

Madrid 2002 Global IPv6 Summit

IP Multimedia in 3G Mobile Networks



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Agenda

- ☑ **Introduction**
 - ★ Trends and drivers
- ☑ **IP Multimedia services in 3G**
 - ★ Real time conversational multimedia
 - ★ Business opportunities
 - ★ Long term evolution
 - ★ Network infrastructure
- ☑ **Ericsson and IPv6**
- ☑ **Conclusions**

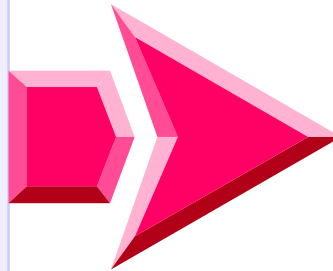
456X89/ght 8G(67)



New network scenario

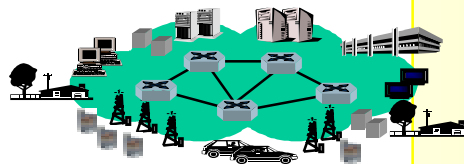
✓ PC-era

- ★ End-users:
 - Humans
- ★ Terminals/appliances
 - PCs
- ★ Apps:
 - Best Effort, Batch, Client/Server based
- ★ IP-based networks:
 - Internet/Intranets



✓ Post PC-era

- ★ End-users:
 - Humans & Machines
- ★ Terminals/appliances:
 - Wireless PCs, PDAs, ...
 - Wireless devices in machines, vehicles, appliances, infrastructure, ...
- ★ Apps:
 - Real Time, QoS, Security
 - Client/Server
 - Peer-to-Peer
 - Many-to-Many
 - Push,...
- ★ IP-based networks:
 - Internet/Intranets
 - Home networks
 - Signaling, radio access, PSTN/ISDN and legacy networks services over IP,...



Future Mobility trends

☑ **An operator's Mobile Network**

- ★ Thousands of routers and millions of users
- ★ Different access technologies over Multi-service networks
- ★ Multimedia over the air
- ★ VPNs for enterprises
- ★ Scalable and Secure Networks

☑ **Mobile Internet**

- ★ Always on Always connected
- ★ IP stacks in embedded devices
- ★ Real time applications (Audio and Video)
- ★ High QoS and reliability
- ★ Easy deployment of new services
- ★ Less maintenance cost => cheaper services
- ★ Seamless Mobility

Drivers for IPv6 in Mobile Networks

Increased address space

**Hierarchical
addressing**

Auto configuration

Built-in Mobility

Future proof design

**Extended multicast/
anycast support**

Scalability

Multihoming

Built-in security

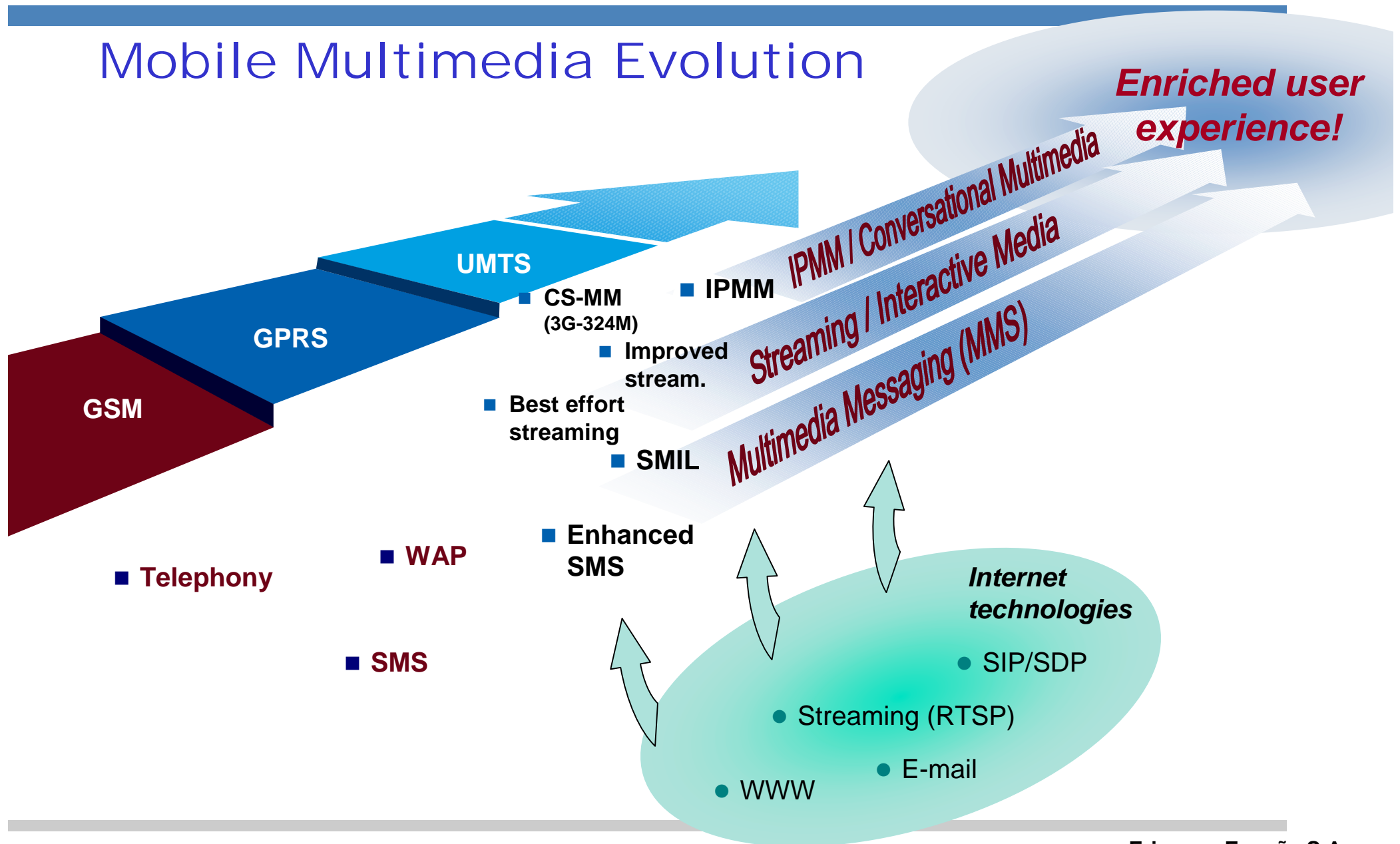
**Designed for efficient
implementation in silicon**

Flow identification

**Defined transition
mechanisms/tools**



Mobile Multimedia Evolution



IP Multimedia services in 3G

☑ **SIP for end to end**

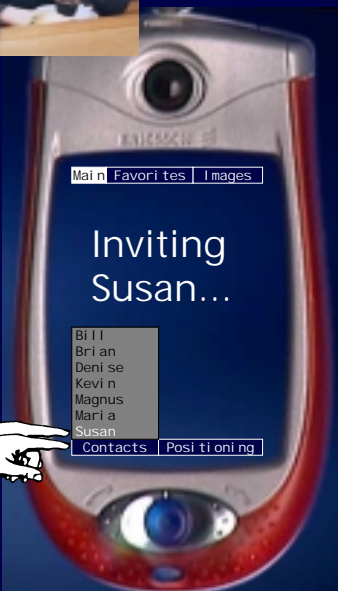
- ★ **Conversational Multimedia**
- ★ **Video streaming**
- ★ **Web/WAP browsing**
- ★ **M-commerce**
- ★ **Image (instant message)**
- ★ **Mobile positioning**
- ★ ...



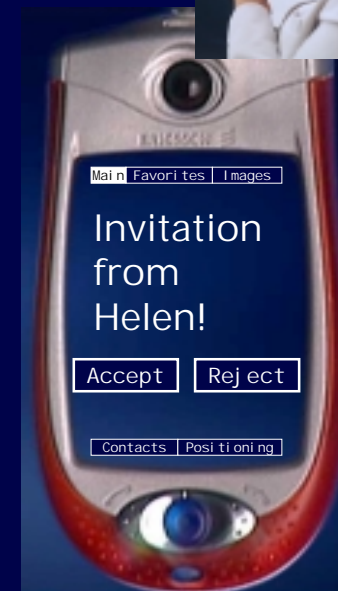
IP Multimedia services in 3G



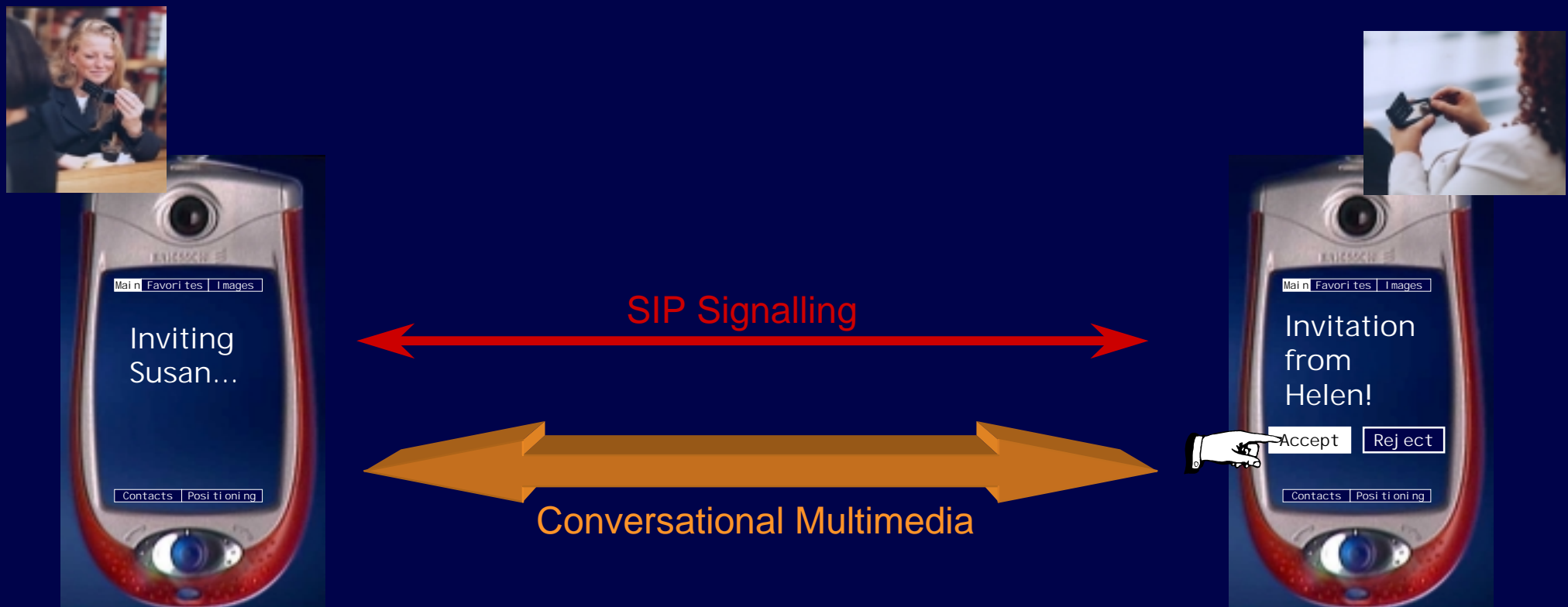
IP Multimedia services in 3G



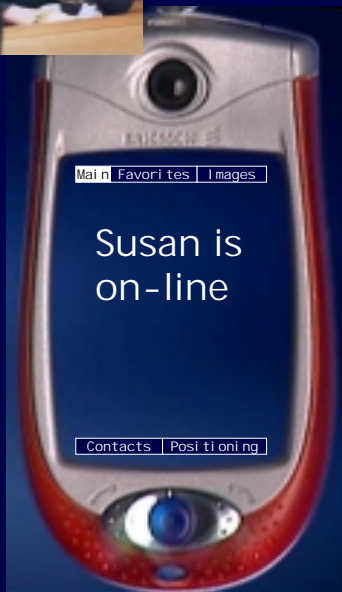
SIP Signalling



IP Multimedia services in 3G

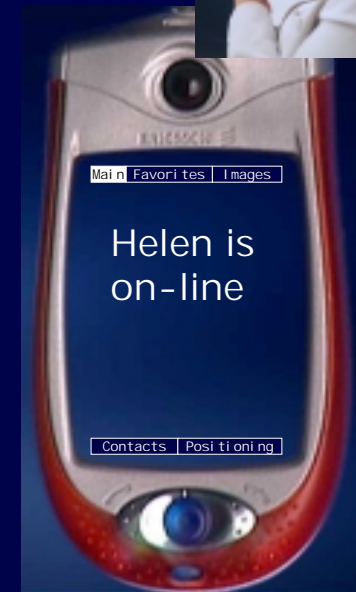


Shall we meet tonight?



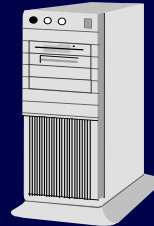
Susan here

Yes, why not?
How about a movie?



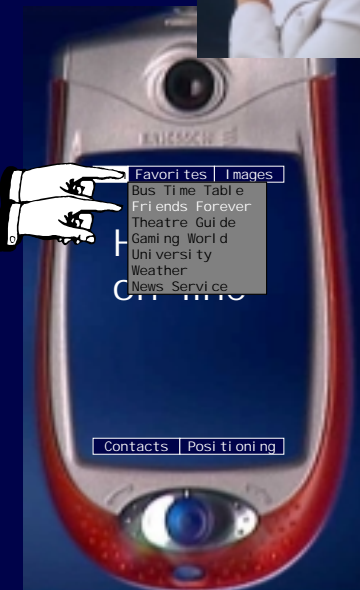
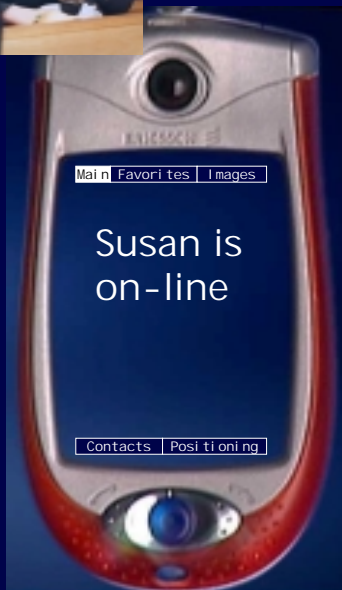
Conversational Multimedia

Video server
(anywhere at Internet)



Any idea of
what to see?

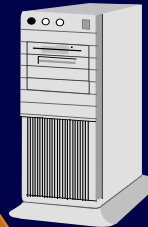
There it is!
I'll send it over!



URL to video server

Conversational Multimedia

Video server
(anywhere at Internet)



Start video (RTSP)

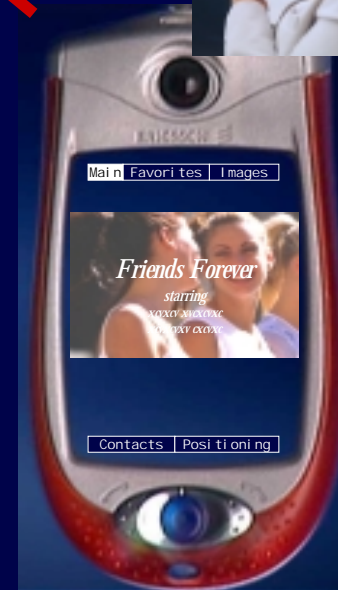
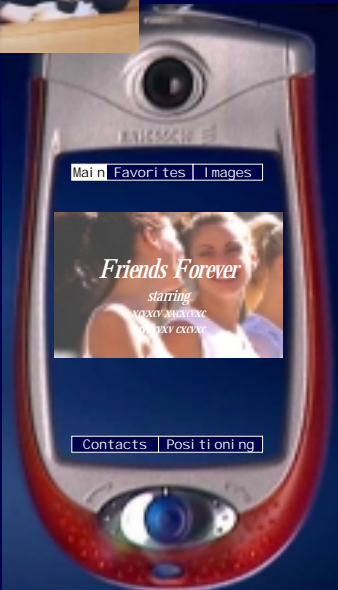
Start video (RTSP)

Streaming Video

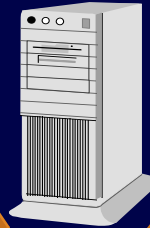
Streaming Video

URL to video server

Conversational Multimedia



Video server
(anywhere at Internet)



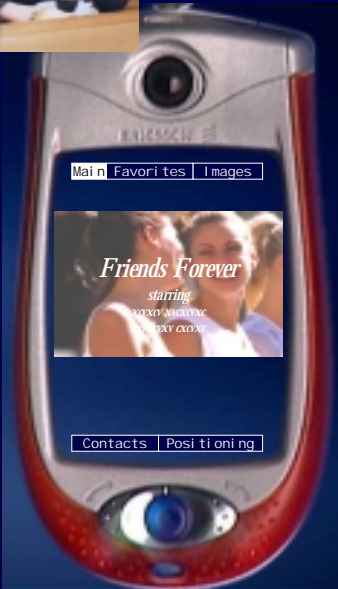
Do you know where
we can see it?

No, I haven't
checked that

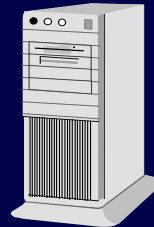
Streaming Video

Streaming Video

Conversational Multimedia



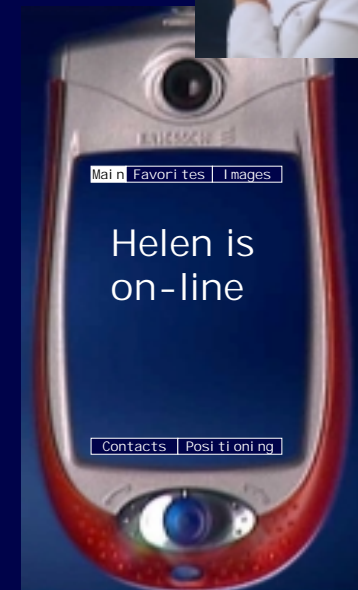
Theatre Guide server (web server)



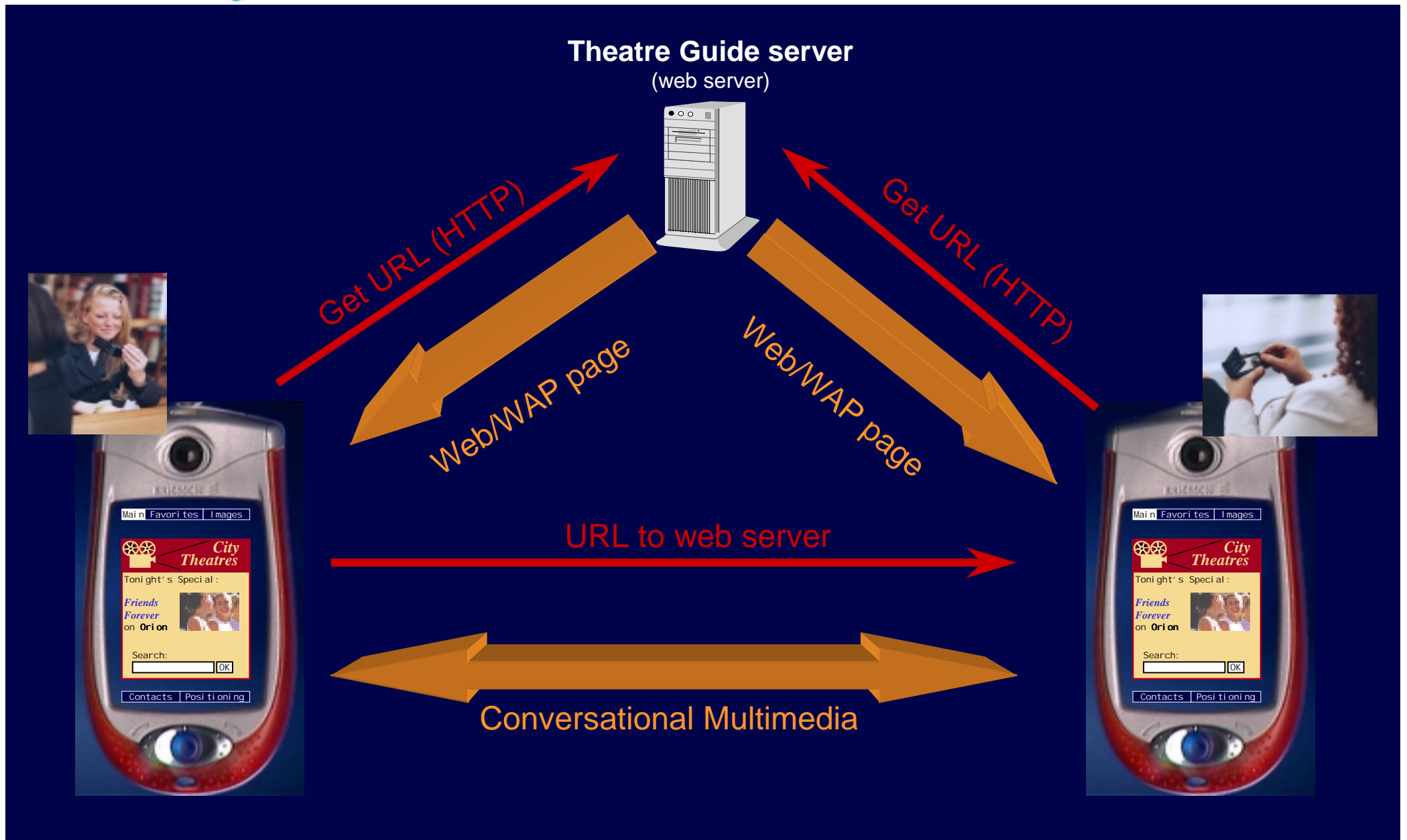
Let's have a look in the Theatre Guide then...



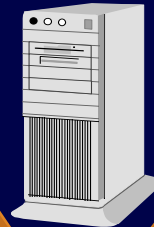
URL to web server



Conversational Multimedia



Theatre Guide server
(web server)



Get URL (HTTP)

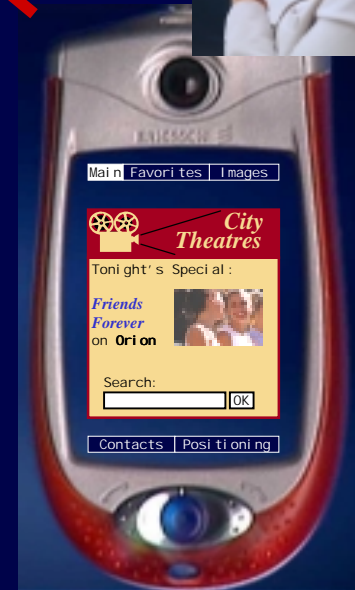
Get URL (HTTP)

Helen and Susan find out that "Friends Forever" is on the Orion theatre.

They book two tickets and pay through their phones...

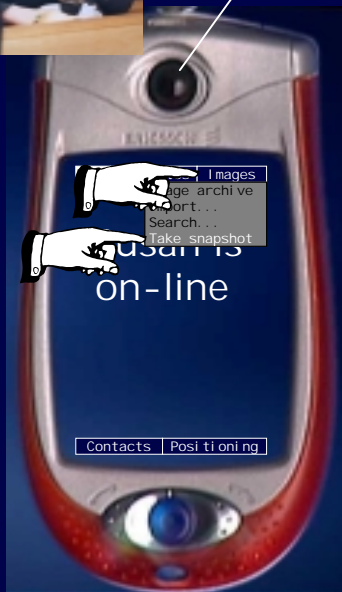
Let's skip the details and continue!

Conversational Multimedia

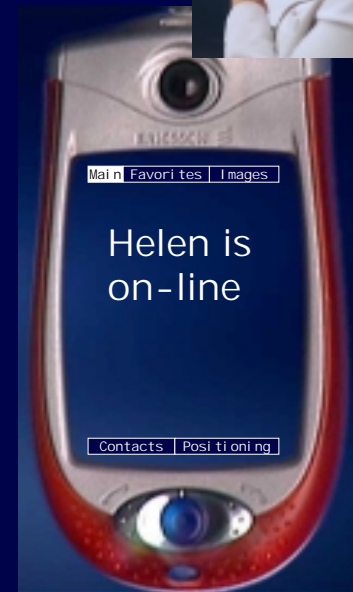


No, I've got a better idea:
Yes, I'll show you... this nice
ground!

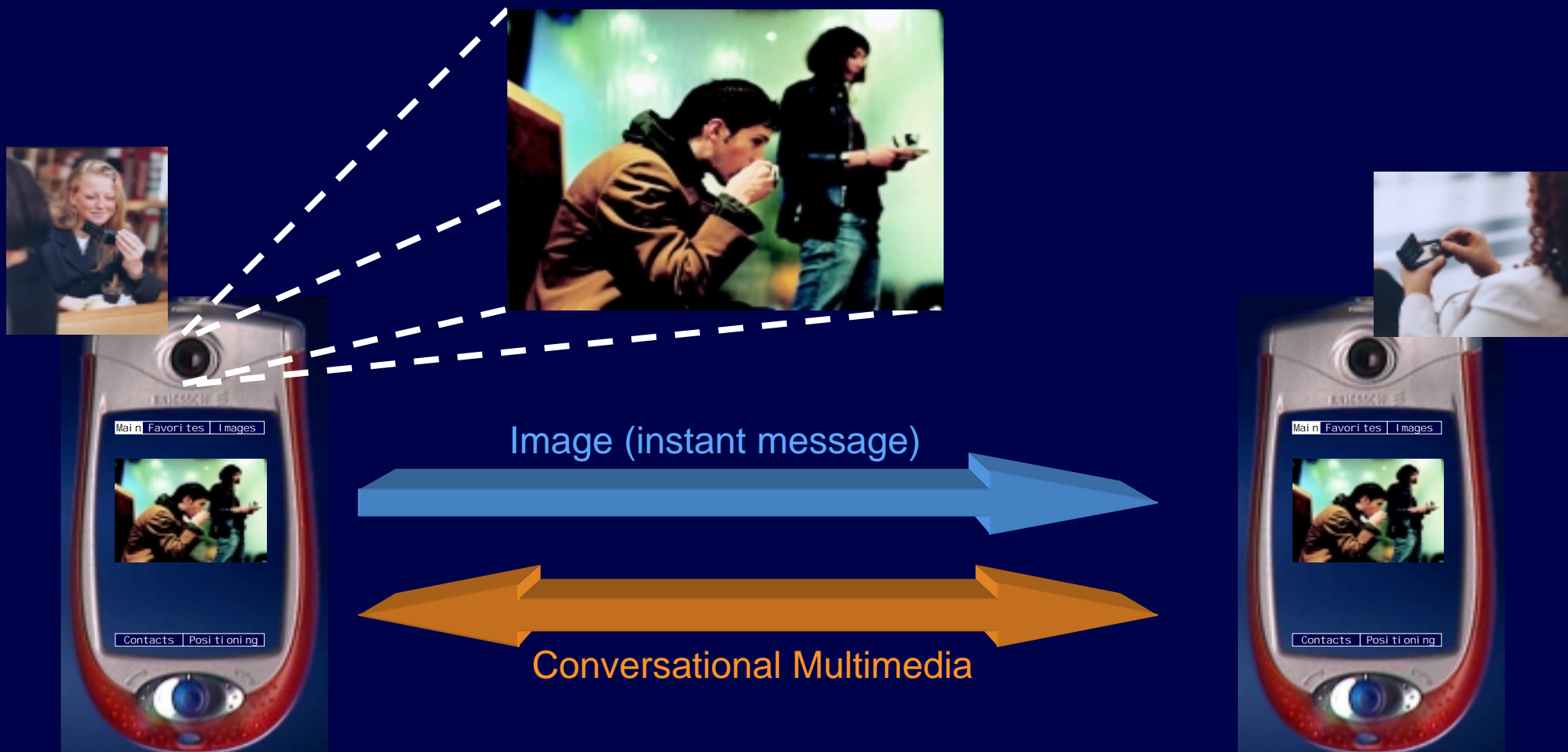
Built-in camera



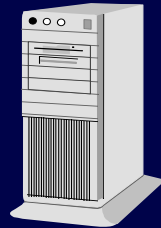
Shall we meet
outside Orion then?



Conversational Multimedia



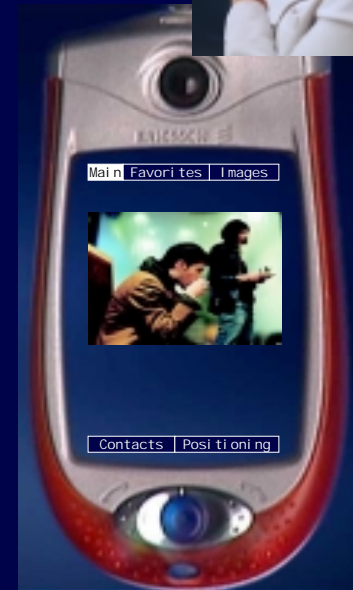
Positioning
system



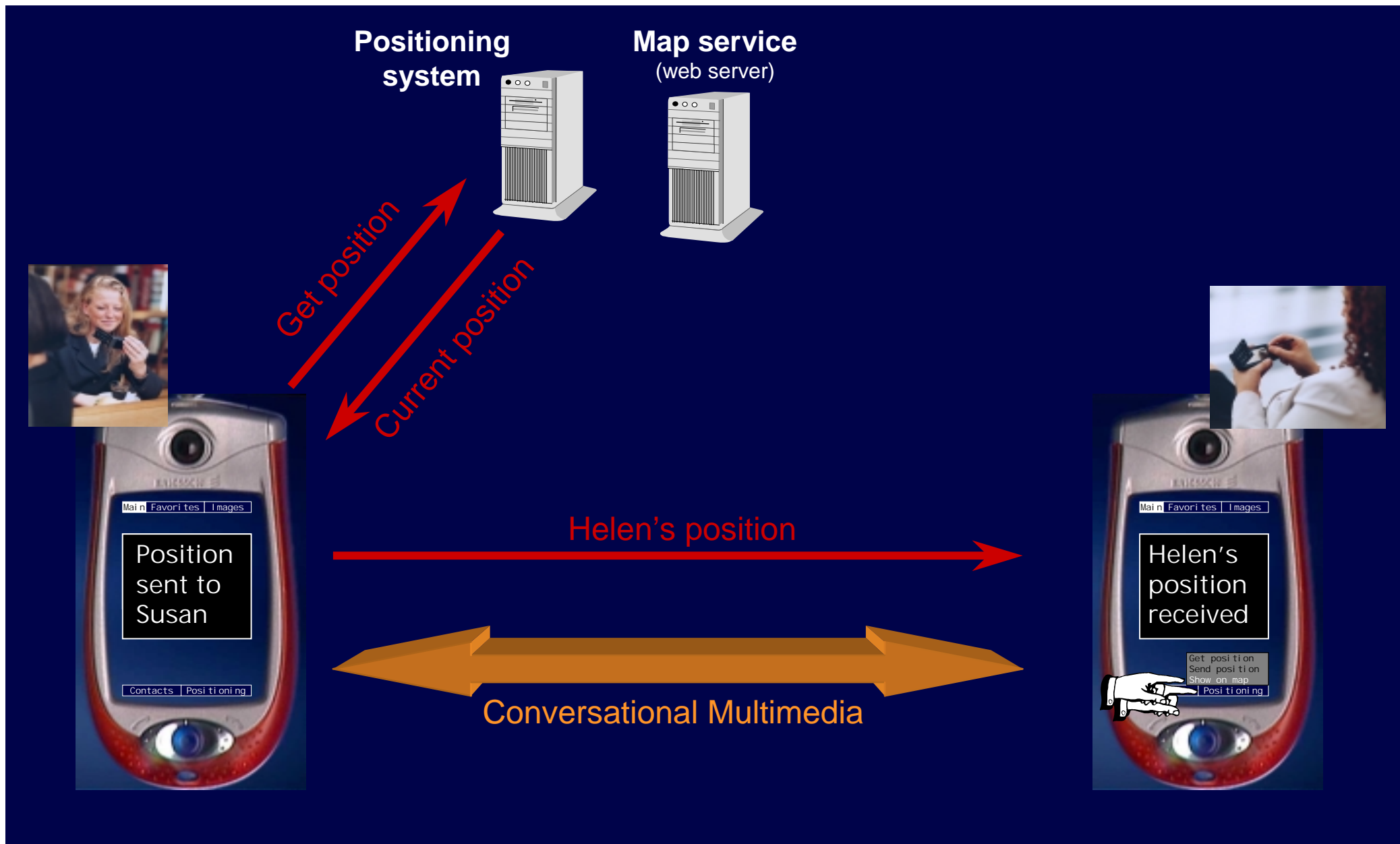
I'll send you my
position then.



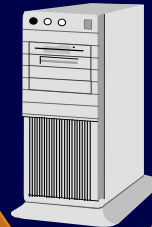
That's OK!
I'll come over, but you
must help me to
find it!



Conversational Multimedia



Map service (web server)



Get URL (HTTP)

Get URL (HTTP)

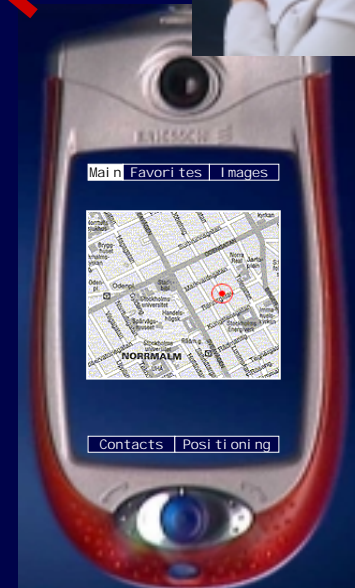
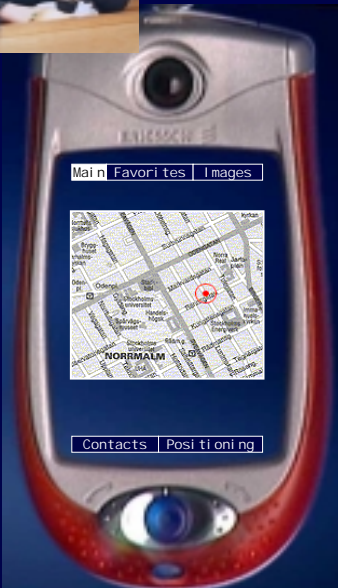
Web/WAP page

Web/WAP page

URL to map service

(Helen's position sent as parameter)

Conversational Multimedia

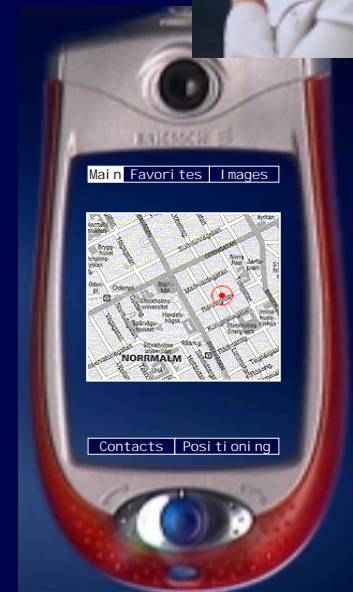


See you then!
Bye for now!



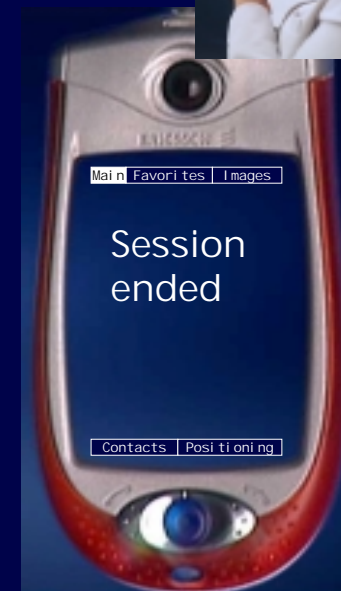
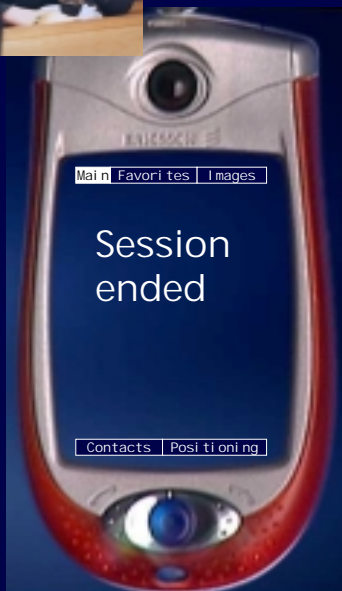
Good, it's just a few
blocks from here.

See you! Bye!



SIP Signalling

Conversational Multimedia



IPMM – A part of Mobile Internet

- ☑ **Leverage on the unique characteristics of the mobile network:**

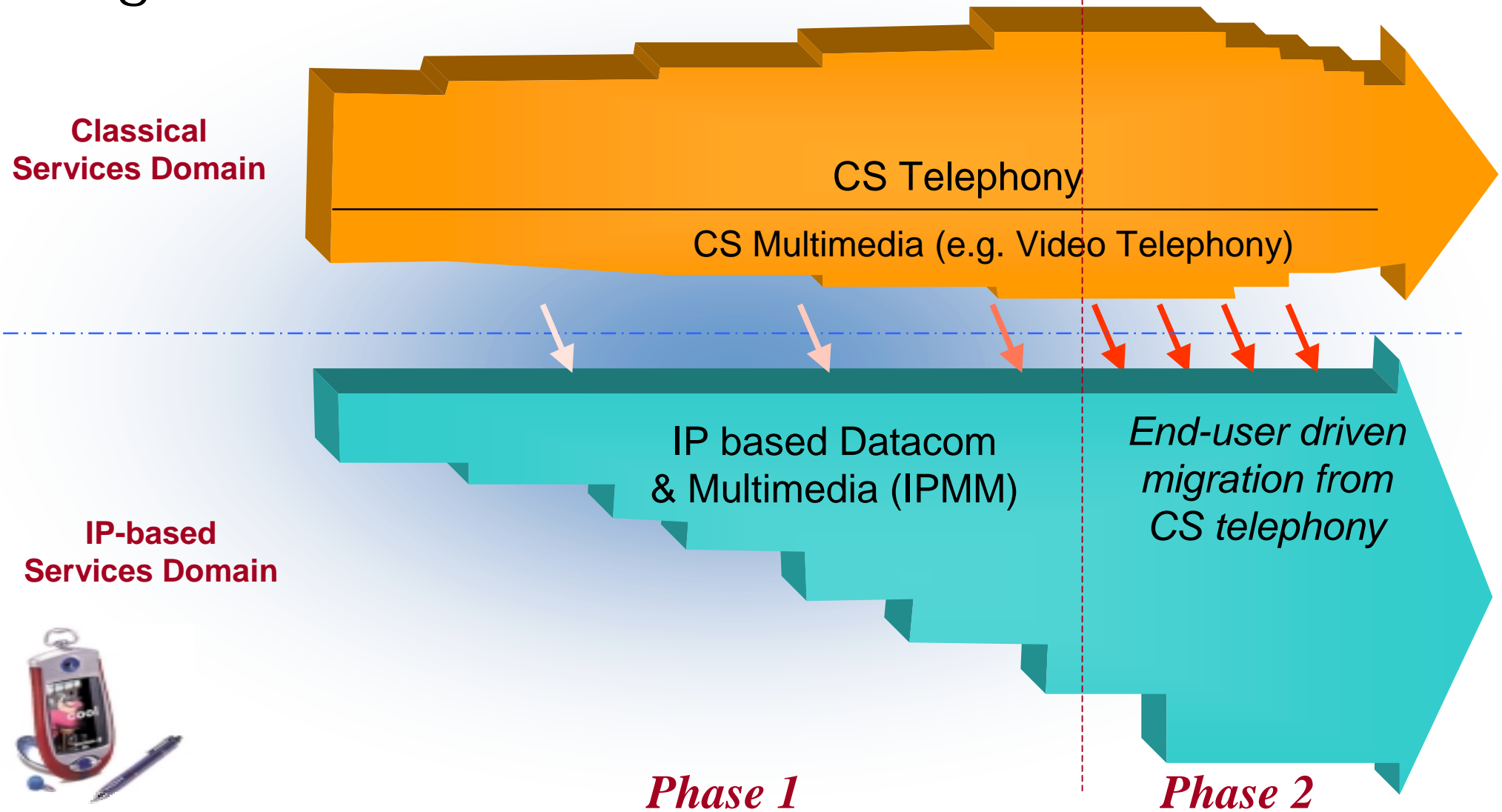
- ★ Always with you
- ★ Always on
- ★ Personal

- ☑ **Multimedia will enable new services**

- ☑ **Enrich the experience of existing ones!**



Long-Term Evolution



IP Multimedia

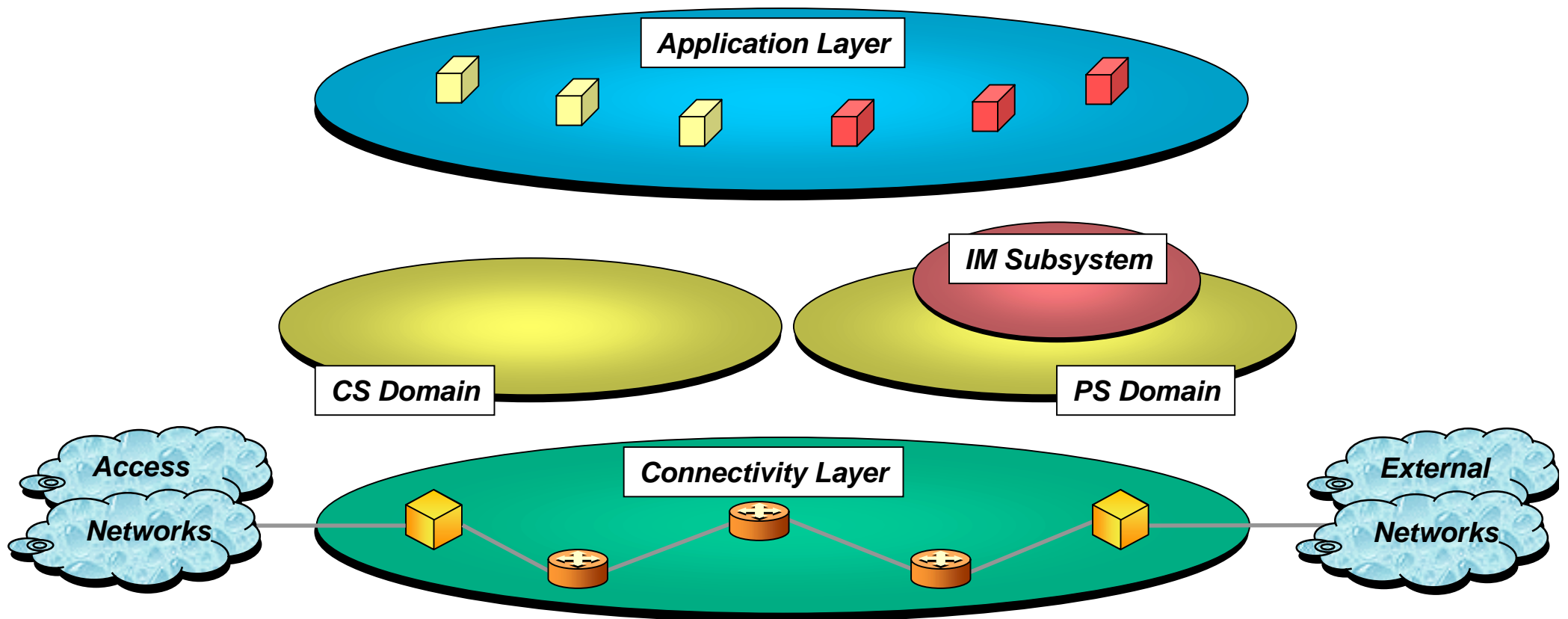
☑ **IPMM Basics**

- ★ Session control for real-time, conversational, multimedia
- ★ Builds on 3G PS domain (GSN)
- ★ Definition is on-going in 3GPP with IPv6 as the only option defined

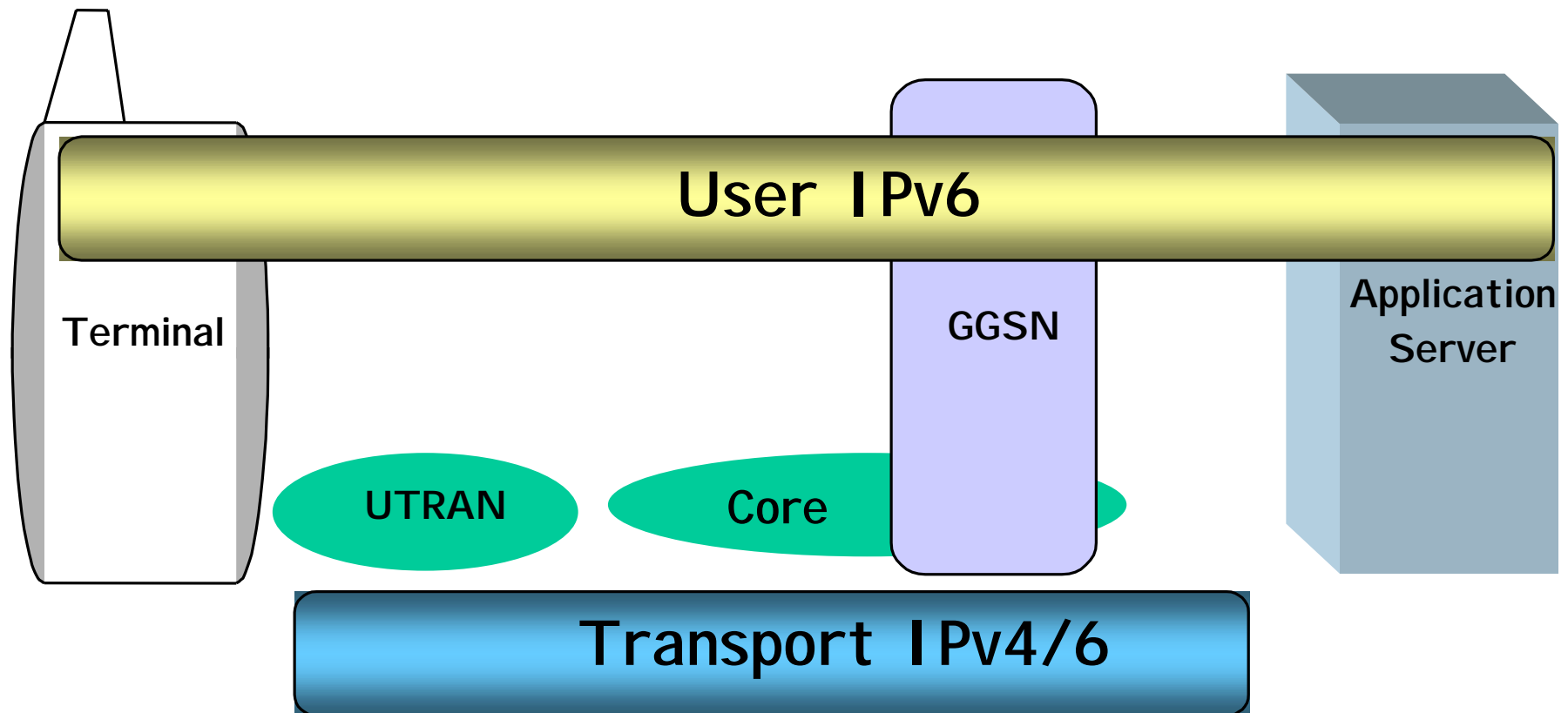
☑ **Some Characteristics**

- ★ Allows integration of IP-based media into sessions
- ★ Provides hooks for charging, QoS control, security, ...
- ★ 3GPP architecture, IETF protocols (SIP/SDP)
- ★ Open service creation environment

IP Multimedia Subsystem (IMS)



IPv6 in UMTS



Ericsson promoting IPv6

- ☑ **Initiator and Founding member of the IPv6 forum**
- ☑ **Supports IPv6 statement of 3GPP**
- ☑ **Ericsson's standardisation efforts**
 - ★ Ericsson contributes 40 % of UMTS standards
 - ★ Leading cellular radio technology inventors
 - ★ Leadership shown in IETF: IPv6, MIPv6, Migration issues, SIP, Header Compression
 - ★ Several proposals to improve IPv6 performance over radio:
 - Header compression (ROCCO) => ROHC WG
 - UDP Lite for real time applications
 - ★ Driver in IPv6 standardisation in 3G systems



Ericsson promoting IPv6

- ✓ **Partnering with operators for field trials.**
- ✓ **Participation in several IPv6 Projects (6INIT, 6WINIT, Euro6IX)**
- ✓ **Products**
 - ★ World's first IPv6 router shipping since 1995.
 - ★ Joint Venture with Juniper Networks
 - ★ Mobile IPv6 Stack by ER
 - ★ IPv6 Real Time router
 - ★ Dual IPStack for Terminals being developed,
- ✓ **3G is different from today's Internet**
 - ★ Multi-service IP networks with stricter QoS requirements
 - ★ Reliability and scalability to much larger numbers of subscribers
 - ★ STRONG knowledge of 3G standards
 - ★ Careful Network Design

Conclusions

