



Femtocells – Opportunities and Challenges

Chand Gundecha
CDG Technology Forum
Wednesday, May 2, 2007

Motorola Inc

Global Marketing & Strategy,
Motorola Networks & Enterprise Business
Mobile Telephone (312) 307-0677
E-mail: Chand.Gundecha@motorola.com

Agenda



1

FMC, Seamless Mobility, Femtocell Overview

2

Market Drivers

3

Femtocell Evolution

4

Challenges and Opportunities

5

Summary

FMC, Seamless Mobility and Femtocell - Overview



- **Femtocell - a disruptive technology that can create new business opportunities for Wireless Operators**
- **Motorola has a broad portfolio of solutions and services in FMC/Seamless Mobility areas**
- **UMA is the first FMC/Seamless Mobility application**
 - Numerous UMA commercial systems and trials
- **Other FMC applications enabled by Motorola IMS**
 - IMS VCC trials underway
- **Initial Femtocell focus with UMA with evolution to IMS/SIP**

Agenda



1

FMC, Seamless Mobility, Femtocell Overview

2

Market Drivers

3

Femtocell Evolution

4

Challenges and Opportunities

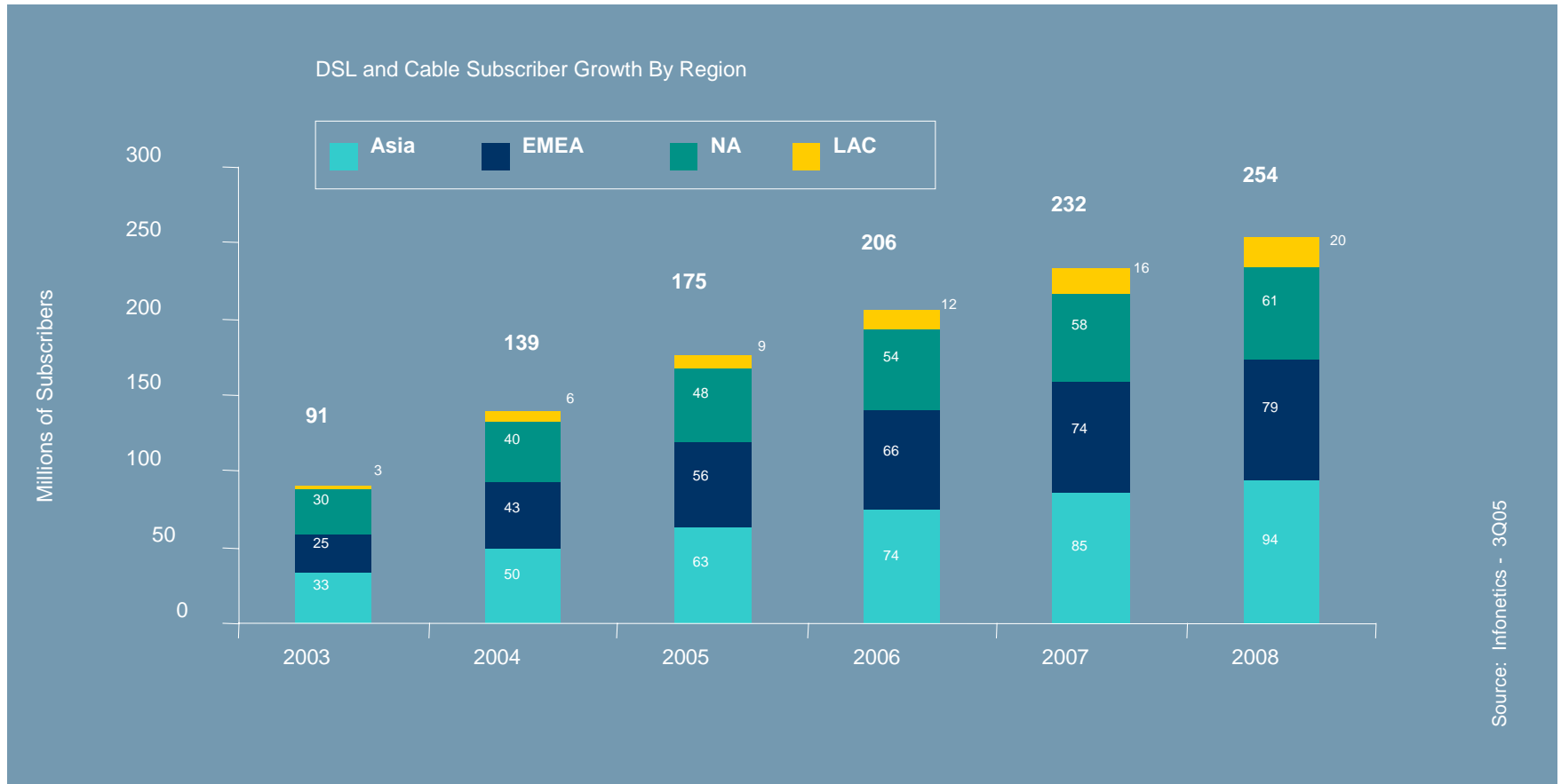
5

Summary

Femtocell Market Drivers



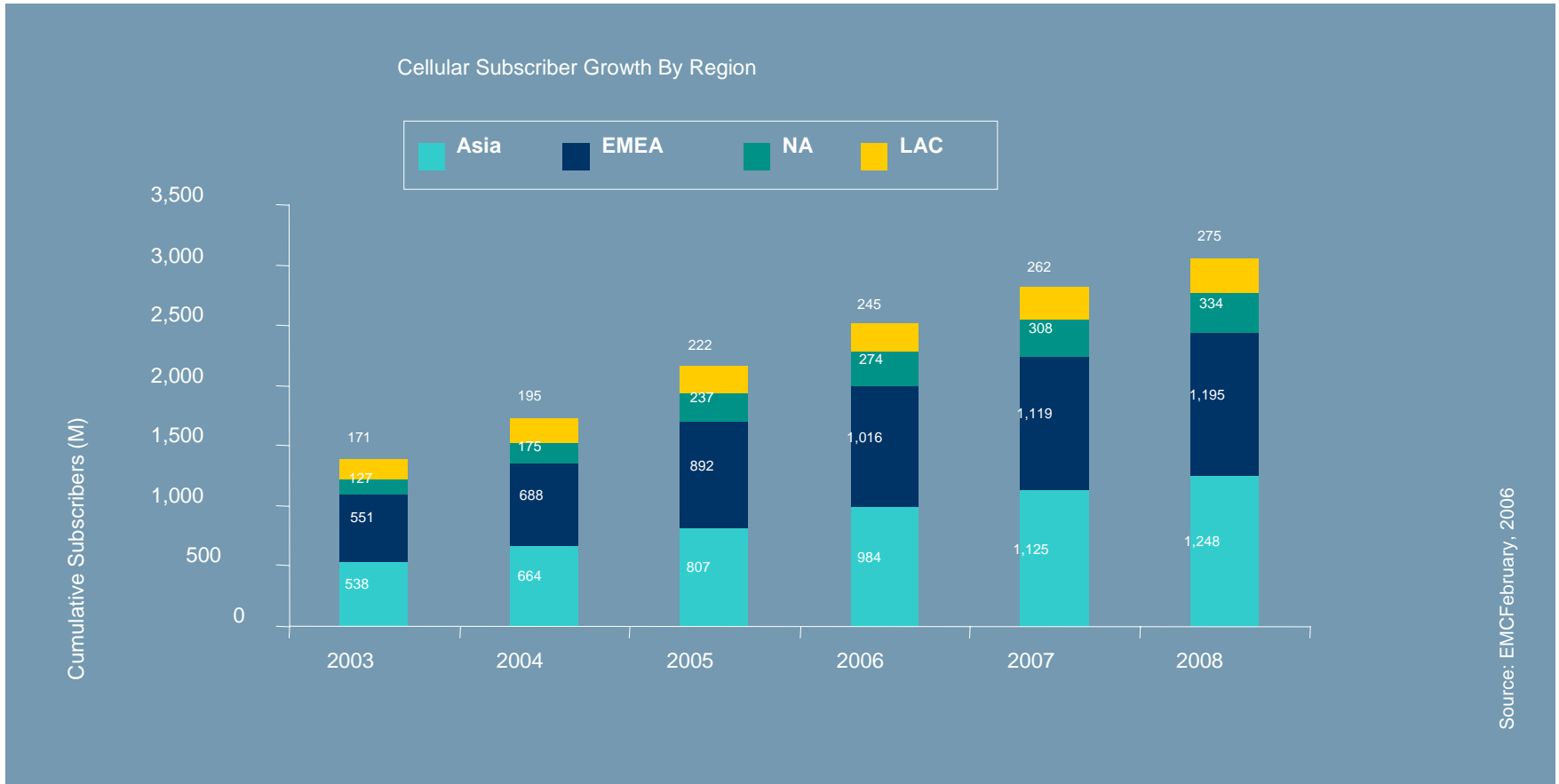
Proliferation of Broadband Subs Services



Femtocell Market Drivers



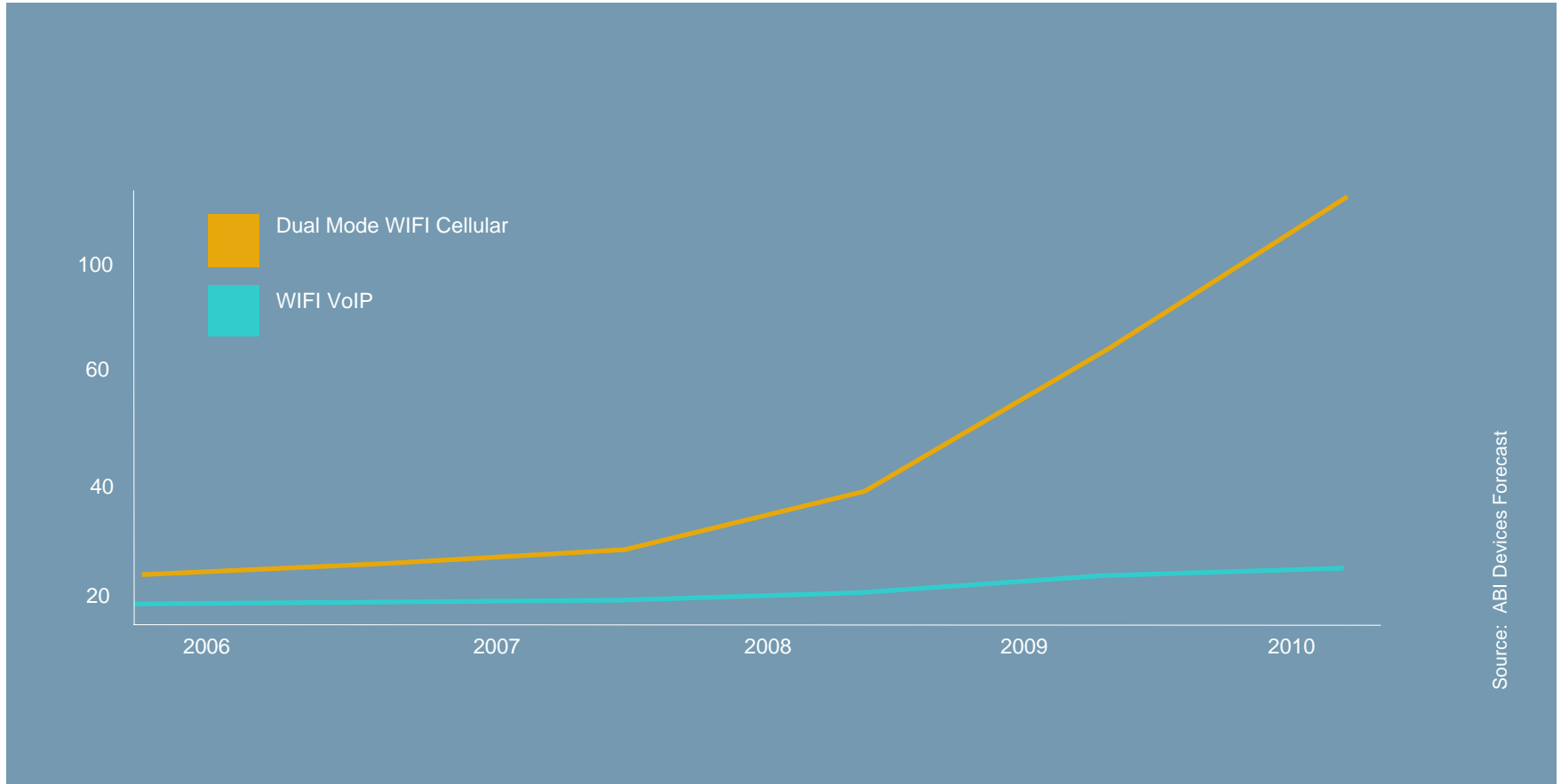
Cellular Subscribers Keep Growing but there are coverage issues in certain places...Homes, Hotels Basements



Femtocell Market Drivers



~120M WiFi, Dual Mode Handsets by 2010

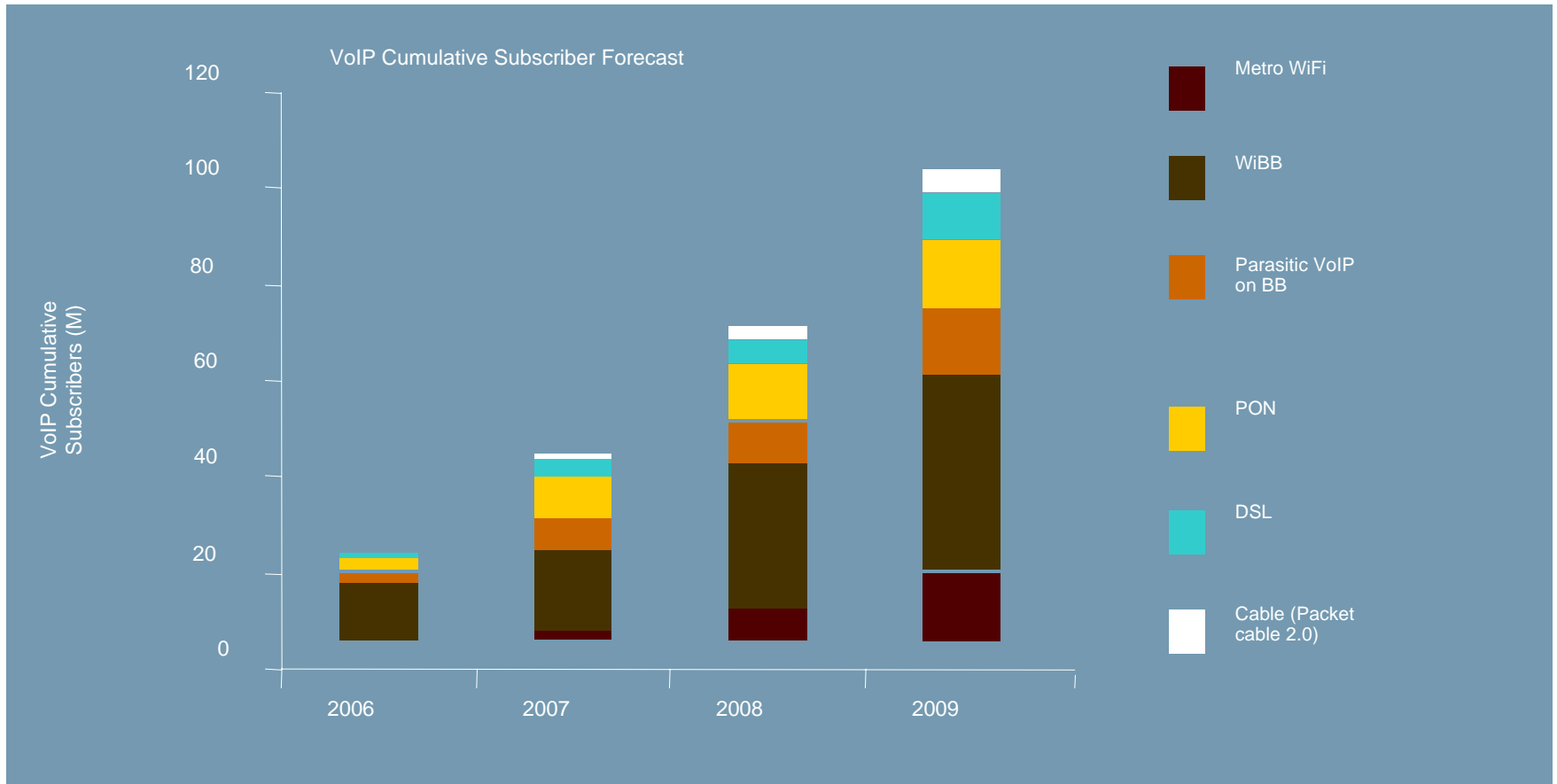


Femtocell technology allows user to keep the same handset as opposed to a Dual Mode Handsets

Femtocell Market Drivers



VoIP Over BBN technology is Exploding



Convergence / Quad Play Has Begun

Competitive differentiation



Service Providers Are Evolving to Seamless Mobility, Triple and Quad Play

Global Momentum

TeliaSonera

TIM

Orange

Time Warner

DoCoMo

Comcast

BT

KT

ATT

StarHub



Service Provider Market Dynamics

Femtocell: Initial Interest from UMA Wireless Operators



Greenfield ISPs



Entry into growing wireless market

Increase minutes on IP network

Wireline Service Providers



Keep minutes on network

Increase revenue

Reduce churn

Cable MSOs



Triple-play evolution to quad play

Increase revenue per subscriber

Wireless Service Providers



Fixed mobile substitution

Revenue and market expansion

Service Provider/End User Challenges



End Users end up having multiple providers/services

Circuit switched services are restrictive

Services are specific to the cellular, wireline networks

Competitive threat from other service providers

Reduce churn, increase operational efficiency

Optimize with NGN services for both circuit & packet world

Serving diverse end users with NGN

Increase subscriber penetration in the places served today

Compete with new applications to gain differentiation

IP Multimedia Subsystem plays a key role in the core network evolution.

Agenda



1

FMC, Seamless Mobility, Femtocell Overview

2

Market Drivers

3

Femtocell Evolution

4

Challenges and Opportunities

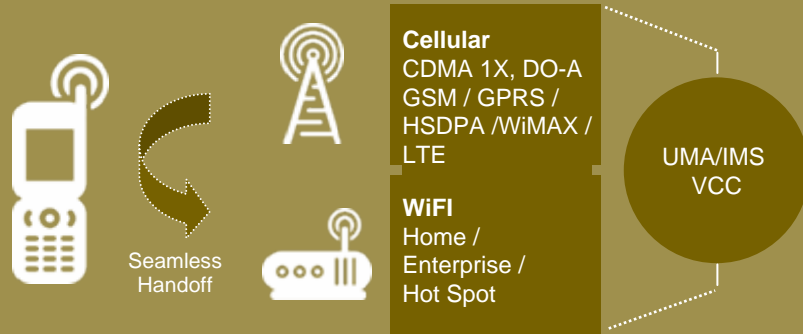
5

Summary

What is Seamless Mobility?



Seamless Services across Networks



Seamless across Networks and Devices







Seamless Mobility increases reach ability and productivity

Seamless services across user environments creates opportunities for service providers to increase revenues

FMC Solutions— Femtocell Evolution

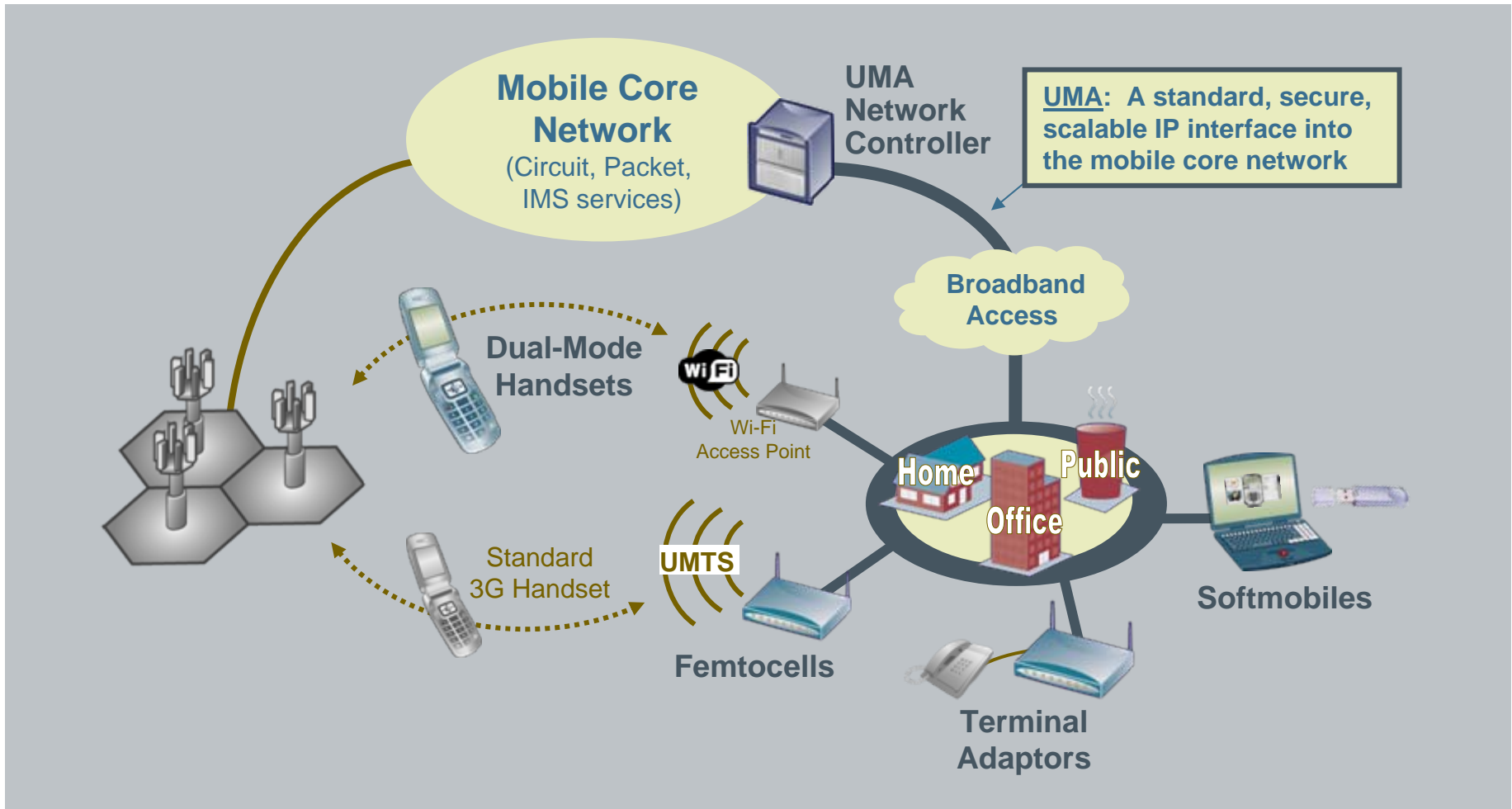


Residential	Residential / Enterprise	Advanced Services	Residential / Enterprise
			
<p>UMA Hosted Solution UMA Evolution to Femtocell</p>	<p>MOTOWi4 Hosted VoIP / Seamless Mobility Solution</p>	<p>GAMA Applications (Interactive Manager)</p>	<p>Hosted IMS Solution Mobility Manager, CDMA, GSM networks</p>

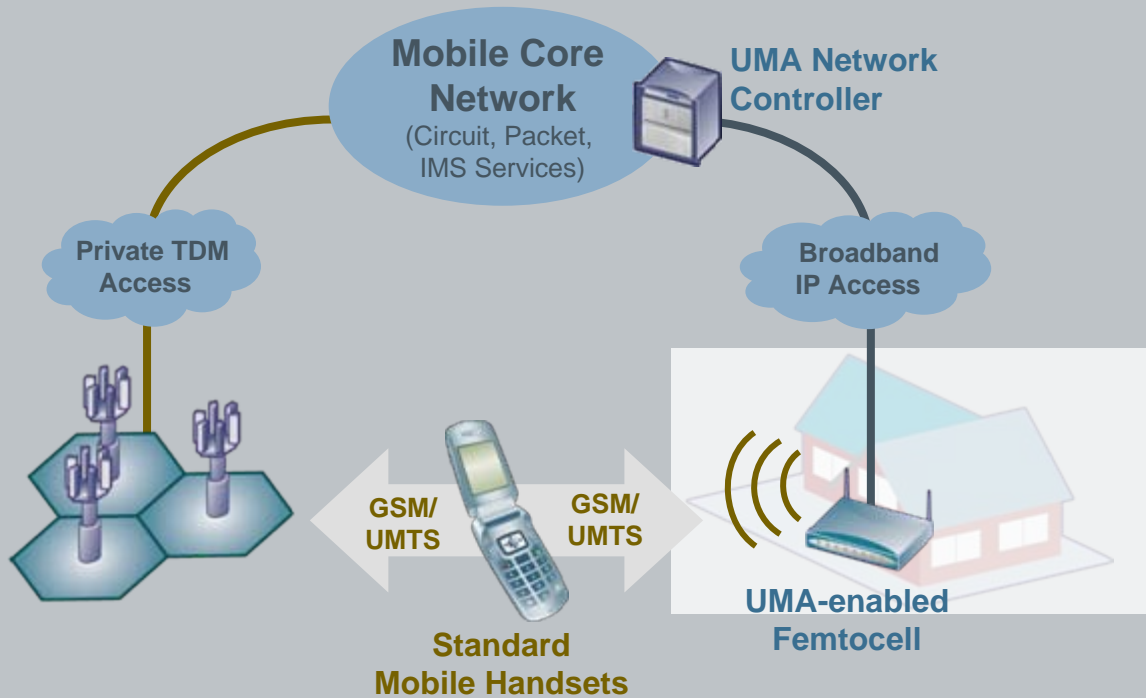
UMA Today: Femtocell Opportunity Expanding



UMA moves to “Universal Mobile Access”



UMA Solves Femtocell Network Challenge



Standardized, secure IP access to mobile networks and services

Supports ad hoc service activation

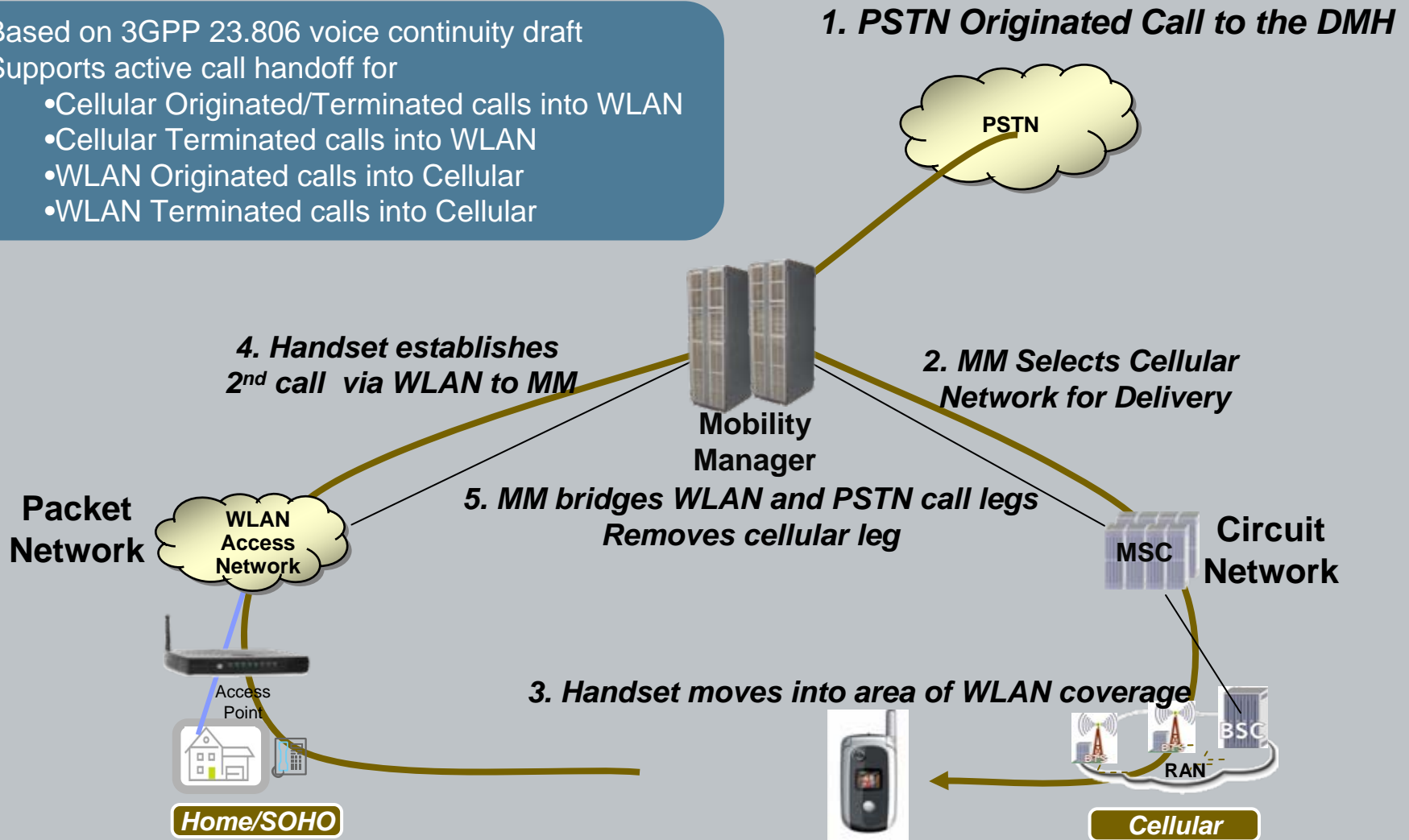
Scalable architecture designed for millions of user-installed femtocells

IMS Voice Call Continuity Call routing & Handoff

VCC DMH >> Future Femtocell evolution with IMS



- Based on 3GPP 23.806 voice continuity draft
- Supports active call handoff for
 - Cellular Originated/Terminated calls into WLAN
 - Cellular Terminated calls into WLAN
 - WLAN Originated calls into Cellular
 - WLAN Terminated calls into Cellular



Agenda



- 1** *FMC, Seamless Mobility, Femtocell Overview*
- 2** *Market Drivers*
- 3** *Femtocell Evolution*
- 4** *Challenges and Opportunities*
- 5** *Summary*

Femtocell - Opportunities and Challenges



Opportunities / Benefits

Residential 2G/3G Coverage

Operator Benefits

- Subscriber retention
- Macro network offload
- Increased revenue from new services

Subscriber Benefits

- Increased mobile performance at home,
Better coverage
- Home zone pricing

Challenges

Femtocell Challenges

- Low-Cost Femtocells ~ \$200
- Interference management with
Macrocell network
- Core network integration
- Packaging and selling service to end
users



Agenda



1

FMC, Seamless Mobility, Femtocell Overview

2

Market Drivers

3

Femtocell Evolution

4

Challenges and Opportunities

5

Summary

Full Suite of Motorola Services



Serving Public, Private, and Enterprise Customers

Support Services



- Support, Training
- Operations, Maintenance
- Optimization
- Security
- Network Management

Integration Services



- Planning & Design
- Installation, Commissioning
- Turnkey Services
- Program Management

Managed Services



- Out-Tasking
- Out-Sourcing
- Build, Operate, Manage/Transfer
- Hosting Services

Application Services



- Services, Application Delivery Framework
- End-User Applications
- Hosting Services
- Mobile Virtual Network Operator (MVNO)

Seamless
Mobility
Services



1 CONCEPTUALIZE Strategy

- Business Assessment
- Business Modeling
- Network Evaluation
- Solution Design
- Implementation Plan

2 REALIZE Implementation

- Network Preparation
- System Integration
- Program Management
- Trial – Controlled Introduction

3 EXTEND Support

- Go-to-Market – Volume Introduction
- New Service Uptake Monitoring
- Enhancements
- Training

The Motorola Difference



Proven Portfolio Of FMC Solutions

Flexible Mobility Management Solutions

End-to-End Framework

Dual Mode Devices

Full Suite of Motorola Services

