitutes a switching layer, sits on top of SAI (Switch Abstraction Interface) and provides basic features such as database platform and switch state service (SwSS), as well as support for services such as FRR, among others. Going further, the Dell solution offers support for customized user containers.

This previously mentioned SONiC foundation provides containerized networking applications supporting various market networking protocols. Furthermore, it provides robust support for RDMA over converged Ethernet (RoCE). Additionally, vendors are well-equipped to develop SONiC applications.

## IV. SONIC — Dell on SKY

Given its concerns with scalability and growing business ecosystems, SKY decided to strengthen its network with a vision for the future. It appeared highly probable that multiple components would undergo updates over time, and an open-source solution would aid in ensuring functionality and scalability. In this regard, as per the forecasts of IDC[3], Ethernet data center switches based on SONiC will generate $2.5 billion (USD) globally by 2025.

The following stand out among SKY's multiple requirements:

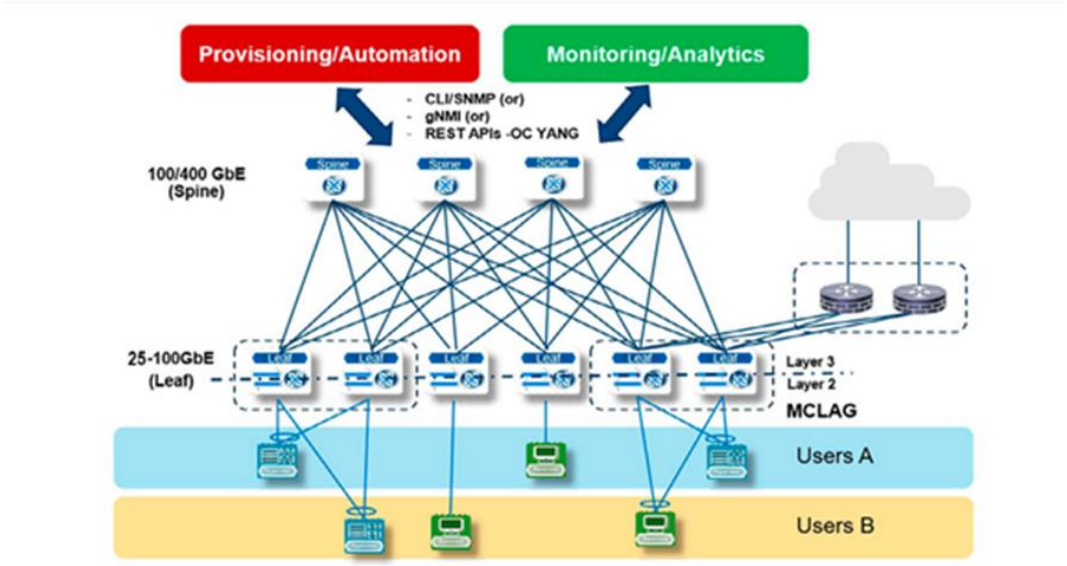
- Application to high-capacity switches (100G/400G) compatible with legacy solutions (10G/40G).
- EVPN functionalities, including chassis aggregation (MCLAG) and the same efficiency as the Dell switches SKY has already used in its VLT (Virtual Link Trunking) network.
- Development of new functionalities and their corresponding implementations.
- Support for EVPN and VXLAN, which SKY aimed to implement by redesigning its POPs and Metro-Ethernet switch architecture.

Deploying Dell PowerSwitch switches with SONiC enabled SKY to expand its relationship with partners, whether content and service providers or neutral network infrastructure. Furthermore, the advantages of SONiC extended beyond cost reduction, and each new connection to the switch yielded a financial advantage. Thanks to the extensive support for various interface technologies supported by Dell switches with SONiC, optimizing interconnections ranging from 10G to 400G in a single device is possible.

In addition to its technical acumen, Dell presented a service package tailored to SKY's specific requirements. Dell's adaptability of these services enables it to quickly respond to SKY's distinctive infrastructure design and continually evolving requirements. Dell is enhancing the strategic partnership between the two companies by offering a customized and adaptable solution.

[3] *Source: IDC Software Tracker Nov 2023.*

FIGURE 1: ***The SONiC Solution Implemented in SKY***




Source: IDC based on Enterprise SONiC Distribution, Dell Technologies sample topology.

Finally, SKY's decision also incorporated crucial criteria for both technical and business aspects. It was greatly influenced by the balance between competitive prices and satisfactory delivery times as well as the presence of local support teams in Brazil. This supplementary factor was evident in SKY's selection of Dell and the SONiC solution, highlighting that it was founded not solely on technical proficiency but also on meticulous consideration of commercial and operational aspects.

## *V. Expected Benefits*

Upon completion of the implementation, the SKY engineering and networking teams achieved the following results:

- The cost of ports on the switch was reduced thanks to centralized and intuitive orchestration tools. SKY is now capable of providing only the essential resources, thereby enhancing both costs and productivity.
- By enhancing communication among service and content providers, a standard interface facilitates and expedites the implementation of new functions, regardless of the neutral network.
- The network monitoring has been optimized using tools already in use.
- The total cost of ownership (TCO) has been reduced as open source and network disaggregation prevent interference from proprietary software.
- SKY has succeeded in implementing solutions that do not cause significant network interruptions.
- They currently provide solutions based on machine learning principles to enhance the network infrastructure.
- It is a robust and scalable solution designed to remain active for many years.

Added to these advantages, the SKY team receives 24×7 support from Dell, who is attentive and collaborates closely with SKY to maintain and enhance the suite of applications. Furthermore, the SONiC solution integrates automation tools such as Ansible, Puppet, and Chef for configuration and management. This, in turn, leads to enhanced user experiences and an accelerated development of digital services, which positively impacts the commercialization of novel applications.

These benefits are closely associated with SKY's business initiatives, which aim to enhance organizational productivity, develop superior products and services, and balance the digital and physical components of products and services.

## VI. Methodology

This document comprises information pertaining to projects and companies obtained from various sources, including interviews conducted by IDC with executives from SKY Brazil's Broadband and Product Design and Engineering business units.

"SONiC can play a strategic role in connecting the core to the edge and offers support for various legacy APIs."

Matheus Costa, IDC Brazil

# About the Analysts

***Matheus Costa,*** *Associate Analyst, Telecommunications, Data and Analytics, IDC Brazil.*

Matheus da Costa is an Associate Analyst for the Infrastructure market at IDC, focused on the Brazilian market. He has close and continuous networking with several companies in the ecosystem, such as large manufacturers, VARs, and Channels. The studies he developed for the Brazilian market provide strategic insights for his clients and predict the market's evolution and trends for the coming years.

***Luciano Saboia,*** *Director of Research and Consulting, Telecommunications, IDC Latin America.*

Luciano Saboia is Director of Research and Consulting for the Telecommunications segment at IDC, for Latin America. The studies developed by him, and his team provide detailed insights to IDC customers, through market size analysis, consultative analysis and forecasts for the country regarding the Telecom and ICT market.

## MESSAGE FROM THE SPONSOR

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