9º CONGRESO INTERNACIONAL DE ESPECTRO

ESPECTRO PARA EL DESARROLLO SOSTENIBLE

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Telesat LEO

Internet de alta velocidad al alcance de todos, en todas partes

Bogotá, Colombia

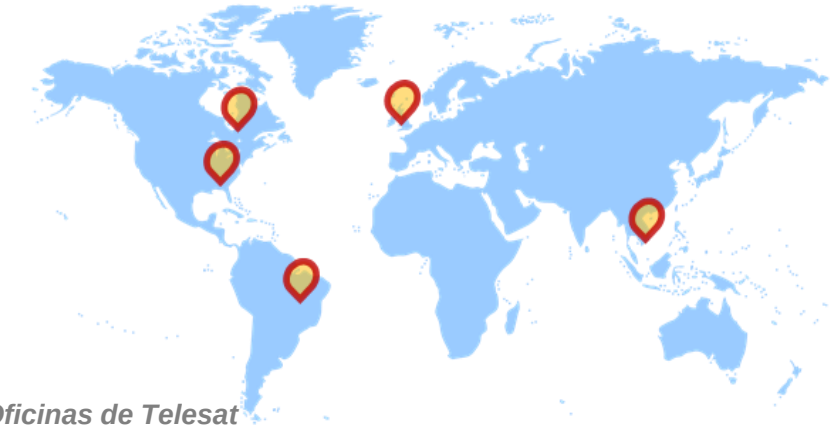
Septiembre 16, 2019

Telesat es un operador satelital líder a nivel mundial

C$903 millones
Ingresos 2018

C$5.9 billones
2018 Activos al final de año
17 satélites en órbita

C$3.7 billones
Ingresos contratados, Dic. 31, 2018



Empresa Privada. Canada's Public Sector Pension Investment Board and Loral Space & Communications (NASDAQ: LORL)

50+ años de innovación

NO EXHAUSTIVO

1ra *Transmisión de TV en vivo entre 2 continentes*

1978: Anik B
1era *Comunicación satelital en banda Ku;*
1er *Satélite deTV directo al hogar*

1996: Telstar 11
1er *Acceso a Internet para ISPs sobre satélites*

2004: Anik F2
1er *Satélite de banda ancha en banda Ka para consumidores*

2018: LEO 1
1er *Satéllite operacional LEO en banda Ka*

2019: LEO 1
1er *Servicio 5G de backhaul sobre un satélite LEO*

Base de clientes diversa y global

NO EXHAUSTIVO

TRANSMISIÓN

dish Bell
NBC UNIVERSAL
ESPN
CTV
Shaw Direct
HBO

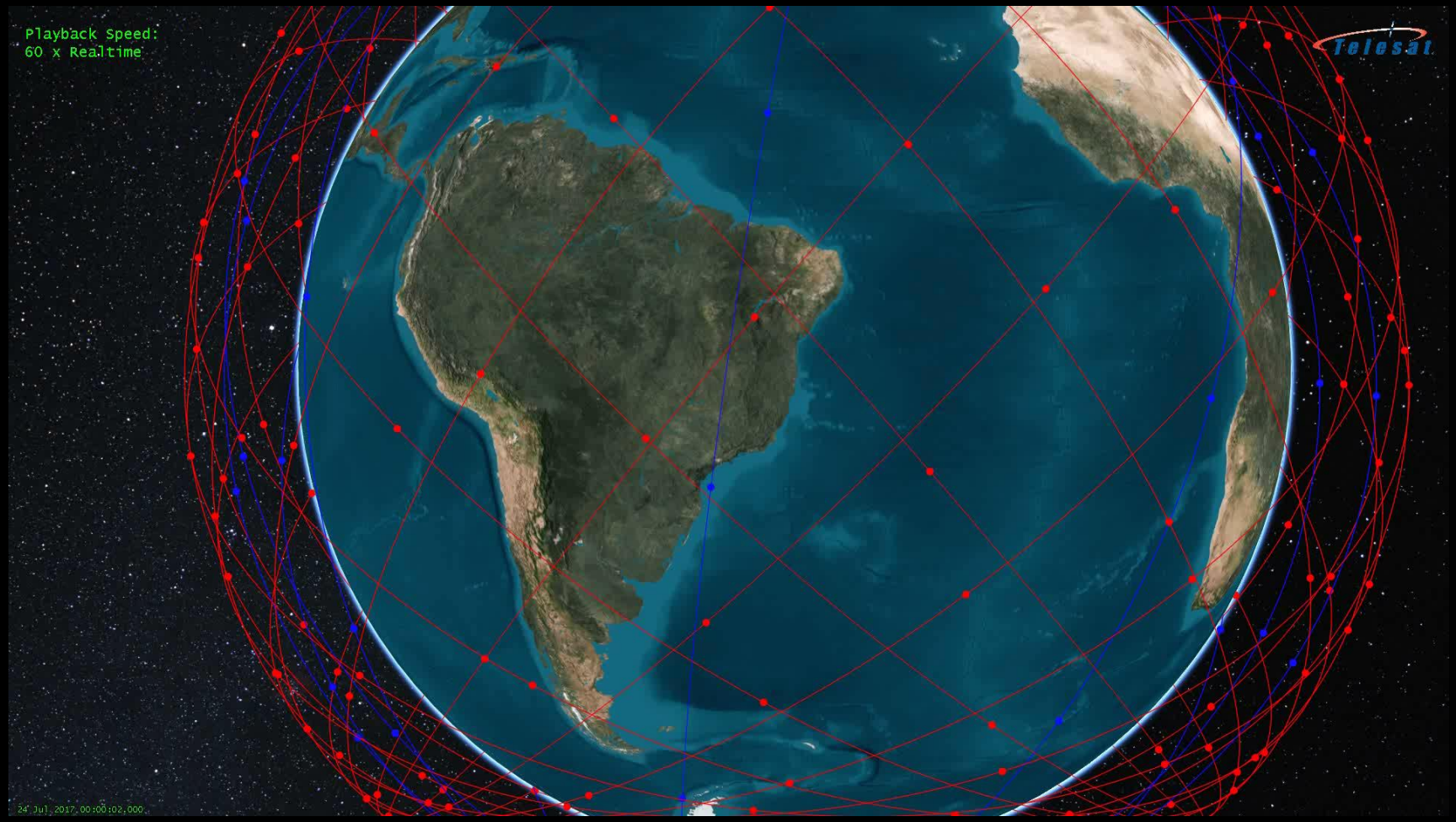
EMPRESAS

NorthwesTel
HUGHES
Embratel
BT
Global Eagle
vodafone
Panasonic
Claro
Telefónica

CONSULTORÍA

AIRBUS DEFENCE & SPACE
Telkom Indonesia
ECHOSTAR
Brit Insurance
LOCKHEED MARTIN
MITSUBISHI ELECTRIC
Telesat

Telesat LEO: Red Global de Vanguardia



~300 satélites

Telesat

9º CONGRESO INTERNACIONAL DE ESPECTRO
ESPECTRO PARA EL DESARROLLO SOSTENIBLE

Low Cost and Affordable
Transformational economics

Alto *throughput*
Enlaces en Gbps
Tbps de capacidad

Baja latencia
Calidad de fibra óptica

Conectividad global
100% cobertura mundial

Alta capacidad para *hot spots*
Dynamic allocation of bandwidth

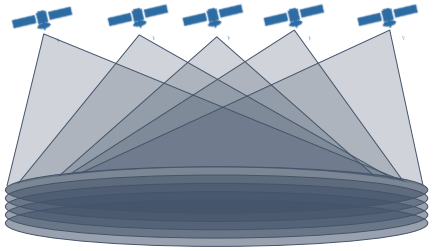
Disponibilidad contínua
Resistente, sin puntos de falla

Despliegue rápido del servicio
Interfaces con estándares MEF

Al alcance de todos
Bajo costo

9º CONGRESO INTERNACIONAL DE ESPECTRO
ESPECTRO PARA EL DESARROLLO SOSTENIBLE

~2 Tbps para Latinoamérica para conectar:



Escuelas

Hospitales

Telesat LEO's **Flexible** Network Delivers:

~2,000 Gbps sobre LATAM

~120 Gbps sobre Colombia

51% no servidos en Colombia

Servicios de Gobierno

Comunidades

En el punto 7 de la Agenda, Tema A, la CMR-19 decidirá los hitos de implementación para los nuevos sistemas satelitales no OSG y los hitos de transición para los sistemas no OSG existentes que aún no se han implementado completamente

Las decisiones regulatorias deben fomentar un ambiente de ***competencia, innovación y certidumbre***

La Propuesta Interamericana de la CITEL permite a las compañías invertir en las constelaciones más avanzadas que tengan mayor probabilidad de éxito, lo que resulta en más opciones y mejores servicios para los clientes y consumidores en todo el mundo

Appendix

Regulation that Supports Competition and Technology Developments

- Regulation should be designed to meet public interest and encourage competition
- Raw material is availability of spectrum, especially for ubiquitous services
- The development of new technologies that underlie non-GSO constellation designs is complex and takes time
- Unnecessary time constraints would force operators and manufacturers to select simpler but less spectrally efficient technologies
- Due to their strict application, ITU rules need to include sufficient time margin for non-GSO deployments to account for uncontrollable delays, for example availability of launch vehicles

ITU Rules for non-GSO on WRC-19 Agenda

- Under Agenda Item 7, Issue A, WRC-19 will decide on deployment milestones for new non-GSO satellite systems and transition milestones for existing non-GSO satellite systems that are not yet fully deployed
- The aim is to balance prevention of spectrum speculation with sufficient regulatory certainty to foster innovation and the development of transformational systems
- CITEL Inter-American Proposal (IAP) provides the correct balance:

  Effective date: 1 Jan 2021

Milestone	Years	Effective Date
10%	+3	1 Jan 2024
50%	+5	1 Jan 2026
100%	+7	1 Jan 2028

ITU Rules for non-GSO on WRC-19 Agenda

- The first milestone should be **no earlier than 1 Jan 2024**
  - Any early date does not consider the severe consequences of missing an ITU deadline, which could be outside the control of an operator (e.g. manufacturing and/or launch delays)
  - **Imposing strict milestones** has the only effect of reducing the number of systems that will come to fruition, **affecting negatively** the benefits that **competition would bring to citizens, consumers and businesses**
- **Warehousing is a non-issue**
  - Such a “safety net” is too short to warehouse spectrum
- There is **no need for the first milestone to fall before WRC-23**
  - In fact, should a system miss such strict first milestone, it would be too late for WRC-23 to remedy to the regulatory damage suffered by the relevant administration
  - ***Resolves 3*** of the CITEL IAP states existing systems shall provide information on their deployment schedule no later than 1 Feb 2021; therefore, this information will be available at WRC-23
- Administrations are urged to **support the CITEL IAP**

ITU Rules for non-GSO on WRC-19 Agenda

- Under WRC-19 Agenda Item (AI) 10, WRC-19 will consider items for WRC-23
- Telesat supports a **new WRC-23 Agenda Item** to study the operation of **non-GSO ESIM** in portions of the Ka-band
- WRC-15 already approved ITU-R Resolution 156 that authorises GSO ESIM (aeronautical, land and maritime terminals) to operate in the 19.7-20.2 GHz and 29.5-30.0 GHz bands
- WRC-19 will address access to other portions of the Ka-band for GSO ESIM (WRC-19 AI 1.5)
- Telesat and other satellite operators envisage to enable similar terminals in their respective non-GSO constellations
- Telesat believes that it is in the **interest of consumers and the overall ecosystem** if non-GSO ESIM in the Ka-band could benefit from a **harmonized international regulatory framework**