

ORCHESTRATING SATELLITE SERVICES IN TODAY'S MEDIA AND DATA NETWORKS



The satellite landscape is evolving continuously. New business models are deployed by satellite operators and service providers, models that require updated operational processes and new technology on the ground and in space. In this complex world, only an end-to-end multi-vendor NMS/OSS can ensure efficient operations, service management and resource management. DataMiner takes a strategic position in any modern satellite network.



INTERFACE

MONITOR

CONTROL

PERFORMANCE

REPORT

CORRELATE

AUTOMATE

WHAT IS TRENDING IN THE MARKET?

For a long time, it was thought that modern telecommunication would not rely on satellite technology as much in the future. This seemed to be indicated by the emergence of fiber, cellular connectivity and carrier grade wireless technologies.

However, now it has become clear that satellites are here to stay, and what is more, they even gain importance in niche applications. Satellite remains by far the number one multicast-enabled platform, despite the many efforts to achieve the same efficiency using alternative technologies. Fiber connectivity, on the one hand, is fragile and often does not even come close to the uptime provided by satellite communication. It also takes a lot of resources to deploy fiber in rural areas, and it cannot cross (political) borders as easily as satellite. Cellular networks, on the other hand, suffer serious limitations in certain cases when it comes to media and broadband communication. For example, events relying on 3G/LTE for news gathering may literally go dark because of severe network congestion caused by sudden changes in the traffic load on the mobile network. And of course, airplanes still do not have a fiber connection, nor do cruise ships, oil rigs, etc.

But though satellite is here to stay, it needs to be adapted to the changing environment. The proliferation of alternative communication media has irreversibly changed the satellite network architectures and technologies. High-throughput satellites (HTS), multi-spotbeam deployments, hybrid fiber-satellite networks, Ka Band, DVB-S2X, DVB-CID, new VSAT technologies, etc. are all innovations that make satellite communication more relevant. But along with those new technologies comes the greater challenge of managing and operating the new, sophisticated infrastructures composed of multiple devices and subsystems, sourced from many different vendors.

TREND 1

SATELLITE OPERATORS AND SERVICE PROVIDERS PREPARE FOR THE UNKNOWN

The times when satellites were launched with a lifetime order book are long past. Now, end-customer service demands are changing all the time, inevitably and unpredictably. Satellite operators and service providers are forced to anticipate these changes by deploying future-proof network infrastructures and satellite constellations. During the current transition period, many practices are leveraged from the IT world. Modern teleports are very similar to datacenters, using

heavily interconnected IP-over-any-medium and hybrid fiber/satellite/LTE technologies.

But this important shift towards flexibility and agility does not come free. Engineering and operations teams are faced with major challenges to build the network today that can serve customers in the future. New technology sourced from different manufacturers tends to divide operations into silos. This in turn reduces operational

efficiency and service velocity. As such, there is a strong need to preserve end-to-end visibility on the infrastructure and the services running on it. End-to-end operations and management can only be attained by deploying a true multi-vendor NMS/OSS, a platform like DataMiner that both orchestrates services on the infrastructure of today and is guaranteed to orchestrate services on any future network upgrades.

Modern satellite networks need to be efficient, flexible and capable of delivering the highest possible uptime. There is a proliferation of new technologies to support those challenges, such as HTS, spot beam networks, hybrid fiber-LTE-satellite communication, network and beam switching, packet processing in datacenters, etc. Modern networks consist of many different products and communication links that need to be orchestrated and monitored as one, regardless of brand, type or protocol. DataMiner is the ideal fit to manage and operate today's networks according to the highest standards, guaranteeing the highest service availability, flexible workflows, and efficient resource and bandwidth management.

TREND 2

EFFICIENT OPERATIONS

It goes without saying that operational expenses are under scrutiny. Increased competition by alternative technologies drives revenue-per-MHz down month after month in many markets. The proliferation – and excess capacity – of high-throughput satellites on both Ka and Ku bands puts a further strain on the price-per-bit. And as revenues go down, the budget allocated to operations decreases.

As a result, there is a strong tendency in the market to use bandwidth more efficiently (Mbps/MHz). Transponder and infrastructure idle times are not tolerated anymore. Capacity is shared across customers and over time using sophisticated schedules. But efficiency and effective use of bandwidth increase operational complexity and cost when the proper NMS/OSS tools are not used.

A modern NMS/OSS provides end-to-end visibility over the entire multi-vendor network, far-reaching resource, service and SLA management, automated service orchestration and a seamless link to other OSS systems.

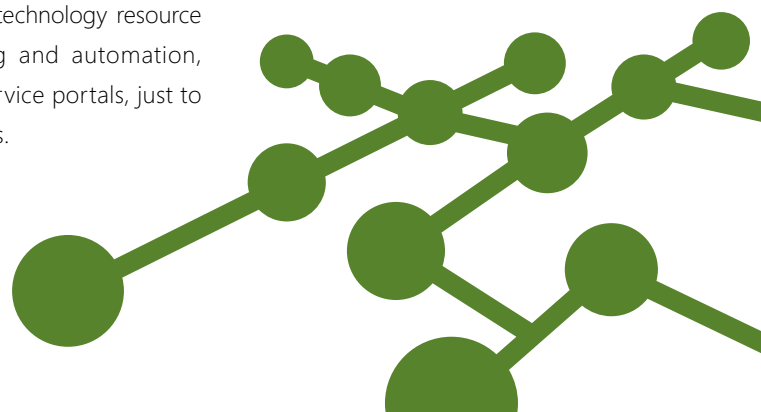
TREND 3

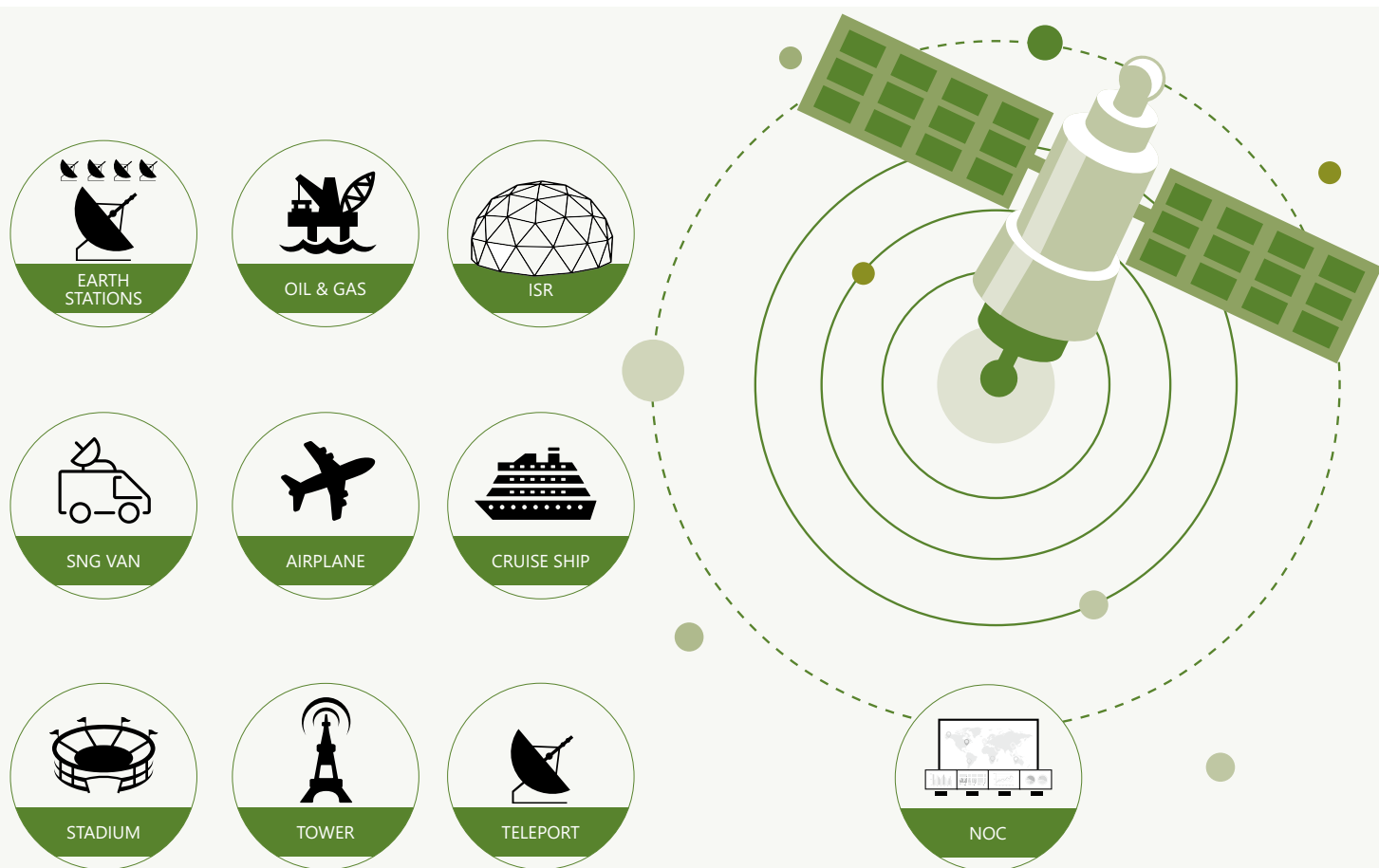
BUSINESS MODELS CHANGE, SO DOES YOUR OPERATION

Media companies and service providers are seeking new ways to do business. As a result, xAAS and VNO models have emerged, facilitating the incubation of new businesses, creating economies of scale, and reducing financial risks.

The new operational models mostly rely on sharing infrastructure and operations across multiple tenants and services. As

a result, the NMS/OSS system will require highly reliable user authentication and access control, cross-technology resource reservation, booking and automation, and customer self-service portals, just to name a few examples.





geo-diversity switching

mobile access

NMS/OSS integration

fixed earth stations

SLA reporting

beam switching

monitor by exception

spectral analysis

mobile terminals

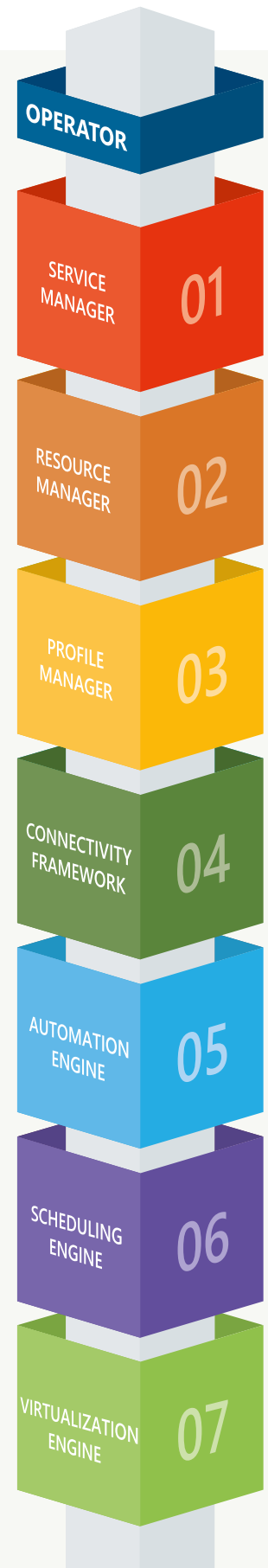
hybrid fiber/coax

DVB-CID

interface with existing ERP and scheduling systems

END-TO-END SERVICE ORCHESTRATION

workflows independent of underlying technology
any device antennas and controllers, modulators, demodulators, modems, IRDs, VSAT hubs, video compression, IP acceleration and compression, fiber L2/L3, MPLS, SDN, SDH/SONET, ...
hub and terminal management
any service video, voice, data, broadband, telemetry and SCADA, ...
regular and multi-spotbeam transponders
any carrier SCPC/MCPC DVB-S/S2/S2X, proprietary, VCM&ACM, VSAT,
any band C, Ku, Ka, X, ...
satellite capacity booking and reservation
satellite bandwidth scheduling and sharing
booking and reservation across one or multiple fiber and satellite networks
fine-grained and per-service transmission carrier standard, power, MODCOD and FEC profiles
point-to-point, multicast and broadcast services
single hop, multi-hop and mesh connectivity
fully automated link setup and tear-down
time-scheduled confidence monitoring and SLA reporting
round-robin spectral monitoring and real-time spectrum analysis
automation and orchestration of on-premise and off-premise infrastructure and services VNO operation, co-location



DATAMINER TURNS DREAMS INTO REALITY

DataMiner is the global leading NMS and OSS deployed by the majority of satellite operators and service providers worldwide. The rich set of capabilities, complemented with the numerous customization and automation capabilities easily configured with off-the-shelf tools, have made DataMiner of strategic importance to world-class satellite networks and operations.

DATAMINER RESPONDS
TO THE TRENDS AND NEEDS
IN THE SATELLITE INDUSTRY

01

UPTIME

DataMiner understands how to increase uptime
in satellite networks

02

EFFICIENCY

DataMiner brings efficiency and effective utilization of resources
to all your day-to-day operations

including bandwidth utilization, ground segment infrastructure optimization
and efficient use of human resources

03

FLEXIBILITY

DataMiner makes sure that you can deploy best-of-breed technology
that responds flexibly to your current and future business needs

01

STEER YOUR UPTIME TO GREATER HEIGHTS

RESILIENCY

- manual, automated or semi-automated site diversity switching (satellite and fiber connections)
- intelligent and cross-technology redundancy switching (antenna farms, RF, satellite modulation, IP acceleration and compression, video processing, VSAT hubs, IT datacenter, ...)

PERFECT VISIBILITY ON YOUR NETWORK AND OPERATIONS

- customizable network element views, rack views, service topology views, geographical views, etc.
- DataMiner Connectivity Framework technology highlights service paths in real time throughout the teleport infrastructure
- tailored screen for engineers, operators and helpdesk teams
- real-time interactions on any screen: interactive automation, redundancy switching, etc.
- access your network at any time, from any place, by SMS or email, or via a web browser on a PC, tablet or smartphone

INTERFERENCE REDUCTION

- reduction of operator-initiated carrier interference using automated spectral checks as part of the carrier
- automated uplink power control (AUPC) using beacon receivers
- provisioning of Carrier Identifier fields (DVB-CID)

ALARM CORRELATION

- single alarm event reporting rain or dust fades

END-TO-END SERVICE AND SPACE SEGMENT BOOKING, RESERVATION AND ACTIVATION

- end-to-end service orchestration across satellite link, video compression, fiber transmission network
- flexible bandwidth booking and reservation (variable or slotted)
- built-in scheduler or links to external scheduling/ERP system

CONFIDENCE MONITORING

- round-robin spectrum monitoring using any spectrum analyzer, demodulator or IRD
- scheduled video, voice and data confidence monitoring

SLA REPORTING

- highly configurable SLA calculation and SLA reporting



02

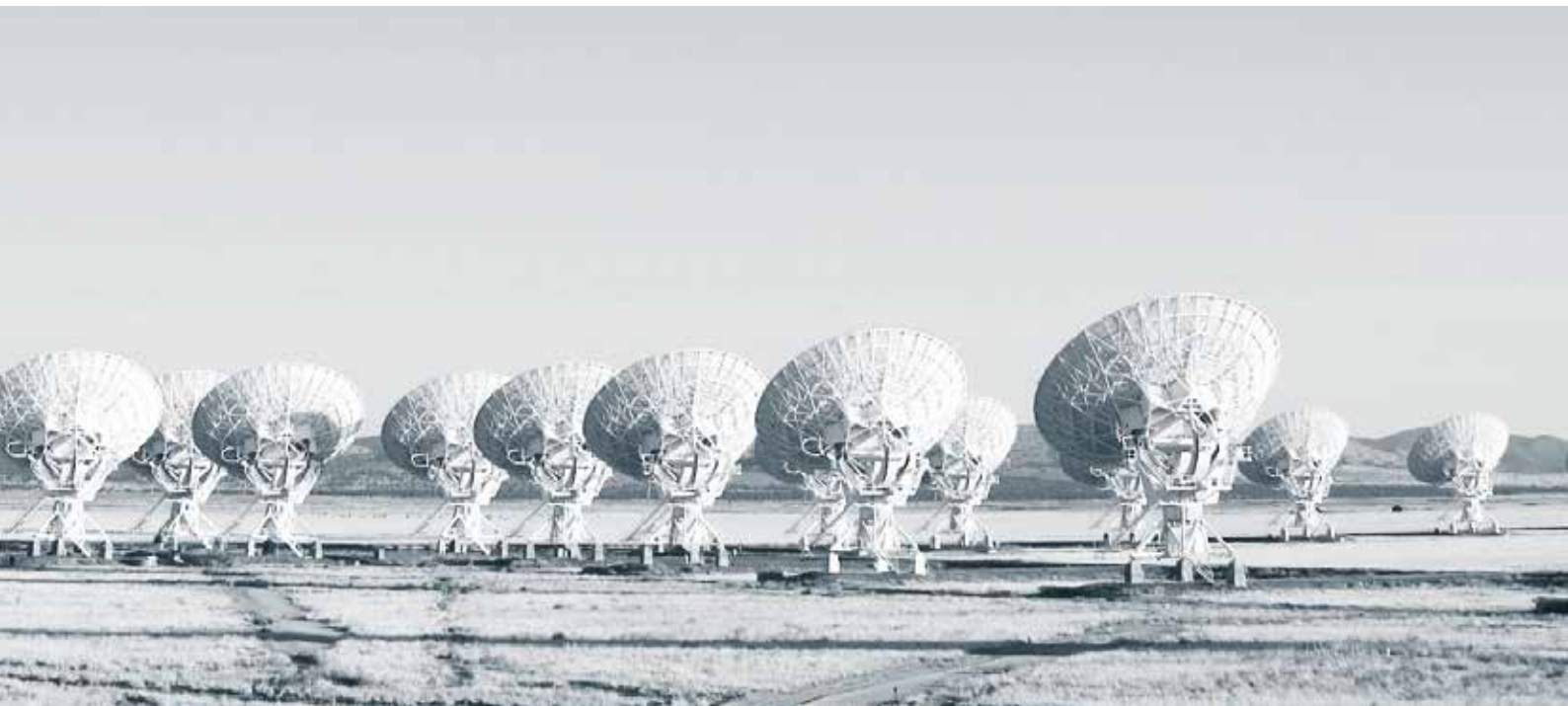
USE YOUR RESOURCES EFFICIENTLY

SATELLITE BANDWIDTH OPTIMIZATION

- satellite link optimization using customizable transmission profiles
- per-session Tx power, MODCOD and FEC settings for all DVB SCPC and MCPC transmissions (DVB-S, DVB-S2, DVB-S2X)
- time-sharing of bandwidth across customers, applications and services
- upload of satellite and beam footprints (EIRP) facilitates mobile link optimization
- automated beam switching across beams, bands or even cellular networks, based on network performance, location and business rules
- interfacing with vendor-specific bandwidth optimization tools

EFFICIENT OPERATIONS

- DataMiner's built-in OSS functions facilitate operations
 - > service booking and scheduling
 - > trouble ticketing
 - > customized reporting for engineering, operators, helpdesk, management and marketers
 - > real-time and interactive dashboards and customer self-service portals (available over VPN through corporate websites) facilitate fast deployment of VNO services
 - > SLA reporting and accounting reports
- OSS/BSS integration with external OSS/BSS tools
 - > ERP systems
 - > scheduling systems
 - > subscriber and customer management systems
 - > inventory and asset management systems
 - > trouble ticketing systems
 - > helpdesk operator tools
 - > automated Voice Response Systems
 - > etc.



03

WIPE AWAY ALL BARRIERS TOWARDS A FLEXIBLE BUSINESS

NO VENDOR OR TECHNOLOGY DEPENDENCY

- Skyline Communications is a fully independent company, so you are guaranteed to have the freedom to deploy any network infrastructure you prefer, while selecting the best-of-breed technology, today and any time in the future
- DataMiner monitors and controls any device, from any vendor
- with DataMiner, all technology and application boundaries drop away

- > RF ground equipment: modulators, demodulators and IRDs, modems, gateways, VSATs
- > DVB carriers and proprietary (non-DVB) carrier formats
- > fixed antenna controllers and mobile antennas (COTM)
- > IP networking: MPLS, SDH, L2 VLANs, IP routing and switching, VPN, ...

- > IP acceleration and compression (cellular backhaul)
- > teleport and remote terminals
- > datacenters, cloud OS's and virtual appliances (NFV)

NO LIMITATIONS IN SERVICE OFFERS

- management of video (SDI, ASI and IP), audio, high-speed data and broadband IP data
- flexible connection architecture

- > point-to-point (SCPC, MCPC)
- > uni-directional and bi-directional links
- > constant (CCM/VCM) or variable rate (ACM)

- > broadcast
- > multicast point-to-multipoint
- > VSAT

- service routing across frequency bands (C, Ku, Ka, X, ..)
- regular, multi-spotbeam, or mixed networks
- end-to-end service orchestration across fiber and satellite network segments

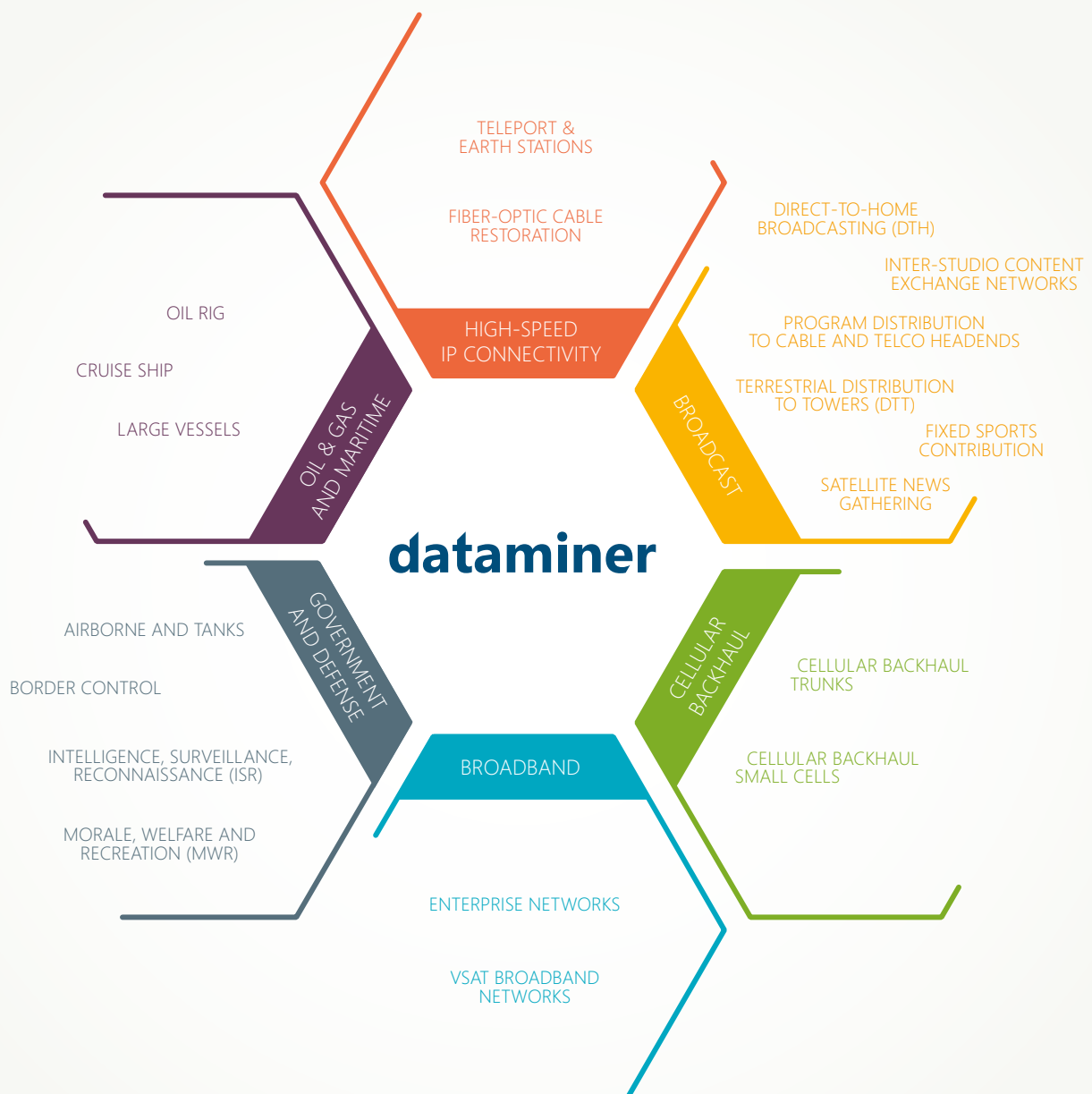
NEW BUSINESS MODELS

- secure Virtual Network Operation (VNO)
- teleport co-location deployment
- end-customer self-service portals



DATAMINER HAS BECOME THE MOST STRATEGIC ASSET

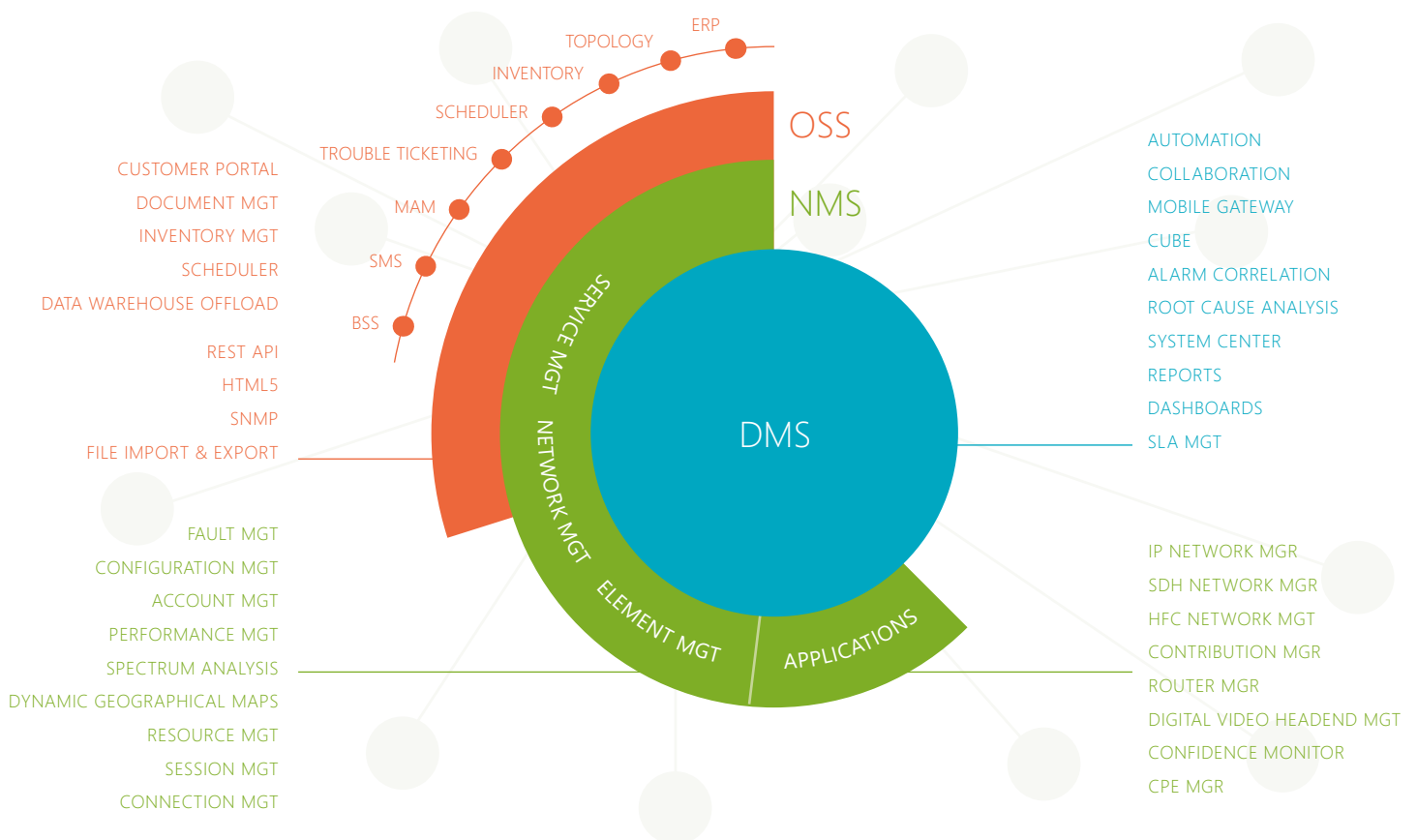
The world-class DataMiner NMS/OSS combines service uptime with the highest flexibility and efficiency. The NMS/OSS is the brain behind efficient booking, utilization and sharing of resources. Far-reaching disaster recovery and workflow automation result in reduced operational cost and higher service uptime. Knowing that DataMiner manages any device from any vendor, today and any time in the future, brings peace to engineering and operational teams.



DATAMINER IS THE PERFECT FIT FOR MANY APPLICATIONS

At any time of any day, DataMiner is managing and operating a vast array of media and IT networks around the world. As a result of years of successfully delivering video, data and voice across any medium, the platform leverages a wealth of innovative features, perfect scalability and technology leadership.

broadcast satellite news gathering, contribution and exchange networks	satellite IP trunking and fiber restoration networks	cable HFC networks, including management of modems and set-top boxes
broadcast master control rooms, studios and playouts	multi-screen video headend (legacy and cloud) for linear and TSTV	distribution networks for DTT (DVB-T2 / ISDB-T / ATSC)
IP MPLS, SDH, CDN networks	cellular networks	VoD platform asset management including QC verification workflows
broadcast direct-to-home uplinks	IT networks and data centers	
satellite earth stations for SCPC/MCPC and VSAT	dynamic ad insertion and ad-insertion monitoring	





FACTS & FIGURES

- in business since 1985
- decades of industry-specific NMS / OSS expertise
- 100% independent NMS / OSS software publisher
- awarded for innovation, growth and excellence
- offices in Belgium, Portugal, Singapore and the US, and a vast network of local partners around the world
- 300+ employees and growing
- 1000+ customers
- 6000+ systems deployed
- 125+ countries worldwide

WHY SKYLINE COMMUNICATIONS

Skyline Communications is widely recognized as the leading supplier of multi-vendor network management (NMS) and OSS solutions. Our mission is to redefine the way operators manage the most complex ecosystems more efficiently and more intuitively than ever before, end to end across any vendor and technology boundaries. Our world-class NMS/OSS platform DataMiner sets itself apart from any other solution through its advanced orchestration and automation capabilities, ease of interoperability within OSS and BSS environments, and deep integration of analytics and AI.

Our systems have been deployed by leading operators in the cable, telco, mobile, satellite and broadcast industries on all continents. As Skyline Communications is fully independent of technology providers and system integrators, our customers benefit from a true freedom of choice in infrastructure and partner selection.

Skyline continuously invests in software research and development, striving to simplify operations, bring operational teams together by breaking through the traditional silos, and pave the way for our customers to transition to new technologies and new business models. Our knowledge of the industry, our deep understanding of customers' business requirements, and our unique experience with NMS/OSS solutions in this industry assure every one of our customers that our solutions are attuned to their specific needs.

OUR TURNKEY SOLUTIONS

CONSULTANCY SERVICES

Our professional consultancy services are your guarantee that all stakeholders within your corporation are identified, risks are properly analyzed and mitigated, and operational procedures are designed and brought in place on time.

PROJECT MANAGEMENT

You can rest assured that your project is going to be delivered on time and within the projected scope. All tasks are managed via an intuitive cloud collaboration portal dedicated and secured to your project.

ENGINEERING SERVICES

Developing drivers or provisioning your entire DataMiner NMS/OSS environment to deliver a turnkey solution — it's all available via our engineering services.

MAINTENANCE AND TECH SUPPORT

Maintenance and Tech Support is continuously available for platform updates and technical support during business hours or around the clock, seven days a week.

AWARDS

- **Best Network Management Solution 2018 & 2005**
awarded by Cable & Satellite International
- **Export Lion Flanders 2017 & 2012**
awarded by Flanders Investment & Trade
- **WTA Best Teleport Technology 2016**
awarded by World Teleport Association
- **Technology Fast50 2014, 2015 & 2016**
awarded by Deloitte
- **Top 50 Belgian Entrepreneurs 2013**
awarded by De Tijd
- **Most Promising Enterprise Flanders 2011**
awarded by Ernst & Young



Skyline Communications is a Full Member of the Alliance for IP Media Solutions



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