TV CHANNELS DISTRIBUTION VIA SES ASTRA SATELLITES

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Sofia, 2016

WORLD LEADING SATELLITE OPERATOR AND DYNAMIC MARKET LEADER

Owns and operates one of the world's largest commercial satellite fleets

- Over 50 satellites covering 99% of the globe

Partner of choice serving over 700 broadcasters, telcos, enterprises, governments and institutions in over 130 countries

- Technical reach of 317 million households in 2015
- Over 7,400 TV channels, generating over 1 Zettabyte of broadcast video annually
- Largest HD channel line up (over 2,400 channels) in Q2' 16
- Annually exchanging 57 Gbps of data traffic with the Internet, delivering around 22 TB of data to global Internet POPs

Combining the strengths of geostationary (GEO) wide beam, high throughput beam and MEO capabilities

Over 1,900 employees in 24 locations worldwide

2015 contract backlog: EUR 7.4 Billion

WITHOUT DATA YOU'RE JUST ANOTHER PERSON WITH AN OPINION

W. Edwards Deming,
Data Scientist

BULGARIANS CHOICES IN TV INFRASTRUCTURE

Why Bulgarians choose one particular type of TV connection?

- 27% choose the best quality
- 22% choose the number of programs available
- 15% choose the smallest price

What would determine Bulgarians to change their current pay TV provider?

- 36% of Bulgarians would change their current TV provider for OTT access (online access on other devices with no additional costs, access to HBO GO or access to VoD)
- 25% would change their current TV provider for channel control only from TV remote, without an additional remote

How Bulgarians choose their pay TV provider?

- 42% Best price/quality ratio
- 30% Lowest price for bundle of services (TV + Internet and/or telephony)
- 21% choose the provider that they think offer the best quality

How many TV sets are in the Bulgarian households?

- 38% of the households have 2 TV sets
- 29% of the households have 3 TV sets
- 20% of the households have 1 TV set

TV WATCHING FREQUENCY AND PREFERENCES

How much time do Bulgarians spend watching TV?

- During weekdays, 44% of Bulgarians spend 2-3 hours per day watching TV, while 31% of them spend 4-6 hours per day in front of the TV.
- During weekends, 38% of Bulgarians spend 4-6 hours watching TV, while 27% spend 2-3 ore.

What type of content do Bulgarians prefer to watch?

- 81% General audience/ entertainment
- 59% Movie channels
- 52% Documentary channels
- 42% News channels

IMAGE QUALITY AND TECHNOLOGY PREFERENCES

How important is HD quality for Bulgarians?

- 35% declare HD is very important for choosing their next TV set
- 35% consider HD content very important in the TV provider choice
- On a scale from 1 to 5, Bulgarians rate 3.8 their satisfaction with the HD channels offer they currently have

What type of content do Bulgarians prefer to watch in HD?

- 64% films and TV series
- 40% documentaries
- 35% news
- 35% sports

Are Bulgarians ready to pay more for HD quality?

- One quarter of Bulgarians are allegedly willing to pay extra for additional TV HD channels
- The amount of money Bulgarians are willing to pay additionally for 5 or 10 HD TV channels is 3.3 EUR for 5 channels, 4.4 EUR for 10 channels

HIGH DEFINITION BRINGS VALUE ALSO TO BROADCASTERS

QUALITY ADS VALUE
HD image quality enhances the experience

A DIFFERENTIATOR
a rich HD offering appeals to the consumer

A REVENUE GENERATOR
customers are willing to pay for HD channels

ADVERTISERS FAVORS IT
commercials in HD are more appealing and effective

FUTURE PROOFING
HD is the future, today – be prepared for UHD tomorrow

SES YOUR HD & UHD PARTNER

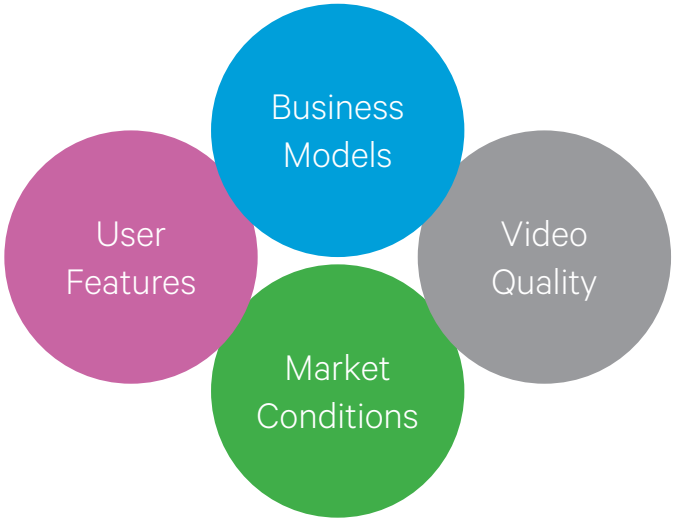
SES - WORLDWIDE LEADER IN HD

SES IS NO.1 IN HD BROADCASTING

- SES was at the forefront of developing High Definition for broadcast
- Today, nearly 1 out of 3 HD channels are broadcasted via SES satellites
- Over 2 400 HD channels on SES satellites

PROVIDING MEDIA SOLUTIONS FIT TO TODAY'S NEED

Still same main areas of concern but ...



... increased complexity

Platform Operator
Broadcaster, Content Provider

Providing a solution TODAY

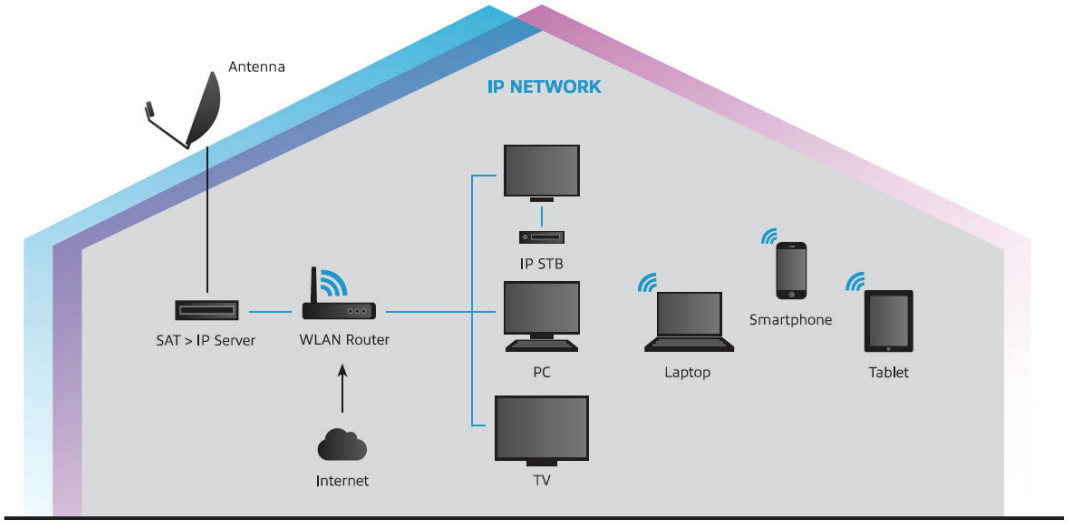
1. Discussing operator's vision
2. Providing pro-actively platform solutions and showcase a reference design
3. Providing cost and time to market estimations precisely
4. Customize existing solutions
5. Use existing components and develop just missing parts

Benefits

- Innovative and lean process to find solution
- Reduction of overall complexity
- Fast time to market
- Cost savings using existing components

SAT>IP – A SATELLITE SOLUTION FOR TV ANYTIME, ANYWHERE

SAT>IP architecture for receiving and broadcasting the satellite signal on laptop, tablet and smartphone



- Real-Time TV optimization
- Industry Standard Stream Format (RTP/IP)
- Quick channels browsing
- No buffering, no network congestion and blocking
- Best possible video quality
- UHD compatible
- Small implementation costs
- Integration with OTT services
- System stability without geographic bounderies
- The quality of the service doesn't depend on the availability of the internet connection

ULTRAHD

51 Ultra HD channels on ASTRA satellites

- The number of Ultra HD channels broadcasted via satellite is rapidly growing
- Until 2025, it is estimated that 1053 Ultra HD channels will be available (source: ISH)
- Availability of compatible decoders is no longer a technical limitation
- The next step will be the implementation of HDR (High Dynamic Range) technology

OCASIONAL USE SERVICES: CONNECTIVITY ANYTIME, ANYWHERE

Any special event requires a flawless global coverage and SES is able to provide its customers the satellite capacity they need with facile procedures.

SES guarantees:

- Satellite capacity availability at any time
- Speed and responsiveness
- Opportunity to reserve capacity up to 90 days in advance
- Hiring of SNG news broadcasting cart almost anywhere in Europe

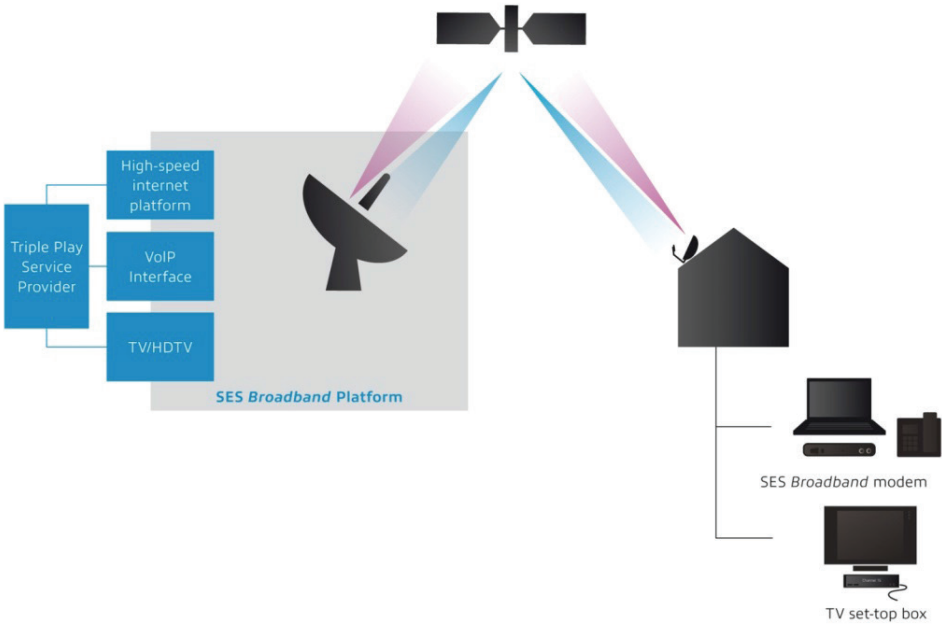
ASTRA CONNECT
INTERNET CONNECTIVITY VIA SATELLITE

Astra Connect is internet via satellite from SES Techcom Services, named after the fleet of ASTRA satellites that carries our service's high speed broadband connections.

The aim with Astra Connect is to free you from the limitations of terrestrial Internet and to bring you fast, reliable broadband, anywhere. The service is unaffected by landscape and the satellite Internet signal is available everywhere.

Advantages of Astra Connect:

- Internet access anywhere
- Always-on two-way satellite connectivity
- Maximum download speed of up to 20 Mbit/s
- Maximum upload speed of up to 2 Mbit/s
- Optional low-cost VoIP calls
- Optional satellite television



SES STRENGTHS

OUTSTANDING SPACE SEGMENT AVAILABILITY

99,9989%

SES group satellites failure probability (0.6%) is 40% below industry failure rates

How do we achieve this?

- ASTRA satellites are specifically designed and tested for DTH at highest industry standards
- Ground infrastructure to ensure operations at highest availability – also at our customer's site
- 24/7 performance and service monitoring
- Nearly 30 years of experience

BENEFITS OF SES PARTNERS

- SES satellites are Satelitii SES satellites sunt designed and manufactured meeting the highest quality standards in the industry, which guarantees safe reception with small antennas (60 cm)
- Access to SES free-to-air and encripted networks; simulcrypt opportunities with DTH platforms as M7 Groups and Sky Link at 23.5E or Orange si Magticom at 31.5E, SES Ukraine at 5 E accordingly
- Competitive, scalable and flexible solutions to meet specific customer needs
- Best option for broadcasting HD and UHD

OUR EVOLUTION

1985 SES, Europe's first private satellite operator, is founded in Luxembourg and signs launch agreement with Arianespace

1988 ASTRA 1A launches on ARIANE 4 at 19.2 East

1991 Co-location – an innovation by SES. SES's first satellite co-located to multiply the number of services that could be transmitted from one position.

1995 SES goes digital – a huge attraction for channel providers was SES's pioneering of digital broadcasting technology.

2001 SES acquires Americom from GE. SES GLOBAL is established with two operating companies: SES ASTRA and SES Americom

2008 SES combines its Americom and New Skies segments into single division called SES World Skies

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2009 SES dives into strategic investment in O3b Networks' constellation of MEO satellites

2011 SES merges with SES ASTRA & SES World Skies to form one company, SES

2012 SES unveils SAT>IP, new IP-based satellite reception technology

2013 SES Launches its first Ultra HD demo Channel

2015 World's first global Ultra HD channel launched on SES satellites

2016 SES acquires MX1 and O3b to significantly enhance existing video and data capabilities

Mihai Ursoi

Country Manager
Romania, Bulgaria, Republica Moldova

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