



Intelsat's Presentation

INTELSAT: BUILDING A MORE DIGITALLY
INCLUSIVE SOCIETY THROUGH
SUSTAINABLE DEVELOPMENT GOALS

Intelsat: Building a More Digitally Inclusive Society through Sustainable Development Goals

It is widely known that global broadband connectivity is a significant enabler for the achievement of sustainable development for all and that Internet access, which is the backbone of today's knowledge, will accelerate the achievement of the [United Nations 17 Sustainable Development Goals \(SDGs\)](#).

Under the ITSO Agreement, ITSO's primary role is that of supervising and monitoring Intelsat's provision of international public telecommunications satellite services as specified in the Public Services Agreement (PSA) entered into between ITSO and Intelsat. Through this oversight role, ITSO is able to ensure that Intelsat provides, on a commercial basis, international public telecommunications satellite services, maintains global connectivity and coverage, serves its lifeline connectivity customers, and provides non-discriminatory access to the Intelsat system.

As a result of exercising its supervisory function, ITSO provides an important forum for Member States and facilitates the discussions and exchanges amongst them as they assess their international public satellite telecommunications requirements. Indeed, the availability of satellite broadband services is becoming a priority for many developing countries and therefore ITSO should continue to promote policies and services that bridge the digital (broadband) divide.

In order to fulfil its Goals and Objectives and to implement its Strategic Plan, ITSO collaborates with other organizations and participates in partnerships, programs and initiatives, that aim to bridge the digital divide, such as the [United Nations \(UN\) Broadband Commission for Sustainable Development](#) and, most recently, the [World Economic Forum \(WEF\) Internet for All Project](#) as well as the [ITU-D m-Powering Development Initiative](#).

Since its creation, the Broadband Commission has continuously demonstrated the importance of broadband and information and communication technologies (ICTs) as contributing factors to the realization of the UN goals. In addition, the [report of the Broadband Commission Working Group on Technologies in Space and the Upper Atmosphere](#), to which ITSO significantly contributed,

concluded that satellite and high-altitude systems offer significant advantages for expanding broadband coverage in developing countries as well as driving solutions essential to meeting the United Nation's 17 Sustainable Development Goals (SDGs).

In this context, the Director General of ITSO is pleased to share with you a PowerPoint presentation from Intelsat which shows how Intelsat's satellite technology can be leveraged to achieve SDGs and highlights some examples of Intelsat technology being utilised to accelerate digital inclusion initiatives across the world to achieve SDGs.

Intelsat: Building a More Digitally Inclusive Society

Through Sustainable Development Goals

October 2017



INTELSAT®

Envision. Connect. Transform.



On September 25, 2015, countries adopted a set of goals to **end poverty**, **protect the planet**, and **ensure prosperity for all** as part of a [new sustainable development agenda](#). Each goal has specific targets to be achieved over the next 15 years.

For the SDGs to be achieved, everyone needs to do their part!

Intelsat's Mission

Envision

The Impossible

Through a More
Digitally Inclusive Society

Connect

The Remaining 4 Billion People
Who
Do Not Have Access to Affordable,
Reliable, Broadband Connectivity

Transform

Economies

Communities

Lives



Intelsat's Commitment: Connect People, Communities and Nations

Intelsat provides services to over 90 wireless operators for extension networks and infrastructure

Intelsat works with governments, NGOs, and service providers to deploy broadband connectivity for commercial and economic development

Our services are provided via our Globalized Network which includes ~50 in-service satellites covering 99% of the earth's populated regions and a fully integrated terrestrial network

Leveraging Intelsat's Satellite Technology to Achieve SDGs



INTELSAT®

Envision. Connect. Transform.



Intelsat's Commitment to the Sustainable Development Goals

Intelsat will leverage our innovative satellite technology to build a more digitally inclusive world

Intelsat will engage with governments, NGOs, and service providers to deploy broadband connectivity for commercial and economic development

Intelsat will develop flexible and creative solutions to ensure that all citizens have access to on-line health, education, financial services and government services

Intelsat's Mission-Critical Communications Infrastructure: Essential to Achievement of SDGs



Network Services

Mobility

Broadband

**Wireless
Infrastructure**

Remote Connectivity

Media

Direct-to-home

**Television
Distribution**

Events

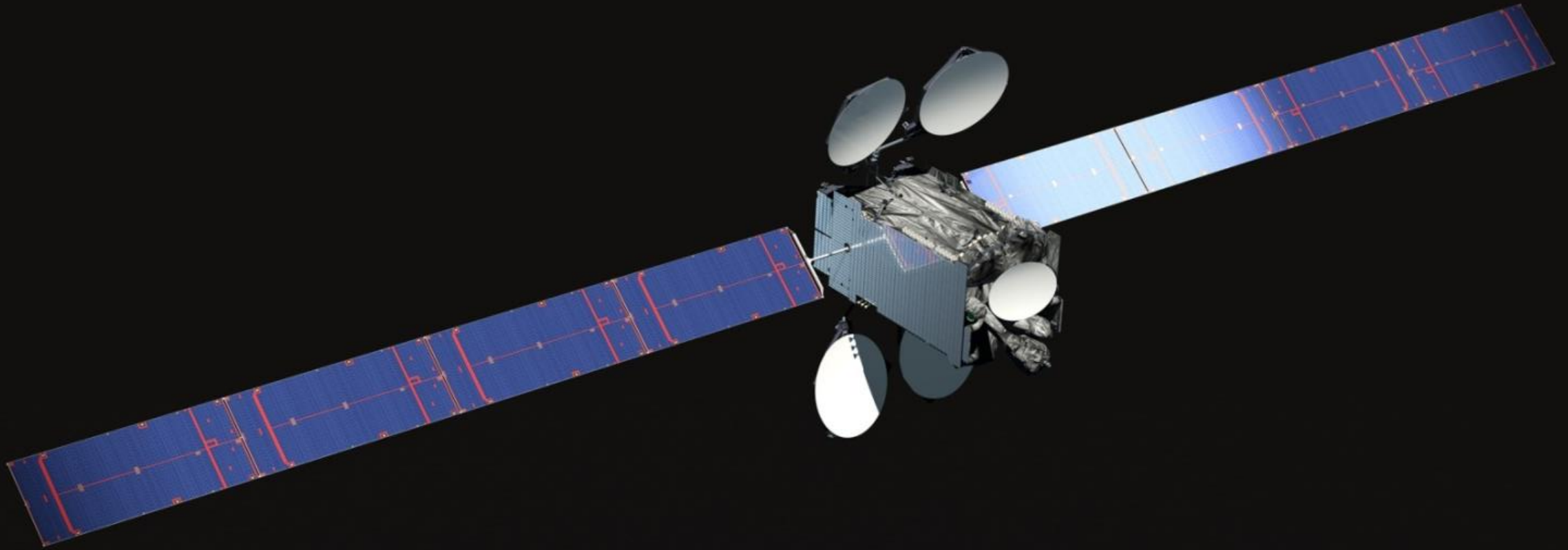
Government

Global, secure

**Mobility networks
for sea and air**

Custom payloads

Over 60% of Our Business is Generated in Regions with Low Connectivity Penetration



Our Innovative Satellite Technology Extends Terrestrial Networks

Customers seek to expand the reach of their networks, leveraging the ubiquity of satellite

Our satellite solutions can be deployed quickly throughout a region

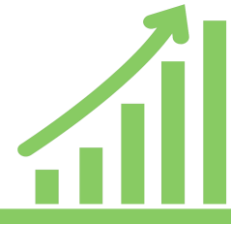
Our connectivity accommodates the economic objectives of the nations and network providers we serve

Satellite solutions are flexible, modular and support growth in increments

We partner with local service providers who understand deployment at the village level

Intelsat has trained thousands of telecommunications engineers, enriching the technology skills of companies and nations

Intelsat Technology Transforming Businesses and Communities Around the World



- Open architecture platform helps future proof our customers' networks
- High performance Intelsat Epic^{NG} spot beams support smaller base station antennas
- Smaller antennas can be operated via low cost solar-powered kits, replacing diesel generators, saving on fuel and site maintenance
- Flexible business models from capacity lease to fully managed service
- Local partners install and maintain sites, provide retail presence to end users

**Core
Satellites**

**Intelsat
Epic^{NG}**

**IntelsatOne
Terrestrial**

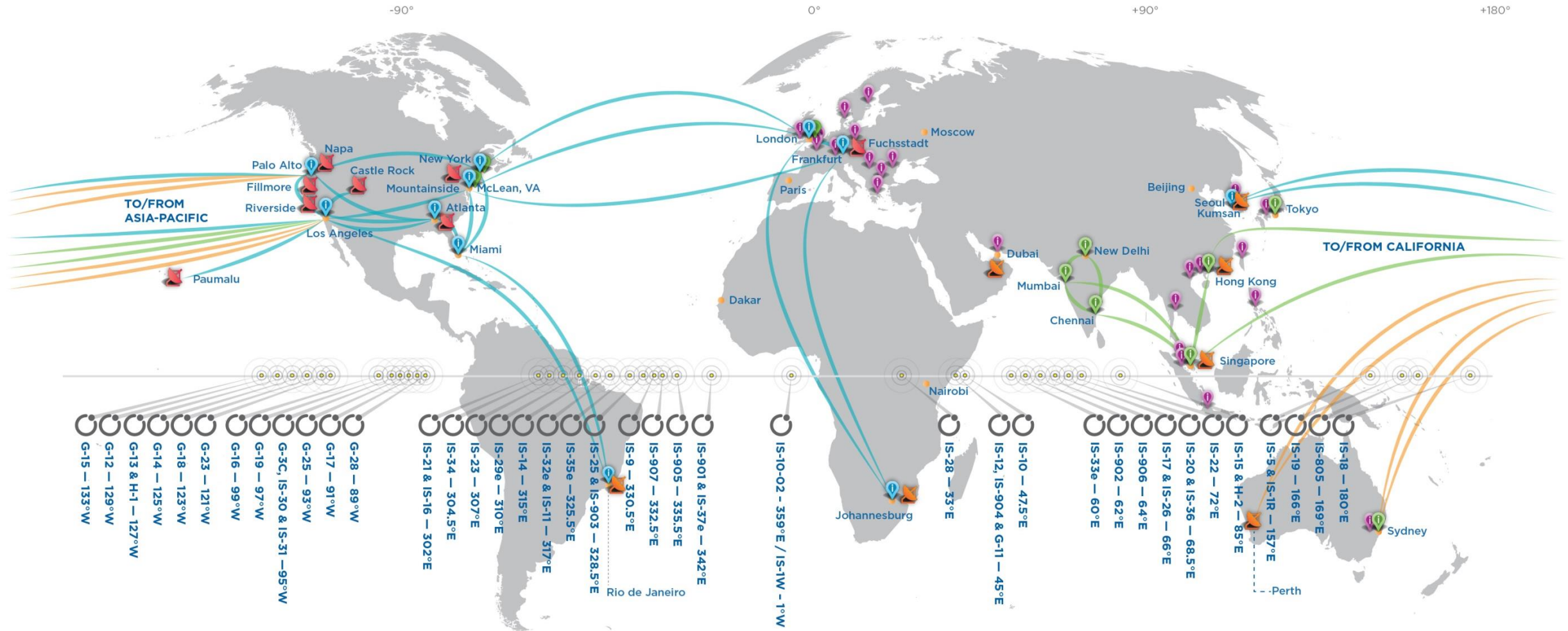
**Managed
Services**

OneWeb

Partners

**Access
Technologies**

Intelsat's Globalized Network Infrastructure Supports SDGs



~50 satellites plus IntelsatOne, a fully-integrated ground infrastructure incorporating teleports, networking platforms, points of presence and an IP/MPLS fiber network

Key

● Sales Office

○ Satellite Deployed

— Intelsat Fiber

— Partner Fiber

— BT Fiber & Point of Presence

○ Intelsat Point of Presence

○ PCCW Point of Presence

■ Teleport

■ Partner Teleport

Intelsat Epic^{NG}: Powering Efficient Broadband Connectivity



Launch of Intelsat 35e on a SpaceX Falcon 9 rocket

- All-digital high throughput architecture utilizes wide beams and spot beams, unlocking new applications
- Open, scalable network provides customers with hardware choice, uplink flexibility and the ability to leverage their installed base
- Designed to advance the use of satellite communications for broadband infrastructure
 - Performance
 - Economics
 - Simplified access
- Introducing IntelsatOne Flex managed services to accelerate the adoption of Intelsat Epic^{NG} for enterprise and mobility applications

Lowering the cost per bit for mobile network operators, enabling them to close the business case and extend their networks into the more remote regions of the world



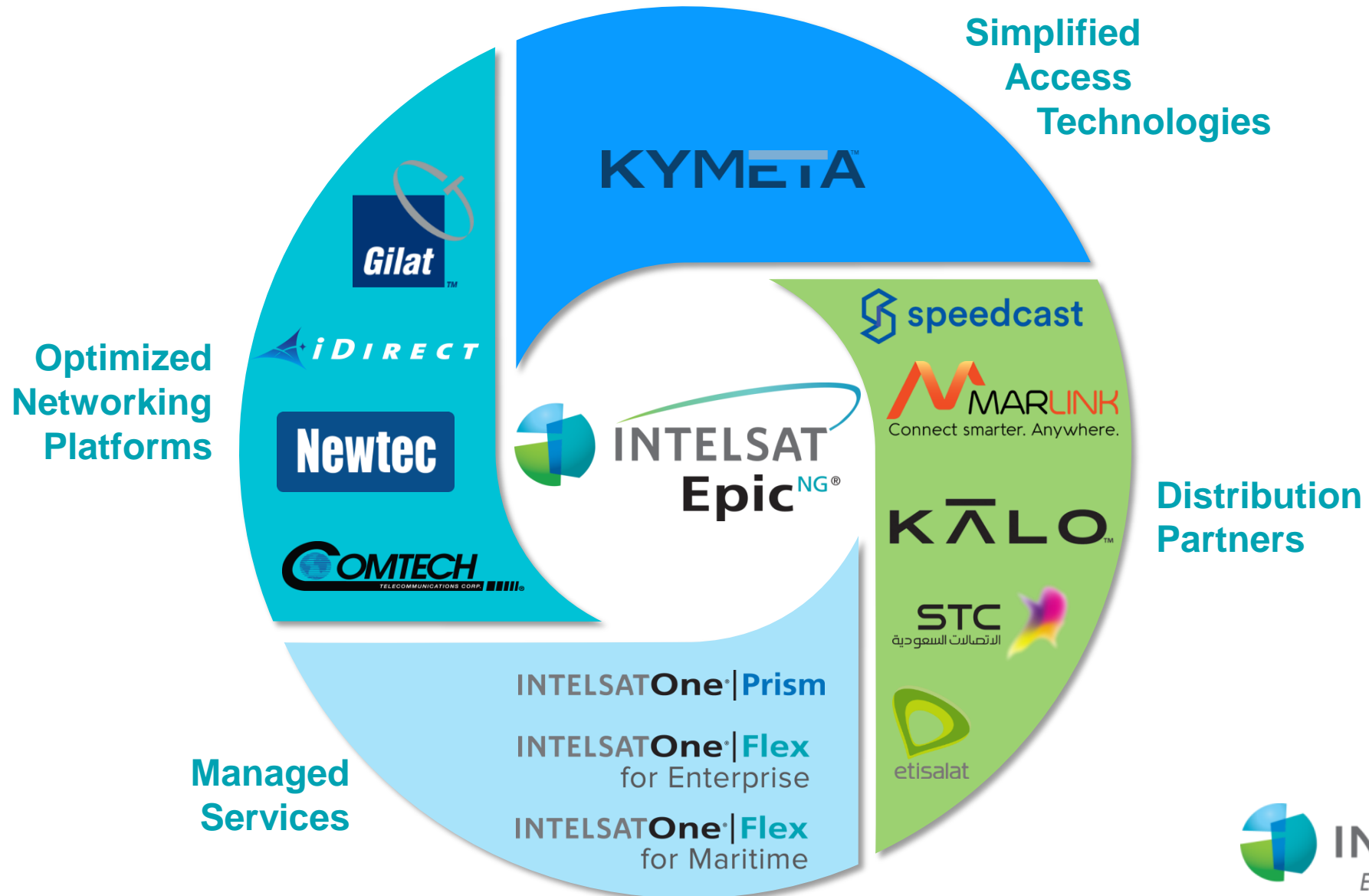


Intelsat & SDGs: Improving Economics and Simplifying Access



Commercializing Intelsat Epic^{NG}

Unlocking New Verticals to Drive Long-term Growth



Creating a Unique Hybrid Service

GEO

- Wide beams for broadcast
- HTS overlay for high density areas
- Regulatory access; 200 countries and territories

Premium Spectrum
Ku-band
Fully-Integrated
Scalable Services
Robust Ecosystem

- Pole-to-pole, ubiquitous coverage
- Consumer scale hardware
- Low latency

LEO



Technology Road Map into Next Decade Encourages Customer Commitment

Accelerating Digital Inclusion Initiatives Across the World: Utilizing Intelsat Technology to Achieve SDGs



- World's largest provider of satellite capacity for satellite-based data networks:
 - Banking networks across Africa and the Middle East
 - Small and medium businesses operating in Africa, Asia Pacific and Latin America
 - Non-governmental organizations providing critical humanitarian aid across the world
 - Tele-medicine and tele-educational initiatives in the world's most remote regions
- **100** leading wireless telecom providers use Intelsat's cellular backhaul services as a core component of their network infrastructure
 - Africa's top 10 mobile groups, which represent 70% of the region's subscribers, leverage Intelsat's satellite technology

Intelsat and the SDGs: Enabling Local Partners to Deliver Solutions



- Intelsat investment in local partner infrastructure
- “Pay as you grow” and revenue-sharing models
- Technical training improves skill set of local work force



Consumer / Prosumer Broadband

**Core
Satellites**

**Intelsat
Epic^{NG}**

**IntelsatOne
Terrestrial**

**Managed
Services**

OneWeb

Partners

**Access
Technologies**

Intelsat and the SDGs: Empowering Communities to Deliver Broadband

- Proper training is critical for reducing RF interference (RFI) incidents.
- Majority of RFI incidents are attributed to:
 - Faulty installation practices
 - Uplink errors and
 - poor operational and equipment maintenance regimes.
- Intelsat conducts training and certification programs with the Global VSAT Forum (GVF) for VSAT installation and with SlingPath for SNG operations.

**More than 1,000+ Customers
Have Received Training**



Customer Testimonials

- *Since completing the coursework, we have installed a chat application within our company to guide field technicians to properly point a VSAT terminal. To date, we have successfully migrated 16,000 terminals using this application.”*
—**Hugo Trejo, USA Operations Director with Pegaso Banda Ancha**
- *“Now that we have enhanced knowledge of interference, it is helping us to adapt our hub RFI operational policies which will reduce the man hours lost in troubleshooting.”*
—**Okechi Osuagwu, of the DCC Satellite and Networks division of the Computer Warehouse Group out of Africa.**
- *“This is a great initiative in helping young operators to grow professionally within the telecommunications arena. I learned some concepts I was not aware of until completing the online coursework... making me be more effective when I troubleshoot RFI instances.”*
—**Rodrigo Chagas, of Telespazio Brasil**
- *“This course taught me the appropriate way to install antennas from start to finish.”*
—**Roberto Holguin, Remote Technical Support Executive with GlobalSat**

Intelsat & SDGs: Enabling Partners to Develop & Empower Communities



Intelsat and the SDGs: United Nations High Commissioner for Refugees in Ghana



- **Overview:** Equip refugees and host communities with an “ecosystem for empowerment”
- **Requirement:** Simple, solar-powered, low-maintenance equipment which provides quality internet browsing/Wi-Fi through VSAT link.
- **Solution:** Leverage Intelsat’s satellite technology with solar powered hardware for a highly cost effective solution
- **Outcomes:** In close coordination with UNHCR and Comsys, enabled mobile kiosks to support local Wi-Fi connections in Ghana
 - Altered the total cost of ownership for wireless network operators
 - Enabled low-power solar options for remote locations
 - Delivered critical internet connectivity to camps--coordinated aid efforts; enabled refugees to stay in touch with their families

Intelsat & The Coca-Cola Company's EKOCENTER: Creative Solution to Connect Remote Communities in Africa



- **Overview:** Launched a 4 month, 15 EKOCENTER kiosk connectivity pilot across Rwanda, Kenya and Tanzania.
- **Requirements:** Improve the well-being of underserved communities in Africa
- **Solution:** Cross between community center and a general store, run primarily by women from the local community. It is solar powered with satellite technology
- **Outcomes:** Provides access to basic utilities such as power and safe drinking water
 - Satellite technology delivers access to the internet
 - Sells wide-range of products that the community needs
 - Facilitates a host of other services from mobile phone charging, financial & government services
 - Acts as a catalyst for social & economic development

Intelsat & SDGs: Flexible Solutions Tailored to Meet the Needs of Communities



Intelsat and the SDGs: Bringing Broadband Connectivity to the Pacific Islands



- **Overview:** Develop affordable, reliable, diverse satellite communications to support the socio-economic development of the Pacific Islands and ensure available broadband connectivity for disaster/emergency relief
- **Requirement:** Partner with Pacific Islands to deploy and operate network; train local technology teams on Intelsat's satellite network, hub operations, installation and maintenance.
- **Outcome:** Satellite services to ensure that the Pacific Islands has reliable broadband connectivity to support:
 - Telemedicine
 - E-Education
 - Government services
 - Effective Emergency and Disaster Response

Intelsat and the SDGs: Changing Lives in the Democratic Republic of Congo



- **Overview:** Vodacom needed to quickly and cost-effectively provide service to millions of unconnected people across the Democratic Republic of Congo (DRC) while:
 - Meeting regulatory license requirements, profitably; overcoming structural, maintenance and safety challenges; and minimizing its capital outlay
- **Requirement:** Partner with local teams to deploy and operate network; train local technology teams on Intelsat's satellite network, hub operations, installation and maintenance.
- **Outcome:** Vodacom expanded service across 800 rural sites that became profitable quickly
 - Positive impact on safety, security and economics
 - ARPU increased, improving profitability and encouraging further expansion

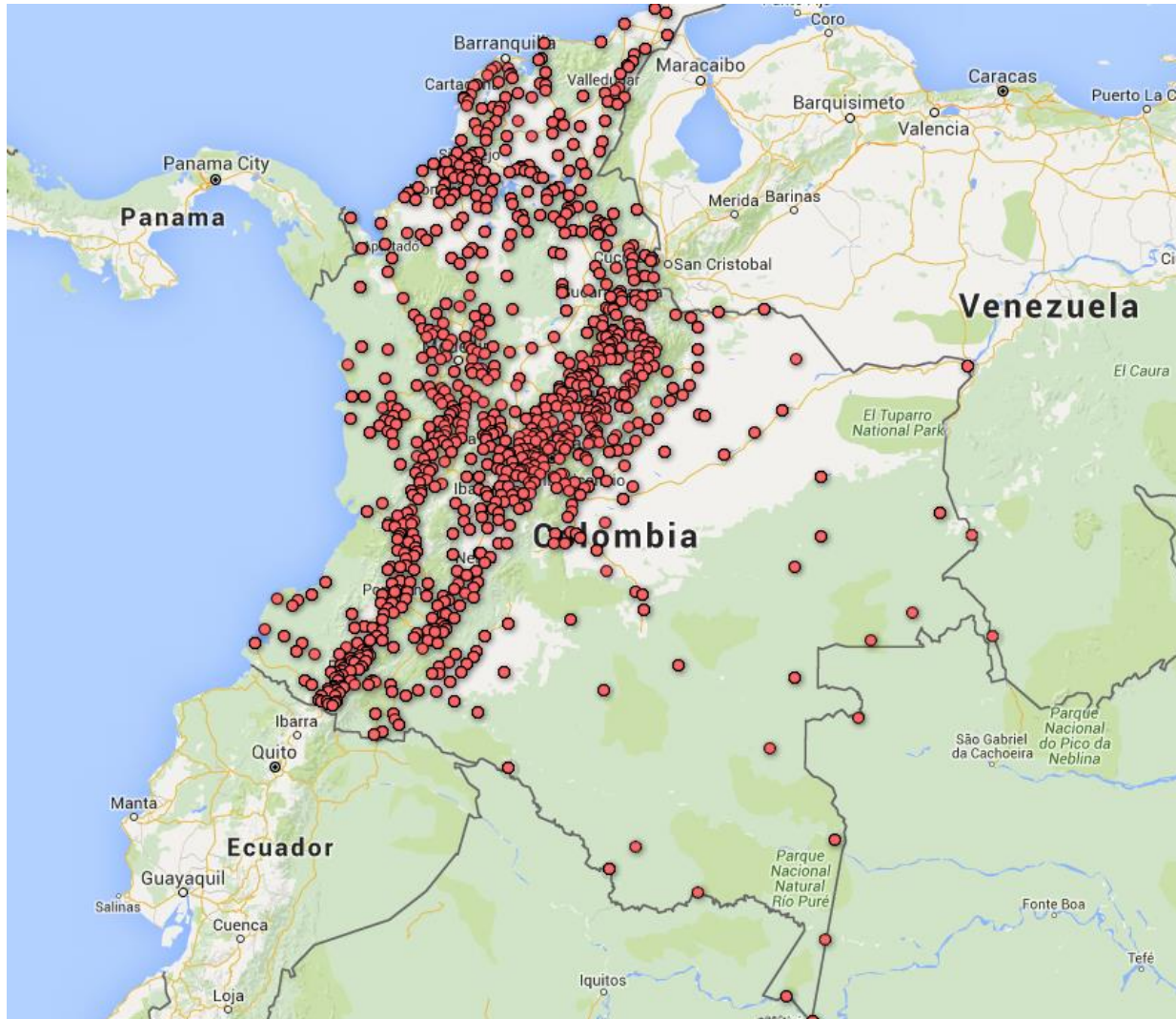
Vodacom now has highest penetration and subscriber base among competitors

Intelsat and the SDGs: Connecting the Unconnected in Myanmar



- **Overview:** Myanmar's Ministry of Transport & Communications (MOTC) is seeking to build a more digitally inclusive society
- **Requirements:** Ability to overcome challenges—ranging from topography to weather to addressing legal/regulatory issues--- in connecting the population of 51 million
- **Solution:** C-band service on Intelsat 902; Ku-band service on Intelsat 906; Seamless transition to high-power, wide beam connectivity on Intelsat 39
- **Outcomes:** Dramatic increase in overall network bandwidth and reliability as operators expand 2G and 3G services
 - Extends 2G and 3G communications services beyond the urban centers into more remote areas
 - Ensures all Myanmar citizens have access to higher bandwidth, superior quality and more affordable connectivity

Intelsat and the SDGs: Connecting Communities in Colombia: KVD



- **Overview:** The Colombian MINTIC committed to provide internet access points to 100% of population centers of more than 100 people through the Kioscos Vive Digital (KVD) project.
- **Requirements:** Multi-phase program with multiple vendors by region; Service providers responsible for installations and network operations; Hybrid network, open architecture, technology-agnostic
- **Solution:** Intelsat's Epic^{NG} high throughput platform; enabling higher throughput per location and smaller hardware.
- **Outcome:**
 - Kiosks support connectivity to computers, laptops and other devices in libraries, schools and other public access 2,382 rural sites.

Intelsat and the SDGs: Bridging the Digital Divide in Rural Alaska



Telemedicine Application

- **Overview:** As the largest telecom provider in Alaska, GCI's network is a hybrid of terrestrial solutions complemented by satellite for redundancy and reach. Their infrastructure must be completely reliable because areas are unreachable certain times of the year
- **Requirement/Solution:**
 - Network includes 340 satellite links connecting to tower infrastructure for wireless services
 - Network features satellite services on two satellites, including 20 C-band and 5 Ku-band transponders
- **Outcome:** GCI is transforming the way rural Alaskans live as...
 - Schools use satellite-enabled video conferencing to leverage teacher resources across remote classrooms
 - Hospitals use satellite-enabled telemedicine for rapid diagnosis; clinics are pushing records to the cloud with confidence in service reliability

Intelsat and the SDGs: Our Firm Commitment



Intelsat is fully committed to contribute to the achievement of your policies to provide all your citizens with access to health, education, financial services and online government services. We are committed to working closely with all stakeholders to implement all of the policy objectives

HOW CAN WE HELP?