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GIPS to bring mobility and video to VoIP

What do **Skype**, **AOL**, **Google**, **WebEx**, **Nortel**, and **Texas Instruments** all have in common? In addition to each company focusing on voice as a strategic initiative, each is also a customer of **Global IP Sound (GIPS)**.

Prior to this year, **GIPS** was a relatively unknown player in the telecom world. Having landed such high-profile customers as **Skype**, **Earthlink**, and **Google**, the small Swedish company has become quite successful in the VoIP world, as its voice quality solutions have quietly become the defacto standard, especially in the ever increasing peer-to-peer sector.

Contrary to some previous codec designers which focused on adapting legacy telephony protocols into a VoIP environment, **GIPS** got its start by developing the Internet Low Bit-rate Codec (ILBC). ILBC is a royalty-free codec, which has become industry standard thanks to its adoption by **CableLabs** and **IETF**, and its widespread use by numerous industry players. **GIPS'** other main codec offering is called ISAC, a wideband adaptive codec designed to deliver high quality sound in both high-bit-rate and low-bit-rate conditions. Both **Skype** and **Google**, for example, have deployed each of these codecs in their peer-to-peer VoIP applications.

GIPS chose a royalty-free offering to develop an awareness of the company's technology and to give it an opportunity to sell more of its higher end products, such as the

ISAC codec or its VoiceEngine platform, which serves as a complete voice quality enhancement solution. According to the company the strategy seems to have worked; when a customer utilizes its low bitrate narrowband codec, it is usually complemented by the purchase of its wideband ISAC codec.

So what is so special about **GIPS** codecs? Application developers often have to make compromises when it comes to the overall voice quality their solution can deliver. One example may be the case of comfort noise generation versus voice activity detection. Generating comfort noise consumes extra bandwidth, whereas using voice activity detection is a great way to save bandwidth. But the trade-off is that voice activity detection may introduce some delay. There are similar issues with echo cancellation. It is a balancing of all these elements that result in high quality sound.

GIPS claims to have created a voice quality enhancement solution that optimally balances each of these elements. With **GIPS'** products, a service provider can optimize bandwidth, voice quality, and several voice elements. The service provider or application developer does not have to trade-off between these; the **GIPS** tools select the components dynamically within the overall solution.

As an example, the **Skype** dialer, which uses both ILBC and ISAC, determines the network bandwidth

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on either side of the session. If one of the parties is on a dialup or a very narrowly constrained network, the clients negotiate down to ILBC. If the customer makes a SkypeOut call to terminate onto the PSTN, an ILBC termination will transcode over to G711 or some other legacy codec at that point. On broadband-to-broadband calls, the dialer chooses ISAC throughout the call.

So far, the softphone market has been the number one success for **GIPS**. **AOL, MSN, Yahoo, Earthlink Skype** and now **Google**, have all announced products in this market. **GIPS** sees these voice offerings expanding to include other applications such as video.

As a result of **GIPS'** success with peer-to-peer customers, the company is now also starting to see traction in the hardware arena where service providers are looking for compatible quality technology embedded within their hardware devices. In conjunction with this effort, the company has announced an extended agreement with **Skype** specifically targeted at hardware manufacturers.

The company is leveraging its software codecs in order to penetrate into the hardware market. **GIPS'** older ILBC codec is currently available as a hardware solution, whereas ISAC is not yet available in hardware. When it comes to solutions for dual-mode handsets and ATAs, the ILBC solution is what is currently being deployed, and it remains as a royalty-free codec even in hardware. In addition to ATAs and dual mode handsets, **GIPS** is also targeting IP phones. **Nortel** has implemented **GIPS'** voice engine solution on the softclient side, but also the company's NetEQ and ILBC solutions in its IP phone product line. So far **GIPS** has had limited success in penetrating many of the larger IP phone makers such as **Cisco** and **Avaya**.

In terms of product expansion, the company recently announced the addition of video within its multimedia voice enhancement solution, which allows developers to offer both voice and video applications over an IP environment. This natural extension of the voice

application allows **GIPS** to expand its addressable market. In this case, however, **GIPS** has not developed its own video codecs, instead it has integrated video codecs from **On2 Technologies**.

Another major product announcement is the voice quality management solution targeted at mobile implementations such as dual mode handsets. **Nokia, Sony, Ericsson, and Samsung** have all announced products for this market. **GIPS** has announced a partnership with **Symbian** in this area. The company is targeting a number of developers who are building VoIP applications on dual mode mobile handsets. Longer term, **GIPS** expects the mobile market to become one of its largest segments.

GIPS' products also include server-side solutions, where the company offers enabling technologies for conference and voice mail solutions. There are some customers in this area, but the company has not yet made the names public. Additional offerings based on **GIPS'** technology will be launched later this year.

The company is currently diversifying its market reach as well as its product reach. **GIPS** has recently opened an office in Hong Kong, and has about seven people in Asia focussed on expanding opportunities in Japan, Hong Kong, China, Korea, and Taiwan markets. The company expects the Asian market to become a significant growth opportunity. In all worldwide markets, **GIPS** has decided to focus on two primary areas; the first being voice application deployments by service providers and the second in embedded hardware solutions by equipment providers.

Today the softphone segment represents the largest revenues for **GIPS**, though in three to four years, it may take a backseat to other markets such as mobile and hardware devices. While softphones will still likely have the highest number of codec licenses deployed, the company hopes that it can generate higher ARPU through these new applications.

Veraz branches out

Veraz Networks, a company that was spun out of **ECI Telecom** through the merger of its NGTS division and **NexVerse Networks** in 2003, has a long history in the voice communications market. With over 700 customers in over 140 countries, **Veraz** has established a solid reputation, primarily through its Digital Circuit Multiplexing Equipment (DCME), but additionally through its softswitch and media gateway products.

Veraz has recently built on its successful legacy and VoIP products. Over the last few months in particular, **Veraz** has had a fairly successful period of growth. On the business side, there have been some high profile customer announcements, such as India's **Reliance Infocomm**, and in parallel there are several unannounced wins that the company is leveraging in its marketing messages.

On the product side, **Veraz** launched its Class 5 services platform about six months ago. The basic Class 5 product has penetrated a couple of accounts, and there are several trials of the platform going on worldwide. The vendor also announced its IMS strategy and product architecture. With these latest developments in its softswitch and service delivery platform (ControlSwitch), **Veraz** moves further along in its effort to enable convergence applications across varied networks and devices.

ControlSwitch's long-standing layered, modular, distributed design, coupled with investment in interoperability has enabled **Veraz** to easily incorporate new functional subsystems, with IMS being the latest. The programmable service logic of the product enables the coordination of complex services from service delivery platforms including SIP-based application servers, traditional PSTN Service Control Points, and ControlSwitch-based services (both network and subscriber services).

Last month **Veraz** announced its fixed mobile convergence (FMC) strategy extending the softswitch capabilities into the mobile world. Subscribers will be able to centralize their communications by integrating

their wireless/wireline addresses and services across multiple communication devices. The vendor suggests that increased customer loyalty through bundling will a key benefit realized by service providers.

Finally on the product development side, the company has added a messaging solution to its portfolio, which enables service providers to offer subscribers a full range of basic voice messaging to advanced, real-time multimedia messaging. The solution is an integrated, pre-tested bundle that is based on **Veraz's** softswitch and service delivery platform as well as media servers from third parties. Due to the modular architecture of this messaging solution, service providers can manage services that scale to millions of users. It also allows carriers to easily serve new global locations, since the **Veraz** solution can be hosted at a central IP location and then accessed and delivered to devices worldwide.

Veraz has recently displaced vendors like **Nortel** and **Alcatel** in some carrier accounts. The vendor had a major win with India's **Reliance Infocomm** where they were chosen to replace the media gateway platform of a "North America based tier-1 vendor". **Reliance** is a global player in both the national and international long distance (ILD) markets. In the ILD market, **Reliance** has some switches deployed in the US and obviously a strong presence in India. Over a year ago, **Veraz** won a contract to supply them with the I-Gate 4000 media gateway platform. Among other features, the I-Gate 4000 provides VoIP compression capability across **Reliance's** global backbone network.

In VoIP most competitors can provide compression rates up to 5:1. When pushed beyond that level, the voice quality usually degrades to the point that is not acceptable by most carriers and consumers. **Veraz** equipment can provide up to a 10:1 compression rate while maintaining voice quality, which was a major factor making the win possible at **Reliance**.

In North America, **Veraz** has begun a deployment with a global player who is in the process of replacing a network based on **Nortel's** infrastructure, according to the company. **Veraz** began supplying this particular

Veraz, Continued

customer some 15 months ago, and the initial plan was to replace the **Nortel** switches with the **Veraz** softswitch and media gateway topology. **Veraz** started the project with small initial shipment of about 40,000 ports growing to over 120,000 ports today. The service provider has also leveraged **Veraz's** programmable switch capabilities on the service creation side and has developed some customized services.

Nearly all softswitch deployments of **Veraz** are in the area of Class 4 infrastructure. Some of **Veraz's** competitors that also started with Class 4 softswitch products have gone on to develop Class 5 features. **Veraz** was rather late in this regard. However, according to **Veraz**, some service providers are looking for customization of services and service differentiation, which can be facilitated through a programmable switch for Next Gen services. **Veraz** claims to be the first vendor to offer the advanced programmability features in the Class 5 arena.

In terms of geography, most of **Veraz's** revenue comes from emerging markets in Eastern Europe, Asia, and Latin America. This is, in part, due to the fact that established vendors like **Sonus**, **Lucent**, **Nortel** and others have a strong presence in North America, and the company lacks the sufficient channels in the US to compete with these incumbent vendors.

For **Veraz**, the main focus until now has been on the international market. That was not the case three years ago when **Veraz** was launched. At that time, the vendor, like others, focused on where the best prospects for next gen softswitch solutions were based – in North America. However, during this period there was market uncertainty for startups like **Veraz**, so the company decided to focus on markets that were undergoing significant changes and growth on the greenfield side. Clearly **Veraz** also had a major foot in the international market by virtue of near monopoly in the DCME compression business. As such, regions including Eastern Europe, Asia, India, Latin America, and Far East became the new focus areas. **Veraz** achieved early successes in several countries in these regions, a position it has since solidified.

The **ECI** relationship has also resulted in some additional business for **Veraz** in certain countries. **ECI** is very well entrenched in the Russian market, and **Veraz** has used **ECI's** presence to penetrate this market. Similarly, **Veraz** also leveraged **ECI's** position in New Zealand, and to a certain degree in France.

In the US market, three years after telecom meltdown, numerous networks are now being built in the form of migration and replacement projects. Some are TDM replacement implementations; some involve replacement of H.323 based VoIP solutions that represented the early generation packet voice solutions. Accordingly, **Veraz's** focus on the North American market is now increasing as the market develops for replacement solutions.

Veraz has done a good job leveraging its market leading position in DCMEs to fund the growth of the company and launch new products in the VoIP market. We expect that the company's legacy business will continue to shrink, but this could be offset by new revenues from recently introduced products. Longer-term, we do not expect that **Veraz** will remain independent, as it is quite possible that it could be a target of a larger communications company interested in rounding out their portfolio.

First major telco to offer hosted communication applications from Microsoft

Microsoft has teamed with **Qwest Communications** to provide VoIP and other telecommunications convergence services to small and medium-sized business customers. Following the collaboration, **Microsoft** and **Qwest** will roll out their first joint services early next year. The announcement will make **Qwest** the first service provider to leverage **Microsoft's** recently-launched VoIP software suite.

Microsoft launched its solution for enhanced VoIP services in June. The company will be working with service providers to deliver VoIP services over their networks.

The solution offered by **Microsoft** is a suite comprised of hosted versions of **Microsoft** server products including **Microsoft** Exchange Server 2003, **Microsoft** Office Live Communications Server 2005 and Windows SharePoint Services working in conjunction with **Sylantro's** application feature server.

The collaboration comes closely on heels of **Microsoft** partnering with VoIP vendors and acquiring **Teleo**, a peer-to-peer VoIP company. The software giant plans to incorporate **Teleo's** VoIP technology into its own software to upgrade online services from its MSN division, which represent **Microsoft's** retail VoIP offering.

Broadcom announces single chip mobile VoIP processor

Broadcom has announced a mobile VoIP processor designed for Wi-Fi phones. This single-chip VoIP processor enables video streaming, video conferencing and data connectivity, new features which are not found in typical cordless phones used in homes today.

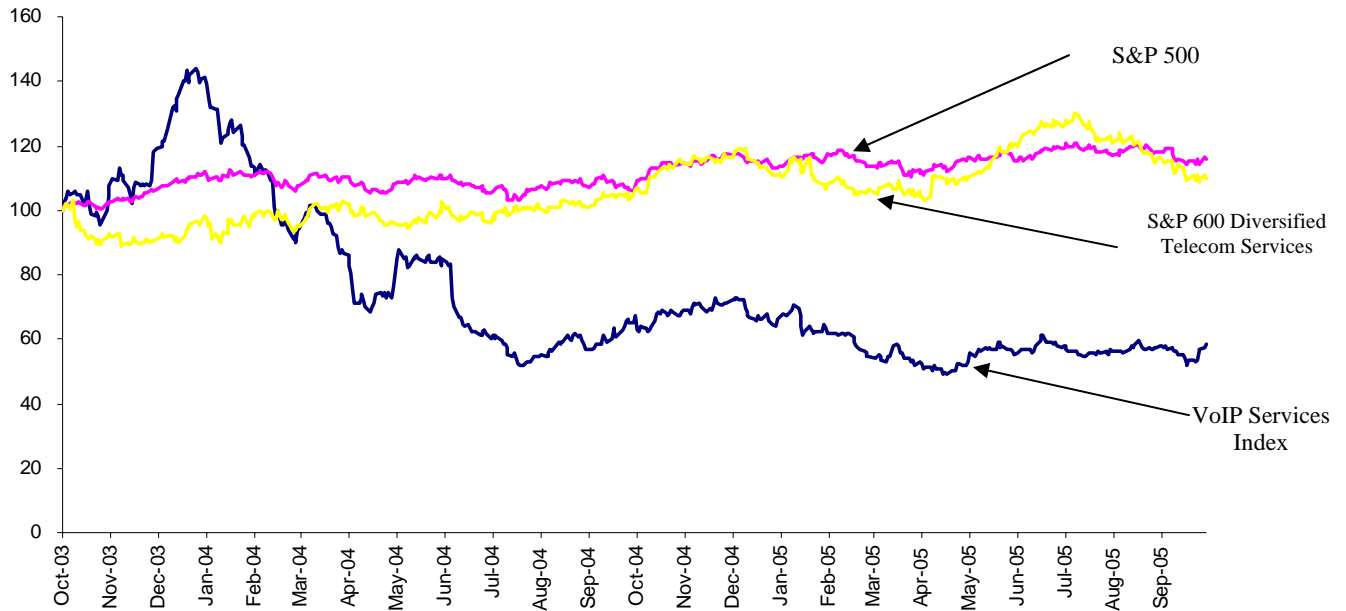
Wi-Fi phones are beginning to leverage the convergence of VoIP and WLAN, enabling the handsets to not only provide telephony performance and features, but also to interoperate with home entertainment appliances. To enhance VoIP phones, **Broadcom** chips utilize compression techniques for a better audio experience. Other features that also supported by this product include 3-way conferencing and speaker phone support.

Broadcom's mobile VoIP processor will be offered in next-generation Wi-Fi phones from ODMs such as **Alpha Networks**, **Moimstone** and **Wistron Neweb**.

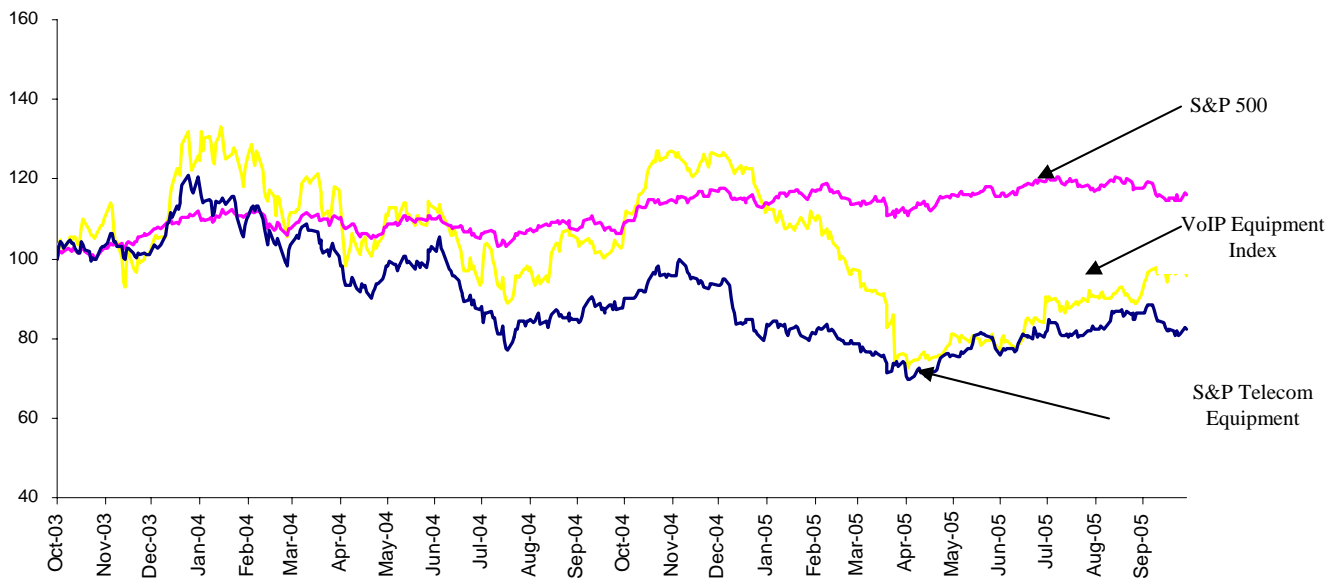
Financial developments September 2005

Company	Product/Services	Development	Details
Skype	Service provider	Acquisition	Acquired by eBay for \$2.6 billion
Vivox	Applications embedded VoIP	Funding	Raised \$6 million in funding. Funding from Canaan Partners and GrandBanks Capital
Nimcat	Peer-to-peer enterprise VoIP solutions	Acquisition	Acquired by Avaya for C\$46 million

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	(6.44%)	(3.92%)	9.80%	8.15%	(3.7%)
30 -Day Return	0.99%	3.44%	(2.73%)	(8.12%)	(5.4%)

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