

## Gilat Blog

### Cloud & 5G NTN. Are you ready? We are!

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#### Introduction

The satellite communications industry is going through a revolutionary transformation with the significant evolution toward 5G Non-Terrestrial Networks (NTN). This phenomenon holds the promise of delivering standard ubiquitous connectivity across both terrestrial and non-terrestrial networks. Moreover, it sets the stage for a dynamic multi-vendor open ecosystem and introduces novel revenue streams.

#### Exploring the Advantages of 5G NTN:

Delving into the details, 5G NTN brings forth a myriad of advantages that play a pivotal role in advancing and enhancing global satellite communication systems. Let's explore some of these key advantages:

##### 1. Ubiquitous Connectivity

5G NTN can provide ubiquitous connectivity, extending text, voice, video, and broadband 5G services to remote and underserved areas globally. This bridges the digital divide and ensures advanced communication services for people in diverse geographical locations.

##### 2. Service Monetization

By adopting a standard 5G NTN solution, Satellite Operators can leverage 5G terrestrial network monetization systems. This allows for the quick onboarding of new customers, the provision of new services, and expansion to new use cases and revenue streams.

##### 3. Operational Efficiency

The shift to a standard 5G NTN solution allows Satellite Operators to adopt 5G terrestrial network functions, reducing Opex and Capex while enhancing customer experience.

##### 4. High Reliability and Availability

5G NTN platforms, such as satellite constellations, provide high reliability and availability and reduced service disruptions, crucial for mission-critical applications, emergency services, and scenarios where uninterrupted connectivity is imperative.

##### 5. Flexibility for Diverse Use Cases

Designed to accommodate diverse use cases, 5G NTN supports applications ranging from Direct-to-Device and IoT to Mobility, Cellular Backhaul, Private Networks, and Military services.

##### 6. Future-Proof Design

5G NTN standards are forward-looking, allowing for easy integration of future technologies and standards. This ensures the network remains relevant and adaptable to emerging trends and requirements.

#### Key Strategies for a Seamless Transition to 5G NTN

Here at Gilat, we've dug deep into the crucial strategies that guarantee seamless 5G NTN integration without compromising existing investments and business continuity. Based on our findings, we designed our next-generation SkyEdge IV platform to enable the smoothest transition to 5G NTN:

#### SkyEdge IV is transitioning to a virtualized All-Software Platform with Off-the-Shelf Hardware

The cornerstone for a seamless transition to 5G NTN lies in the adoption of a virtualized all-software platform designed to operate efficiently on standard, off-the-shelf hardware. This shift towards virtualization empowers network operators with a trifecta of advantages: flexibility, scalability, and cost-effectiveness. By decoupling software from dedicated hardware, operators can leverage the capabilities of commodity hardware, resulting in a substantial reduction in both capital expenditures and operational costs.

Beyond the cost benefits, SkyEdge IV's virtualized platform will streamline resource allocation, ensuring optimal performance based on demand. This not only amplifies operational efficiency but also sets the stage for a dynamic, software-defined network architecture. This architectural shift enables seamless adaptation to evolving requirements and emerging technologies.

#### SkyEdge IV will apply future standards to ensure operability across multiple waveforms

Securing the longevity of your infrastructure demands a careful choice of a platform explicitly designed to accommodate upcoming standards, ensuring both adaptability and seamless integration across a spectrum of waveforms. The 5G NTN landscape, marked by continual advancements in standards and technologies, necessitates a forward-thinking platform capable of effortlessly absorbing these changes without mandating extensive hardware upgrades.

In this ever-evolving scenario, flexibility takes center stage. SkyEdge IV will support various waveforms, guaranteeing compatibility with an array of satellite communication technologies. This adaptability proves indispensable as the industry explores diverse frequency bands, modulation schemes, and satellite constellations to fulfill the escalating demand for ubiquitous connectivity.

#### SkyEdge IV enables a strategic evolution to preserve S2X investments and business continuity

Strategic evolution is paramount, preserving existing investments in technologies such as DVB-S2X while ensuring uninterrupted business continuity. Recognizing that the shift to 5G NTN is not a one-size-fits-all process, a phased approach emerges as the preferred strategy, allowing operators to systematically upgrade their infrastructure. This method mitigates risks and guarantees a smooth transition without disrupting ongoing operations.

Preserving investments in current technologies, particularly DVB-S2X, holds the key to a cost-effective transition. Through strategic integration of 5G NTN elements such as 5G Core, gNBs, and terminals alongside existing systems, operators can capitalize on the advantages of both technologies while minimizing disruptions to ongoing operations. The phased approach offered by Gilat, in addition to preserving business continuity, facilitates thorough testing and validation at each stage, ensuring the success of the transition before advancing to the next phase.

#### SkyEdge IV supports multi-orbit operation and VHTS and enables steady evolution to the Cloud and 5G NTN

Ensure that your platform supports multi-orbit operation and Very High Throughput Satellite (VHTS) capabilities with an architecture that facilitates a steady evolution to the Cloud and 5G NTN. The importance of multi-orbit operation cannot be overstated, as it optimizes coverage and ensures uninterrupted connectivity across diverse geographical regions.

The significance of SkyEdge IV's VHTS capabilities becomes evident in addressing the increasing demand for data-intensive applications. The Elastix-Architecture was specifically crafted for a seamless evolution to the Cloud and 5G NTN and supports the agility and future readiness of your network. This proactive approach positions operators to fully leverage emerging technologies and market trends, providing a competitive advantage in the dynamic telecommunications landscape.

#### SkyEdge IV's Elastix-TotalNMS was designed for both current infrastructure and 5G NTN platforms

When it comes to the Network Management System (NMS) for both current infrastructure and 5G NTN platforms, envision the NMS as the central nervous system of your network. It offers real-time monitoring, configuration, and optimization capabilities. Investing in a robust NMS that can adeptly handle the intricacies of both current infrastructure and 5G NTN platforms is crucial.

SkyEdge IV's Elastix-TotalNMS seamlessly integrates with both legacy and future platforms, simplifying operations and reducing the learning curve for network administrators. This unified approach enhances overall efficiency, enabling operators to manage and monitor their entire hybrid network ecosystem from a single interface.

#### Conclusion

The transition to 5G Non-Terrestrial Networks (NTN) signifies a groundbreaking leap forward in the satellite communications industry. Harnessing the power of a virtualized all-software platform, integrating future standards, implementing a phased evolution strategy, supporting multi-orbit operation and Very High Throughput Satellites (VHTS), and investing in a versatile Network Management System (NMS) are pivotal elements that ensure a seamless and future-ready transition.

Within the complexities of this transformation, it is paramount to acknowledge that the journey toward 5G NTN transcends the mere adoption of cutting-edge technologies. It demands strategic leverage to elevate connectivity, efficiency, and business continuity. With meticulous planning and a forward-thinking approach, the industry stands on the brink of unlocking new possibilities and reshaping the satellite communications landscape. Successfully implementing these strategies not only positions operators as leaders in the 5G NTN era but also ensures readiness for the evolving demands of the digital age.

Traditionally, cellular networks have solely focused on terrestrial infrastructures. However, in a historic moment, 5G technology is set to transcend these boundaries, expanding to non-terrestrial networks. This breakthrough paves the way for ubiquitous coverage and connectivity, heralding a new era of global communication.

The team here at Gilat is excited about the changes to come, as they help us realize our vision centered around the right of all people to be connected.

To learn more read [here](#) or contact us at: [info@gilat.com](mailto:info@gilat.com)