VoIP Newsletter

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Skype woos eBay to the tune of $2.6 billion

Following months of speculation about **Skype's** possible sale, the peer-to-peer VoIP service provider announced its plans in a widely reported $2.6 billion deal with **eBay**. The deal has the potential to grow even larger, to $4.1 billion, pending future results.

There has been a lot of debate in the media on whether the purchase price is justified. This can be analyzed from two different angles; one by considering **Skype** a telecom company and the other by considering it an Internet company.

As a telecom company, **Skype** generates its revenues as a PC-to-PSTN phone application. Judging from previous history, there is little excitement about this market and its commercial potential. First introduced in 1996, PC-to-phone service enjoyed strong growth until mid-2000. However, as we are all aware, the rosy picture did not last. **Net2Phone**, the largest player in the segment, went public but its stock eventually lost over 90% of its value. Several competitors also went bankrupt.

The original fascination that many Wall Street analysts, PSTN carriers and institutional investors had with VoIP technology led them to ignore a string of serious problems that make it very challenging for PC-to-phone service providers to generate profits. Included among these problems are churn rates exceeding 40%, high customer acquisition costs of $150-$300 per subscriber, minimal or sporadic calling activity in the majority of customer accounts, and average monthly revenues of less than ten dollars per customer. Furthermore, inconsistent service and poor audio quality tarnished the image of VoIP, and resulted in a stigma that the industry still struggles with today. As a result, rapid growth was not matched by sufficient improvement in key financials.

Dialpad came to market with a simple, but radical solution to the challenge of acquiring customers in countries with low telephony tariffs; namely free PC-to-phone calls that generate revenue through banner advertising and co-marketing deals. In **Dialpad's** first 18 months of operations, the company exceeded two billion minutes of call volume, greater than the cumulative traffic of the rest of the industry since its inception in 1996.

Both **Net2Phone** and **Deltathree** countered **Dialpad** with free PC-to-phone offerings as part of value-added bundles that included unified messaging and other services. Most service providers later moved back to a paid subscriber model, albeit with limited success. In telecom markets, consumers are used to declining rates, not the other way around.

From this analysis, it seems clear that buying **Skype** solely for its PC-to-phone application is not what **eBay** had in mind.

eBay's current business model allows for buyer-to-seller communications through email

Skype – eBay, Continued

and web postings. However, the slow response time of email and web postings may result in fewer completed transactions. **eBay's** hope is that **Skype's** PC-to-PC communications platform will reduce "friction" between buyers and sellers and ultimately result in more transactions, particularly with big-ticket items such as cars and jewelry. **Skype** could also enable live auctions, in the same way that **Sotheby's** currently conducts auctions. Beyond these obvious examples, we can also think of other VoIP-related applications such as live video calls between **eBay** customers, or live broadcasts of **eBay** auctions.

Another way to look at **Skype** is by considering it an Internet company, not a telecom company. When viewed in that light, there may be some additional benefits. Unlike **Dialpad** and **PhoneFree**, the **Skype** client sits on the user's desktop. To date, **Skype** claims over 170 million downloads of its client software, and over 54 million users with it on their desktop, which is something that **eBay** can leverage through the transaction. Assuming no overlap in the customer bases and no attrition post-transaction, this works out to $48 per user for **eBay**. While this seemed reasonable during the Internet bubble, it still seems very high by today's standards.

It should also be noted that there have been several deals before where VoIP providers like **Net2Phone** have integrated their technology with online directories, portals, and e-commerce sites. It is quite common today to see "Live Chat" icons on some e-commerce or service-related websites. Obviously the barriers for this technology are not very high, and certainly do not warrant a $2.6 billion price tag.

Finally, it is also relevant to mention here that **Dialpad** also had over 14 million users worldwide. While there are no financial details available on the **Yahoo-Dialpad** deal, it is likely safe to assume that this transaction was not in the billions. So, again, why did **eBay** pay $2.6 billion for **Skype**? Only time will tell.

SPIT: The worst VoIP side-effect?

Voice spam or Spam-over-Internet-Telephony (SPIT) could easily prove to be the biggest nuisance for the VoIP industry. SPIT is expected to be the next move for mass-marketers who have already made the jump from email to instant messaging. Obviously, SPIT has the potential to be much more painful than its email counterpart.

Email spam degrades service and can clog up bandwidth. If legitimate emails are delayed by a few minutes, it is usually not a big deal. However, with VoIP spam, VoIP gateways could potentially become over-burdened, which could degrade voice quality on legitimate calls and ultimately affect end users.

It is not uncommon to open your email program and find the inbox littered with spam. Although spam filters are getting more efficient each day, we have become used to email spam and are also used to deleting it. But what if you logged onto your voicemail and it announced that you had 30 new messages – and 25 of them were unsolicited commercial broadcast calls? Or what if you were out to lunch with your friends, your phone rings, and it is an unsolicited pornographic voice message? These examples may not be too far away.

The migration from traditional telephone service to VoIP will see mass-marketers with spamming ability exploring this new opportunity to target a critical mass. SPIT is basically an equivalent of telemarketing, except that a single caller, or likely a pre-recorded message, will be able to send out a thousand messages per minute to VoIP devices and voice mailboxes.

So how can a network possibly detect SPIT? The obvious way is to monitor for sequential numbers being dialled one after another, which may be an indication of an automated SPIT agent. Another approach to monitor for SPIT is to check if the ratio of repeat calls to unique calls is very low. In each of these examples, however, it may not be possible to catch SPIT with 100% accuracy, though it can be detected in the majority of cases.

Services such as **Skype** and **Vonage** would in theory be more immune to SPIT attacks because portions of those networks operate over a closed system that SPITters would have to hack. As we all know, however, any network architecture is vulnerable to hacker attack. In fact, **Skype** users were subjected to an unsolicited voice broadcast message early in 2004, but the company quickly found and patched the loophole within a couple of days.

Any open, IP-based phone system could be a target for SPIT. This includes such services as **Free World Dialup**, **SIPPhone**, and **Earthlink's** Free Online Calling program.

There are already some methods in place to counter SPIT. The simplest method is the use of some kind of counter-DoS (denial of service) protection. If the network is flooded with calls over a certain threshold, it may be safe to assume that there is a problem, and diagnostic tools can be launched that provide further analysis.

As SPITters become more sophisticated, SPIT may become harder to detect. For instance, it may be safe to assume that thousands of calls coming from the same source may be identified as SPIT. But what if a SPIT agent is clever enough to constantly change its IP address? You may not be able to detect that these calls are coming from the same SPIT agent.

Imagine that somebody was sending calls out to various different networks like **Vonage**, **AT&T** CallVantage, **Packet 8** and to hundreds of other VoIP providers. (We are assuming that it could happen in the future, though it likely cannot happen today because a single agent is unlikely to penetrate these separate proprietary networks.) This scenario will create a challenge because the separate networks may not notice all the spam calls that are being made from a single agent. Though the agent may be blasting calls away, each individual network is only seeing a small fraction of those calls and the fraction that they

SPIT – continued

see may be below their SPIT threshold – a threshold created arbitrarily by each service provider to declare an agent as SPIT. So the irony is, as VoIP becomes more mainstream and widespread, it may actually be more a more difficult technical challenge to detect SPIT.

There are currently automated software solutions available to combat telemarketers that filter out cold calls or ask the caller to answer a question that only a human could answer. The problem with SPIT comes back to the fact that the Caller ID is not a trusted entity in VoIP. It would be very hard to use these filters in VoIP because the Caller ID is a field that can be easily manipulated. So the problem of SPIT is very closely related to the problem of authenticating users and Caller IDs, and there are number of proposals for this as part of the SPIT prevention initiative.

Session Border Controller or firewall vendors will have to be flexible in their design of SPIT detection. At the present time, many are assuming that they can create hard-coded solutions in software, and update the software in the next release if new SPIT techniques are rolled out. However, with mission-critical applications such as voice communications, this may not be an option. Many hardware vendors should be thinking along the lines of virus protection subscriptions that can be upgraded real-time as new threats hit the market. Apart from the typical names in SBCs and firewalls, both **Qovia** and **BorderWare** are also doing very interesting work with SPIT detection algorithms.

Excel acquires Brooktrout

Another major deal was announced last month in the VoIP hardware industry. In a major development, **BroookTrout Technology** has been acquired by **EAS Group**, the privately held parent company of **Excel Switching**. The acquisition, valued at $173 million, represents a 38% premium over the closing price of **Brooktrout** common stock on August 17, a day before the deal was announced.

Both companies are based in Massachusetts. Needham-based **Brooktrout** was founded in 1984 and designs circuit boards for use in telecommunications devices, competing with California-based **Intel** and Framingham-based **NMS Communications**. Hyannis-based **Excel Switching** was spun out of **Lucent** in June 2003, after being acquired in August 1999 for about $1.7 billion. **Excel** was founded in 1988 and has an installed base of 8,500 systems in 80 countries.

Though both companies provide enabling technologies for TDM and IP networks, their market focus is centered around two different segments. **Excel**, with its flagship Any-Gen Converged Services Platform, is mainly focused on the carrier side while **Brooktrout** and its telephony boards are focused on the enterprise segment. With these different focuses, there is little product overlap, which is one of the main attractions in the deal. The transaction combines **Brooktrout's** board-level products with **Excel's** system-level switches and gateways. As such, the combined entity will be able to achieve some level of vertical integration within the company.

Brooktrout, which employs 290 people, is slightly larger than **Excel**, with 174 employees. The transaction is valued at over two times **Brooktrout's** trailing twelve month revenues of about $78.8 million, ending June 2005. Both **Brooktrout** and **Excel** claim to be profitable and the companies are looking at the deal as an opportunity to build "one of the largest, broadest, and deepest enabling technology product lines in the communications equipment industry".

Brooktrout had previously acquired **Snowshore Networks** in April 2004 and **Lucent's** Computer Telephony Products business in December 1998.

Google Talks VoIP

The world's most used search engine, **Google**, has joined the voice-enabled instant messaging (IM) bandwagon by announcing its own text-chat and voice communication program called Google Talk. Google Talk is an instant messaging client that allows users to make VoIP calls via a PC.

With the launch of Google Talk, **Google** joins a select group of rival companies who have integrated VoIP capability into their IM programs. The group includes **AOL**, **MSN**, **Yahoo**, and **Skype** whose IM clients have VoIP capability integrated with messaging services. Each of these competing IM clients are closed and do not integrate with one another.

Users of Google Talk must have a Gmail account, **Google's** email service. The service is currently only available through referrals from friends.

Google believes that users should have a choice in what applications they use for communication. Google Talk allows its technology to be integrated into other websites and applications that, in theory, offer users the ability to communicate to people using other providers' IM clients, something that rivals with closed systems cannot do at present.

Google Talk is based on an open technology that enables voice call support through a custom Extensible Messaging and Presence Protocol (XMPP) signaling and peer-to-peer communication mechanism, created to help different networks talk to each other. Any client that supports XMPP can connect to Google Talk. Users can send text messages to subscribers of services such as **Apple** Computer's iChat, **Cerulean Studios'** Trillian Pro and the open-source GAIM. **Adium**, **Miranda**, **Psi** and **EarthLink** are also collaborating with **Google** on developing such communications.

In the future, **Google** plans to add a series of new features including support for other operating systems (presumably Mac and Linux), encryption, compatibility with other internet telephony standards, and versions with a user interface in languages other than English.

Google Talk's current text chat already works in any language supported by Windows.

Another positive for GoogleTalk has been the launch of a mobile IM solution for the client launched by a startup company **MessageVine**. **MessageVine's** Mobile IM client for Google Talk offers connectivity to other public IM networks such as **MSN**, AIM, **Yahoo!** and ICQ. The mobile client offers the same friendly and intuitive user experience as offered by the Google Talk's PC client.

Google may have a leading share of the paid search market but it is a minnow when it comes to the IM arena. **Google** hopes to translate its success in search to messaging and internet telephony with the launch of Google Talk. This looks like an ambitious task considering its late entry into the field dominated by established IM programs from **AOL**, **Yahoo**, and **Microsoft**, and VoIP services such as **Skype**. Most industry observers speculate that Google Talk will be tied to the company's long-term strategy with advertiser-paid search.

America Online has more than 40 million users on its AIM and ICQ instant messaging networks. **Yahoo** has 20 million users and MSN Messenger has 14 million. **Skype**, acquired this month by **eBay**, has 54 million users worldwide.

Google Talk only allows users to talk to each other via a PC and does not have services to let users make PSTN calls to land lines or mobile phones, something which its rival competitors **Skype** and **Yahoo** possess. Also unlike Google Talk, MSN Messenger – bolstered by the recent acquisition of **Teleo** – allows customers to use their cell phone, regular phone or PC to make and receive VoIP calls. **Yahoo** also recently bought **Dialpad**, another company that allows users to call over the Internet to traditional phones, something that will likely be a future feature of Google Talk.

Heavy IM users are likely to find Google Talk too simple, at least in this first version. Apart from the missing PC-to-phone application, there are no advanced features like web conferencing, group

Google Talk – Continued

messaging or group voice calls. Google Talk only allows for one-to-one sessions, although you can carry on several IM exchanges simultaneously.

Like **Skype**, **AOL**, and **MSN**, Google Talk has licensed technology from **Global IP Sound**, which **GIPS** claims is the reason for the much-improved voice quality over traditional CODECs. **Skype** has earned rave reviews for its high quality audio, when bandwidth permits.

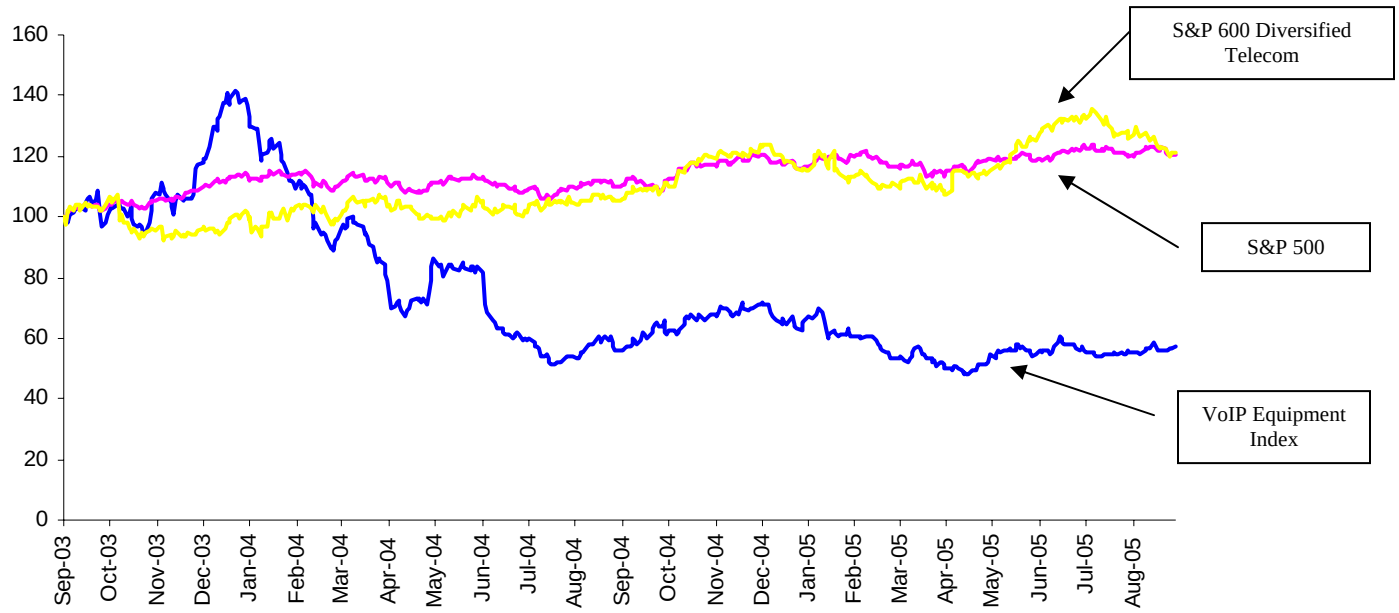
Google, whose forte until this past year has been strictly as a search engine, has recently made a conscious effort to diversify its products and services base with a view to expand and improve upon its advertising revenues. In the past year, the company launched Gmail (a web-based e-mail service that competes with **Yahoo** and **Hotmail)**, Google Desktop Search, downloadable Picasa software (a Windows-based program for organizing digital photos), and Google Earth (a three-dimensional model of the entire planet). Many of these products and services in one way or other fit into **Google's** strategy of increasing its value to both end-users and paid advertisers.

Google Talk forms an essential part of the company's expansion drive and is seen as a conscious effort by **Google** to look for services outside the search realm. Google Talk does not utilize advertising, but the company hopes that the IM service may convince people to sign up for Gmail. While the service is in its infancy now, many expect that Google Talk will eventually help **Google** connect buyers to sellers in a paid advertising model, much the way that **eBay** envisions **Skype** helping its business. However, the jury is still out as to whether either strategy will work.

Financial developments August 2005

Company	Product/Services	Development	Details
Brooktrout	VoIP hardware	Acquisition	Acquired by Excel Switching for $173 million.
Teleo	Service provider	Acquisition	Acquired by Microsoft. Financial details not disclosed.
Paradyne	Broadband equipment	Acquisition	Acquired by Zhone for $180 million.
Mediaring	Service provider	Funding	Raised $15 million. Funding led by Venture One.
Sonus	Softswitch	Quarterly results	Quarterly revenue $58.1 million. Net income $9.7 million.

VoIP Services Index



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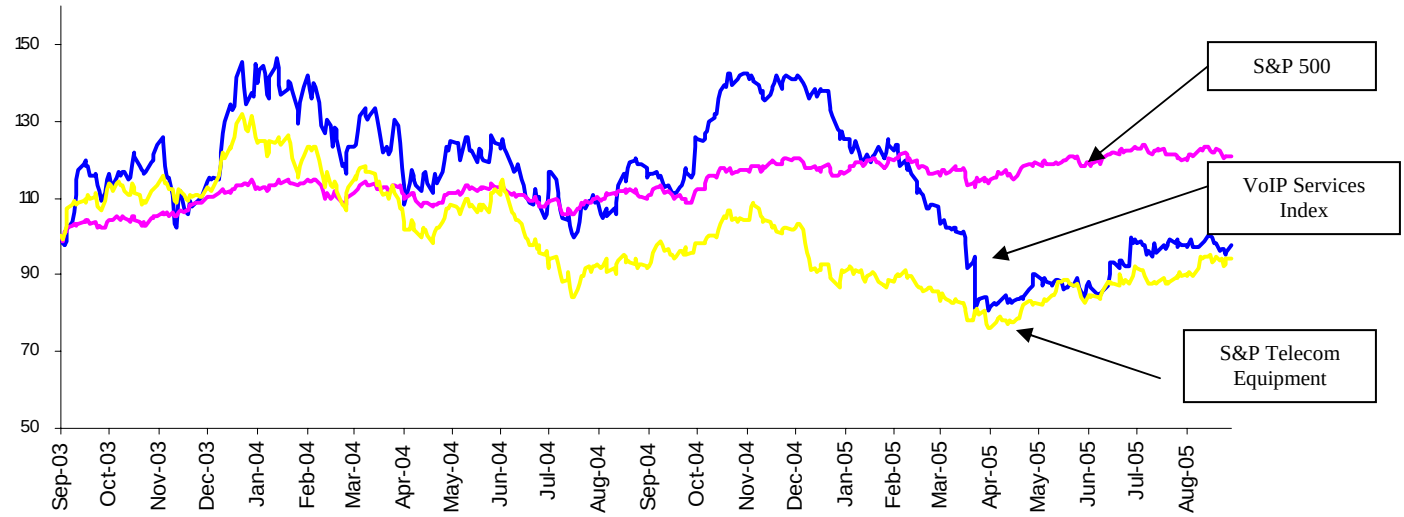

Average Returns					
	VOIP Services Index	VOIP Equipment Index	S&P 500	S&P 600 Diversified	S&P Telecom Index
Annualized LTM	1.35%	(14.25%)	9.74%	17.20%	7.17%
30-Day Return	4.41%	1.43%	(1.15%)	(6.89%)	4.84%

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