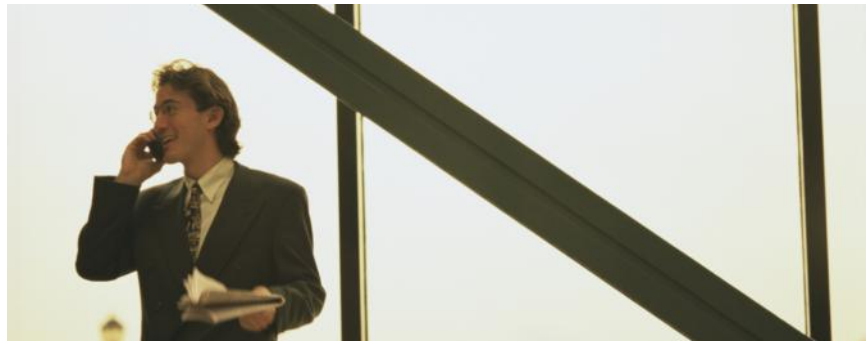
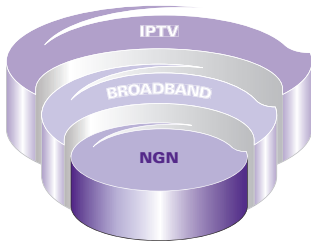




# The Cutting Edge is **Continuity**<sup>TM</sup>

A Fixed Mobile Convergence Solution



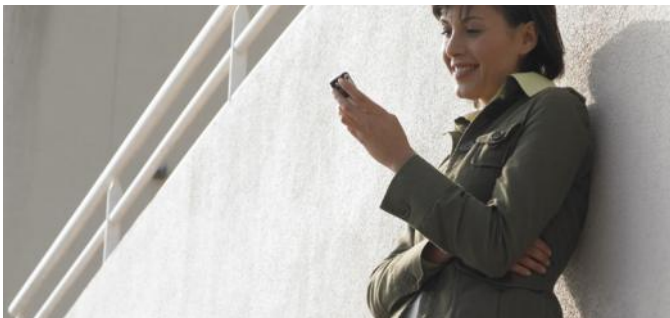
Deliver Fixed/Mobile Convenience to your customers with Continuity from UTStarcom.

Fixed mobile convergence (FMC) can give your subscribers the combined advantages of both fixed line and mobile networks while increasing your network efficiency and coverage. It allows end users to access a rich set of services and features from their home, on the go, or at their office. FMC can enable your customers to communicate with anyone virtually anywhere while using the device of their choice.

UTStarcom's FMC solution offers a phased approach to combining fixed-line and cellular networks and services, through network and signaling supported connections that leverage existing devices through IMS VCC support for dual-mode Wi-Fi/Cellular handsets. Because we can deliver Fixed Mobile Convergence while leveraging the existing network infrastructure, Continuity is a great solution for both wireline and wireless carriers.

# Continuity™

## A Fixed Mobile Convergence Solution



### FIND-ME/FOLLOW-ME CONVENIENCE

Continuity features can enable service providers to offer application server based one-number service without significant changes to existing infrastructure or the requirement to switch out existing handsets. Using existing consumer devices, Continuity can support simultaneous or sequential ringing across wireless and wireline networks, flexible call filtering, and a wide array of call handling options. The Continuity feature set can provide a fast path to revenue as you launch innovative features over your existing NGN network.

### BEGIN YOUR IMS MIGRATION WITH VOICE CALL CONTINUITY (23.806)

Continuity can also support the 23.806 standard for Voice Call Continuity, part of the 3GPP's standards for IMS based fixed mobile convergence. With a purpose built Continuity application server to bridge existing softswitch and mobile switching systems, Continuity can provide seamless handover and full convergence using the growing base of dual-mode handsets. You can support your subscribers whether their communications needs require wireless access from traditional cellular voice networks, or can leverage the cost savings associated with VoIP over fixed broadband networks. Continuity is a key that can enable you to offer fully transparent FMC services with virtually seamless handover between wireless and broadband wireline networks.

### ENABLING TRANSPARENT ACCESS

FMC can enable users to access their voice and data services regardless of their location, device, or network-access method. Through FMC, users can access the best available service from their mobile and Wi-Fi/fixed-line coverage. Mobile coverage offers mobility, convenience, and ubiquity—the attributes most valued by both road-warrior business users and general mobility subscribers. At the same time, Wi-Fi/fixed-line coverage offers lower cost and feature-rich capabilities that users can use whether they are at home, in the office or in a public hotspot.

Most mobile subscribers use their cell phones to place calls from a “fixed” location such as their home or office. With an FMC solution, many of those minutes can be diverted to a low-cost broadband fixed-line network which can offer operators five key advantages:

- **Create Service Bundling**

The bundling of fixed services, mobile services, data services, and multimedia services will greatly increase stickiness and reduce subscriber churn rate.

- **Increase Average Revenue Per User (ARPU)**

Early FMC trials have proven that service providers can charge a premium for FMC service delivered over a Wi-Fi-capable dual-mode handset. Users are able to use value-added services such as instant messaging, web browsing, short messaging and online chat as well as new business-oriented services.

- **Reduce Operating Expenses**

FMC enables the diversion of call minutes from an expensive wireless/cellular network to a lower cost fixed-line network, enabling lower operating costs when compared with transport of call minutes over the mobile network.

- **Lower Capital Expenditures**

By diverting call minutes to the fixed-line network, the mobile network can support more subscribers without adding capacity, thereby reducing the capital spending needed for network expansion. Similar savings are also possible when using Wi-Fi hotspots. Network operators can leverage the subscribers wireless and broadband infrastructure to deliver their services, which can lower capital expenses when compared to the cost of installing a mobile base station subsystem.

- **Enhance Service Quality**

Cellular service is hard to deliver reliability in many location—especially in residential neighborhoods, office buildings, and rural areas. The high cost of base stations has limited their deployment in these areas, and call quality or coverage suffer. By integrating Wi-Fi networks to complement the cellular service grid, FMC enables noticeable improvements in both coverage and call quality.

FMC may drive higher customer satisfaction by providing several important benefits to end users:

- Simplified and unified service plans and payment schemes
- A single, virtually always-reachable phone number
- Lower total cost to access a greater variety of features

## ADDRESSING A WIDE VARIETY OF NEEDS

Interest in FMC by consumers and service providers has been steadily rising. All forms of service providers can find value in developing an FMC service strategy, including traditional wireline operators, Next Generation Network (NGN) operators, Cable Multi-Service Operators (MSO), Mobile Network Operators (MNO) and Mobile Virtual Network Operators (MVNO). Their respective reasons for deploying FMC are as varied as their business plans; however each operator type can find ROI and strategic business value in delivering FMC services.

**Fixed-line operators:** Because of fixed line substitution from both cellular and VoIP providers, fixed line revenue is vulnerable. FMC provides a way for fixed line operators to add a wireless service component to their service bundle, giving them a competitive advantage in their effort to maintain and grow their customer base.

**VoIP Providers:** VoIP service providers are strong supporters of FMC as a logical extension of their services. The reason is that they must now focus on increased profitability and subscriber stickiness. FMC can offer an ideal way to increase user revenues from the existing customer base, and offer a premium priced service as opposed to a highly competitive wireline voice service.

**Cable MSOs:** Cable providers are looking for ways to leverage their investment in broadband networks. Cable providers can further enhance their service bundle by adding a wireless voice element offering a quadruple play to customers. More and more cable operators are offering a bundle of integrated voice, data, video and wireless from a single operator.

**MNO/MVNO:** These operators have enjoyed lucrative growth for the past 5 to 10 years due to improvements in mobile technology and the greater convenience delivered to consumers. FMC can help reduce churn rate, lower operating and capital expenses, and ultimately improve return on investment (ROI).

## THE UTSTARCOM FMC-FEATURE SERVER SOLUTION

The UTStarcom Continuity server solution is based on the 3GPP IP Multimedia Subsystem (IMS) architecture. This Continuity FMC solution can enable calls to be delivered to end users through dual-mode handsets and a feature server that bridges both the Wi-Fi SIP network and the mobile network. The benefit of an IMS-based approach is that it leverages the SIP architecture in the NGN and adopts a gateway function to bridge the NGN to a GSM or CDMA network.

The Continuity FMC solution is built on UTStarcom's mSwitch® platform, a premier solution that has been deployed globally and currently supports over 47 million subscribers. The feature server is an open and flexible choice for service enhancement whether provided by UTStarcom or another vendor.

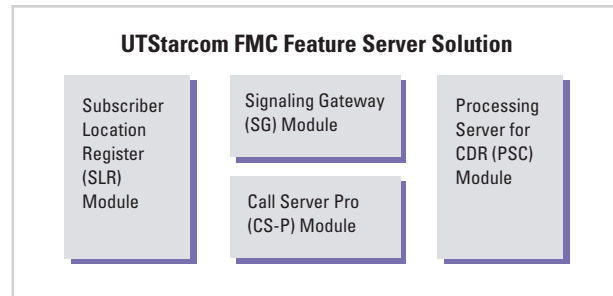


Figure 1: UTStarcom's mSwitch-based Continuity FMC Solution

As shown in Figure 1, the UTStarcom Continuity FMC solution is comprised of four modules that have been designed to work together virtually seamlessly to provide FMC functionality.

- **Call Server Pro (CS-P)**

The CS-P is the main functional module of the Continuity FMC solution. It provides user registration and authentication, performs SIP call setup and teardown, and also generates CDRs. It provides the SIP interface to both the SoftSwitch and the dual-mode FMC handset.

- **Signaling Gateway (SG)- Optional Component**

The SG provides MAP message conversion between IP and the SS7 network.

- **Subscriber Location Register (SLR)**

The SLR is the application module that processes user information such as authentication, location update and MAP message transaction. The SLR fulfills the function of the HLR and VLR in the NGN domain.

- **Processing Server for CDR (PSC)**

The PSC module collects CDRs generated by the system and exports them to the billing system.

## ADVANTAGES OF THE UTSTARCOM FMC SOLUTION

The Continuity FMC solution offers five important benefits:

- **Smooth Integration with the Existing Infrastructure**

Continuity FMC utilizes standard interfaces, has minimal impact on the existing network, and requires no changes to the cellular network. It consists simply of a SIP-based Feature Server add-on to the NGN network, leveraging any existing SoftSwitch and VoIP gateways for call processing and routing. The standard SIP interface allows for minimum integration effort and rapid time-to-market for the operator.

- **Flexible Configuration of User Topology**

Continuity FMC can support single- and dual-number user configurations—the choice is determined by the operator’s business model or local regulatory requirements. The solution also supports user subscriptions homed to either the WiFi/fixed or the mobile network. This allows the operator to utilize the same solution to support both roam-in and roam-out situations.

- **Turnkey Solution with Handset Support**

The solution can easily integrate with either the UTStarcom dual-mode handset or third-party handsets. This flexibility gives operators and consumers a broader selection of handsets that address a variety of end-user needs.

- **System Reliability and Scalability Backed by Real Deployment**

As mentioned above, the Continuity FMC solution uses the mSwitch platform (and its IP core) as its foundation. The largest single-system mSwitch implementation serves millions of subscribers and is deployed in a geographically redundant topology.

- **Extension with More Value-added Services**

The Continuity FMC solution can be further augmented with other value-added applications such as voice mail, short message service controller (SMSC) and caller ring-back tone (CRBT).

## SUMMARY

FMC solutions have been designed for carriers who want to provide mobility service by leveraging their lower-cost wireline assets. FMC allows fixed-line and NGN service providers to enter the mobility service market using Wi-Fi as a complementary alternative to cellular base station subsystems. FMC also allows cellular operators to further improve their coverage through lower-cost Wi-Fi technology.

With FMC, wireline carriers can retain their existing subscriber base while providing their customers with mobility, reversing the loss of voice-service minutes—and revenues—to cellular providers. In turn, wireless carriers can expand their services into the landline space while maintaining control of the call.

UTStarcom has developed a FMC solution that is backed by our broad experience and expertise in developing next-generation networks. Fixed mobile convergence can increase network efficiency and coverage. It provides end users access to a rich set of services and features that, in the past, were limited to either wireline or wireless networks. Ultimately, FMC will enable users to communicate with anyone virtually from anywhere while using the device of their choice.

Please note the foregoing is the current opinion of UTStarcom, it may not be a comprehensive treatment of the subject matter covered and it is intended for informational purposes only. Because UTStarcom must respond to changing market conditions, the information herein should not be interpreted to be a commitment on the part of UTStarcom and the specifications are subject to change without notice. UTStarcom makes no warranties, express or implied, on the information contained in this document.



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### About UTStarcom, Inc.

UTStarcom is a global leader in IP-based, end-to-end networking solutions and international service and support. The company sells its broadband, wireless, and handset solutions to operators in both emerging and established telecommunications markets around the world. UTStarcom enables its customers to rapidly deploy revenue-generating access services using their existing infrastructure, while providing a migration path to cost-efficient, end-to-end IP networks. Founded in 1991 and headquartered in Alameda, California, the company has research and design operations in the United States, China, Korea and India. UTStarcom is a FORTUNE 1000 company. For more information about UTStarcom, visit the company's Web site at [www.utstar.com](http://www.utstar.com)

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