VoIP Policy and Regulation
Regional Perspective

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Before we START:

Communication Skills 101: In a presentation, one is supposed to:

☞ Cheer up.... Start with a JOKE:
  ✓ [But I have none!]

☞ Raise the interest … MOTIVATE the audience:
  ✓ [I have some mistakes in the slides to come ..
    Some intentional … some not …. DISCOVER them!]

☞ Be sensible … THANK the organizers & the audience:
  ✓ [I will gladly do so.  THANK U]

☞ Set the Agenda of the Talk .... & GET ON with it:
  ✓ [Let’s Go … Relax…. Enjoy the Talk!]
TOPICS

- Introducing VoIP
- Market Trends / VoIP Indicators
- Benefits / Advantages / Issues
- Policy and Regulatory Issues
- International VoIP Policy and Regulation
- VoIP Policy & Regulation in the Arab World
- Conclusion / Recommendations

Views expressed in this presentation are those of the speaker and do not necessarily represent the views or the position of CITC.
What is VoIP

• **Voice over Internet Protocol (VoIP):** The transport of voice traffic using internet Protocol (IP).

• **VoIP traffic** can be carried on a private managed network or the public Internet or a combination of both.

• **How does VoIP work?** Voice is converted into digital data, that are grouped into packets, transmitted over public Internet or private IP networks, and then reconverted into its original analog form at destination.

![Diagram showing VoIP traffic](image-url)
VoIP Services

- **PC-to-PC (or Web-talk):** 1st Generation
  only allows calls to people using the same service, (e.g. skype, Yahoo! Instant Messenger). Voice signals transmitted are not switched across a PSTN at all.

- **PC-to-Phone:** 2nd Generation
  allows from a PC calls to any regular (PSTN) telephone number (e.g. Dialpad, Net2Phone, Skype Out) including local, long distance, mobile, and international numbers.

- **Phone-to-Phone (or to PC):** 3rd Generation
  enable use of a traditional phone to make VoIP calls using an adapter. The calls are then routed over an IP network rather than a PSTN.
VoIP and Convergence

- Convergence is multi-dimensional:
  - Industry: telecom, IT, Media
  - Service: fixed, mobile, data, internet
  - Technology: wireless /wireline, IP-based NGN
  - Device: Telephone, computer, TV / Radio

- VoIP - Convergence of:
  - Telephony and the Internet
  - Telecom and IT

- VoIP: a Manifestation of the digital revolution, with efficient handling of voice traffic

- VoIP reflects the realities of economics of IP networks: Once network is built, usage costs are close to zero
Convergence and VoIP

- IPTV
- VideoTelephony
- VoIP
- 1. Voice
- 2. Data
- 3. Video
- Triple Play
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Strong growth in VoIP subscribers

- **VoIP subscribers (millions)**
- **VoIP % share of total mainline subscribers**

Source: IDATE.
VoIP Growing faster than International Traffic

International Traffic (Billion Minutes)

- **VoIP Share (%)**
- **VoIP**
- **PSTN**

**VoIP CAGR (2000-2005) = 30%**

**PSTN CAGR (2000-2005) = 15%**

Source: ITU (1997-2004), Author Projection 2005
Voice generates 80% of Total Revenue

Voice as % of total

Non-voice
Voice (inc SMS, dial-up)
Voice as % of total

Revenue (US$ billion)

(Source: ITU)
Overview: Introducing VoIP

Market Trends / VoIP Indicators

Benefits / Advantages / Issues

Policy and Regulatory Issues

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Conclusion / Recommendations
VoIP meets Regulatory Objectives

- **The Public / National Interest:**
  - Spread of ICT Services
  - Growth of information society

- **The Consumer (Availability / Affordability / Choice):** cheaper, single provider, simplicity of flat-rate billing

- **The industry Interest**
  - Reduced costs of new & legacy networks
  - Investment protection and fair rate of return
  - Innovation / Entrepreneurship / Small ICT Businesses.
  - Tapping into growth in new markets;
  - Promote Competition with Level playing field
  - Alliances with service and content providers, in new, converged business models
  - Growth in broadband networks.
Benefits of VoIP

- More efficient use of bandwidth (8-16 times more efficient than traditional PSTN)
- Cheaper telephone calls
- Reduces costs dramatically for all services
- Integration with Internet and Internet based applications
- Support convergence & in line with technology neutrality
- Provides potential for new telecom service providers and growth of the industry and economy
- Technology of the future
VoIP Issues

- Voice is a trillion dollar business, representing 80% of all telecom Service Revenues.
- VoIP is a disruptive technology, threatening traditional revenues from public voice services
- VoIP on mobiles and wireless is what Operators fear most
- Quality of Service (QoS)
  - Quality cannot currently be controlled as reliably as on traditional telephony services
  - Service quality depends heavily on the reliability and capacity of the underlying broadband connections.
  - Inform customers of quality differences & value proposition
- Emergency Services: Access and location
VoIP Issues

• Security
  - Converting voice into data stream can lead to exposures to the same vulnerabilities as other Internet traffic.
  - Personal/Corporate security: Denial of Services attacks, Viruses, worms …. etc, and Spam over Internet Telephony (SPIT)
  - Law enforcement: Lawful interception (wire tapping) and Data preservation/retention

• Numbering
  - While traditional Telephone numbers determines the location of the called telephone, there is no “geography” in an IP network.
  - A typical Skype address is geographically vague
  - Should users be allowed to have geographically-independent telephone numbers?
Should users be allowed to have geographically-independent telephone numbers?

**ENUM** is a technology that defines the transformation of typical phone numbers (E.164) into DNS names

+966 1 461 8240 ➔ 0.4.2.8.1.6.4.1.6.6.9.e164.arpa

**ENUM** domain name can be used to point associated contact information, e.g., IP-telephony, e-mail, fax and web addresses

**ENUM** is main usage scenario is VoIP
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Regulatory Classification of VoIP Services

**Permitted**
(Outside Regulatory control)

- Private PC-to-PC (VoIP services residing solely on the internet)
- Private Network
- Operator IP Core Network: which do not affect services to end users

**Subject to Regulatory control**

publicly available services provided to end-users (VoIP services with gateway to/from PSTN)
How do Regulators treat VoIP?

Essentially 3 camps

- **Legalized – no Regulation**
  - considered an information service and not telecom, or because it is more beneficial not to regulate
  - Developed countries (USA, European Union, Japan, Canada, Korea, Singapore, South Africa), Philippines, India

- **Partial regulation** –
  - regulate some aspects of IP Telephony
  - Malaysia, Ecuador, Honduras, Algeria, Jordan

- **Not permitted or banned**
  - Most Arab Countries
  - Some because Fixed is still monopoly (incumbent protection)
Current Regulatory Approaches on VoIP

1. VoIP made *illegal*, These are often developing countries. According to ITU’s analysis, VoIP was illegal in 27 countries and restricted in 37 countries at the end of 2005.

2. VoIP is *unregulated*, through a regulatory decision that VoIP should not be regulated.

3. *Lack of regulation*: which is often temporary, whilst the regulator reaches a decision on regulation.

4. VoIP subject to *similar/same regulation as PSTN* - some forms of VoIP are subject to same regulation as PSTN, This can amount to a ‘light regulatory touch’ e.g. in the US.

5. VoIP is subject to its *own set of regulations*, with its own specific licenses.
Explicitly banned (23 countries+)

Public Consultation (22 countries+)
“Under consideration” by gov’t/regulator (30 countries+)

License required (26 countries+)

Explicitly deregulated or “light regulatory touch” (19 countries+)

Yet to be made legal “Twilight Zone of regulatory ambiguity”

Explicitly legal (57 countries+)
Regulatory status of IP Telephony, 2005

Source: ITU (Based on responses from 149 countries)
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REGULATORY APPROACH TO VOIP - USA

- FCC considers VoIP as a computer-based ‘information service’

- Liberalized approach to VoIP, with light touch regulation, but requires:
  - Contribution to universal service fund
  - to allow wire-tapping
  - Access to emergency services

- Tariffs (VoIP call rates) are not regulated

- FCC has ruled against blocking VoIP
VoIP is not explicitly regulated in the EC framework,

Most European countries have a “laissez-faire” approach to VoIP regulation.

Scandinavian countries: light regulatory touch, with referral to the PSTN regulations.

France and Ireland: a relatively liberalized approach to VoIP for open competition, greater choice and lower prices.

UK OFCOM ended its interim forbearance policy with a mandatory code of practice for consumer information for VoIP providers.

Italy has adopted an original approach to VoIP legislation in terms of nomadic and non-nomadic services.

Germany & Poland still under consultation on VoIP.
VoIP Regulatory Framework - Singapore

- IP Telephony services require an FBO/SBO license
- Licensees are allocated 8-digit number blocks starting with level “6” (FBO only) or “3” (FBO or SBO).
- VoIP licensees with level “6” are required to provide:
  - emergency services,
  - QoS similar to local call services;
  - directory enquiry, and
  - number portability for its IP Telephony services
- Interconnection is commercially negotiated
- QoS; access to emergency services, directory enquiry are not required with level 3 numbering scheme
Two classes of IP Telephony service.

Class 1 IP telephony service (with 8-digit numbers) has all the attributes of the conventional telephone service.

Class 2 services do not, and are distinguished by their prefix.

Both classes are obliged to provide free emergency call services and back-up power supply for ‘lifeline’ devices.

Number portability required only for Class 1.
VolP Regulatory Framework - India

- VolP has been legal since 2002.
- Facility-based operators (FBO) can provide Internet telephony, subject to QoS requirements.
- 121 ISP permitted (since 2005) to provide VolP services.
- TRAI issued regulations on quality for VolP ILD calls, differentiating between toll quality and below-toll quality.
- Tariffs for toll quality service offered by FBOs should be the same as for PSTN services.
- Tariffs of VolP services offered by ISPs over the public Internet are not regulated.
- Unified license scheme would not restrict VolP, provided it is offered by operators with a duly registered license.
VoIP Regulatory Framework - China

- Basic Telecom Operators are allowed to operate VoIP services, and use IP technology in their core networks,
- ISPs could only offer PC-to-PC VoIP services
- VoIP was not classified as either a value-added network service or basic service.
- In 2005, MII announced trials for industry segments to begin deployment of VoIP services in four Chinese cities
- No policy or law directly defines VoIP services as illegal.
- A new policy on VoIP is expected to be published in 2007
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☑ Overview: Introducing VoIP
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☐ Conclusion / Recommendations
Basic Services by Region, 2004

% of countries

- **Monopoly**
  - Africa: 51%
  - Americas: 32%
  - Asia-Pacific: 58%
  - Arab States: 33%
  - Europe: 80%
  - World: 61%

- **Competition**

(Source: ITU)
VoIP is banned in many Arab States, including Kuwait, Lebanon, Libya, Sudan, Syria Yemen, and UAE.

But wide spread grey market use in most Countries

Where the Arab states permit VoIP, it has generally been limited mainly to incumbents.

Bahrain
- Allows VoIP over private networks.
- Only the licensed Fixed Operators can provide VoIP services.

Oman: VoIP services can be offered by licensed fixed Operators

Qatar: Individual are permitted to use VOIP (PC-PC only)
VoIP Regulatory Framework – Arab States

- **Jordan**
  - VoIP is legal (Individuals can use VoIP (PC-PC, PC-Phone & ph-ph),
  - Licensed operators can offer VoIP services.

- **Tunisia**
  - VoIP is permitted (with authorization) for Call Centers and export businesses.
  - Tunisie Telecom is allowed to use VoIP on its backbone.

- **Morocco**:  
  - VoIP is legal. Licensed operators can provide VoIP services.

- **Egypt**
  - Voice, including VoIP, is offered by incumbents.
  - Currently, VoIP is permitted for enterprises only within their VPN or through ISP’s
  - The licensing of VOIP is under new consideration
VoIP is legal. Algeria has been allowing VoIP (PC-to-phone) by ISPs on an experimental basis since 2003.

Licensed fixed operators are authorized to provide all VoIP services, while VSAT operators to offer PC-to-PC VoIP services.

ARPT opened the VoIP market subject to authorization.

The first VoIP operator, EEPAD, won authorization in April 2005.

Over 10 authorized VoIP service providers by the end of 2006.

VoIP operators are obliged to provide VoIP services in at least 5 wilayas (areas) within the first year of operation,

0820 and 0822 number series allocated to VoIP operators.

ARPT is re-assessing market developments and its VoIP policy.
VoIP Regulatory Framework – Saudi Arabia

- CITC will issue new licenses for Fixed and Mobile Services
- 9 applications for the mobile License (24 Feb. 2007) – 7 were qualified (17 March 2007)
- 10 applications for fixed Licenses (10 March 2007)
- All Facilities-Based Providers (FBPs) can employ offer IP telephony services (CITC is technology neutral)
- VoIP Service is subject to the same security monitoring and emergency services as for PSTN.
- Market forces to determine acceptable levels of QoS and prices
- ISP licenses does not include VoIP services
- CITC is in the process of developing a Regulatory Framework on IP Telephony/VoIP with public consultation.
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Conclusions

✓ IP Telephony is in the interest of the consumer, the industry and the country (Public Interest)

✓ VoIP is driven by convergence, technology trends, market demands and (international) competitive pressure.

✓ Liberal regulatory approaches to VoIP increasingly adopted worldwide

✓ Resistance to VoIP is not sustainable due to market pressure locally and internationally. Delay will harm future standing.

✓ Arab Regulators should accelerate work on a regulatory models to legalize (and promote) VoIP and encourage convergence.

  ▪ **We cannot afford to wait**

  ▪ **We should not wait**
Recommendations on VoIP Regulation

✓ Principle of minimum regulation and technology neutrality
✓ Service neutrality is next needed with coming convergence
✓ Un-bundle the local loop
✓ Transparent & fair interconnection
✓ Engage stakeholders in developing regulatory framework.
✓ Importance of regulatory stability – to enable businesses to make rational investment decisions.

✓ Operator should embrace VoIP to maximize its potential:
  ➢ Retain customer and traffic (against migration).
  ➢ Protect revenues and return on investment
  ➢ Savings on operations (OPEX) & new network investment (CAPEX)
Acknowledgement to:
✓ ITU & ARPT
✓ Organizers (Staff)

😊😊 THANK YOU 😊😊 for your attention

.......... and QUESTIONS ?? .........