



# 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

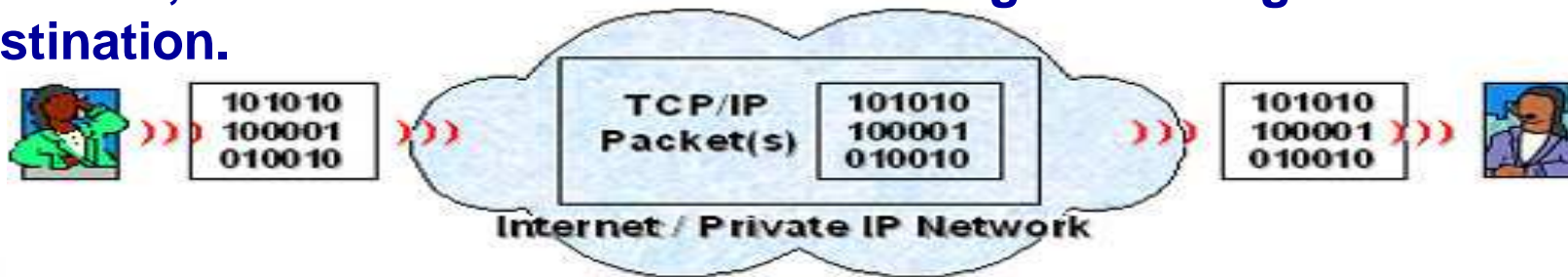
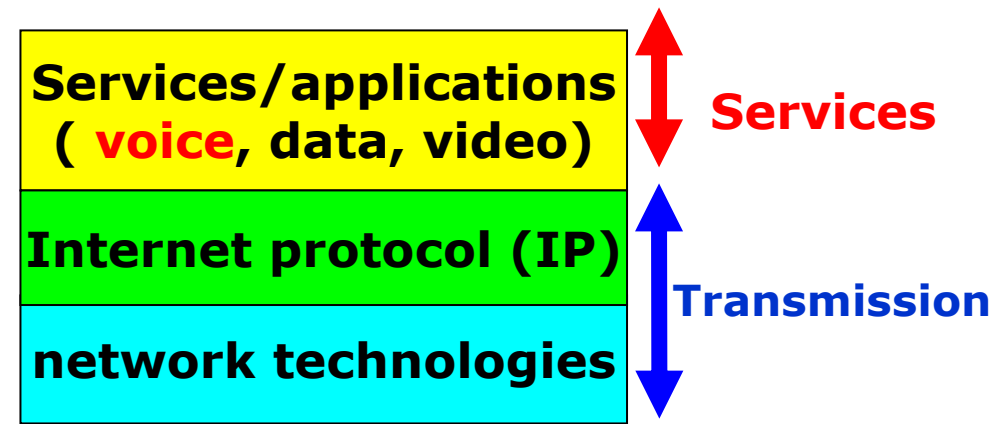
**Views expressed in this presentation are those of the speaker and do not necessarily represent the views or the position of CITC**





# 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.





# VoIP Services

- PC-to-PC (or Web-talk):** **1<sup>st</sup> 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:** **2<sup>nd</sup> 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):** **3<sup>rd</sup> 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



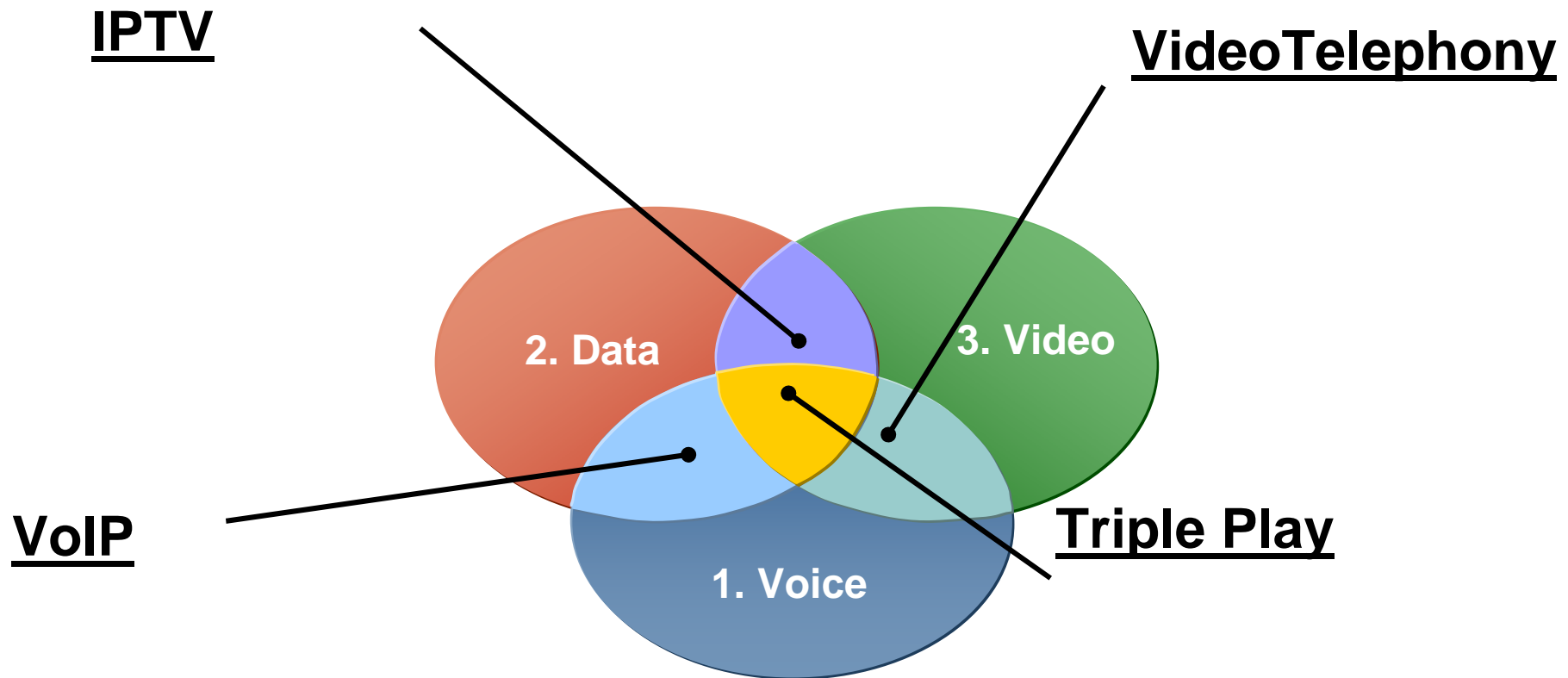
# VoIP and Convergence

- ❑ **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





## TOPICS

☑ Overview: Introducing VoIP



## Market Trends / VoIP Indicators

☐ Benefits / Advantages / Issues

☐ Policy and Regulatory Issues

☐ International VoIP Policy and Regulation

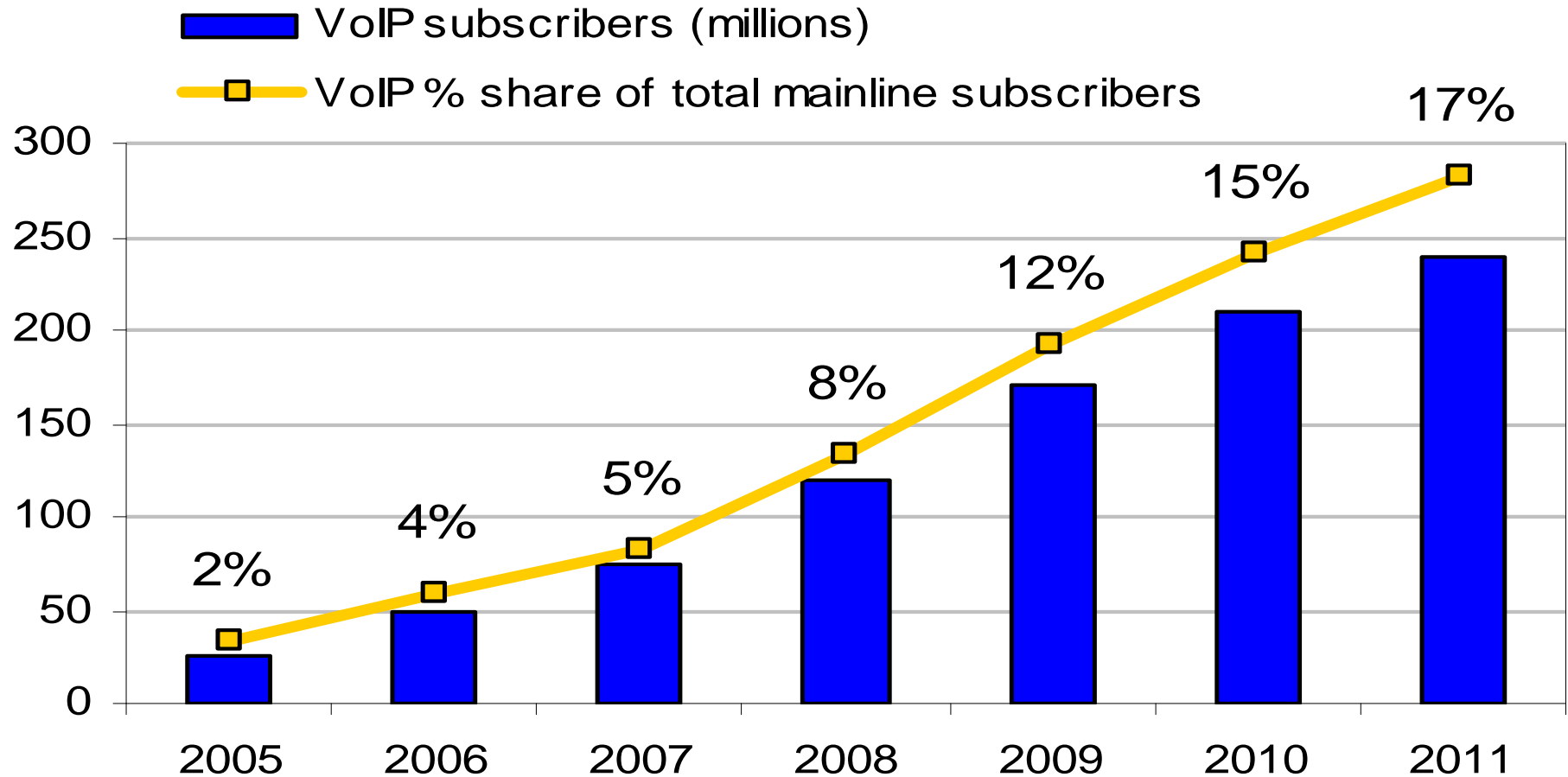
☐ VoIP Policy & Regulation in the Arab World

☐ Conclusion / Recommendations





## Strong growth in VoIP subscribers



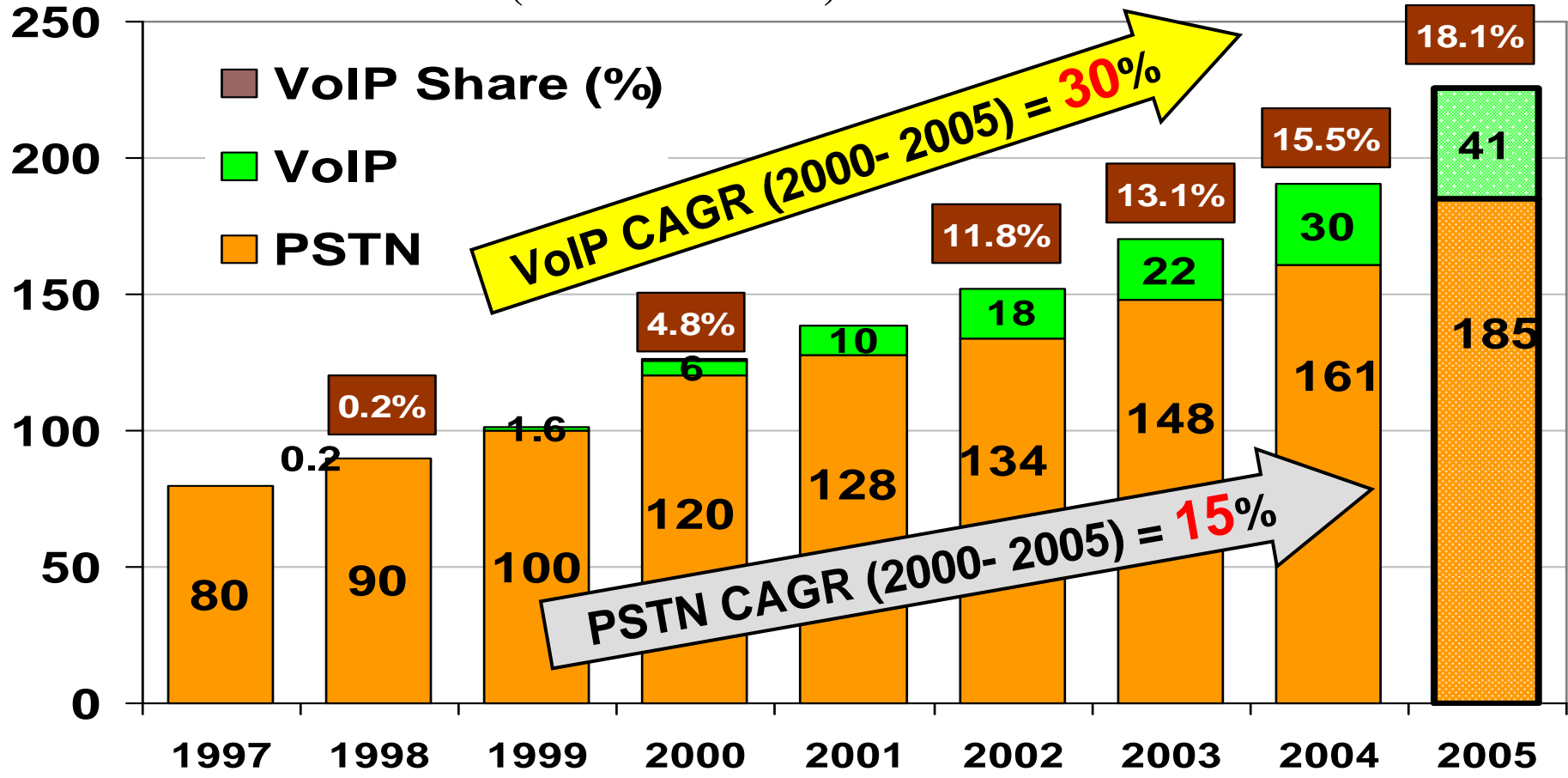
Source: IDATE.





# VoIP Growing faster than International Traffic

International Traffic (Billion Minutes)

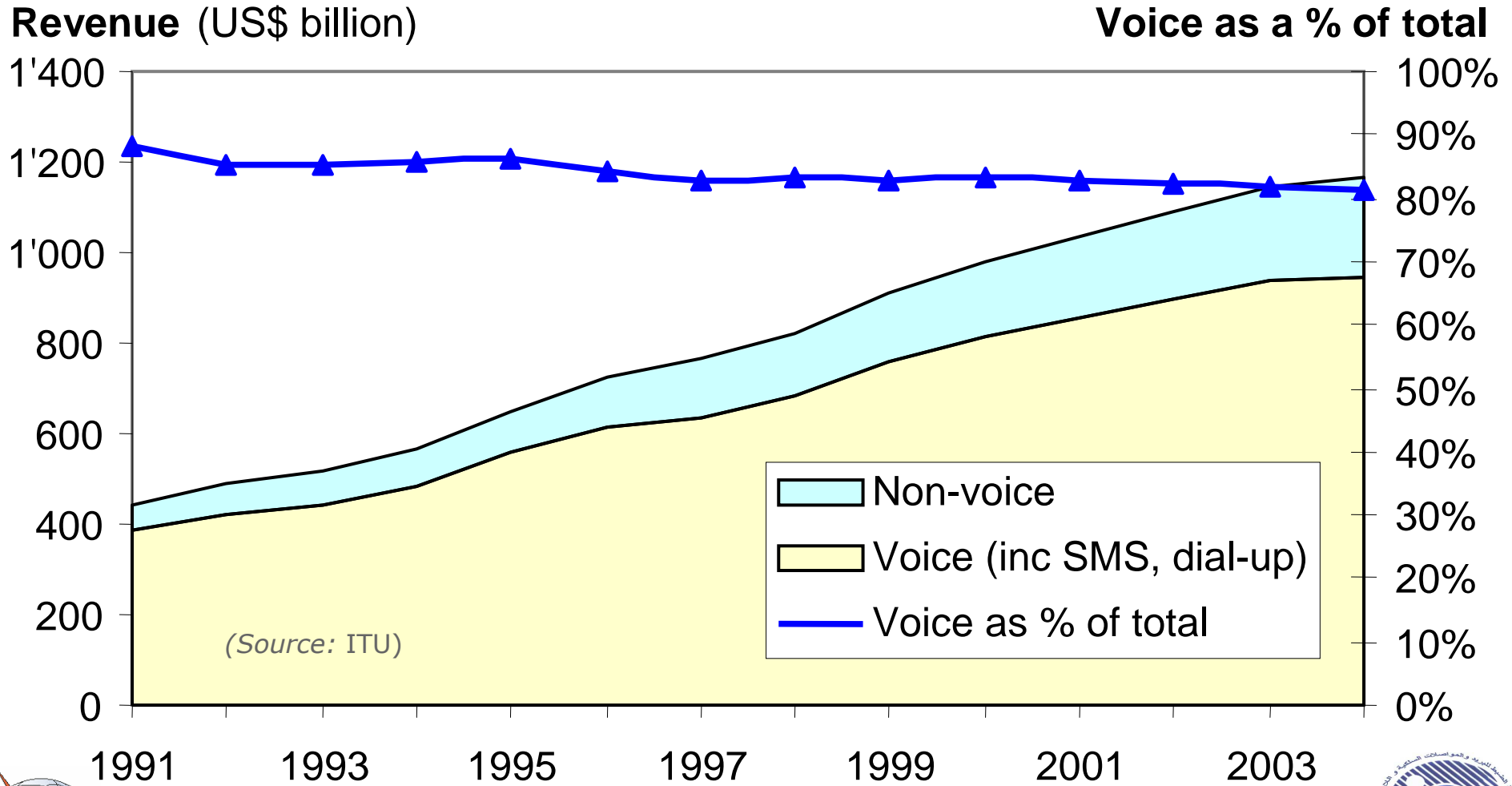


Source: ITU (1997-2004), Author Projection 2005





# Voice generates 80% of Total Revenue





## TOPICS

Overview: Introducing VoIP

Market Trends / VoIP Indicators

## **Benefits / Advantages / Issues**

Policy and Regulatory Issues

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# 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?





## ENUM – the Translator

- 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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## Policy and Regulatory Issues

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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)





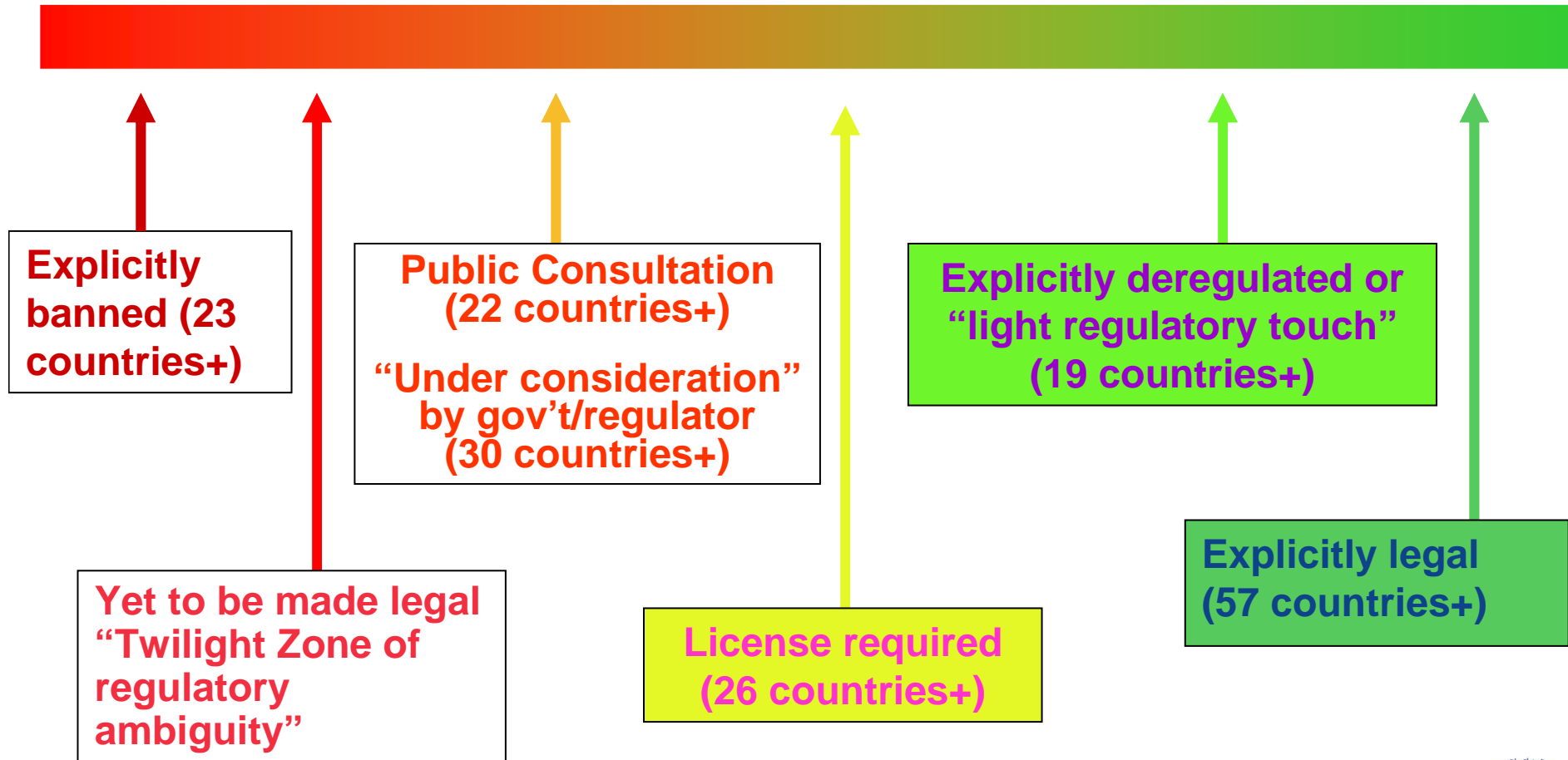
## Current Regulatory Approaches on VoIP

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.



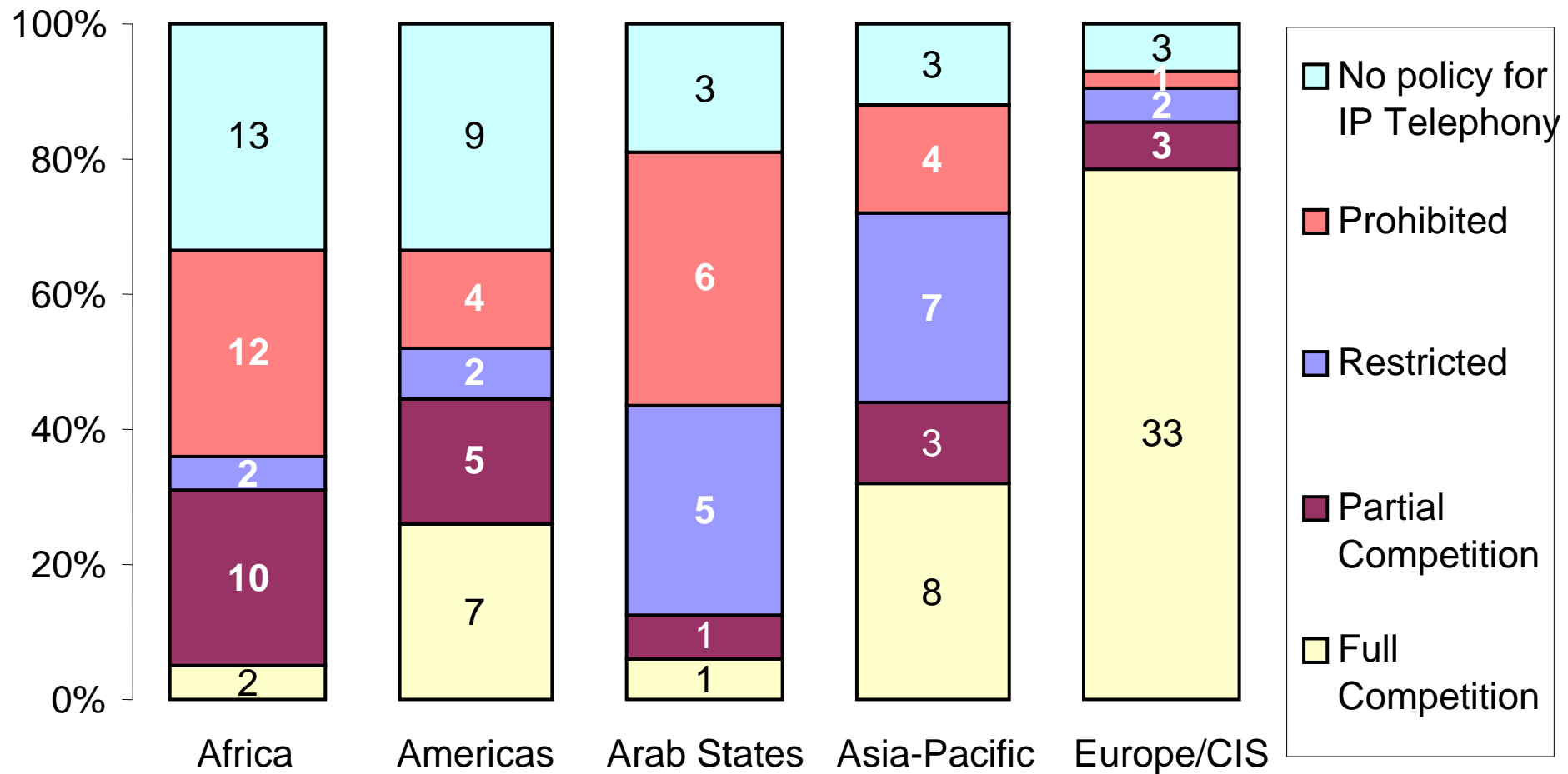


# Regulatory treatment of VoIP, 2006





# Regulatory status of IP Telephony, 2005



Source: ITU (Based on responses from 149 countries)





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## **International VoIP Policy and Regulation**

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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



## REGULATORY APPROACH TO VOIP - Europe

- 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





## VoIP Regulatory Framework - Hong Kong

- 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.





## VoIP Regulatory Framework - India

- VoIP has been legal since 2002.
- Facility-based operators (FBO) can provide Internet telephony, subject to QoS requirements.
- 121 ISP permitted (since 2005) to provide VoIP services
- TRAI issued regulations on quality for VoIP 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 VoIP services offered by ISPs over the public Internet are not regulated
- Unified license scheme would not restrict VoIP, 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





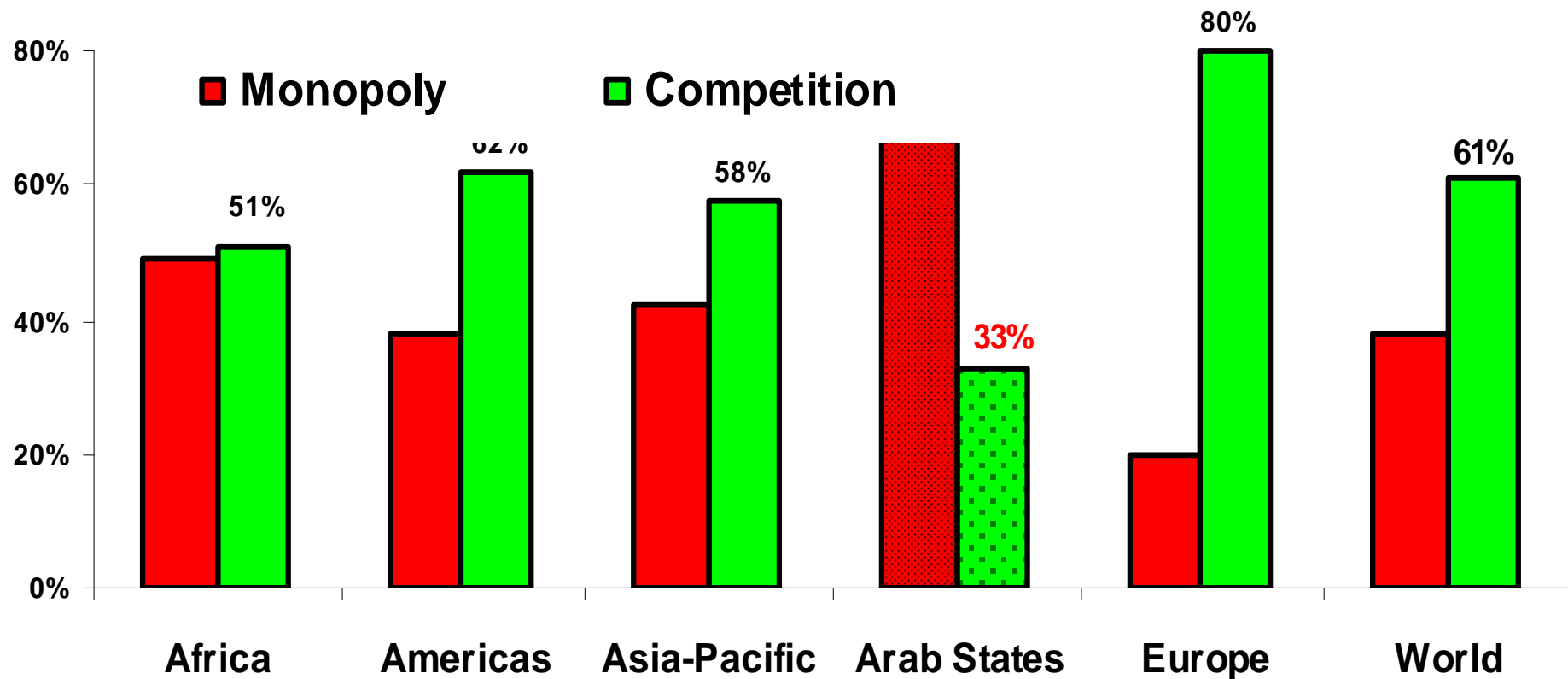
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# Competition - Basic Services

**Basic Services by Region, 2004**  
% of countries



(Source: ITU)





## VoIP Regulatory Framework – Arab States

- 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 Regulatory Framework – Algeria

- 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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## **Conclusion / Recommendations**



# 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**

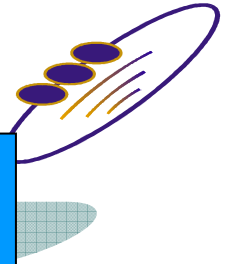




## Recommendations on VoIP Regulation

- ✓ 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 ?? .....**