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MARKET Briefs

Executive Summaries of Market Trends and Opportunities in Key Market Segments and Regions Worldwide

Innovations in Satellite Network Management

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Introduction

Software solutions are the core engine of many businesses. It can even be said the software is **the** business. The right software solution can make or break a service offering. The satellite industry is one of those industries where software and network management plays a key role. Therefore, the requirements for software and network management solutions for the satellite market are usually very stringent. For example, Very Small Aperture Terminal (VSAT) networks must be flexible, scalable, versatile, easy to implement and operate in various conditions for specific requirements according to established industry standards. As a business, VSAT networks must also generate revenues, so a network management system should not only function optimally to meet customer requirements, it must also yield profit.

With the growth in maritime, In-Flight Connectivity (IFC) and other verticals for the satellite industry, VSAT network management systems not only have to be flexible and reliable, they often require complex solutions and innovative approaches. Companies like

Intelsat and other satellite operators typically work with third-party software solutions companies for their satellite networks. In choosing a network management provider, it's important to work with companies that not only have proven track records but also have

Thousands of Low Earth Orbit (LEO) satellites are planned for deployment in the next few years to enable global broadband coverage. This provides a unique opportunity for network service providers. Image: Thales Alenia Space

a culture of providing innovative solutions that meet their customers' requirements.

Network Management Market Trends

According to Kenneth Research, the global enterprise VSAT market is projected to grow beyond US$ 10 billion by 2024. And one

of the reasons there will be such massive growth is due to declining costs in satellite manufacturing and launches and the advent of new Low Earth Orbit (LEO) and Medium Earth Orbit (MEO) satellite constellations. This has opened the gateway for numerous players to deploy networks for various markets. Opportunities presented by the upcoming technologies like 5G, Internet of Things (IoT) and Machine-to-Machine (M2M), will pave the way for the expansion of satellite networks. And this will result in the demand for sophisticated and highly reliable software solutions for satellite network management. Down the value chain, these business models are going to make satellite broadband/internet services cheaper as well as more reliable with respect to higher bandwidth which, in turn, would lead to greater demand for these services.

One of the more promising markets for satellite technology is the aeronautical field. According to Inmarsat's IFC survey in 2018 it is estimated that the IFC revenues reach approximately US$ 30 billion by 2035. The maritime market is equally promising. Satellite communications technology is the only way to connect in the world's oceans, which covers 70 percent

Maritime Market Terminals 2018 VS. 2028

2018: VSAT 26,100 installed VSAT; MSS 302,000 installed MSS
2028: VSAT 65,400 installed VSAT; MSS 316,900 installed VSAT
VSAT CAGR: 9.6%
MSS CAGR: 0.5%

Euroconsult | Prospects for Maritime Satellite Communications 2019
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of the earth's surface. Commercial cargo shipping, cruise lines and oil and gas markets, among others are driving the demand for maritime satellite communications. The global maritime satellite communications market size was valued at US$ 2.64 billion in 2018, and will post a CAGR of 8.9% from 2019 to 2025, according to Grand View Research.

As the digital expansion started integrating various industrial verticals, Over-The-Top (OTT) and Internet Protocol Television (IPTV) are becoming more dominant as opposed to the satellite broadcasting services. This is leading to increasing demand for satellite broadband services. While the network architecture of satellite broadcasting was carried as it is since the early 90s, now the satellite network system needs an upgrade with respect to cloud technology for the video content distribution. One of the critical aspects of the satellite network management systems with respect to the video market will be the bandwidth allocation and subscription management; due to the upcoming wave of OTT and IPTV services. Satellite network management systems will be crucial for provid-

ing custom-tailored services to the subscribers as well as tracking the movement of the content consumption on a local and regional scale.

There is also opportunity for satellite technology in the rollout of 5G networks. 5G is a disruptive technology that is set to transform wireless connectivity, enabling ultra-fast broadband speeds, increased efficiency, reduced network costs, and more scalability, among a wide range of other benefits that will open up new markets and drive technology innovation. And 5G comes at the perfect time. The number of connected devices that are in use worldwide now exceeds 17 billion, according to the latest research from IoT analytics and is projected to reach over 50 billion in the next few years. With 5G, the industry can better address today's connected world and its growing connectivity requirements.

The demand for both hardware and software solutions is expected to double in the coming decade. Similarly, the satellite network management system is also expected to provide advanced end-to-end solutions to the operators and service providers. This involves crucial aspects such as product

management, monitoring, analytics, subscriber management, customer service, revenue generation, among others. Reliable and automated satellite network management systems are key to ensuring the satellite industry's continued disproportionate growth.

Customer Requirements

Satellite operators are demanding end-to-end satellite network solutions as the industry is leveraging several business opportunities in key market verticals. In 2018, with the industry's focus shifting towards managed service networks, satellite operator Intelsat contemplated various options to provide their customers a resourceful, easy-to-use way to manage terminals throughout their lifecycle. Given the nature of managed services networks, the envisioned new platform was intended as a business layer interacting with multiple other existing systems.

Various requirements has been brought forward, among them reliable and simple terminal lifecycle management, comprehensive permission management, and the need for short development cycles to rapidly address a changing market environment and customer needs. With customers from all over the world and some of their staff preferring their native language, support for multiple languages was essential, as well.
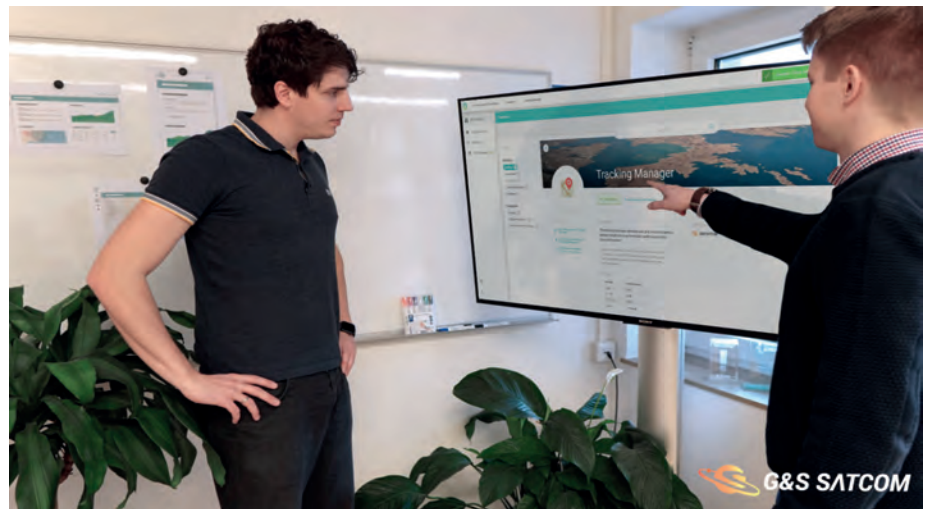
Faced with the choice between an internal project and external vendors, Intelsat identified G&S SatConnect® as a potential solution which covered most of the intended features out-of-the-box and was flexible enough to be customized where necessary. A track record of previous successful integrations proved this to be a viable option

for the intended purpose.

Time was tight and a continuously growing list of requirements increased the scope beyond the initial design. Once the decision for the future IntelsatOne Flex portal was made, a major effort towards reaching the specified feature set commenced for all stakeholders involved.

Software projects of this size and scope usually require months of preparation and often end up being more complex and expensive while delivering less than what was originally promised. With G&S SatConnect®'s modular architecture and many of the required features being available already, in this case the project could be streamlined. As only minor customizations to existing features were required, all effort could be focused on successfully developing clear differentiators that set Intelsat apart from their competitors. One of the most popular of these features is the comprehensive, yet easy-to-use Fair Access Policy (FAP)feature, which allows not only setting rate limitations for individual terminals but for entire groups or organizations. Defining a collective volume package across terminals has improved the network quality and resulted in better service for all IntelsatOne Flex customers while also providing exciting new revenue opportunities.

With a mere four months time span between project start and delivery, a "white glove service" provided support during customer onboarding from the G&S team. Feedback has been overwhelmingly positive as the management effort per terminal has seen a significant reduction while at the same time new business cases have been enabled. Furthermore, Intelsat it-

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self has seen a reduction in support requests and benefits from its increased flexibility as new products can be pushed into the market with minimal lead time.

Building on the foundation that has been laid in 2019, new features and business-focused developments will further distinguish IntelsatOne Flex as a managed network in 2020.

Key Considerations in Selecting a Network Management Provider

One of the most important decisions you'll ever make for your business and your customers is choosing the right network management partner. As we have seen in the previous example with IntelsatOne Flex, it's important to find a company with a proven track record. It is particularly crucial, when you have to come up with innovative solutions within in a very tight deadline. A quick turnaround and speed in getting to market are essential in the rapidly developing satellite industry.

Another key consideration is the ability to provide a turnkey service and an end-to-end solution. "Unlike many other software providers, we don't just sell the software itself. We support our customers throughout the entire project, from the initial requirements analysis through the implementation phase. Beyond that, we provide pro-active monitoring and 2nd- and 3rd level 24/7 support as well as customer and end-user training. In our development approach we continuously engage the customer with weekly updates and deployments so that feedback loops are short and can be taken into account right away. We measure a successful project by end-to-end success, committing us to rigorous quality control to ensure our customers are happy with our service," says David Schmitz, G&S SatCom Co-Founder and CEO.

There are many software and network management solutions providers to choose from in the industry. A number of them even have very innovative solutions, but they can be hidden in complex systems from their customers. One key feature of G&S SatCom's software solutions is that they make the complex innovations more

G&S SatConnect® For VNOs and Service providers

The simple way to manage your terminals across multiple networks and network operators

G&S SatConnect® is an innovative multi-network orchestration software with fully automated provisioning, unique Fair Access Policy (FAP) features, and extensive upselling options. It includes a comprehensive customer portal with custom branding and multiple languages.

Automated provisioning, sophisticated subscription management and monitoring features allow you to reliably scale your operations along with transparent out-of-the-box customer reporting. G&S SatConnect® offers multi-operator and multi-platform support from a single interface and is highly customizable to match your needs.

Product Management	Automated Provisioning	Customer Management	Monitoring & Analytics
Billing	Customer Portal	Subscription Builder	(Group-) Fair Access Policies

G&S SatConnect® is an all-in-one solution for satellite networks

G&S SatConnect®'s out-of-the-box features offers a comprehensive set of tools to manage your network with minimal effort. Do you need an integration with your current system, a more evolved connection to external services, or a modification of existing features? G&S SatConnect® is designed to precisely adopt to your requirements. Built as a platform, it can be enhanced with additional modules to perform any required workflow exactly as you need them.

G&S SatConnect® manages all your networks in one platform. You benefit from unified workflows, less complexity, and drastically reduced time-to-market by simply activating a new network with a click.

G&S SatConnect®'s features and workflows are the same across all networks, making your operations so much simpler!

iDirect Velocity®
iDirect Evolution®
Inmarsat BGAN
Inmarsat Global Xpress
IntelsatOne® Flex
...

Interview with David Schmitz, Co-Founder and CEO of G&S SatCom

Briefly, how would introduce your company to our readers who are not familiar with you?

G&S SatCom is a leading satellite software engineering company with a product portfolio tailored to the needs of satellite service providers and network operators. Our software improves their productivity and opens new business opportunities with almost zero lead-time. On top of our base product portfolio we offer consultancy and customization services to create solutions for our customers which exactly match their requirements while still allowing for differentiation from the competition.

What unique benefits and advantages does your service provide to your clients?

Unlike many other software providers, we don't just sell the software itself. We support our customers throughout the entire project, from the initial requirements analysis until and the implementation phase. Beyond that, we provide pro-active monitoring and 2nd- and 3rd level 24/7 support as well as customer and end-user training. In our development approach we continuously engage the customer with weekly updates and deployments so that feedback loops are short and can be taken into account right away. We measure a successful project by end-to-end success, committing to rigorous quality control to ensure our customers are happy with our service.

How different is the service you provide from others in the market today?

Our solution is the one turn-key product that checks all the boxes for multi-tenancy, role-based

access control, multi-network capability with the potential for additional integrations, modularity for easy customization, multi-branding and multi-language support, and many more. The unique software architecture allows us to keep G&S SatConnect®'s off-the-shelf character, keeping operational cost low and retaining maintainability without losing the flexibility. Our fast-paced development cycle allows us stay on the cutting-edge of technology to deliver effectively and quickly on the market demand when its most needed. This provides a unique advantage in the pre-sales activities for our customers and supports them in growing their network.

G&S SatCom Co-Founder and CEO. David Schmitz (center) receiving the award for "Best Newcomer in the Industry" given to G&S SatCom at the Global VSAT Conference in London in 2018.

An essential factor for our success is the focus on business requirements rather than just the technical implementation. Where traditionally software companies provide a solution to address technical needs, our team looks at the entire value chain and the business workflows that relate to it. The technical workflows merely enable these business workflows, which have driven the revenue.

Are there any specific verticals or applications that you are targeting for your service?

Our solution doesn't target individual verticals. Simplifying processes, unlocking new revenue streams and facilitating customer engagement through tailored workflows and unique value-adds creates value across the industry. However, some verticals require a bit of a different focus than others do. For instance, the government segment requires a high level of customization whereas the enterprise segment requires bandwidth-optimized and end-user friendly interactions. We make sure that we under-

accessible to their clients. "We make complex solutions easier for network operators and service providers to fully utilize the potential that the satellite network can offer," says Marc Spinneker, Director of Business Development of G&S SatCom. "We consider ourselves an 'orchestration' software provider, meaning we automate processes and simplify methods to make it easier to use for both service providers and end-users," he adds.

One way to differentiate between software and network management solutions providers is the additional value that they can provide to your service. G&S SatCom, for example, can create new revenue streams for your network, which can have an impact on your bottom line. "With our software's marketplace portal feature, new revenue streams can be integrated in the network management system without any additional effort on the part of the service provider," says Spinneker. "We can also

serve any verticals or applications and have the flexibility to integrate with our third-party software," he adds. "Simplifying processes, unlocking new revenue streams and facilitating customer engagement through tailored workflows and unique value-adds creates value across the industry, and this is what we can do for any vertical," says G&S SatCom's Schmitz.

Conclusion

By all indicators, the new decade of the twenties will be a very exciting time for the satellite industry. This decade will see new satellite constellations and increasing demand for network services for key applications and verticals. These new services will have complex requirements and their own set of challenges. Choosing the right software and network management provider will be ever more essential to meet the many challenges and complex network requirements of the upcoming satellite systems and of new key applications that will be their driving forces.

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Research assistance was provided by Omkar Nikam for this report.

stand the target audience before any feature development to ensure that we account for any vertical or market specific needs.

And how are you approaching these verticals?

We are very active on various regional or market-specific conferences where we are in touch with our customer base. Furthermore, we keep in close touch with the network operators and service providers who have the end-user feedback across all their verticals, helping us to get that feedback and continue to grow our products specifically for these various market requirements.

Which of your products are you most excited about?

What I'm most excited about is our new offering, the G&S Marketplace, as it completely changes the traditional business model that has been available in satellite for many decades. Where before we were simply talking about capacity–dedicated or subscription-based–we are now evolving from this capacity-driven business to a value-added driven business. This allows our customers to extend their product catalogue with third-party offerings and combine those with their own network-specific capabilities. This creates their own unique offering in the market and provides the opportunity to significantly increase their part of the value chain.

With the G&S Marketplace we have built the platform to be a part of this value-added services shift. Furthermore, we are actively facilitating partnerships which allow our customers to have out-of-the box offerings available that match their market, network and available hardware to quickly go-to-market with value-adding products. We are very happy with the early onboarding and are looking forward to multiple product launches in the 2020 timeframe while continuing to work closely with our customers and partners.

G&S SatConnect®

The orchestration & service delivery platform

G&S SatConnect® consolidates your operations in one comprehensive solution, connecting your partners, customers and systems

Combine G&S SatConnect with the brand new G&S Marketplace for automated, one-click value-added service delivery!