Connectivity for the Global Enterprise: How to Complete Your SD-WAN Solution

As global organizations increasingly deploy SD-WANs, satellite-based solutions provide compelling benefits — in scale, cost, and speed — that deserve attention.

INTELSAT

Business is now constantly online. The drive to reinvent organizations around digital technology and data-driven decision-making is fueling unprecedented investments in information technology. IDC expects global spending on digital transformation to be **nearly $7 trillion** by 2023.

Cloud-based infrastructure and applications have enabled companies to shift operations to wherever opportunities exist to reduce costs, expand markets, and streamline supply chains — and to do so at scale. The rise of intelligent devices and the computing platforms that support them is driving a market for services at the edge, expected to be worth **$250 billion** by 2023, says IDC. Streaming data will make up **more than 30%** of all data generated in 2025, with much of it coming from connected devices and the Internet of Things (IoT). Gartner expects **three-quarters of enterprise-generated data** to be created and processed at the edge by 2025, up from just 10% in 2018.

Increasingly, SD-WAN underlies the distributed computing architectures emerging from the growth of IoT and the shift of intelligence to the network edge. Organizations with far-flung operations, particularly in remote areas, are embracing SD-WAN to avoid the costly process of putting technicians on planes or hiring local service firms for routine procedures such as setting up a firewall or upgrading a router.

SD-WAN is a significant departure from legacy WAN technology and network design. As such, it involves developing new sets of skills as well as making capital investments in equipment and software. However, these costs are more than offset by savings over time.

Enabling business agility

One of the chief benefits of SD-WAN is the business agility it supports. For example, branch operations can be supported with bandwidth, security, monitoring, and network segmentation with just a few instructions in software. Temporary distribution facilities and pop-up kiosks can be online and equipped with a full set of cloud applications in a matter of hours. SD-WAN permits sensors to be monitored and controlled centrally with automated features that alert operators to potential outages and route around them. These features also appeal to manufacturers that are increasingly expanding their facilities in lower-cost parts of the world, many of which do not have sophisticated network infrastructure. That said, to achieve the benefit of digital initiatives, globally distributed enterprises must ensure the same level of service across all locations.

Lack of reliable connectivity limits the ability to deliver those consistent service levels. Although availability of broadband access is increasing steadily, **about 40%** of the world's population does not have affordable internet access. Among the 60% that does, performance can be unpredictable and connections are often limited to 3G and 4G mobile data lines that can't keep up with increasing demand for more and faster bandwidth.

For example, the average internet connection speed in Mexico, Colombia, Greece, and Turkey is **only around one-quarter** that of the United States, according to the Global Broadband Index. Just **22% of the African continent has internet access**, according to the International Finance Corporation, putting the benefits of its young population and extremely low-cost structure out of reach to companies that want to consider expanding there.

Myths and realities

Satellite communication has been possible since 1965, and the scope, speed, and quality of coverage have steadily grown over time. However, many companies don't consider satellite an underlay option for SD-WAN, because of misconceptions about price, performance, and other factors. Some see satellite service strictly as a temporary connection to be jettisoned when hardwired options become available. In fact, there are compelling benefits to including satellite services as a key piece of SD-WAN connectivity. Here are some outdated myths and updated facts about satellite technology:

Myth: Satellite connectivity is expensive.

Reality: Although it's true that the cost of transmitting bits between a satellite and the ground can be higher than that of using a hardwired or mobile data service, business leaders should consider costs beyond the price of the connection itself.

Paying to have fixed infrastructure put into place to support remote locations is expensive and time-consuming. For example, installing just 10 kilometers of fiber can cost **$190,000 in the U.S**. If easements must be obtained and land cleared, the cost can be many times that, particularly if the terrain is an obstacle.

An even bigger cost factor is time. Laying 10 kilometers of fiber can take from six months to a year, and legal challenges and regulatory obstacles can significantly extend that horizon. Similarly, deploying microwave towers involves the same administrative complexity and can take months, and the towers will incur the ongoing maintenance and operating expenses one would expect for any sensitive electronic equipment operating outdoors.

All these costs are amplified if the equipment is in locations that are hard to access. The bottom line is that hardwired infrastructure may be the least practical option for business scenarios where deployment speed is a source of competitive advantage. And it is hard to think of a business that doesn't compete on time today.

Myth: Satellite is too slow for enterprise use.

Reality: This myth is anchored in a decades-old perception. In reality, satellite and ground technology has improved dramatically over time, delivering performance that can accommodate numerous demanding applications. As demonstrated by Intelsat's partnership with Latin American broadcast network Globo — which **delivered live full-resolution 8K video** transmission of the World Cup over satellite in 2018 — satellite connectivity can provide more than enough capacity and throughput for the majority of enterprise application use cases.

Similar to improvements in speed for satellite service are mechanisms to address the potential impact of satellite-related latency. Although the speed of light won't change between Earth and a satellite, a combination of technologies and engineering best practices can mitigate the impact of latency for all but the most performance-intensive applications such as real-time gaming.

Myth: Satellite doesn't work when it rains.

Reality: Here's a similarly misleading claim: "Cars don't work in the snow." Clearly, some vehicles aren't built to perform in wintry conditions whereas others are designed to handle potential poor road conditions. In the same way, incorporating the right technologies and design into a satellite solution will deliver enterprise-grade connectivity regardless of the climate.

Consider an extreme example: Researchers at the Amundsen-Scott base station at the South Pole, which experiences the worst weather on Earth, **transmit more than 100 GB** of astronomical climate and other data by satellite on some days. Or a more familiar example: Broadcasters use satellite every day to deliver hundreds of hours of live events to customers around the globe — not just to people with satellite TV but also for the distribution of a reliable high-quality signal from a single event location to hundreds of cable head-ends that further distribute the feed to millions of subscribers.

Clearly, most enterprises and service providers won't use the same infrastructure as these examples, but proven technologies and well-designed services can provide service levels that are as dependable.

Myth: Satellite connectivity is difficult to set up.

Reality: Gone are the days when wholesale capacity leases were supported by an expert satellite management staff. Satellite operators have been steadily reducing setup times for years, and managed services are now available that can deliver prepackaged services in a matter of days.

An example is French-language entertainment leader TV5MONDE, which successfully staged a live broadcast originating from 16 capitals and unconnected remote regions to reach 300 million households worldwide. **Intelsat provided a hybrid satellite and terrestrial network** that delivered uninterrupted connectivity and seamless rollover between locations, including provisioning a two-way live link between Paris and Montreal with less than 24 hours' notice.

For enterprise deployments, satellite connectivity can be increasingly obtained as a network-as-a-service option to extend internet and cloud access, complement an existing MPLS network, or be integrated into a customer's SD-WAN fabric.

Myth: Satellite connectivity is a short-term solution until fiber becomes available.

Reality: The fact that satellite is a quick-to-deploy solution shouldn't make it a temporary one. Even at a location with access to multiple physical connectivity options, satellite should be considered as part of the SD-WAN underlay fabric for the long term.

Rather than using satellite as only a temporary or backup connection, organizations should consider it as a "first in" solution and then maintain it at the throughput that fits best with their application and business needs. SD-WAN application-aware routing will direct traffic according to the status of the available underlay connections and to meet the needs of individual applications. When combined with terrestrial alternatives, satellite enhances the ability of the network to support all applications with the appropriate performance. It allows for rightsizing of all connections to ensure that enterprises aren't paying for more than they need.

Look to the sky

Satellite connectivity services reach 99% of the world's populated regions, can be deployed in as little time as a few hours, and handle nearly every business and application need. They enable customers to expand their business and improve user experiences with fast, reliable connections.

Satellites provide the geographic reach to deliver consistent enterprise service wherever needed, even in some of the remotest spots on Earth or for events such as the Olympics, regional festivals, or pop-up shops. Customers have the agility to change to meet new requirements and add services and capacity quickly while maintaining complete security.

This plug-and-play global connectivity is unrivaled by terrestrial services and provides business agility benefits that can make investments in satellite among the smartest technology decisions enterprises can make.

For more information, visit Intelsat.com/FlexEnterprise.