

TeleSoft

FOURTH QUARTER 2006

NEWS

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A WORD FROM THE FIRM

Congratulations to BayPackets, LiteScape, Validity Sensors, and Xpedion! GENBAND acquired BayPackets to strengthen its telephony and media gateway solutions with application and network services platforms. The BayPackets suite will be sold by GENBAND as the M5 Multimedia Applications Server. Xpedion was acquired by Agilent Technologies to increase its emphasis on design verification and design for manufacturing (DFM) for RFIC designers. Validity is closing an additional \$10 million oversubscribed financing from new investors, as well as a strategic partnership with Synaptics for the laptop market. LiteScape announced its deployment at Rockwell and a key product offering with WebEx.

We are delighted to invest in education.com, a new education focused portal for online educational resources and a provider of educational content for parents, students, and educators. The company raised \$4.5 million from Azure Capital and TeleSoft. We welcome Sebastian Blum, Ella Duval, John Kim, and Michele Macpherson to TeleSoft!

As TeleSoft approaches its second decade, special thanks goes to our ecosystem partners that have been key to our success. We look forward to seeing you at our annual meeting—we have a dynamite slate of speakers and attendees!

— Arjun Gupta

TELESOFT'S 2005–2006 HIGHLIGHTS

- Tele Atlas Public Offering
- Ikanos Public Offering
- Hutchison acquires BPL Cellular
- SanDisk acquires Matrix
- Qwest acquires OnFiber
- Emulex acquires Aarohi
- Agilent acquires Xpedion
- Opsware acquires CreekPath

2006 TeleSoft Partners 10th Anniversary VC Ecosystem Meeting

The Fairmont, San Francisco
October 18–20, 2006

KEYNOTE SPEAKERS

The Digital Future

Padmasree Warrior—Motorola

Software-as-a-Service (SaaS)

Marc Benioff—Salesforce.com
Subrah Iyar—WebEx

Consumer Internet Trends

Chris Sacca—Google
Toby Coppel—Yahoo!
Paul Chamberlain—MS&Co

Building/Scaling IT Companies

Vivek Ranadivé—TIBCO
Mohsen Moazami—Cisco
Atiq Raza—NexGen
Todd Oseth—McDATA
George Shaheen—Siebel

Service Provider Trends

Carl Russo—Calix
Rajesh Vashist—Ikanos
Don Gips—Level 3

Capital Markets

Arvind Sodhani—Intel Capital
Michael Danaher—WSGR

Emerging Technologies

Bill Coleman—Cassatt
Alex Erhart—Validity Sensors
George Fink—Tele Atlas
Beatriz Infante—VoiceObjects

3-Decades of Entrepreneurship

Ram Shriram—Google, Netscape

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Arjun's Arctic Adventure

Polar bears, seagulls, and icebergs in the Arctic Wildlife Refuge

From the Front Lines

Software-as-a-Service: Getting SaaS(y)

The software industry is in the midst of a revolution. The implications of this revolution—increased innovation, new business models, technology discontinuities, and global capability shifts—echo the upheavals of previous industry transitions. This issue of “From the Front Lines” looks at the concept and directions of Software-as-a-Service (SaaS).

SaaS is gaining traction in a number of enterprise application areas and is being revisited by companies that experimented with the application service provider (ASP) model in the

late 1990s. Also known as on-demand or hosted applications, SaaS is changing how companies pay for, implement, and run their software applications. Unlike traditional applications, which are paid for upfront and installed on-site at a company, SaaS applications are hosted at the vendor or hosting provider and are typically paid for through a monthly subscription model.

Although the market size for SaaS was small in 2005 relative to overall software sales, it is one of the fastest-growing segments of the IT and network industry—growing at more

than 20 percent annually. SaaS has become increasingly relevant to both enterprise and SMB customers and has the potential to impact the entire IT landscape.

What Is SaaS?

Software-as-a-Service delivers access to business functionality (e.g., CRM, payroll, supplier management, finance/accounting) as a service over the Internet and on demand, with usage- or subscription-based pricing. Under the

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FIGURE 1: COMPARISON OF MODELS	Application Outsourcing (AO)			
	Self-Managed Applications	Traditional AM	Software-as-a-Service (SaaS)	
			Hosted AM	Software-on-Demand
Applications location	Customer Site	Customer Site or Vendor Datacenter	Vendor Datacenter	Vendor Datacenter
License ownership	Customer	Customer	Customer	Vendor
Subscription payment	No	No	No	Yes
Legacy application support	Yes	Yes	Sometimes	No
Purpose-built for the Web	No	No	No	Yes
Customization	Yes	Yes	Yes	Sometimes
Infrastructure purchase, configuration	Customer	Customer (Vendor in outsource contract)	Vendor	Vendor
Hardware management and uptime responsibility	Customer	Customer (Vendor in outsource contract)	Vendor	Vendor
Application operations and uptime responsibility	Customer	Vendor	Vendor	Vendor
Transfer of staff	No	Sometimes	No	No
Shared infrastructure	No	One to One	One to Few	One to Many
Dedicated application instances	Yes	Yes	Yes	Shared
Upgrades broadcast to all customers	No	No	Sometimes	Yes
Vendor examples	SAP, Oracle, Microsoft, Sage, Lawson	IBM, Accenture, CSC, EDS	AT&T (USi), NaviSite, ACS (BlueStar), IBM (Corio), Oracle/Siebel	Salesforce.com, NetSuite, WebEx, RightNow Technologies

SOURCE: IDC, TELESOFT

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SaaS model, vendors host their respective applications on remote servers, and customers access the program through virtually any Internet connection and Web browser. Users typically pay an upfront set-up fee and a monthly subscription (sometimes a per-user fee) to access the particular SaaS functionality. The SaaS vendor provides all the necessary day-to-day support and ongoing updates of the application, reducing incremental expenses to the customer. Subscription-based pricing is the primary SaaS model. However, other methods of generating revenue are applying commission fees to transactions and running an advertising-driven model not unlike Google.

This is in contrast to the traditional perpetual license software model in which the end user pays the vendor a one-time, upfront license fee for perpetual access to the application and an ongoing maintenance component for support/upgrades. Upon purchase of the application, the vendor “ships” the solution (via CD or electronic delivery) to the customer who is then responsible for installing the application locally, on a server and/or PC. Once installed, the customer must then utilize its internal resources to maintain the day-to-day operations of the application as well as those systems that it is dependant upon. There is a high upfront cost associated with the purchase of the license, as well as the burden of implementation and ongoing maintenance. ROI is often delayed considerably, and, due to the rapid pace of technological change, expensive software solutions can quickly become obsolete.

Some confusion exists in the marketplace regarding SaaS due to the

FIGURE 2: SaaS VS. ON-PREMISE

	Software-as-a-Service (SaaS)		
	On-Premise	Hybrid	On-Demand
Payment Model	License	License or Subscription	Subscription
Application Deployment	Customer Site	Vendor or Customer Site	Vendor
Infrastructure Architecture	Single Tenant	Single Tenant	Single or Multi-Tenant
Infrastructure Responsibility	Customers	Vendor	Vendor
Vendor Examples	SAP, Oracle, Microsoft, Lawson	RightNow Technologies, Blackboard	Salesforce.com, Taleo, WebEx, NetSuite

SOURCE: MERRILL LYNCH, TELESOFT

myriad of terms and messages that are being used to describe the associated delivery models. Many types of companies, including software, services, and telecommunications companies, offer various kinds of SaaS models. In addition, SaaS as a delivery model can cut horizontally across a spectrum of enterprise and consumer software markets.

SaaS refers to the ongoing support of applications alleviating the maintenance and daily technical operation and support of business and consumer software. It provides network-based access to, and management of, commercially available (e.g., not custom) software. Applications are managed from central locations rather than at each customer’s site, enabling customers to access applications via the Internet. Market research firm IDC originally combined Software-on-Demand and Hosted Application Management (formerly know as Application Service Provider or ASP) under the umbrella of SaaS. It has hence begun to equate SaaS with Software-on-Demand and Hosted Application Management (AM) with Application Outsourcing (AO). (See figure 1.)

Software-on-Demand is a new model of software delivery in which the entire technology stack, from the infrastructure to the application itself, is shared across customers. The service is delivered over the Web, and customers pay a monthly subscription instead of acquiring a license. Software-on-Demand does not address customers who need a service provider to manage and maintain their existing applications. Software is built specifically for network delivery and is not deployed in-house.

Some Software-on-Demand providers offer an offline module to complement their core online solution. Software license and hosting revenue are combined into one annuity stream whereby the software license and hosting fees cannot be differentiated. There is no upfront licensing fee associated with the offering. There is little or no customization of the application apart from the limited configuration that is allowed by the application provider.

The hosted AM delivery model evolved out of the application service provider (ASP) model, which peaked

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in the 1990s. Today, hosted AM offers a middle ground between traditional AM and SaaS, providing many of the benefits of SaaS with the customizability and dedicated service of AM. The major difference between hosted AM and Software-on-Demand is that hosted AM services are designed for the management of traditionally licensed packaged applications, whereas Software-on-Demand is a new model of Web-delivered software offered with a subscription instead of a traditional license.

Additionally, Software-on-Demand is typically run with a single, shared application instance (i.e., an application shared by multiple customers) whereas hosted AM offers customers private application instances—single tenancy applications. Examples of hosted AM providers include USinternetworking (USi), NaviSite, ACS (through its BlueStar Solutions acquisition), and IBM Applications On Demand (though its Corio acquisition). However, vendors offering hybrid SaaS solutions (single tenant and multiple payment models) have blurred the line between IDC's hosted AM definition and the industry's definition of SaaS. Examples of vendors providing hybrid SaaS models are RightNow Technologies and Blackboard (figure 2).

The idea of having third-party vendors host software is not new: A decade earlier, ASPs gained notoriety by hosting other companies' applications. The underlying premise of the ASPs' model was that these vendors could leverage their infrastructure, both in terms of physical assets and intellectual capital, to run a given application more efficiently than the end user. An

ASP would host a version of third-party business software that customers could access over the Internet, paying a monthly fee for this service. This is referred to as a single-tenant model as each customer is using a unique version of the application.

The problem with the ASP single-tenant model was that it did not scale. The ASP was hosting single instances of the application for each client. Aside from limited purchasing power leverage, expected labor savings were never realized as the ASPs were focused to manage each customer individually. The problem was made even worse when the individual instances of the ap-

“ From end users' perspectives, SaaS is attractive because it enables them to simultaneously minimize costs and maximize performance. ”

plication were modified to meet specific client requirements. In the end, these companies were unable to generate any level of profitability and quickly collapsed under their own weight.

SaaS solutions use a multi-tenant model where all customers use the same version of the application through an Internet connection and hence achieve increased operating leverage because of the shared infrastructure. One instance of the software can support multiple users across multiple companies. SaaS solutions are designed to maintain a high level of security so that one party cannot see the other party's data. Leveraging the infrastructure lowers the cost of delivery, and reliability tends to be higher with a focus on one infrastruc-

ture with redundancy through the use of multiple data centers.

End User Appeal

A combination of user benefits, solution provider dynamics, and emerging technologies are driving this adoption of on-demand software. According to AMR Research, 26 percent of companies are considering a move to SaaS. And according to Gartner, 30 percent of all software usage will be on a SaaS basis in the next five years.

From end users' perspectives, SaaS is attractive because it enables them to simultaneously minimize costs and maximize performance. However, SaaS vendors must overcome several hurdles to increase adoption of on-demand solutions. In the past, scalability was an issue for early businesses, and many were reluctant to consider “subscribing” to mission critical business solutions over the Internet. Customers cited security issues, Internet delivery issues, and “lack of control” issues as rationale for reluctance.

These issues will continue to hold back some companies from shifting to SaaS. Many companies and government agencies are uncomfortable with their data being located on hardware and software infrastructure outside their own firewalls. A SaaS multi-tenant architecture can also increase the level of customer concern. With multi-tenant, many customers use one stack of hardware and software with each customer's data stored separately from others. Although the data is stored separately, some customers are uncomfortable with

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sharing infrastructure.

In late 2005 and early 2006, SaaS leader Salesforce.com suffered a series of service disruptions. While Salesforce.com took action to correct the problem, including a load balancing system with multiple data centers, some users may hesitate to rely on Internet-based solutions for key business operations. One of the additional downsides for users adopting a SaaS model for application delivery is the loss of control over one's information. The entire delivery of the service is handled outside of

one's network, limiting one's ability to troubleshoot, etc.

Finally, there is still a tremendous amount of legacy software in the world and an even more significant amount of corporate intellectual property locked up in these applications. Customers have become accustomed to the traditional software license model. It may take them a while to become comfortable with the on-demand model. Unless there is some compelling reason to make the transition, they are unlikely to do so.

However, for an increasing number

of users, the benefits of SaaS outweigh these issues. Particularly for small and medium businesses (SMBs) without large legacy software investments, the advantage of avoiding the costs, implementation, and administration of traditional software packages is reason enough for them to investigate SaaS.

SaaS incurs lower upfront costs for users because the software is paid for as it is consumed. Other than the costs for a personal computer and a browser for each end user, there are few software or hardware costs that customers of a SaaS solution need to pay. There could be user training or consulting fees, but these costs are generally much lower than for traditional implementations. Since no hardware infrastructure is required, the user spends less on hardware, maintenance, and administration. Customers usually commit to one- to two-year contracts, with monthly payments. This model lets businesses convert otherwise fixed costs into variable costs, and often moves them from the capital budget to the operating budget. The lower financial hurdle eases the purchase decision for the end user, shortening sales cycles for SaaS vendors and allows customers to have access to applications they could not afford in the perpetual license model.

SaaS accelerates companies' return on investment, enabling them to make automation enhancements even in the face of internal IT resource constraints. It enables the ability to "turn on" additional subscriptions at a moment's notice. Because of the development and testing processes utilized in SaaS, product releases are more frequent, but

FIGURE 3: SELECT SAAS VENDORS

SaaS Vendor	Collaborative Applications	Content Mgmt	CRM (Cust. Relationship Mgmt)	ERM (Ent. Resource Mgmt)	Operations/Manufacturing	SCM (Supply Chain Mgmt)	Security	consumer	education	financial	government	healthcare	industrial	retail	services	technology	telecommunications	transportation	SMB	
PUBLIC COMPANIES																				
ADP (Employee)				ERM						fi	go	hc	in	re	se	te	tc	tr	SM	
Apptix (MIB)	Coll	CM							ed	fi	go	hc		re	se	te				SM
Citrix Online (Expertcity)	Coll							co												SM
Concur Tech. (Outtask)	Coll			ERM																SM
Intraware			CRM																	SM
ITW (Click Commerce)			CRM		SCM			co	fi				in	re		te	tc	tr		SM
Kintera	Coll	CM	CRM							go					se					SM
Oracle (Siebel)			CRM						fi		hc	in			se					SM
PTC	Coll	CM		Ops	SCM			co		go		in								SM
RightNow Tech. (Salesnet)			CRM					co	ed	fi	go				se	te	tc			SM
Salesforce.com		CM	CRM					co		fi		hc	in		se	te	tc	tr		SM
Taleo (Recruitforce)				ERM						fi	go	hc	in	re	se	te				SM
WebEx Communications	Coll							co												SM
Workstream				ERM						fi		hc	in		se	te				SM
PRIVATE COMPANIES																				
Axentis				ERM		Sec				fi		hc								
BlueTie	Coll								ed	fi		hc			se		tc			
Case Central		CM								fi		hc	in		se					
CollabNet	Coll									fi	go									SM
CrownPeak		CM									go				se					
Datacom International			CRM	ERM	Ops	SCM							in							
Demandware			CRM											re						
Five9			CRM						ed	fi	go	hc		re	se	te	tc			SM
Intacct			CRM	ERM		SCM			ed	fi	go	hc		re	se	te	tc			SM
Ketera				ERM				co			hc	in	re	se	te	tc				SM
PeopleClick				ERM					fi		hc	in	re	se	te	tc				
Qualys				ERM		Sec				fi	go		in	re	se					SM
SPS Commerce			CRM			SCM							in	re						
SugarCRM, Inc.			CRM							fi	go	hc			se	te				SM
ZANTAZ		CM				Sec		co	ed	fi	go	hc	in		se	te				SM

SOURCE: TELESOFT

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contain fewer new features than the typical releases in the perpetual license model. Each time the user accesses the software, it is the “latest and greatest” version that’s available.

With the application accessible via the Web, end users do not need to use third-party remote access applications (such as a VPN) to use the program when out of the office. Users can use their applications and access their data anywhere they have an Internet connection and a personal computer or any Web-enabled device. Since the barrier to use the software for the first time is low, it is now feasible to develop applications that may have an occasional use model. This allows for a highly collaborative environment where some users may use the software rarely, but are important to the overall experience.

The pay-as-you-go nature of SaaS enables greater flexibility in terms of technology choices. Users can select applications they wish to use and can stop using those that no longer meet their needs. If customers are dissatisfied, it’s relatively easy for them to switch to a competing solution by signing a new contract, transferring data, and retraining users. The need to avoid customer churn provides a strong incentive for vendors to excel at customer service and delivering desired functionality.

Vendors Feel the Need

Software vendors and service providers are also driving SaaS adoption. Software companies benefit from SaaS business models through broader sales opportunities and predictable recurring revenue streams. User benefits of lower upfront costs and reduced infrastructure

translate into a larger available market for the software vendor. By offering SaaS as an option, large, established companies can move down market and capture revenue from SMBs that may not have been able to afford perpetual licensing in the past. In turn, smaller

software companies and newer entrants that are exclusively delivering SaaS will more effectively compete with the larger vendors through lower start-up and operations costs.

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FIGURE 4: SOFTWARE-ON-DEMAND VENDORS AND PARTNERS

Software-On-Demand Vendors	Datacenter Partners	Sample Channel Partners & (Solution Partners)
Apptix	IBM, Savvis	IBM, HP, Bell Canada, Savvis (RIMM, Good Technology)
Citrix Online	Own datacenter	Verizon Online, EarthLink, British Telecom, Alltel, Covad, Sharp Systems, Sage Software
Concur	AT&T	ADP, USBancorp, BankofAmerica (Cognos, Microsoft, Accenture, IBM, American Express)
Intacct	IBM	RealPage, BPO companies, CPAs (Oracle, ADP, CompuPay, Salesforce.com)
Ketera Technologies	IBM	Salesforce.com, IBM (A.T. Kearney, Corporate United)
Kintera	Own datacenter	(Solomon Media, Emotive, Silas Partners, Salem Communications)
Qualys	Savvis	IBM Global Services, Symantec (Managed Service Division), MCI/Verizon, HCL in India, Southern Trust
RightNow Technologies	Savvis, AT&T	SNAPs, Convergys
Salesforce.com	Own datacenter, Equinix	Through AppExchange: Avaya, Cisco, Aspect, Alcatel, Genesys, Contactual, Echopass, Five9, Accenture, ShareMethods, CalendarBridge, BigMachines, Firepond, Selectica, LivePerson, Miller Heiman, SolutionSelling, ExactTarget, Vertical Response, GotMarketing, WebSideStory, Responsys, QuickArrow, Business Objects, VisualSmart
Taleo	Own datacenter, Internap, Equinix	Fidelity, ADP, EDS, Hewitt, Accenture, Convergys, Veritude, Alexander Mann Solutions
WebEx Communications	Own datacenter	AT&T, British Telecom, France Telecom, NTT (Salesforce.com, BMC/Remedy, Plateau Systems, KnowledgePlanet, QuickBooks, AOL, Microsoft)
ZANTAZ Inc.	IBM, Raging Wire, Switch Comm.	IBM, USA.net, Huron, Navigant, Telecom service providers (EMC)

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The SaaS model can offer the vendor increased revenue visibility. Most SaaS models book the vast majority of their quarterly revenue at the beginning of the period as contracts are typically recognized ratably over the course of the agreement. Although vendors can only recognize the revenue as they provide the services, the growth in deferred revenues on the balance sheet provides visibility into future revenues.

There is also the potential for improved operating margins. R&D cost can be lower due to applications being developed on a specific hardware infrastructure, which can lower test and maintenance costs. In the near-term, lower R&D expenses are offset by higher sales and marketing costs required for new customer acquisition. As companies mature and brands get established, sales and marketing costs should decrease as a percentage of revenue. However, SaaS vendors may experience lower gross margins than traditional software vendors due to the expense of managing data center operations, increasing competition, and the potential of higher network costs if lawmakers favor service providers on the Internet neutrality issue.

The biggest challenge a software vendor faces is that it must become a service provider. SaaS requires a proficiency in an entirely new set of operational disciplines: 24/7 systems management and call centers, hosting and networking, security, disaster recovery, and more. In the SaaS model, a vendor manages the daily user experience. While this allows for tighter customer relationships, it also presents a risk should anything go wrong with the application, data center, or network.

FIGURE 5: INDUSTRY GROWTH PROJECTIONS

Worldwide Services & Software Revenue (\$M)	2005	2010	5yr CAGR
Software-as-a-Service	\$4,271	\$10,659	20%
>Software-on-Demand	\$2,002	\$4,589	18%
>Hosted Application Management	\$2,269	\$6,070	22%
Total Packaged Software	\$211,339	\$305,870	8%
>Application Software	\$99,492	\$139,539	7%
>>CRM Applications	\$9,400	\$12,602	6%
>>ERP Applications	\$28,310	\$43,106	9%
>>SRM Applications	\$3,553	\$4,941	7%
>Software Development & Deployment	\$46,518	\$65,547	7%
>System Infrastructure Software	\$65,330	\$100,784	9%
IT Services	\$443,181	\$584,686	6%
>Outsourcing	\$157,745	\$222,220	7%

SOURCE: IDC

“The biggest challenge a software vendor faces is that it must become a service provider. SaaS requires a proficiency in an entirely new set of operational disciplines: 24/7 systems management and call centers, hosting and networking, security, disaster recovery, and more.”

If a customer is not satisfied with the experience, for whatever reason, it can relatively quickly switch to another vendor without incurring substantial switching costs.

Technology Enablement

The convergence of several technologies is enabling on-demand solutions to avoid the fate of ASPs a decade ago. Today, the Internet is broadband, ubiquitous, and being used for highly time- and security-sensitive transactions. Collaborative commerce and complex supply chains are the norm, and new tools are in use to allow for ease

of connectivity between applications and companies. Some of the new tools are: the emergence of Web services and service-oriented architectures (SOA), the adoption of new standards (J2EE, AJAX, RSS, XML), advances in grid computing and network storage systems, open source development stacks, and high performance commodity servers. These tools can enable software vendors to package and price their Software-as-a-Service products so that users can procure the applications in real time by pointing and clicking.

Emerging Ecosystem

Some of the leading players in disrupting the software ecosystem have been Salesforce.com, RightNow Technologies, and NetSuite (figure 3). These companies have focused initially on providing Customer Relationship Management (CRM) functionality

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to small and medium-size businesses. However, SaaS has already gained traction in a number of application areas beyond CRM such as payroll, human capital management, conferencing, procurement, logistics, information services, and e-commerce. The on-demand model should make gains across a much broader cross-section of applications over the next several years and migrate beyond the SMB market. In mainstream productivity applications, you can find online alternatives to Microsoft's Office, Outlook, and Exchange applications with solutions from Hyperoffice, iNetOffice, BlueTie (e-mail), eProject (project management), Google's Writely (word processing), or iRows (spreadsheets). There is also a growing list of technology management applications available on-demand. These include systems management from WebEx Communications, monitoring and analytics from Klir Technologies, Everdream's managed desktop management service, and Symantec's expanding managed security service offerings.

This disruptive phenomenon has benefited new, upstart companies, which are being built to leverage this shift better than traditional software players, such as Microsoft, SAP, and Oracle. Traditional software companies face a number of hurdles to fully embrace on-demand software models. One issue these companies face is cannibalization of their base of on-premise software sales. Vendors have positioned their SaaS solutions as an entry point for companies that will eventually grow into traditional on-premise offerings, but focus and mindshare are in favor of upstart companies. Traditional software

vendors also will have to deal with the operational complexities of supporting two business models. These include development, marketing, channels, and sales commissions. The emerging SaaS ecosystem places more emphasis on independent software vendors to extend SaaS provider solutions than system integrators that are key partnerships for large traditional software vendors. However, on-premise vendors are not ignoring this trend. SAP, Oracle, and Microsoft have all released on-demand CRM offerings.

Partnering has become an increased focus for many providers as they look to expand their distribution networks

“ **The SaaS market is expected to grow from \$4.2 billion to more than \$10 billion by 2010. While the SaaS market is small relative to the size of the software application market (\$99 billion) and the outsourcing market (\$158 billion), it is growing at approximately three times the rate of these markets.** ”

through partners that can extend their reach in respective target markets across functional, vertical market, and geographic lines. Many vendors sell through IT and telecommunication service providers, business process optimization companies, and large companies entrenched in a specific vertical. Salesforce.com's AppExchange program is an example of taking SaaS partnerships to a new level. AppExchange was announced in September 2005 as an “on-demand sharing service.” It is intended to give partners and developers the opportunity to become a part of the emerging on-demand ecosystem to

help solve niche customer pain points. AppExchange is designed to provide a marketplace for Salesforce.com-compatible applications to be uploaded, evaluated, reviewed, downloaded, and sold by Salesforce.com customers and partners.

AppExchange is just one of several platforms that is enabling software vendors to enter the SaaS marketplace. NaviSite and OpSource have launched incubation centers to assist independent software vendors (ISVs) in creating software as a service-enabled applications. Other SaaS enabling companies include software development tools vendors, data center infrastructure vendors, service and network optimization vendors, and service providers. Demand for SOA, XML, AJAX, and open source development stacks will increase as the number of companies developing new SaaS applications rises. IDC estimates SOA-driven revenue will grow from just over \$1 billion today to a \$9 billion market opportunity by 2009. Grid systems, hardware clusters, systems management, security, disaster recovery, change management, and call center support will be under consideration for SaaS solution providers needing to scale infrastructure costs effectively. However, to an extent, some companies hovering on the periphery of the broader ecosystem (e.g., hardware vendors, business process outsourcers, systems integrators, telecommunications companies) are still struggling to determine their future participation.

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Market Size

The SaaS market is expected to grow from \$4.2 billion to more than \$10 billion by 2010. This forecast combines IDC's 2006 Software-on-Demand and Hosted Application Management forecasts. This matches IDC's definition of SaaS in 2005. This is deemed reasonable due to hybrid Software-on-Demand models blurring the distinction between SaaS and Hosted AM.

While the SaaS market is small relative to the size of the software application market (\$99 billion) and the outsourcing market (\$158 billion), it is growing at approximately three times the rate of these markets. Supporting this forecast are surveys indicating an increasing willingness to adopt on-demand software models. According to IDC's February 2006 Software-on-Demand Adoption Study, nearly 53 percent of survey respondents are purchasing and/or reviewing Software-on-Demand offerings, indicating that this delivery model has become a viable option for many organizations' IT and business strategies.

One indication that a technology

trend is gaining mainstream attention is when it becomes a target for mergers and acquisitions. Recent acquisitions in managed services and Software-as-a-Service are signs that vendors are positioning themselves to take advantage of the new on-demand business model. Notable acquisitions are ADP (Employease), AT&T (Sterling Commerce, USinternetworking), Apptix (Mi8), Concur (Outtask), Google (Writely), Illinois Tool Works (Click Commerce), LivePerson (Proficient), NaviSite (Surebridge), Oracle (Siebel), RightNow (Salesnet), Salesforce.com (Sendia), VeriCenter (Agility), WebEx (Intranets.com), and WebSideStory (Atomz).

Future Directions

There is little question that SaaS represents one of the most interesting new trends in the software sector. SaaS-based models will continue to gain momentum in the coming years. It is not known how long it will take SaaS to become a true software "platform," rather than a series of interesting horizontal applications. Moves such as Salesforce.com's AppExchange platform as well as

growing interest in SaaS by the likes of Microsoft, Oracle, and SAP are encouraging. However, the "revolution" is still in its early stages and is marching along with other revolutionaries such as open source, SOA, and Web 2.0.

Early adopters are deploying, and the mainstream is intrigued. SaaS delivery will be challenging for some vendors because it requires a mind-set and business model to which the software industry is unaccustomed. The challenge for vendors will be, just like any service-oriented company, living and dying by the availability, quality, and reliability of their service on a daily basis and the resulting customer satisfaction. However, the software industry has embraced Software-on-Demand, with traditional software goliaths transforming into on-demand players and emerging Software-on-Demand-focused companies entering the marketplace. Many feel that, in 2006, the industry has reached "an inflection point in how software is delivered and consumed using the Software-as-a-Service capability."

ARJUN'S ARCTIC ADVENTURE



CC Lockwood and Arjun on an iceberg at Kaktovik in the Arctic Circle

Radio tagging bowhead whales amongst icebergs in the Beaufort Sea

AmberWave

www.amberwave.com

■ AmberWave raises \$25 million in a Series E round of funding. The round was oversubscribed and completed at an increased valuation over its previous financing round. All of AmberWave's current venture investors—Adams Capital Management, TeleSoft Partners, Arch Venture Partners, 3i, and The Hillman Company—participated in the financing. Previously, AmberWave has raised \$66.7 million in four rounds of financing (7/20/06).

BayPackets (GENBAND)

www.genband.com

■ GENBAND acquires BayPackets. By integrating BayPacket's proven set of IP multimedia platform and applications, GENBAND strengthens its position as a strategic supplier of IP-based application and infrastructure solutions for VoIP and IMS networks worldwide. GENBAND will immediately begin to market the M5™ Multimedia Applications Server, representing the suite of applications from BayPackets that is field proven to scale up to millions of subscribers. The M5 is a natural complement to GENBAND's existing S4™ Telephony Applications Server (8/30/06).

Calient Networks

www.calient.net

■ Calient Networks and Cornet Technology, Inc. (CTI) team up to provide Calient's new DiamondWave® FiberConnect system to key high performance networks. CTI will market and sell Calient's FiberConnect FOCS (fiber optic cross-connection systems) solution under the name ClearWave to government and military agencies (10/3/06).



Calient's DiamondWave® FiberConnect is an intelligent fiber optic cross-connection system.

■ Calient shatters the cost barriers preventing carriers from widespread implementation of remote, software-controlled fiber management needed to cope with explosive growth in their fiber networks with its new FOCS platform: DiamondWave® FiberConnect. DiamondWave® FiberConnect provides an unprecedented range of critical fiber operations functions for any size fiber plant at the same or better cost, reliability, and ease of use as the present mode of operation using manual patch panels. The DiamondWave® FiberConnect solution is targeted at any carrier deploying large amounts of new fiber, from FTTH, video, and wireless backhaul builds to data center and metro fiber rollouts. It has application for RBOCs, IOCs, CLECs and MSOs, Community Networks, wireless backhaul operators, data centers, test laboratories, and a host of fiber-rich private network facilities (10/2/06).

Calix

www.calix.com

■ Calix is one of several vendors of gigabit passive optical network (GPON) equipment to successfully demonstrate service level interoperability, according to the Full Service Access Network (FSAN) Group. FSAN together with ITU have been hosting a series of BPON and GPON interoperability events at independent testing laboratories (9/7/06).

■ Calix continues to lead two key North American broadband markets: gigabit passive optical networking (GPON) and digital subscriber line (DSL) based on the fastest-growing equipment category, multiservice access platforms (MSAPs). Information from the Dell'Oro Group for Q2 2006 shows that Calix maintained its leadership position for both GPON optical line terminals (OLTs) and optical network terminals (ONTs), a position Calix has held since the Dell'Oro Group began tracking the GPON market. Calix increased DSL shipments by 30 percent sequentially, capturing 43 percent of the North American market (8/22/06).



Calix F5 GPON OLT is a fiber-to-the-premises optimized access platform.

■ FDN Communications, a 250,000-line CLEC based in Florida, is deploying packet-based access solutions from Calix. The company selected the Calix C7 multiservice access platform (MSAP) to help transform its network in the face of a changing regulatory environment and accelerating consumer expectations. Like a growing number of CLECs using access solutions from Calix to transform their networks, FDN Communications benefits from the increased capacity and greater flexibility afforded by the Calix C7 platform (7/25/06).



Calix C7 MSAP is a highly integrated, high capacity network platform.

CreekPath Systems (Opsware)

www.opsware.com

■ Opsware, a server and networking automation software maker, acquires CreekPath and its SRM technology for \$10 million. Opsware will integrate CreekPath's storage management technology to bring to the market combined server, network, and storage provisioning and change management. In 2007, Opsware plans to release a new Opsware Application Storage Management System based on the CreekPath technology and additional functionality. It will move beyond managing storage resources to focus on storage allocation by application and managing storage from the application change management perspective (7/14/06).



Ikanos Communications

www.ikanos.com

■ Ikanos appoints Nick N. Shamlou as vice president of worldwide sales. Shamlou is a semiconductor industry veteran with more than twenty-two years of sales, marketing, and business development experience with companies such as Broadcom Corp. and Broadcom Japan KK (9/26/06).

■ Ikanos introduces a fully integrated VDSL2 residential gateway reference platform for universal customer premises equipment (CPE) to support triple play applications. The platform—which is interoperable with ADSL2+, ADSL2, ADSL, and VDSL1—is designed to deliver the flexibility that carriers need to serve a variety of consumers, from those wanting high-value triple play services to those needing only broadband Internet access (9/21/06).

■ Sumitomo Electric Networks, one of Japan's leading communications equipment manufacturers, selects Ikanos' Fx™ 100100-5 and Fx100100S-5 CO and CPE chipsets for its next generation of broadband equipment. Including Ikanos' technology will enable Japanese carriers to deliver high-performance, symmetric 100 Mbps bandwidth as well as POTS-compatible "IP-Phone" services. Ikanos' multi-mode chipsets are the first to offer many new features for optimized IPTV delivery, such as integrated QoS and enhanced impulse noise protection schemes (8/30/06).

■ Ikanos reports record revenues for the second quarter of 2006. Net revenues in the second quarter of 2006 was \$41.2 million, a sequential increase of 15 percent from the \$35.8 million reported for the first quarter of 2006 and an increase of 115 percent from the \$19.2 million reported for the second quarter of 2005. Net revenues for the six months ended June 30, 2006, was \$77 million, an increase of 144 percent, compared with the \$31.5 million reported for the six months ended June 30, 2005 (7/31/06).

■ Ikanos acquires Doradus Technologies Inc., a developer of advanced signal processing products for communications and consumer applications. The Doradus team brings significant expertise in developing power- and spectrum-efficient signal processing products for high-performance wireline (DSL), wireless, and digital TV markets. Doradus's DoraVision™ VSB/QAM demodulator, which is designed for digital TV applications, enables Ikanos to expand its offering of highly integrated, multi-functional triple play products (7/31/06).

■ Ikanos debuts the industry's first IPTV-optimized, multi-mode VDSL2 chipsets for central office (CO), remote terminal (RT), and customer premises equipment (CPE). These fifth-generation chipsets are designed to provide the highest throughput and density, with the lowest power consumption per port. All chipsets offer integrated QoS capabilities as well as enhanced impulse noise protection schemes for optimal IPTV delivery (7/19/06).

Jungo Software Technologies

www.jungo.com

■ Jungo releases a bundled set of IPTV-related features focused on delivering the best customer viewing experience of IPTV in the market. Jungo's new software version features a stateful quality of service mechanism, application level performance visibility, and an intuitive graphical user interface modified for remote problem resolution (7/11/06).

Knowledge Adventure

www.knowledgeadventure.com

■ Knowledge Adventure releases Knowledge Adventure Books by You™, a new software product that lets kids create, edit, illustrate, and personalize their own books. Knowledge Adventure Books by You inspires reading and celebrates the storyteller in each child by allowing users to publish soft- or hardcover copies of their books. The books can be easily ordered and shipped to their homes, printed at home, or e-mailed to friends. Award-winning children's books author and esteemed actor John Lithgow helps kids through the creative process and self-publishing experience via whimsical video and audio segments (9/18/06).



John Lithgow

LiteScape Technologies

www.litescape.com

■ Rockwell Automation selects LiteScape to help unify its IP communications network around the world. Deploying LiteScape's On-

Cast Directory solution, Rockwell is saving time and money—and linking 3,000 phone users at fifty sites on three continents—by integrating the directories for its multiple Cisco CallManagers. Rockwell also plans to use LiteScape's OnCast Directory to replace and upgrade its paging capabilities around the world. Rockwell expects the number of LiteScape users inside the enterprise to grow from 3,000 to 20,000 over the next five years (10/3/06).

■ Cisco Systems launches LiteScape's Unified Communications for Retail solution for Mitsukoshi, one of Japan's largest, high-end retailers. This Cisco "store of the future" vision combines LiteScape's RFID/XML-based applications with Cisco CallManager and IP-based devices to offer shoppers self-service and IP communications throughout the stores and directly from their fitting rooms. Utilizing LiteScape's applications, Mitsukoshi has automated and streamlined a number of customer and employee tasks including product browsing, product lookup by SKU, inventory checks in the store, and the ability for customers to contact live agents to place orders (9/26/06).

■ LiteScape showcases pilot versions of its Unified Communications for Retail application and Secure Personal Authentication Reader (SPAR), in conjunction with the Robertson Group, in The Cisco Company Store at Networkers 2006. Visitors to The Cisco Store swiped a magnetic card or RFID card through LiteScape's SPAR device to win prizes from Cisco (8/15/06).

■ Greene Memorial Hospital deploys LiteScape's collaborative communications solutions for the healthcare industry at Greene Memorial Hospital and its Beaver Creek HealthPark facility in Ohio. The hospital is using CallTrack PRO for call tracking and billing and OnCast Directory for secure access to all corporate directories from IP phones (7/17/06).

LogLogic

www.loglogic.com

■ LogLogic releases a series of best practices—including documentation, reports, and alerts centered on helping IT professionals more effectively deploy and verify ITIL (IT Infrastructure Library) best practices. By utilizing log data for ITIL, IT professionals can more effectively reduce implementation costs, automate ongoing services monitoring and measurement, and reduce the cost of implementing best practices (9/20/06).

■ LogLogic joins Opsware's Technology Alliance Partner (TAP) program. Through the partnership, LogLogic and Opsware will provide access to a broad range of data center automation capabilities, enabling customers to more rapidly achieve operational efficiencies, reduce labor costs across their IT infrastructures, and comply with mandates such as PCI, SOX, and ITIL (9/13/06).

■ VeriSign announces the first fully managed services to collect, analyze, store, and alert on logs. Utilizing LogLogic's industry-leading log management and intelligence platform (LMI), the solution will enable enterprises and government agencies to monitor, analyze, retain, and store logs from servers, applications, databases, and other critical infrastructure. This will help them make better operational and financial decisions by providing a holistic view of system and user activity, policies, and business impacts. LogLogic's log intelligence platform also helps customers meet compliance regulations from Sarbanes-Oxley to HIPAA and PCI (9/7/06).

■ LogLogic teams up with the IT Governance Institute (ITGI), creator of the internationally recognized Control Objectives for Information and Related Technology (COBIT). The initiative aims to help companies develop efficient, cost-effective, and sustainable technology and business processes to address regulatory compliance and corporate governance policies. COBIT, now in its fourth edition, has become the de-facto standard for IT departments to align and measure their value to the business, as well as to comply with government regulations for financial reporting such as Sarbanes-Oxley. ITGI was established to advance interna-

tional thinking and standards in directing and controlling IT (8/23/06).

■ LogLogic receives several honors: It is named one of the Top 100 Private Companies by AlwaysOn. eWEEK Labs gives LogLogic's flagship product top honors for log source detection, installation, and reporting. SC Magazine recognizes the LogLogic LX 2000 as the Best Computer Forensics product and selects LogLogic as a finalist in the Best Security Audit category. InfoWorld rates LogLogic 3 LX and ST appliances "Very Good" (7/27/06).

Lynx Photonic Networks

www.lynx-networks.com

■ Nanjing Putian, a Chinese telecommunications vendor, and Lynx Photonic Networks announce the deployment of their co-branded LightLEADER™ protection systems at Jiangsu Telecom. The Lynx protection systems will provide Jiangsu Telecom with guaranteed protection of its critical DWDM (dense wavelength division multiplexing) backbone within less than 10 milliseconds of a link failure (9/11/06).

Sierra Design Automation

www.sierra-da.com

■ Sierra Design launches its Olympus-SOC, a lithography and variability-driven netlist-to-GDSII (or netlist-to-litho) P&R system, as an alternative to traditional place and route (P&R) solutions. It is targeted at customers designing high performance chips at 65/45nm, with a need to address manufacturing issues such as lithography during design. One of the key emerging trends in IC design is that GDSII netlists have to accurately account for not only design-rule checking, but also lithography (8/9/06).

■ Fujitsu Limited deploys Sierra Pinnacle for its 90nm and 65nm designs. Sierra Pinnacle provides semiconductor designers with innovative IC implementation solutions to address the challenges occurring at the 90nm, 65nm, and below. It enables concurrent and scalable multi-mode/multi-corner analysis and optimization of all design metrics including timing, area, power, and signal integrity (7/24/06).

SigmaTel

www.sigmatel.com

■ The U.S. International Trade Commission (ITC) finds that SigmaTel's two patents, U.S. Patent Nos. 6,366,522 and 6,633,187, are infringed by system-on-chip controllers for portable digital music players manufactured by Actions Semiconductor Co., Ltd., based in Zhuhai, Guangdong, China.

■ SigmaTel's SGTV5800 TV Audio chipset achieves another design win with the Excel-point Systems/Lights Electronics LCD TV reference solution (9/5/06).

■ Anubis and Baros GmbH, two German-based consumer electronic retailer/distributors, join SigmaTel's global licensing program. Anubis and Baros will pay royalties on portable audio devices that are not based on SigmaTel solutions (9/1/06).

■ SigmaTel and a leading Chinese electronics manufacturer enter into a patent license agreement for SigmaTel's Chinese Moon-Hwang patent. The agreement calls for a substantial per unit royalty for any player that does not include a SigmaTel audio decoder chip (8/28/06).

■ SigmaTel's portable media system-on-chip (SoC) solution enables Philips MP3 players to surpass the competition and take the lead in Germany and Chile, as the number one player in the quantity segment market, according to Philips market research (8/7/06).

■ SigmaTel sells its PC Audio product line to Integrated Device Technology (IDT) for a total consideration of \$80 million, consisting of \$72 million in cash, an estimated \$5 million in accounts receivable to be retained by SigmaTel, and an estimated \$3 million in accounts payable to be assumed by IDT (8/1/06).

Tele Atlas NV

www.teleatlas.com

■ Tele Atlas expands its licensing agreements to provide government entities in forty-one states with mission-critical digital map data for emergency response teams managing fires, traffic accidents, environmental hazards, and public health crises (10/2/06).

■ Tele Atlas provides digital map data and content for the upcoming HP iPAQ rx5900 Travel Companion. The HP iPAQ rx5900 will be preinstalled with touch-enabled Tele Atlas-based digital maps that feature user-friendly, turn-by-turn navigation to help users easily find people, points of interest (POIs), products, and the best possible routes throughout the United States and Canada (9/28/06).

■ Nokia selects Tele Atlas to provide the digital map data and dynamic location content for the Nokia N95, a new multimedia device equipped with GPS functionality (9/26/06).

■ Tele Atlas Polska, the company's Eastern European headquarters, opens offices in Warsaw and Lodz (9/20/06).

■ Tele Atlas announces that expanded digital map data coverage in Central and Eastern Europe will be available for the Baltic States (Estonia and Latvia) by the end of 2006, with complete street network coverage in Lithuania expected in Q1 2007 and Hungary in Q3 2007 (9/20/06).

■ Research In Motion's new BlackBerry® Maps application leverages Tele Atlas's map data to provide mapping and location based services (LBS). The BlackBerry Maps application is featured in the new BlackBerry Pearl smartphone. It combines Tele Atlas's highly accurate map data with the ability to send maps via e-mail and launch maps from contacts in address books (9/12/06).



BlackBerry Pearl smartphone

■ WindSpring collaborates with Tele Atlas to jointly market WindSpring's Data Miniaturization Technology (DMT)™. WindSpring's patented, award-winning DMT transforms large map and point-of-interest data files into its proprietary Micro Data Format (MDF). As a full read and write run-time format, map and data files in MDF retain all original data performance attributes, including editing and updating, making the miniaturized format ideal for space-constrained

mobile devices such as personal navigation systems, mobile phones, and smartphones (9/12/06).

■ PT Tele Atlas Indonesia opens through a business partnership between Tele Atlas and Indonesian map solutions provider PT Navindo Technologies (9/7/06).

■ Tele Atlas appoints David Sym-Smith as chief marketing officer. Prior to joining Tele Atlas, Sym-Smith served as senior vice president of marketing and business development at Innopath Software (9/5/06).

■ TomTom, a leading personal navigation solution provider, selects Tele Atlas as the data provider for the new regional European edition of the TomTom ONE. Tele Atlas was also selected by TomTom to power its ONE device in North America (8/30/06).

Validity Sensors

www.validityinc.com

■ Validity Sensors partners with Synaptics, a leading developer of interface solutions for mobile computing, communications, and entertainment devices. The two companies plan to design, develop, manufacture, and distribute a line of biometrically enabled interface solutions, coined SecurePad™, for the notebook market. With Validity's LiveFlex sensor, users simply swipe



Synaptics SecurePad is a complete hardware module that partners Synaptics's industry leading TouchPad with Validity's LiveFlex™ fingerprint sensor in one seamless design that's easy to integrate into notebook PCs.

their finger over a durable plastic surface for authentication, identification, and data security, eliminating the need to remember multiple user names and passwords (8/28/06).

VoiceObjects

www.voiceobjects.com

■ VoiceObjects announces the results of a recent customer satisfaction survey that solicited the opinions of more than 10,000 users of phone-based self-service applications. Seventy-seven percent of respondents indicated that, compared to phone applications which they had previously used, they would prefer to interact with personalized phone applications that retain and use data from callers' previous interactions or present callers with personalized menu choices. The survey was sponsored by VoiceObjects and was administered by Zoomerang, a leader in customer satisfaction surveys (8/8/06).

Xpedion Design Systems (Agilent)

www.xpedion.com

■ Agilent Technologies acquires Xpedion. Xpedion will be part of Agilent's Electronic Measurement Group. Xpedion's and Agilent's combined technologies are used by virtually all key companies designing RFICs. Agilent is recognized as the leader in RF design and simulation, with proven breadth and depth. By adding Xpedion's products to its portfolio, Agilent will increase its emphasis on design verification and design for manufacturing (DFM), giving customers an indispensable design flow covering RFIC design, design verification, and DFM (8/24/06).

Highlighting key job opportunities at our portfolio companies

Executive Recruiting

Education.com

(Menlo Park, CA)

www.education.com

- Vice President, Business Development
- Vice President, Engineering
- Vice President, Marketing

VoiceObjects

(San Mateo, CA)

www.voiceobjects.com

- Vice President, Sales, North America

Xambala

(San Jose, CA)

www.xambala.com

- Vice President, Sales, North America

Conference Calendar

SANS NETWORK SECURITY 2006

October 1–9, 2006
Las Vegas, NV
Participating: LogLogic

BROADBAND WORLD FORUM—EUROPE 2006

October 10–12, 2006
Paris, France
Participating: Jungo

IT WEST 2006—INTERNET TELEPHONY

October 10–13, 2006
San Diego, CA
www.itexpo.com
*Participating: GENBAND (BayPackets),
Jungo*

RETAIL DATA SECURITY FORUM

October 11–12, 2006
Berkeley, CA
Participating: LogLogic

NTCA REGION 6 MEETING

October 12, 2006
St. Cloud, MN
Participating: Calix

INFORMATION SECURITY DECISIONS

October 18–19, 2006
Chicago, IL
Participating: LogLogic

VOICE DAYS 2006

October 18–19, 2006
Bonn, Germany
www.voiceday.de
Participating: VoiceObjects

MIDWEST TELECOMMUNICATIONS EXPO

October 24, 2006
Ft. Wayne, IN
Participating: Calix

ENTERPRISE IT INNOVATION SUMMIT

October 31–November 1, 2006
Boston, MA
Participating: LogLogic

WTA (WESTERN TELECOMMUNICATIONS ALLIANCE) FALL CONVENTION & SHOWCASE

November 5–8, 2006
Phoenix, AZ
www.w-t-a.org
Participating: Calix

TELCOTV CONFERENCE & EXPO

November 7–9, 2006
Dallas, TX
www.shorecliffcommunications.com
Participating: Calix

CONNECTIONS EUROPE

November 14–16, 2006
Berlin, Germany
Participating: Jungo

3GSM WORLD CONGRESS

February 12–15, 2007
Barcelona, Spain
www.3gsmworldcongress.com
*Participating: Tele Atlas NV (PO:
TA.AS)*

CALLCENTER WORLD 2007

February 27–March 1, 2007
Berlin, Germany
www.callcenterworld.de
Participating: VoiceObjects

VOICECON SPRING 2007

March 5–8, 2007
Orlando, FL
www.voicecon.com/spring/
Participating: VoiceObjects

CEBIT

March 15–21, 2007
Hannover, DE
www.cebit.de
*Participating: Tele Atlas NV (PO:
TA.AS)*

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