Spectrum Policy in Singapore

28 November 2012
Growth in mobile data traffic

**Tariff plans**
- Unlimited/capacity pricing
- Introduction of tiered pricing

**Applications**
- Facebook growth
- App stores launch
- Android Apps
- Apps usage growth

**Terminals**
- iPhone
- Android smartphones
- Tablets

**Networks**
- HSPA
- HSPA+
- LTE
- LTE Advanced

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Objectives of Spectrum Policy

• Ensure efficient use of radio spectrum resource
• Promote innovation in wireless communications services
• Avoid mutual interference between radio services
Spectrum management process

ITU and Regional Bodies

International Framework

ITU, ETSI and CEPT Standards

National Spectrum Plan

Regional (e.g. APT) and Border Co-ordination (e.g. FACSMAB)

Channel Plans

Assignment Process

Licensing Process

Operation

Inter-Governmental and Industry/User Consultation

Planning and Allocation

National Policy

Assignment

Administrative Processes Charges and Fees

Monitoring
Spectrum allocation frameworks

- Spectrum assignment
  - Administrative assignments
  - Market-based assignments/auctions

- Spectrum pricing
  - Cost based
  - Market/value based

- Spectrum use
  - Spectrum trading/sharing
  - ‘Spectrum liberalisation’

- Other frameworks
  - Technical trial frameworks
  - Market trial frameworks
Recent spectrum auctions

- 2005: Wireless Broadband Access spectrum auction (2.3 GHz and 2.5 GHz)
- 2008: Public Cellular Mobile Telecommunication Services auction (i.e. reallocation of 2G bands)
- 2009/2011: Auctions of additional spectrum in 1800 MHz band
- 2010: Auction of additional spectrum in 3G band
4G Deployment Has Already Begun

- 4G plans first introduced by M1 in Jun 2011
- All 3 operators offering 4G plans today, with varying coverage
4G Deployment Has Already Begun

- Jan 2011: IDA’s Interim Decision to affirm that mobile operators can deploy 4G services ‘2G’ and ‘WBA’ bands

- Apr 2012: Public consultation on framework for re-allocation of spectrum bands for 4G. Proposals to:
  - Allocate spectrum in 2.3 GHz, 2.5 GHz and 1800 MHz bands via auction in rights expiring 2030
  - New entrant ‘set aside’
  - Spectrum caps to prevent hoarding
  - Nationwide coverage requirements
  - ‘Clock plus’ or Simultaneous Multi Round Ascending auction formats considered

- 2013: [planned] 4G auction
Thank You