VoIP Newsletter

December 2005

MERCATOR CAPITAL

Inside This Issue

For more information contact:

Rod Hackman
Partner
rhackman@mercatorcapital.com

www.mercatorcapital.com

Virginia Office:
One Fountain Square
11911 Freedom Drive
Suite 1080
Reston, Virginia 20190

BellSouth partners with 8x8 for consumer VoIP offering

Following the lead of fellow ILECs **Verizon** and **SBC**, **BellSouth** has opted for a non-infrastructure, private label Voice over Broadband (VoBB) service offering. The ILEC recently announced a wholesale deal with **8x8 Inc.** to resell Packet8 service.

The wholesale model has been used by other ILECs to quickly roll-out VoIP services to its customers as a way of competing with other VoBB providers such as **Vonage** and alternative VoIP offerings from cable MSOs. The wholesale model allows service providers to resell services under their own private brand, typically transported over the ILEC's broadband access service. A service provider can begin offering a "custom" suite of their own services in 60 days or less through this model with minimal capital expenditure, thereby minimizing its risk while evaluating other long-term strategies.

Both **SBC** and **Verizon** have previously gone to market by re-packaging **Deltathree's** VoIP services, though **SBC** is likely to adopt **AT&T's** CallVantage platform as the company continues its merger integration under the **AT&T** name.

The wholesale VoBB model has largely been a US phenomenon. The VoIP services segment in the US is very competitive, with numerous players all trying to offer service to combat well-known competitors such as **Vonage**. As **Vonage** continues to spend millions on marketing, the ILECs have been forced to offer similar products so as to minimize their cannibalization.

As a result of this intense competition, several VoIP service providers have re-positioned themselves as VoIP enablers, and have focused on delivering services through the wholesale VoBB segment. The phenomenon is similar to the recent entree of mobile virtual network enablers and operators (MVNEs and MVNOs) in the wireless space.

So what is driving the wholesale VoBB model? Ultimately, incumbents are trying to prevent existing wireline customers from moving to competitive offerings. By offering a VoBB alternative to their customers, they are admitting that they would rather cannibalize themselves than let their customers migrate to a competitor. The incumbents are each offering VoBB in addition to traditional TDM wireline services.

The longterm VoIP strategy of the incumbents seems to vary. It's a given that their networks are all migrating to packet-based architectures, and eventually voice is likely to be a single application riding on this architecture. Most service providers are trying a migration strategy, which involves deploying new softswitch solutions to control legacy hardware. Greenfield VoIP deployments with full-scale cutovers from TDM wireline infrastructure are rare. VoBB seems to be a good compromise, since it is a much simpler option than launching a new network. By utilizing a hosted

BellSouth – Continued

service that allows a user to customize and manage its services through a web portal, multiple applications are possible. The wholesale private label VoBB model is even more attractive, in that the onus is on the wholesale partner to deploy the infrastructure; there is very little risk to the incumbent.

Some of the service providers offering wholesale residential and business services in this area include **New Global Telecom**, **Level 3**, **Deltathree**, and **Net2phone**. These providers derive a significant portion of their revenues as wholesalers of VoBB services. Their main value proposition is enabling fast entry into the market, while minimizing capital expenditure and system integration time, which is a major advantage as the market changes rapidly.

The other potential market opportunity for wholesale solution providers is the Internet companies, not just the incumbent telecom service providers. As we have seen over the past few months, **Microsoft**, **Yahoo**, **Google**, **AOL**, and **eBay** have all made major investments in VoIP services, yet there are other Internet players out there who may also benefit from a VoBB-type offering.

Generally speaking, the wholesale model has been an early market phenomenon. It remains to be seen how long the opportunity will last for these wholesalers, especially as incumbents increase their investment in their own infrastructure and finalize their long-term quadruple-play strategies. There is an increasing probability that this business model will go away over time, so it is up to these companies to shift with the market in order to maintain their long-term survivability.

Cisco enhances VoIP products

Cisco has enhanced its VoIP product line in order to further conform to the IMS architecture that has been embraced by equipment vendors and service providers alike. **Cisco's** enhancements include products to enable new SIP-based applications such as dual-mode telephony, push-to-talk services, presence-based services and other fixed-mobile convergence applications.

New and enhanced products include **Cisco** Call Session Control Platform (CSCP), which provides IMS Call Session Control Function (CSCF), the **Cisco** Service Control Engine (SCE), which provides real-time monitoring of VoIP call quality, the enhanced PGW2200 media gateway controller, and the enhanced BTS 10200 a softswitch for VoBB implementations.

Cisco also announced the integration of session border control into the **Cisco** XR 12000 series router. The integrated SBC provides per-session control and management of IP multimedia traffic based on widely-used protocols such as SIP and H.323 for signalling interoperability. This enables multi-service scale with easier operation and lower costs by eliminating additional appliances and overlay networks.

IMS Conformance: What are we conforming to?

In simpler times of state-owned monopoly carriers, telecom standards were set by bureaucrats who often had their own best interests in mind, and certainly didn't take into account the needs of other carriers in other jurisdictions. Organizations such as the ITU and Bellcore were established to share these standards among monopolies, but rarely did they take into consideration future technical capabilities so as to bring competitors together. After deregulation, it became obvious that larger forward-looking institutions representing a variety of constituents had to come together and agree on standards for the sake of interoperability and real-world deployments. Regulators have continued to play a role in mandating country-specific certifications. However, for the most part industry-driven forums have been the main factors towards technical standardization.

Session Initiation Protocol (SIP) and IP Multimedia Subsystem (IMS) have been two evolving standards that have shaping the VoIP industry. IMS has largely been driven by the 3rd Generation Partnership Project (3GPP), but is also heavily influenced by other standards bodies such as the Multiservice Switching Forum (MSF) and the European Telecommunications Standards Institute (ETSI). Although the resulting IMS architecture is well-defined on paper, in practice the structure still results in uncertainty and the term IMS means different things to different people.

The thrust for IMS came from service providers who were looking for standards conformance from vendors in order to successfully offer converged fixed mobile services. The resulting architecture has successfully split network elements into several logical categories, including the Call Session Control Function (CSCF), the Media Gateway Control Function (MGCF), the Application Server (AS), and the Home Subscriber Server (HSS). Since these categories are rather broad in definition, further stratification has resulted in sub-categories of various functions, resulting in some confusion as to how network elements are deployed in the real world.

Let us take the case of Session Border Controllers (SBC) in the IMS architecture. SBCs are known for performing a variety of functions from NAT traversal, to authentication, to security and monitoring. None of these functions map cleanly into the IMS architecture (CSCF, MGCF, HSS, AS), and therefore different vendors have endorsed different implementations within IMS.

Most SBC vendors have an opinion of where they fit within IMS. Most say that on the access side, the SBC should provide a subset of the CSCF function, termed Proxy CSCF (P-CSCF). But at the same time, an SBC needs to have features that are not defined elsewhere within IMS. This includes the ability to protect the IMS core from DoS (Denial of Service) attacks, which is a major function that is missing in any of the standards activities because many of the forums lacked visibility into real-world deployments. Realistically though, the only reason that an SBC exists as a product today is because it solves pragmatic network problems. The SBC was not created by 3GPP, ETSI, IETF or any other standards body; it was developed by listening to service providers as they encountered problems while deploying VoIP services.

In **British Telecom's** 21CN network, **Acme Packet's** SBC acts as a Proxy CSCF (P-CSCF) on the access side. Other vendors, partners, and service providers have other views. **Acme** has partnered with a variety of softswitch and media gateway players, and has at least one partner that does not want **Acme's** SBC to be P-CSCF, since they already have their own P-CSCF. In another case, a partner wants **Acme's** SBC to be the P-CSCF but only in the wireline part of the network, not the wireless side. Due to the lack of standardization, SBC vendors are required to be flexible and support multiple deployment architectures, despite IMS being a "standard".

So if **Acme's** product is a P-CSCF in **BT's** network, why is it something else in another carrier's network? As it turns out, in different cases, different subscriber

IMS Conformance – Continued

access functions are required. Some providers are deploying SBCs in front of the P-CSCF, so the SBC is the first line of defense for the signalling function. In that case one of the primary functions is protection from signalling DoS attacks.

If service providers prefer to use the same architecture for converged fixed-mobile environments (i.e. single number identity across various networks), one of the key questions to consider is whether a call is going to hit two different P-CSCFs or just one. If it is on the wireline, or WiFi, side of the network, it may have to deal with NAT traversal issues. In this case, an SBC solution must primarily support NAT traversal.

In some cases, service providers prefer a single device solution. In other cases, they may prefer two separate boxes; a signalling and media control device that deals with DoS protection and NAT traversal, as well as a separate device that performs emergency service. Several carriers prefer a single network element to be their subscriber access box (both signalling and media).

So if all practical VoIP functions have yet to be finalized within the IMS architecture, what is the point in having a standard? One needs to remember that IMS, as driven by 3GPP, is intended to be a functional architecture. It does not determine which products map into these functions. The MSF is driving more of a product-based view for VoIP standards. The MSF has activities to map the 3GPP architecture into the existing product architecture consisting of call agents, media servers, application servers, SBCs, and CPE devices. The result should be a classification of products that people can actually buy and deploy into the IMS framework.

One of the key omissions in the IMS architecture is bearer or media flows. ETSI TISPAN has tried to fill this void by defining ETSI extensions that articulate things like SBC functionalities. ETSI has defined an architecture called the Telecommunications and Internet Services and Protocols for Advanced Networking (TISPAN), which aims at enhancing the definition of the IMS architecture. For instance, TISPAN defines both an Access Border Gateway Function (ABGF) that resides on the subscriber edge as well as an Interconnect Border Gateway Function (IBGF) that resides on the interconnect edge. These help create a clearer definition in which to map network elements such as SBCs.

ETSI also takes into consideration issues like protocol interworking, which is currently missing from the 3GPP model. Yet one of the issues absent from ETSI's model is the subscriber access interworking function, which should handle things such as enterprise-carrier connectivity for H.323 or SIP-based IP PBXs.

It is clear that the standards, and in particular IMS, are driving the shape of VoIP and other IP applications in the future. However, if IMS is to be truly embraced by service providers and vendors alike, more work needs to be done on bringing the various standards groups together to define a model that is both practical and implementable.

Marconi brings Ericsson into the real world

Analysts, for the most part, had very little to say regarding **Ericsson's** VoIP-related motivations behind $2.1B purchase of **Marconi**. In particular there was nothing substantial written about the softswitch product line, which is obviously of interest to our readers. Given the significance of **Marconi's** softswitch and all the R&D investment that has gone into it, the issue merits a short discussion.

Marconi has not been known as an early entrant in the VoIP sector, and did not rush to market with a half-baked softswitch for carriers. **Marconi** developed its softswitch product focused on core packet networks rather than augmenting legacy TDM networks. That being said, the company used much of its experience with legacy TDM features to integrate these capabilities into its softswitch product.

The **Marconi** softswitch is better equipped to handle the realistic TDM-IP migration scenarios compared to **Ericsson's** solution which evolved out of the wireless side to handle fixed-mobile convergence. Though **Ericsson** also historically had a wireline digital switching technology for packet networks which they tried to morph into a softswitch platform, the result was an inflexible solution. **Ericsson** has since focused its VoIP efforts on future-looking IMS-focused deployments.

Unfortunately IMS deployments are unlikely to result in substantial revenues before 2008. In the interim, other companies were better positioned to capture carrier spending on VoIP deployments such as Class 4/5 softswitches, controlling legacy hardware, and access/trunk gateways. While certain vendors such as **Siemens** and **Nortel** are selling hundreds of millions of dollars worth of VoIP equipment, **Ericsson** has effectively been doing very little business in this area. The **Marconi** portfolio may allow **Ericsson** the opportunity to capture some of this market.

Ericsson has had several IMS trials going on for quite some time. **Ericsson's** IMS control elements are focused on a fixed-mobile converged network.

However service providers such as **BT** are not yet deploying a fully converged network, and are accomplishing convergence in phases. The first phase will focus on the migration of wireline from TDM to IP. While **BT** has selected the **Ericsson** Intelligent Node for its longer-term 21CN network, it may possibly have a place for the **Marconi** softswitch in the initial phases of the network transformation. This obviously may have been a contributing factor in **Ericsson's** acquisition of **Marconi**.

Ericsson also undoubtedly use **Marconi's** knowledge of UK networks, and in particular their knowledge of the BT network. **Marconi** legacy equipment is an integral part of **BT's** current TDM voice network.

Marconi has already developed most of the Next Gen Class 5 features into its softswitch. It also has business features such as IP Centrex covered. **Ericsson** has historically partnered with **Broadsoft** for IP Centrex applications. Since an acquisition of **Broadsoft** could potentially impact this partnership, the **Marconi** softswitch hedges this risk to some extent.

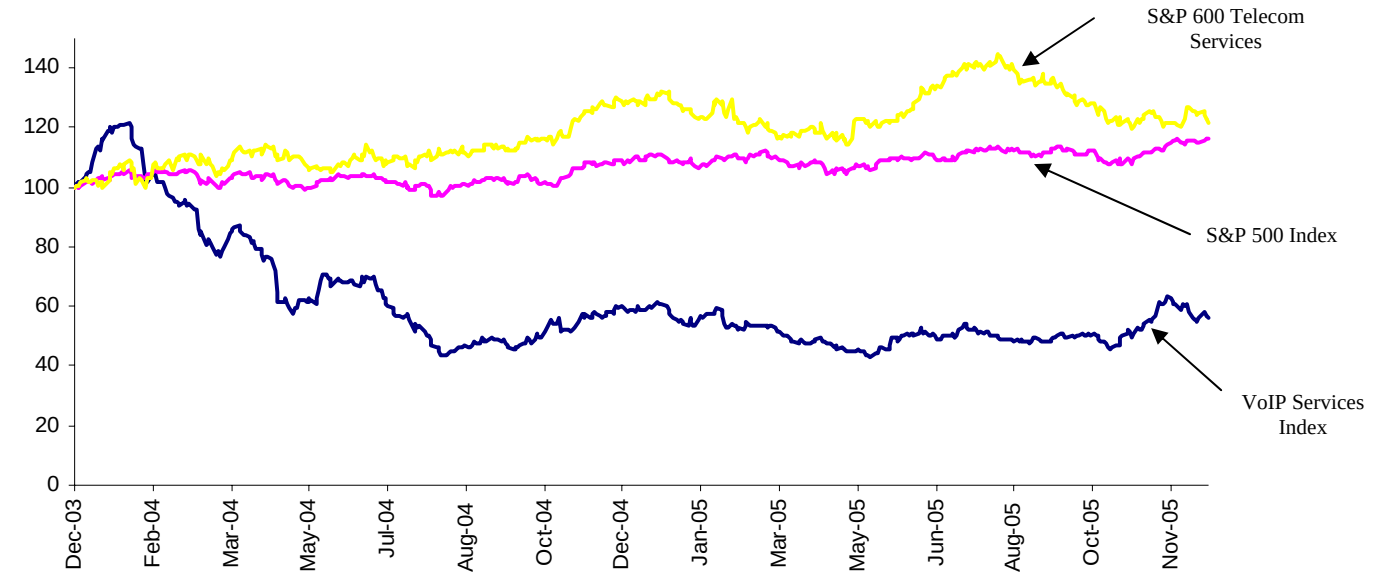
The **Marconi** softswitch was largely developed from a wireline perspective, whereas **Ericsson** IMS solutions have evolved from a wireless perspective. **Ericsson's** wireline packet voice solution has historically been ATM-based as opposed to being IP-based, so **Marconi's** softswitch may serve as an interim solution. Longer term, it is unlikely to see **Marconi's** product in strategic global accounts as a part of **Ericsson's** IMS portfolio. We expect the **Marconi** softswitch to be very focused for specific applications, while the **Ericsson** platform will become the more general, forward-looking offering of the combined companies.

In the meantime, we may finally see **Ericsson** picking up some near-term market share numbers in the VoIP sector.

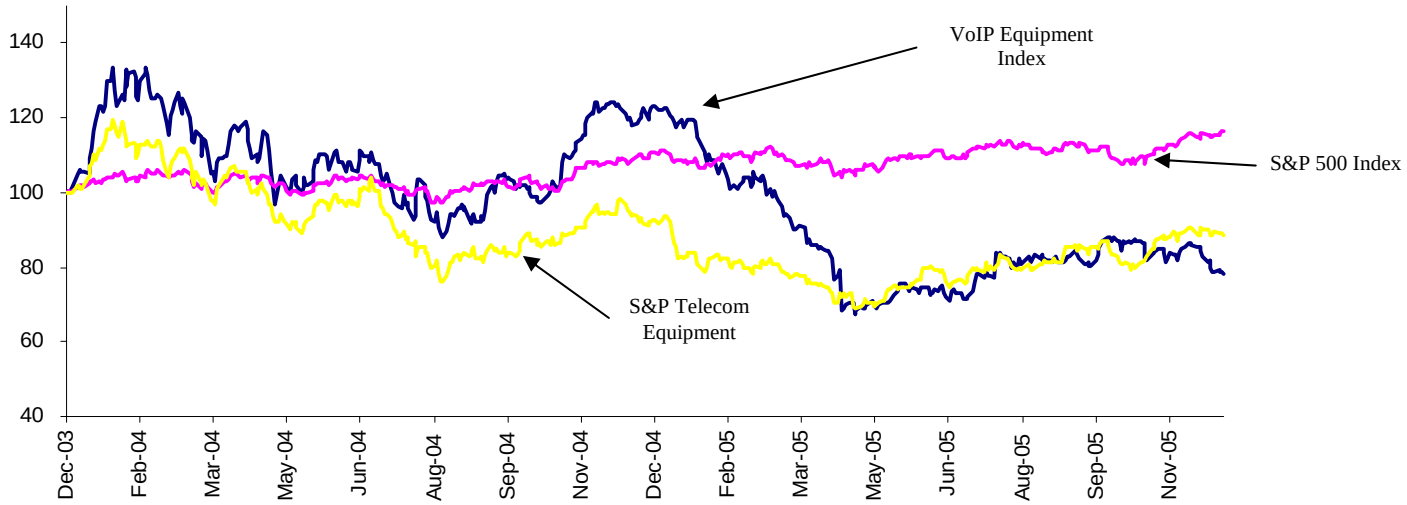
Financial developments October / November 2005

Company	Product/Services	Development	Details
Sonus	Softswitch	Q3 results	Revenue $45.7M. Net loss $2.7M
Radvision	VoIP enabling technology	Q3 results	Revenue $19.1M. Net income $3.2M
Audiocodes	VoIP hardware	Q3 results	Revenue $29.7M. Net income $3.5M
iBasis	VoIP wholesale	Q3 results	Revenue $94.6M. Net loss $1.7M
Deltathree	VoIP retail and wholesale service	Q3 results	Revenue $7.1M. Net loss $40,000
Vocaltec	Softswitch	Acquisition	Acquired by Tdsoft through a share swap
Marconi	Softswitch	Acquisition	Acquired by Ericsson for $2.1B

VoIP Services Index



VoIP Equipment Index



Average Returns

	VoIP Services Index	VoIP Equipment Index	S&P 500	S&P 600 Diversified Telecom Services	S&P Telecom Equipment
Annualized LTM	(2.29%)	(33.25%)	5.62%	(5.21%)	(2.1%)
30 -Day Return	5.49%	(7.13%)	4.21%	(0.95%)	1.6%

Mercator Capital is a privately held investment bank committed to helping our clients achieve superior results. Our success stems from our focus on providing clients with quality advice and developing creative solutions. With decades of Wall Street leadership and extensive industry knowledge, we pride ourselves on a culture of excellence that promotes intellectual insight and rigorous analysis. We focus on building long-term relationships with our clients rather than pursuing individual transactions. For our clients, our approach means a much greater understanding of their business and markets, a more thoughtful and committed effort and an unmatched degree of senior-level service.

Our clients rely on our deep understanding of technological vision and financial expertise to assure the successful execution of their strategic initiatives.

Virginia Office:

One Fountain Square
1911 Freedom Drive Suite 1080
Reston, Virginia 20190

Israel Office:

Zvi Tower Building, 10th Floor
24 Raoul Wallenberg Street
Tel Aviv 69719, Israel

Rod Hackman	rhackman@mercatorcapital.com	(703) 995-5524
David Ballarini	dballarini@mercatorcapital.com	(703) 995-5521
Lior Samuelson	lsamuelson@mercatorcapital.com	(703) 995-5525

Mercator Capital, Inc. Disclaimer:
The information and opinions in this report were prepared by Mercator Capital, LLC. ("Mercator Capital"). The information herein is believed by Mercator Capital to be reliable and has been obtained from and based upon public sources believed to be reliable, but Mercator Capital makes no representation as to the accuracy or completeness of such information. Mercator Capital may provide, may have provided or may seek to provide M&A and other advisory services to one or more companies mentioned herein. In addition, employees of Mercator Capital may have purchased or may purchase securities in one or more companies mentioned in this report. Opinions, estimates and analyses in this report constitute the current judgment of the author as of the date of this report. They do not necessarily reflect the opinions of Mercator Capital and are subject to change without notice. Mercator Capital has no obligation to update, modify or amend this report or to otherwise notify a reader thereof in the event that any matter stated herein, or any opinion, estimate, forecast or analysis set forth herein, changes or subsequently becomes inaccurate. This report is provided for informational purposes only. It is not to be construed as an offer to buy or sell or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy in any jurisdiction.

© Reproduction of this information without express written permission is prohibited