Regulating the Internet

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CTO Event M128
The Development of National and International Regulation

Cyprus 18 November 1999

Note: The views expressed in this paper are those of the author and may not necessarily reflect the opinions of the ITU or its membership. The author can be contacted at Laura.Mannisto@itu.int.

Agenda

- The Internet phenomenon
- Issues of Internet regulation
- Regulation of e-commerce
- Conclusions
Internet hosts (million) and growth rates, 1990-99

<table>
<thead>
<tr>
<th>Year</th>
<th>Hosts (m)</th>
<th>Countries connected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>22</td>
<td>6%</td>
</tr>
<tr>
<td>1991</td>
<td>35</td>
<td>52%</td>
</tr>
<tr>
<td>1992</td>
<td>48</td>
<td>81%</td>
</tr>
<tr>
<td>1993</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>83</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>129</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>174</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>192</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>217</td>
<td></td>
</tr>
<tr>
<td>Jul-99</td>
<td>226</td>
<td></td>
</tr>
</tbody>
</table>


Distribution of Internet hosts, July 1999

Developed: 94% of hosts, 16% population

Developing: 6% of hosts, 84% population

Canada & US 65.3%

Europe 22.4%

Australia, Japan & New Zealand 6.4%

Other 5.9%

Developing Asia-Pacific 3.7%

LAC 1.9%

Africa 0.3%

Source: ITU 1999 “Challenges to the Network: Internet for Development”
**Top 10 by host density July 1999 (per 1’000 inhabitants)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Hosts per 10,000 inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>123.0</td>
</tr>
<tr>
<td>Canada</td>
<td>114.1</td>
</tr>
<tr>
<td>Iceland</td>
<td>102.0</td>
</tr>
<tr>
<td>Finland</td>
<td>99.9</td>
</tr>
<tr>
<td>Sweden</td>
<td>91.1</td>
</tr>
<tr>
<td>Norway</td>
<td>91.1</td>
</tr>
<tr>
<td>Denmark</td>
<td>89.6</td>
</tr>
<tr>
<td>Bermuda</td>
<td>86.5</td>
</tr>
<tr>
<td>Virgin Islands (US)</td>
<td>68.4</td>
</tr>
<tr>
<td>Netherlands</td>
<td>63.7</td>
</tr>
</tbody>
</table>


**Multimedia access**

<table>
<thead>
<tr>
<th>Overall Rank</th>
<th>Telephone main lines per 100 people</th>
<th>TV sets per 100 people</th>
<th>Internet hosts per 10,000 people</th>
<th>Cellular mobile subscribers per 100 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>United States 64.37 10</td>
<td>84.73 3</td>
<td>941.35 1</td>
<td>25.60 16</td>
</tr>
<tr>
<td>2</td>
<td>Finland 55.39 19</td>
<td>64.03 9</td>
<td>891.67 3</td>
<td>57.18 3</td>
</tr>
<tr>
<td>3</td>
<td>Norway 66.01 7</td>
<td>57.90 18</td>
<td>793.57 5</td>
<td>47.39 3</td>
</tr>
<tr>
<td>4</td>
<td>Denmark 65.97 8</td>
<td>56.87 19</td>
<td>743.16 6</td>
<td>36.44 6</td>
</tr>
<tr>
<td>5</td>
<td>Sweden 67.37 8</td>
<td>53.12 22</td>
<td>661.73 7</td>
<td>46.40 4</td>
</tr>
<tr>
<td>6</td>
<td>Luxembourg 69.17 4</td>
<td>61.92 13</td>
<td>290.77 19</td>
<td>30.80 12</td>
</tr>
<tr>
<td>7</td>
<td>Canada 63.50 11</td>
<td>71.49 5</td>
<td>853.83 4</td>
<td>17.56 31</td>
</tr>
<tr>
<td>8</td>
<td>Bermuda 83.95 1</td>
<td>103.13 1</td>
<td>630.75 8</td>
<td>12.47 43</td>
</tr>
<tr>
<td>9</td>
<td>Switzerland 67.54 5</td>
<td>53.55 21</td>
<td>507.84 10</td>
<td>23.52 19</td>
</tr>
<tr>
<td>10</td>
<td>Australia 51.21 24</td>
<td>63.89 10</td>
<td>482.60 11</td>
<td>28.82 14</td>
</tr>
<tr>
<td>11</td>
<td>United Kingdom 54.49 20</td>
<td>64.22 8</td>
<td>340.58 16</td>
<td>25.23 17</td>
</tr>
<tr>
<td>12</td>
<td>Netherlands 59.31 13</td>
<td>54.34 20</td>
<td>507.97 9</td>
<td>21.29 21</td>
</tr>
<tr>
<td>13</td>
<td>Japan 47.91 28</td>
<td>70.70 6</td>
<td>146.79 27</td>
<td>37.44 5</td>
</tr>
<tr>
<td>14</td>
<td>Iceland 64.65 9</td>
<td>35.59 51</td>
<td>924.52 2</td>
<td>33.14 10</td>
</tr>
<tr>
<td>15</td>
<td>Hongkong SAR 55.77 18</td>
<td>43.13 41</td>
<td>346.80 15</td>
<td>47.47 3</td>
</tr>
</tbody>
</table>

Internet traffic overtaking int’l voice traffic
Hongkong-China, monthly minutes of use,
April 1998-July 1999

Note: Excludes Internet access from leased lines.

Should the Internet be regulated?

Opposing views:

1 Internet is a new method of communicating and doing business
   - Internet should be treated like any other industry and, if necessary, it should be regulated.

2 Internet is a special case
   - Should operate and function without government interference.
To regulate or not to regulate?

- Four possible approaches
  - Statutory control
  - Independent regulation
  - Self-regulation
  - no regulation at all

- But regulate or not may not be the right question; ask instead:
  - which aspects of the Internet do require regulation and which do not?

Which aspects of Internet demand regulatory monitoring?

- Regulatory monitoring is desirable to remove barriers to Internet development, including:
  - the cost of services
    - retail pricing for Internet services, local calls, availability of flat-rate access etc.
    - wholesale pricing on IP backbone, international and domestic leased lines
  - basic infrastructure
    - e.g. promotion of IP infrastructure
**Competition in ISP markets compared to other markets, 1999**

- 81% of countries allow competition in Internet markets in 1999
- In more than 73% of cases there are three or more ISPs

**Competition in Internet services, by region, 1999**

- Least competition in Arab States: 62% of countries
- Most competition in Europe: 93% of countries
- In Americas, Asia-Pacific & Africa some 80% of countries allow competition

Source: ITU Trends in Telecommunication Reform: Convergence and regulation 1999
Despite the competition in ISP markets, prices remain high because of the lack of competition in leased line supply.

60% of the leased line markets remain under monopoly control.

The relative cost of services

<table>
<thead>
<tr>
<th>OECD, Internet monthly access charge, US$</th>
<th>As % of GDP per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>94</td>
</tr>
<tr>
<td>Turkey</td>
<td>65</td>
</tr>
<tr>
<td>Japan</td>
<td>50</td>
</tr>
<tr>
<td>Finland</td>
<td>33</td>
</tr>
<tr>
<td>USA</td>
<td>29</td>
</tr>
<tr>
<td>Australia</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: ITU 1999 “Challenges to the Network: Internet for Development”
Restrictions in Internet Service Markets

- **Transmission supply side**
  - National level: Lack of competition in the leased line market
  - Global level: Due to concentration, the IP Backbone market remains much less competitive than the retail side

- **Services side: e.g. IP telephony**
  - Almost 90 ITU Member States have banned call-back and may restrict IP telephony

Why should developing countries not ban IP telephony?

- Because the shift of traffic away from the PSTN to the Internet may be delayed, but not prevented in the longer run.
- Because IP is likely to form the backbone for integrated voice/data services in the future

Main issue:
- **NOT:** to defend existing revenue streams
- **RATHER:** to compete for new ones.

With short-term regulatory protection in their existing markets, developing countries may be less eager, and less well prepared for competing for new opportunities.
What are the regulatory approaches to IP telephony?

- United States: IP telephony is considered information service, thus unregulated
- European Union: ISPs are considered information and value-added telecoms service providers, thus currently unregulated
- Others:
  - Many still undecided: e.g. Peru, Chile, Mexico, Venezuela, Bolivia and Brazil,
  - Others ban it: e.g. Argentina, India, some Eastern European countries, etc.

Internet-related Regulatory Issues

- Interconnection
- Spectrum management
- Licensing
- Competition policy
- Price regulation
- Universal access
IP Telephony
Regulatory concerns: national

- Should IP Telephony Providers be licensed?
- Should they be subject to the same regulatory regime as other telephony providers?
- Should they pay for interconnect with the telephone network at retail or wholesale rates?
- Should they be required to contribute to universal service obligations?
- Should they be subject to broadcasting regulations? (e.g., on advertising, decency, content filtering etc)
- Should their operations be taxed?

E-commerce forecast 1998-2003
In billions (US$)

Source: Forrester Research, Inc. 1999
Internet commerce-related Regulatory Issues

- Legal framework for Internet transactions
  - Commercial code
  - Intellectual property
  - Copyright and trademarks
  - Domain names
  - Privacy and security

- Adequate financial framework
  - Customs and taxation
  - Electronic payments

- Provision of market access and trade logistics
  - Market access to the Internet
  - Shipping of goods

Challenges to e-commerce

- In the developed world the major concerns are related to privacy, taxation, etc.
  - These are being dealt with by private sector initiatives, governments and int’l organizations (e.g., ITU, UNCITRAL, WTO, WIPO, OECD, etc.)

- In the developing world the primary concerns are related to
  - Telecom and IT infrastructure
  - Pricing
  - Content
  - Awareness and know-how.
Obstacles to e-commerce in the USA and Europe

- Privacy concerns: 31%
- Censorship: 24%
- Navigation difficulties: 17%
- Taxes: 9%
- Other: 8%

Note: Based on questionnaire responses.

Obstacles to e-commerce in a developing/emerging economy

- Slow speed: 29%
- PSTN prices: 29%
- ISP prices: 19%
- Lack of content in own language: 10%
- Lack of local content: 10%

Note: Based on questionnaire responses.
Source: ITU 1999 "Challenges to the Network: Internet for Development", IFC.
Promoting Internet Development

- Promote the industry
- Build infrastructure
- Expand access to infrastructure and services
- Promote growth of Internet access market
- Promote production of local content
- Stimulate usage

Conclusions (1)

- Internet regulation poses special challenges:
  - The Internet moves so fast that it is hard to keep up
  - The Internet community does not want to be regulated while PTO incumbents view asymmetric regulation as unfair
  - A further complication is the global nature of the Internet which “routes around” regulation and national borders
Conclusions (2)

- A regulatory challenge is to develop:
  - consistent and relevant technology-neutral regulations which
    - promote growth of the sector and
    - actively encourage innovation.
    - and serve the best interests of users.

- Promotion of open and fair competition between all players is the key to long term success.