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IP telephony and IP-VPN regulatory issues

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IP-VPNs

- now ready for global deployment
  - substantial cost savings
  - improved functionality
- technical/regulatory issues:
  - termination of calls from VPN
    - to the local PSTN
    - to a foreign PSTN (break-out)
    - to the local Internet
  - access to the functionality of the global VPN
    - corporate premises
    - homes of employees
    - dial-in from hotel, mobile phone, etc.

basic regulatory issues

- few, if any, laws or rules written for IP concepts
- not included in WTO commitments
- there are many different forms of IP telephony
- no single, stable definition
- not easy to ensure consumer protection (e.g. QoS)
- rapid changes in:
  - technologies
  - markets
- adds to existing problems of traffic exchange and interconnection
  - PSTN
  - Internet

advanced regulatory issues

- conference calls (may be web-assisted)
- video-calls
- instant messaging
- voice over IEEE 802.11
- Internet access calls change the loading on the PSTN affecting
  - tariff re-balancing
  - network design
- taxation

INTUG issues for NRAs

- does IP telephony need to be regulated?
- do secondary effects require regulation?
- are all forms of IP Telephony the same?
- do existing obligations apply? (e.g. QoS)
- how do you ensure access by police?
- do you need special telephone numbers?
- do you need special class(es) of licence?
- how do you regulate interconnection?

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ITU special forum 2001

- noted effects of cheaper tariffs on operator revenues
- sought to avoid additional load on PSTN networks when connected to IP networks
- asked how to meet the performance metrics, and traffic identifications when IP and PSTN interwork
- asked how to generate the investment for IP networks
- raised numbering and addressing issues

ITU-BDT advice

- evaluate broader policy goals before determining regulation for a converged market
- competitive models have attracted capital investment for telecommunications
- customer benefits are greatest where there are no limits on the number of suppliers and services
- where the market does not provide services to a certain subset of users, government-sponsored universal access/service programs may be helpful.

ITU-BDT policy advice

- allowing choice of technology by users among different prices and qualities are more likely to encourage investment and stimulate development
- in competitive markets, consider taking a technology neutral approach
- allow the coexistence of multiple network technology platforms and encourage their interconnection

ITU-BDT quality

- three quality classes at the end-to-end of IP telephone service have been defined as
- Class A- level to fixed telephones
- Class B - level to mobile telephones
- Class C - quality below Class B, but acceptable for voice communication

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United States of America

- regulates "telecommunications services" as common carrier:
  - local telephony
  - long distance telephony
- does not regulate "information services" including:
  - electronic mail
  - Internet access
- based on the history of these sectors

Stevens Report - 1998

- where both ends are telephones, IP telephony has many characteristics of a telecommunications service; however, work on a case-by-case basis.
- where at least one end is a computer, IP telephony should not be viewed (at present) as a telecommunications service.
- IP telephony does not directly contribute to the Universal Service Fund (USF), but underlying components (e.g., private lines) do; thus, IP telephony does not necessarily generate a net reduction in the USF.

IP telephony serves the public interest by placing significant downward pressure on international settlement rates and consumer prices.

Florida Public Service Commission

Due to the increased Internet traffic and the evolution of new applications, such as Voice over Internet Protocol (VoIP), new pricing challenges now exist in the telecommunications industry. As the clarity and quality of VoIP approaches that of the Public Switched Telephone Network (PSTN), this technology will be increasingly used as a substitute for traditional telephone service. The pricing of this service will ultimately determine the degree to which this service emerges as a threat to traditional telephone service. With consumer choice between PSTN and VoIP, the competitive effects of current pricing regulations need to be examined to ensure the growth of new technologies as well as existing networks.

White Paper on Internet Pricing: Regulatory Implications and Future Issues. September 25, 2000

USA - VoIP

- unregulated and thus avoids:
  - paying RBOCs ~2.5c/min access charge for call origination
  - direct contributions to universal service
- strong advocacy against regulation
- RBOCs lobbying to preserve revenues
- included in House bills (n.b. HR 1542) aimed at a “level playing field”

existing EU position

- Internet voice services could, in principle, not be considered as voice telephony, because they do not meet *simultaneously* the elements of the definition in the Services Directive:
  - voice telephony is offered commercially
  - it is provided for the public,
  - it is provided to and from public switched network termination points, and
  - it involves direct speech transport and switching of speech in real time at the same reliability and quality as produced by the PSTN
- consultation in 2000 left this unchanged

UK - OFTEL

- VoIP should be regulated as public voice telephony if *any* of the following apply:
  - marketed as a substitute for traditional PSTN voice services; or
  - appears to the customer to be a substitute for public voice telephony; or
  - provides the customer's sole means of access to the traditional circuit switched PSTN.
- However, where VoIP is clearly an adjunct to a traditional PSTN or a secondary service, it is likely not to be considered as public voice telephony.

new EU legislation

- from 25 July 2003
- defined markets ***not*** technologies:
  - call origination
  - call termination
  - access
- excludes “emerging markets”
  n.b. not emerging technologies
- extremely unclear where IP fits

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ITU on developing countries

While some developing countries have policies prohibiting IP Telephony, others have policies embracing it. Some do not regulate IP Telephony at all, while others have chosen to include it in a positive manner within their telecommunications regulatory framework.

developing countries

- long running problems with alternative calling procedures
  - callback
- IP telephony seen as a real threat
  - no alternative source of hard currency
  - being resisted by many countries
- powerful arguments on digital divide

Sri Lanka

When VOIP started in Sri Lanka other voice telephone operators lost their revenue. Therefore they took legal action against data operators. But in Sri Lankan regulatory structure VOIP is not indicated in the legislative framework. It was a crucial issue at that time… When VOIP [was] introduced most of the people went towards VOIP from voice telephones because it is much cheaper, specially in case of international calls.

TRC of Sri Lanka to ITU-T SG1 Q.10 Sep. 2002

India

- Indian Telegraph Act 1885
- liberalisation of a sort in March 2002
  - out-bound VoIP
  - in-bound and out-bound SIP
- ISPs were required to obtain new licences with possible future obligations:
  - “revenue sharing” i.e. a tax
  - Quality of Service
- yet VoIP cannot be distinguished from voice over/with instant messaging

universal and rural access

- major political concerns:
  - universal service
  - service in rural areas
- generally “funded” by the incumbent
- telephony settlement rates are a major source of revenue
- IP telephony may reduce already very limited capacity to develop the network
- but can also reduce the costs

Internet connectivity

- a.k.a. International Charging Arrangements for Internet Settlement (ICAIS)
- developing countries looking for money
- continuing debate and dispute at:
  - ITU
  - CITEL
  - APECTEL
- stark contrast between PSTN and Internet models

PSTN *versus* Internet

- old established principles
- massive net payments ***to*** LDCs (but declining)
- pay for half-circuit

- new deal
- massive net payments ***by*** LDCs
- pay for leased line to IX
- pay for exchange of traffic at IX
- lack of local IXs

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ITU-T Recommendation D.50

administrations involved in the provision of international Internet connections negotiate and agree to bilateral commercial arrangements enabling direct international Internet connections that take into account the possible need for compensation between them for the value of elements such as, *inter alia*, traffic flow, number of routes, geographical coverage and cost of international transmission;

security

- availability of encryption technologies?
- IPSec
- access for wire-taping by:
  - national security
  - law enforcement services
- data retention obligations

INTUG ENUM

- mapping of URIs onto E.164 numbers
  - +32.2.706.82.55
  - mailto: ewan @ intug.net
  - http://www.intug.net/ewan.html
- proposed for ITU and NRA approval
- unlikely ever to emerge from this
- better to look to
  - instant messaging
  - SIP
  - H.323

conclusions

- omission from existing legislation ***does not*** mean liberalisation
- many countries and incumbent operators see IP telephony as a threat
- it adds to the ICAIS problem
- there is no agreement on global best practice
- there are ***serious regulatory risks***

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INTUG actions

- need to engage policy makers
  - governments
  - regulators
- need to explain
  - business case
  - business needs
- need to monitor developments
  - database proposal

INTUG possible database

		Voice circuit	Data circuit	VoIP	H.323 SIP	To Internet
NL	Inbound	☺	☺	☺	☺	☺
	Outbound	☺	☺	☺	☺	☺
IN	Inbound	☹	☹	☹	☺	☹
	Outbound	☹	☹	😐	☺	☹
USA	Inbound	☺	☺	☺	☺	☺
	Outbound	☺	☺	☺	☺	☺

INTUG thank you

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