Netcracker Digital Satellite Solution Addresses Unique Challenges of Emerging Multi-Orbit Satellite Communications

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IDC's Quick Take

Netcracker introduced its new Digital Satellite Solution on June 11 in the lead-up to TM Forum's flagship Digital Transformation World event in Copenhagen. The new solution takes Netcracker's expansive portfolio across real-time OSS, digital BSS, and ecosystem management and puts a laser focus on the unique requirements of satellite operators, particularly the growing number of LEO and multi-orbit (LEO/MEO/GEO) operators now embarked or ready to embark on massive global satellite launches. Netcracker's approach has wisely addressed both the unique operational challenges of operating large satellite constellations, particularly for non-geostationary LEO and MEO operators, and the business model challenges all operators will face in a satellite industry that has historically struggled with profitability but is now poised for a renaissance.

Product Announcement Highlights

Netcracker introduced a suite of satellite industry-focused offerings on June 11, marking the most comprehensive launch aimed specifically at the unique operational and business model challenges facing satellite operators. These companies, particularly those embarking on Low Earth Orbit (LEO) deployments, face numerous challenges: rigorous performance obligations that must be met in a constantly changing operating environment characterized by satellites in constant motion, the need to maintain communication with hundreds of ground stations whose distance and angle to the satellites are constantly, and in many cases the need to coordinate between various satellite constellations and telco/terrestrial networks. The business environment is also challenging as they address a complex global market, targeting consumers, enterprises and wholesale partners, each with unique requirements and local specifics.

The Netcracker Digital Satellite solution offers an industry-first blueprint for operating, managing, and monetizing satellite deployments by aligning traditional Netcracker portfolio strengths to unique satellite requirements:

- ▪ ***OSS and real-time operations:*** The Netcracker solution delivers service design, multi-domain orchestration, and operations monitoring and assurance that accommodate the unique challenges of satellite networks, and LEO in particular. Enhancements include AI-service inventory that can operate in constantly shifting environments to build a service topology in real-time, augmented by real-time location tracking and AI-fueled modeling to maximize operational efficiency. AI-Assurance has been augmented with dynamic SLA management to track constantly changing thresholds across the planet. Unlike terrestrial operations, LEO operations are defined by continual changes in network and service topologies, making traditional human-centric engineering and network operations practices virtually impossible and

creating the need for a significant injection of AI to measure and maintain compliance with SLAs. AI also plays a vital role in automating lifecycle management and closed loop assurance across satellite, terrestrial and telco domains, again a reflection that, even more so than in terrestrial networks, satellite operations must rely on automation and algorithms rather than humans and dashboards.

- **Satellite-focused monetization:** In an environment in which business models underpinning significant investments in LEO constellations by the likes of Starlink and Amazon Kuiper remain unclear, there is a recognition that supporting revenue management solutions must be built with the flexibility to accommodate whatever use cases and partner ecosystems evolve. The Netcracker Digital Satellite solution recognizes this challenge by offering advanced CPQ capabilities that can accelerate lead-to-order and leverages AI to offer suggested pricing schemes. Netcracker believes its flexible monetization products, including catalog, charging, and B2B/B2B2X billing capabilities are well-suited to support a host of to-be-developed partner ecosystems, and the company has devoted significant attention to addressing the unique tax, regulatory, currency, and language requirements required for satellite operators that – unlike traditional terrestrial operators – have (or will have) truly global networks and customer bases.

- **Ecosystem engagement:** The Netcracker offering focuses on delivering a digital frontend engagement model, including marketplace enablement, GenAI-enhanced omnichannel support, and self-service capabilities. In building out these capabilities to better serve enterprise and wholesale opportunities for satellite services, Netcracker has taken an API-centric approach, integrating both TM Forum and MEF LSO frameworks as well as Netcracker-internal customer experience interfaces. The TM Forum APIs have now become table stakes requirements in terrestrial network monetization so this was an easy decision; however, it is worth noting that MEF has become a growing influence for satellite operators in specifying Layer 2/Ethernet lifecycle orchestration requirements in support of emerging use cases, so adherence to MEF specifications is an important feature of Netcracker's approach.

IDC's Point of View

IDC believes that the telecommunications industry is reaching an inflection point in which satellite, and especially LEO, is poised to take on a transformative role. Industry dynamics have changed significantly due to dramatically reduced launch costs, improvement in performance and capacity inherent in LEO (and LEO/MEO combinations) when compared to traditional geostationary networks, and the sheer number of satellites to be launched which will drive scale (even though it's probably safe to assume the total number of operators will eventually decline due to M&A). Cost-effective LEO satellite connectivity will help bridge the digital divide and open new economic opportunities for remote areas of the world, and help define new connectivity use cases in markets such agriculture, transportation, and military/defense.

LEO satellite companies have several technological and societal characteristics in their favor at the moment:

- Reusable rockets have significantly improved the economics of launching satellites into lower Earth orbit, making the business case more viable (and reducing carbon footprint concerns).

- The significant decrease in the actual cost of building the LEO satellites themselves compared to geostationary satellites makes a compelling case for deploying LEO to address the ~35% of the global population that currently lacks adequate internet service, presenting a vast untapped market.

- The emergence of direct-to-device (D2D) technology, which allows ordinary mobile and IoT devices to connect seamlessly to satellites when the 4G/5G signal is too weak or not available. 3GPP standards are defining the requirements and many new mobile devices are being equipped to support this capability.

- A combination of billionaire investors with deep pockets and myriad public funding sources provides assurance of a robust pipeline of LEO satellites sure to launch in the next five years. Governments, driven by the desire to establish control in space, are actually diverting resources away from other government-funded sectors to invest in space-related initiatives.

With these factors at play, the current landscape presents a favorable environment for LEO satellite operators to thrive, both on a standalone basis, and in concert with traditional terrestrial operators. The list of operators that have announced partnerships with various satellite operators are numerous and include T-Mobile USA, Verizon, AT&T, Rogers, Orange, Vodafone, Rakuten, and NTT and the list of devices supporting satellite "direct-to-smartphone" capabilities continues to grow. Apple unveiled an emergency SOS satellite service for its iPhone 14 and iPhone 14 Pro models in late 2022 using Globalstar's LEO satellite constellation and has committed $450 million to enhance Globalstar's satellite network and ground stations.

Seizing the Opportunity

Satellite operators find themselves on the cusp of a long-term growth opportunity that is likely to significantly impact telecommunications, perhaps permanently. However, that growth will come through a variety of channels – direct-to-consumer, direct-to-enterprise, in partnership with telcos, and through a variety of wholesale and resale channels. Given that the paths to market are many and the ecosystems required to maximize the value of satellite services remain largely unformed, satellite operators will need to be prepared with a sophisticated IT environment to differentiate themselves and foster growth in all of these channels simultaneously.

To achieve that level preparation, satellite operators will require vendor innovation that can:

1. Ensure new levels of control and visibility over constantly shifting network and service topologies to ensure performance metrics can be delivered to meet SLAs.
2. Optimize underlying monetization capabilities such as flexible charging schemes, unified catalog and CPQ to address the variety of business models that will surely emerge.
3. Providing tools that can digitize business operations and help accelerate time-to-market for new satellite or hybrid satellite-terrestrial services across all potential channels.

The Netcracker Digital Satellite Platform represents a strong entry in the market and is underpinned by the company's 15-year track record serving customers in the satellite industry. Its solution is already used in some of the most advanced satellite constellations, including Telesat's Lightspeed LEO network, providing a strong foundation to build on.

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