



# Femtocells – Opportunities and Challenges

*Chand Gundecha*  
*CDG Technology Forum*  
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# 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**

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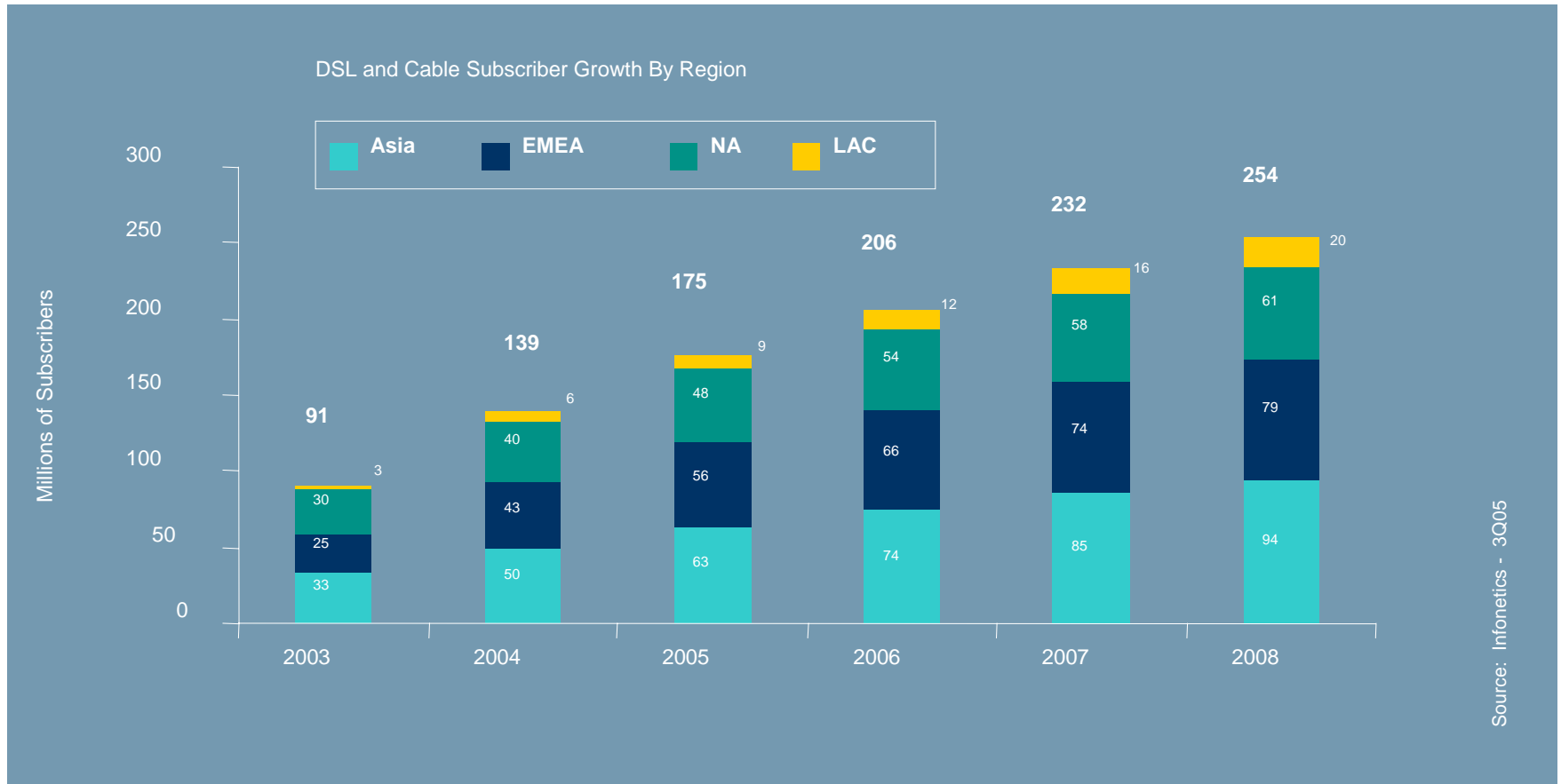
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***Summary***

# Femtocell Market Drivers



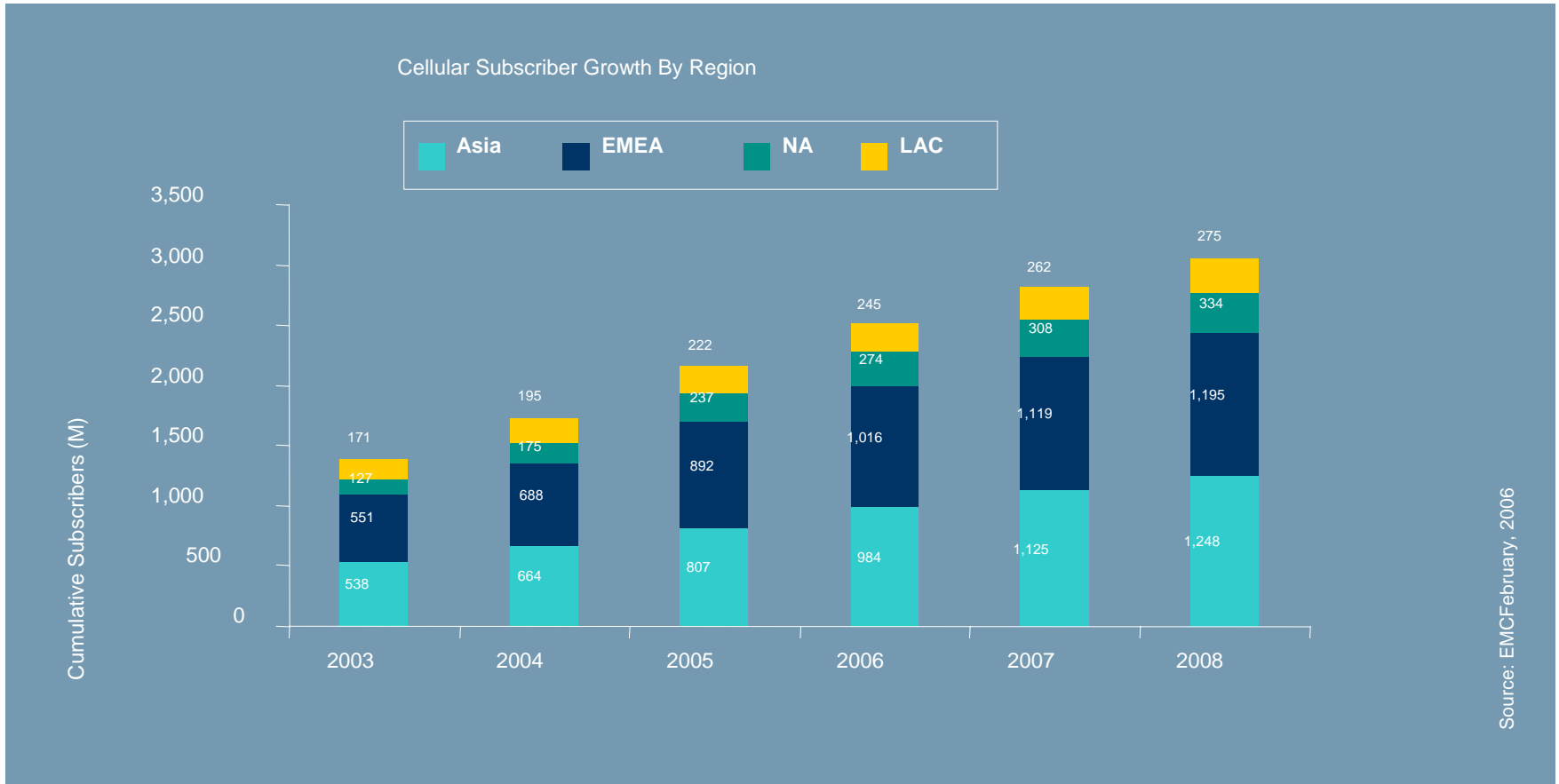
## Proliferation of Broadband Subs Services



# Femtocell Market Drivers



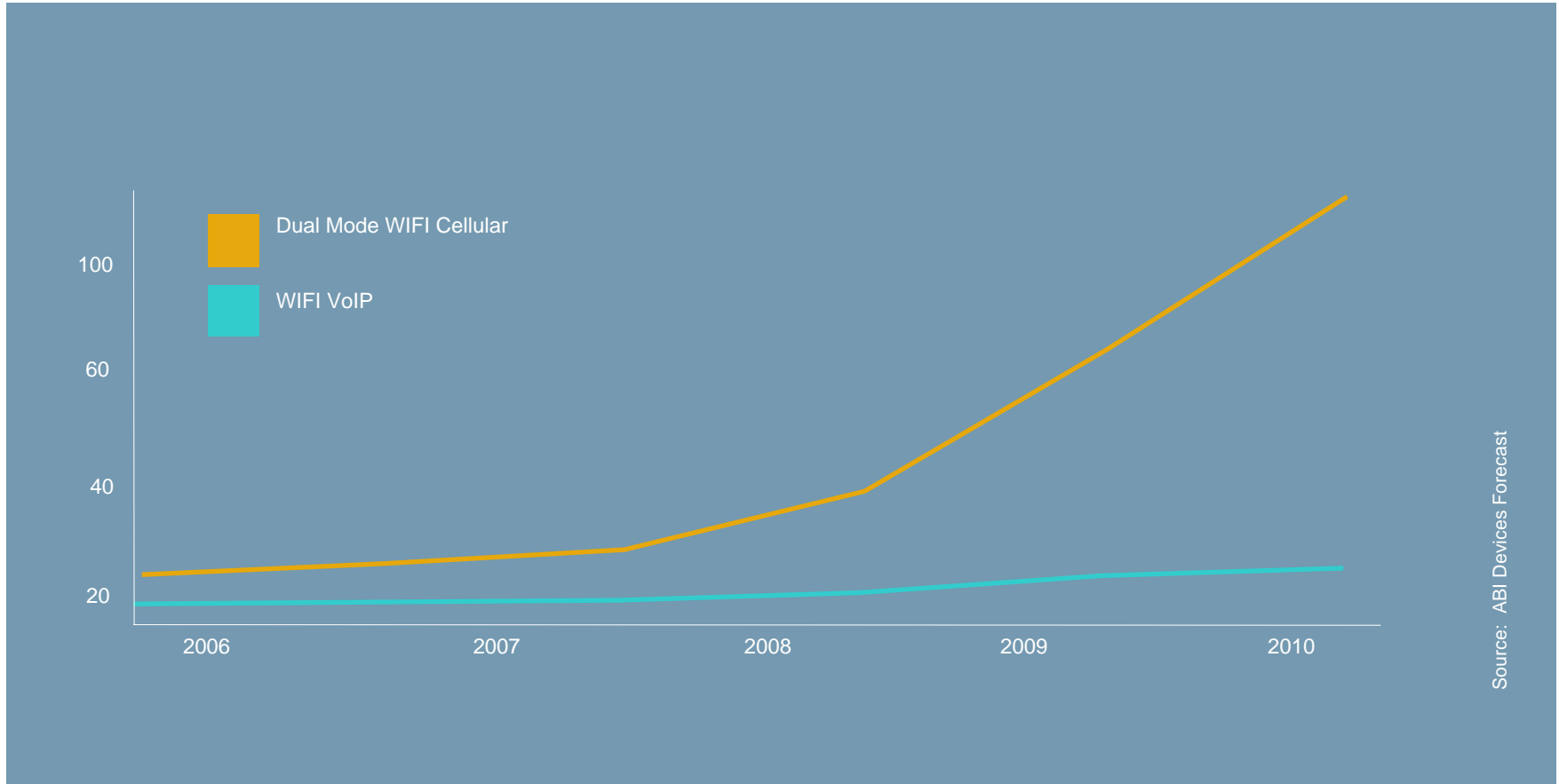
**Cellular Subscribers Keep Growing but there are coverage issues in certain places...Homes, Hotels Basements**



# Femtocell Market Drivers



*~120M WiFi, Dual Mode Handsets by 2010*

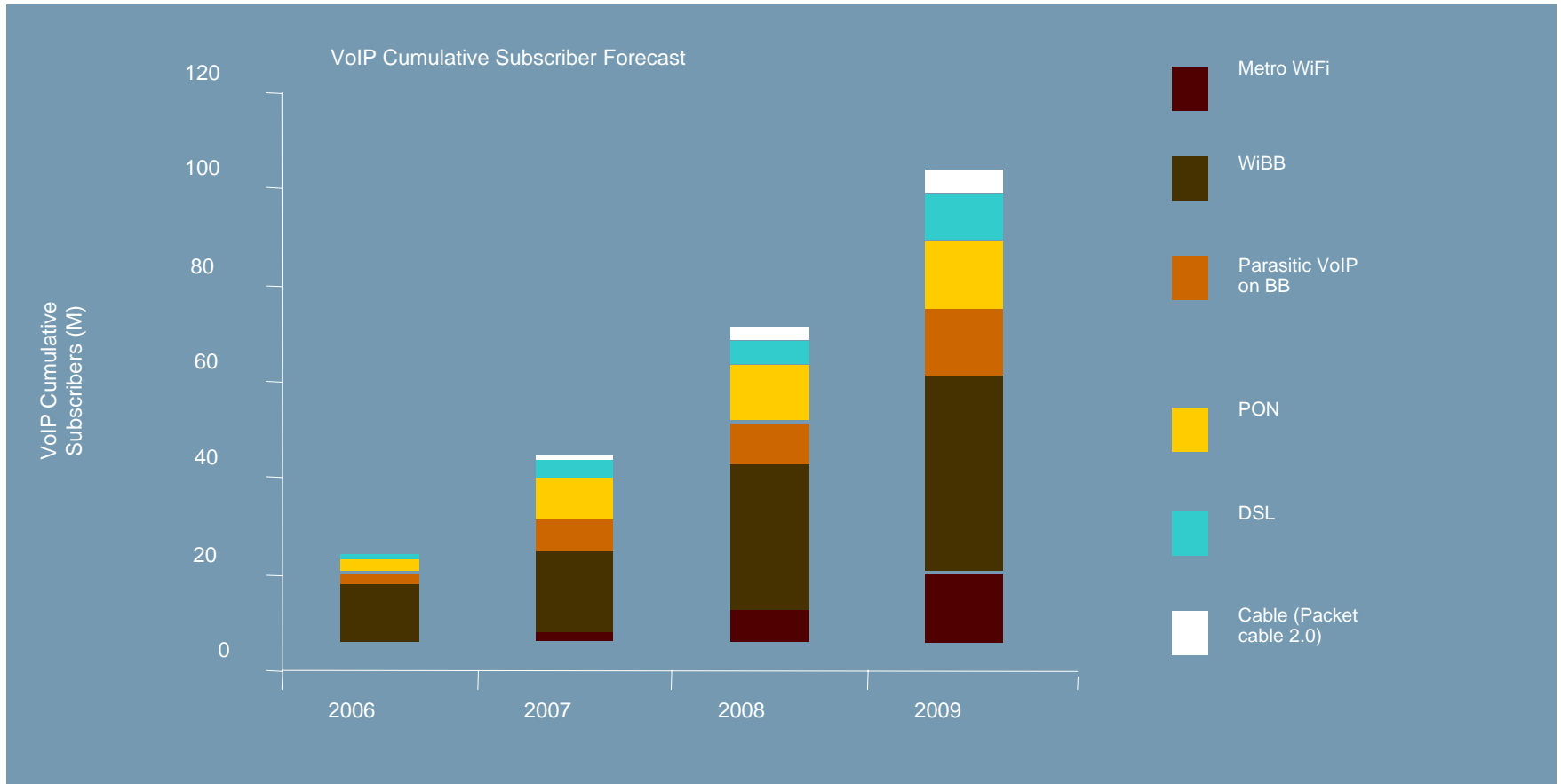


***Femtocell technology allows user to keep the same handset as opposed to a Dual Mode Handsets***

# 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.***

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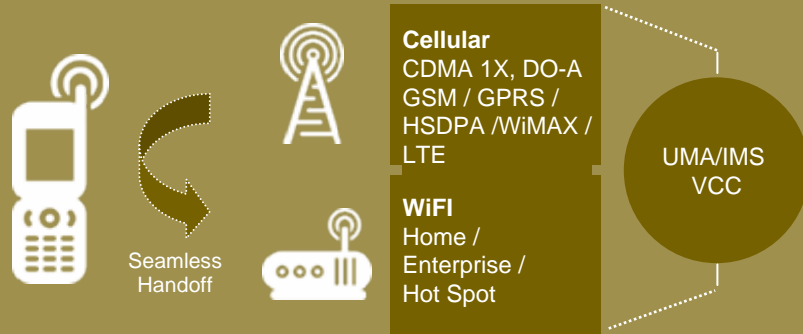
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*Summary*

# 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

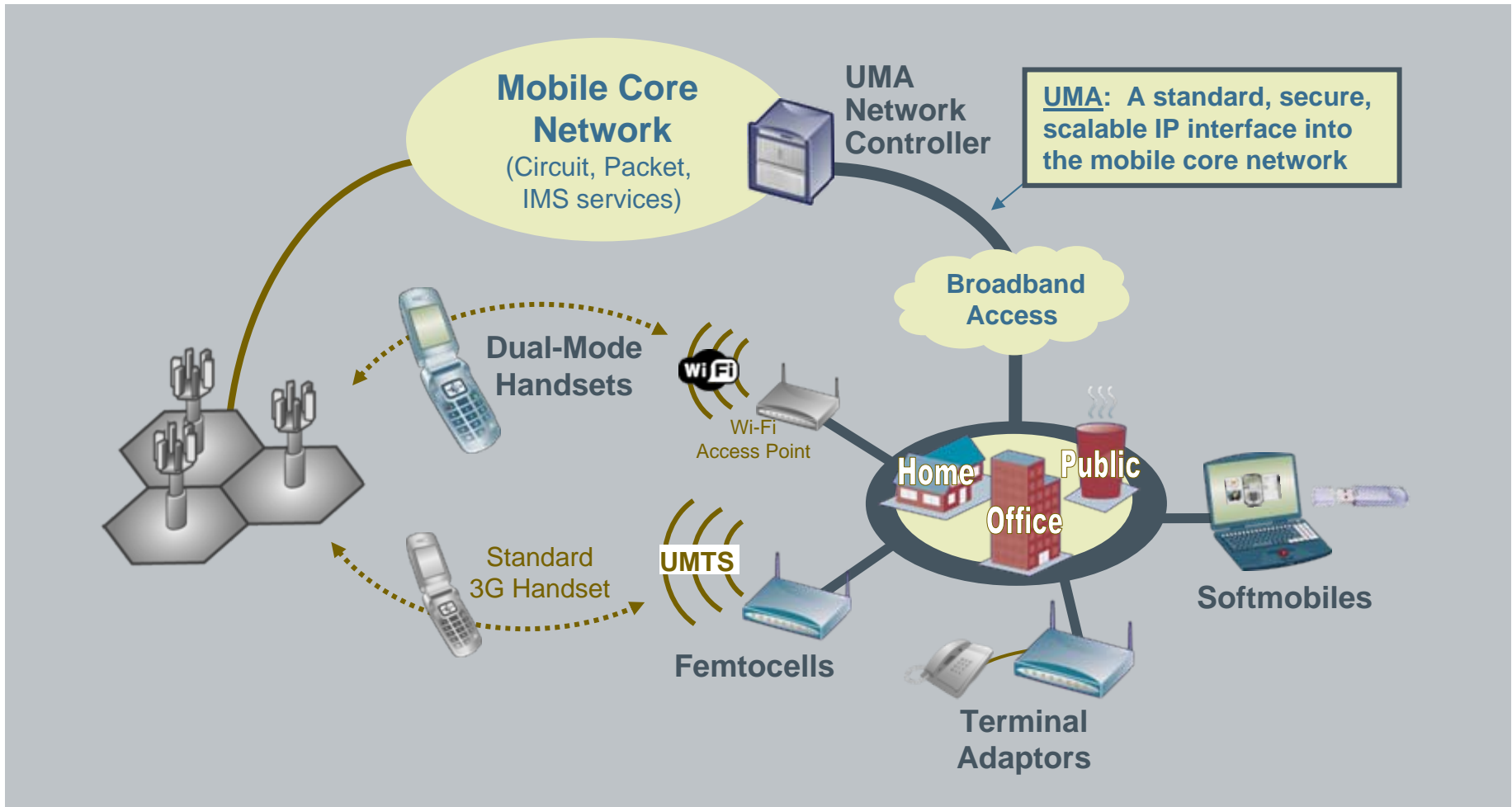


Residential	Residential / Enterprise	Advanced Services	Residential / Enterprise
			
<p>UMA Hosted Solution UMA Evolution to Femtocell</p>	<p>MOTOWi4 Hosted VoIP / Seamless Mobility Solution</p>	<p>GAMA Applications (Interactive Manager)</p>	<p>Hosted IMS Solution Mobility Manager, CDMA, GSM networks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

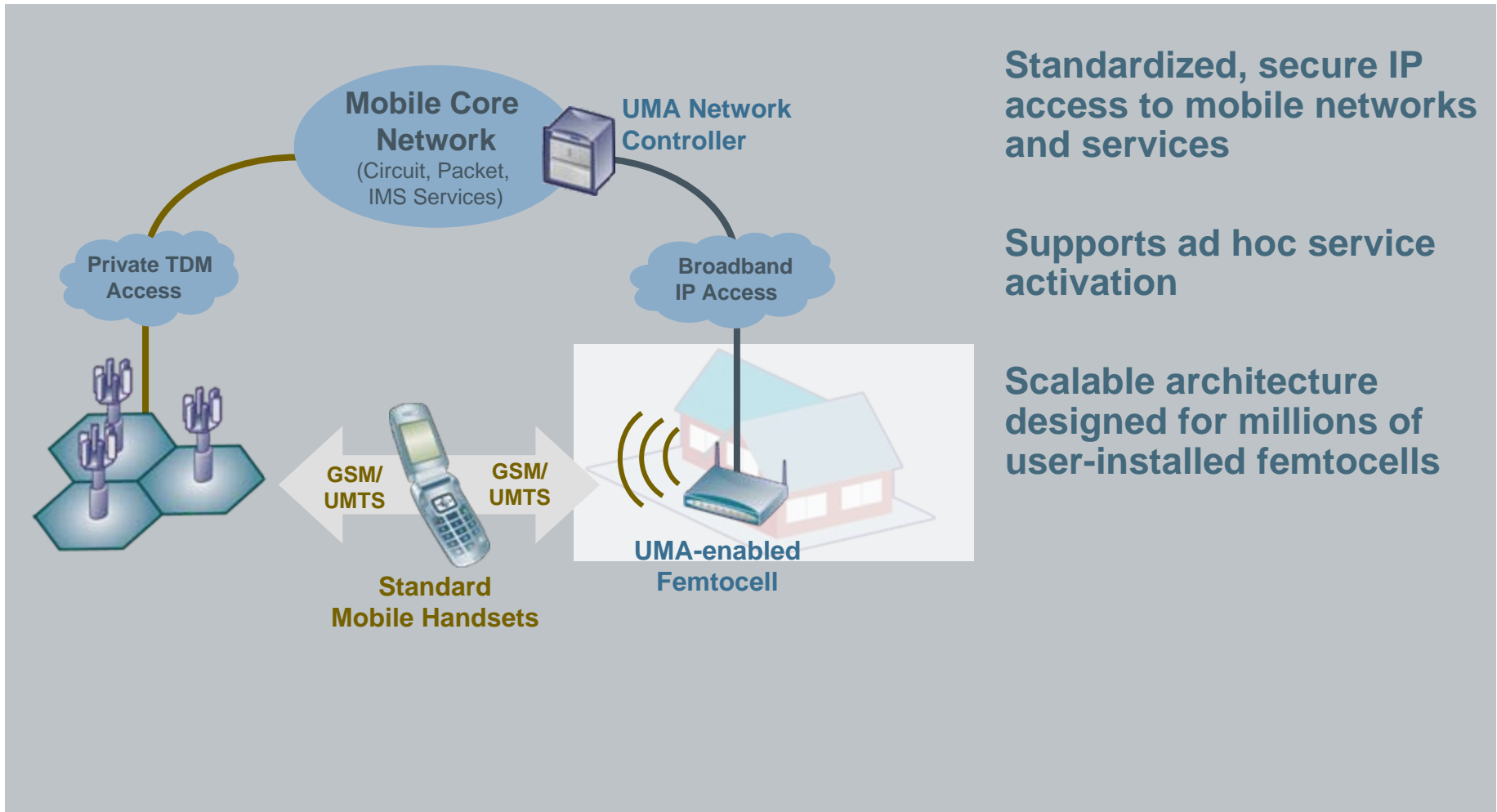
# UMA Today: Femtocell Opportunity Expanding



## 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**

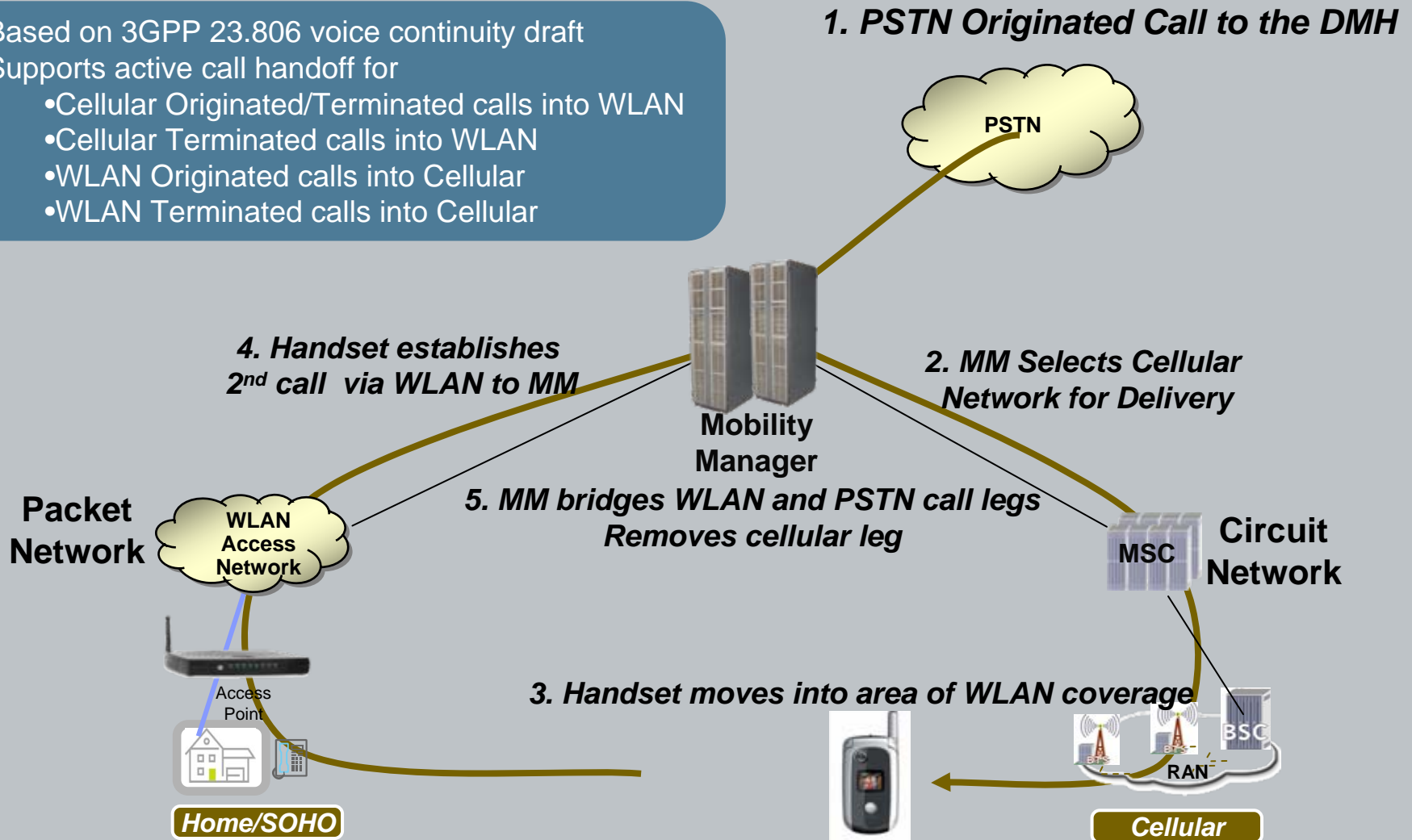
**Scalable architecture designed for millions of user-installed femtocells**

# 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



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# 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



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# 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**

