



Free or not? The economics of unlicensed vs. licensed

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IET mobility and access event

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Outline

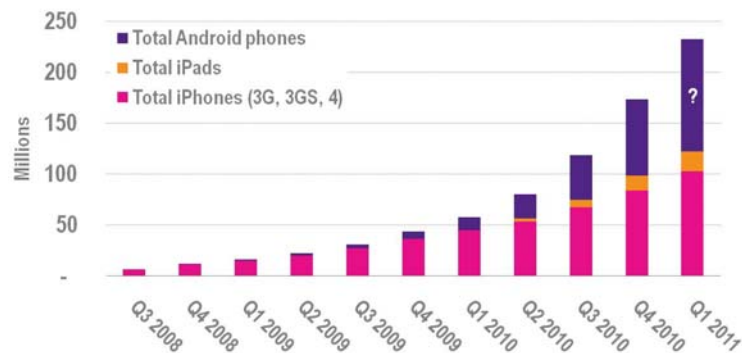


- **Network access (derived demand from applications)**
 - Demand
 - Supply
- **Spectrum (derived demand from access)**
 - Demand
 - Supply
- **Licence exempt vs. licensed**

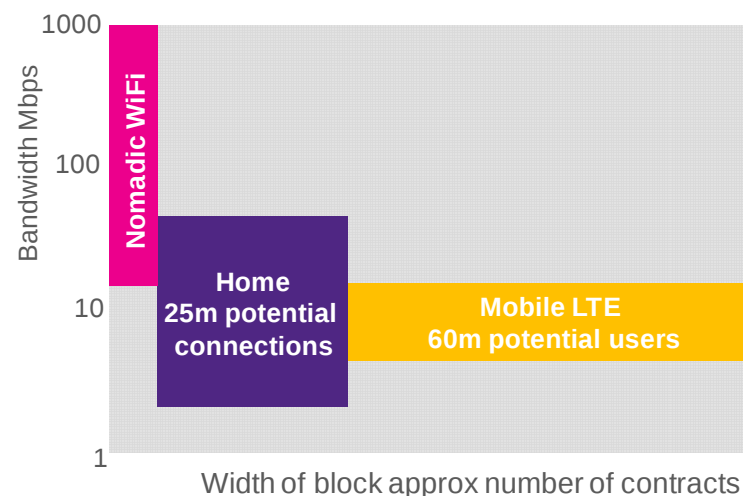
Access demand: home vs. nomadic vs. mobile?



Total global number of iPhones, iPads & Android phones sold

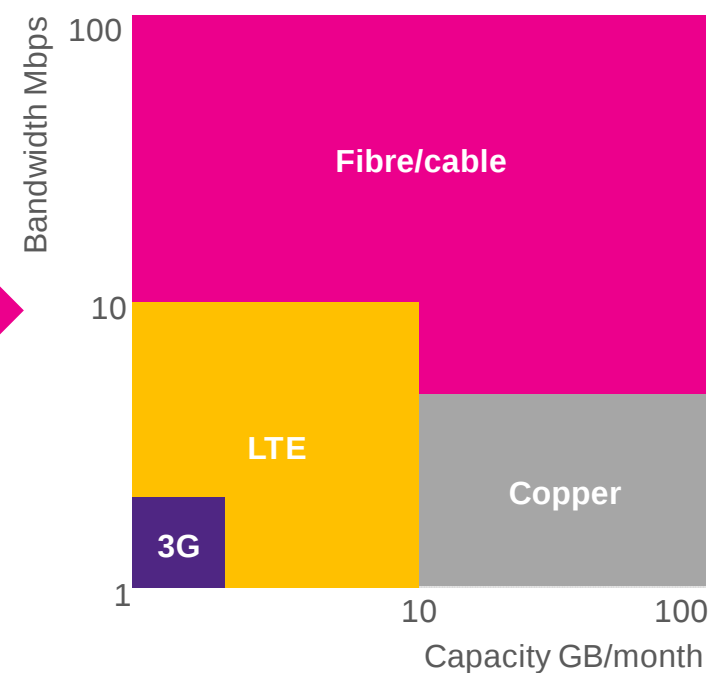
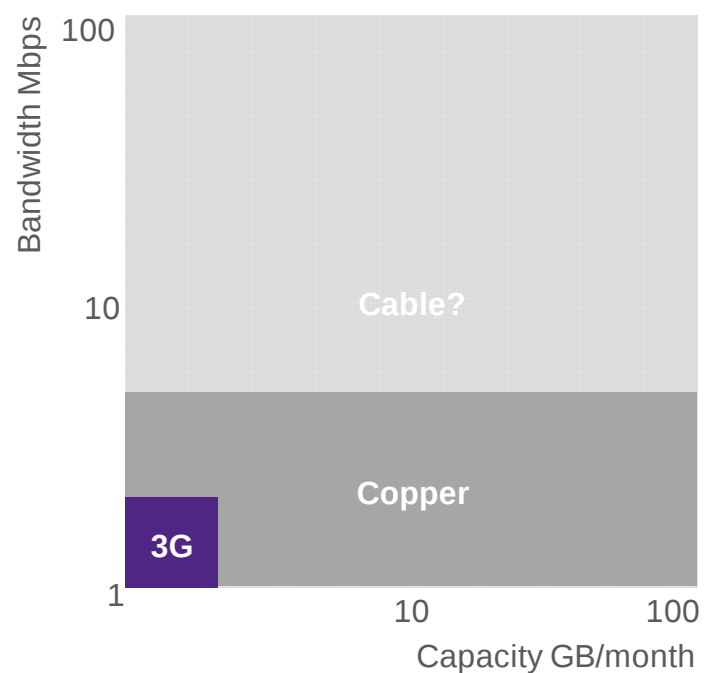


Source: Plum Consulting, Apple quarterly financial results, Gartner

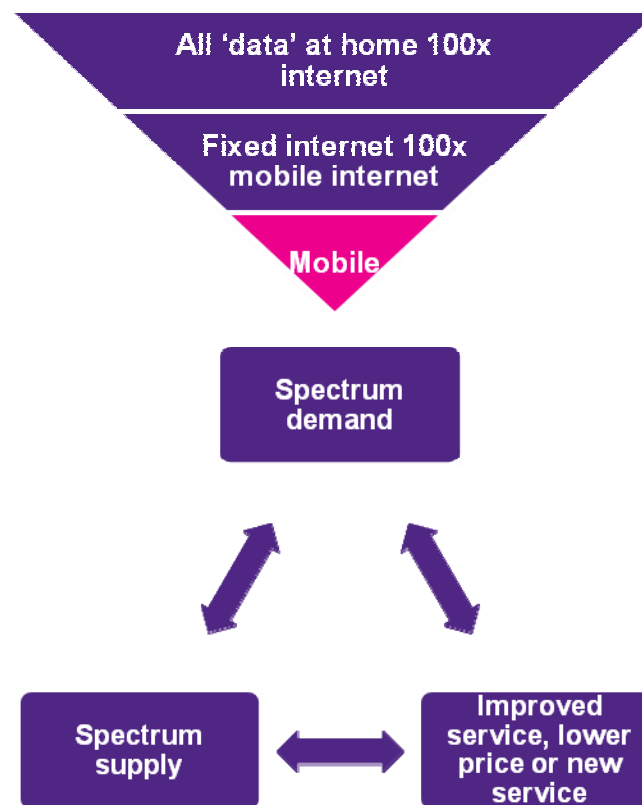


Value on mobility; premium on fast file transfer for nomadic?

Access supply transformation



Spectrum demand = supply?

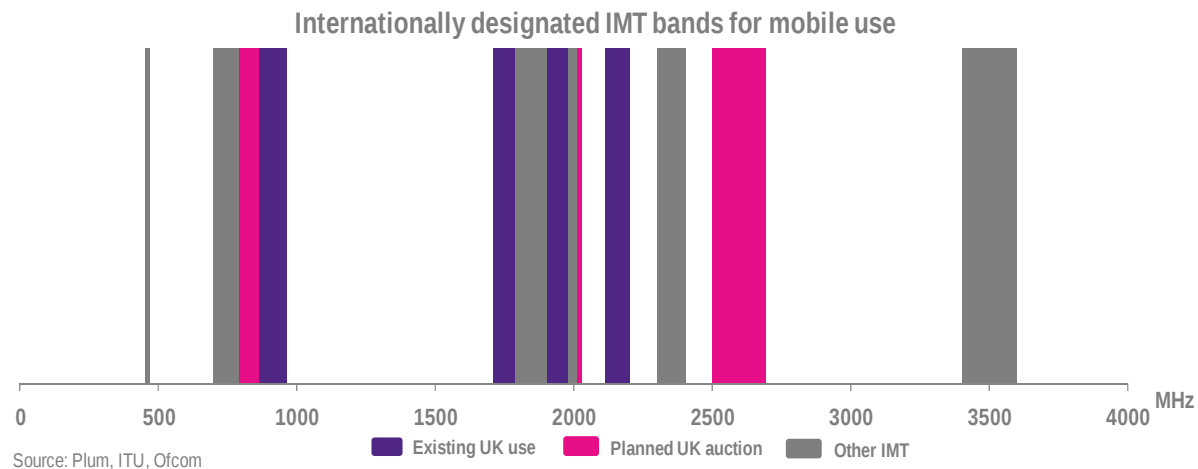


Constraint is incremental cost & willingness to pay: huge scope for growth

Spectrum supply outlook



- UK 500 MHz government => commercial reallocation by 2020



- European Parliament proposed inventory extended up to 6 GHz (more 5 GHz spectrum for WiFi)

License exempt vs. licensed?



- **Licence exempt**

- 'Central planner' decides quantity
- Irreversible (location or expiry?)

- **Pros**

- Local (low power)
- Free at margin (congested?)
- Plenty more spectrum i.e. 5 GHz
- WiFi only devices i.e. iPad
- Competition/entry
- Innovation without permission
 - Local area networks
 - “AirPlay” etc could be big

- **Licensed**

- Auction 'decides' highest value
- In principle open to reallocation

- **Pros**

- Wide area (high power)
- Price at margin (uncongested?)
- End user does not “manage”
- 'Seamless' handover
- Supports managed voice & text
- Not currently subject to Digital Economy Act copyright (user/provider benefit)

Will cognitive radio change the trade-offs?