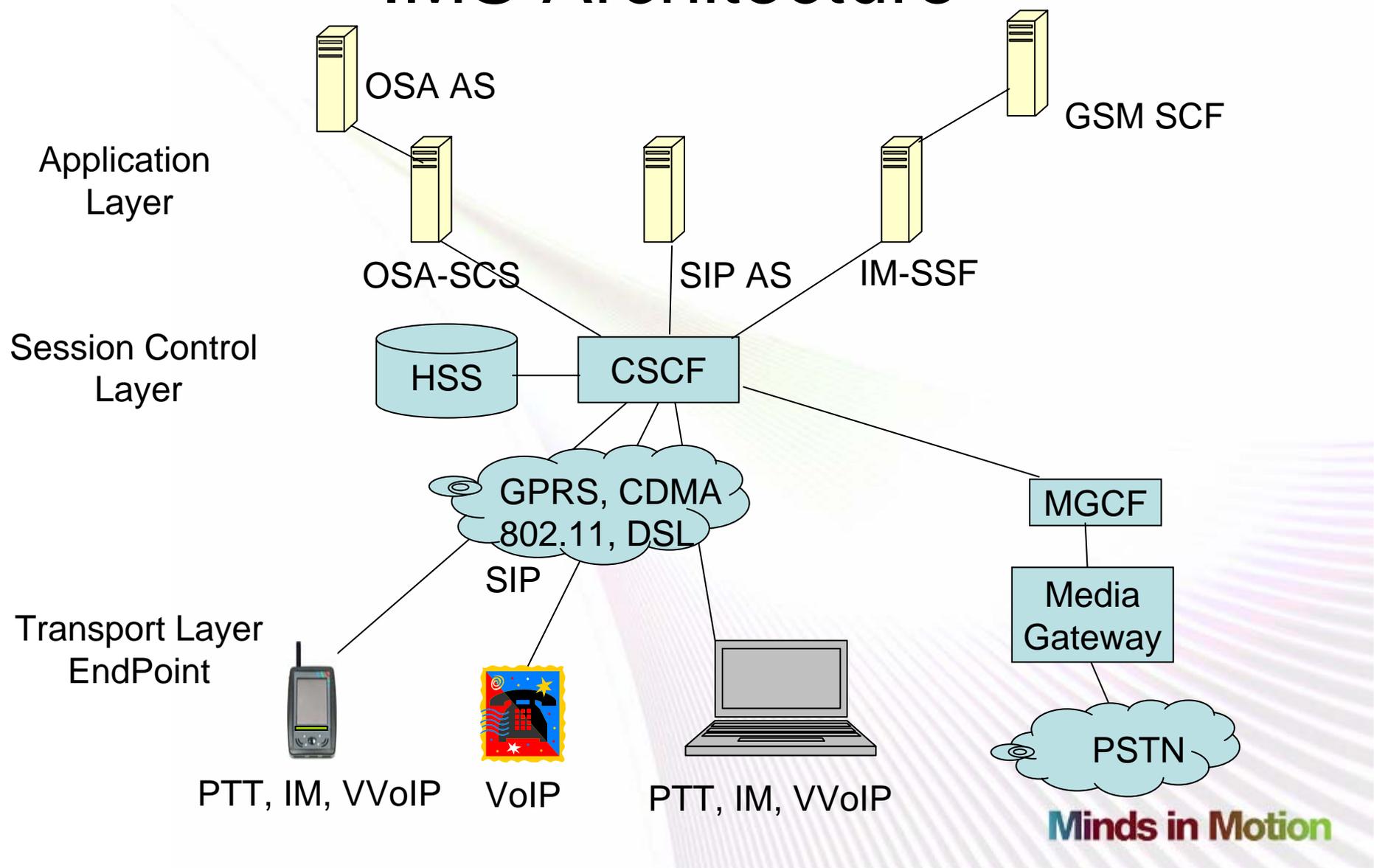


Design of a Handset for the IP Multimedia Subsystem A Case Study

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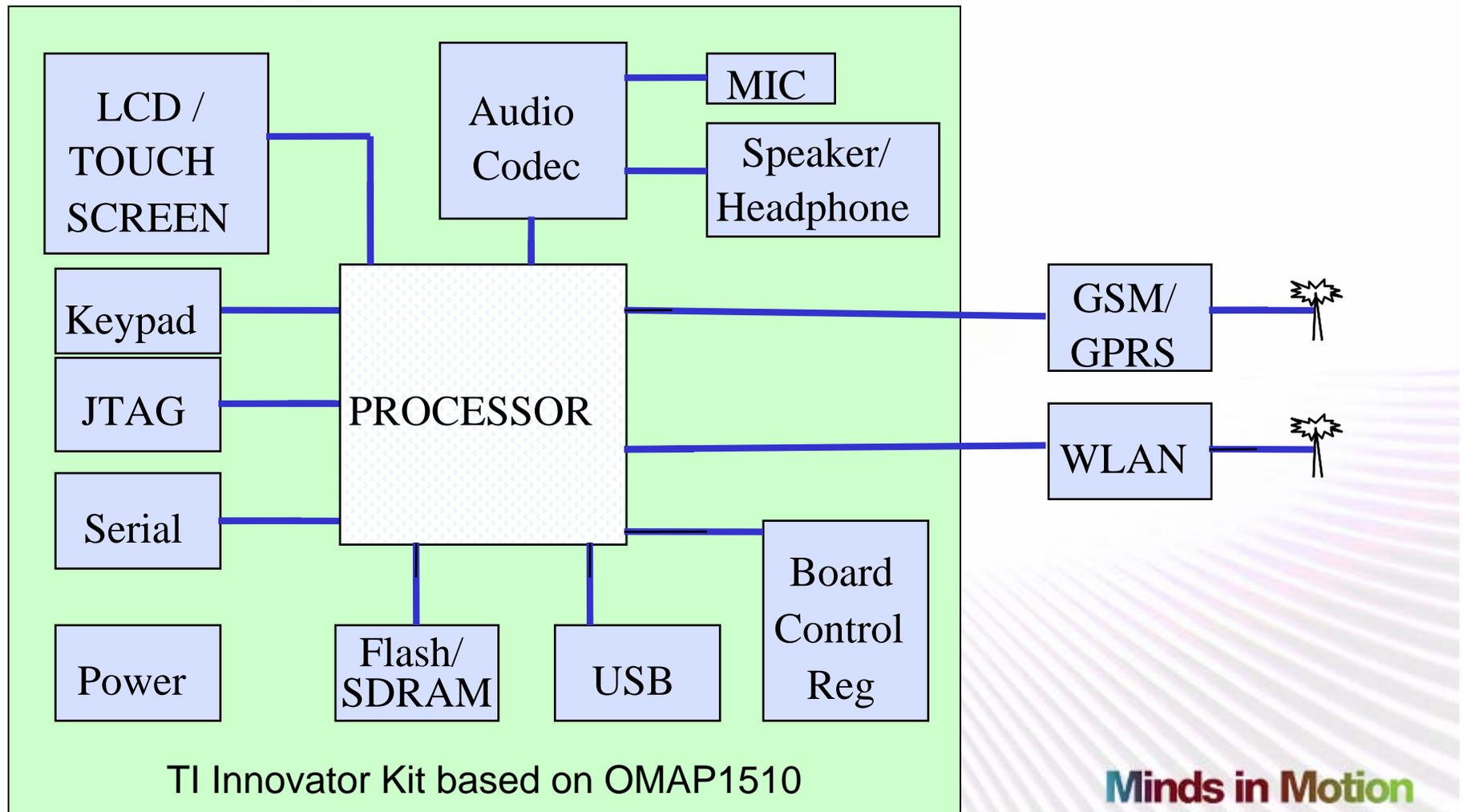


IMS Architecture

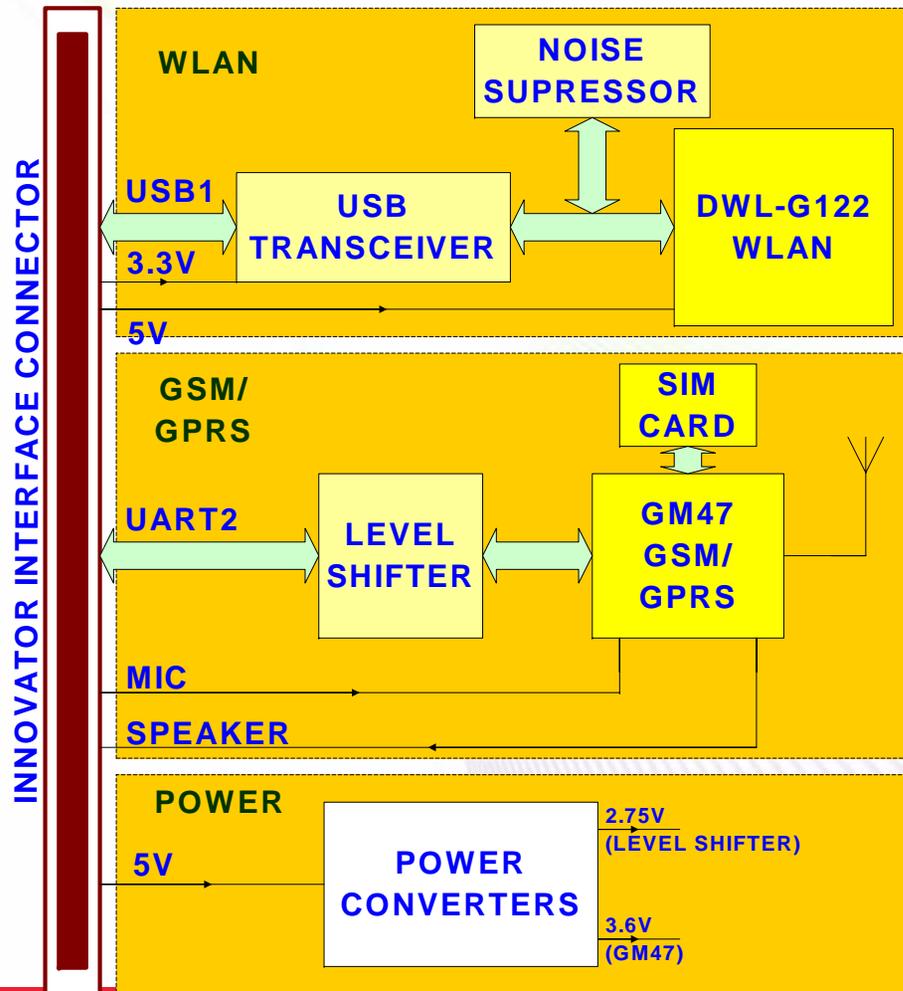


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Hardware Block Diagram

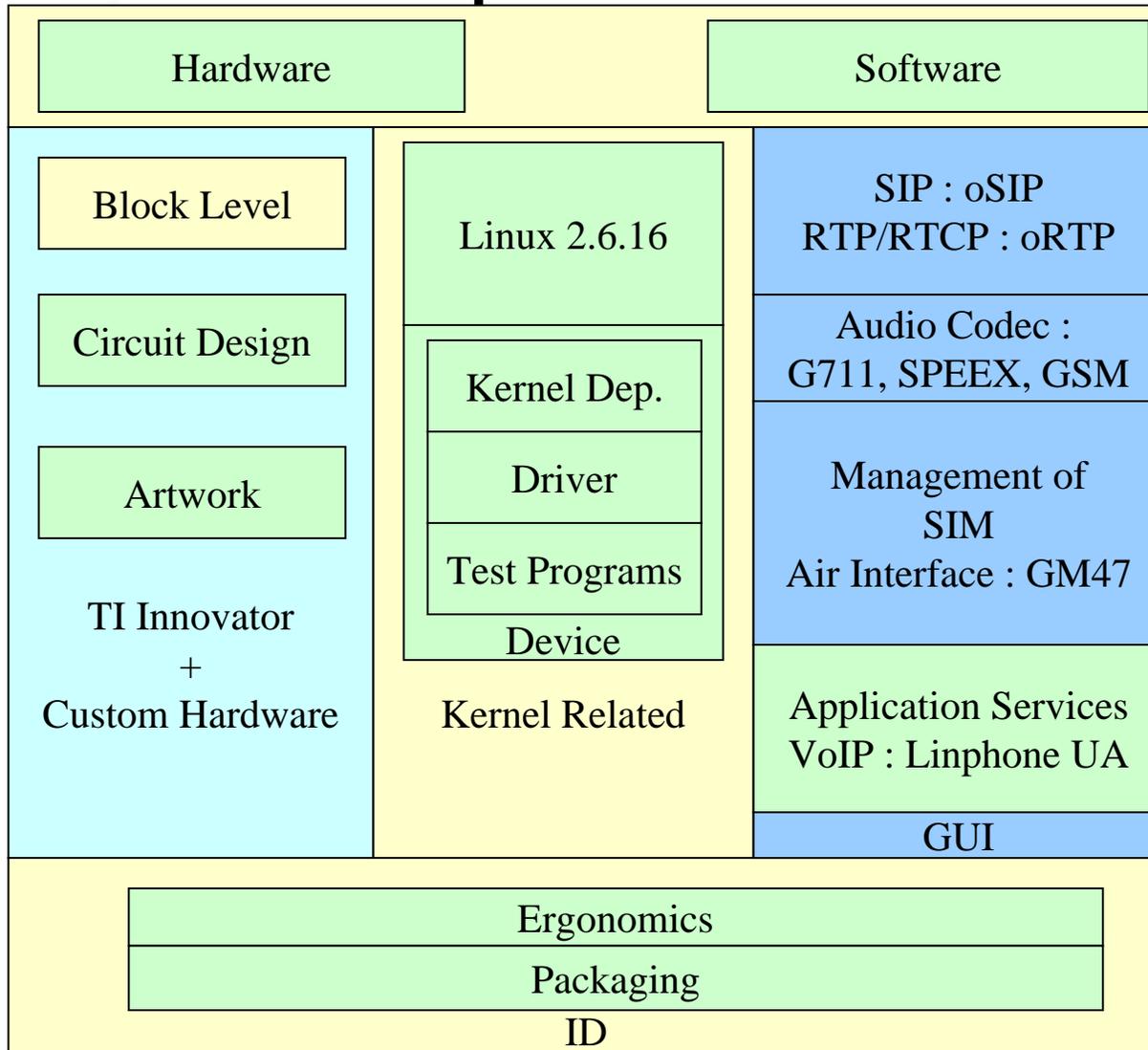


Customised Hardware Based on OMAP™ Innovator Kit



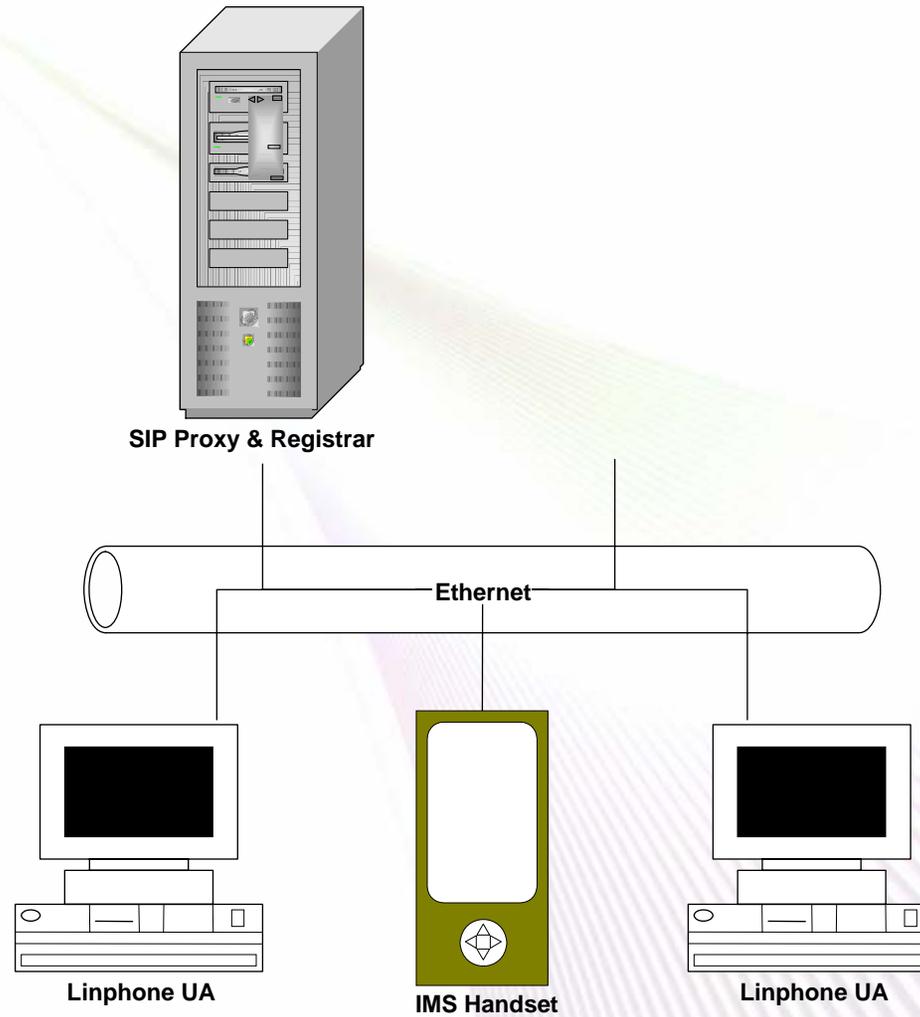
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Implementation



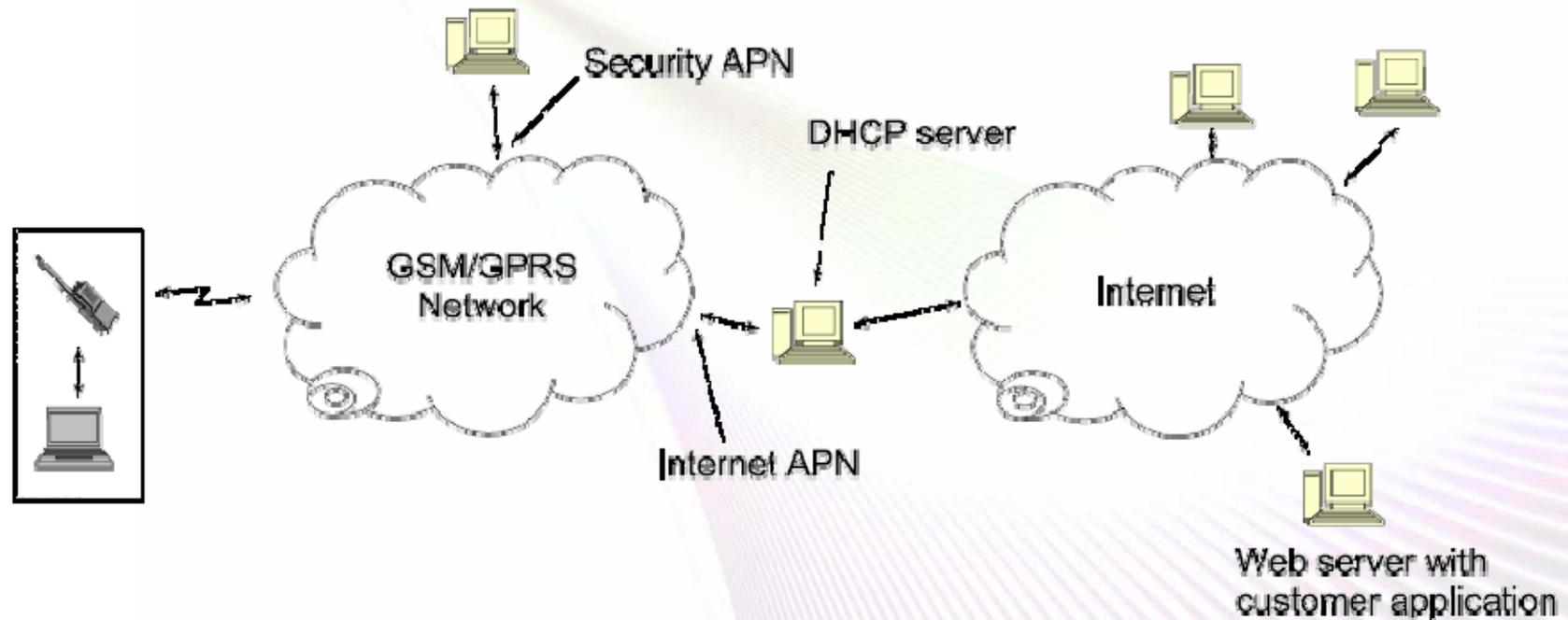
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Test Setup



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Test Setup



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Integrated Product



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Design of a Handset for the IP Multimedia Subsystem - A Case Study

James Selvam
ITTIAM Systems (Pvt) Ltd



Part 1: IMS

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Why IMS?

- Internet
 - Ease of service creation & provision
 - Open protocols & large professional talent
 - Wealth of information
- Cellular World
 - Service on the move
 - Popularity among common man
- IP Multimedia Subsystem
 - Good of both worlds

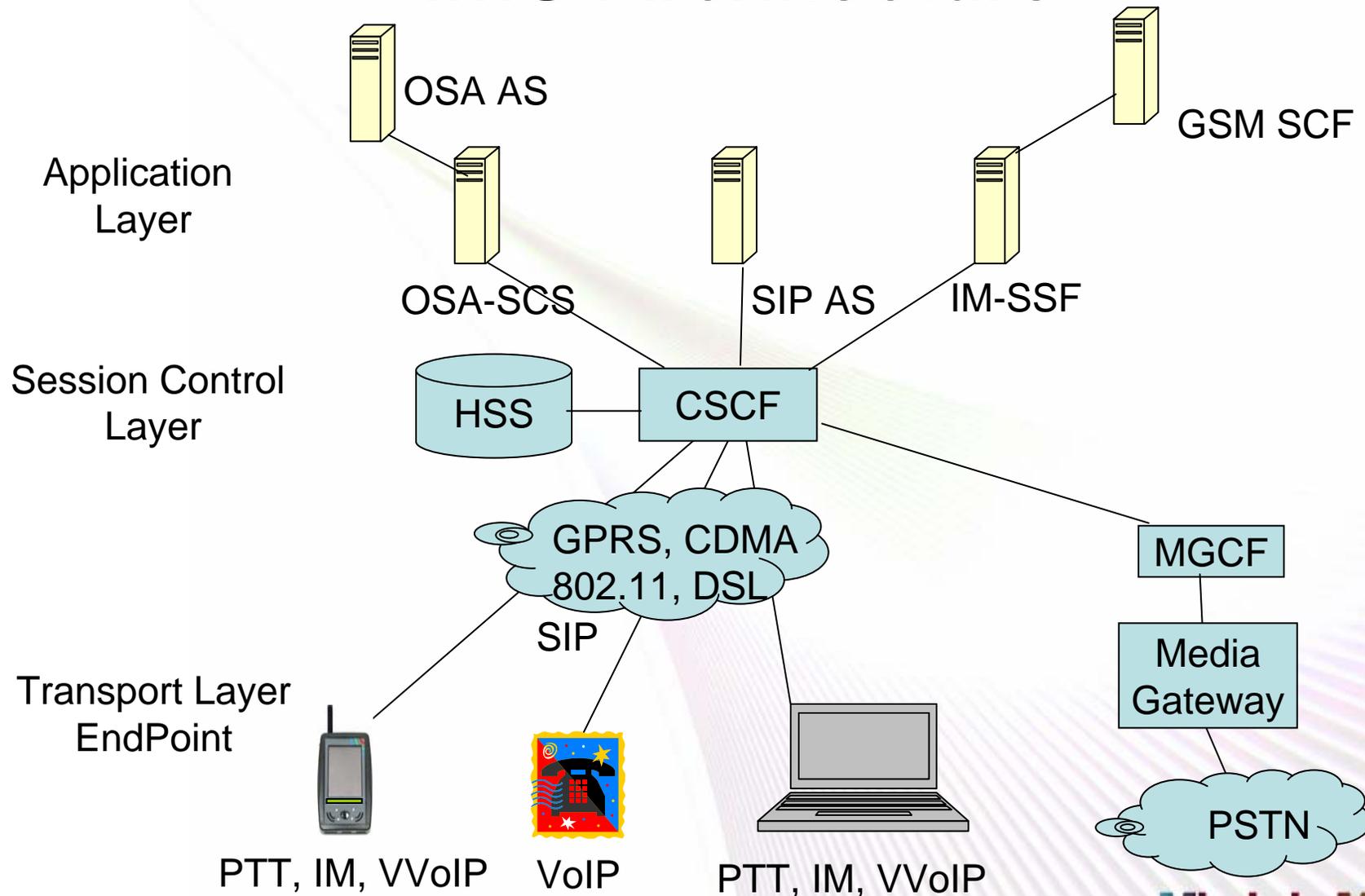
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IMS Framework

- 3GPP standards
- Architectural frame work for IP multimedia services to end users
- Framework supports
 - Establishing, maintaining and tear down of MM sessions
 - QoS aware
 - Packet and circuit switched interworking
 - Roaming
 - Service control
 - Rapid service creation
 - Access independence

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IMS Architecture



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Protocols Involved

- SIP : Session control
- Diameter : Authentication, Authorization and Accounting
- COPS : Transfer policies between PDP and PEP
- H.248 : MEdia GAteway COntrol (MEGACO)
- RTP & RTCP : Audio and Video streaming

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Part 2: IMS Handset

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IMS Handset - Hardware

–MM Processor

- DSP + Control

–Interfaces

- I2C, SPI, USB
- Serial, Ethernet

–Peripherals

- LCD, Touchscreen, Keypad, CODEC

–Air Interface

- GPRS/GSM
- CDMA
- WLAN

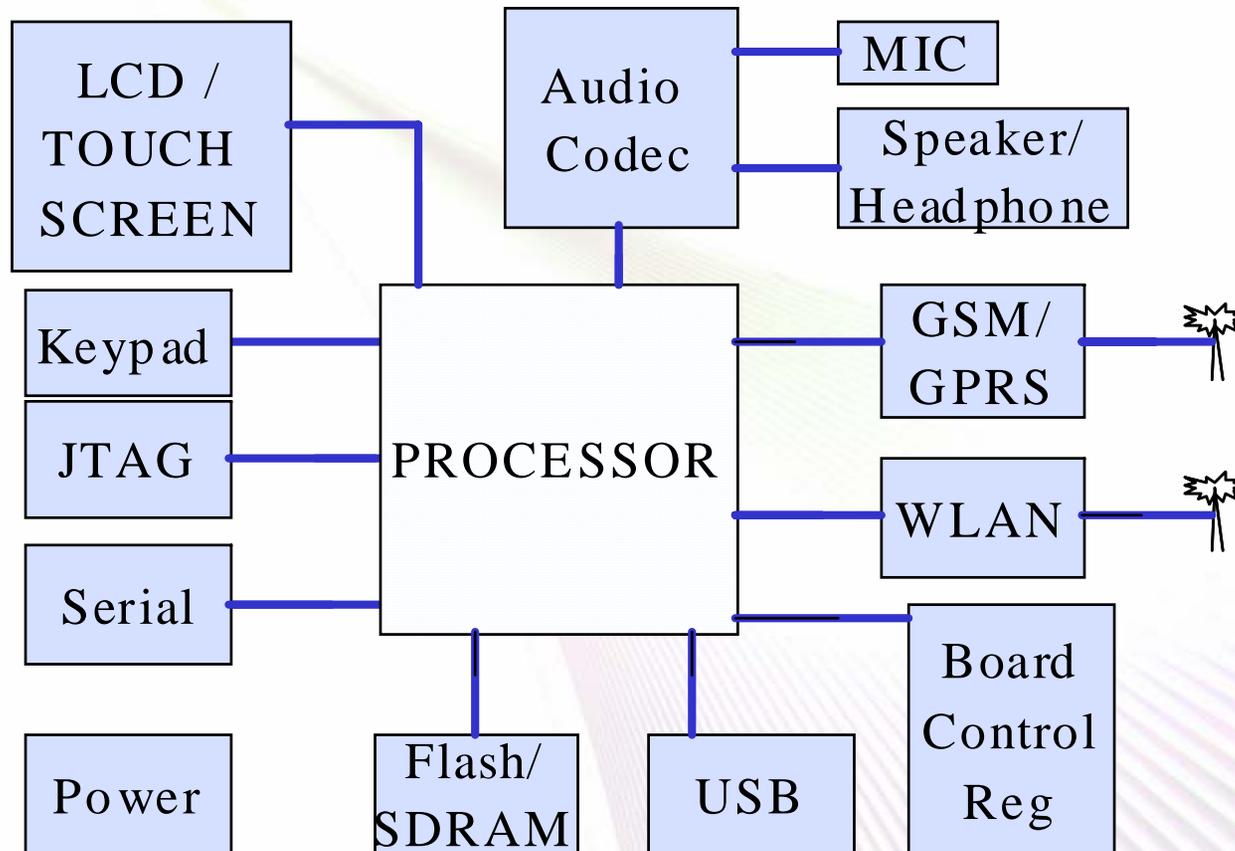
–Power Management

–Video/Audio

–SIM/USIM/ISIM

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Hardware Block Diagram



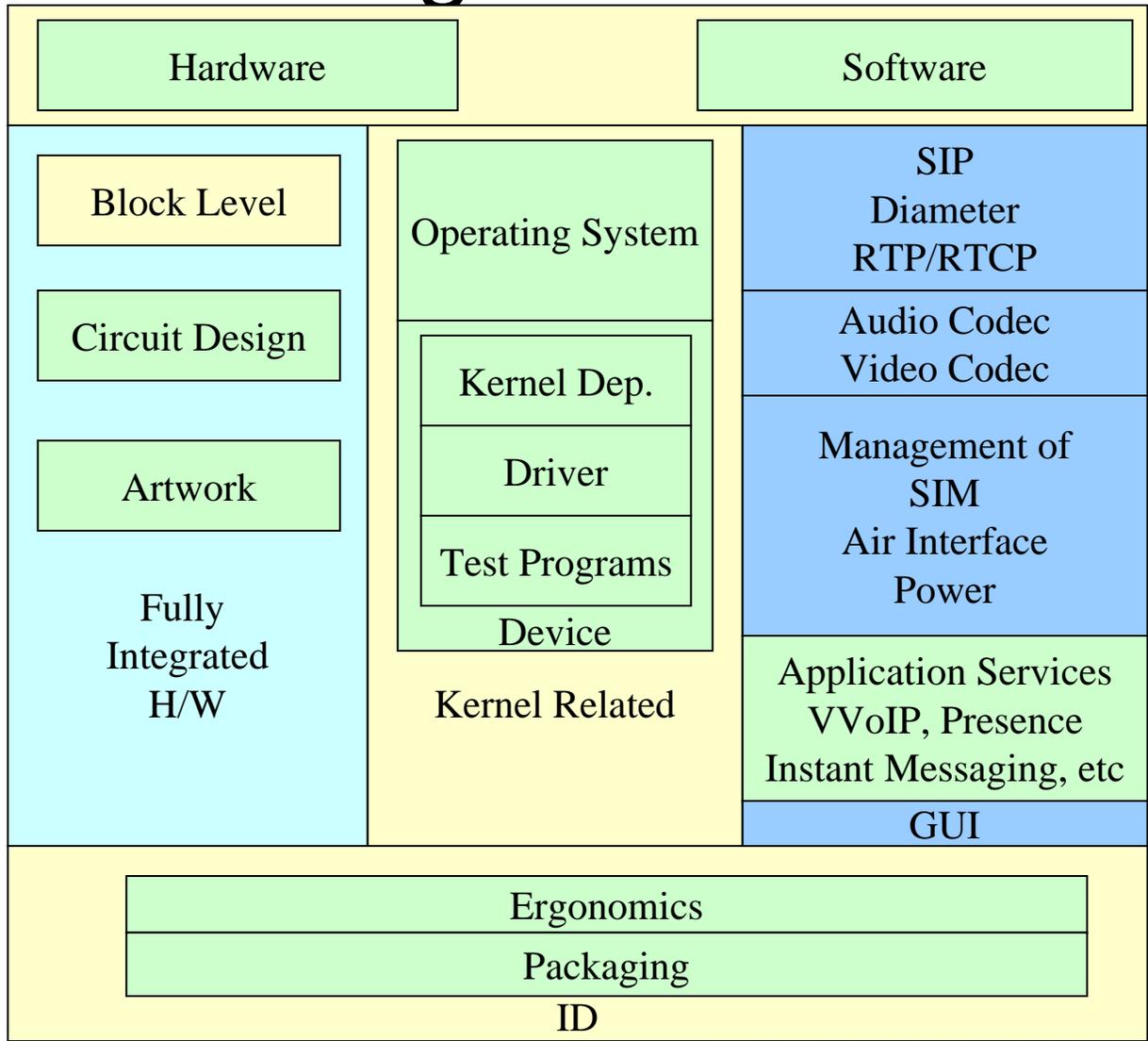
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IMS Handset - Software

- Real time OS
 - TCP/IP stack
- SIP Client
- RTP/RTCP
- Diameter client
- MM Codecs
- GUI

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Design Elements

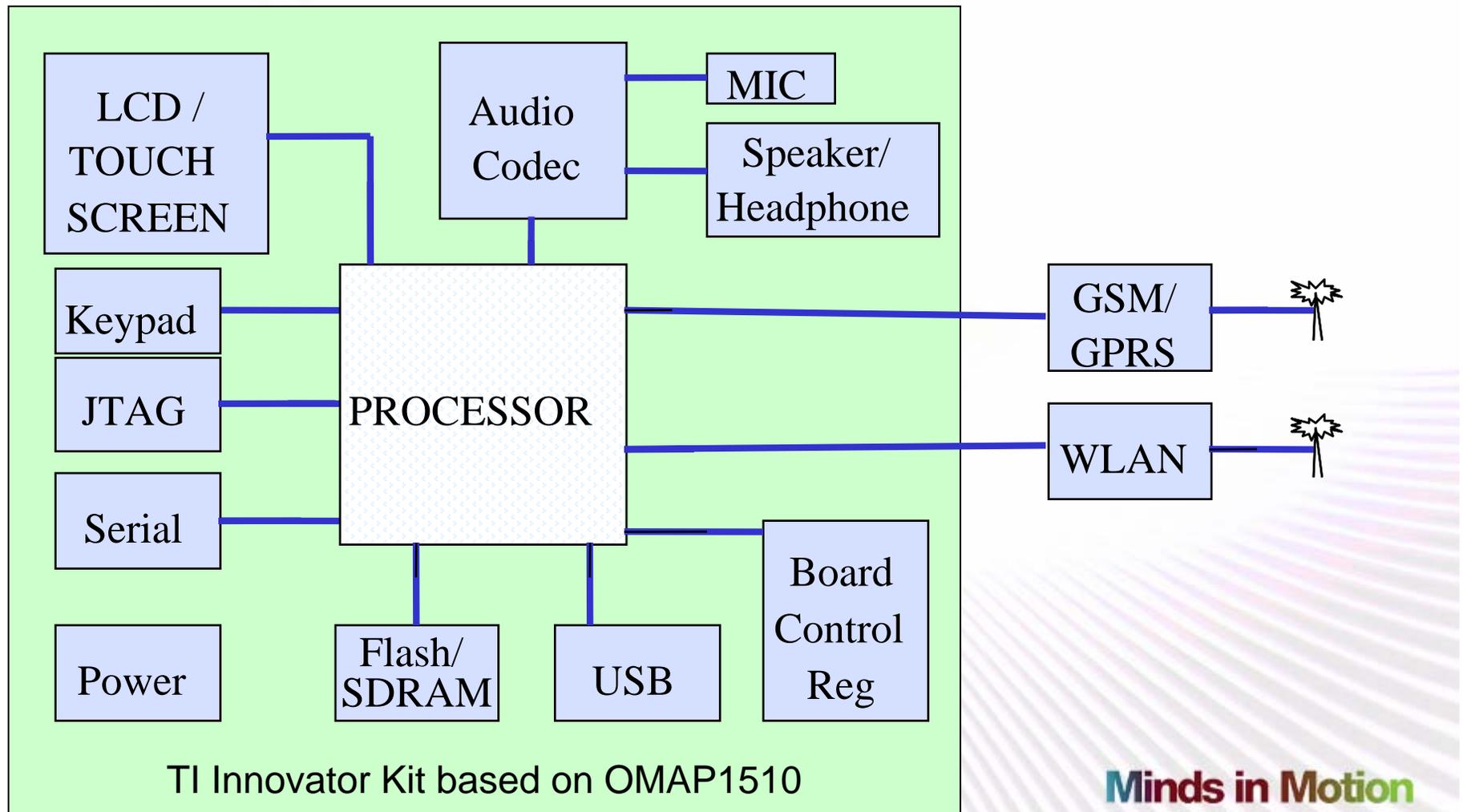


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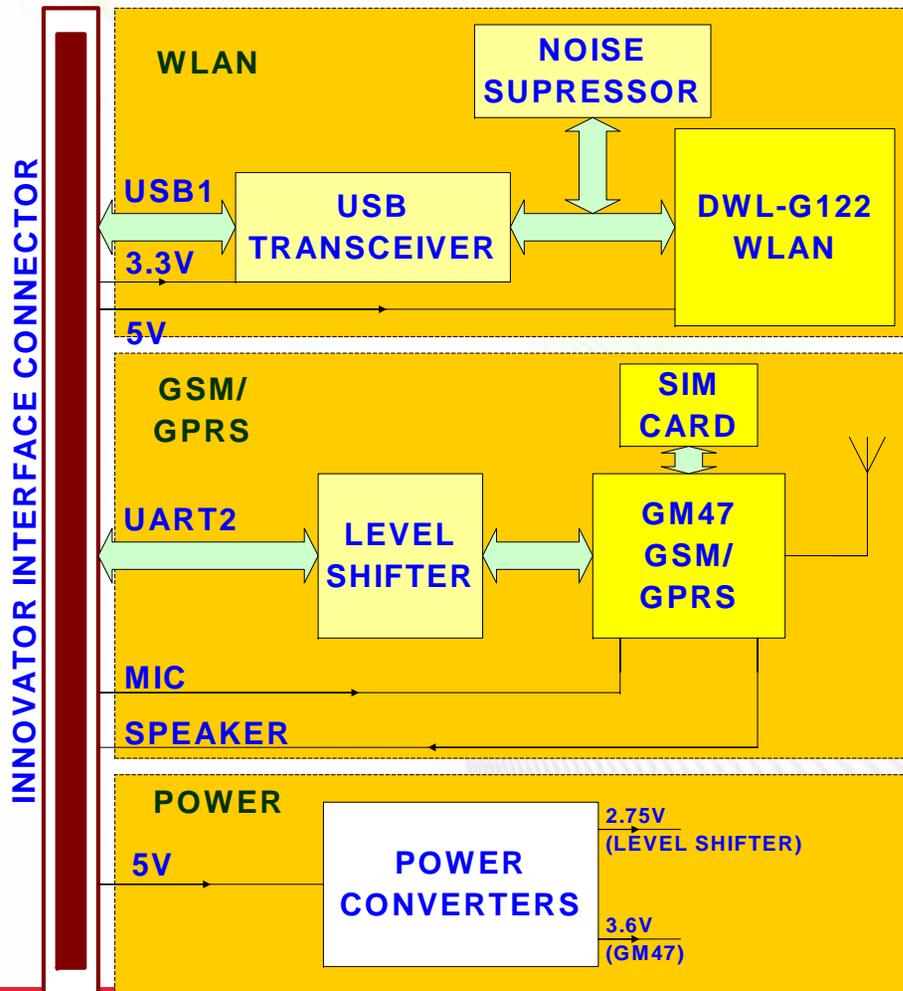
Part 3: Case Study

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Hardware Block Diagram

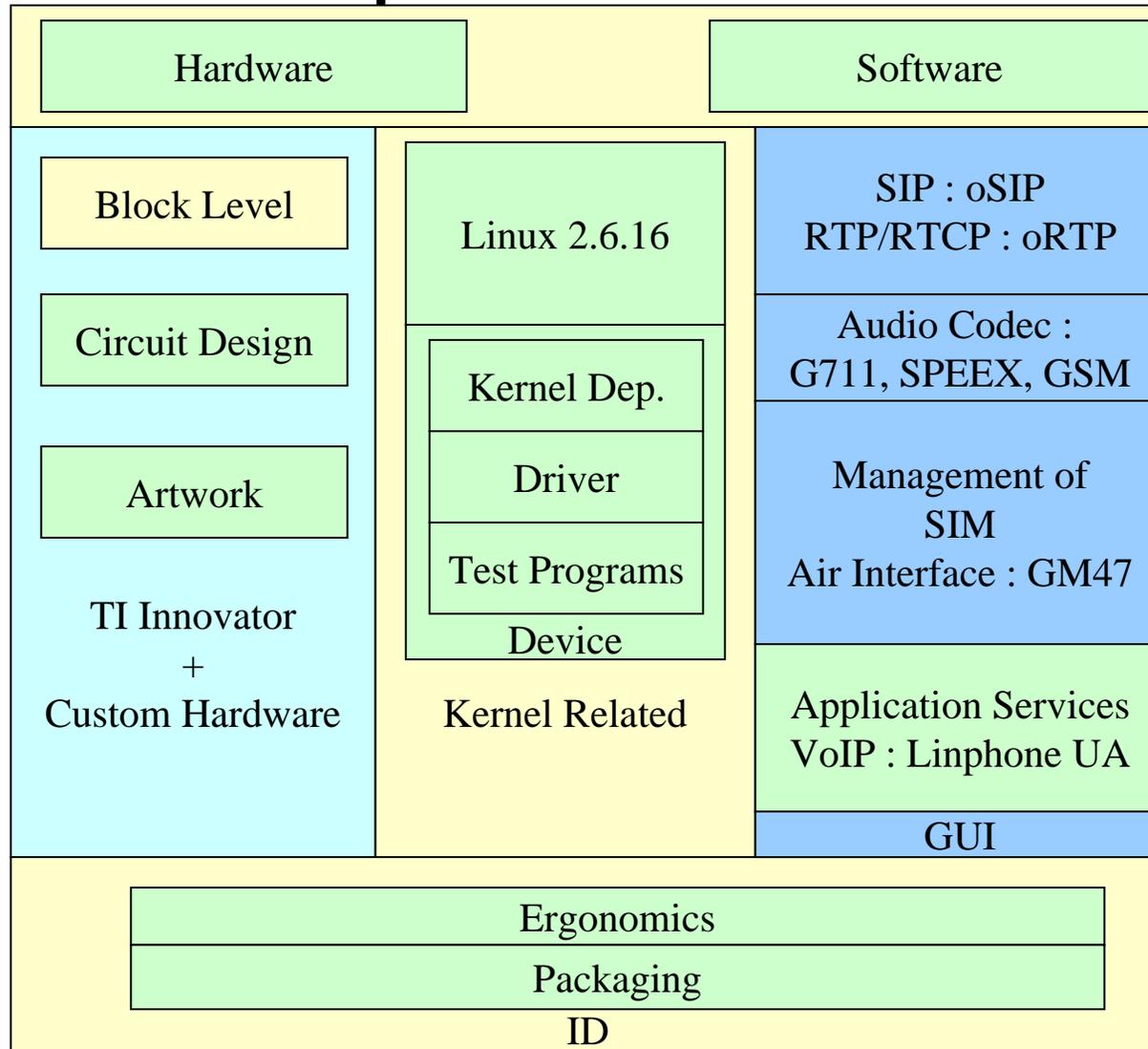


Customised Hardware Based on OMAP™ Innovator Kit



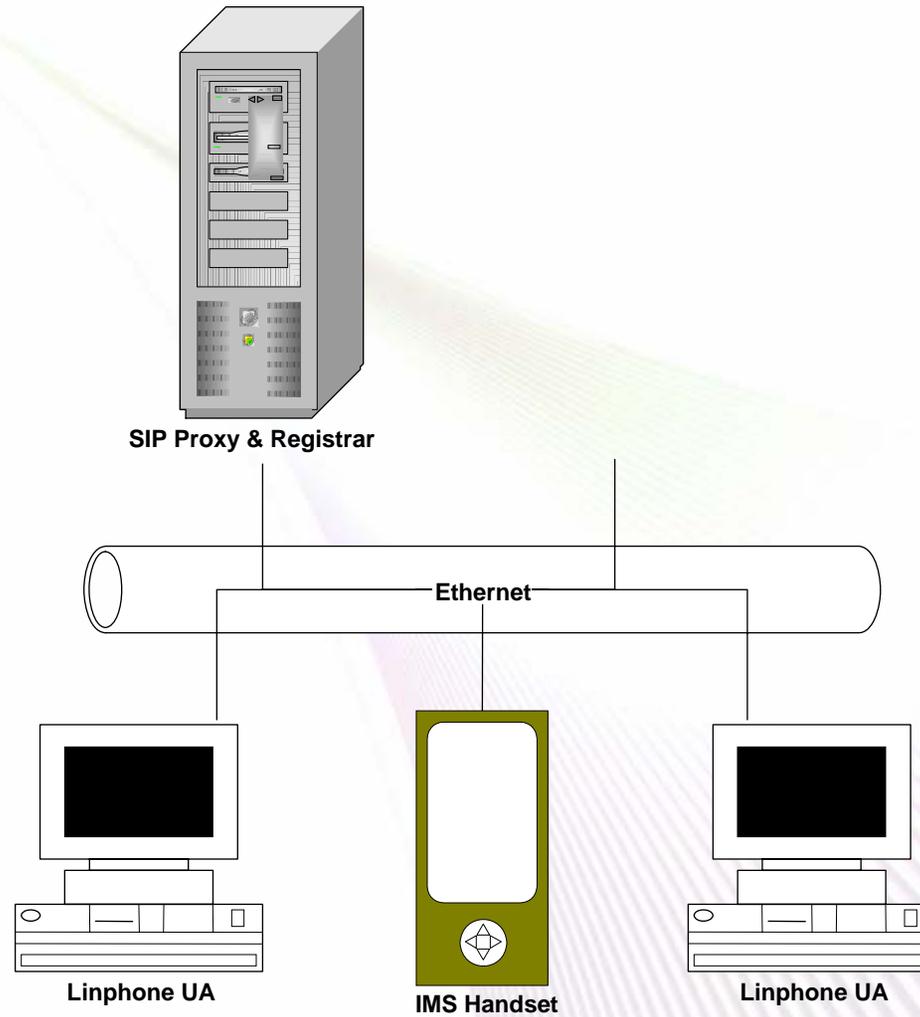
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Implementation



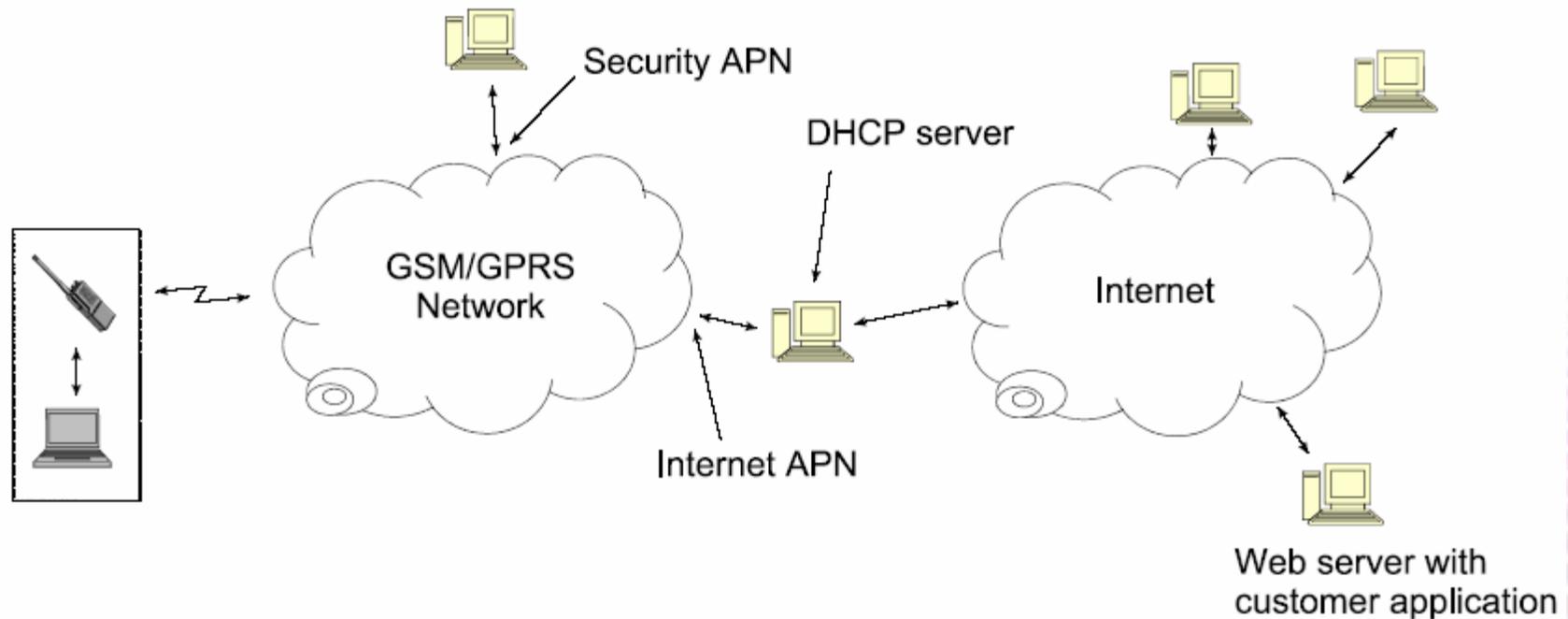
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Test Setup



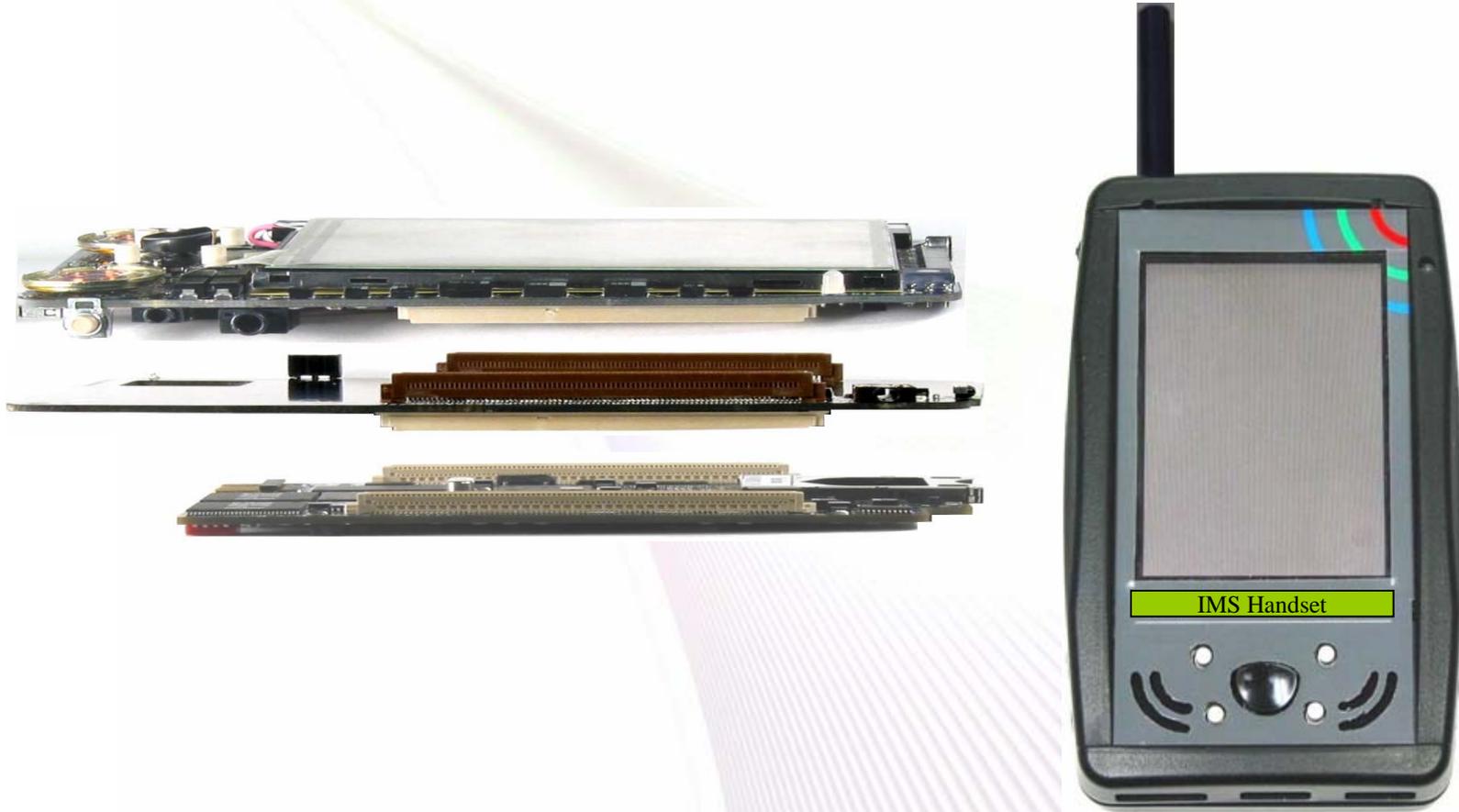
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Test Setup



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Integrated Product



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Conclusion

- Could demonstrate the following functions of IMS on handset:
 - VoIP Session
 - Sessions over CS & PS networks
 - New service creation possible
 - GPRS/GSM/LAN capability
- OMAP™ platform found to be a good candidate for a multimedia processor

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Thank You

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