All photos courtesy of SES

Delivering specialised value

SES was established in 1985 as Europe's first private satellite operator, and it's come a long way since then. Today, it operates more than 50 geostationary Earth orbit (GEO) satellites and 12 medium Earth orbit (MEO) satellites, through its subsidiary O3b Networks. SES's satellite fleet covers more than 99 per cent of the world's population, and provides services to its four vertical markets; video, enterprise, mobility and government. Amy Saunders spoke with SES's Deepak Mathur, Senior Vice President of Commercial, Asia-Pacific and the Middle East, to talk about the company's recent developments and emerging market trends.

Question: Can you provide an outline of the development of SES over the years?

Deepak Mathur: SES began as a satellite operator targeting Europe, with small arcs into the Middle East and Africa. As the millennium approached, SES began its transformation to become a global satellite operator, offering multiple services in multiple markets. Through the acquisition of GE Americom in 2001, we gained a foothold in the North American market, and with the acquisition of New Skies, we expanded our geography further to cover 99 per cent of the Earth's surface.

In recent years, we have continued to expand our capabilities and range of offerings. Last July, we acquired RR Media, which was merged with our subsidiary SES Platform Services to form MX1, broadening our suite of digital video and media services. Most recently, we brought O3b Networks, which operates a fleet of next-generation, low-latency MEO satellites, into our fold to enhance our data offerings and delivery of differentiated and scalable solutions to customers worldwide. Today, SES is the largest satellite operator in the world with over 50 GEO and 12 MEO satellites in orbit, and another seven satellites to be launched.

Question: Which markets does SES focus on, and how is this changing?

Deepak Mathur: Video is an important part of our business and forms around 70 per cent of our revenue globally. It will continue to be a strong driver for our business, but data is also becoming an increasingly larger part of what we do, and can be divided into three sub-verticals: Enterprise, mobility and government.

On the enterprise side, we serve telecommunications companies that provide connectivity to remote geographies, mobile network operators who use satellites for cellular backhaul, and banks and enterprises with large national or global networks. These are major parts of our business.

The mobility sphere is one of the most rapidly growing areas in our industry right now. In the aviation sector, in-flight connectivity has gone from a nice-to-have to a must-have. Around

SES's Deepak Mathur, Senior Vice President of Commercial, Asia-Pacific and the Middle East

one and a half years ago, commercial aircraft typically had low connectivity rates shared among all the on-board passengers, but today, many aircraft are connected with speeds of up to 10-20Mbps. Our customers are telling us that airlines now want up to 200Mbps per aircraft going forwards, which would allow passengers to stream HD video at an affordable price. Another good example of a rapidly growing area in mobility is the maritime sector; large cruise ships have traditionally had very low connectivity rates, and with 3,000 to 4,000 passengers on board, the experience was poor. In a highly-connected world, this was clearly a problem that needed a solution. That's changing rapidly today, helped along by new technologies and services. For instance, SES has teamed up with VT iDirect, coupling our satellite capacity with their latest technology to offer a high-speed connectivity service, Maritime+, to vessels traversing the seas worldwide.

The government sector also comprises a significant part of our data business. Today we serve 57 governments and institutions worldwide. Our network enables civilian, security and defence applications, information gathering, but also serves humanitarian purposes such as e-health, e-learning, e-elections and e-emergency. Our services are also key to support governments and institutions in their various digital inclusion projects.

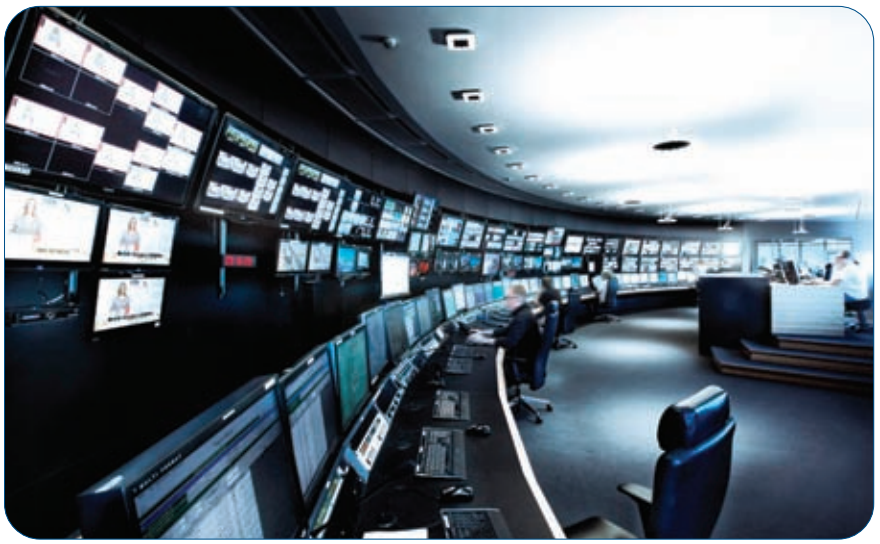
Question: How does SES differentiate itself from its competitors?
Deepak Mathur: Within the video sector, we've got a legacy now that dates back around 30 years of bringing video content to TV homes, and we have recently expanded our video capabilities for customers. Beyond capacity, our customers can access a full range of video distribution services within SES. Through our subsidiary MX1, we're able to offer full turnkey solutions along the complete media value chain for broadcasters, including content management or distribution services delivered over satellite, fibre and the Internet.

We have also been at the forefront of the movement towards higher quality video as the first satellite operator to broadcast a commercial Ultra HD channel, Fashion One 4K, in September 2015. Today, we broadcast more than 20 commercial UHD TV channels worldwide, more than any other satellite operator.

In the data space, we've differentiated ourselves from our competitors in several key ways.

The first is our acquisition of O3b Networks, which operates a global next-generation constellation of MEO satellites. O3b's satellites are located about 8,000km above the Earth, which enables us to provide low cost per megabit, low-latency connectivity at fibre-like speeds. The round-trip data transmission time is reduced to less than 150ms for MEO systems like O3b, compared to more than 500ms for GEO systems, which has a material impact for latency sensitive data transmissions. O3b not only expands the range of our data capabilities, the flexibility it enables is also important; the ability of O3b to move its beams to new areas as cellular networks grow out is a crucial advantage from our perspective. It's an enormous growth opportunity because the roll-out of cellular networks tended to be largely urban and semi-urban, which meant that rural areas such as the Pacific Islands had almost no connectivity. O3b is able to bridge the connectivity gap for island nations today, as it does for Papua New Guinea, enabling the roll-out of high throughput, low latency broadband services in the country. This is a critical differentiator that I believe the other satellite operators are now recognising.

The next development that helps us differentiate from our competitors is in the HTS sphere. HTS is fundamentally about establishing lots of small, high-powered spot beams and being able to reuse spectrum several times, making



it more cost efficient. Our key differentiator is our hybrid approach: three of our upcoming HTS satellites – SES-12, SES-14 and SES-15 – combine a high throughout payload with widebeam coverage on the same satellite, offering more flexibility and customized solutions. For example, a bank in Indonesia with 4,000 ATMs and branches across the 17,000 islands could cover the entire territory with 15 spot beams. This is great when a branch wants to communicate back to the head office, but when the head office wants to send the same message to every branch, the signal would have to be sent 15 times, making it very uneconomical. That's when our hybrid approach brings significant advantages: This means that customers can benefit from the lower cost per bit of HTS for some applications, and switch to the widebeam for others, depending on which is most cost-efficient.

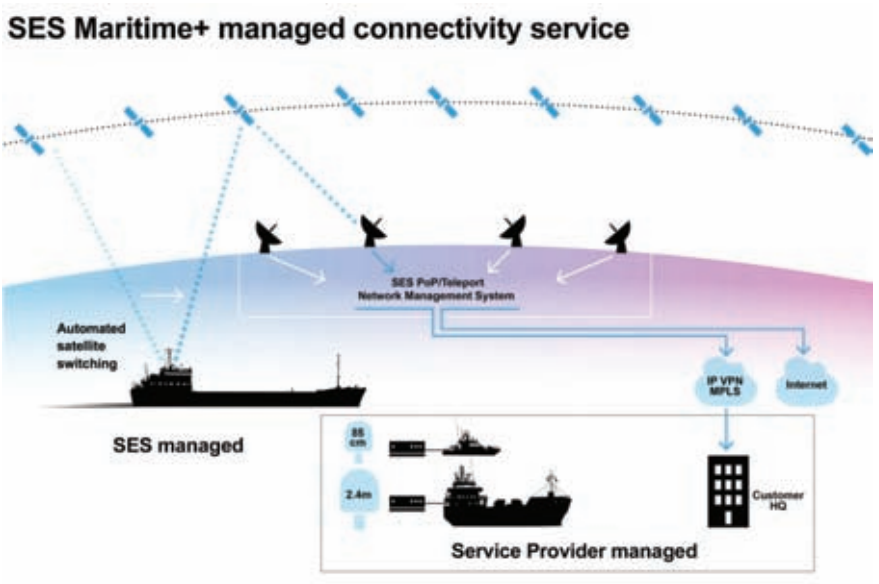
What it all boils down to is specialised capabilities. For a long time, the satellite industry has operated on a one-size-fits-all model, but today we're increasingly developing specialised satellites, and more importantly customized services, enabling us to deliver a specific set of solutions to video and data customers.

Question: In which regions is there the most opportunity for growth?

Deepak Mathur: About two or three years ago, there was a belief that the mature video markets, namely Europe, North America, Japan and Korea, would no longer show significant growth due to the rise of OTT services and other competing technologies. People thought that all the growth would stem from the emerging markets like India, Indonesia and Brazil.

To our surprise and delight, capacity demands over North America and Europe continue to be strong and continue to grow. They're growing by 2-3 percent, which is significant from such a large base.

A major factor for this growth is the increasing demand for better picture quality – both HD and UHD. In addition, we're also observing growth in the emerging markets of Asia, Latin America and Africa. In Asia, in particular, we see growth due to rising economic growth, and a hunger for high-quality video content among these young populations, as well as localised content in different languages and dialects.



Question: What major emerging trends and challenges have you observed in the satellite sector?

Deepak Mathur: It's a very positive trend that video continues to be a strong driver, both in developed and emerging markets, and we're going to start to see a sustained move towards higher picture quality, be it HD or Ultra HD. Probably the most important trend is the move away from one-size-fits-all capacity to highly specialised solutions depending on the customer.

We have also seen a surge in the demand for connectivity in the maritime and aeronautical sectors. In Asia and beyond, passengers' increasing demands for connectivity-on-the-go are boosting the adoption of maritime and aeronautical connectivity. At the same time, the uptick in demand is also coming from ship, rig and airline operators who recognise the operational efficiencies that connectivity brings.

Quite a few challenges reside on the regulatory front, where the relaxation of regulatory constraints is still proceeding at a very slow pace. It is unfortunate when we see how satellite connectivity can bring Internet to a school, or to a farmer who does not know how to deal with a new pest, and can then research a solution online. I would like to see this change in the coming years. Satellite is a key infrastructure for connecting the unconnected and is an enormous enabler for the economy.

Question: With video contributing most SES' revenue, how important is the uptake of UHD?

Deepak Mathur: UHD is very important for a couple of reasons. One satellite

transponder used to carry one channel, which was enormously expensive. When we moved into the digital era, we started to be able to carry four channels per transponder. This was not the downfall of satellite operators, because as costs came down, more channels emerged. SES has now moved from a position where we had a couple of hundred channels globally, to one where we have more than 7,000 channels. The reason for that is the cost of distribution and production have fallen significantly. Today you can fit as many as 30 SD channels on a single transponder, and there continues to be strong growth and demand.

UHD, offering four times the resolution of HD, provides a truly immersive experience. While it will probably not be used to deliver local news in a small Chinese province, for example, we see that it has already begun to be used for major sporting events and for films, and we expect the adoption and popularity of UHD to continue on the uptrend.

The benefit of UHD is that it enables our customers, the pay-TV operators, to create a differentiated and superior offering while also helping to tackle the piracy threat that a lot of them are facing. The clarity and picture quality of UHD delivered through TV is unparalleled, particularly for live sports and events. For pay-TV operators and as an industry, UHD brings an immersive and dynamic viewing experience to TV audiences worldwide, and is surely a vital part of the future video landscape.

Question: SES plans to launch SES-12, SES-14 and SES-15 in 2017, which will provide HTS capacity to the Asia-Pacific and the Americas. Can you provide an outline of the project, and will SES be launching HTS capacity in other world regions?

Deepak Mathur: We ordered SES-12, SES-14 and SES-15 as a key extension of our HTS strategy, which started with our investment in O3b's MEO constellation. SES-12 is a massive hybrid satellite targeting the Asia-Pacific region, and will be launched near the end of 2017. SES-14 and SES-15, also hybrid satellites, will provide coverage over the Americas and trans-Atlantic routes.

We are constantly on the lookout for business and growth opportunities worldwide, but so far there have been a few challenges when it comes to deploying HTS capacity for Europe, Middle East and Africa regions. The first is that Europe has not had as much of a data market as North America, and there's a significant amount of fibre connectivity there already. That being said, in Europe, where 56 percent of the population lives in rural areas, only 79 percent of households have access to broadband Internet – satellite certainly has an important role to play here. In addition, the innovations for connected airlines are now starting to gain momentum in Europe and the Middle East. Secondly, the HTS systems already present over Africa have had some economic challenges; the demand that was expected to fill this capacity has not emerged yet. Certain countries in Africa have had fits and starts with their GDP development unfortunately, and that's part of the reason why demand has not picked up. However, today 400 million Africans live outside the user reach of fibre connectivity, and 80 per cent still live without a mobile broadband connection. The region has enormous potential for connectivity. As economic and infrastructure development reaches a sustained level of progress, the demand for connectivity will most probably then be realised.

Question: In 2016, we saw a fair bit of industry consolidation. Do you expect to see a lot more going forward?

Deepak Mathur: The last year or so has been a challenging period for the satellite industry, but much of this has been exaggerated. Various industry experts have also signalled that this period is now approaching its end, and there are plenty of reasons for optimism.

In the year ahead, we do see pockets of growth and opportunities in our four key verticals – video, mobility, enterprise and government. The adoption of UHD, demand for maritime and aeronautical connectivity, growth in connected devices creating new opportunities to tap on the Internet of Things, the easing up of governments' budget sequestration pressures – all these, among other industry trends, are picking up at an ever-quickening pace.

As we move forward, I believe satellite operators that can deliver specialised value to their customers are in a better place than the operators that are selling capacity as a commodity. At SES, we recognised this change early and acted on it. ■