

Multimedia Digital Home: Advances and Latest Applications



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香港應用科技研究院有限公司

Shen-Chang Chao
Vice President
Enterprise & Consumer Electronics

**Transforming Technology
Innovation Into Business Success**





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Outline

- **Market Outlook and Opportunities**
- Enabling Technologies
- Interesting Applications
- ASTRI Technology Overview

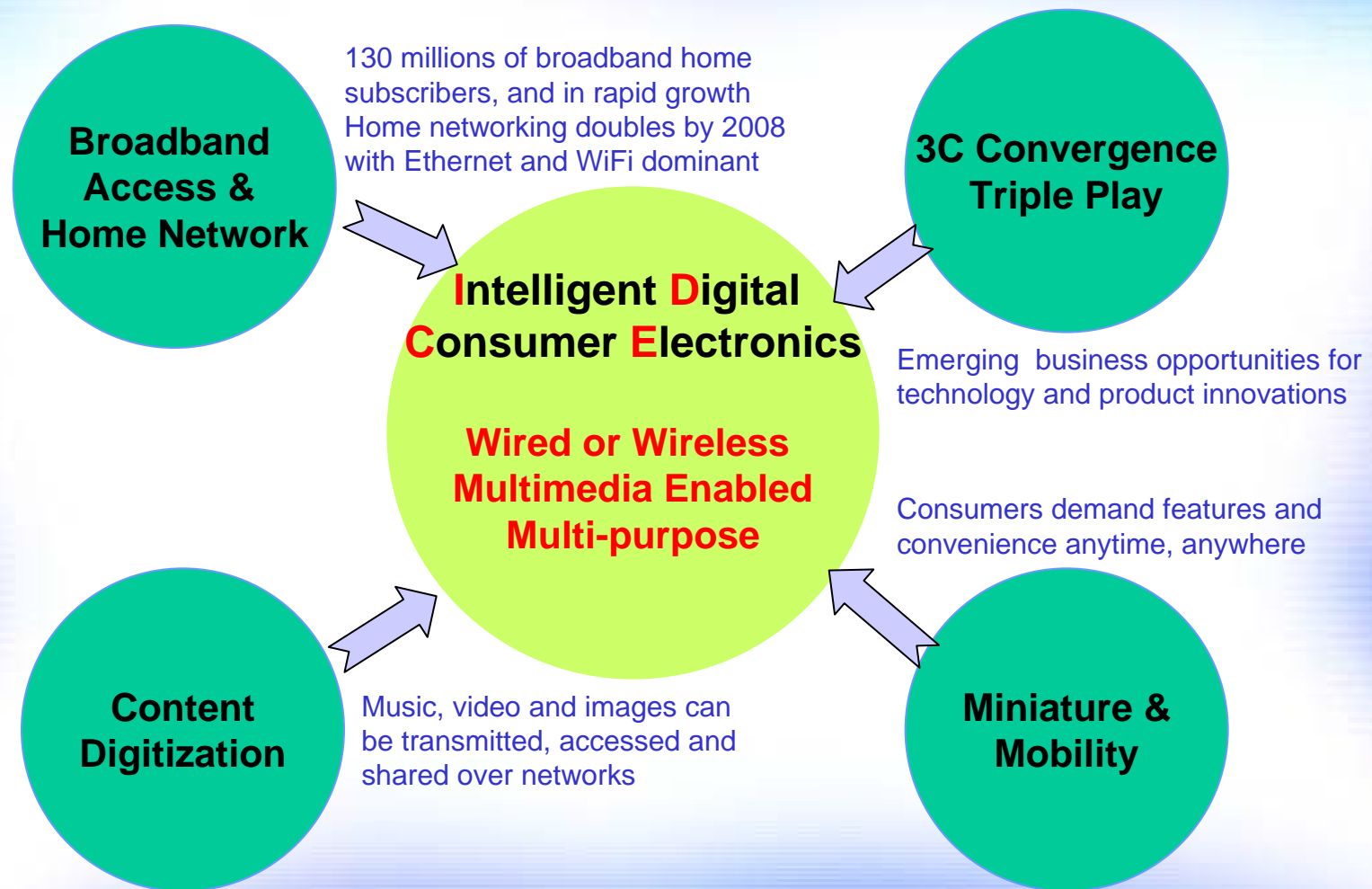




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Market Trends in New Millennium – Consumer drives the demand



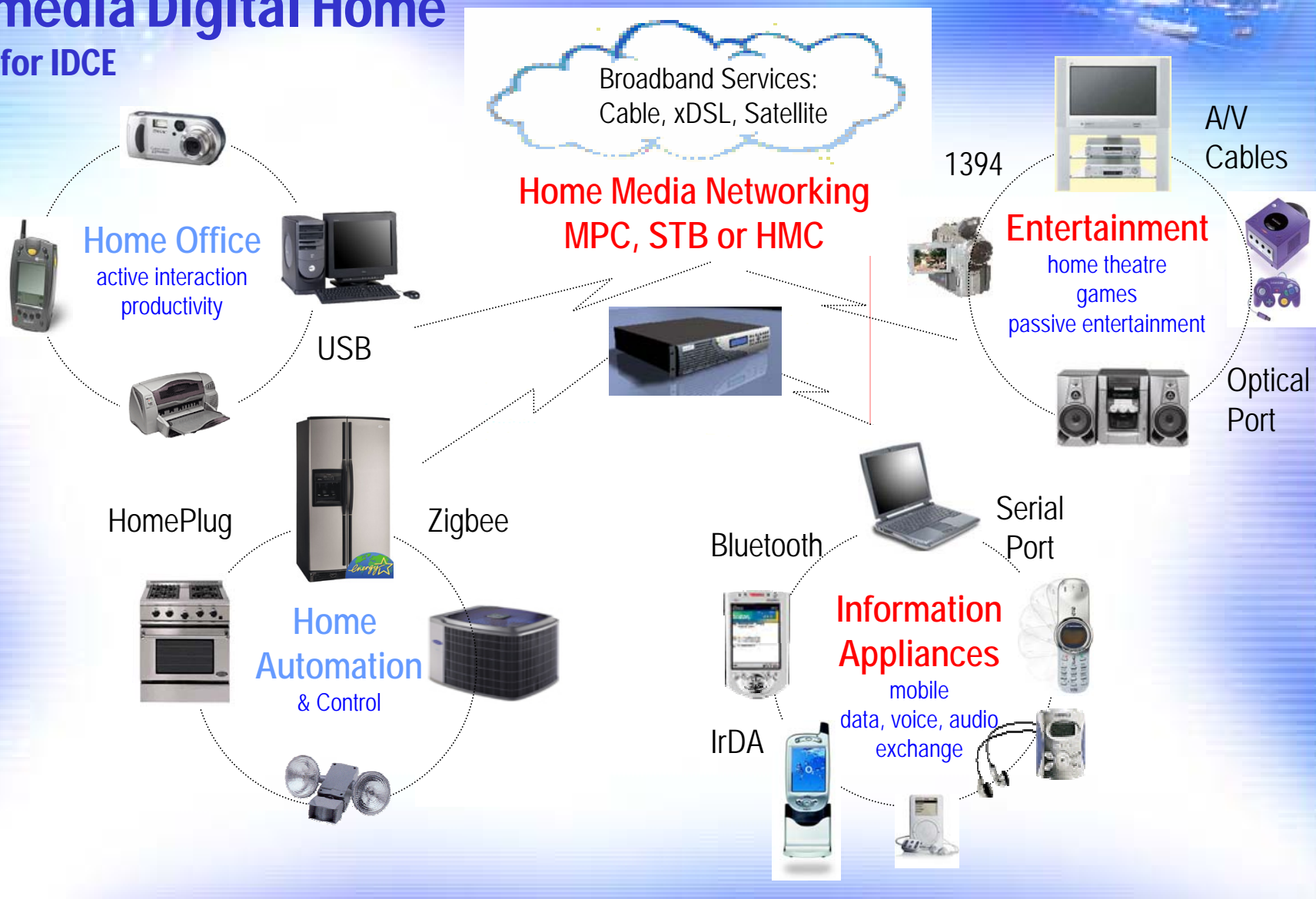


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Multimedia Digital Home

Hot Spot for IDCE



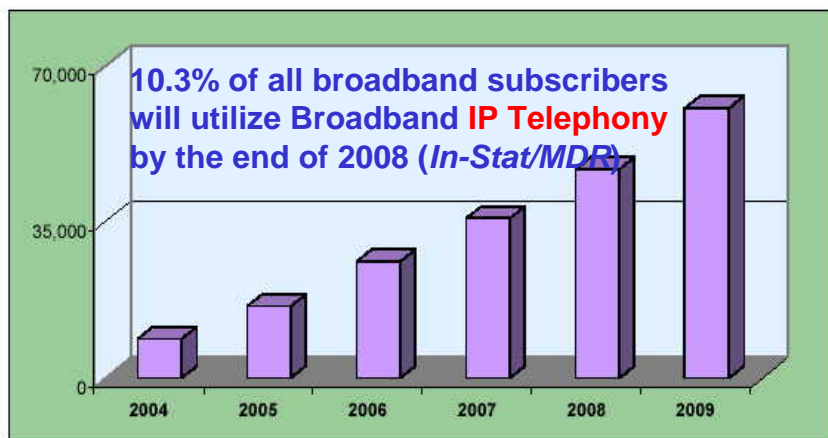


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IP Service Convergence

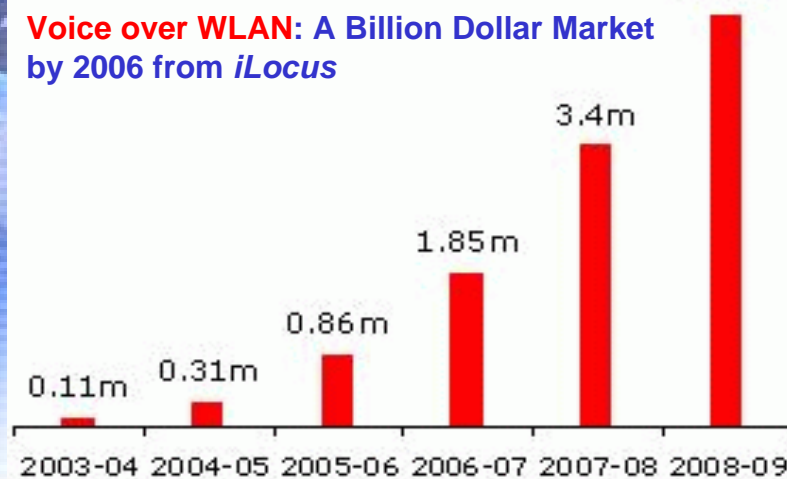
Hot Spot for Multi-purpose IDCE

Figure 1: VoIP Service Subscribers, 2004-2009, '000s

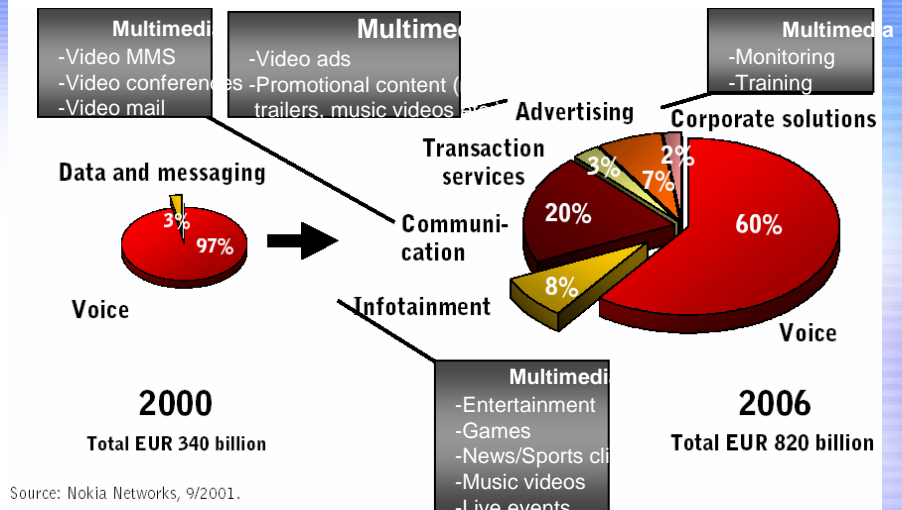


Source: Juniper Research

Voice over WLAN: A Billion Dollar Market by 2006 from iLocus

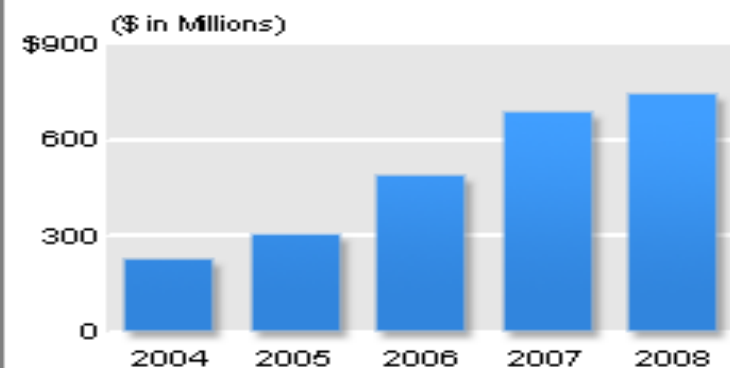


Mobile Multimedia Services will grow significantly



Triple play intensifies among Telco's, cable and ISP

IP/DSL Set Top Box Worldwide Revenue



Source: In-Stat/MDR, 7/04



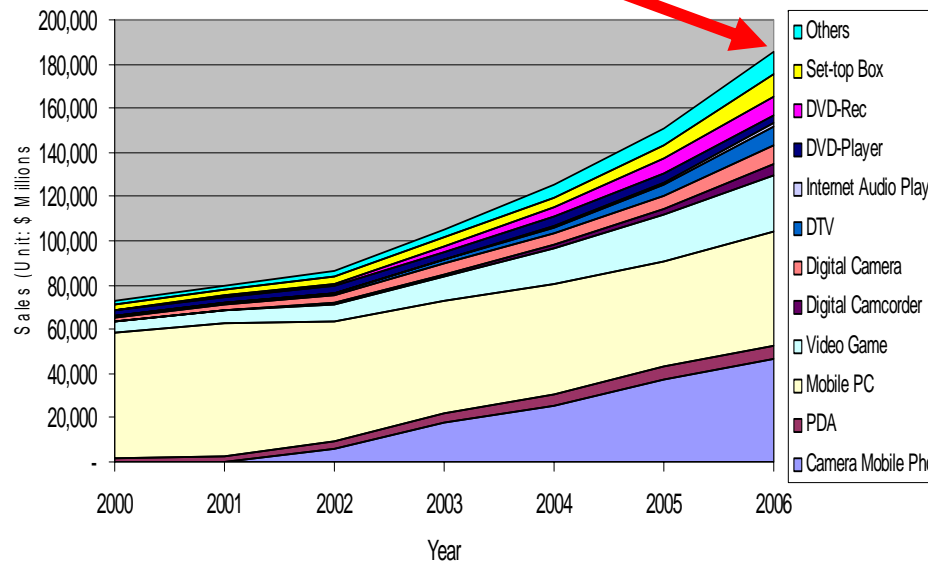
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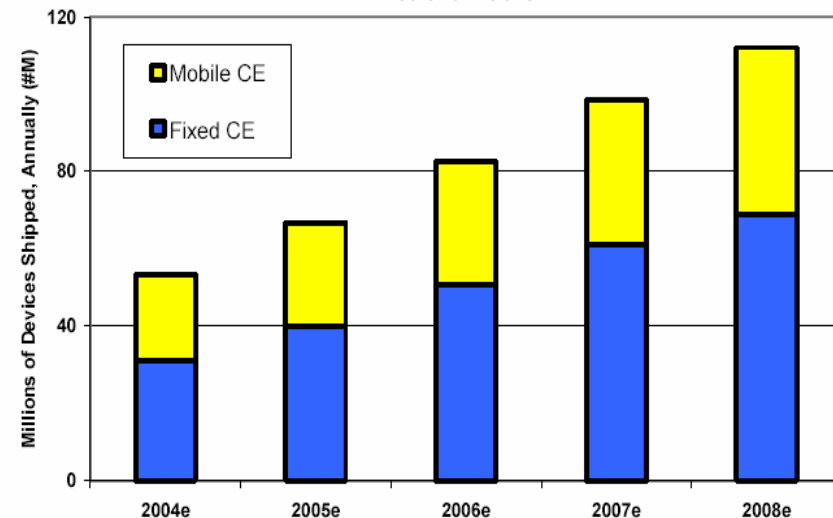
Huge Market Opportunities for Intelligent Digital Consumer Electronics

Worldwide market for multimedia consumer devices will reach **\$188 billions** by 2006

Portable or mobile multimedia consumer devices is the **fastest** growing sector.



Annual Shipments of Network-Capable CE:
Fixed and Mobile



Source: Multimedia Networks in the Home: Analysis and Forecasts
© 2003 Parks Associates

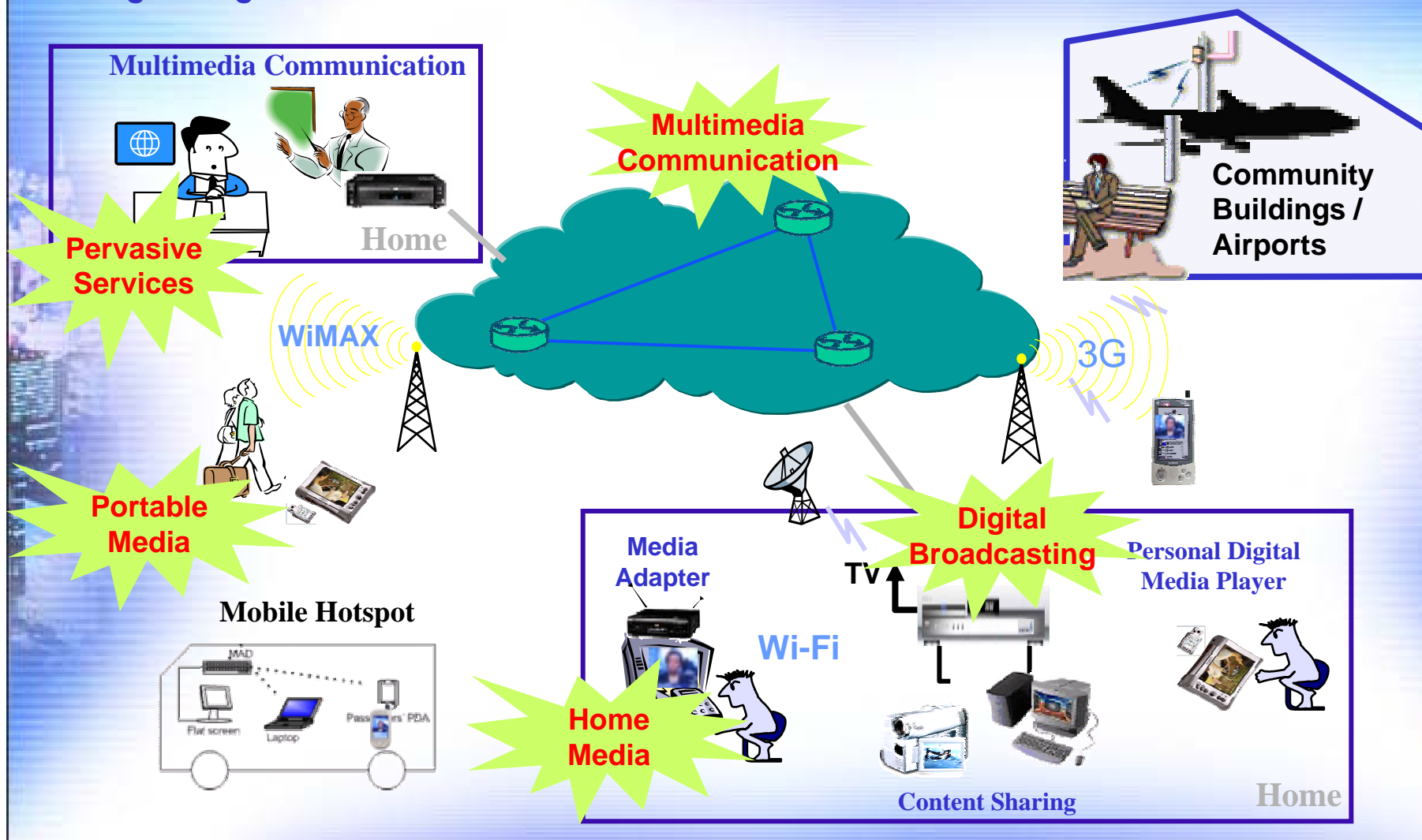


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Key Technology Initiatives

Intelligent Digital Consumer Electronics & Services





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SIP: Universal IP Communications

- An Internet-Centric Application Layer Signaling Protocol
- Used to manage multimedia sessions. Applicable to voice, video, games, etc.
- Adopted by Microsoft, telecoms and enterprises
- Work started in 1996. Henning Schulzrinne: “a once-in-century opportunity to redesign the telephone network”.

	H.323	SIP
Scalability	Low	High
Architecture	Tightly Defined, Centralized	Flexible, Distributed
Flexibility	Low	High
User Mobility	No	Inherent (Adopted by 3GPP)
Extensibility	Low	High
Applicability	Voice and Video	Voice, Video and Data
Easy of Deployment	Low	High
Market Maturity	Entrenched Players	New Playing Field

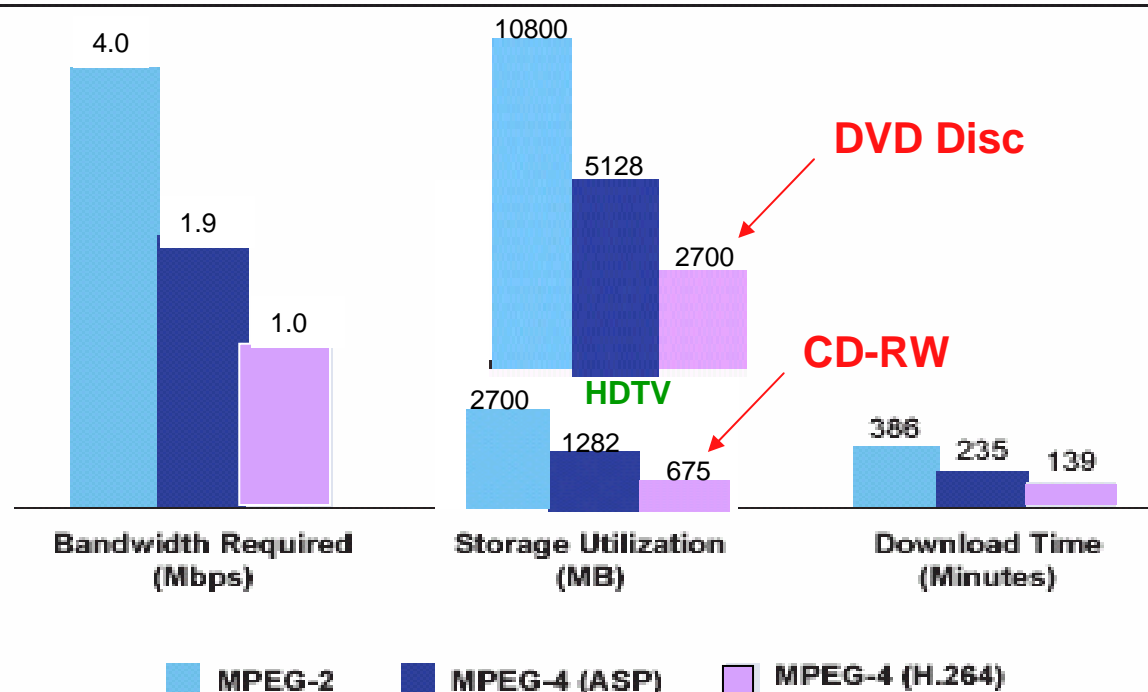


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H.264/MEPG4 AVC: More Efficient Compression

- Jointly defined and supported by both media and communications industry
- Enabling delivery of entertainment quality video over wired or wireless networks

Performance comparison for 90-minute DVD-quality movie ⁽¹⁾



⁽¹⁾ Download time at 700 Kbps



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Digital Life Network Alliance (DLNA)

- Introduced in June 2003 as the Digital Home Working Group (DHWG)
- Delivering an **interoperability framework** of design guidelines based on open industry standards to complete the cross-industry digital convergence.
- Cross-industry organization of leading consumer electronics, computing industry and mobile device companies:
 - Fujitsu, Gateway, HP, Intel, IBM, Kenwood, Lenovo, Matsushita Electric (Panasonic), Microsoft, NEC CustomTechnica, Nokia, Philips, Samsung, Sharp, Sony, STMicroelectronics and Thomson.
- Other Research Institute as members:
 - Korea Electronics Technology Institute <http://www.keti.re.kr/>
 - Industrial Technology Research Institute <http://www.itri.org.tw/>
 - Institute For Information Industry <http://www.iii.org.tw/>



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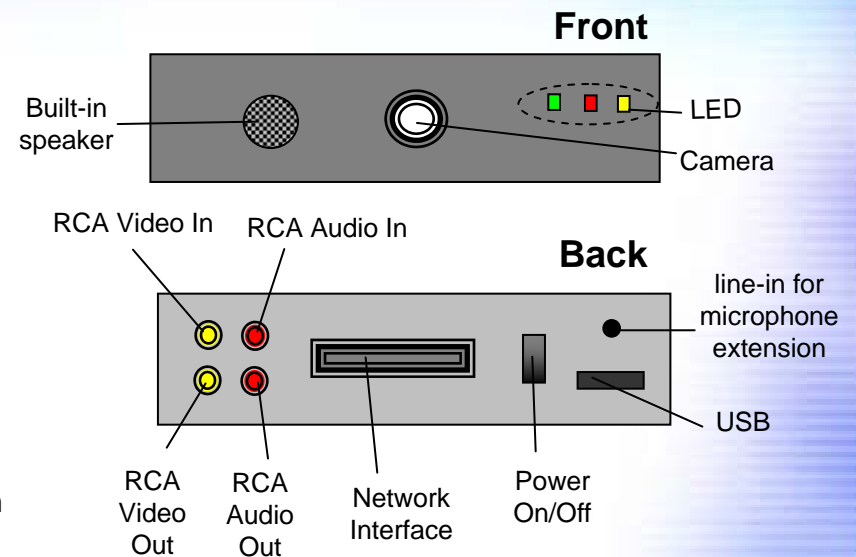
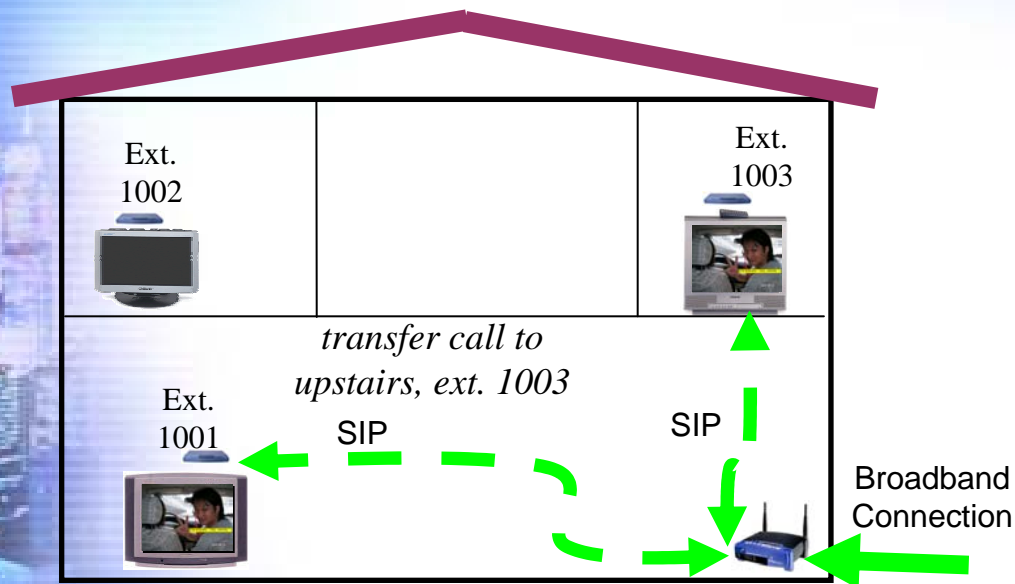


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Multimedia Communications

Home Video PBX



- Video Phone STB connected to TV
- Multiple STB at home, controlled by a slim IP PBX
- Make calls to and receive calls from video phones.
- Potential application add-on: video streaming, video surveillance, baby-monitor, etc
- Primary PBX features supported: conferencing, call-transfer, Intercom, call-pickup, follow-me, alternate video/audio source, etc.

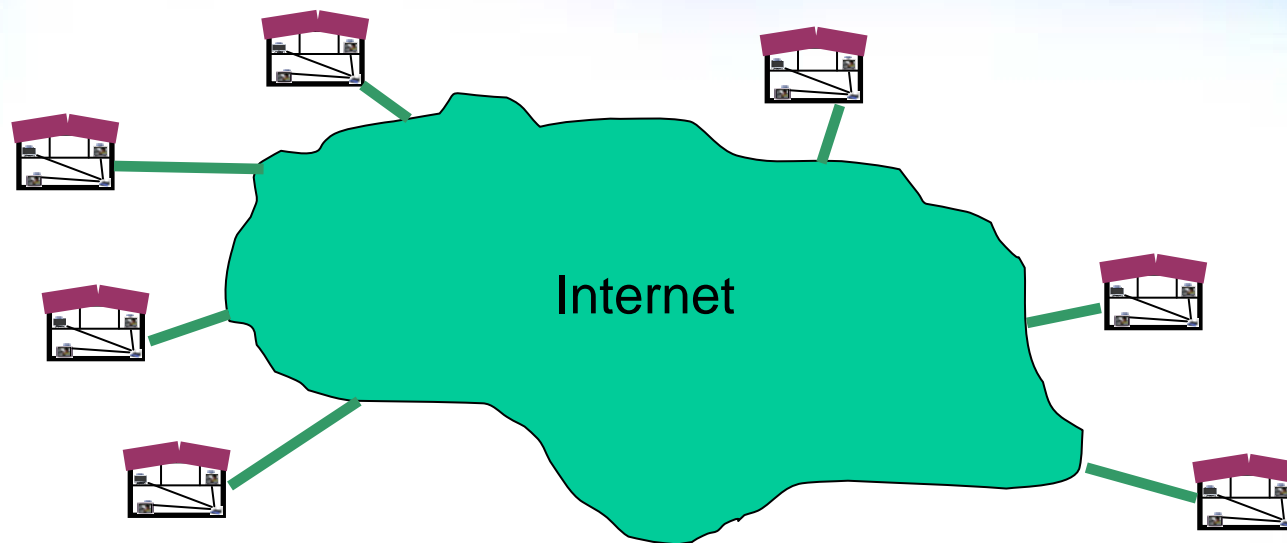


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Multimedia Communications

Peer-to-Peer Home Network

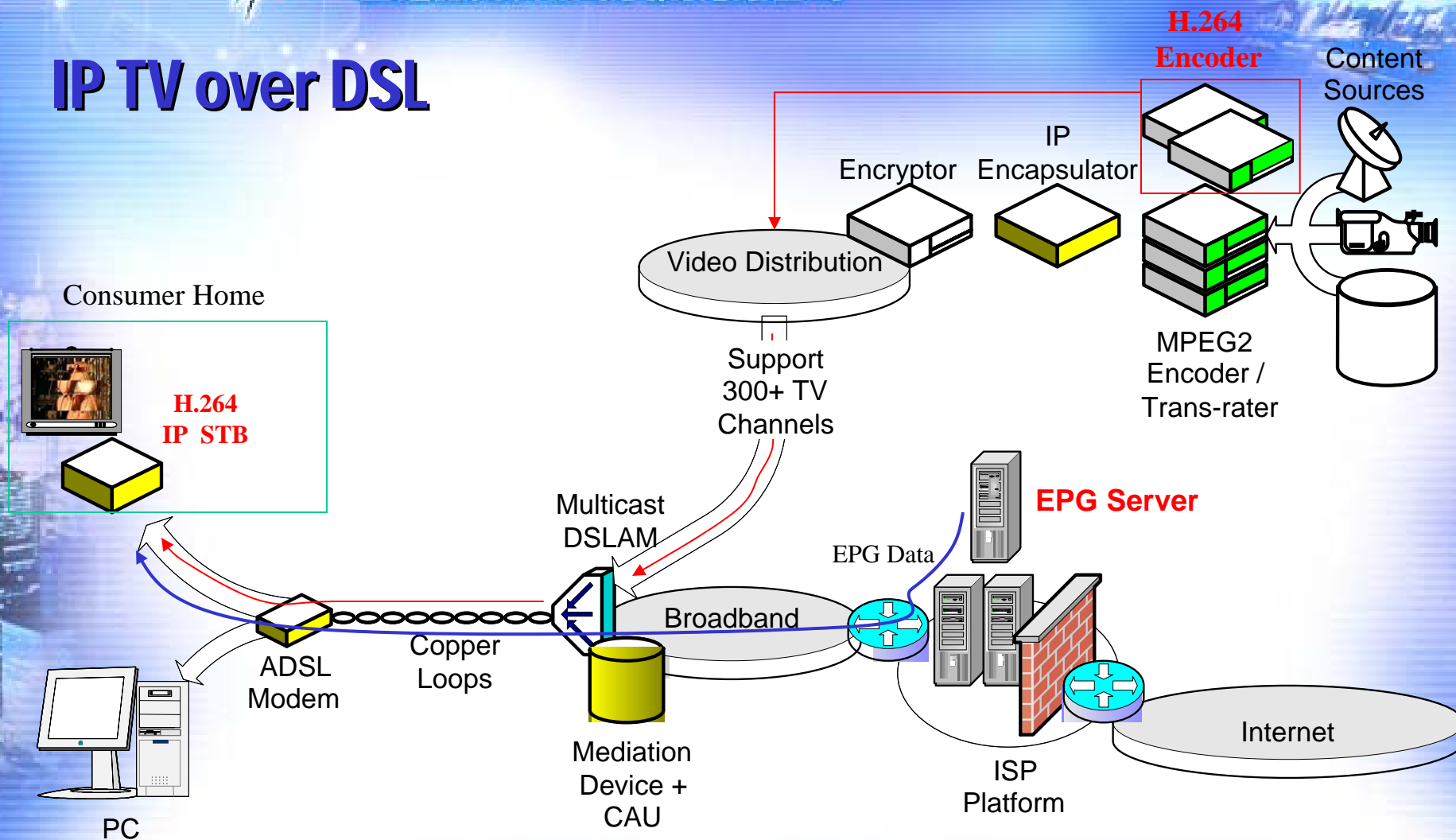


- Private network for friends and family
- Long distance toll by-pass with optional PSTN interface
- Roaming at peer site to access home network
- P2P for private multimedia content sharing
- Resource sharing



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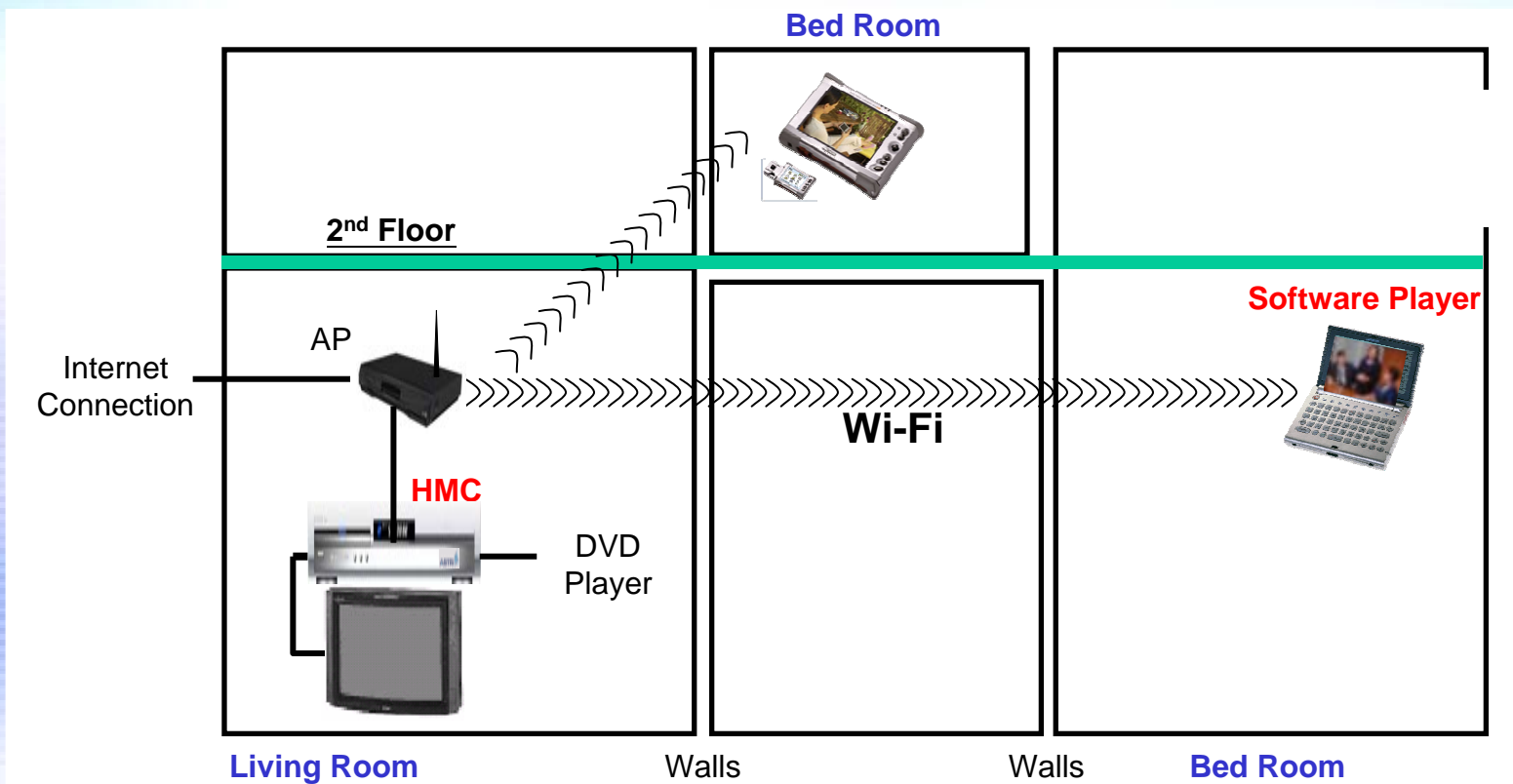
IP TV over DSL





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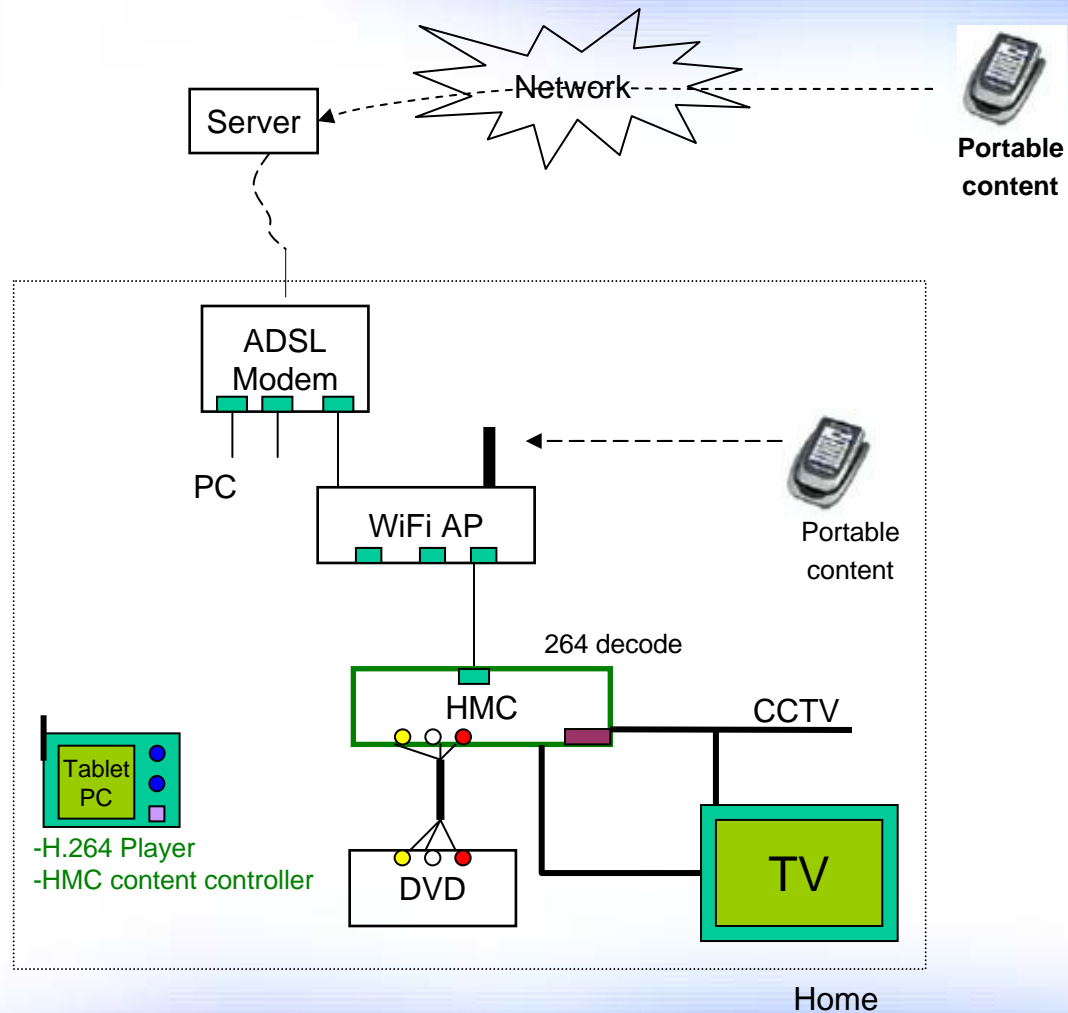
Home Media Networking: Home Content





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HOME Media Networking: Portable Content





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ASTRI Achievement: Secure Voice over IP

- SIP Stack and Platform
 - ASTRI own IP
 - Commercial grade
 - Light weight and high performance
 - SIP interoperability conformance
- SIP Director
 - SIP conformance testing tool
- Session Security Control
 - A framework for secure and reliable IP telephony service
 - ASTRI patentable algorithms
 - Cost effective implementation
 - Block hacker intrusions

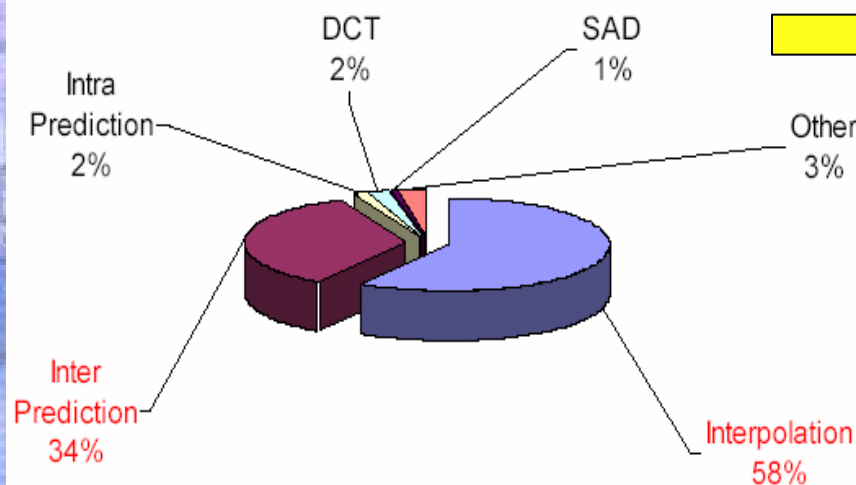


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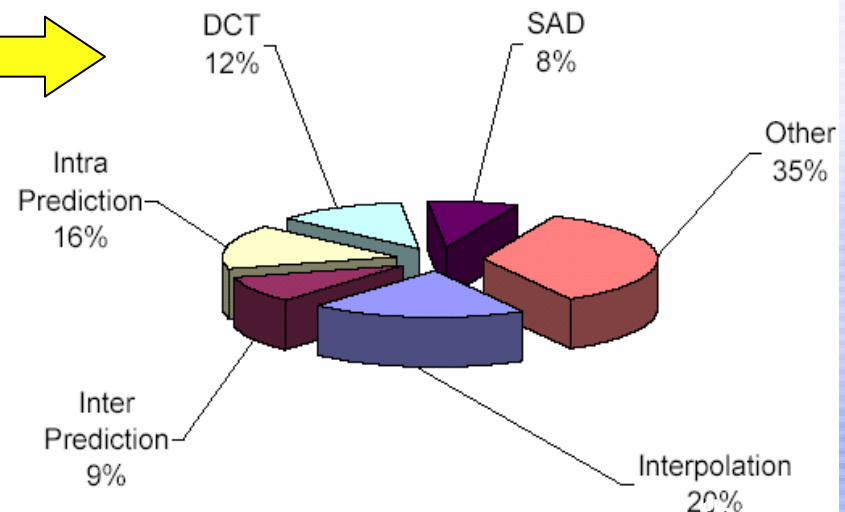
ASTRI Achievement: H.264/MPEG4 AVC

Real-time D1 Resolution Imbedded Codec on Single Chip

Function time allocation in JM50c H.264 encoder



Function time allocation in optimized H.264 encoder

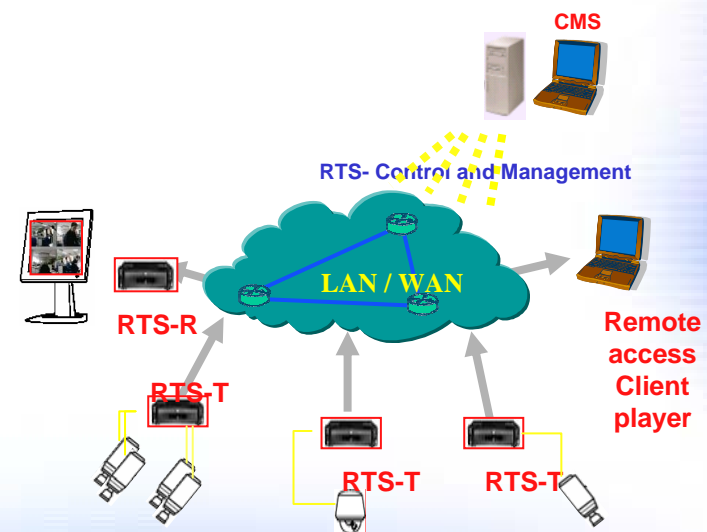
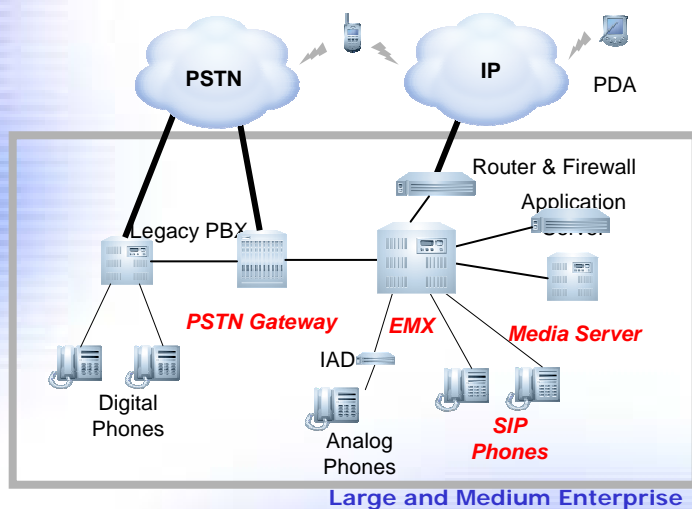
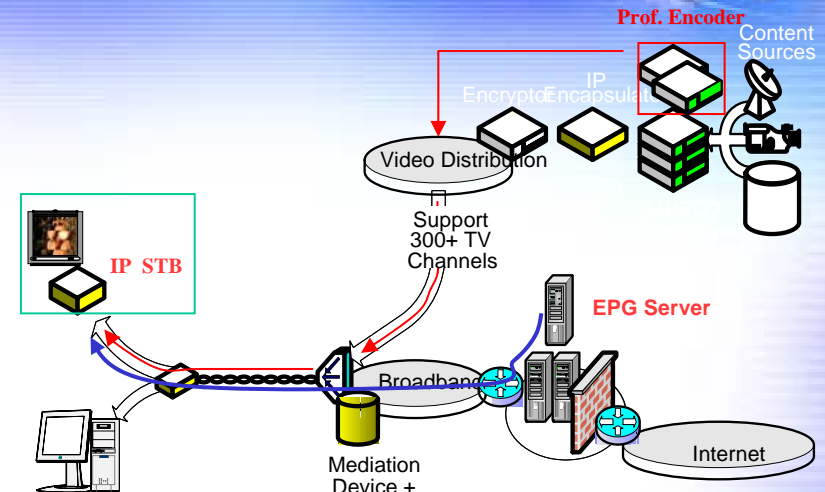
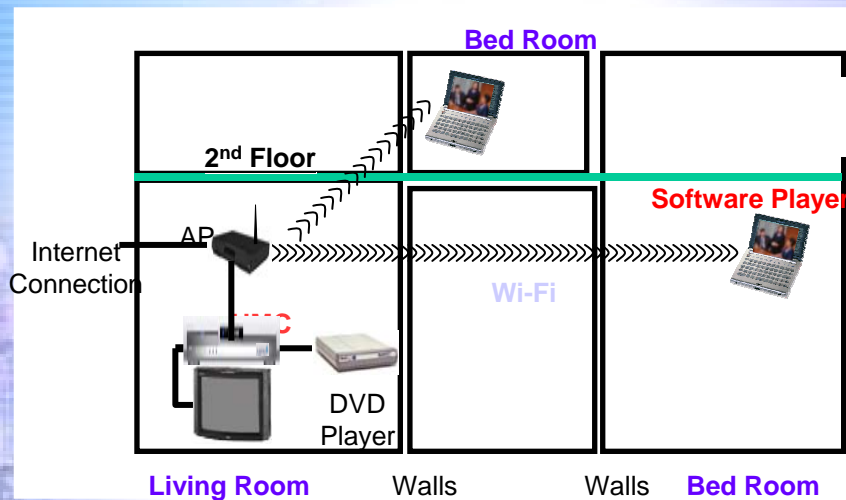




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ASTRI Achievement: Product Platforms





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ASTRI will form a R&D Center for Consumer Electronics this year and Aims to

Create IP for Key Enabling Technologies

**Bring Intelligent Digital Consumer Electronics
and Digital Home Applications to a New
Frontier**

**Transform HK/PRD Industry from Low Cost
Manufactures to Product Innovators**



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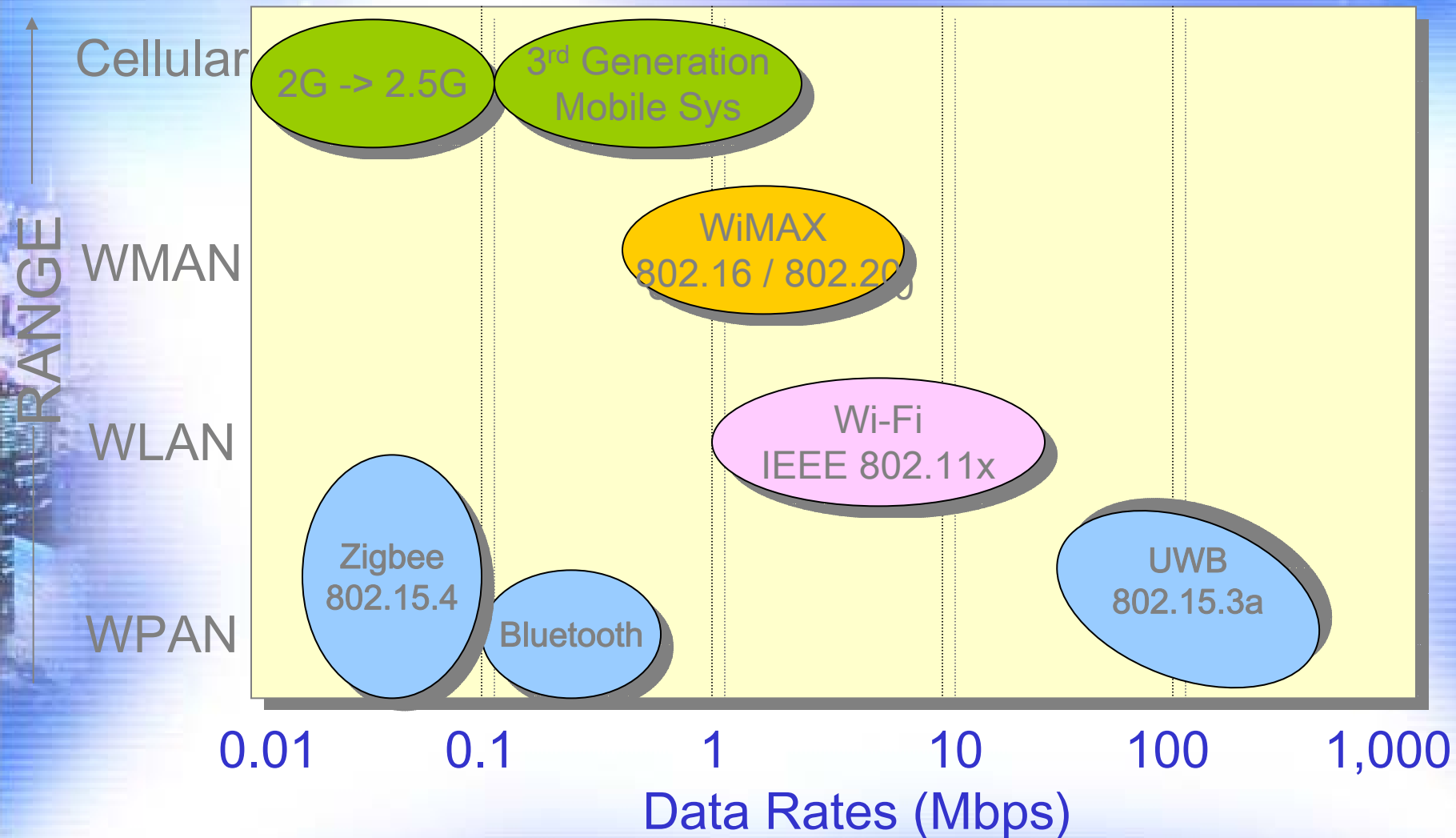
Thank You



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Home Networking

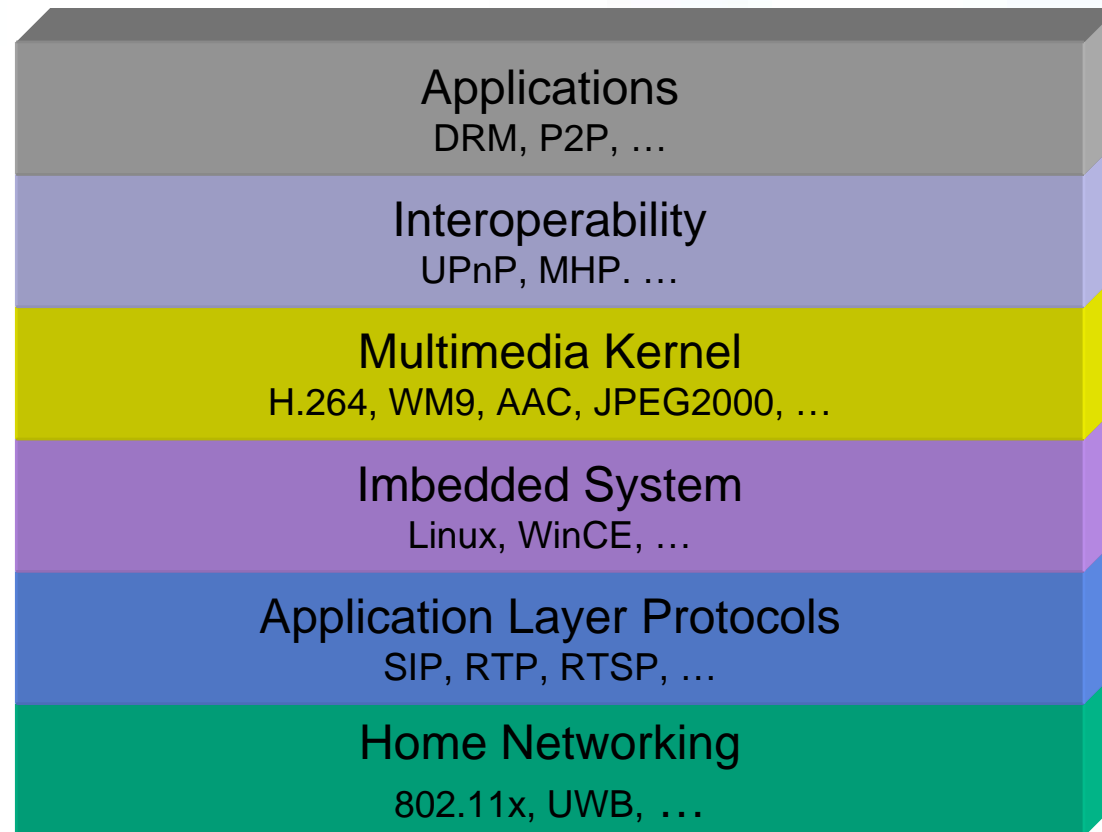




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Key Enabling Technologies





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Imbedded System Technology

- One of the most potential software strengths to grow in China
- Fully leverage China as the world-wide manufacturing center.

