

Meeting the Mobile Data Demand Challenge using WiFi

Enabling seamless & automatic mobile data traffic offload to WLAN broadband networks

Smart phones have irreversibly changed the future of the mobile Internet. Communication Service Providers (CSP) worldwide are seeing a surge in data traffic volumes. The surge although not entirely unexpected, poses serious challenges both technical & commercial.

WLAN or WiFi as it is better known could be part of the solution to de-congest and offload the surge in data traffic. All smart phones without exception have WLAN as a standard feature and most support SIM based authentication, a crucial feature for enabling seamless mobile-to-WLAN offload..

Inventum's UNIFY SMP is an integrated service management platform including the off-load, metering, rating & charging of mobile data traffic to public & private WiFi networks.

The UNIFY SMP fits any operator environment & has been built using industry standards such as RADIUS, SIGTRAN, LDAP & Java. Any IP service, be it data, video or voice can be off-loaded, provisioned & charged using the UNIFY SMP.

Challenges

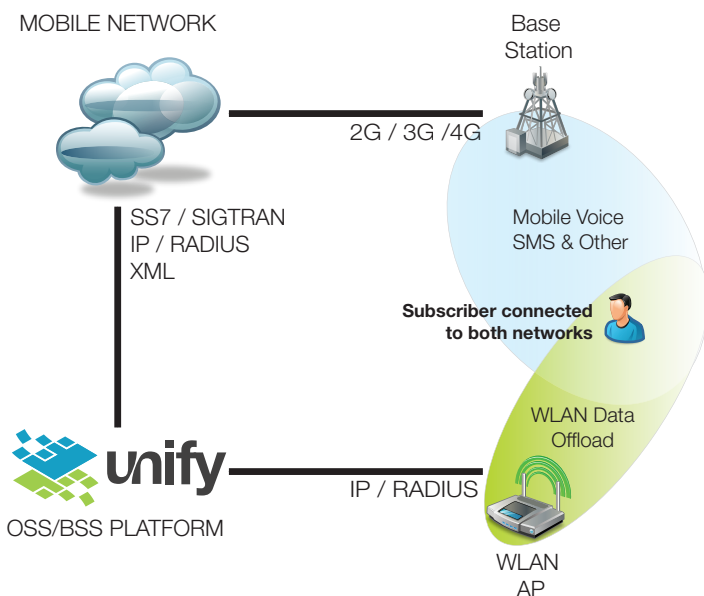
The challenges of hopping between a Mobile & WLAN network are significant and include the following:

- Identifying & detecting secured WLAN signals on mobile phones as they come within range of a qualifying access point
- Acquiring & Authenticating the mobile phone session over WLAN using SIM credentials often mixed with other forms of authentication
- Provisioning services on associated WLAN infrastructure that may not be owned by the mobile operator
- Metering offloaded session traffic & duration over WLAN
- Managing IP transition from Mobile Data to WLAN network and vice-versa
- Configuration management of mobile phones
- Presenting billing data (CDR) to top-tier billing system

Solutions

Inventum's UNIFY SMP provides the perfect bridge between the mobile network and the WLAN or broadband network.

- Standards based AAA server that interfaces both the mobile network using SS7/SIGTRAN and the IP network



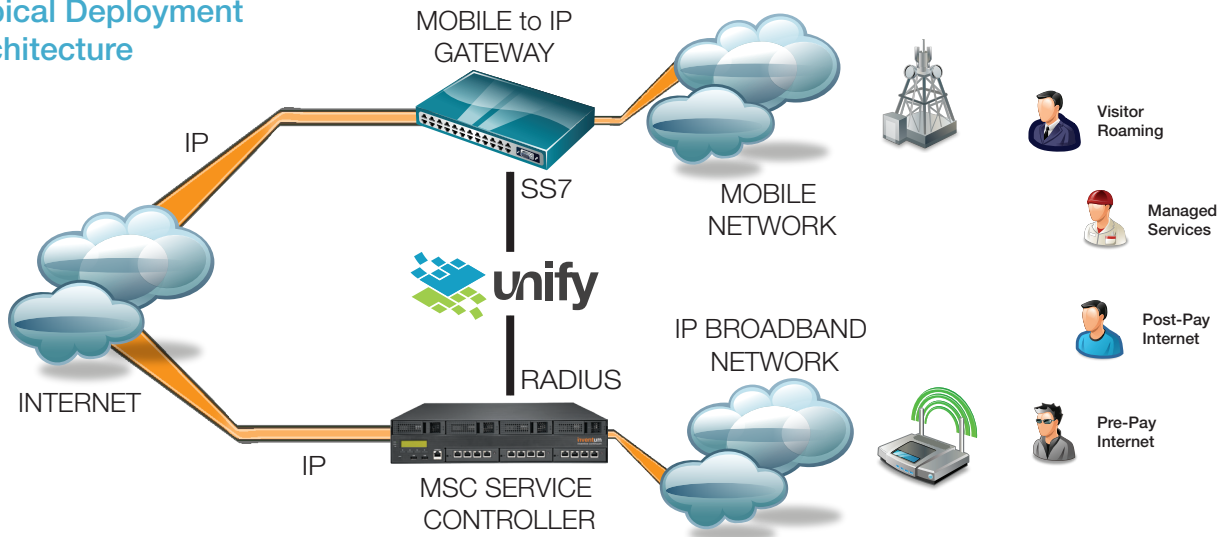
- Native support to talk MAP v2/v3 to key mobile network elements such as HLR, VLR & STP permit the UNIFY to easily authenticate and provision subscriber services using SIM credentials
- Easy integration with IN platforms allows the UNIFY to query VAS & subscriber information including provisioning attributes
- Session metering for bytes and time are supported from any WLAN subscriber device. Session CDR can be pushed to mediation & billing for inclusion in mobile bill plans
- UNIFY SMP can be optionally interfaced with Inventum's MSC Multi Service Controllers for inline IP session management
- Brandable mobile phone applications to ease subscriber acquisition & phone configuration for WLAN networks

Comprehensive Modular System

Service providers start with the base UNIFY software platform and add suitable modules as required. Key modules for 2G/3G/4G:

- **AAA with Integrated Mobile Gateway:** RFC compliant RADIUS including a pre-integrated SS7 stack supporting MAP v2/v3 allows out-of-the-box interfacing to mobile network elements such as the HLR, VLR & STP.
- **Policy Server :** Assimilate WLAN policies with VAS attributes of mobile BSS to WLAN provisioning
- **Mobile SMS Gateway :** Used for one-time-password (OTP) or PIN generation for pre-pay plans, handling inbound & outbound customer care messages.
- **Mobile Configuration Applications :** Ease subscriber experience using branded phone application to configure WLAN. Support for major phone OS.

Typical Deployment Architecture



Feature	Description	Benefit
Acquiring WLAN Subscribers	<ul style="list-style-type: none"> Mobile operator can choose to deploy their own WiFi hotspot network where the UNIFY will provide complete OSS/BSS function Mobile operator can also purchase capacity over smaller third party hotspot networks that may not be connected to IP network of mobile operator at all e.g. hotels, airports, small ISP, infrastructure sharing providers 	<ul style="list-style-type: none"> Single platform pre-integrated with mobile network for rolling out WiFi hotspots immediately in large numbers Cherry pick locations and partners and integrate easily into mobile eco-system
Subscriber Management	<ul style="list-style-type: none"> UNIFY provides comprehensive subscriber & service management to overcome limitations of mobile BSS systems 	<ul style="list-style-type: none"> Out-of-the-box features to handle Internet data plans that may not be available or easy to implement on mobile BSS
AAA Services	<ul style="list-style-type: none"> Deeply integrated RADIUS & LDAP services directly within the UNIFY SMP with support for MAP v2/3, SS7, SIGTRAN Interface any device or IT system with UNIFY over AAA, LDAP or XML. 	<ul style="list-style-type: none"> No separate investment in AAA required, works out of the box, needs virtually no configuration Integrate legacy and future systems with UNIFY using IETF/TM Forum standards.
Metering & Charging	<ul style="list-style-type: none"> UNIFY offers optional modules for complete pre & post pay rating & charging of data services off-loaded from mobile network Use Inventum's MSC Service Controllers to meter each byte off-loaded without having to modify any existing IP-mobile gateways 	<ul style="list-style-type: none"> Present raw or rated CDR of data usage for easy integration into mobile bill. UNIFY can also query mobile BSS policy data. Off-loading is great, but being able to meter the off-loaded data traffic for volume limited plans is also critical. MSC solves this problem
High Availability	<ul style="list-style-type: none"> Multi server, clustered 99.999% uptime system architecture Modular approach with on-the-fly upgrades Support horizontal and vertical scaling using industry standard solutions 	<ul style="list-style-type: none"> Available on both Enterprise Linux and Solaris systems, HA is key in any telecom network Upgrade with least downtime Start small and grow to millions of subscribers with the same solution

10

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AMERICAS

Suite 600 Millennium Center
15455 Dallas Parkway, Suite 600
Addison, Texas 75001
USA
Tel. +1 (214) 233-0659

ASIA & EMEA

Inventum Technologies (P) Ltd.
C-70, Phase II Extension
Noida 201305
India
Tel. +91 (120) 427 4900

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www.inventum.cc
sales@inventum.cc