

Convergence of Access Technologies

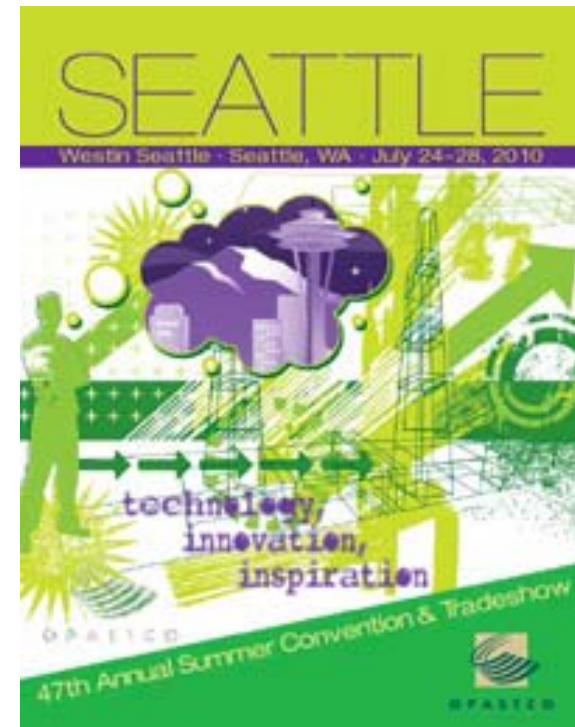
OPATSCO 47TH ANNUAL
SUMMER CONVENTION

27 July 2010

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T-Mobile



'Access' Convergence

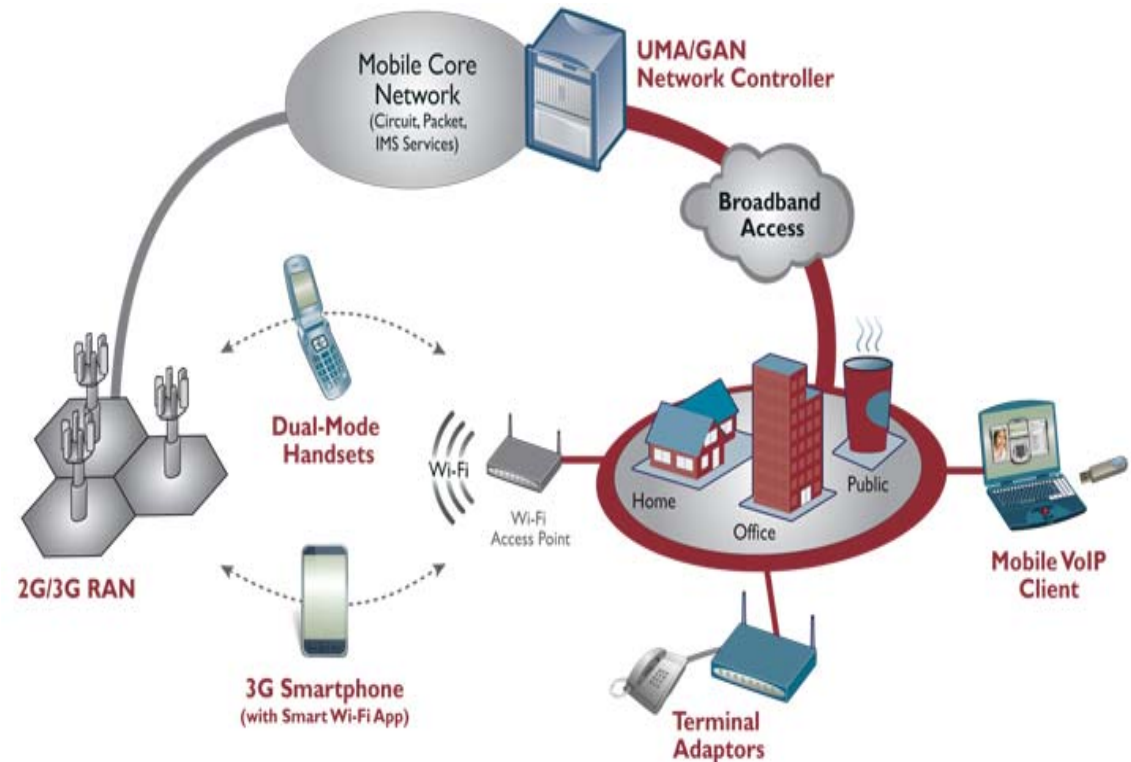
May Obfuscate Dimensions of Convergence . . .

- Access Network
 - ✓ More than just Fixed-Mobile, *i.e.*, cellular Wi-Fi
- Packet Switched
 - ✓ End-to-end, IP based
- Fungible Devices
 - ✓ Application Development – Multiple OSs
- Services
 - ✓ Bundles
 - ✓ Unified Billing
 - ✓ Authentication & Security

Fixed Mobile Case Study: T-Mobile

Wi-Fi Calling

- Based on Unlicensed Mobile Access (UMA)
- Standardized by 3GPP in Release 6 as Generic Access Network (GAN)
- First launched by T-Mobile in 2006

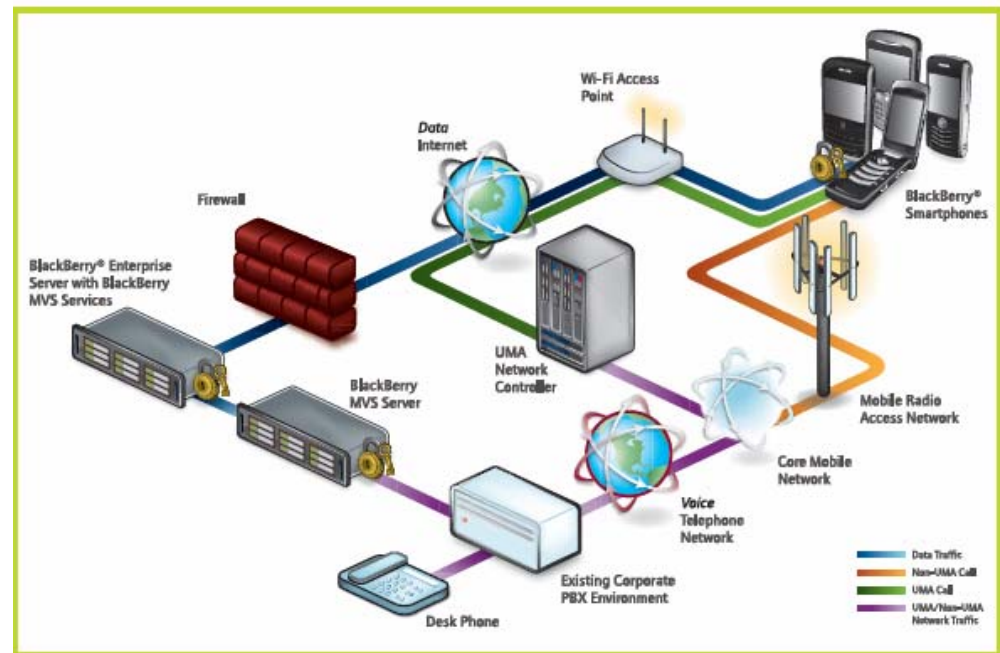


Source: umatoday.com

T-Mobile Recent Activities

- Announced it logs 1.6 million Wi-Fi calls per month, a new milestone for the industry (April 2010)
- Launched its latest dual mode handsets in 2Q2010 – BlackBerry Bold and Nokia E73
- Wi-Fi Calling with MobileOfficeSM – extends desktop functionality with Blackberry Mobile Voice System for government and enterprises

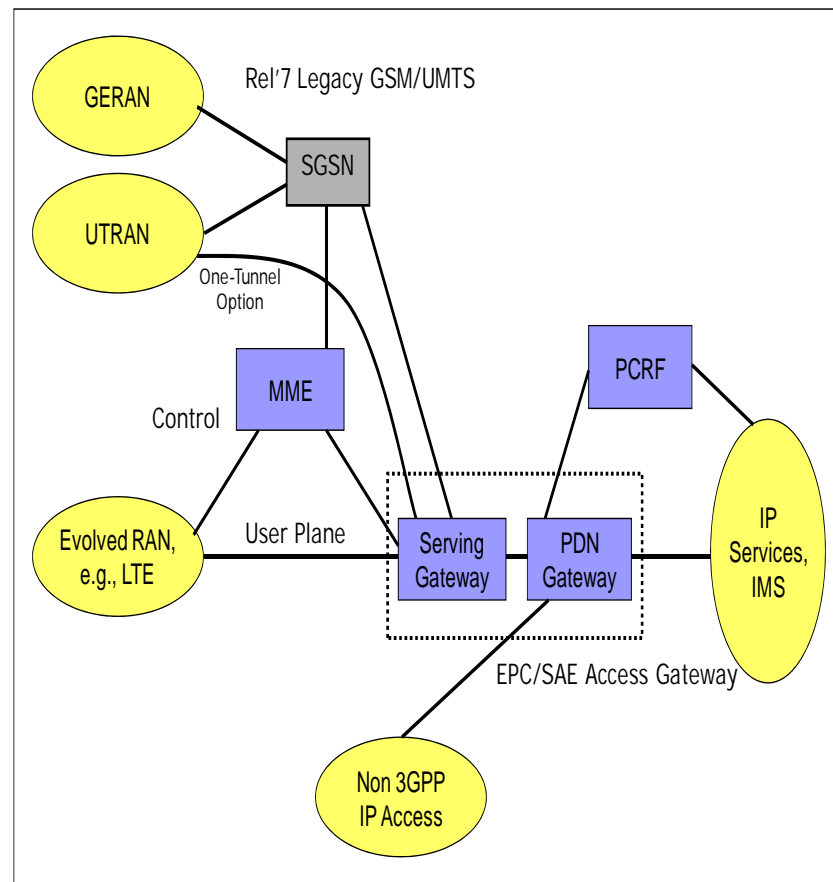
BlackBerry Bold
with Wi-Fi Calling



Future Considerations

3GPP Evolved Packet System (EPS)

- EPS = Long Term Evolution (LTE) + Evolved Packet Core (EPC)
- Designed to support internetworking with fixed and mobile access networks
- IP-centric, leveraging IP Multimedia Subsystem (IMS) and Session Initiation Protocol (SIP)

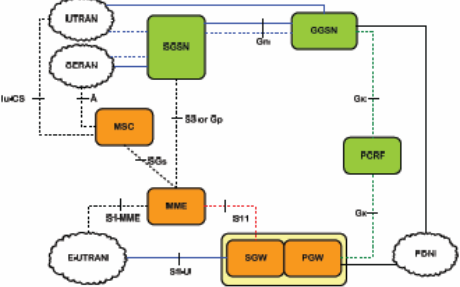
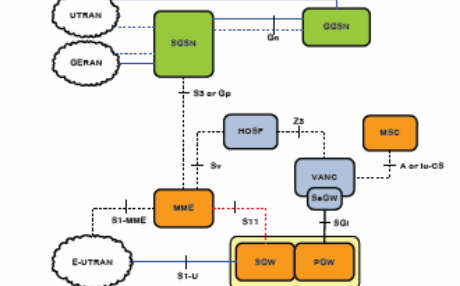
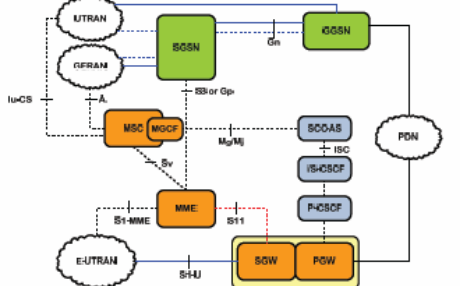


Source: 3G Americas

Future Considerations

Voice Support in LTE – Work in Progress

- Circuit-Switched Fall Back (CSFB)

<p>CSFB</p>		<ul style="list-style-type: none"> • MSC Server enhanced for CSFB with SGs interface towards MME • Use of CSFB for voice services needs overlapping LTE and 2G/3G radio coverage • Use of CSFB for SMS (SMS-over-SGs) does not need overlapping coverage
<p>VoLGA</p>		<ul style="list-style-type: none"> • VANC acts like BSC towards 2G/3G CS core • Handover Selection Function (HOSF) decides whether handover request is for VoLGA or SR-VCC • Security architecture is same as GAN/UMA
<p>VoIMS</p>		<ul style="list-style-type: none"> • MSC server enhanced for SR-VCC with Sv interface towards MME • IMS Service Continuity and Consistency server (SCC-AS) anchors calls in IMS domain • Service continuity can be maintained between PS-PS, PS-CS and combinations thereof

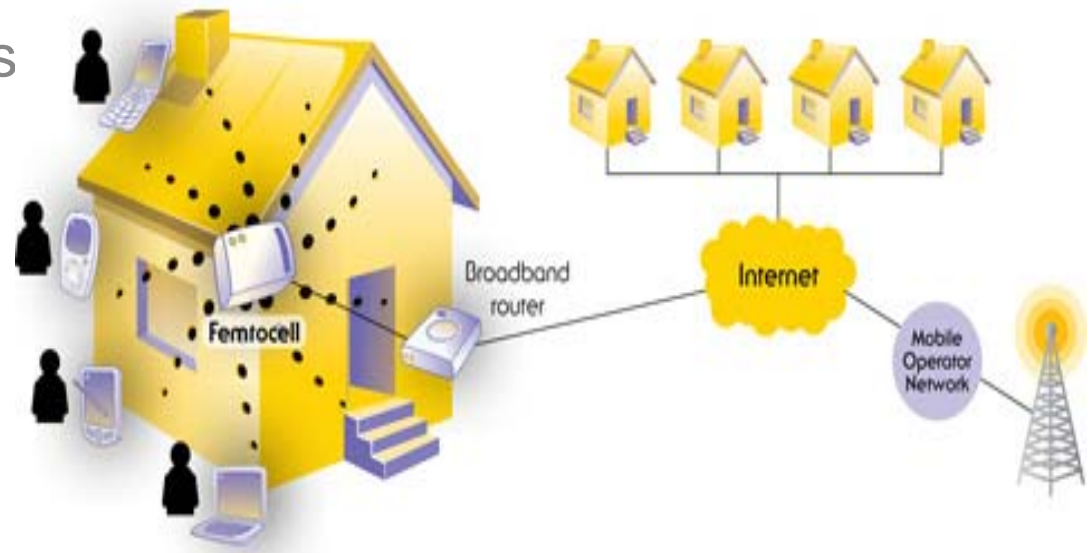
- Voice over LTE Generic Access (VoLGA)

- Voice over IMS (VoIMS) – longer term objective

Future Considerations

Femtocells

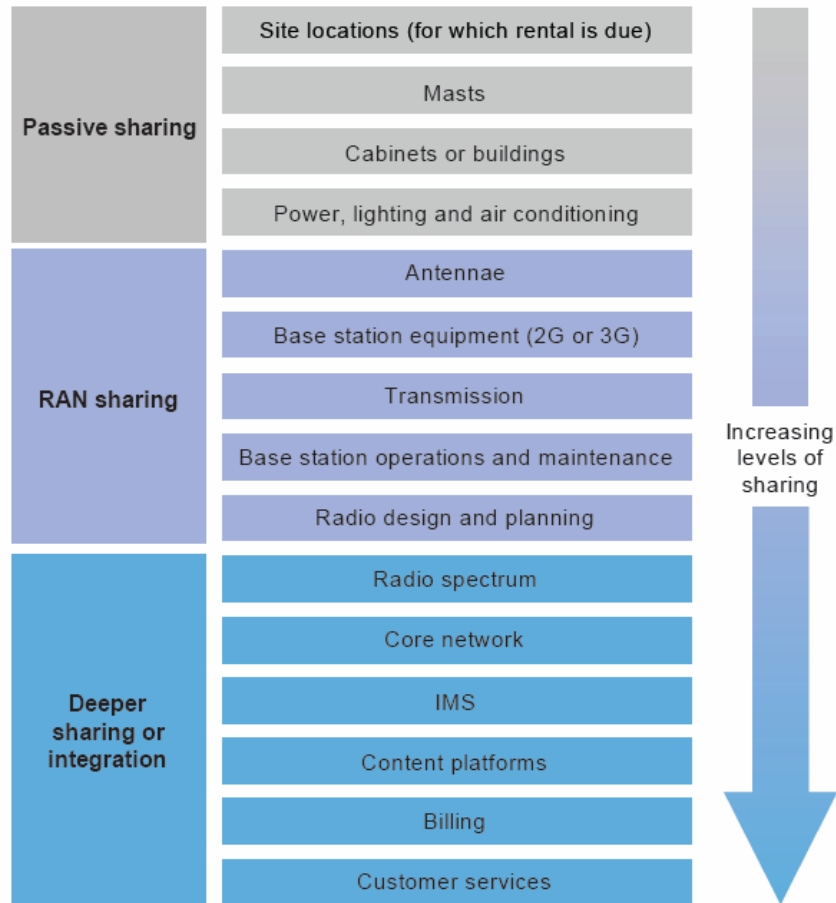
- Being deployed today
- 3GPP and industry continue working various issues, including:
 - ✓ Plug & Play
 - ✓ Access Control
 - ✓ Automatic Network Planning
 - ✓ Mobility
 - ✓ Security
 - ✓ Operations & Management



Source: Femto Forum

Future Considerations



Mobile Infrastructure Sharing



Source: Macquarie Securities/Analysys Mason

3GPP TR 22.951 V9.0.0 (2009-12)
Technical Report

**3rd Generation Partnership Project;
Technical Specification Group Services and System Aspects;
Service aspects and requirements for network sharing;
(Release 9)**

The present document has been developed within the 3rd Generation Partnership Project (3GPPTM) and may be further elaborated for the purposes of 3GPP.
The present document has not been subject to any approval process by the 3GPP Organizational Partners and shall not be implemented.
This Specification is provided for future development work within 3GPP only. The Organizational Partners accept no liability for any use of this Specification.
Specifications and reports for implementation of the 3GPPTM system should be obtained via the 3GPP Organizational Partners' Publications Office.

Customer Requirements

- Seamless access to user content and services across:
 - ✓ Access technologies
 - ✓ User devices
 - ✓ Mobility scenarios (including roaming)
 - ✓ Authentication procedures
 - ✓ Security techniques
- Help customers “save time & waste time” – or something like that!

Thank you.

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