MobileIGNITE: FMC Industry Update

3GPP PCG Meeting 11 October 2006
San Jose Del Cabo, Mexico

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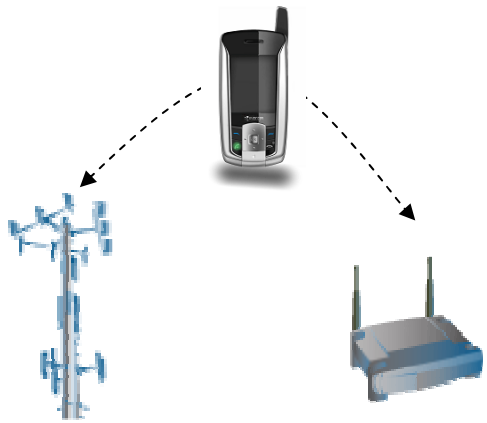
MobileIGNITE Mission

MobileIGNITE accelerates FMC by promoting open standards end-to-end interoperable solutions through industry collaboration that improve the quality, coverage and cost of mobile voice and data service delivery and the mobility of IP communication services

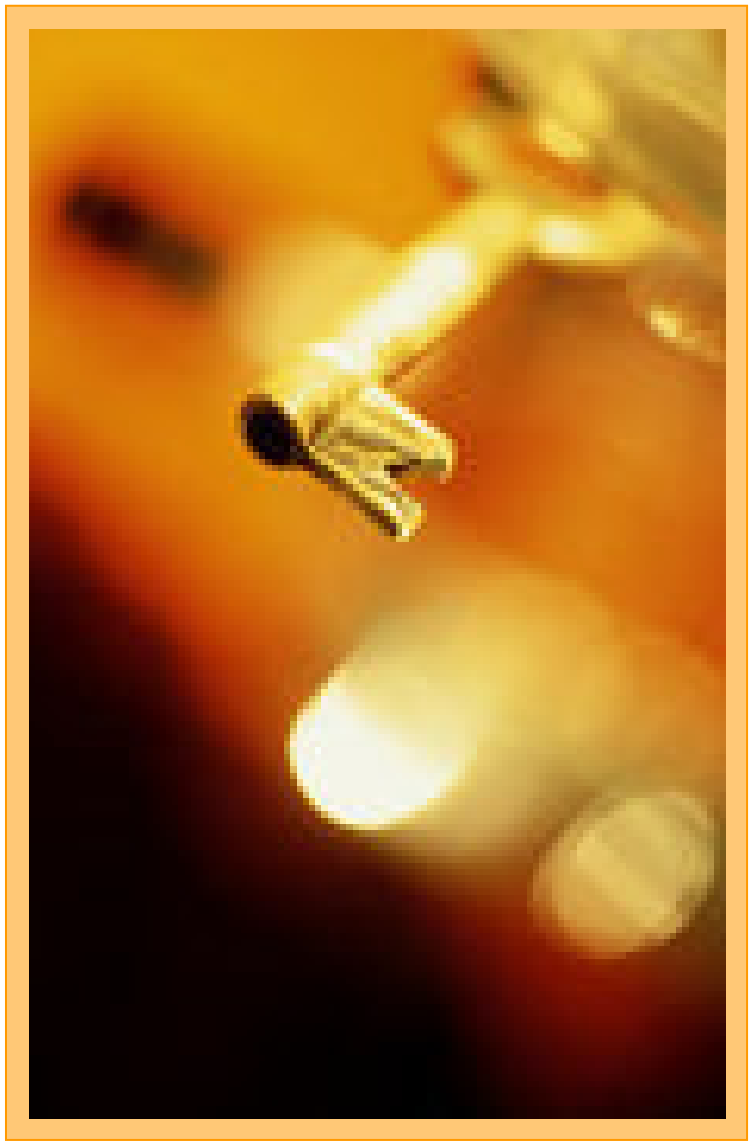
Mobile IGNITE Membership (Sept 06)

Fixed-Mobile Convergence: *A Service Concept*

- Single identity and phone number that works from a fixed or mobile location
  - Using mobile carrier network when mobile
  - Using the Internet when at a fixed or nomadic location with IP connectivity
  - Dual-Mode Phone or Soft Phone
  - Single Account, Single Bill, Single Message Management (VM, TEXT, MMS)
- Seamless user experience independent of location
  - Reproduce the mobile user experience in home or office
  - *OR* - Extend wireline call features to the mobile when you are out
  - Handoffs between with a cellular/Wi-Fi phone



Interoperability Is Key



- Accelerate time-to-market
- Develop best practices for pre-IMS and IMS Deployments
- Provide a framework for infrastructure, terminals and applications
- Use established and widely deployed standards
  - 3GPP, 3GPP2, ETSI/TISPAN, ITU, IETF, IEEE
- Coordinate with industry organizations:
  - FMCA, Wi-Fi Alliance, ETSI PTCC/IMS Testbed, GSMA, CDG, GSA, CableLabs, MSF, SIP Forum
- Commitment to migrate end to end FMC solutions to IMS

Current Industry Liaisons/ Interactions

3GPP/3GPP2	▪ MI accepted as newest Market Representation Partner (Beijing: April 21) ▪ MI MRP status approved at 3GPP2 meetings (Japan: June 23)
Wi-Fi Alliance	▪ Focusing on common issues in Wi-Fi Mobile Convergence (WMC) group and MI IOG: agreement to focus on H/O aspects for dual mode, reference WFA testing/certification
GSMA/GSA	▪ Work with both GSMA / GSA as MRPs in 3GPP ▪ Engaging GSM operators in GSMA with Version 1.0 IOG documents
CDG	▪ Working with CDG as an MRP in 3GPP2
FMCA	▪ July 20 FMCA presentation in Toronto is driving internal IOG schedule for Version 1.0 documents (Target: September 25 Brussels)
ETSI/TISPAN	▪ MI presentation at inaugural SINTESIO Seminar (May 19) ▪ Initial dialog with MSF, ETSI PTCC, ETSI TISPAN, ITU NGN on common FMC testing
CableLabs	▪ Initial dialog re CL/MI collaboration on FMC Interop (June)

FMC Addressable Market Depends On Growth of Key Enabling Technologies

Current Mobile Subscribers

- Growth remains strong, even surpassing 100% penetration (multiple devices) in developed countries
- Source: Merrill Lynch Global Wireless Matrix

Broadband

- Combined DSL & Cable broadband consumer penetration grows from mid 30% to 70% by 2010
- Source: Merrill Lynch

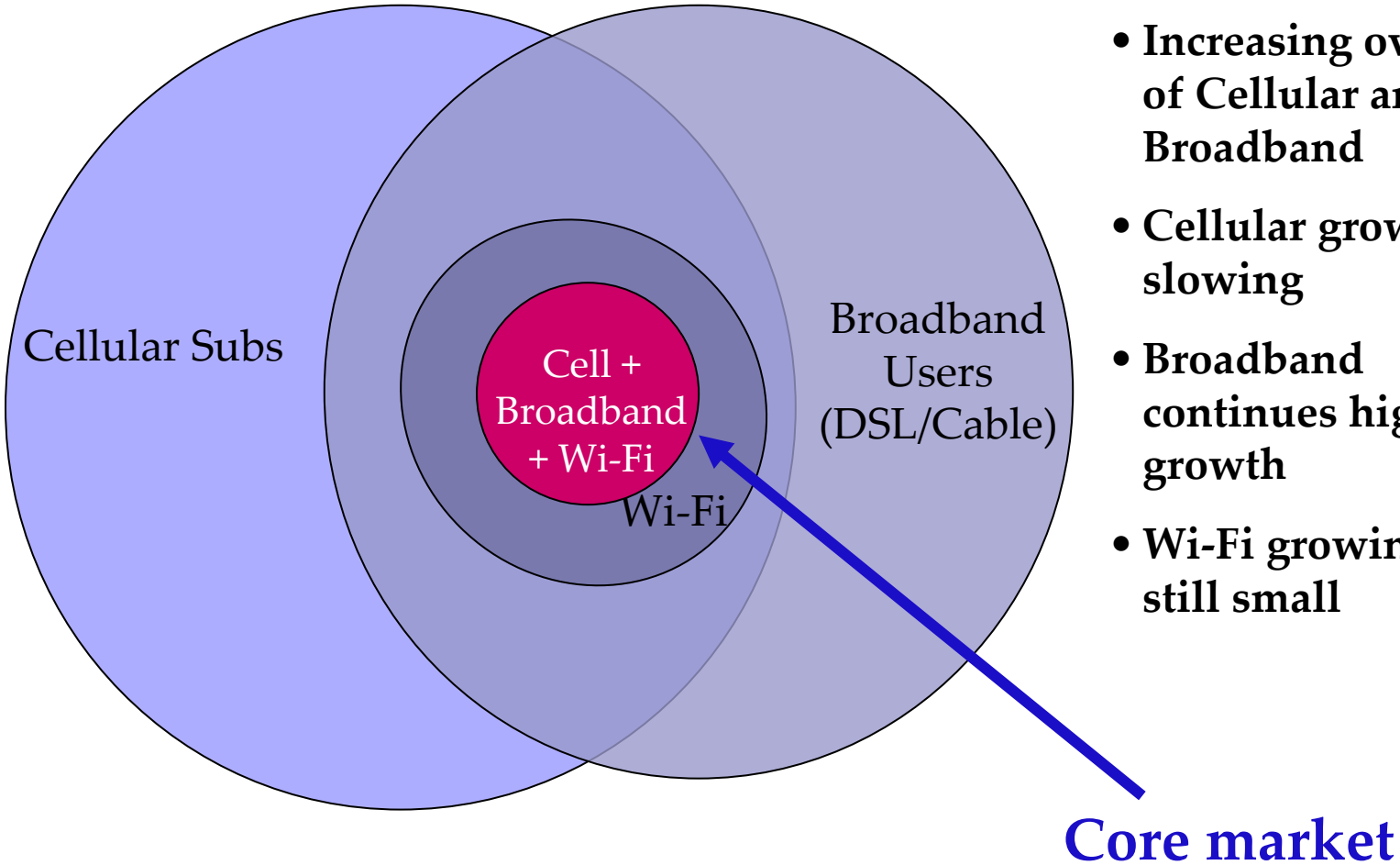
Wi-Fi

- Grows from 20% to 70% by 2010 based on home, work, hot spot, and municipal Wi-Fi penetration trends
- Source: Juniper Research

Pricing Elasticity and Convergence Preferences

- Historical trends indicate an increasing willingness to buy at progressively lower handset/device price points
- Contract terms and expiration will limit the number of subscribers considering a potential FMC service offering in a given year
- Limited number of consumers are interested in a converged or dual device option
- Source: Instat - Consumer Demand for VoWLAN/Cellular Combo Handsets, Apr 2005

Addressable FMC Market = Subset of the Cellular, Broadband, and Wi-Fi Subscribers

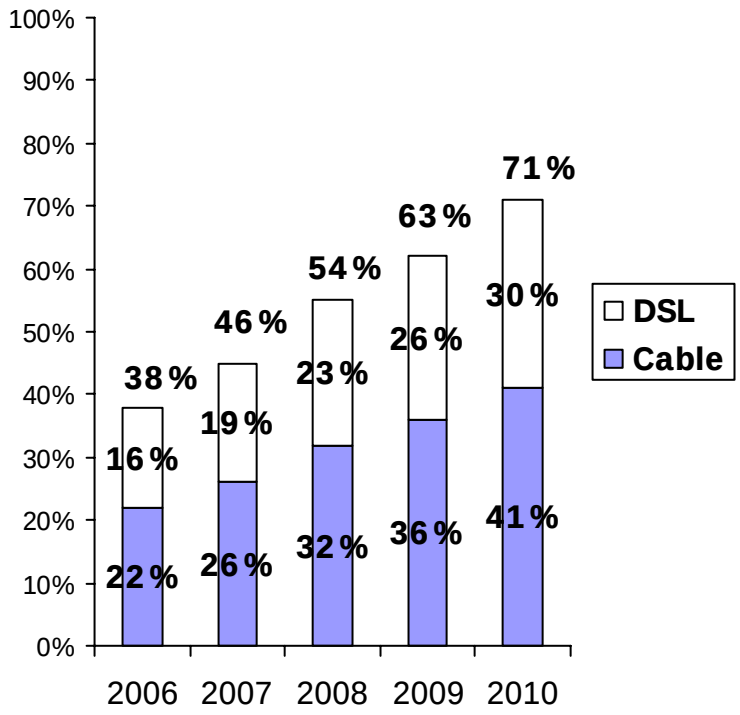


- Increasing overlap of Cellular and Broadband
- Cellular growth slowing
- Broadband continues high growth
- Wi-Fi growing, but still small

Assumptions: Broadband

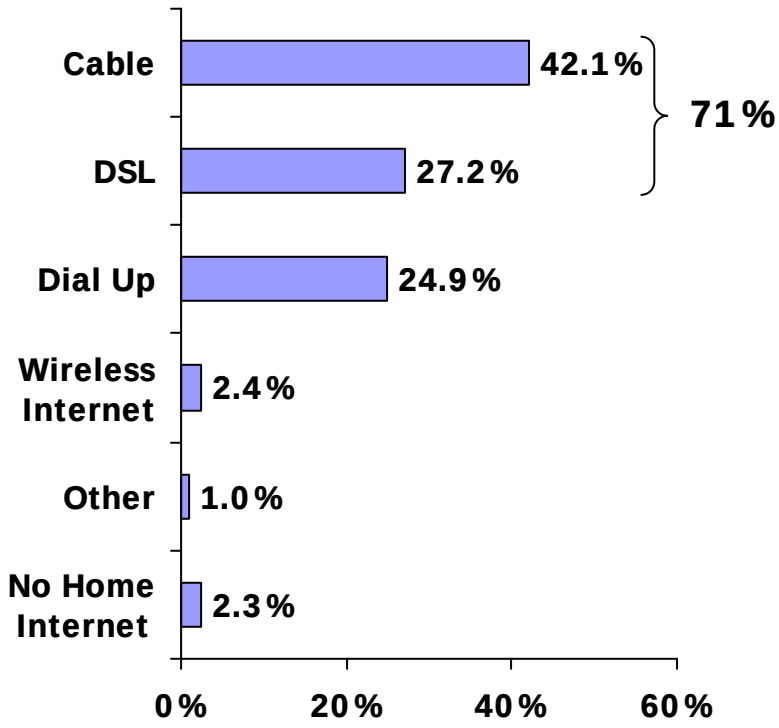
Broadband Penetration Will Grow at 17% Annually, With Cable Maintaining a Leadership Position

Broadband In the Home for Overall US Market



Source: Merrill Lynch

Broadband In the Home for Leader Segment



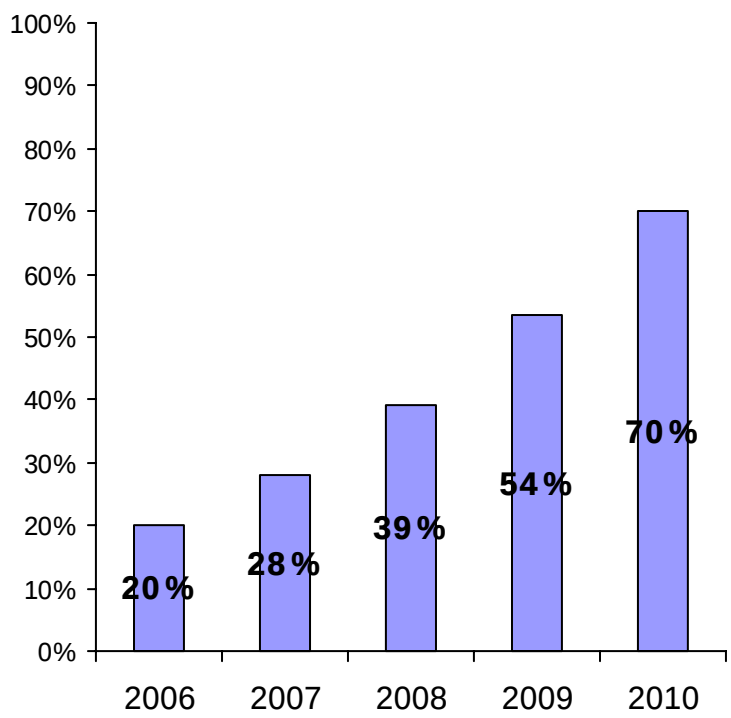
Source: In-stat, 2004 data

The Leader Category (College Students, Young Adults, Gadget Geeks) is almost twice as likely to have Broadband in their home

Assumptions: WiFi

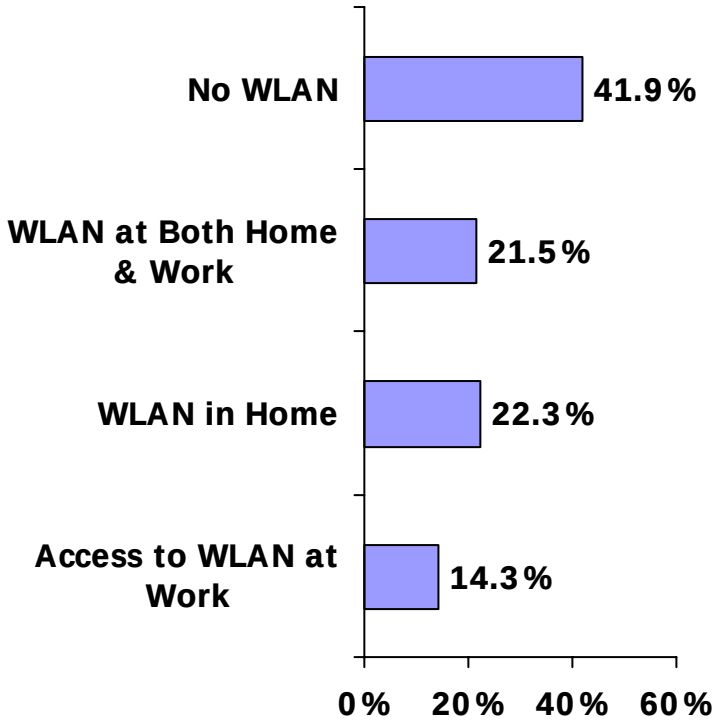
Wi-Fi is Gaining Acceptance in Home Networks, with over 20% Penetration of Households by 2006

Percent of Broadband Homes with WiFi for Overall US Market



Source: Jupiter Research

Wireless LAN for Leader Segment



Source: In-stat, 2004 data

Dual-Mode Handset Availability in 2006/7

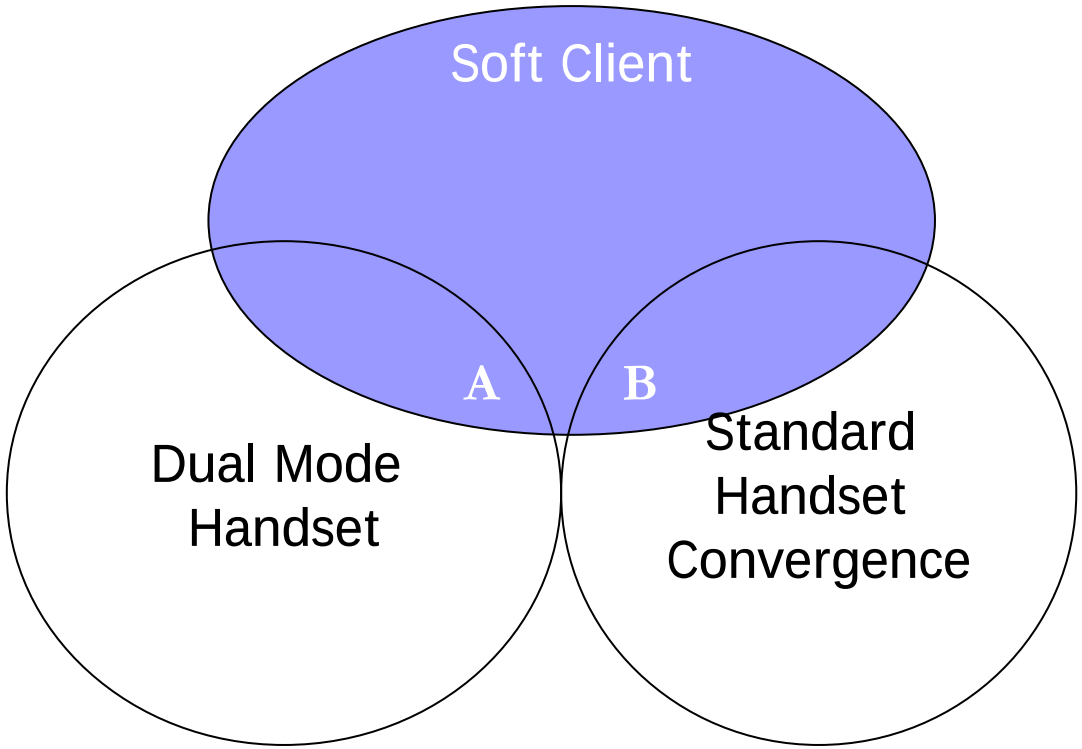
	UMA - GSM	SIP - GSM	SIP-CDMA	SIP-UMTS
Consumer	Motorola 560 Motorola V3 Razr Motorola A910 Nokia 6136 Samsung T709 LG CL400	E28 Hawk QTEK 8300 QTEK 8310 QTEK S00	Kyocera Graphite Samsung Pantech VK Mobile Motorola	Nokia E60 Nokia E70 Nokia N80 Nokia N91 Nokia N92
PDA / Enterprise		Nokia 9300i Nokia 9500 BenQ P50 BenQ P51 HP hw6900 i-Mate JAMin i-Mate KJAM HP IPAQ 6325 QTEK 9100	UT Starcom 6700 Samsung i730	Nokia E61 Motorola M1000 Sony Ericsson P990 Fujitsu/Siemens T810 Fujitsu/Siemens T8[illegible] QTEK 9000

Note: List does not include all Windows 2003 devices – many of which are reaching EOL

Mobile-VoIP Product Mix

Soft Client will Be Bundled with Dual-Mode and Standard Handset Convergence Plans

Overlap of Mobile VoIP Products

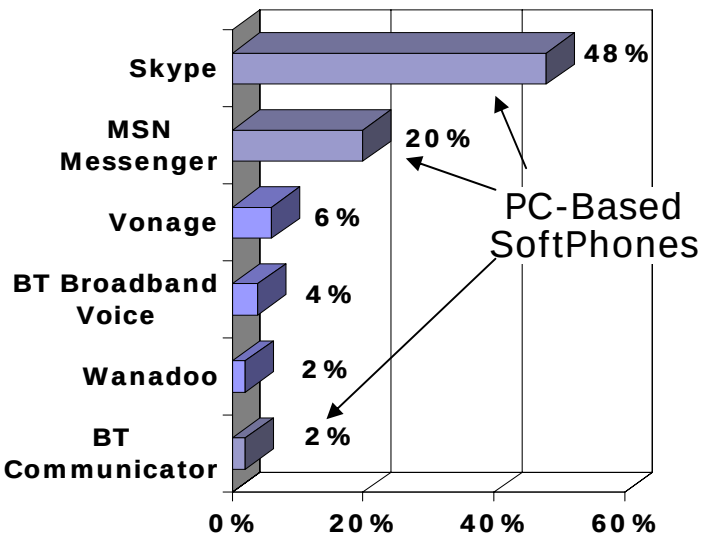


Distinct Soft Client Subscribers (stand-alone) equals all soft client sold minus soft clients bundled with Dual Mode (A) and bundled with Standard Handset Convergence (B)

Source: IDC

PC-Based Telephony Has Established a Foothold in Consumer Market

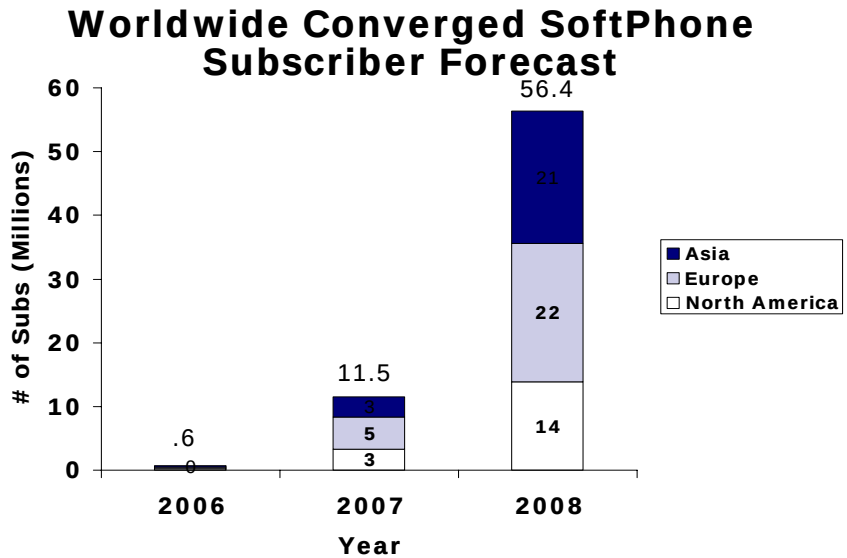
UK Internet Users Using VoIP in Last Year



Source: Continental Research, Apr 2006

- **1.8 Million UK consumers** of VoIP – primarily via PC-based softphones
- Represents **3% of UK wireless subscribers**
- Growing to 5% by 2007
- Excludes Business/Enterprise Use

SoftPhone Users Will Provide Launching Pad for FMC



Sources: Merrill Lynch, Juniper, Instat

- Converged, Single-Number Identity SoftMOBILE offers **convenience** over existing softphones
- **Better channel** to market via existing relationship with wireless subscribers
- **Enterprise** represent significant market potential

IMS Model (1/2)

Technology Convergence

- 2G/3G Wireless - transitioning to IMS: 3GPP/3GPP2
- Fixed Broadband Networks - extending into mobility: ATIS (NGN)/ETSI (TISPAN)/FMCA PRD
- Cable/MSOs - adding mobility: PacketCable 2.0
- MVNO/ISP hybrids - adding mobility and VoIP to IETF/ Internet content market and branding
- Wild Cards: GEMAYA (Google/eBay/MSN/AOL/Yahoo/Amazon)

IMS is not FMC, but a reference to FMC components for each industry sector

IMS is not *access independent* but access accommodating

Analogy: IMS (2005-10) ~ OSI 7 Layer Model (1980s)

For initial market launch in 2007/8,what is the FMC equivalent of TCP/IP today?

IMS Model (2/2)

FMC Market Transition

- Driven by novel business models to pair fixed VoIP and mobility
- Focus on interoperability using existing standards
- Market availability of existing technology extends traditional mobile service coverage and penetration
  - e.g. WiFi "roaming" default between CDMA and GSM operators with dual/multi-mode mode devices

No "One Size Fits All" FMC solution architecture

FMC realized by a phased transition from current Fixed/ Mobile market sectors

Focus on growing and maintaining service revenues

Interoperability Group: 2006 Program Initiatives

- FMC Reference Architecture
  Chair: Art Beall / F1 Interop Solutions
- FMC Handover
  Chair: Harry Mussman / BridgePort Networks
- FMC Convergent Messaging
  Chair: Hanni Doch / 724 Solutions
- FMC Hosted Services
  Chair: Robert Hollingsworth / Tekelec

Goals of FMC Handover Group

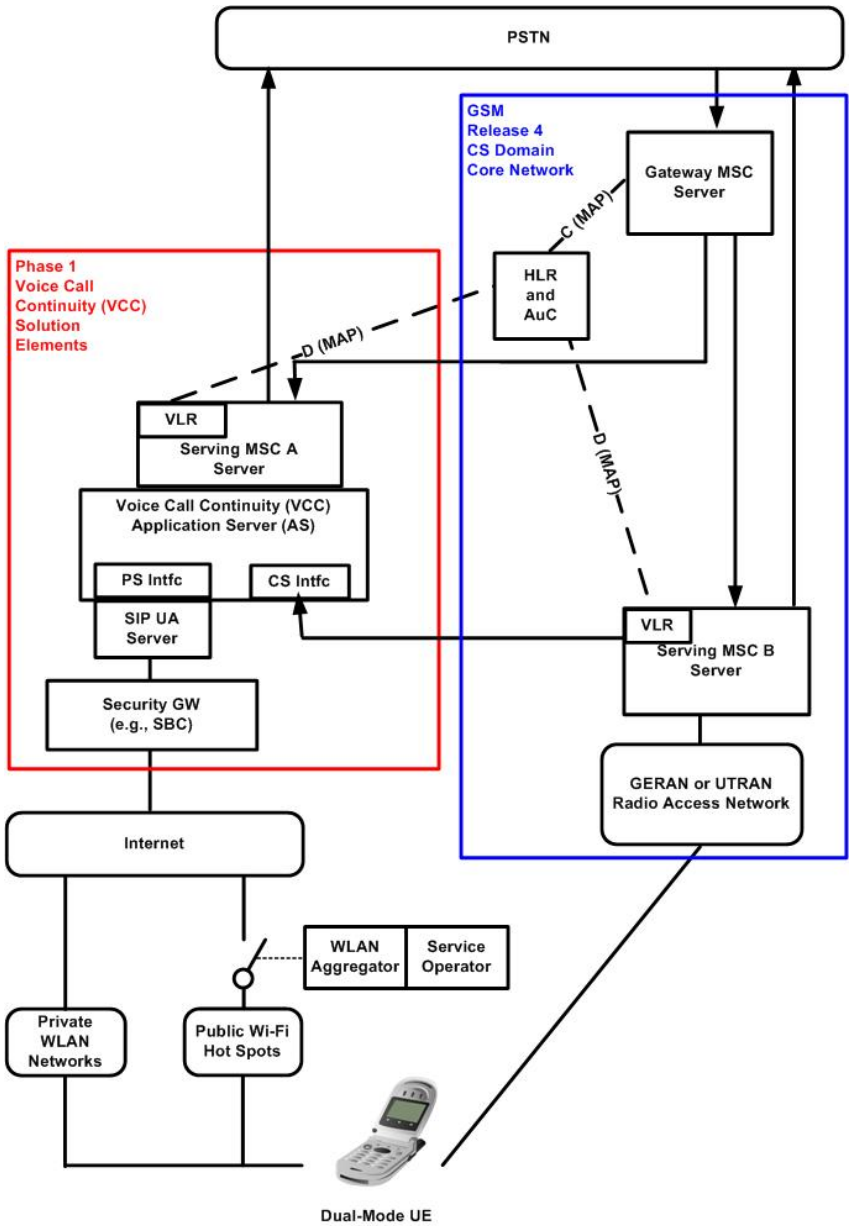
- Provide the technical framework and process to enable MobileIGNITE to demonstrate handover interoperability of end-to-end Fixed-Mobile-Convergence (FMC) solutions based on open industry standards

- **Focus**: SIP VoIP over WiFi to Circuit Switched Cellular Voice handover
  - Network to dual-mode handset interoperability.
  - Based on emerging Voice Call Continuity (VCC) standards in 3GPP and 3GPP2 (GSM and CDMA).
  - Start with equivalent of 3GPP R4; then move to R5/6 and R7.
  - Start with basic voice; then add SMS, supplementary services, etc.

- **Step 1**: FMC Voice Handover Functional Specification Version 1.0
  - Including elements and interfaces.
  - Including basic use cases.
  - Target: Version 1.0 September 2006

- **Next**: Interoperability Test Specification Version 1.0 (4Q 2006)

R4 VCC Element



- R4 VCC element (SIP-based) includes:
  - SIP Voice Server (for registration, authentication)
  - VCC server (for 1-way handover)
  - Serving MSC (when VoIP connected)
- Supports:
  - single ID (mobile #)
  - dual ID (fixed / mobile #s)
  - VoIP service features like GSM features
  - Handover from VoIP to GSM
  - VCC Client S/W in dual mode terminals
- Standard VoIP MGCF/MGWs bridge media between GSM and VoIP sides (not shown)
- R4 circuit switched networks already have integrated MSC/VLR and MGCF
- No change to existing off the shelf VoIP network elements
- Automatic authentication of dual mode devices in Wi-Fi coverage based on SSID identification

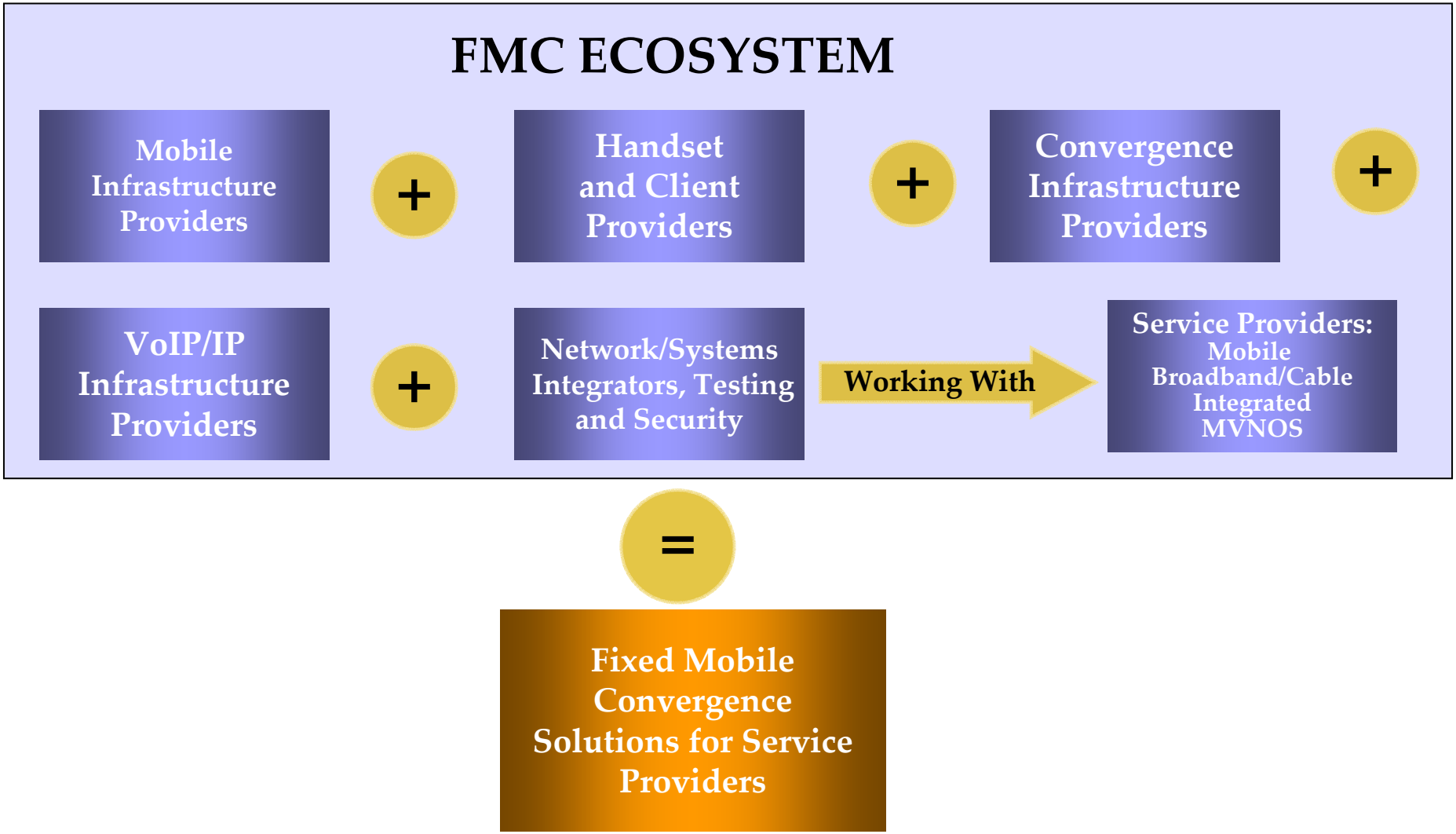
Benefits of R4 (Pre-IMS) VCC

- **Leverage R4 networks to enable broadband communications**
  - No changes to circuit switched networks
  - Leverage off the shelf VoIP components
  - R4 VCC Element: SIP Server function only when UE registered on SIP side, defaults to normal MSC/VLR for mobile CS voice
- No changes for UE to migrate to R7
  - Keep UE VoIP and CS interface identical for R4 solution, so no issues when migrating core network to R7
  - Utilize current dual mode devices with VCC Client S/W
- Solution supports a variety of scenarios
  - Mono-mode and/or dual-mode devices
  - Single number (mobile) and dual number (fixed and mobile) solutions
  - Consumer and/or enterprise service environments supported

FMC Handover: Next Steps

- Release of Version 1.0 FMC Handover Functional Specification: Brussels (Sept.25, 2006)
- Work initiated on Version 1.0 FMC Handover IOT → based on feedback from service providers and vendor input on testing requirements (devices and network)
- Version 2.0 Handover FS based on additional operator requirements and feature prioritization (convergent messaging, supplementary services, FMC Hosted, etc.)
- Liaison with other major industry initiatives related to IMS/NGN/FMC testing and interoperability: ETSI PTCC, SINTESIO, MSF, SIP Forum, etc.

Components of an End-to-End FMC Solution



THANK YOU … Questions?

- For more information and the FMC Handover documents, go to: www.mobileignite.org

- For membership information, contact:
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