Mainstreaming Satcom for accelerating Digital India

India Satcom 2021

24th Nov 2021

Industry highlights 2021

- User Terminals in service ~ 300,000
  - COVID had a significant impact on the growth
- Services still remain B2B
  - Banking
  - Enterprises
  - Digital Cinema
  - E-Learning
  - Mobility (Newly added)
  - Community wifi (Newly added)
- Availability and cost of capacity continues to be the biggest challenge
  - Lack of HTS/Spot beam capacity
  - Higher cost of shaped beam capacity
- Recent reforms announced will give a big boost to the industry in 2022 & beyond
  - Cellular backhaul
  - Infrastructure sharing
  - Relaxation of specifications by TEC
  - Rationalisation of SUC & NOCC monitoring charges (Yet to be implemented)
- Industry eagerly awaiting the Spacecom Policy 2021

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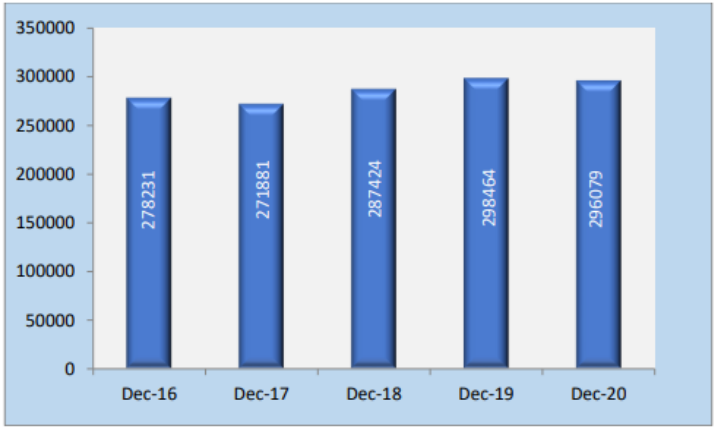

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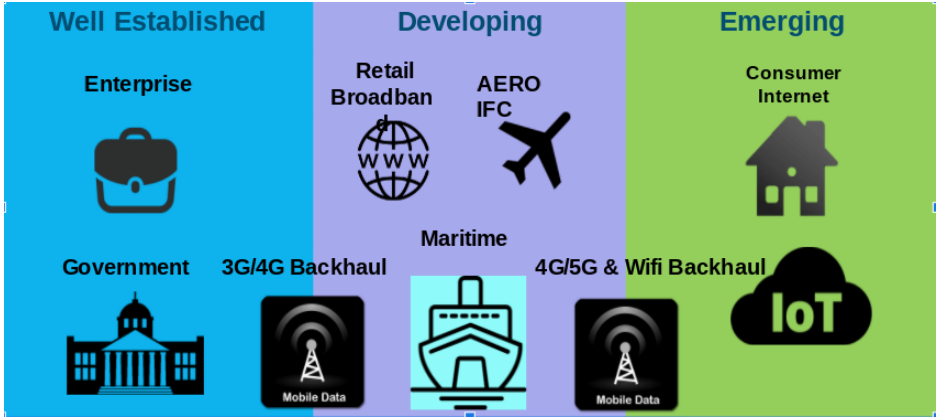

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Comparison of global and India rates

Satellite	Band	Cost/MHz/Month (INR)	Cost/Mbps/Month (INR)
GSAT – 16 (Shaped beam)	Ku	152,778	96,489
SES-9 (through DoS)	Ku	157,710	92,868
GSAT – 18	XC	90,278	98,477
IPStar (HTS)	Ka/Ku	65,000	29,465
GSAT 11*	Ka/Ku	37,500	23,075
LEO	Ka/Ku		< 15,000
HTS (Hughes/Viasat)	Ka/Ka		< 5,000

* Capacity not available in critical un-served/under served areas

- VSAT service providers are better equipped to translation of MHz to Mbps
- Policy impediments artificially increase the price
- Multicast applications such as content distribution can bring down the effective cost of bandwidth substantially
- A lower cost of launch and satellite building is not translating into lower cost of bandwidth

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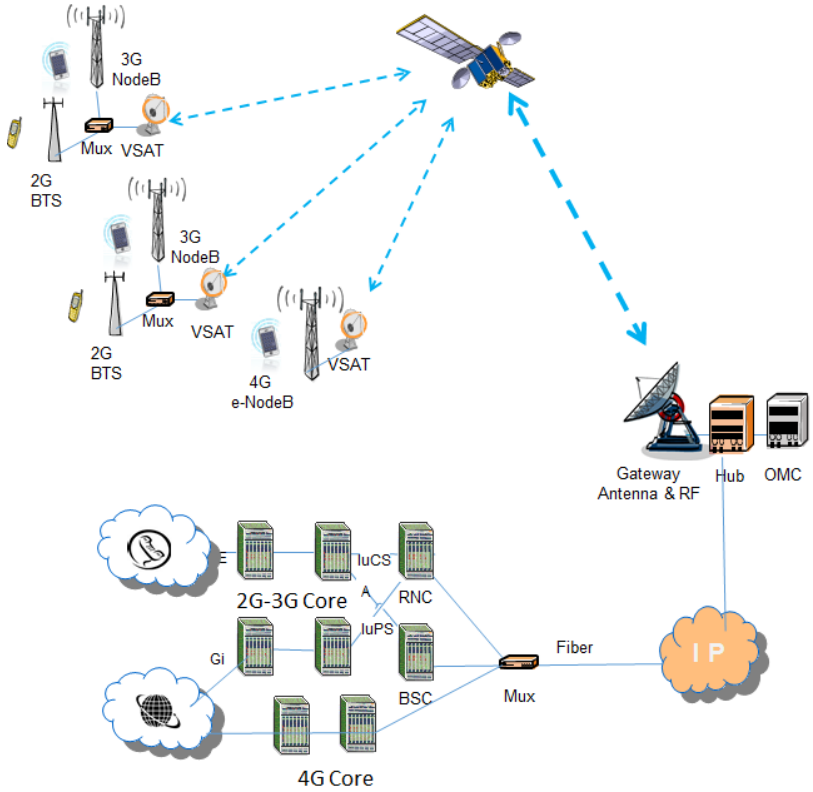

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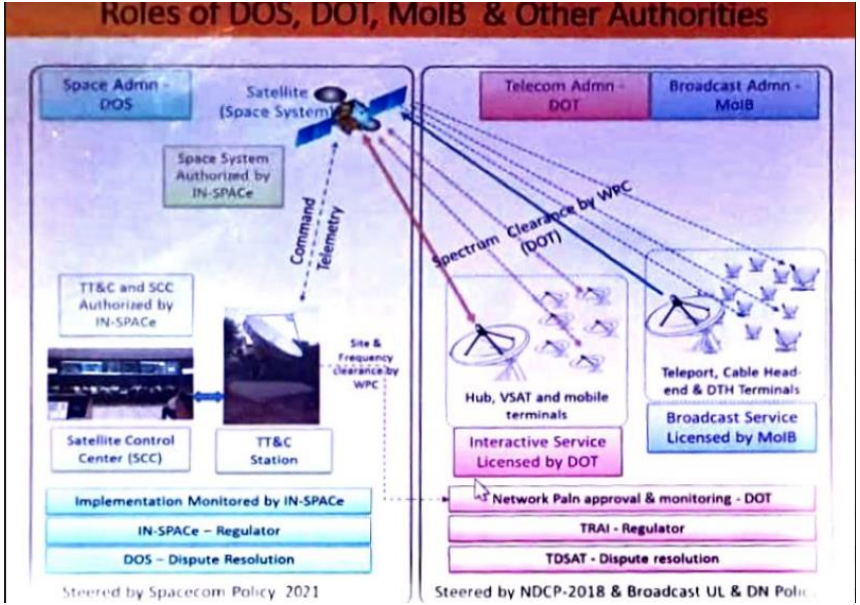
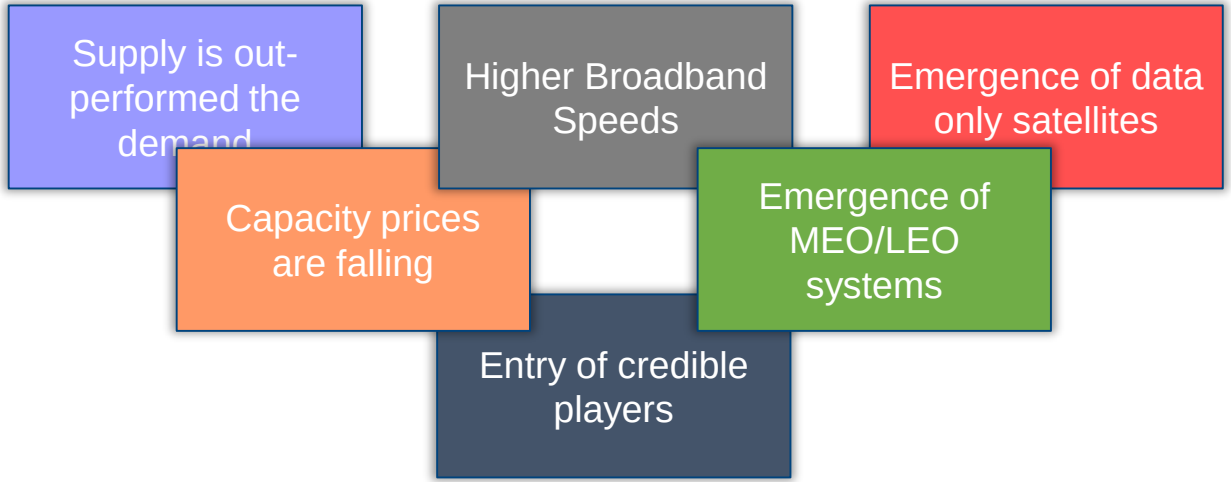


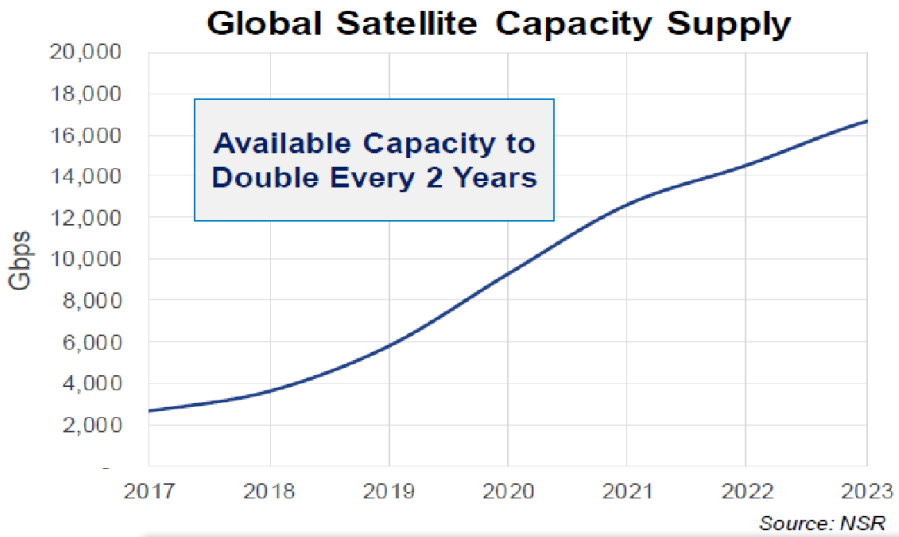
Global Trends

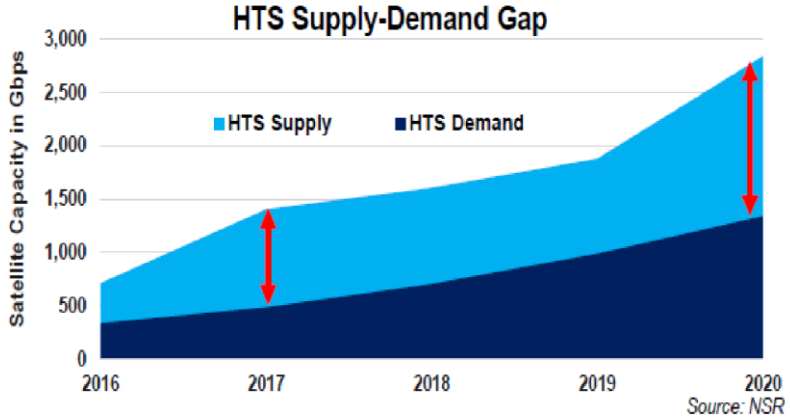
New Trends in the Satellite industry



New Satellite Companies are disrupting the industry

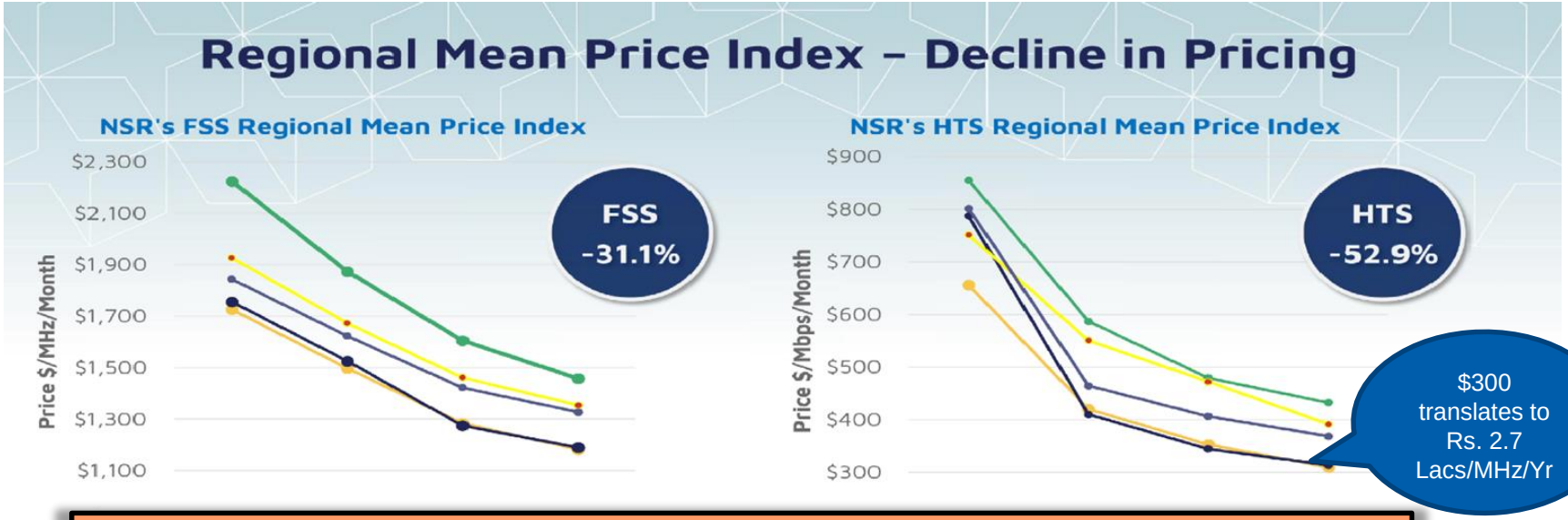
Satellite Capacity growth trends





- Abundant capacity is beginning to become available
- As a result of the excess of supply, prices have fallen
- Consumers are able to get higher speeds at a lower cost

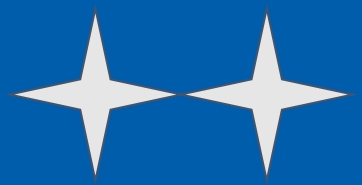
Satellite Capacity Pricing Trends



- More GEO HTS over Asia will further bring the price down
- LEO/MEO HTS will begin to emerge in 2022-2024 that will further reduce the capacity price
- For comparison, GSAT 11 is priced at Rs. 4.5 Lacs/MHz/Yr

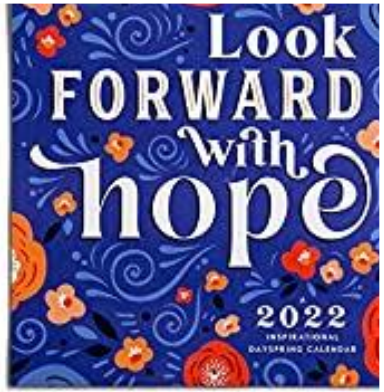
2022

The stars are getting aligned for the satellite industry To accelerate a Digital India



2022 - A year where wishes come true !!

- New Spacecom Policy will enable new services
  - GEO & LEO/MEO HTS services
  - Direct contracting between satellite operators and service providers
  - Single window authorization
  - Indigenously built terminals
  - Attractive in-country launch options
- Low-Bit Rate (Narrow band) applications
  - S-Band/L-Band IoT terminals
  - Higher cost of shaped beam capacity
- Land mobility
  - ‘On the Pause’ and ‘On the Move’ applications
    - Cell on wheels
    - Disaster relief
    - Connected cars
    - Internet on trains / luxury coaches
    - Surveillance
- Light touch regulations
  - Registration/Authorization for operating HTS gateways
  - Simplified processes for
    - Spectrum assignment
    - Mandatory Performance Verification Testing
    - Licensing of remote terminals



2022 - Reforms 2.0

- Protection of satellite spectrum
  - Harmonize spectrum allocations with ITU allocations
  - Protection of investment already made by satellite operators in both C-Band and Ka-Band (28 GHz)
  - Improve viability of satellite network deployments
- Spectrum allocation & assignment
  - Abolish the window close and open system of ad hoc administrative allocation
  - Create a definitive policy for administrative allocation of satellite spectrum
- Ease of doing business
  - More definitive and predictable regulatory climate
  - Speedy implementation of various process simplifications
- USO funding/obligations
  - Extend the time period for satellite backhaul deployments in 4G USO funded projects beyond the current 2 year period
  - Schools powered by satellite broadband via USO funding/obligations
  - Allocate funding to satellite service providers to run rural sites along with wifi hotspots

Satellite Broadband Expanding Application Set

Enterprises

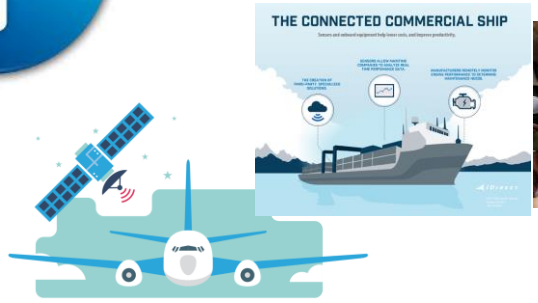
Banking

Community Wifi

4G/5G Backhaul

Digital Cinema

E-Learning



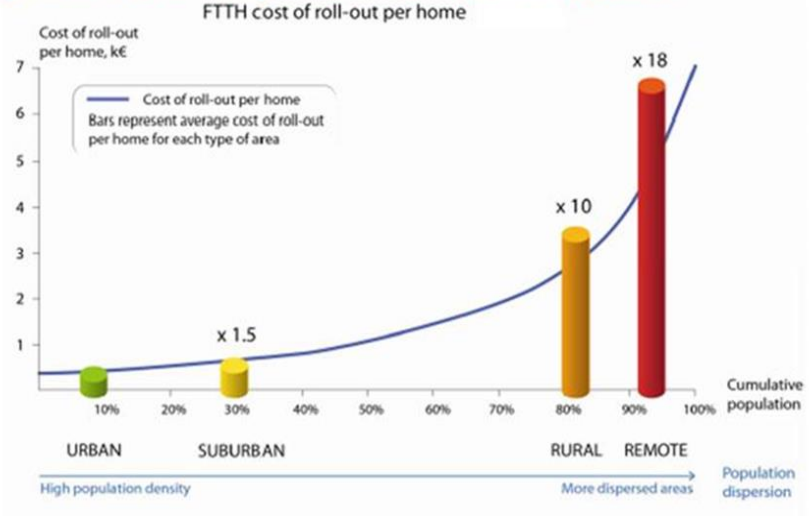
Mobility

Bridging Digital Divide

Satellite can deliver – “Broadband to the rooftop”

Cost of roll-out of terrestrial technologies in dispersed areas increases with remoteness

- E.g. fiber: 10-20 times higher for the last 10-20% of population



- DTH today effectively competes and complements cable even in cities
- **Similarly, Satellite can deliver broadband to the rooftop thus saving the middle mile**
- Satellite Service Providers can add substantial value by bringing in the killer applications that generates revenue
- Satellite is a very potent wireless medium to deliver broadband in rural areas

Thank You!