Wireless VOIP & the Future of Carrier Voice Services

EXECUTIVE SUMMARY

The business model for conventional telecom voice services (both wireline and wireless) is being unquestionably and permanently dismantled by several technological and market developments, the most important of which are the arrival of voice over IP (VOIP) as a mainstream service alternative and the growing deployment of 802.11 wireless LANs (a.k.a. WiFi networks) by enterprises, local governments, and residential users installing wireless home networks. Although VOIP and 802.11 developed as separate technologies, they are now maturing in a way that makes them complementary components that pose a clear and present threat to carrier voice services and revenues.

Faced with even more traffic and revenue erosion due to the twin arrivals of VOIP and 802.11, major telecom carriers around the world are now investigating, and in some cases already pursuing, opportunities that further blur the distinctions between different types of voice services. A critical component of these approaches is the dual-mode handset – an end-user device that functions as both a conventional cellular voice handset and a device that can be used for voice calls placed over 802.11 networks.

Dual-mode handsets are attractive to different elements of the voice services ecosystem for different reasons. Wireline operators are coming to view dual-mode handsets as a way to hold onto enterprise and residential customers now using 802.11 wireless LANs, which still ultimately requires a wireline connection to the Internet. Cellular operators see them as a way to wean more end users away from wireline voice services. And end users stand to benefit from having a single phone for making all their calls (and potentially a single number and single bill, too).

A number of carriers this year have launched dual-mode mobile voice tariffs designed to enable users to take advantage of lower-cost VOIP calls in the home or enterprise, and in some cases in public WiFi hotspots. Carriers that have launched services based on the dual-mode model include aggressive virtual network operators (VNOs) such as Hello (Norway), emerging Tier 2 operators such as Neuf Cegetel (France), and incumbent fixed and mobile carriers such as Singapore Telecom (SingTel), France Telecom, and Deutsche Telekom. These early initiatives represent the first of what will likely prove to be dozens of dual-mode service launches in the next 12 to 18 months in North America, Europe, and Asia.

Wireless VOIP & the Future of Carrier Voice Services describes in detail the dual-mode value propositions launched to date, and it provides a detailed update of BT Fusion, BT’s dual-mode initiative that uses Bluetooth, as well as BT’s plans to extend its dual-mode service proposition to UMA-based GSM/WiFi terminals for the home and enterprise. The report details and analyzes the market forces that are driving dual-mode service launches. It also assesses the capabilities of the first dual-mode handsets being bundled with these services and provides critical analysis of the overall value proposition from the end user’s perspective.
The report analyzes the primary commercial, technological, and operational components needed to enable operators to meet user requirements. The primary focus is on the challenges required to make dual-mode voice tariffs succeed, but the drivers for the "all-cellular" alternative built around cellular pico or femto base stations for the home and office also is addressed at length.

Critical issues affecting the end-user experience are evaluated, including battery life, the user interface, and the availability of products at the low, middle, and high ends of the market. The market position of wireline carriers relative to mobile handset vendors is evaluated and contrasted with the strengths of mobile operators and wholly integrated fixed and mobile operators.

**Excerpt 1: Summary of Dual-mode Service Propositions**

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<tr>
<th>COMPANY</th>
<th>STRENGTHS</th>
<th>WEAKNESSES</th>
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<tbody>
<tr>
<td>BT (U.K.)</td>
<td>UMA enables two-way handover and relatively good selection of Tier 1 GSM/WiFi handsets; extensive access to wireless city WiFi hotspots (WiFi not Bluetooth UMA variants)</td>
<td>No SIP services</td>
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<tr>
<td>SingTel (Singapore)</td>
<td>Range of Nokia 3G/WiFi terminals can be used as a high-end voice and data device</td>
<td>No handover in either direction, restricted to high-end devices</td>
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<tr>
<td>Hello (Norway)</td>
<td>No minimum contract; GSM-to-WiFi handover (though not vice versa); international roaming in WiFi mode allowed, but not supported with QOS</td>
<td>Broadband and WiFi CPE or ISP account not provided</td>
</tr>
<tr>
<td>Neuf Cegetel (France)</td>
<td>Free international calls to landline numbers in 30 countries from home and public WiFi hotspot coverage areas; international WiFi roaming promised</td>
<td>Single, poor-quality GSM handset doesn't support GPRS; minimum two-year contract in one subscription model; no handover</td>
</tr>
<tr>
<td>T-Com (Germany)</td>
<td>Available with regular PSTN connection as well as broadband; limited value-added features will limit battery drain</td>
<td>Single, poor-quality GSM handset; additional charge for public hotspot usage</td>
</tr>
<tr>
<td>Orange (France, U.K., Netherlands, Spain, Poland)</td>
<td>UMA enables two-way handover and relatively good selection of Tier 1 GSM/WiFi handsets; flexibility in choice of cellular tariff; no minimum contract; all handsets support EDGE</td>
<td>No SIP services; no access to public WiFi hotspots</td>
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*Source: Heavy Reading*

The readiness of large-scale WiFi networks to support large volumes of voice traffic from mobile handsets is assessed at length. The issues are tackled from the perspective of challenges in evolving existing hotspot business models, the WiFi infrastructure itself, the engineering and optimization of large-scale WiFi networks, and the changes required in WiFi authentication regimes.

The technical and commercial challenges of leveraging WiFi hotspots globally to provide an alternative infrastructure for international mobile voice roaming are detailed. Options are also presented in the form of a series of profiles of some of the key players in the WiFi aggregation and systems integration space, such as iPass and Boingo Wireless. A profile is also provided of the efforts of Wayport and The Cloud to position themselves to support multiple new devices, such as dual mode handsets, on their 10,000+ network of hotspots throughout the U.S. and Northern Europe, respectively. These players are profiled as potential partners for carriers deploying dual-mode handsets.
The business case for the “all-cellular” alternative to leveraging WiFi in building is also considered, again taking into account end-user requirements, the business models of mobile operators, and the technological challenges of developing pico or femto base stations for the home or office. We also examine in detail the world’s first deployment of low-power GSM base stations for enterprises by Private Mobile Networks (PMN), a subsidiary of TeleWare.

Lastly, the report analyzes the vendors that are active in supporting this key segment of the fixed/mobile convergence market, profiling their core value propositions, partnerships, and current market traction.

**Report Scope and Structure**

*Wireless VOIP & the Future of Carrier Voice Services* is structured as follows:

**Section I** is an introduction to the report, with complete report key findings.

**Section II** considers the current drivers for carriers to offer dual-mode voice tariff bundles, including consumer preferences, technological availability, and competitive imperatives.

**Section III** details recent dual-mode cellular/WiFi service launches by six major operators in Europe and Asia/Pacific, including BT, Orange, and SingTel.

**Section IV** analyzes the capabilities of available and planned dual-mode handsets from major manufacturers such as Nokia, including the role of collaborative industry initiatives such as the Fixed Mobile Convergence Alliance.

**Section V** explores the technical and commercial enhancements that are needed to make dual-mode voice services a success, including handset authentication, voice call continuity (VCC) handover, and the interoperability efforts of the MobileIgnite consortium.

**Excerpt 2: Dual-mode Handset Development Taxonomy**

![Diagram of Dual-mode Handset Development Taxonomy]

*Source: Heavy Reading*
Section VI examines the ecosystem of WiFi hotspot operators, aggregators, and integrators — six of which are profiled here — that are available to partner with telecom operators to create dual-mode service propositions.

Section VII lays out an "all cellular" approach that may be an alternative to the use of WiFi in dual-mode propositions, encompassing the establishment of "home zones" and the deployment of "pico" and "femto" base stations.

Section VIII profiles 29 major vendors that are providing technology to support dual-mode voice services, in many cases examining their unique visions for the future of mobile VOIP and the ultimate goal of fixed/mobile convergence.

The report is essential reading for a wide range of industry participants, including the following:

- **Suppliers of dual-mode (cellular/WiFi) technologies and products**: How will the ongoing shifts in operator voice service strategies affect your business? Where are the new opportunities for market growth? Are your products and marketing messages in line with carrier plans and expectations? Are there significant gaps in your product line coverage that need to be addressed to meet future demand for dual-mode voice solutions?

- **Wireline and wireless network operators**: How do your plans for dual-mode voice service compare with those of your competitors? Which standards and products are likely to emerge as the winners in this sector? Which technology suppliers are in best position to deliver the products you need?

- **Investors**: Which technologies are emerging as the winning solutions for dual-mode services, and which companies are the leading technology suppliers of those solutions? How will the confluence of VOIP and WiFi affect profitability for the telecom service sector in the coming months and years?

**Wireless VOIP & the Future of Carrier Voice Services** is published in PDF format.