

Fixed-Mobile Convergence (FMC)

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Abstract

FMC services tie together core elements of a business's fixed and mobile communications infrastructure into a single managed solution. Most operators around the globe are keen to deploy FMC services, using SIP/IMS platform. But there is a problem. FMC services based on full IMS solution are not yet ready. Technical issues with seamless handover between Cellular/WiFi networks still need to be resolved. The IMS VCC solution recently standardized by 3GPP to take care of this problem in the interim, will take up to 2007 before the handset becomes widely available.

As a result, UMA is the only available access technology today that can provide WiFi/GSM seamless handover. UMA technology is primarily focused on the consumer segment due to lack of straight forward integration with SIP/IP PBX. The current viewpoint among service providers and vendors alike is that UMA has a limited life span as an interim solution, and that in the long term it will be replaced by the IMS-based approach.

The incentives for an operator to launch UMA based FMC services is largely dependent on the unique operator situation. Operators in markets with high competition, high availability of broadband and WiFi in homes are the most likely to offer a UMA services. Generally, the main drivers for an operator to launch UMA today include:

- ❖ Needs to improve in-building cellular coverage for residential customers
- ❖ Need to take part in the fixed-to-mobile substitution trend and
- ❖ Need to reduce churn through service bundles

A key question for many is whether there are reasons to migrate from UMA to IMS VCC and if so whether the relative short time gap motivates an investment in UMA?

In the coming year, FMC services will likely be polarized along enterprise and/or consumer focused among service providers. In the enterprise segment, enterprise PBX integration capabilities will be important. Mobile operators that embrace enterprise FMC services today will benefit from winning a business account. That means direct enterprise revenues plus the potential to convert the personal subscriptions of the enterprise employees.

WiFi/Cellular FMC services will help mobile operators to avoid cellular saturation by routing traffic off the cellular network onto the WiFi network. The WiFi network has the capacity to do heavy lifting of the cellular traffic and transport it to the service provider's core network.

The current FMC solution available for service providers includes UMA and IMS VCC. UMA is attractive from a dual-mode handset availability standpoint; Operator who wants to deploy FMC services today can do so using UMA based FMC solution. While IMS is not fully ready from a technical and standardization standpoint, IMS VCC is a bridge to full IMS deployment.

BT is the first company to commercially launch UMA based FMC services (BT Fusion) in the UK. BT plan to launch enterprise FMC services early 2007. The enterprise service will be based on IMS compliant solution provided by Alcatel.

Cingular however, have abandoned its support for UMA in favor of IMS, she is now planning on deploying IMS based enterprise FMC services in the coming year.

However, I concluded my project with a design case study. The case deals with a company that has 400 employees. The company have three offices with one each in Toronto (200 employees), Vancouver (100 employees) and Montreal (100 employees).

I completed the design with the following summary:

- ❖ Technology deployed = UMA
- ❖ WiFi standard = IEEE802.11b
- ❖ CAPEX = \$8.1Mcdn
- ❖ OPEX = \$1.6Mcdn
- ❖ # of UMA handsets required = 400 + 10 spares
- ❖ # of APs (Toronto = 12 + 2 spares, Vancouver = 6 + 1 spare, Montreal = 6 + 1 spare)

When designing a WiFi network, the planner need to consider the wireless AP requirements; the channel separation; and sources of interference; the number of wireless APs needed to meet the desire coverage, bandwidth, and redundancy requirements.

The design case study is based on a UMA technology since a dual mode UMA handset is currently available. Although UMA technology does not directly provide for adequate enterprise FMC service due to lack of straight forward integration with enterprise PBXs. UMA still can support enterprise FMC services through indirect interface with enterprise PBXs through the following strategy.

- ❖ Smart dialing scenario where a Java applet on the UMA handset can take the 4 digit extension dialed by the user, match the digit with a pre-define number and automatically complete the remaining numbers and direct the call to the required extension through the PBX. This scenario is applicable where the enterprise have a legacy PBX
- ❖ If the enterprise have an IP PBX, the software settings can be configured to recognized and route calls through the IP PBX

Finally, FMC have the potential to bring the following benefit to Rogers as a service provider:

- ❖ Offload traffic from her existing GSM/GPRS/EDGE network onto the WiFi network
- ❖ Enable innovative, revenue-generating IP-based service bundles for her customers

Given that Rogers already deployed a number of WiFi networks across various traffic hotspots within Canada, and the recent availability of a UMA handsets, it is my recommendation that Rogers should consider seriously, the needs to introducing a new revenue generating UMA based FMC services in the near-term.