Emerging policy and regulatory challenges of Next Generation Networks (NGN)

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Agenda: NGN Policy and Regulatory Challenges

- **Why NGN?**
  - Why should we migrate from today's networks to tomorrow's NGN?
  - Where does Ireland rank?
- **Today's trends**
  - Telcos still heavily dependent on voice revenues
  - But, the trend is towards bundling and flat-rate pricing
  - Voice revenues will drive NGN investment
- **Regulatory challenges**
  - Investment incentives versus unbundling
  - Complexity versus simplicity
  - Mobile versus fixed termination
  - IP versus PSTN call termination

What is an Next Generation Network?

Today's PSTN network	Next Generation Networks
• Circuit-switched.	• Packet-based, based on Internet Protocol (IP).
• Limited mobility of end-user services.	• Broad-based 'generalised mobility'.
• Vertical integration of application and call control layers, with dedicated networks.	• Horizontally-integrated control layers, with simultaneous delivery of applications. Service-related functions independent of transport-related technologies.
• Non-responsive network.	• NGN will be able to identify and adapt to user needs in real-time.

Source: ITU Internet Reports 2005: The Internet of Things

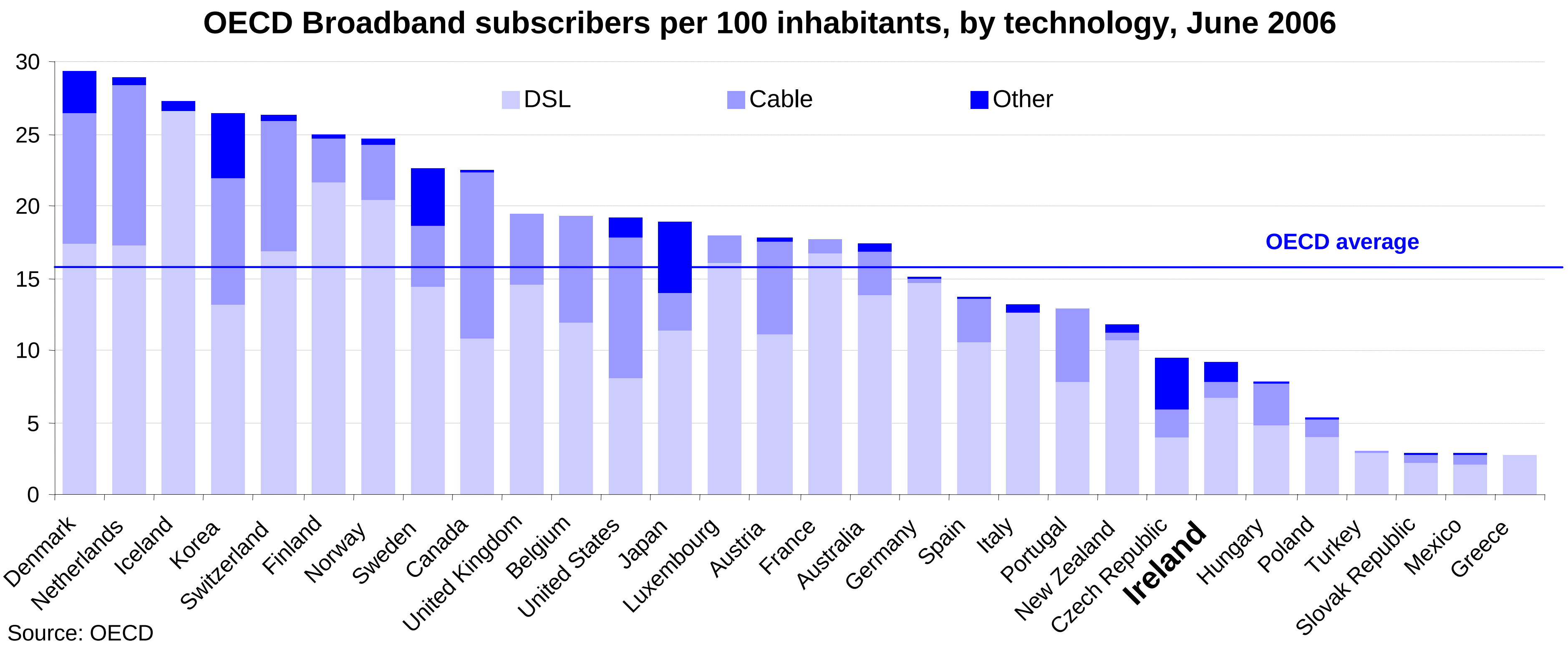
But, doubts persist over NGN

- NGN represents the marriage of the Telco and IP worlds. But will it be a collision?
- Is the NGN just another a telco attempt to recreate an “Intelligent Network” with centralised intelligence?
- Is the NGN primarily an overlay or a new-build?
- Is it just a clever marketing name?
- Who pays for what, where, when and to whom in an NGN environment?

So, what might be the benefits of a Next Generation Network?

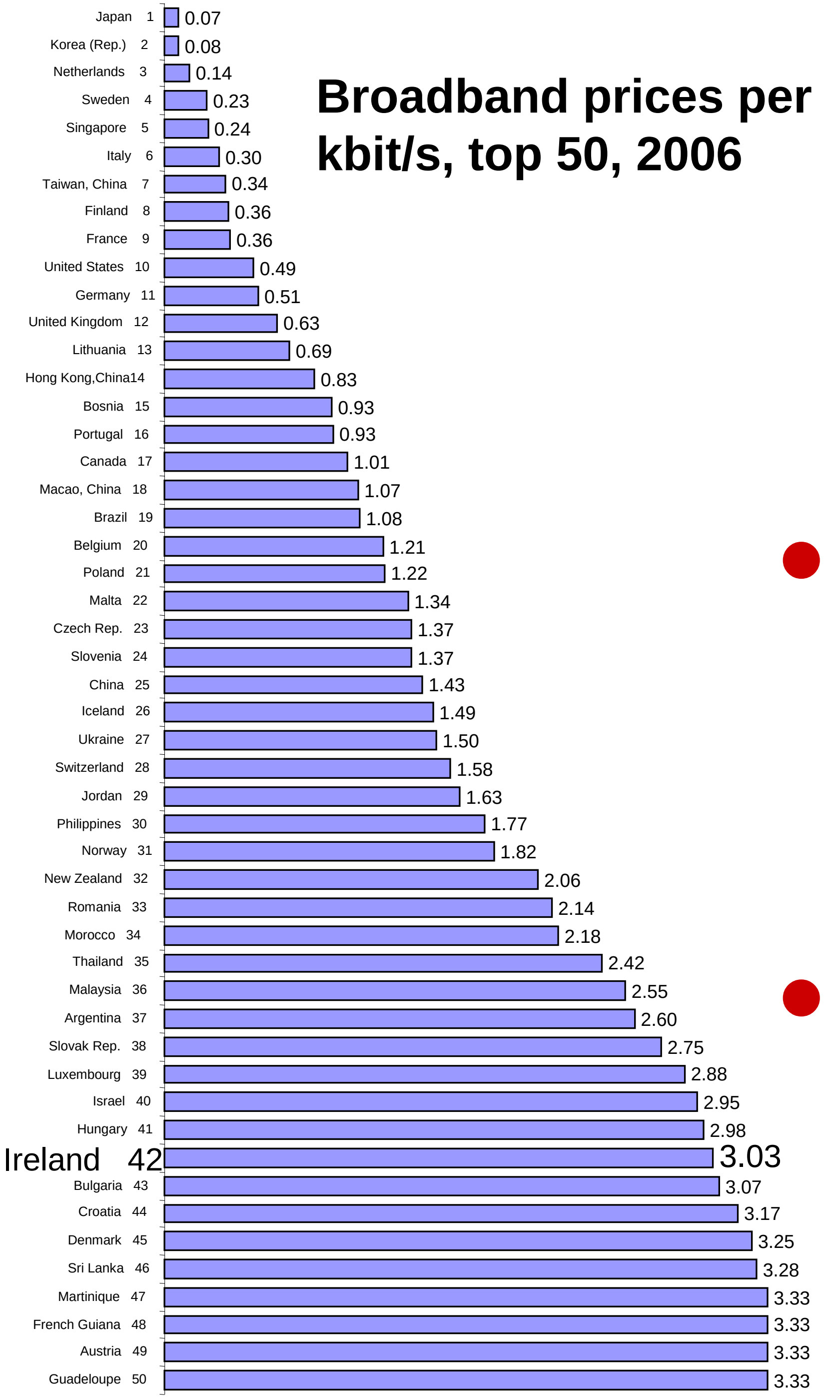
- **For the Operator:**
  - **Lower costs in having a single IP-based network to invest in and maintain, and fewer switching locations**
  - **Single billing contact with the customer ("*internet with billing*") and interface for 3rd party content providers**
  - **Possibility to offer multiple play (voice, video, data etc) and faster time to market for new service roll-out**
- **For the customer:**
  - **Possibility to use the same customised environment between different platforms**
  - **Possibility of lower prices through bundled service offerings**
  - **Integration of user-generated content (e.g., photos, music and video library, website) with that of service provider**

Where does Ireland fit? (Broadband penetration)



- **Broadband penetration:**
  - Within OECD, ranked 24th out of 30 economies, June 2006
  - 14th fastest growing OECD economy, Q2 2005 – Q2 2006
  - Global level, ranked 36th out of 206 economies, Dec 2005

Where does Ireland fit? (Broadband prices)

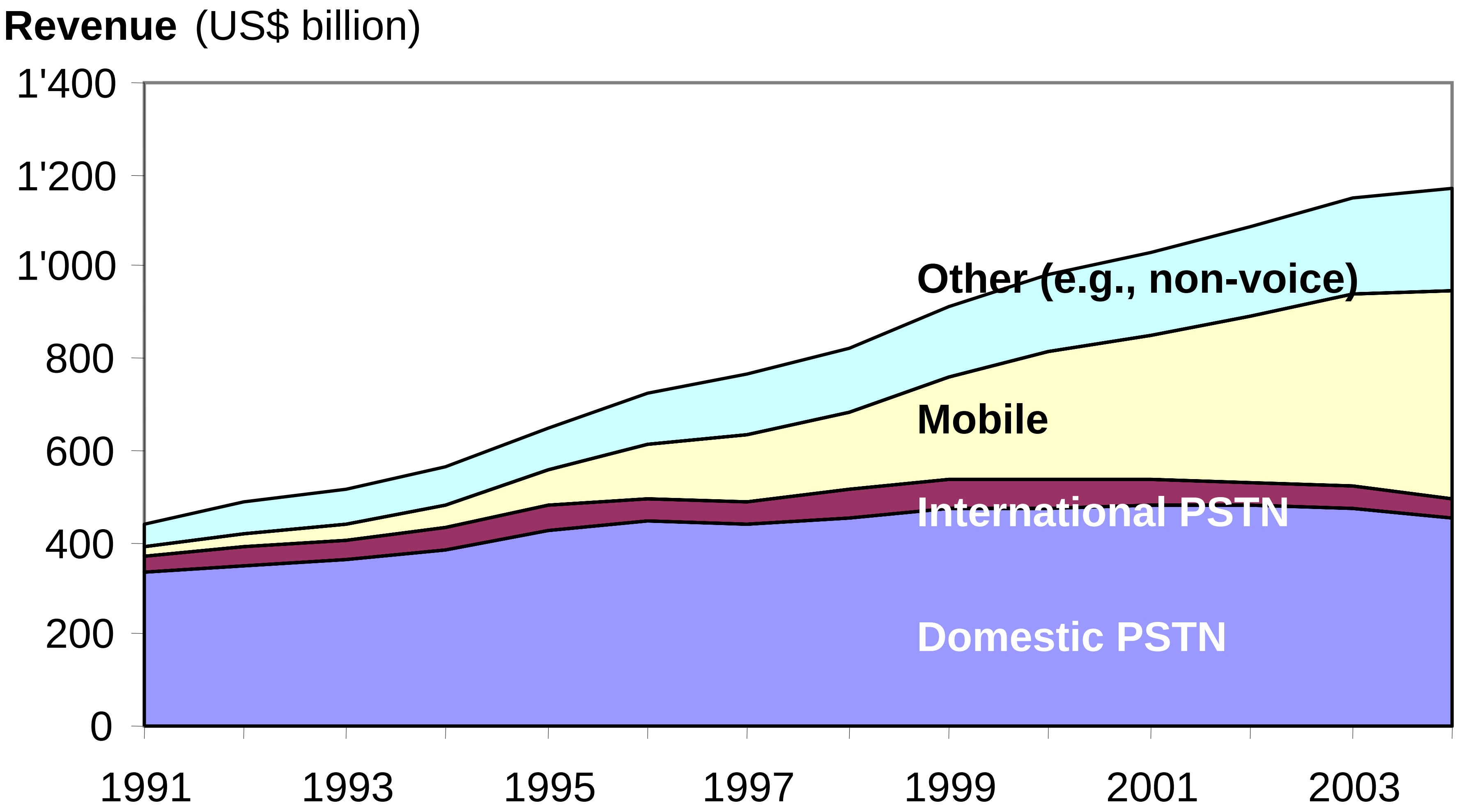


- **Broadband prices:**
  - **Within OECD, ranked 22nd most expensive (per 100 kbit/s) out of 30 economies, August 2006**
  - **Global level, ranked 42nd out of 206 economies, August 2006**
- **Digital Opportunity Index**
  - **In ITU/UNCTAD composite "Digital Opportunity Index", Ireland ranks 31st in 2006 of 180 economies (same as in 2005)**

Some regulatory challenges of NGNs

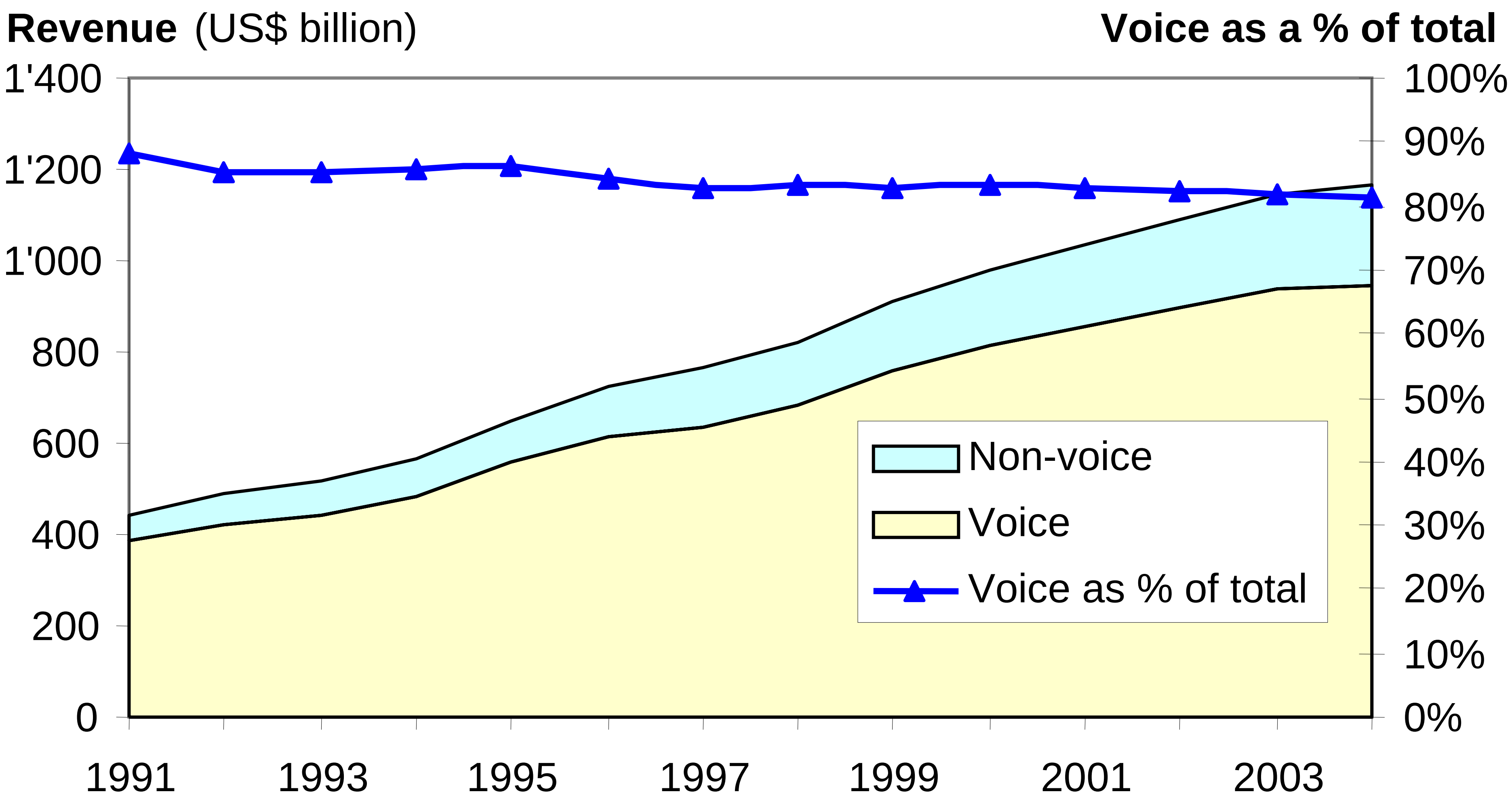
- **Pricing:** Will NGN offer prices that are significantly lower than those available today?
- **Bundling and billing:** How to distinguish real price of bundled services (predatory pricing)?
- **Interconnection**: Will current interconnection models (based on per-minute settlement) work in an NGN?
- **Security:** If much greater capacity is available at the edges of the network, how to guarantee security?
- **Investment:** Will unbundling discourage new infrastructural investment?
- **Traffic prioritisation**: Is the Net really "neutral"?
- **Emergency services:** What level of universal service obligation to impose?
- **Competition policy:** Significant market power will not go away in an NGN environment
- **Consultation:** compensation for stranded assets?

Long-term telecom revenue trends



Source: ITU Information Society Statistics Database.

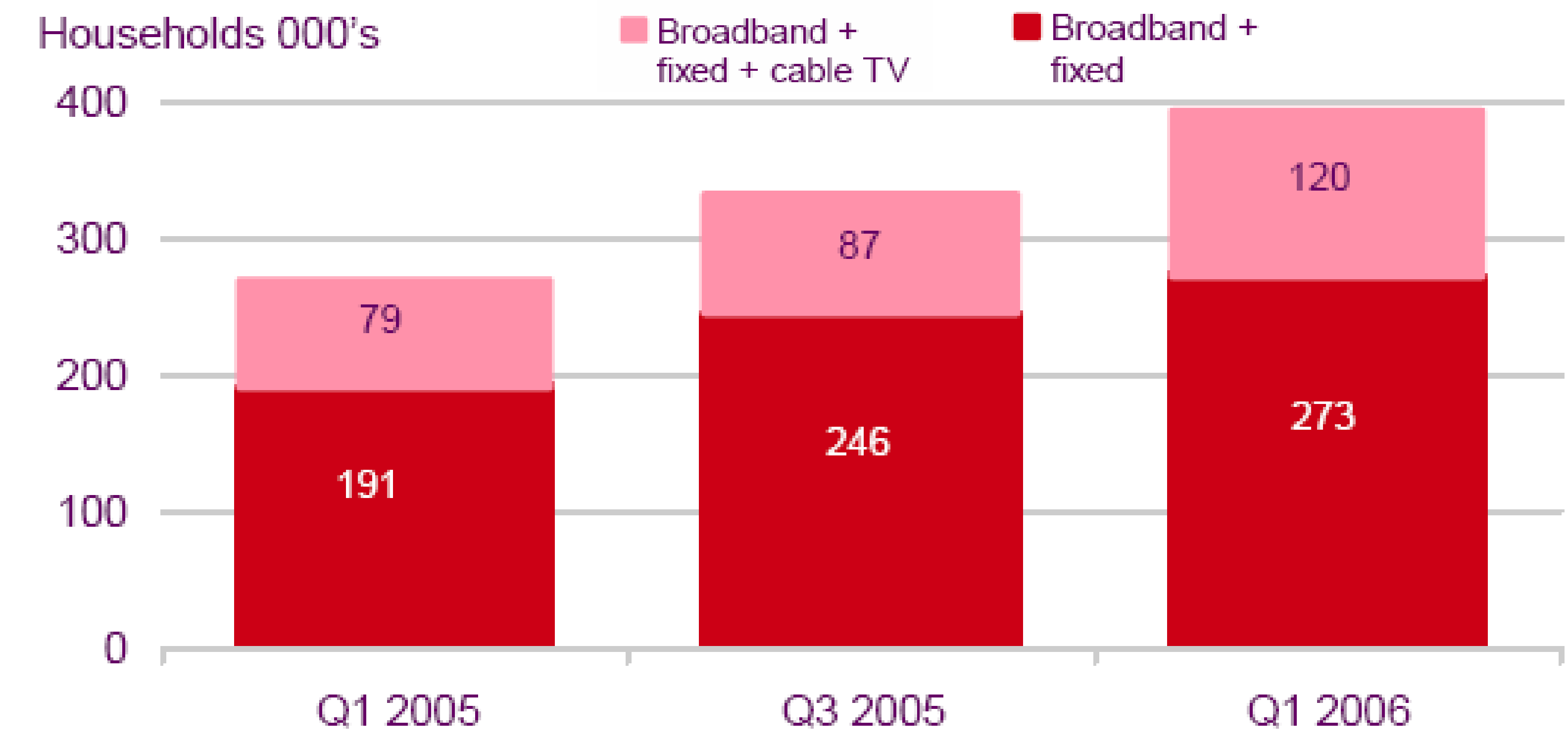
Nevertheless, voice revenues are relatively stable as % of total telco revenue



Source: ITU Information Society Statistics Database.

The trend towards bundling

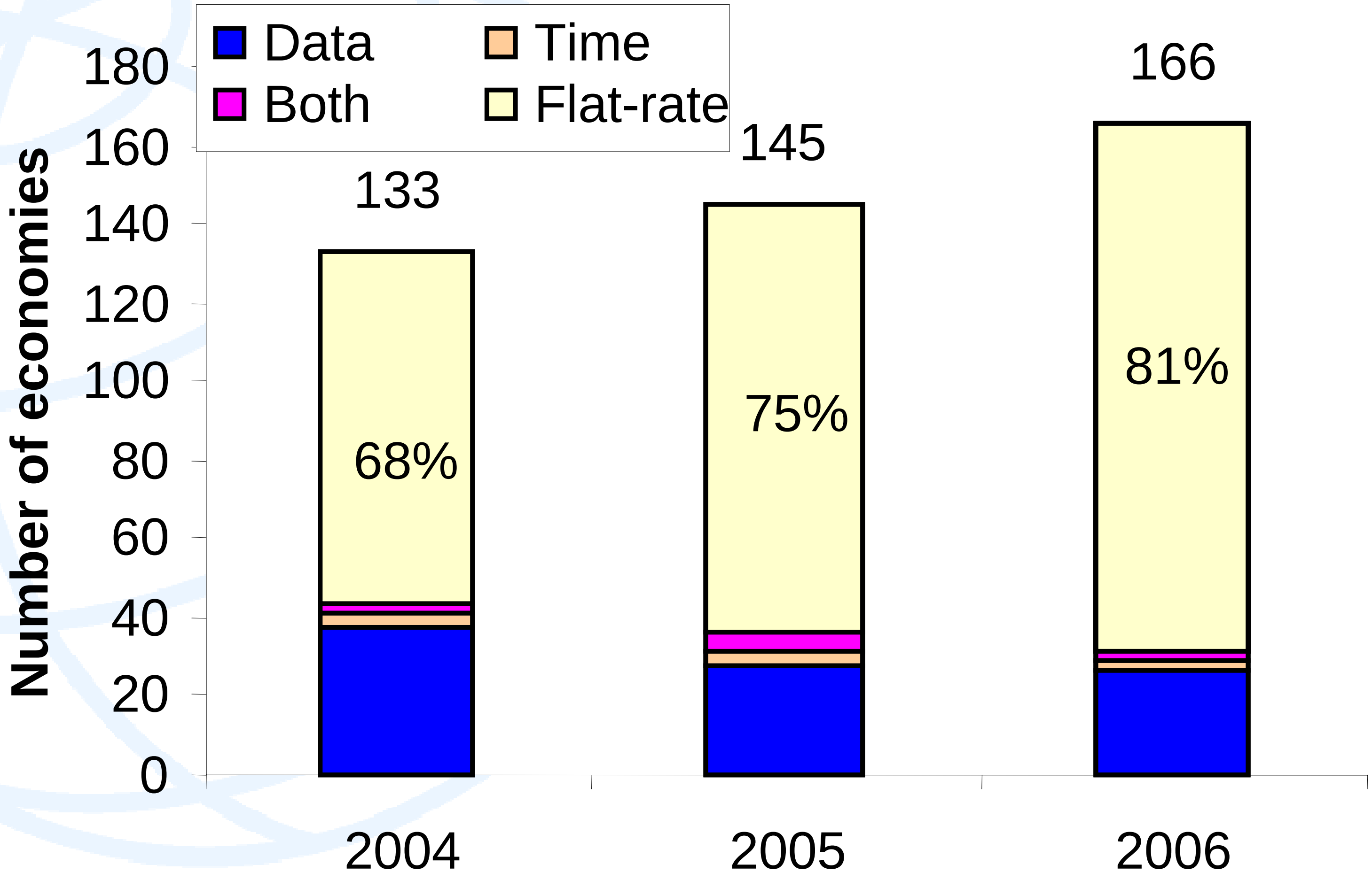
UK households taking bundled packages



Source: OFCOM

The trend towards flat-rate pricing

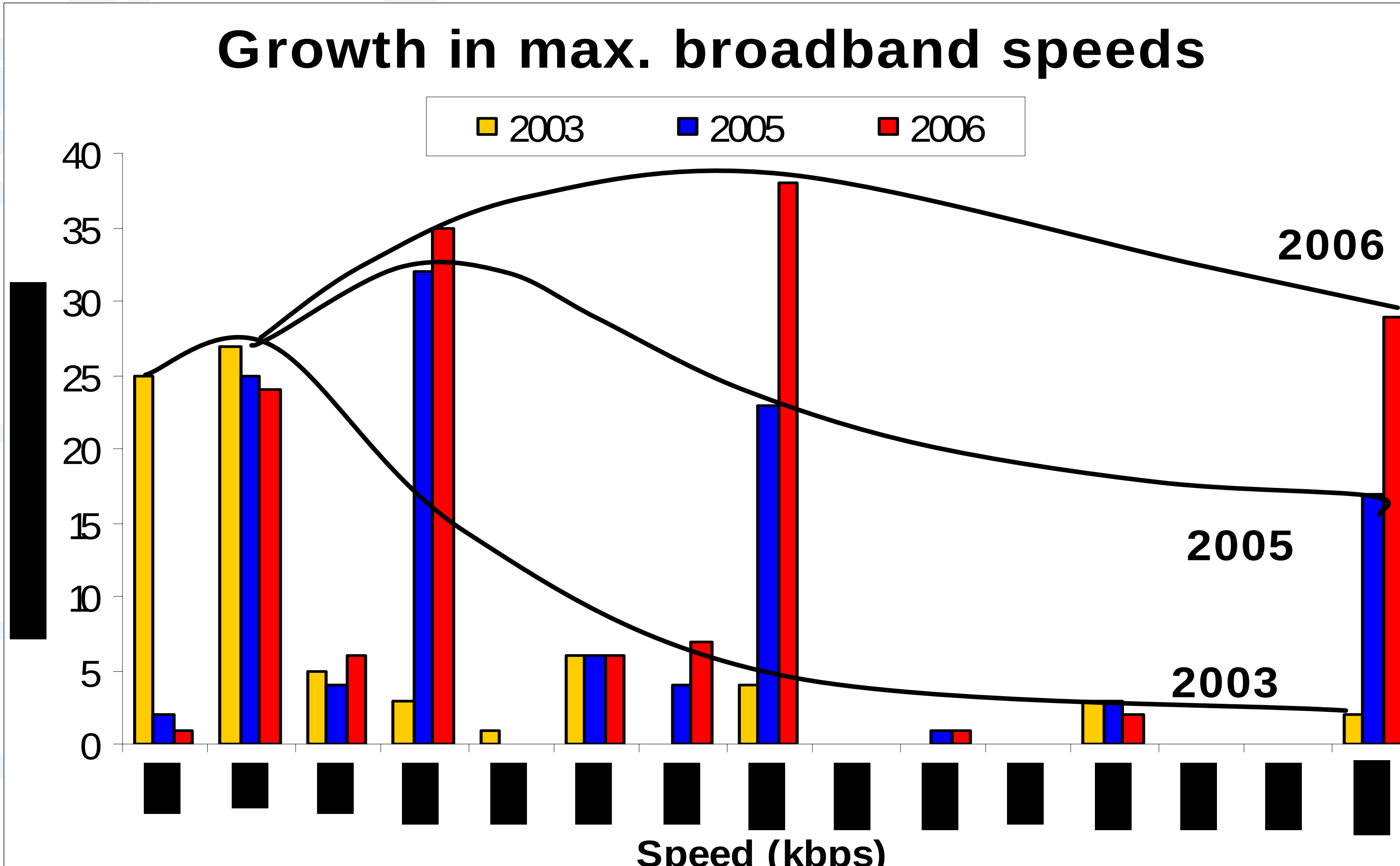
Global trends in broadband pricing schemes



Note: Data" refers to price packages with bit caps. "Time" refers to time-metering . "Both" refers to packages with both data and time caps. "Fl rate" implies unlimited monthly use.

Source: ITU World Information Society Report 2006 (www.itu.int/wisr).

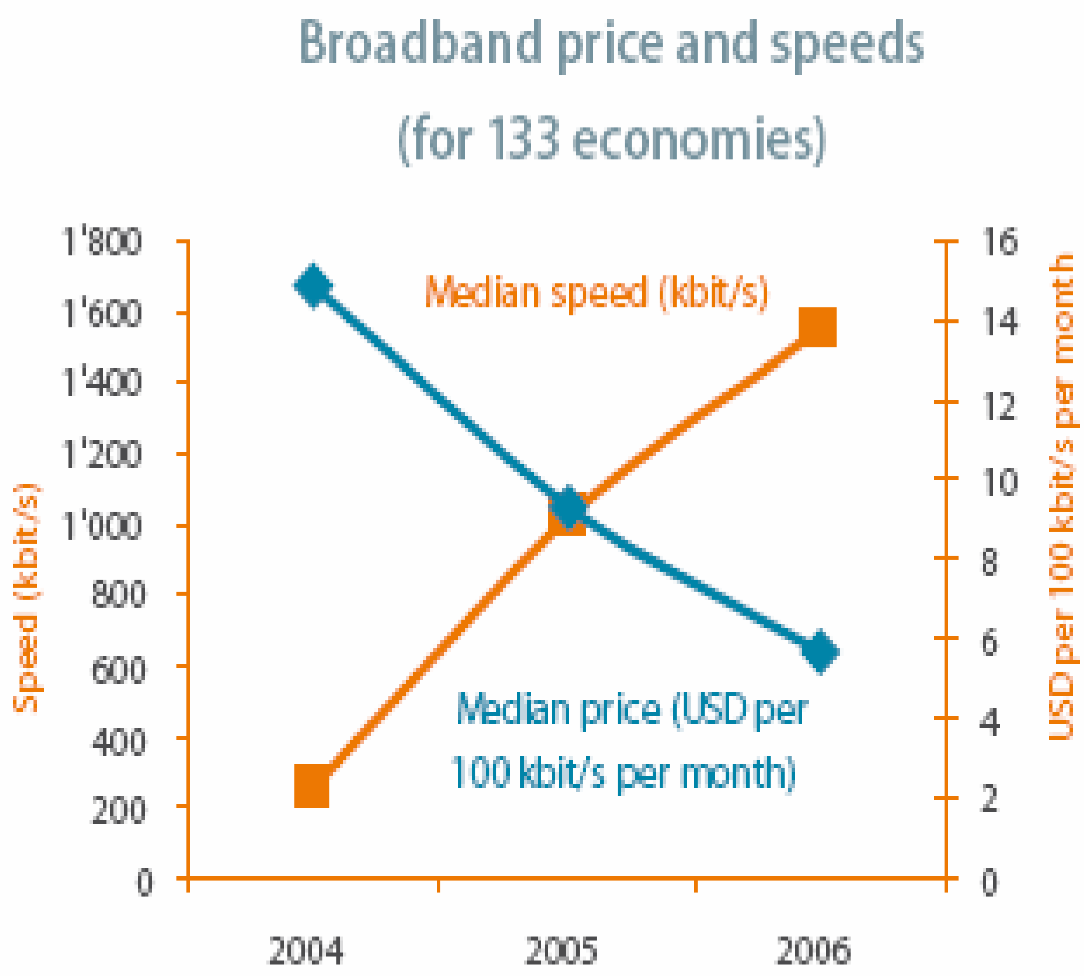
Growth in broadband speeds



Source: ITU World Information Society Report 2006 (www.itu.int/wisr).

Trends in broadband pricing, global

- **International survey of broadband prices**
  - ➢ **Based on 133 economies that had broadband as early as 2004**
- **Methodology**
  - ➢ **Based on price in US$ per 100 kbit/s**
- **Price trends**
  - ➢ **Median price has fallen by 41% p.a.**
  - ➢ **Median speed has risen by 66% p.a.**
  - ➢ **Faster than Moore's Law**



Source: ITU Internet Reports 2006: Digital.Life.

Triple-play bundles: The example of Free.fr (Iliad)

- 29.99 Euros per month (US$40)
- DSL Internet at 28 Mbit/s (down) 1Mbit/s (up)
- Unlimited VoIP calling to 49 countries worldwide (+domestic calls in France)
- 100 video channels (+ 150 options)
- But … only available in France

NGN interconnection options

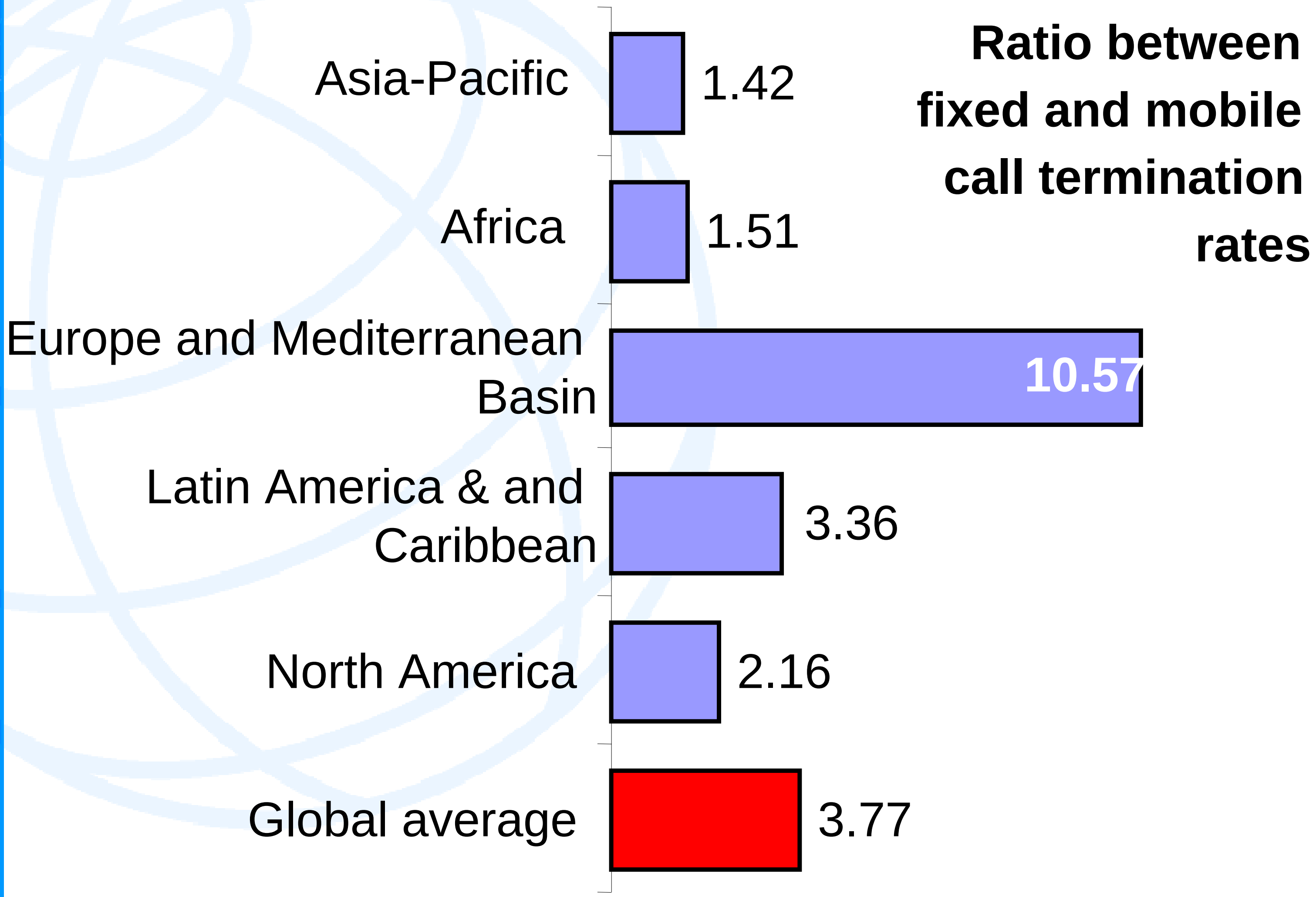
- **Towards complexity**
  - **Differentiate between different traffic streams with different QoS**
  - **Differentiate between different user terminal devices (e.g., fixed, wireless, portable)**
  - **Provide interconnection options based on per-minute, per-volume, per-service type and per-content type**
- **Towards simplicity**
  - **Sender keeps all (bill and keep)**
  - **Arrangements based on interconnection capacity**

Termination rates worldwide

Termination rates in US cents per minute	**Average fixed rate**	**Avererage mobile rate**
Asia-Pacific	11.69	16.58
Africa	13.62	20.57
Europe and Mediterreanean	3.11	32.86
Latin America and Caribbean	4.88	16.43
North America	2.81	6.07
Global average	**5.77**	**21.76**

Source: ITU-T, based on survey of regional tariff groups.

Spot the odd one out ….



Source: ITU-T, based on survey of regional tariff groups.

Conclusions

- NGN business case still unproven, but voice revenues continue to drive investment
- Inter-operator settlements remain important (but become more complex) in an NGN environment
- Trends toward bundling and flat-rate pricing in retail market will be mirrored by capacity-based pricing in wholesale market
- Short-term: Per-minute settlement is preferred choice for carriers, but hard to sustain. Rates are dropping.
- Longer term: shift towards capacity-based pricing and/or towards “Sender Keeps All”
- But, migration to NGN will not make concerns over Significant Market Power (SMP) disappear

Thank you.

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http://www.itu.int/spu