CONVERGENCE
LATERAL VIEW

Technology calling!

BY SUDHINDRA MOKHASI

The state of the telecom industry today is interesting. On one hand the incumbents are experiencing a deluge of growth; on the other, they have an equally bountiful share of pains.

The service providers are under enormous pressure to increase ARPU and profits. They have a huge capital outlay and face rapid infrastructure obsolescence in face of convergence of fixed, cellular, data, video and broadband, which means that traditional operating boundaries are being rapidly redrawn with hitherto complementary players like telephony and cable companies now competing with each other, even as new players like MVNOs are emerging to carve out a slice from the existing market.

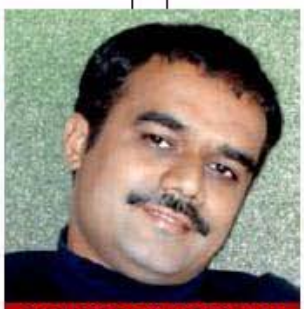
New kids in town

To add insult to the injury, leapfrogging startups such as Skype, Barablu are employing technologies like VoWiFi originally developed for data networking in a bid to threaten the Holy Grail of telephony - voice calls - of both fixed line and cellular variety.

Quo Vadis Mobile! I can't think of a better phrase to describe the operating environment of the mobile industry. The profound biblical phrase can be literally translated as "Whither goest thou" or "Where are you going" Mobile?

The closest I came to saying this earlier was in 1998-99 while designing software for a dual mode phone system being developed by the ICONET consortium. The engineering team comprised heavyweights like Ericsson, Hughes and NEC. My employer, MphasiS, was contracted to develop the OAM system for the terrestrial base stations.

Path breaking in concept, ICONET used traditional GSM wherever available and would switch to Medium Earth Orbit satellites for telephony when out of cellular coverage area. The project was conceptualized and funded in wake of the hype surrounding IRIDIUM.



SUDHINDRA MOKHASI

Peer-to-peer VoIP was first introduced through instant messengers. But Skype, gets the credit for taking VoIP to the next level

Reading between the signs

For the record, none of the dual mode cell phone projects during this period like IRIDIUM, ICO or Globalstar, were commercially successful. Extremely high capital outlay, optimistic market demand assessment, high operating cost, unwieldy handsets, exponential growth of cellular coverage along with rapid introduction of roaming arrangements ensured they never took off.

Eventually, all were sold at distress sale prices and re-launched by others in new avatars at more suitable points in time. Companies like Constellation Communications Inc. and Ellipso never even took off. Of course today, we have many later entrants like Thuraya, which got launched in mid 2001 and enhanced its footprint in late 2003. The company seems to have got the timing right and commands good market share today.

This small flashback illustrates a hackneyed theme in the telecom industry. A revolutionary, sometimes-premature idea receives huge funding from a high profile name, and quickly we have a bunch of me-too Joneses investing at a frenetic pace. However, failure of one triggers the domino effect. I guess this is the price a highly innovative, fast and competitive industry has to pay to succeed - the credo being I'd rather lose some than lose out on the next big thing.

Getting back to the present, next generation technologies like 3G and 4G are generating similar hype and investment and are being touted as the next big thing. For the telecom service providers, other than the convergence turmoil, things were reasonably predictable and therefore under control with their 3G and 4G. More importantly, their pure voice revenue streams seemed to be well protected until VoIP and now VoWiFi joined the party.

VoIP is not new; the first commercial application, avail-

able as early as 1995, was offered by the Israel-based Vocaltel through its Internet phone. After a few false starts, VoIP matured considerably and hit the mainstream over the last two years. Corporate deployments have taken off and IP phones are becoming ubiquitous.

At the top of IP's voice

Peer-to-peer VoIP was first introduced through instant messengers. But Skype, a startup headquartered in Luxembourg, gets the credit for taking VoIP to the next level.

Incidentally, the same folks, who created the peer-to-peer, file-sharing program Kaaza founded Skype. In a classic case of lateral thinking, the founders of Skype applied the core technology and learnings from Kaaza to voice, and Skype was born.

Skype did two innovative things. One, it made its connection model peer-to-peer, which meant that party A directly sends voice packets to Party B once the initial setup is completed, making it highly efficient and largely overcoming the drawback of best effort delivery construct of the Internet. It met the demanding requirements of the voice application through reduced latency and jitter.

Secondly, its client software incorporated PBX and instant messaging features like global contact list, conference, privacy (through end-to-end encryption), file transfer, ring tones, call alert options to make Skype the de facto choice for VoIP calls.

Added later were more potent features like voice mail box, the ability to dial up conventional landline and mobile phones and more importantly provide a dial-in number for conventional phone users to call your Skype. The end product was a nightmare for the incumbent telecom operators. To provide a perspective, at last count a whopping 47 percent of North American VoIP traffic was carried over Skype.

Wi-Fi was originally designed as a LAN technology to connect wireless networking for mobile devices like laptops and PDAs to a LAN or peer with another Wi-Fi device wirelessly. The convenience of wireless networking has gained wide acceptance and has resulted in more investments, standardization and of course cheaper Wi-Fi devices. Today, most laptops have built-in Wi-Fi, which is being extended to applications such as gaming, connection of home infotainment devices and, more recently, to VoIP devices. Leading cities around the world are rapidly becoming "unwired". Customers are expecting every self-respecting hotel, college, airport, coffee shop and mall to have wireless Internet access. France recently announced unwiring of 88 college campuses. Highly mobile lifestyles have spurred demand for Internet on the move. we are now seeing initiatives for citywide Wi-Fi access.

According to a recent survey sponsored by Intel, Seattle in Washington, San Francisco in California, Austin in Texas, Portland in Oregon, Vancouver in Washington and Toledo in Ohio are the top six unwired cities in the US where Wi-Fi access is available almost everywhere. Area working groups like San Diego Wireless Users Group (SDWUG) have some together to make Southern California a free Wi-FI area.

In India, `Namma Bengaluru' already has the unwiring project underway and other cities like Pune and Delhi are putting initiatives in place.

The "Paid For" Wi-Fi scenario has also seen tremendous growth, US companies like Boingo provide services at airports, hotels, and cafe chains and has tied up with US and international telcos like STSN, Wayport, AT&T, Sprint to provide access through Boingo ID's on their networks. Global Wi-Fi roaming is coming of age.

High five with Wi-Fi

In July 2005, two of the three essential components of VoWi-Fi came together - Boingo and Skype announced an alliance where Skype customers could have unlimited access to Boingo's Wi-Fi network at $7.99 per month.

The third component to make VoWiFi possible is handsets with Wi-Fi capability. In the pure play Wi-Fi space, companies like D-Link, Spectralink, Zultys Technologies have launched handsets and Vonage has one that provides access to its VoIP services from any Wi-Fi hotspot.

In the dual mode phone category, recent Smartphone launches like HTC's XDA Exec/JASJAR, Sony Ericsson's 990i, Nokia's N-93, N93001 all have at least one variation of 802.11. PDA's with Wi-Fi connectivity can also be used for VoIP.

So, if I were a CIO in a worldwide Wi-Fi Utopia, here's what I would do: I would get everyone on Skype, get a Skypein number for $3.5/month and issue Boingo unlimited Wi-Fi access for $8/month. For employees who don't have a Smartphone I would incur a one-time expense of $180 for the Wi-Fi phone. I'd ask those with Smart cell phones or Wi-Fi enabled PDAs, to download and install the Skype client.

Effectively, for $11.5 fixed charges per month, I would have all internal communications covered. Customer delight would improve since they would be able to call the Skypein number from anywhere at local call rates. Employees would have the optional facility at extra charge to use Skypeout to make outgoing calls to landline or mobile.

But remember, this is Utopia. The real world has enough constraints to go fully Wi-Fi. NC

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