

Israel Software Industry Review: Addressing Cloud Computing Challenges

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IDC OPINION

Cloud computing is one of the most important technology trends of our time, ushering in a new era of IT. The adoption of cloud computing has continued to grow despite the recession, and is expected to accelerate over the coming years, affecting every aspect of IT. However, in order to realize the vision of cloud computing, significant technology gaps still need to be filled.

IDC believes that the following trends will have a significant impact on the potential growth of cloud computing:

- Security, availability, and performance issues are cited as the top challenges or barriers for the adoption of cloud computing. Given this, there is an increasing demand for new solutions addressing the unique security and management problems associated with cloud environments.
- A wide range of applications – including multiple enterprise applications, vertical-specific applications, and niche applications – are now offered as software as a service (SaaS). This trend can be seen as an indication of the „long tail,“ whereby companies profit from selling multiple unique items in relatively small quantities. This phenomenon clearly applies to software as a service (SaaS), as it enables software vendors to utilize the Web-based delivery model to target the long tail of niche audiences.
- Given the benefits of a hybrid cloud, which combines aspects of both private and public cloud computing, it will serve not only as a transition phase, but also as a sustainable model that provides the advantages of both worlds.

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IN THIS STUDY

This study discusses major trends in the cloud-computing field, evolving market needs, and solutions that will drive market adoption. It also provides an overview of the Israeli cloud computing industry and explains how Israeli companies are addressing emerging market trends.

SITUATION OVERVIEW

Introduction: Defining Cloud Computing

IDC defines "cloud services" as consumer and business products, services, and solutions delivered and consumed in real time over the Internet. This definition distinguishes it from cloud computing, which refers to the IT environment – encompassing all elements of the full "stack" of IT and network products and supporting services – that enables the development, delivery, and consumption of cloud services.

Cloud IT services fall into three main groups:

- ☒ **Infrastructure as a Service (IaaS):** Infrastructure services such as CPU, networking, and storage, often presented as a virtual machine over the Web.
- ☒ **Platform as a Service (PaaS):** Cloud-hosted application development and deployment environment that provides services to develop, test, deploy, host, and maintain cloud/SaaS applications.
- ☒ **Software as a Service (SaaS):** Software deployment model where applications built specifically for network delivery are hosted, provisioned, and accessed by users over the Internet.

Cloud services can be deployed privately (proprietary networks or datacenters that provide services to a limited group of people, like a company) or publicly (services like Amazon Web Services that are available to anyone on the Internet). Public cloud resources can also be used to create private clouds, which are referred to as virtual private clouds.

The Evolution of Cloud Computing

Despite the current hype, cloud computing is not really new – at least, not in concept. In fact, it can be seen as the evolution of utility or grid computing, which also revolved around the consumption of computing resources and IT services via an on-demand, pay-per-use basis. But cloud computing entails an important twist: Where utility/grid computing is concerned with the technical underpinning for dynamic, scalable, and flexible IT infrastructure, cloud computing focuses more on the business side of provisioning and delivering services on top of this infrastructure.

The cloud vision could not have been realized without advances in computing architecture and technologies like virtualization and automation. In a slow economy, which is driving organizations to shift from CAPEX to OPEX and reduce up-front and ongoing costs, cloud computing has become perhaps the most important technological trend of our time.

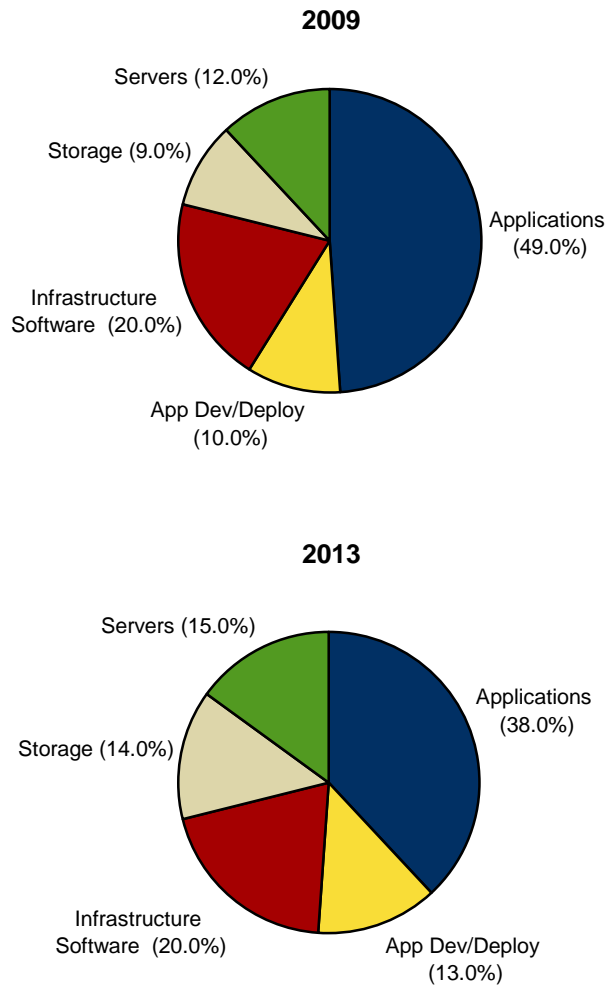
Of the above-mentioned cloud subcategories, SaaS is the most mature. In many ways, SaaS is an evolution of the application service provider (ASP) model of the late '90s. ASP failed chiefly due to high delivery costs, complicated and lengthy implementations, and technology issues. The SaaS model, on the other hand, has been able to overcome these issues by improving on both the technology and the business model.

Where ASP enabled organizations to outsource the management and maintenance of applications to third parties, SaaS uses a multi-tenancy architecture, in which a single instance of the application runs on a server and is delivered to multiple customers, making it more suitable for mass-market adoption.

As a result, SaaS enjoys the biggest share of the cloud services market. As seen in Figure 1, SaaS applications accounted for 49.0% of the \$17.40 billion cloud market in 2009. Although share is expected to decrease to 38.0% (of \$44.20 billion) in 2013, SaaS will continue to account for the largest share of the cloud services market.

FIGURE 1

Worldwide IT Cloud Services by Product/Service Type



Note: Includes revenue from delivery of applications, application development/deployment software, systems infrastructure software, and server and disk storage capacity via the cloud services model; application development and deployment excludes online B2B messaging providers/exchanges.

Source: IDC, September 2009

It should be noted, however, that the SaaS model is not without problems. While SaaS apps provide tremendous value, they are typically created by different vendors, using various architectures, and there is no trusted broker for integrating services seamlessly into a complex vertical solution (e.g., quote-to-cash solutions for retail, or logistics management systems for a transportation firms). The PaaS model may represent a viable alternative or complementary application. It provides a path for SaaS companies to aggregate around a shared platform; write service-oriented

architecture (SOA)-based applications and tools in a common language; build a unified repository; create Web calls; and combine, test, and market to customers, all from a single source – a platform in the cloud – at a very attractive price.

PaaS is becoming increasingly attractive to major application vendors, providing them an environment to shift their offerings online, keep their partner communities engaged and building applications, and aggregate customers on a common platform. As with salesforce.com's force.com, small ISVs get access to APIs for building applications (to Salesforce's CRM app, or any other Apex-member company's app), which are then created, tested, and marketed in Apex. Vendors get a path to combine their applications with others and present a more complete solution to customers, while customers get the assurance that the applications can work together, facilitate Web calls and data integration, and more.

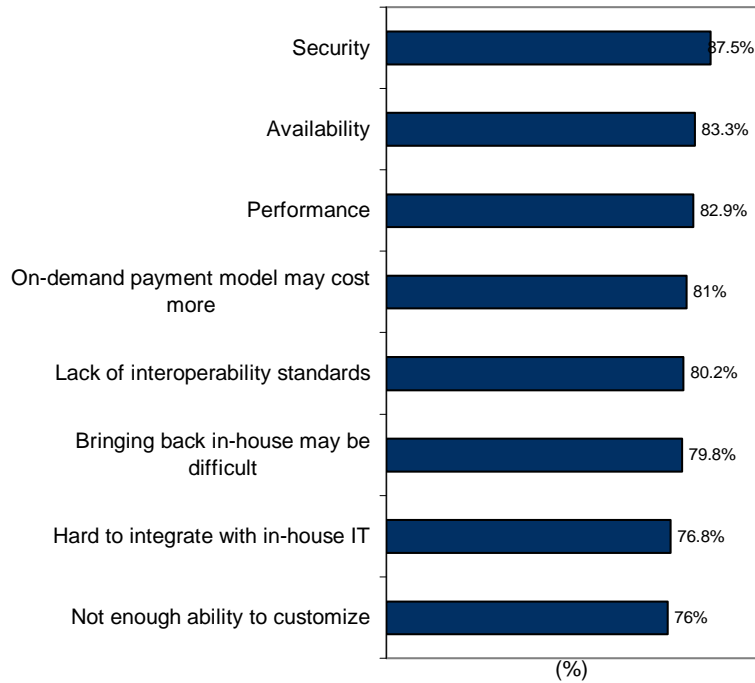
Like SaaS, IaaS is an evolution of a previous model – shared hosting. In this case, the difference lies in vendors' operational and promotional strategies. Where IaaS vendors administer, allocate, and provide a vast pool of system resources, hosting vendors provide system resource on a fixed scale. That is, both services aim to expand their system resources in line with increased demand, but a major difference is that IaaS maintains overall administration, whereas hosting administers a cluster of multiple system resources separately. Furthermore, the services provided in IaaS are characterized by large-scale distributed processing.

On the surface, SaaS, PaaS, and IaaS provide a complete "cloud image" of the traditional IT stack. However, to realize the cloud computing vision, significant technology gaps still need to be filled. Many of these gaps are related to the issues of security, performance, and availability, often cited as the major barriers to cloud computing adoption (see Figure 2). Some of the most notable technological trends in the cloud-computing field revolve around new solutions aimed at addressing these concerns and thus facilitating the transition to cloud.

FIGURE 2

Cloud Computing Challenges

Q. Rate the challenges/issues of the cloud/on-demand model



Source: IDC Enterprise Panel, 3Q09, n=263

Emerging Cloud Computing Trends

The Growing Diversification of SaaS

To a large extent, mainstream corporate adoption of SaaS was driven by applications such as CRM and email. Today, however, many applications are offered as SaaS, including multiple enterprise applications (e.g., collaborative applications such as messaging, conferencing and team collaboration software, as well as ERP, HR management, product lifecycle management, supply chain management, and knowledge management), vertical-specific applications, and niche applications. This is an indication of the "long tail", whereby companies profit from selling multiple unique items in relatively small quantities. This phenomenon clearly applies to SaaS, as it enables software vendors to utilize the Web-based delivery model to target the "long tail" of niche audiences.

Securing the Cloud

Over the last few years, information protection and control (IPC) has emerged as a new field in the security market, focused on protecting sensitive information and complying with privacy regulations. The IPC market was heralded by a number of security companies that pioneered the concept of data loss prevention (DLP) in the

second half of this decade. These solutions were designed to prevent unauthorized delivery of sensitive information from corporate boundaries.

The IPC concept represented a major change of attitude towards IT security among organizations, which after years of focusing on protecting the organization perimeter against external threats, have become aware of the need for "inside-out" security. However, it becomes increasingly apparent that in order to effectively protect sensitive information, a perimeter-centric IPC approach becomes less and less effective – due to the growing complexity of IT environments, and the need to apply protection on the multiple conduits through which sensitive data may leak out.

In this regard, the move towards cloud computing further complicates things. As seen in Figure 1, security is often cited as one of the most significant barriers to adoption in this market. To a large extent, organizations are still concerned about the potential consequences of allowing cloud providers to handle their sensitive information in a secure manner.

Some emerging IPC solutions are trying to tackle this challenge by embedding security into the data itself, using encryption, rather than detecting and preventing unauthorized delivery at the exit points (e.g., through email and Web channels, USB drives, and mobile storage devices). This channel-agnostic approach can be used to protect information during its entire life cycle – through creation, distribution, and storage. Thus, they can be used to protect sensitive data even when transferred and stored outside the organization (e.g., in cloud environments).

Another emerging cloud-related security trend is virtualization security. As a result of the rapid adoption of various virtualization solutions, organizations are becoming aware of the security threats associated with virtualization. Yet even basic security practices – monitoring network activity, inspecting and filtering traffic, and maintaining strictly separated security domains – are often absent in the virtual environment because of the shortcomings of traditional security solutions in addressing virtualization-specific vulnerabilities and threats. Inter-VM communication, in particular, is a blind spot. As this traffic does not touch the physical network, it is practically "invisible" to physical network monitoring tools and is unprotected by physical network security. To address these problems, a growing number of companies are developing dedicated virtualization security solutions.

All Sorts of Clouds

One of the most interesting cloud computing trends is the emergence of different cloud models. Currently, many organizations prefer to start with internal, private cloud implementations. This option is appealing for several reasons: First, due to security concerns, many organizations prefer to deploy private clouds to safely provide services to corporate users behind a firewall. Other issues that drive the adoption of private clouds include performance and availability assurance and the need to rewrite applications to get them work on a specific public cloud.

Having a private cloud, however, does not necessarily require giving up the benefits of a public cloud. Apparently, customers that have implemented private clouds (or are in the process of doing so) sometimes look to use a public cloud as well for specific use cases – for example, enabling internal datacenters to use external, cloud-hosted resources to handle peak loads, or the hosting of specific, standardized functionalities while maintaining core applications and business processes that handle sensitive data within the internal infrastructure.

This flexibility is achieved through the emerging hybrid cloud model, which combines aspects of both private and public cloud computing. IDC believes that given the benefits of a hybrid cloud, it will serve not only as a transition phase but also as a sustainable model that provides the advantages of both worlds.

While promising in theory, the hybrid cloud introduces some significant technological challenges. For example, to make this model work, cloud management technologies need to bridge private and public clouds while addressing security, performance, and availability issues. On top of this, there is a need for sophisticated policy engines to automate and control the movement of workloads – based on predefined rules – between private and public clouds.

Cloud management solutions will therefore have a key role in facilitating hybrid cloud implementations. In addition, we believe that as traditional adoption barriers such as security start to evaporate, customers will increasingly adopt the public cloud model. However, vendor lock-in will remain an issue. Thus, it is likely that "cloud brokering" solutions that allow automatically migrating applications to a new cloud (e.g., to capture better performance or pricing), deploying applications over multiple cloud platforms (i.e., aggregation), and so forth will be increasingly required.

Israel's Cloud Computing Industry

As one of the global hubs of software innovation, Israeli companies have been among the early entrants into the cloud computing space. The emerging Israeli cloud-computing scene is a reflection of traditional fields of expertise in the local IT industry. This includes, for example, such areas as security, IT management, Web applications, automated software quality, telecoms applications, business intelligence, and various enterprise application domains – most notably, CRM, ERP, collaborative applications, HR management, knowledge and content management, and various industry-specific applications. In these areas and others, many Israeli companies are offering either pure-play SaaS solutions or SaaS solutions alongside their existing on-premises offerings.

Historically, Israeli software companies have been acquisition targets for leading IT and software vendors. In this regard, despite being part of a relatively new trend, Israeli cloud-related players are already making their mark. As shown in Table 1, since 2007, 11 Israeli cloud-related companies have been acquired – in most cases, at relatively high company valuations. In addition, some recently acquired Israeli companies, including security companies Finjan and Aladdin, have been moving to provide SaaS solutions alongside their traditional on-premises offerings.

TABLE 1**Acquisitions of Israeli Cloud Computing Companies**

| Date | Company | Acquirer | Deal Value (US\$M) | Field |
|--------|---------------|----------------------|--------------------|-----------------------------|
| Dec 09 | PlanPlatform | AutoDesk | 25 | SaaS computer-aided design |
| Dec 09 | Dune Networks | Broadcom | 178 | Cloud management/enablement |
| Nov 09 | Impactia | eWave | N/A | SaaS marketing applications |
| Oct 08 | Mercado | Omniture | 9 | eCommerce |
| Sep 08 | Red Hat | Qumranet | 107 | Cloud management/enablement |
| Jul 08 | RichFX | ChannelAdvisor | 3.1 | SaaS marketing applications |
| May 08 | VMware | B-hive | 67 | Cloud management/enablement |
| Mar 08 | BeInSync | Phoenix Technologies | 22.1 | Cloud storage |
| Feb 08 | Jetro | RDT Group | 7.5 | Cloud management/enablement |
| Aug 07 | Sphera | Srosoft | N/A | Cloud management/enablement |
| Jun 07 | Kasamba | LivePerson | 40 | SaaS CRM |

Source: IDC, 2010

Main Fields of Activity

The growing diversification of SaaS applications is also represented in the evolution of the Israeli SaaS market. Dozens of Israeli ISVs today are offering either applications for the global markets or applications that are aimed at addressing the unique needs of the local market. This wide range of applications is offered across most enterprise (and in some cases, consumer) software domains.

Another important area in which Israeli companies are highly active is cloud enablement/management. This category refers to solutions that are aimed at facilitating the implementation and operation of cloud computing environments, addressing such issues as security, performance, and availability management.

Traditionally, these domains are considered as major fields of expertise in the Israeli software industry. In the security field, Israeli companies have been responsible for the development of some of the most innovative security technologies, and have become worldwide leaders in their domains. Israeli IT security companies and others were pioneers in various technology fields, such as firewall and network security, Web application security, authentication, encryption, DLP, Web security, anti-fraud, and others. In IT management, Israeli companies heralded new technologies in areas such as application performance management, virtualization, business transaction management, and more.

As depicted above, security and manageability (and, more specifically, availability and performance) issues are cited as the top challenges or barriers for the adoption of cloud computing. Given that, there is an increasing demand for new solutions to address the unique security and management problems associated with cloud environments. This situation opens up significant market opportunities for the many Israeli companies that specialize in these areas.

Another notable cloud-related category in which Israeli companies are highly active is automated software quality (ASQ). Historically, one of Israel's most successful

software companies, Mercury Interactive, has been a pioneer in the software-testing field. Leveraging the vast knowledge and experience gained by employees and executives at Mercury and other companies in this field, several Israeli start-ups have emerged over the last few years to provide testing as a service (TaaS) solutions, which, according to IDC studies, are gaining traction as a more affordable and less complex alternative to traditional ASQ tools.

Business intelligence (BI) is also a field in which Israeli companies have excelled, with notable examples that include online analytical processing (OLAP) leader Panorama. An increasing number of local companies are now moving into the BI SaaS field, which IDC believes is poised for rapid growth as more organizations turn to cloud-based computing and alternative deployment options.

In addition, an increasing number of Israeli SaaS companies are aiming to address niche- or vertical-specific needs that traditionally have not been adequately served through on-premises software, especially in the finance and healthcare industries.

TABLE 2

Notable Israeli Cloud Computing Companies

| Company | Website | Field | Cloud category | Description |
|---------------------------|-----------------------|--|-----------------------|--|
| Altor Networks | altornetworks.com | Security | Management/Enablement | Monitoring and controlling inter-VM traffic to secure virtualized data centers and clouds. |
| 2Win-Solutions (KonoLive) | www.konolive.com | Collaborative applications | SaaS | Collaboration and knowledge-sharing application for individuals and teams. |
| 4Log | www.4log.com | Supply chain management | SaaS | Mutual database platform for managing an entire supply chain, which can be customized according to the client's supply chain requirements. |
| ActiveInsight | www.activeinsight.net | Business Intelligence | SaaS | Real-time visibility to events, patterns, and customer behavior that is detected and augmented according to patterns to create actionable business events. |
| Amadesa | www.amadesa.com | Web analytics | SaaS | Website testing and personalization. |
| ApProlix | approlix.com | Vertical applications (retail) | SaaS | Location-based service that enables retailers to increase customer loyalty and purchasing by interacting with them in proximity to the branches. |
| Aprigo | www.aprigo.com | Data management | SaaS | Management and optimization of data environments. |
| Artizone | N/A | Product lifecycle management | SaaS | PLM solutions and online shopping arena for SMBs. |
| Atera Networks | ateranetworks.com | Security | SaaS | Enables service providers to deliver security and backup services remotely to SMBs. |
| Avalon Net | www.avalon-net.co.il | IT management | SaaS | Cloud-based business service management solutions. |
| BGATE | www.bgate-erp.com | ERP | SaaS | ERP solutions for SMBs. |
| BMBY | www.bmby.com | Vertical applications (real estate) | SaaS | Project management solutions for the real estate industry. |
| Cartolog | www.cartolog.com | Web applications | SaaS | Assists Website builders when representing their geotagged content visually, by embedding interactive geographical maps in their Web site. |
| CareerHarmony (Manpower) | www.careerharmony.com | HR management | SaaS | Assessment management and screening solutions for recruiters and HR managers. |
| Celebros | www.celebros.com | Web applications | SaaS | Search and navigation solutions for improving the performance of on-line stores. |
| Checkmarx | www.checkmarx.com | Security | Management/Enablement | Secure source code solutions that automatically detect technical and business logic vulnerabilities in the source code across the software development life cycle. |
| Cincopa | www.cincopa.com | Application development and deployment | PaaS | Web 2.0 Internet platform that enables the creation of rich media browser-based Web applications. |

TABLE 2

Notable Israeli Cloud Computing Companies

| Company | Website | Field | Cloud category | Description |
|-----------------------------|---------------------|------------------------|-----------------------|--|
| Clarizen | www.clarizen.com | Project management | SaaS | Combines work management and team collaboration with real-time business execution in a single cloud-based application. |
| Clear Applications | www.clrapps.com | HR management | SaaS | Enables managers to attract and evaluate potential employees. |
| ClickTale | ClickTale | Web analytics | SaaS | Capture, analyze, and evaluate customer browsing behavior, including inside HTTPS pages. |
| CloudShare | www.cloudshare.com | IT management | Management/Enablement | Allows organizations to create, share, and manage virtual IT environments. |
| Collarity | www.collarity.com | Marketing applications | SaaS | Interaction optimization solution that enables the matching of online visitor needs with content and ads provided by the publisher. |
| Comax (Native Data Systems) | www.comax.co.il | ERP | SaaS | ERP for real estate, construction, and building-related retail markets. |
| Commtouch | commtouch.com | Security | SaaS | Messaging and Web security solutions that automatically analyze Internet traffic in real time, to identify new spam, malware, and zombie outbreaks as they are initiated. |
| Composica | www.composica.com | Web applications | SaaS | eLearning authoring system solution for collaboratively creating and delivering elearning content |
| Concealium | www.concealium.com | Security | Management/Enablement | SaaS-based data-centric security solution that enables protection of data, wherever it goes. |
| Conduit | www.conduit.com | Web analytics | SaaS | SaaS platform that enables Web publishers to offer content and applications to users. |
| Confidela | www.watchdox.com | Security | SaaS | SaaS solutions for secure sharing, control, and tracking of documents. |
| ConTrust | www.con-trust.com | Security | SaaS | SaaS solutions that allow Websites and media platforms to control, detect, and filter user-generated content (UGC) risks and threats, including spam, malware, and phishing content. |
| Correlation Systems | www.cs.co.il | Business intelligence | SaaS | Geospatial data-mining and analysis solutions for the optimization of transport and public transport services, inner-perimeter security, fraud detection, and others. |
| Correlsense | www.correlsense.com | IT management | Management/Enablement | Business transaction management platform that monitors and tracks all transactions of an application in real-time. |
| CosmoCom | www.cosmocom.com | CRM | SaaS | SaaS contact center solutions. |

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|---------------------|---------------------------|--|-----------------------|---|
| Covertix | www.covertix.com | Security | Management/Enablement | Software technology that enables organizations to track, monitor, and control documents and files within and outside the organization. |
| Crescendo Networks | www.crescendonetworks.com | IT management | Management/Enablement | Application delivery and application performance management solutions for SaaS/cloud and Web application environments. |
| CRMatrix | www.crmatrix.com | CRM | SaaS | CRM for SMBs. |
| CTERA | www.ctera.com | Storage | SaaS | Hybrid cloud-based data storage solutions that enable ISPs to launch managed storage services from their existing data center infrastructure. |
| DemandWise | www.demandwise.com | Business intelligence | SaaS | SaaS applications for demand estimation and forecasting, promotion demand, and events identification. |
| Devunity | www.devunity.com | Application development and deployment | PaaS | Collaborative Web/cloud application development platform. |
| Digital Fuel | www.digitalfuel.com | IT management | SaaS | IT cost management, service level management, and service portfolio catalog management. |
| Double Trump | www.doubletrump.com | Billing | SaaS | "Micro-licensing" solutions that allows consumers to use software on a pay-per-use basis. |
| Dynasec | www.easy2comply.com | Security | SaaS | Web-based platform for managing governance, risk management, and compliance processes. |
| Ericom Software | www.ericom.com | Virtualization | IaaS | To deploy and scale desktop virtualization (VDI), terminal services, and thin client computing to remote/mobile users, branch offices, and clouds. |
| Eshbel Technologies | www.eshbel.com | ERP | SaaS | SaaS-based ERP. |
| eWave MD | www.ewavemd.com | Vertical applications (healthcare) | SaaS | SaaS-based healthcare applications, including electronic health records, electronic diagnostic and monitoring devices, patients' portal, and disease management system. |
| EX Libris | www.exlibris.co.il | Vertical applications (libraries) | SaaS | Discovery, management and distribution of print and electronic/digital materials for academic research and national libraries. |
| ExactCost | www.exactcost.com | Vertical applications (healthcare) | SaaS | Activity-based costing and performance management solutions that assist healthcare managers in decision-making, and the operational and financial management of their organization. |

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|---------------------------------|---------------------------------|--|----------------|--|
| FiftyOne Global Ecommerce (E4X) | www.fiftyone.com | Vertical applications (finance) | SaaS | Enable ecommerce retailers to automatically present and settle transactions in the currencies its international visitors prefer, thus sheltering retailers and consumers in different countries from foreign exchange rate volatility. |
| FIS Software | www.fis-software.com | Vertical applications (finance) | SaaS | Global insurance solutions that enable life insurance, pension, and investment companies to run their businesses more efficiently and to respond to territorial legislation and regulations. |
| ForexManage | www.forexmanage.com | Vertical applications (finance) | SaaS | Real-time risk management and foreign exchange, online trading technologies for the banking industry, brokers, and corporate finance departments. |
| GamaSec | www.gamasec.com | Security | SaaS | Vulnerability-scanning SaaS solutions for protecting Web applications. |
| GibuME | www.gibume.com | Storage | SaaS | Combines cloud storage and a free customized operating system, allowing users to travel anywhere with their personalized home PC environment, with full access to their files and data. |
| G.ho.st | g.ho.st | Desktop virtualization | SaaS | Virtual computer service that includes a personal desktop, files, and applications that are available from any browser or mobile phone. |
| Galor Systems | www.galor.com | Vertical applications (travel and tourism) | SaaS | CRM system for tour operators and travel agencies. |
| GigaSpaces | www.gigaspace.com | Application development and deployment | PaaS | PaaS solution that allows enterprises to deploy existing applications on the cloud, and to build new enterprise applications on the cloud. |
| Gizmoz | www.visualwebgui.com | Application development and deployment | PaaS | Platform for developing new Web/cloud applications, enhancing existing Web applications, and modernizing legacy applications via standard technologies (e.g., ASP.net, DHTML, and Silverlight). |
| Green Cloud | greenclocloudblog.wordpress.com | High performance computing | IaaS | Data processing platform that utilizes the processing power of unused desktop computers. |
| Healarium | www.healarium.com | Vertical applications (insurance) | SaaS | Provides health insurers and self-insured employers with a personalized self-management solution to maintain wellness and to control chronic conditions. |
| Hilan Tech | www.hilan.co.il | HR management | SaaS | HR management solutions, including payroll, time and |

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| Company | Website | Field | Cloud category | Description |
|----------------------|------------------------------|--------------------------------------|-----------------------|--|
| Illient | www.illient.com | IT management | SaaS | attendance, and pension administration. SaaS IT management solutions for automating help desk, hardware configurations, asset monitoring, software licenses, tasks, projects, and other processes. |
| Incentives Solutions | www.incentives-solutions.com | Vertical applications (finance) | SaaS | Fees and charges rating and billing solution that enables revenue stream modeling, management, and forecasting based on advanced simulation and marginal analysis. |
| InformUP.com | www.informup.com | Automated software quality | SaaS | ASQ system for managing requirements, test cases, bug tracking, tickets, and tasks. |
| InGrid Networks | www.ingridnetworks.com | IT management | Management/Enablement | Enables automatic migration to the cloud, and hybrid local physical, private, and public cloud management. |
| InQuera | www.inquera.com | Data management | SaaS | Product data quality and data governance solutions that transform raw, unstructured data into normalized, comparable, rich master data. |
| InstallFree | www.installfree.com | Application virtualization | SaaS | Virtualization platform that enables IT to easily and securely deliver and manage applications to users without changing the customer's existing infrastructure. |
| Inwise | www.inwise.com | Marketing applications | SaaS | SaaS marketing solutions that allow management of groups, creation of personalized email messages, and safe distribution to recipients. |
| IPnP (Elco) | http://ipnp.co.il/ | Vertical applications (utilities) | SaaS | Tools for financial and operational management of water infrastructure, irrigation systems, sewer systems, and wastewater treatment plants. |
| iPoint-Media | www.ipoint-media.com | Collaborative applications | SaaS | Interactive SaaS video applications and delivery platforms for Web, mobile, and media. |
| Jetro Platforms | www.jetroplatforms.com | IT management/Application management | Management/Enablement | Solutions for building, managing, deploying, and maintaining multi-tenant SaaS/cloud environments, including server and application load balancing, delegated administration capabilities, account management, access management, monitoring, billing, and reporting capabilities. |
| Kampyle | www.kampyle.com | Web analytics | SaaS | Allows Website owners to collect, analyze, measure, and manage Website users' feedback on services, products, and customer experience. |
| Magic Software | www.magicsoftware.com | Application development and | PaaS | Application platform that simplifies the process of |

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| Company | Website | Field | Cloud category | Description |
|--------------------------------|------------------------|--|-----------------------|--|
| | | deployment | | building and deploying full-client, rich internet applications (RIA), mobile applications, and SaaS offerings. |
| MSEC | www.icount.co.il | CRM | SaaS | SaaS invoicing system. |
| Media Boost | www.mediaboost.com | Marketing applications | SaaS | Real-time decision-making software for auction-based online advertising. |
| MediScale | www.mediscale.com | Vertical applications (healthcare) | SaaS | Prenatal genetic screening and practice management. |
| Mobilibrium | mobilibrium.com | Workforce management | SaaS | Allows organizations to optimize the way in which they deploy, interact with, and monitor their field employees. |
| Multifit Online | www.multifitonline.com | Vertical applications (health and fitness) | SaaS | BI solution and methodology for health and fitness clubs, for understanding and improving customer satisfaction and adherence, as well as the club's operational efficiency. |
| MyBusiness | www.mybusiness.co.il | CRM | SaaS | CRM system for SMBs, which enables the management of customer relationships, marketing and sales, projects, work hours, contact persons, and events. |
| Navajo Systems | navajosystems.com | Security | Management/Enablement | Appliance solution that encrypts all SaaS application data deemed sensitive by the enterprise before it is transmitted to the SaaS provider. |
| Neat Evaluation (LotemSensing) | www.neatev.com | HR management | SaaS | SaaS solutions for implementing and maintaining processes that improve various aspects of staff-related management. |
| Neebula | www.neebula.com | IT management | Management/Enablement | Management tools for virtual/cloud computing environments. |
| Neo IT Solutions | www.neo.co.il | Physical security | SaaS | Web-based managed service that enables management, viewing, recording, and broadcast of videos for surveillance, monitoring, and visual information needs via any browser or mobile phone. |
| Netformx | www.netformx.com | Network design automation | SaaS | Solutions that simplify and automate the discovery, design, quote, and proposal processes of selling integrated network products and services. |
| NilooSoft | www.nilooSoft.com | HR management | SaaS | SaaS solutions for handling the flow of candidates to positions and managing the recruitment process using a CRM system that is developed to meet the unique needs of HR companies. |

TABLE 2

Notable Israeli Cloud Computing Companies

| Company | Website | Field | Cloud category | Description |
|-------------------------|---------------------------------|---|-----------------------|---|
| Nipendo | www.nipendo.com | Supply chain management | SaaS | B2B collaboration and supply chain management on-demand services that range from value-added services to complete supply-chain automation services. |
| Nolio | www.noliosoft.com | IT management | Management/Enablement | Application-centric data center automation solution for managing service tasks across the application life cycle, as well as across the various tiers and environments. |
| NuConomy | www.nuconomy.com | Web analytics | SaaS | Web analytics and optimization platform that enables assessment and understanding of Web site and social marketing performance. |
| OffiSync | www.offisync.com | Collaborative applications | SaaS | Adds the collaboration capabilities of Google Apps as a Microsoft Office Extension, providing access to Google Docs and Google sites for document, project, and team collaboration. |
| Optier | www.optier.com | IT management | Management/Enablement | Business transaction management platform that provides visibility into shared services and private clouds. |
| Panaya | www.panayainc.com | IT management/change and configuration management | SaaS | Provides visibility and control over business application changes during their lifecycle, from development, to configuration changes, to maintenance and upgrades. |
| Panorama Software | www.panorama.com | Business intelligence | SaaS | SaaS BI solution embedded within Google Apps and Google Docs, enabling users to analyze Google spreadsheet data or upload an existing Excel spreadsheet for analysis. |
| Parallel Communications | www.parallel-communications.com | Telecom applications | SaaS | Secured rich media communications suite that allows service providers to offer voice, data, and video communication services. |
| Perfecto Mobile | perfectomobile.com | Telecom applications | SaaS | Cloud service for streamlining the development, testing, and monitoring processes of mobile applications and content across devices, networks, and geographies. |
| Plimus | home.plimus.com | Web applications | SaaS | eCommerce solutions for building and managing online businesses for software publishers, Web-hosting companies, and online retailers. |
| PLM+ | www.plmplus.com | Product lifecycle management | SaaS | PLM and quality management solutions for SMBs. |
| PNMSoft | www.pnmsoft.com | Business process management | SaaS | Business process management (BPM) and workflow automation solutions that enable the establishing, operating, managing, and monitoring of business |

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| | | | | processes in a Web environment. |
| Porticor | porticor.parann.net | Security | Management/Enablement | Cloud service that allows the monitoring of cloud deployment across multiple tiers, including traffic, applications, and data. |
| PractiTest | www.practitest.com | Automated software quality | SaaS | Solutions for managing requirements, testing, issues, and reporting. |
| Precise Software Solutions | www.precise.com | IT management | Management/Enablement | Business transaction management solutions for monitoring transactions in cloud and virtual environments. |
| Press-sense | www.press-sense.com | Vertical applications (printing) | SaaS | Print-on-demand workflow and management solution for print providers. |
| Promisec | www.promisec.com | Security | SaaS | Clientless endpoint security management solutions, also offered as managed service that detects and protects against internal threats while enabling effective enforcement of security policies. |
| Qmarkets | www.qmarkets.net | Knowledge management | SaaS | Idea management solutions that help organizations to involve their employees and customers in decision-making processes. |
| QualiSystems | www.qualisystems.com | Test automation | SaaS | Test automation solutions for equipment manufacturers and service providers that allows testing of any hardware, device, or embedded system. |
| RadarSync | www.radarsync.com | PC management | SaaS | PC update and data aggregation solutions that enable keeping hardware drivers and software applications up-to-date at all times. |
| RAMDOR | www.ramdor.co.il | Vertical applications (construction) | SaaS | Web-Based solutions for collaboration, data sharing, and project management for the engineering and construction industries. |
| Reach Out | www.reach-out.net | CRM | SaaS | Customizable CRM platform, which allows creating solutions for support, marketing, sales, service, helpdesk, telemarketing, call center, project management, risk management, and others. |
| ReaderImpact | www.readerimpact.com | Marketing applications | SaaS | Solutions for creating and delivering email campaigns, and evaluating campaign success. |
| RedMatch | www.redmatch.com | HR management | SaaS | Calculates and rates the connection between a job |

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| REptor | www.reptor.com | Vertical applications (pharma) | SaaS | seeker's profile and preferences and the position requirements, and provides a list of candidates who best match the position criteria. Sales force automation and management solutions for pharma companies. |
| Reimage | www.reimage.com | Remote support | SaaS | Automated repair tool that automatically identifies and replaces faulty system software without compromising user data. |
| Retalix | www.retalix.com | Point-of-sale | SaaS | Solutions that automate and synchronize retail, distribution, and supply chain operations encompassing stores, headquarters, and distribution centers. |
| ScaelMP | www.scalemp.com | High performance computing | Management/Enablement | Cloud provisioning solution that allows x86 servers to be aggregated and disaggregated on the fly. |
| SAManage | www.samanage.com | IT management | SaaS | IT management solutions that help organizations better control their IT inventory, organize software licenses and contracts, detect risks and license compliance gaps, and deliver IT help-desk service. |
| Secure Islands | www.secureislands.com | Security | Management/Enablement | Information protection solutions that are based on embedding encryption and policy into the information itself, while eliminating the need to secure the channels or the mediums. |
| Silverbyte Systems | www.silverbyte.com | Vertical applications (hospitality) | SaaS | Integrated application suite for the hotel and hospitality industry, including front office management, ERP, point-of-sale management, spa scheduling and management, guest service center, and events scheduling. |
| Skybox | www.skyboxsecurity.com | Security | SaaS | Automated risk assessment and compliance analysis solutions that can be deployed either within the customer premises or "in the cloud." |
| SparkLix | www.sparklix.com | Vertical applications (pharma) | SaaS | Service pack for pharmaceutical and biotechnology organizations that accelerates time-to-market, enhances research outcomes, and maximizes ROI. |
| Spine | www.spine.co.il | IT management | Management/Enablement | Web-based automation solutions, enabling service providers and ISVs to offer their customers SaaS applications. |
| Sterna Technologies | www.sternatech.com | Business intelligence | SaaS | In-memory business analytics platform that allows the |

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| SuperDerivatives | www.superderivatives.com | Vertical applications (finance) | SaaS | delivery of BI applications, deployable on-premises or on-demand as a hosted service. Derivatives management solutions for traders, sales, treasurers, risk controllers, and portfolio managers. |
| SupportSpace | www.supportspace.com | Remote support | SaaS | Remote tech support for consumers and small businesses. |
| TaKaDu | www.takadu.com | Vertical applications (utilities) | SaaS | Detects leaks, bursts, and other anomalies by mathematically approaching the water network and its indicators (flow, pressure, water quality, etc). |
| Tashash Software | www.tashash.com | Vertical applications (finance) | SaaS | SaaS solution that allows both day traders and funds to research and analyze securities using technical analysis tools. |
| Testuff | www.testuff.com | Automated software quality | SaaS | On-demand service for managing and executing manual software tests and for reporting defects. |
| TOA Technologies | toatech.com | Workforce management | SaaS | Integrated field service and appointment management tools. |
| TraderTools | www.tradertools.com | Vertical applications (finance) | SaaS | Electronic foreign exchange white-label software solutions for banks, brokerages, and other financial institutions. |
| UnisFair | www.unisfair.com | Web applications | SaaS | Virtual event hosting solution that consists of portals through which attendees can view live and on-demand presentations, chat with company representatives, and more. |
| Universal Ad | www.universal-ad.com | Marketing applications | SaaS | Retail advertising, marketing and promotions software and service solutions. |
| Unnatec | www.unnatec.com | Point-of-sale | SaaS | Web-based platform for the automation and management of retail enterprises. |
| uTest | www.utest.com | Automated software quality | SaaS | A marketplace for software-testing services, which enables software companies to test Web, mobile, gaming, and desktop applications utilizing a global community of QA professionals. |
| Vaultive | www.vaultive.com | Security | Management/Enablement | Enables protecting and regaining control of sensitive information stored off-premises in SaaS systems and cloud-computing platforms. |
| Verix | www.verix.com | Business intelligence | SaaS | Business analytics solutions that proactively alert |

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| ViewFinity | www.viewfinity.com | Desktop virtualization | SaaS | managers to emerging trends and thus will allow them to take earlier and more precise actions in the market place. Combines virtualization technology and SaaS to help enterprises more easily and efficiently manage laptop and desktop clients. |
| Visual Policy | visualpolicy.com | Security | SaaS | Allows implementing controls, monitoring organizational processes, and meeting governance, risk management, and compliance (GRC) needs. |
| VisualTao | www.visualtao.com | Computer-aided design | SaaS | Enables civil engineering, architectural, and utility companies to deliver, edit, and collaborate on CAD and GIS data over the Web. |
| Voltaire | www.voltaire.com | IT infrastructure | Management/Enablement | Scale-out computing fabrics for data centers, high performance computing, and cloud environments. |
| Wandy | www.wandy-saas.com | CRM | SaaS | Contact center platform designed to be delivered by carriers to customers of any size. |
| WebCollage | www.webcollage.com | Marketing applications | SaaS | Allows manufacturers to syndicate their product marketing materials and share them with their online channel partners. |
| WhiteSmoke | www.whitesmoke.com | Web applications | SaaS | Grammar engine that enables performing advanced grammar, style, and spell checking on texts. |
| WorkLight | www.worklight.com | Web applications | SaaS | Enables financial institutions to develop and launch transactional widgets that allow customers to manage accounts, transfer funds, and pay bills directly from their desktops, mobile devices, personalized homepages, and social networking sites. |
| Xeround | www.xeround.com | Data management | SaaS | Solutions for data management within a cloud and data federation between clouds. |
| XRFiles | www.xrfiles.com | Vertical applications (healthcare) | SaaS | Secure destination in which patients can store their medical images, review them in full fidelity, provide controlled access to other people, and retrieve their data (as needed) from their Web browsers. |
| ZeroChurn | /www.zerochurn.com | Vertical applications (telecom) | SaaS | SaaS applications for wireless service providers intended for subscribers' churn identification, monitoring, and prevention, using dynamic relational Bayesian networks. |

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| Zibaba | | Marketing applications | SaaS | Allows companies to deploy social features to any ecommerce, marketing, or advertising strategy, with built-in analytics for fully measurable results. |

Source: IDC, 2010

ESSENTIAL GUIDANCE

Cloud computing is more than just a buzz phrase. It is a major technology trend, and IDC expects it to take an increasing share of total IT spending worldwide. Cloud computing is affecting all traditional areas of IT, as its various effects include serving as a driver for the emergence of new technology fields. Still, cloud computing is far from maturity. There are many technology gaps that have yet to be filled, especially in the areas of cloud enablement, management, monitoring, and security. To address the unique challenges that cloud computing introduces, new types of solutions to facilitate and enable cloud-computing deployments are needed. As with any emerging trend, start-up companies are playing a key role in developing and delivering these solutions. As a traditional leader in IT trends and technological innovation, the Israeli software industry is taking part in those efforts, utilizing its expertise in areas such as IT management, security, Web applications, enterprise software, and more.

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Related Research

- ☒ Worldwide Automated Software Quality Software as a Service and Testing as a Service 2009–2013 Forecast and 2008 Vendor Shares: Services Delivery Model Drives Adoption? (IDC #221369)
 - ☒ Worldwide Business Analytics Software as a Service 2009–2013 Forecast (IDC #221320)
 - ☒ Cloud Computing 2010 – An IDC Update (IDC #TB20090929)
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Synopsis

This IDC study analyzes the emerging cloud computing field and how it is reshaping the IT industry. Among other things, it defines the different cloud-related solution categories and discusses the evolution of the market, major trends, and the technology challenges that must be addressed. The study also provides an overview of cloud-related fields in which Israeli software companies are active in developing innovative solutions.

"Throughout the years, Israeli software companies played a key role in pioneering new technologies and solutions in areas such as information security, IT management, and others. Today, many Israeli software companies operating in these fields are focusing on cloud computing environments. As security, service availability, and performance are still major drivers for the adoption of cloud computing, their innovation can make a major contribution to the emerging cloud-computing market." – Research Director Dan Yachin, IDC EMEA Emerging Technologies

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