International Telecommunication Union

Satellite Communication for Dummies

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Workshop on Satellites in IP and Multimedia
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- The Standards
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Satellite Physics

- Geostationary satellites (36,000 km)
  - Stay over a fixed point on the ground
  - Advantage:
    - "simple"
  - Disadvantage:
    - ½ sec for signal-round trip
    - because satellite far away, signal is weak when it hits earth
- LEO (low-earth-orbit) satellites
  - Advantage: shorter delays
  - Disadvantage: complex

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Today's Satellite Communication Services

1. Voice Trunking
2. Mobile telephony
3. Broadband Internet
4. Digital television

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Historical Perspective

- The old days:
  - Communications satellite research & deployment: early ’60s
  - Main instrument for transoceanic communications
  - Monopolistic markets
- Recent developments:
  - Liberalization of satellite industry
  - Privatization of treaty organizations
  - Competition with other transport media:
    - Fiber for voice/data
      - A single strand can carry more data than all existing satellites combined (acc. to Telegeography)
    - Cable for TV-broadcasting

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LEOs' Roller Coaster Ride

- Early '90s: LEOs reach for the stars
  - mobile telephony:
    - Iridium, Globalstar, ICO
  - "Internet-in-the-sky":
    - Teledesic
- End of '90s: LEOs fall back to earth
  - Bankruptcies (Ch 11)
- Beginning 2000s: LEOs to relaunch more modestly

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Risks of Satellite Industry

- Long wait between design and profitability:
  - Many satellites make money only after 10 years in orbit
  - Need to build entire network before signing up the first customer
- Manufacturers must lock down technology > 3 years before launch
- Betting on a market up to 15 years in the future

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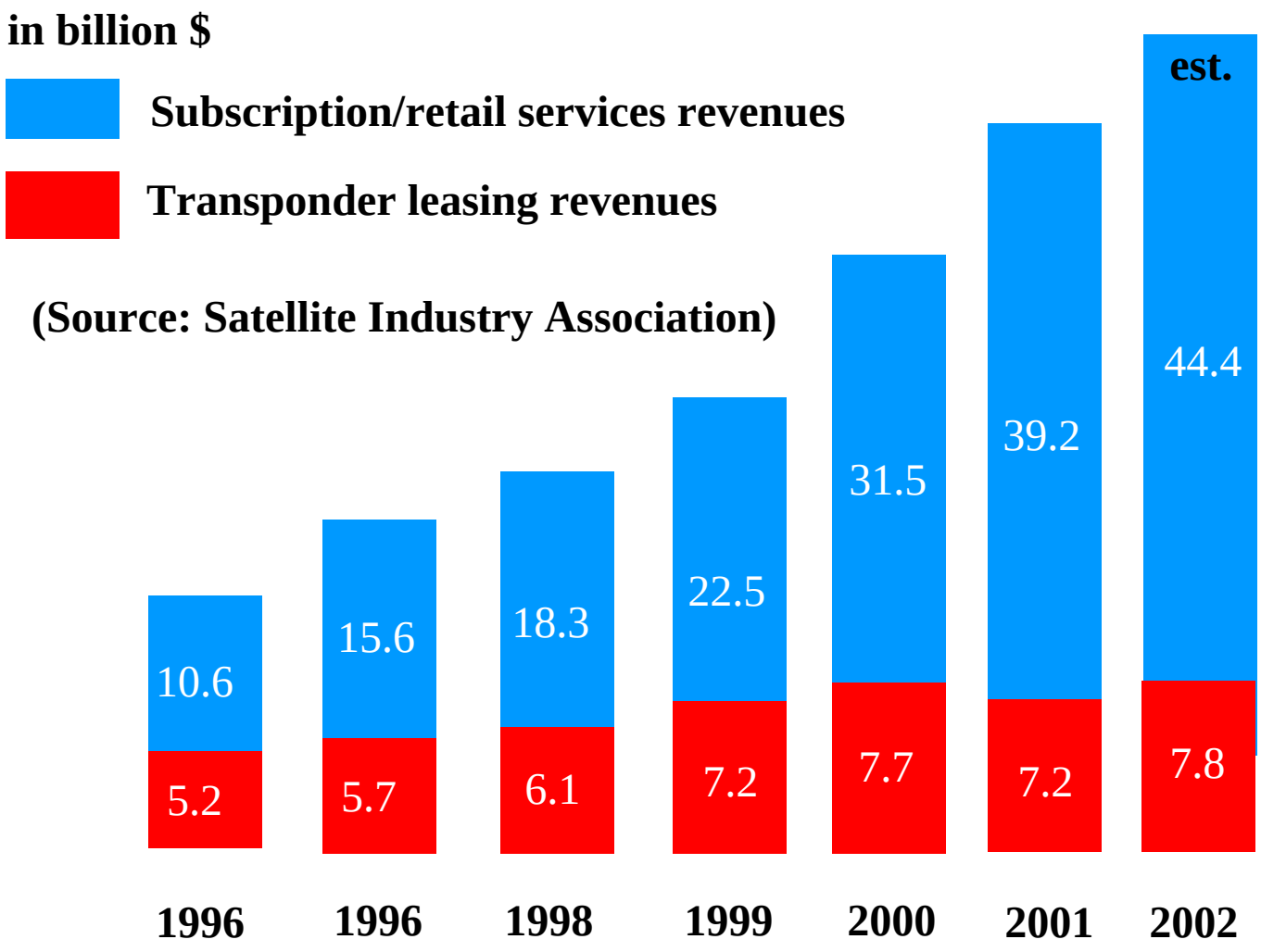
World Satellite Services Revenue



Where to Go?

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- Need for:
  - differentiating products & services
  - new markets
  - competitive pricing
- Provision of services to end-users
  - Broadband bi-directional data (Internet) access
  - Sharing of resources to reduce costs ?!
  - Customized interfaces / APIs ?!

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What is Being Done in ITU-T?

- High-level coordination activities:
  - ICG-SAT: coordination between and within ITU-T and ITU-R activities
- Mid- and low-level coordination:
  - Mediacom2004 (ITU-T SG 16)
  - IP Project (ITU-T SG 13)
- Exploring opportunities for synergy with ITU-D
- Important: specifications to take satellites into account

Possible Standardization Topics

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- Common service definition approach
- Common service interfaces
- Defined user premises equipment and interfaces
- Resources for seamless interconnection across networks

Workshop Objectives

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- Examine business cases for satellite services
- Identify standards to be developed which help satellite industry to make money
- Increase awareness of ITU-T and ITU-R related studies
- Coordinate with other SDOs and forums
- Enhance studies on the possibility of use of satellites for bridging digital divide

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