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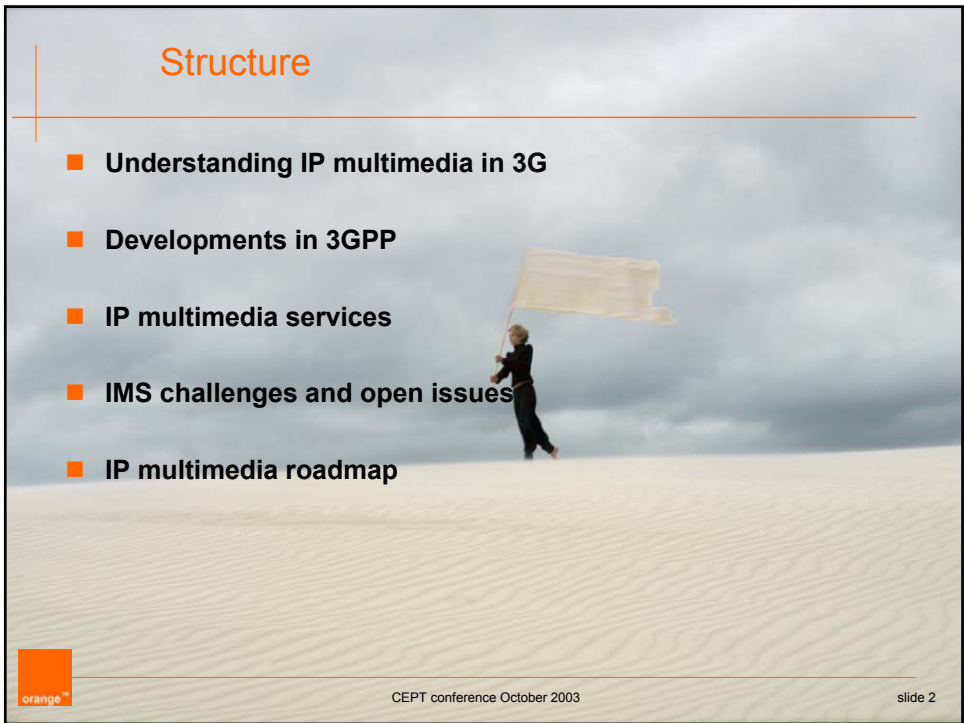
# IP multimedia in 3G

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**Orange**

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## Structure

- Understanding IP multimedia in 3G
- Developments in 3GPP
- IP multimedia services
- IMS challenges and open issues
- IP multimedia roadmap



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## Understanding IP multimedia in 3G

### Third generation mobile networks...

- provide the capability to **support high bit rates**
- allowing them to **compete with fixed Internet connectivity**

### The fixed Internet provides **high speed connectivity**....

....so can the **mobile operator** just provide **Internet access**  
in order to support **IP multimedia**?

The answer to this is **NO!**

### **IP multimedia in 3G is all about network services**

lets take a look at the different models...



## IP multimedia in 3G – Internet vs mobile model

- Internet is “**client – server**” model, e.g. for data access
  - “intelligence” is in the end points
  - limited services
- Mobile is “**user – network – user**” model, e.g. voice
  - users “mix ‘n match” - crashes, lack of interoperability, no support
  - network operator provides...
    - a range of easy to use services
    - manages call establishment
    - supports the user in the event of problems
- **Mobile operator** needs to **exercise control** in order to...
  - ensure revenue, prevent fraud, ensure efficient spectrum usage
  - provide quality, help the subscriber



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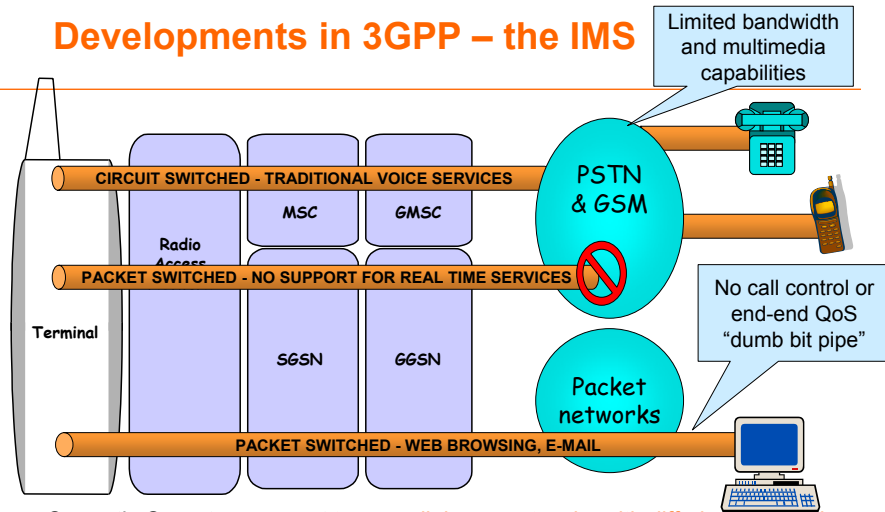
## Developments in 3GPP

- **3GPP** is responsible for 3G standardisation development
- **IP Multimedia Subsystem (IMS)** is the key to 3G multimedia
  - IMS adds **call (session) control** to packet network (GPRS)
  - real time services can be supported over the packet domain
  - built upon Internet protocols (e.g. SIP - session initiation protocol)



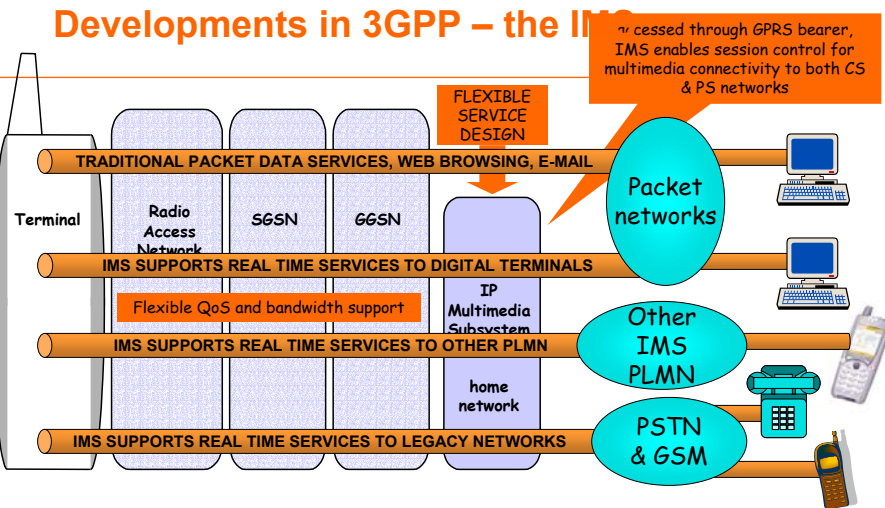
- **Lets take a look at the IMS architecture**

## Developments in 3GPP – the IMS



Currently Operators support **two parallel core networks with differing capabilities**  
 Circuit switched network provides **voice calls & services**, limited multimedia capability  
 Packet network provides flexible bandwidth for **data & multimedia**, no session control  
**IP Multimedia Subsystem adds real time multimedia and session control to GPRS**

## Developments in 3GPP – the IMS



IMS adds **call/session control to GPRS** with **flexible bandwidth support** for multimedia  
 Support of **interworking with PSTN** could remove need for circuit switched networks  
 Services are always provided under **Home Network Control** to roaming users  
**Flexible service provision capabilities, open interfaces, rapid service creation**

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## IP multimedia services

- **Voice calls, video calls, multimedia sessions**
  - Conference calls, streaming content, presence
  - Video messaging , instant messaging
  - Push services, white-boarding, shared content
  - Web browsing, file download, background download
- **Flexible charging models**
  - Pay for **service** – connectivity – QoS – time – destination - volume
  - Pay for **content** – pictures- images – news – books -
- **But the “killer application” is...**
  - ....(to be determined)



## IP multimedia services – presence / PTT

- Presence is an **enabler** for
  - instant messaging, push to talk (PTT)
  - maps readily onto **IMS architecture**, using SIP/SIMPLE protocols
- Provides **visibility** of user's status to others
  - connection status, availability, contact means, location, etc
  - subject to user and operator specified **privacy**
- Push-to-Talk (PTT)
  - Voice over IP service (voice over GPRS)
  - always connected capability allows **group calling**
  - very popular in **United States**



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## IMS challenges and open issues

- IMS is **IPv6** based due to greater address capabilities
  - but need to **interwork** with legacy **IPv4** networks and services
  - avoid multiple interworking scenarios and costly migration
- need to **interconnect** IMS with other networks
  - other **IMS networks** on other mobile operator networks
  - established **circuit switched** networks (mobile and fixed)
  - the **Internet** – voice, multimedia, messaging services

### inter-access mobility

- support for **seamless** mobility between GPRS, WLAN etc



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## IMS challenges and open issues

- support of **emergency calls** from IMS
  - **roaming solutions** needed when control is in the home network
- **secure** access (USIM / ISIM based)
  - **secure** authentication of user, enables micro charging etc
  - maintain **security and integrity** for which mobile networks are known
- **legal intercept**
  - compliance with **regional regulatory requirements**
  - **control** may be in one network, but **content** routed in another



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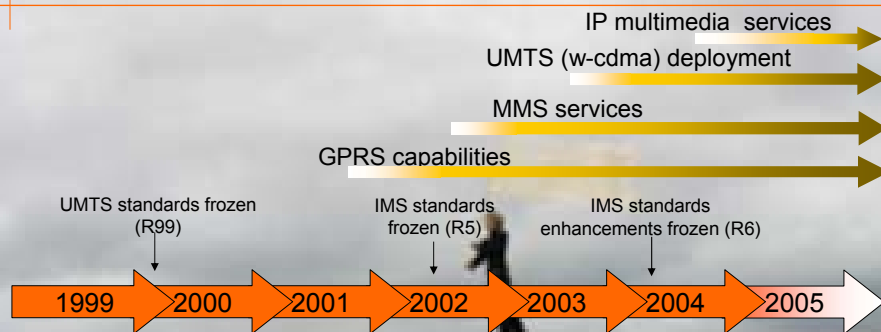
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## IP multimedia roadmap



- deployment of 3G capabilities was dependent on complex new technologies from limited vendor base and requiring significant infrastructure upgrades to the access network
- IP multimedia components are available from multiple vendors in telecommunications and Internet space and can be deployed rapidly in the core network
- multimedia services can be developed by operators and third parties; as a result we should see IP multimedia services emerging more rapidly than initial 3G roll-out



## In summary...

- **3G** provides increased **bandwidth**, but this needs to be supplemented by **network services** to provide an **enhanced** user experience
- **Operator** needs to be in **control** of services to deliver **personalised services** and applications **wherever** you are and **whoever** you are
- The **3GPP IMS** provides the **flexibility** for operators to **rapidly** develop these services providing the **quality** that the **user** requires in an **efficient and cost effective** manner



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## IP multimedia in 3G – the network role

- “The **network** itself – rather than the device – can be used to deliver services and applications. The network knows how you have personalised your device. It knows **where** you are, **who** you are and **what** you do. It enables us to deliver a more consistent seamless customer experience.”

[Sol Trujillo, Orange CEO, June 2003]



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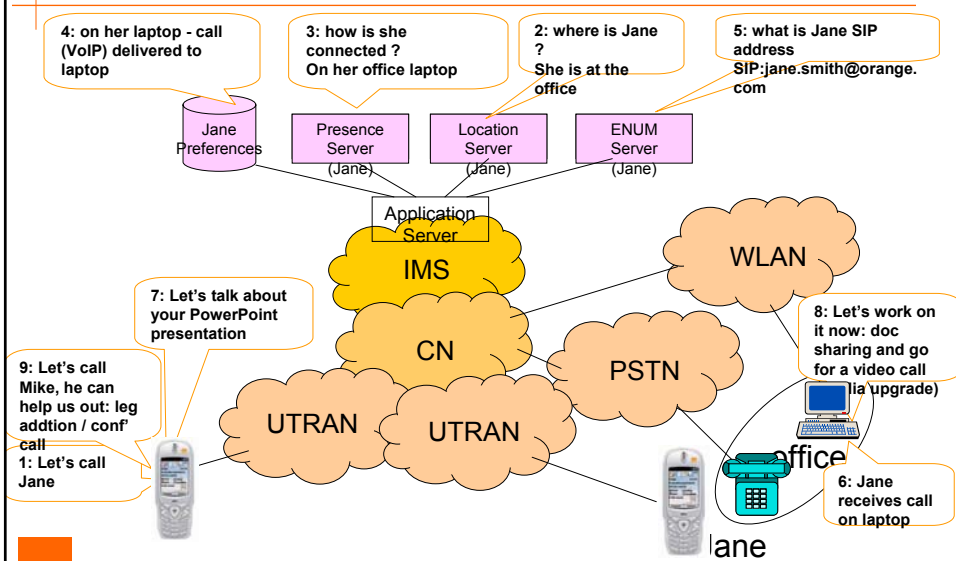
thanks

the future's bright...  
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## IP multimedia services – example



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