VoIP: Current Trends and Future Evolution

Phillippa Biggs, Economist, ITU
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Agenda

1. Market drivers
2. Defining VoIP → regulatory treatment
3. VoIP market
4. Future Evolution
5. Conclusions
Agenda

1. Market drivers:
   - IP as a key enabler → NGN
   - Development of the broadband market
   - Price reductions (operators & consumers)

2. Defining VoIP → regulatory treatment

3. VoIP market

4. Future Evolution

5. Conclusions
1. Market drivers: IP as a key enabler

Evolution from multiple separate networks (each optimized for one service) to a unified IP-based multi-service network
IP-enabled Next Generation Networks (NGN)

ITU Workshop “What Rules for IP-enabled NGN?”
23-24 March 2006

- Policy and regulatory implications
- Market developments
- Issues surrounding interconnection and universal service

http://www.itu.int/osg/spu/ngn/
The transition towards NGN

<table>
<thead>
<tr>
<th>Old World (PSTN telecom)</th>
<th>New World (IP-based Internet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circuit-switched</td>
<td>Packet-based, based on IP</td>
</tr>
<tr>
<td>Interconnection</td>
<td>P2P peering arrangements</td>
</tr>
<tr>
<td>Capacity-based – QoS guaranteed</td>
<td>Quality of Service (QoS) class (best effort)</td>
</tr>
<tr>
<td>Cost orientation, focus on marginal cost</td>
<td>Bundled offers: marginal costs near zero</td>
</tr>
<tr>
<td>Calling Party Pays (CPP)</td>
<td>Unclear… <em>Bill and Keep</em>? (Scott Marcus’ background paper and WIK Institute’s workshop on this subject).</td>
</tr>
<tr>
<td>Key issues – asymmetric regulation (numbering, universal &amp; emergency service)</td>
<td>Unlicensed bands, spectrum trading, competition policy, emergency service</td>
</tr>
<tr>
<td>Network-centric control &amp; intelligence</td>
<td>Edge-centric - intelligent nodes at edge</td>
</tr>
</tbody>
</table>
Forces driving VoIP (cont’d)

- **Consumers** – cheaper, single provider, simplicity of flat-rate billing.
- **Operators:**
  - Reduced costs of new & legacy networks
  - Tapping into growth in new markets;
  - Alliances with service and content providers, in new, converged business models
  - Growth in broadband networks.
Increasing availability of broadband...

Number of countries with broadband commercially available

2002: 81
2003: 113
2004: 133
2005: 145
2006: 166

...At faster speeds

Growth in max. broadband speed available

Source: ITU.
Growth in broadband in subscribers & share

Internet subscribers worldwide, in millions

Source: ITU
International voice traffic (bn mins)

Source: ITU.

- VoIP
- PSTN

As % of total:
- 1998: 0.2%
- 1999: 1.6%
- 2000: 4.8%
- 2001: 7.4%
- 2002: 11.8%
- 2003: 13.1%
- 2004: 15.5%
Falling price (& revenue?) in int’l voice traffic

Source: ITU World Telecom. Indicators Database

- Revenue (US$bn)
- Price per minute (US cents)
Transition to VoIP: incentives for operators
But beware: price reductions for consumers!

### Average cost of ICTs worldwide 2003-2005

- **Mobile basket**: -12% p.a. (2003: $16.81, 2005: $12.94)
- **20 hours' Internet access**: -12.5% p.a. (2003: $37.44, 2005: $28.20)
- **Broadband ($/100 kbps)**: -20% p.a. (2003: $60.74, 2005: $34.28)
Incentives with price reductions

Incentives II (Taking into account declining costs)

- Costs
- Profits
- Competitors

Time

Costs

Profits

Competitors

0%
100%
0% 20% 40% 60% 80% 100%
12 34 56 78 9 10 11
Agenda

1. Market drivers
2. Defining VoIP
   - ITU work and “working terminology”
   - Country definitions
   - Regulatory treatment
3. VoIP market
4. Future Evolution
5. Conclusions
2. Defining VoIP

ITU Internet Report 2001

IP Telephony

*IP Telephony* – carriage of voice over IP-based networks *irrespective of ownership*

*Voice over Internet Protocol (VoIP)* – voice traffic carried wholly or partly using IP over broadband networks *competing with incumbent operators*
## 2. Defining VoIP: Country definitions

<table>
<thead>
<tr>
<th>Definition</th>
<th>Selected countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>QoS, now replaced by <em>Functionality</em></td>
<td>India, Japan, Hong Kong</td>
</tr>
<tr>
<td>Numbering system</td>
<td>Japan, Taiwan-China</td>
</tr>
<tr>
<td>Netwk. Architecture</td>
<td>Israel, Saudi Arabia</td>
</tr>
<tr>
<td>Degree over PSTN &amp; <em>terminals used</em></td>
<td>Israel, Jordan, India, Japan, Japan, Malaysia, Spain</td>
</tr>
<tr>
<td>Service</td>
<td>Egypt, Barbados, Indonesia, Italy, Jordan, UK, United States.</td>
</tr>
<tr>
<td>Users</td>
<td>Australia, Chile, Tunisia</td>
</tr>
</tbody>
</table>
**Regulatory status of IP Telephony, 2005**

**Note:** Based on responses from 149 economies. “Prohibited” = no service is possible. “Restricted” = only licensed PTOs can offer service. “Partial competition” = non-licensed PTOs may use either IP networks or public Internet. “Full competition” = anyone can use or offer service.

**Source:** ITU World Telecommunication Regulatory Database (2005 questionnaire).
The spectrum of regulatory treatment of VoIP, 2006

- Explicitly legal (57 countries+)
- Explicitly banned (at least 23 countries)
- Yet to be made legal - “Twilight Zone of regulatory ambiguity”
- “If in doubt, hold a Public Consultation” (22 countries+)
- License required (26 countries+)
- “Under consideration” by gov’t/regulator (30+)
- Explicitly deregulated and/or light regulatory touch (19 countries+)
- Explicitly legal (57 countries+)
& Russia? “Directive on Telematic Service”

Source: http://www.minsvyaz.ru/site.shtml?id=3075
Agenda

1. Market drivers
2. Defining VoIP → regulatory treatment
3. VoIP market
   - Subscribers & distribution
   - The problem of the missing millions
   - Revenues
4. Future Evolution
5. Conclusions
3. VoIP market - strong growth

Worldwide VoIP Subscribers

Source: IDATE.
Distribution of VoIP subscribers

Distribution of VoIP subscribers, mid-2005

- Japan: 62%
- North America: 16%
- France: 11%
- Italy: 5%
- Germany: 2%
- Korea: 2%
- Neth.: 1%
- Sweden: 1%
- Norway: 0%

Source: Point Topic.
But – how to measure the missing millions?

Household VoIP in the UK
(1.8 million)

- 300,000 BT (17%)
- 150,000 Wanadoo (8%)
- 1.35m other providers (75%)

Source: OFCOM

Difficult to estimate!
Agenda

1. Market drivers
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3. VoIP market
4. Future Evolution
   - Market projections
   - Voice in bundles
   - The transition to flat-rate pricing
5. Conclusions
4. Future Evolution: Market projections

Estimates of international VoIP traffic

Source: ITU et al. (ITU estimate refers to IP Telephony)

Pink line Telegeography

ITU

Tarifica

Analysys

Delta

Three WP

Yankee Gp.

Delta Three White Paper

Yankee Gp.

Telegeography

/PriMetrica

% of total int’l minutes


Source: ITU et al. (ITU estimate refers to IP Telephony)
Voice included in bundles (UK)

Proportion of bundles

Q1 05
- 30% Fixed & BB
- 12% Fixed, BB and MCTV
- 15% Fixed & MCTV
- 5% Fixed, Dial-up & MCTV
- 14% Other

Q3 05
- 36% Fixed & BB
- 13% Fixed, BB and MCTV
- 19% Fixed & MCTV
- 4% Fixed, Dial-up & MCTV
- 13% Other

Q1 06
- 40% Fixed & BB
- 18% Fixed, BB and MCTV
- 16% Fixed & MCTV
- 4% Fixed, Dial-up & MCTV
- 9% Other

Source: Ofcom research
Shift towards flat-rate pricing

Evolution in Pricing Strategy

Data: billed by data downloaded or time spent online or combination “both”.

Source: ITU
5. Conclusions

• VoIP is a growing reality – for operators, consumers and regulators, with strong growth by all metrics.
• Opportunity or threat?
• A bit of both!
• Despite regulatory uncertainty in many countries, it may still be best to engage: Operators – early mover advantage; Consumers – benefits in cost reductions; Governments – help shape/develop a stable market, instead of holding it back.
Thank you very much
Phillippa.biggs@itu.int
www.itu.int