SES: service innovation and delivery agility using a cloud-based end-to-end service and network orchestration solution
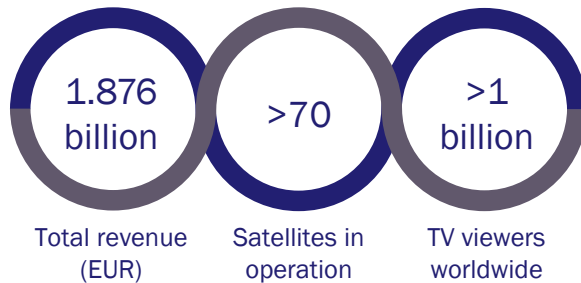
Justin van der Lande and Alex Bilyi
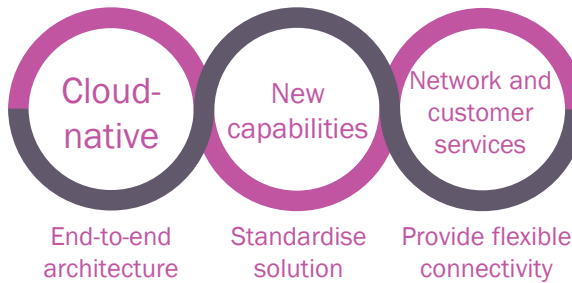
SES is transforming into a cloud-native business using Amdocs's end-to-end service and network orchestration solution
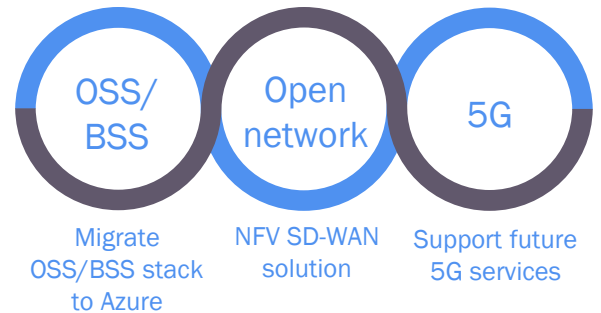
SES

STATE OF THE BUSINESS

- **1.876 billion** — Total revenue (EUR)
- **>70** — Satellites in operation
- **>1 billion** — TV viewers worldwide

FOCUS OF THIS EFFORT

- **Cloud-native** — End-to-end architecture
- **New capabilities** — Standardise solution
- **Network and customer services** — Provide flexible connectivity

PROJECT APPROACH

- **OSS/BSS** — Migrate OSS/BSS stack to Azure
- **Open network** — NFV SD-WAN solution
- **5G** — Support future 5G services

BUSINESS DRIVERS

- The rise in the use of both internet services for AI, data analytics and cloud computing and TV is driving the demand for high-speed, low-latency data.
- Increasing competition is emerging from LEO satellite companies such as SpaceX.
- SES is planning to transition towards a cloud-first IT model with extensive Azure Orbital partnership.

STRATEGY

- Pursue growth in the fixed-line business market to create new revenue streams and protect the existing business.
- Migrate BSS and OSS stacks to the cloud.
- Align network services to a consumption-based business model, thereby providing flexible connectivity that can scale up/down and support latency performance as required.

ANALYSIS

- SES selected Amdocs as its partner to implement a full OSS/BSS cloud-native stack.
- 3GPP release 17 was built into the satellites, which will use full 5G capabilities.
- The project has accelerated SES's NFV/SDN adoption and service innovation using open network automation platform (ONAP) architecture and standards.

👍 BENEFITS 👍

Reduction in the time taken for SD-WAN integration from 3 months to 2 days

Consolidated service delivery through the edge

Efficient scalability with reduced upfront investment

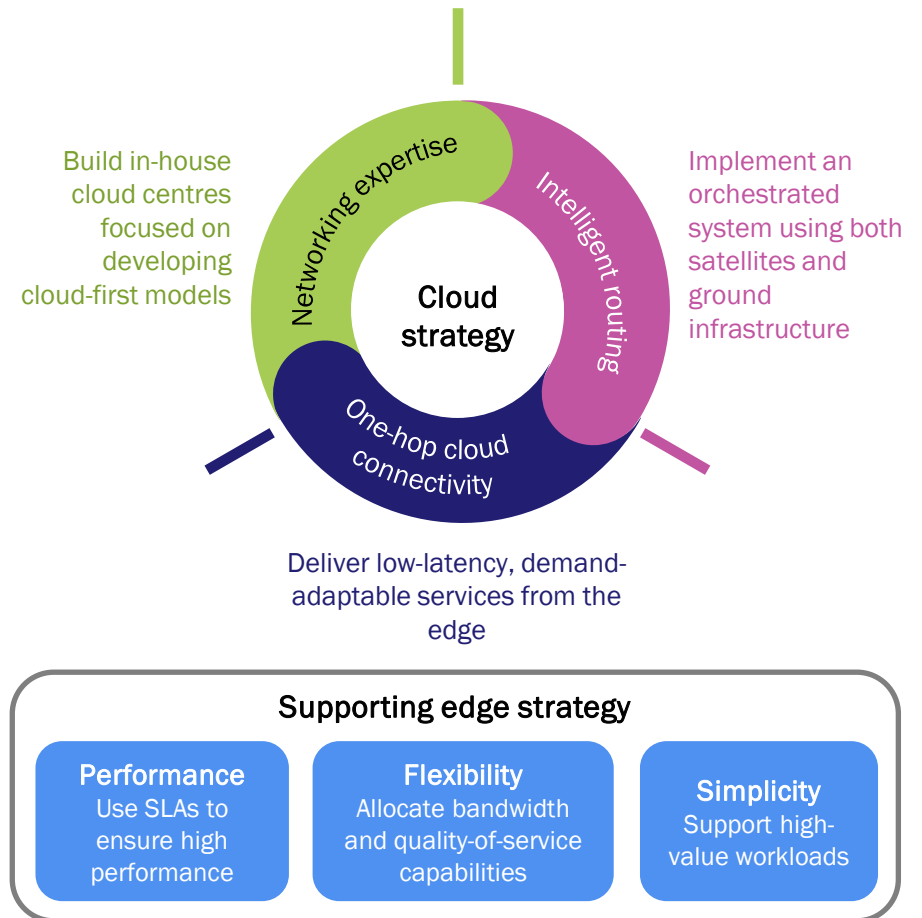Source: Analysys Mason

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Business challenges and key drivers of the project [1/2]

SES required a standards-based network automation and service orchestration platform to manage its network services over multiple cloud and network resources.

SES is a satellite and terrestrial telecoms network provider that is undergoing a transformation to automate and modernise its network platform. It is creating a single unified, open, standards-based network automation and service orchestration platform to manage its vertical network services over multiple clouds and network resources. SES's aim is to deliver a faster time to market for new services and provide an even higher quality for its extensive range of connectivity services on its O3b satellite constellation. It has announced an aim to become a 'cloud first' business and has formed a relationship with Microsoft to integrate the Azure cloud and facilitate the transition and expansion of its satellite network.

Customers need network services to fit with consumption-based business models. As such, connections must be flexible, but this was difficult for SES to achieve due to various complex manual internal and external processes. For example, SES offers up to 1TB of capacity per satellite, which is used to meet the needs of a wide range of clients. However, problems passing through firewalls may restrict the speed at which services can be set up. The complex satellite ecosystem means that modelling the full end-to-end service chain is a necessary step to ensure customer services can be managed effectively.

Figure 1: SES's cloud and edge strategy

Build in-house cloud centres focused on developing cloud-first models

Networking expertise

Cloud strategy

Intelligent routing

Implement an orchestrated system using both satellites and ground infrastructure

One-hop cloud connectivity

Deliver low-latency, demand-adaptable services from the edge

Supporting edge strategy

| **Performance** Use SLAs to ensure high performance | **Flexibility** Allocate bandwidth and quality-of-service capabilities | **Simplicity** Support high-value workloads |

Source: Analysys Mason

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Business challenges and key drivers of the project [2/2]

SES has acquired 12 independent companies with different market maturities, competitors and cultures. This has resulted in a combination of different software systems and architecture.
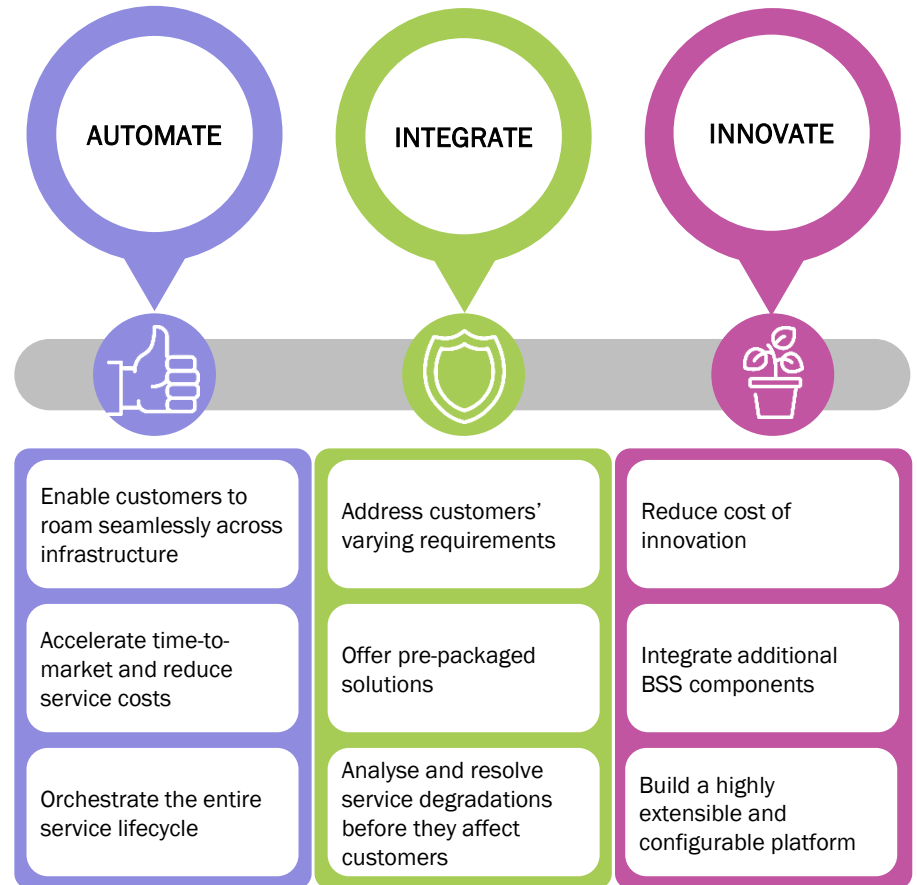
SES is the largest distributor of 8k and 4k video in the world, but competition from OTT communications services is growing. SES needed to transform its business model and automate the network, but it wanted to take advantage of off-the-shelf systems to offer new services and capabilities, rather than developing a system in-house.

SES serves a diverse set of clients with a variety of service requirements and end points. It had extended development and implementation timeframes, and its procedures lacked both automation and standardisation, thereby putting a strain on resources.

SES required a single architecture to consolidate, integrate and rationalise its systems. It needed a full stack BSS/OSS solution to solve its integration problems and encourage the transfer to the cloud.

The necessity to extend its network services and activate virtualised network functions rapidly and at scale was the driving force behind the project. SES plans to virtualise much of its core technology in the cloud, thereby enabling network slicing and providing a gateway on the cloud's edge.

Figure 2: Business factors that are driving the transformation project

AUTOMATE	INTEGRATE	INNOVATE
Enable customers to roam seamlessly across infrastructure	Address customers' varying requirements	Reduce cost of innovation
Accelerate time-to-market and reduce service costs	Offer pre-packaged solutions	Integrate additional BSS components
Orchestrate the entire service lifecycle	Analyse and resolve service degradations before they affect customers	Build a highly extensible and configurable platform

Source: Analysys Mason

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SES needed to streamline and simplify its hybrid network and video services ordering and delivery management
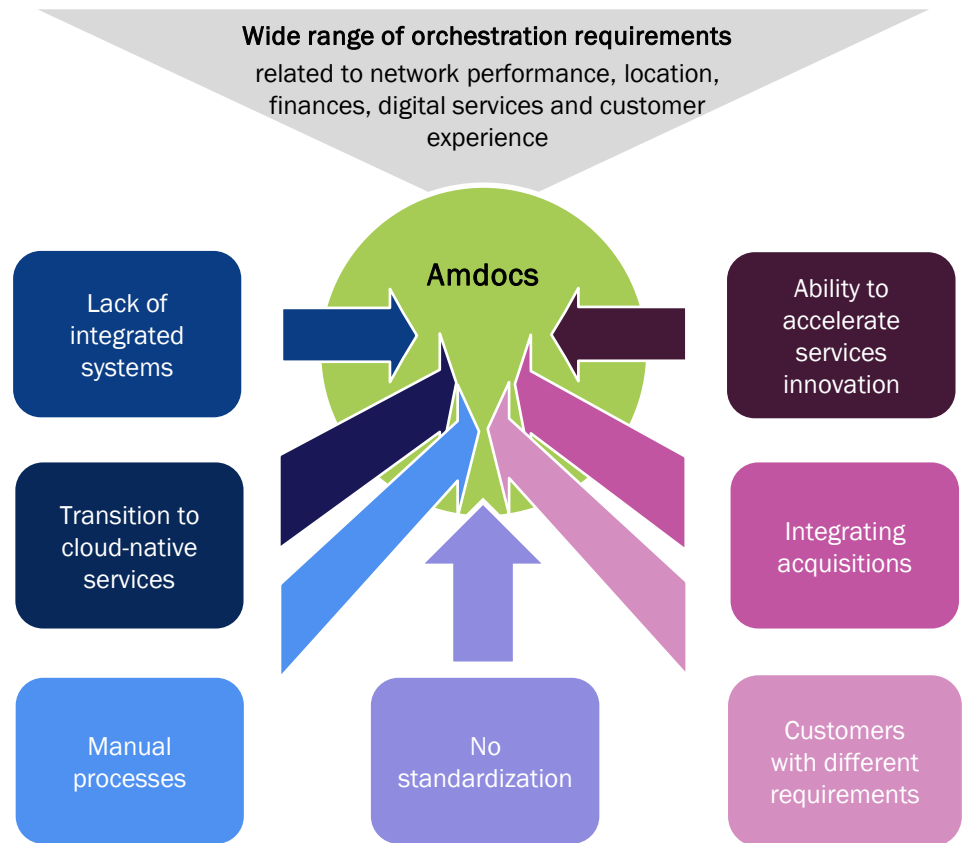
SES operates over 50 GEO and 20 MEO satellites, as well as extensive ground infrastructure that is integrated into a scalable portfolio of network solutions. As such, it required automation to provide cloud-scale, highly available network services in order to reduce the complexity and cost associated with the operation of security and other virtual network services. SES required end-to-end service and network orchestration and a single solution that spans multiple domains and technologies and that could imbed 5G capabilities within satellites in compliance with 3GPP release 17.

SES needed to be able to activate virtualised network functions quickly and at scale, on multiple network and cloud domains, in order to accelerate the time-to-market and improve service agility for customers. It was also looking for a cloud-native solution that could be deployed on Microsoft Azure.

It was critical that the solution provided flexible connectivity that could be scaled up and down in real time to support low-latency performance as demanded by cloud applications.

SES sought a partner to supplement and support its skills to expand its satellite infrastructure. SES required expertise beyond the initial cloud implementation; the solution must plug into active and available inventory on the cloud in order to standardise SES's network structure and tie everything together with AI capabilities.

Figure 3: SES's drivers for adopting Amdocs's end-to-end service and network orchestration

Wide range of orchestration requirements related to network performance, location, finances, digital services and customer experience

Amdocs

Lack of integrated systems

Transition to cloud-native services

Manual processes

No standardization

Ability to accelerate services innovation

Integrating acquisitions

Customers with different requirements

Source: Analysys Mason

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SES worked with Amdocs to implement an end-to-end service and network orchestration solution

SES chose to deploy Amdocs's end-to-end service and network orchestration solution, a comprehensive and unified system that enables efficient and effective service lifecycle management of network and cloud services across multiple siloed domains, vendor technologies and hybrid networks.

SES was looking to benefit from Microsoft Azure public cloud's highly agile and scalable infrastructure, so its first step was to unify the system and transfer its capabilities to the cloud. It was also vital that it simplified its services operation and delivery by using ONAP-based components and practices in order to reduce operating costs and risks and to accelerate the time to market. By implementing Amdocs's orchestrated solution, SES was able to increase its value proposition through efficient innovation and operation of applications and services such as SD-WAN and other cloud-based network services.
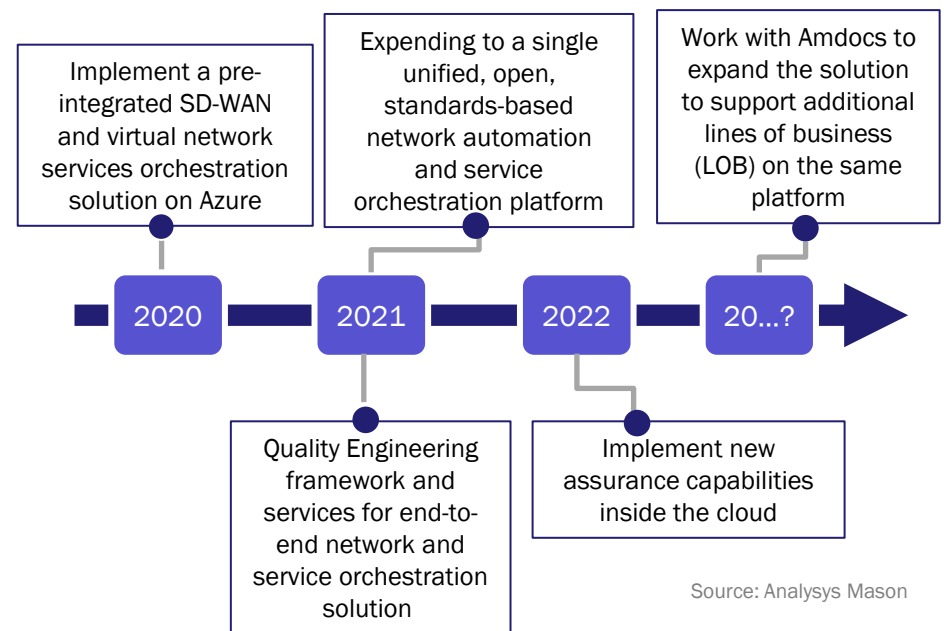
SES is now preparing to improve its entire fulfillment and assurance service by plugging Amdocs Resource Manager, Amdocs SmartOps and Amdocs Quality Engineer into active and available inventory. Amdocs Quality Engineer will inject data back into testing activities, thereby further automating the network and identifying any network issues before they affect customers.

SES's next step will be to work with Amdocs to provide a unified catalogue solution and extend its portfolio.

Figure 4: SES's automation journey with Amdocs

"SES is extending its collaboration with Amdocs to end-to-end service orchestration and digital lifecycle management for new generation of video and network services that spans many domains including physical, virtual and cloud network functions, as well as satellite access, radio access, fiber transport and core network infrastructure"

Gint Atkinson, VP, Network Strategy & Digital Architecture at SES

Implement a pre-integrated SD-WAN and virtual network services orchestration solution on Azure

Expending to a single unified, open, standards-based network automation and service orchestration platform

Work with Amdocs to expand the solution to support additional lines of business (LOB) on the same platform

2020 — 2021 — 2022 — 20...?

Quality Engineering framework and services for end-to-end network and service orchestration solution

Implement new assurance capabilities inside the cloud

Source: Analysys Mason

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SES is using Amdocs's End-to-End Service and Network Orchestration on Microsoft Azure to provide a dynamic and agile service and network management approach

Figure 5: SES's cross-domain dynamic network management approach

Source: Amdocs

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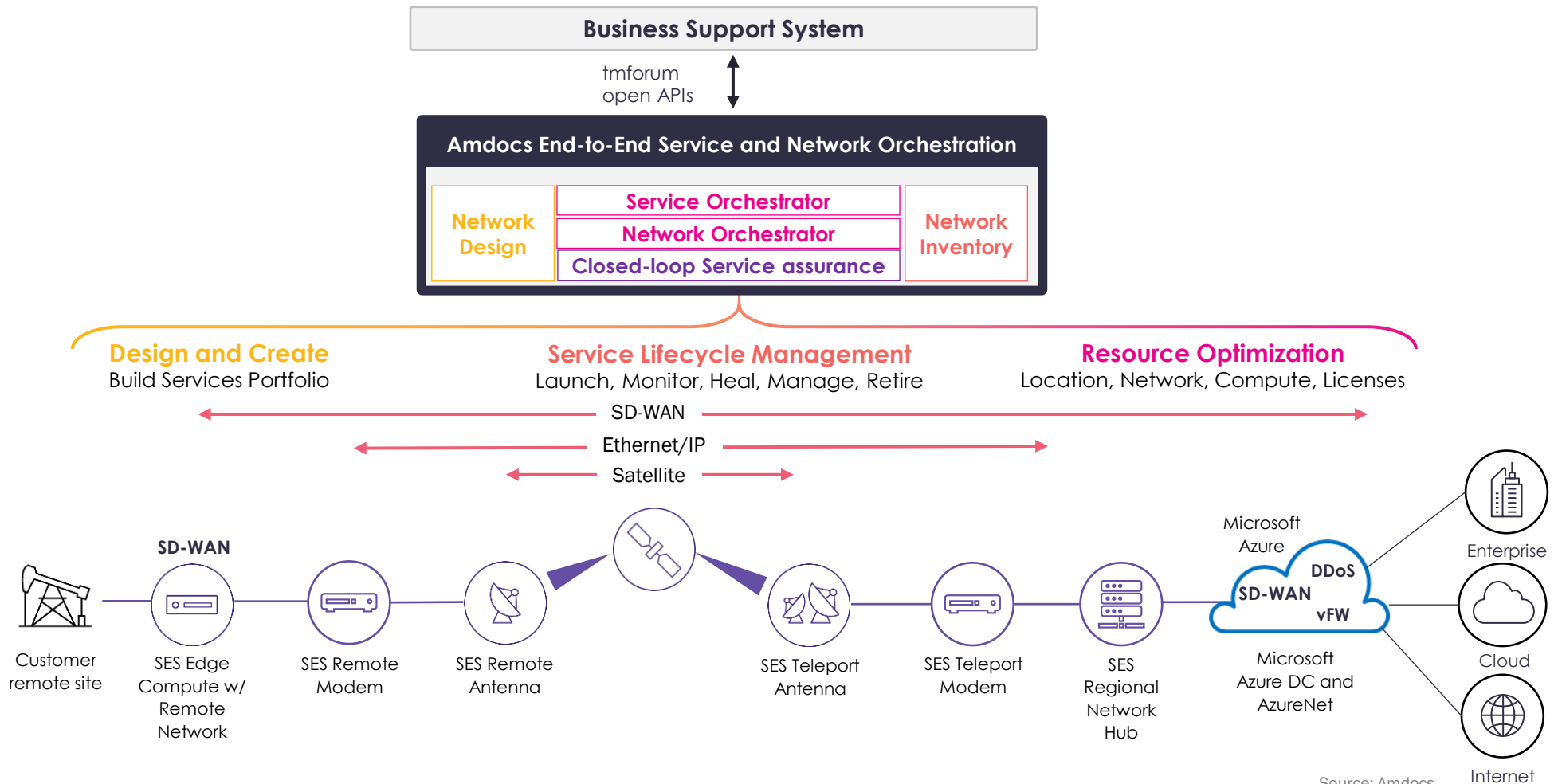
Key benefits

1

Reduction in the time taken for SD-WAN integration from 3 months to 2 days

Implementing Amdocs's pre-integrated NFV SD-WAN solution has allowed SES to accelerate its growth beyond traditional connectivity. It has enabled SES to reduce the lead time for the integration of a single SD-WAN endpoint from 3 months to 2 hours and to reduce opex. It can now also be completed by just one person. By reducing the time needed to complete repetitive manual processes, SES can focus its resources on expanding its satellite network services and offerings. Automation will also improve agility, thereby enabling it to react faster to customer demand and reducing the time-to-revenue.

2

Consolidated service delivery through the edge

Content distribution through the edge rather than to every user has led to a reduction in network complexity. Most operators are citing manufacturing as the key vertical in their edge cloud announcements, which puts SES in a competitive position in the future as it plans to support ultra-low latency use cases such as automated manufacturing, while reducing the amount of congestion in the core network.

3

Efficient scalability with reduced upfront investment

Deploying the Amdocs solution that supports native capabilities on the Microsoft Azure public cloud has provided SES with highly agile and scalable infrastructure, and has enabled it to reduce its cloud consumption costs by 70%.

O3b mPower has the ability to provide flexibility and scalability to clients. SES provides it as a managed service, thereby enabling the effective scaling of connectivity throughout the lifecycle of customers' projects. This enables both SES and its customers to address the increased demand for many next-generation data applications.

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Summary

1

SES has modernised and transformed its network platform using Amdocs's end-to-end service and network orchestration solution and has benefitted from reduced opex, increased business agility and operational efficiency.

SES has benefitted directly from delivering its strategy to become a 'cloud-first' business and implement a single unified, open, standards-based network automation and service orchestration platform. These benefits include a reduction in the lead time for implementing a single SD-WAN endpoint and reduced opex.

2

SES's use of Microsoft Azure and Amdocs's software has been vital to ensuring that its network and service operation systems remain standardised and can be scaled to accommodate future offerings.

Building its network on Microsoft Azure using Amdocs's services has enabled SES to have a complete unified service orchestration system with active and available inventory, a service creation environment and distributed collaborative experimentation environment. It has also allowed SES to expand its capabilities; for example, it can now provide service fulfillment and assurance.

3

Amdocs is using its products and services offering and deep telecoms expertise to help SES to implement new intelligent networking solutions and get ready to unleash the 5G potential of satellites.

Amdocs's success is closely tied to SES's success so close and detailed incremental collaboration was essential. Such collaboration has allowed Amdocs and SES to build, test and deliver a service and network orchestration platform that can scale to meet the growing requirements of SES's wide range of customers. The success of the initial partnership has resulted in further collaboration initiatives such as service assurance integration.

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FURTHER INFORMATION

Amdocs is a leading provider of service and network automation and orchestration solutions to communications and media companies of all sizes

Amdocs is a leading specialised telecoms software solutions and services company.

Amdocs's Intelligent Networking Suite provides modular service and network automation solutions that are designed to manage and orchestrate hybrid services across the network and the public cloud. It supports service design, inventory management and network orchestration across all business lines.

Amdocs's End-to-End Service and Network Orchestration system enables service lifecycle management of network and cloud services across multiple siloed domains, vendor technologies and hybrid networks.

Amdocs's 5G Slice Manager orchestrates end-to-end network slicing lifecycle management across RAN, transport and core siloed domains. It encompasses the CSMF, NSMF and NSSMF in addition PNF/VNF/CNF configuration management, homing and placement, policy and charging.

Amdocs's NaaS/SD-WAN solution enables operators to benefit from Amdocs's certified VNF catalogue, native integrations with leading SD-WAN, security and VNF vendors and a use case library.

Solutions cover service lifecycle management, from onboarding, design and creation to orchestration, continuous monitoring and operation, thereby providing a single management system for policies, SLAs, KPIs, automated fulfilment and closed-loop operations.

Figure 6: Key data about Amdocs

Company details	Founded in Israel in 1982
Location	Chesterfield, Missouri, USA
Partnerships	AWS, Google, Microsoft Azure, Versa, Fortinet, Teoco
Products and solutions	▪ **Intelligent Networking Suite.** A modular and unified platform that provides end-to-end service lifecycle management of cloud services and hybrid networks. ▪ **Service Orchestration.** An automated solution for managing the service order lifecycle, enabling operators to fulfill complex, bundled, multi-play orders quickly and accurately. ▪ **Network Orchestration.** Enables model-driven continuous adaptive fulfillment and closed-loop assurance of network services across multiple domains. ▪ **Network Inventory.** An advanced service and network inventory system that drives end-to-end service lifecycle and network automation with comprehensive multi-layer network data. ▪ **Quality Engineering.** A quality assurance service solution built on the 360NE platform. It integrates development, testing and operations, thereby providing a closed-loop service because analysed data is fed back into testing activities.

Source: Analysys Mason

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About the authors

Justin van der Lande (Research Director) leads the Applications practice, which is part of Analysys Mason's Telecoms Software and Networks research stream. He specialises in business intelligence and analytics tools, which are used in all telecoms business processes and systems. In addition, Justin provides technical expertise for Analysys Mason in consultancy and bespoke large-scale custom research projects. He has more than 20 years' experience in the communications industry in software development, marketing and research. He has held senior positions at NCR/AT&T, Micromuse (IBM), Granite Systems (Telcordia) and at the TM Forum. Justin holds a BSc in Management Science and Computer Studies from the University of Wales.

Alex Bilyi (Research Analyst) is a member of the Analysys Mason's research team in London. He holds a BEng in Chemical Engineering and an MSc in Engineering Business Management from the University of Bath, where he was part of the practice track team, researching and developing new XR products for an engineering and technology consultancy.

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Corporate growth strategy
Business unit strategy
Infrastructure strategy

Transformation
Business transformation
Digitalisation
Operational excellence
Data, BI, steering and insights
Change and programme management
Sustainability

Transaction support
Commercial due diligence and market review
Technical due diligence
Post-merger integration
Periodical business monitoring and loan technical advisory
Opportunity scouting and pre-deal support
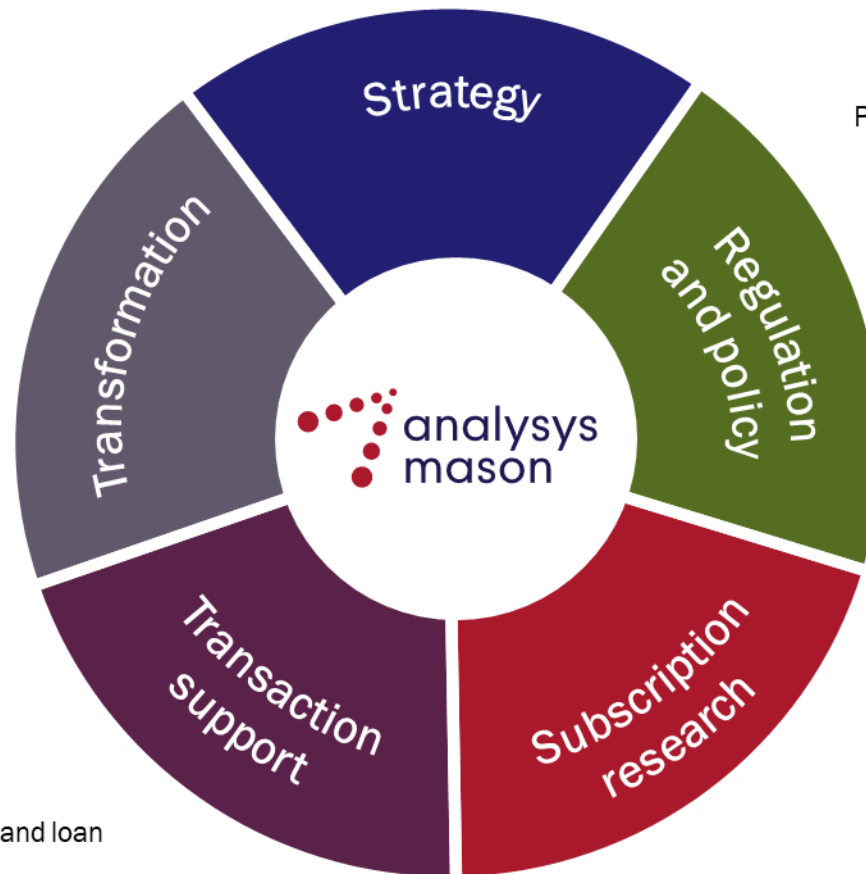
Regulation and policy
Network and platform
Public sector broadband intervention
Accelerating digital transformation of society
Price controls and cost modelling
Regulatory accounting
Regulatory benchmarking and analysis
Spectrum management and policy
Expert witness and litigation support
Postal regulation and policy

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Consumer Services
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Applications
SMB IT Channels and Forecasts
Cloud
Networks

Strategy
Regulation and policy
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Operator historical data

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Our areas of expertise

Strategy
Corporate growth strategy
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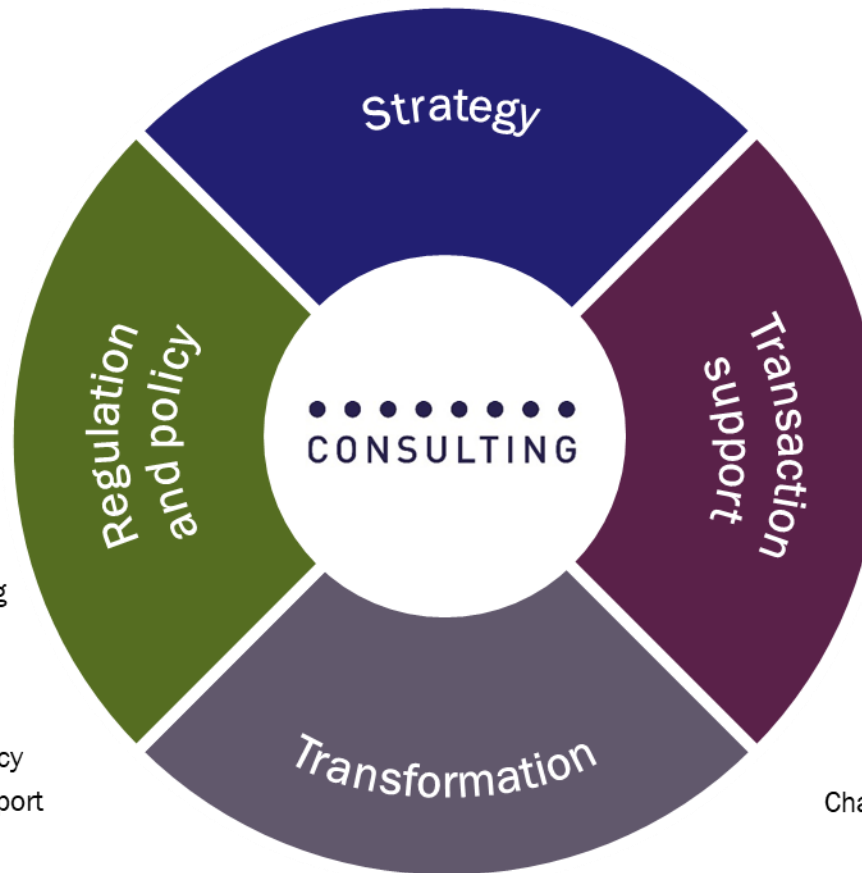
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Transformation

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