SaaS – Owning your data in the cloud

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Abstract: Software as a Service (SaaS) is a model for service delivery based on cloud software applications that offer an alternative to purchasing applications and providing local provisioning, integration, support, and maintenance. Characteristics of SaaS include multi-tenancy, pay-as-you-go subscriptions, central application management and infrastructure, frequent upgrades, and little to no custom code.

With the growing availability of many new SaaS solutions, organizations desire the ability to quickly and efficiently consume SaaS by standardizing interactions between themselves and cloud providers.

In this report, we cover five of the most common SaaS application segments used by Small and Medium businesses (SMBs). We look at the top service providers in each of these segments, score them against selection criteria, and identify means by which organizations can benefit from the ability to interact with a common solution across multiple providers for the same SaaS application segment.
Introduction

Organizations have been moving away from software based on-premise solutions to cloud-based SaaS solutions. The financial motivation for this move is to reduce up-front capital equipment and software licensing costs, to reduce operating expenses towards maintenance, and upgrade and patching of the software in exchange for a pay-as-you-go usage based model. This model is attractive for businesses looking to minimize investment in non-core operations or without significant in-house expertise in the solutions.

Hypothesis

The increasing popularity of SaaS in conjunction with the adopter profile can put SMBs in a position in which they are locked-in with their SaaS providers. Customers want vendor independence and simplification. This creates opportunities in the next 3-5 years for companies and integrators to provide solutions to migrate data between SaaS providers, offer cloud brokering services, billing consolidation and standards development. We will analyze how the five most popular SaaS applications in the SMB industry support our hypothesis, and make some specific predictions in the concluding section.

What is Cloud computing?

Cloud computing has three service models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

Cloud computing also has three deployment models - public, private, and hybrid.

- A public cloud is one in which the services and infrastructure are provided offsite over the Internet. These clouds offer the greatest level of efficiency in shared resources.
- A private cloud is one in which the services and infrastructure are maintained on a private network. These clouds offer the greatest level of security and control, but they require the company to still purchase and maintain all the software and infrastructure, which reduces the cost savings.
- A hybrid cloud includes a combination of public and private clouds.
SMB SaaS Market

The most significant cloud-computing trend in SMB (companies with 100 to 1000 employees) businesses is the adoption of a SaaS-based service model with a public cloud-based deployment.

The public cloud portion of the overall cloud computing market is expected to grow from $10 billion in 2010 to $80 billion by 2015. SMBs are expected to make up around $25 billion of the market in 2015. Overall annual IT spending by SMBs is expected to be around $175 billion in 2015 and public cloud computing spending by SMBs is expected to be around 14 percent of their annual budget.

Key factors responsible for growing adoption of SaaS by SMBs include:

- **Economic necessity.** The recent recession created an economic necessity for SMBs to consider SaaS for cost savings and being able to re-deploy scarce IT resources from application support and management to more strategic activities. Some estimates suggest SMBs can expect cost reduction (21 percent average annual savings for applications moved to the cloud), speed and flexibility, greater connectivity and mobility, easier collaboration and integration.
- **Initial positive experience.** Seeing significant business value from real-time visibility and collaborative capabilities that are intrinsic to cloud computing and provide compelling case to expand use of SaaS.
- **Consumerization of IT.** As social media becomes an integral part of consumer technology, an increasing number of employees are bringing their personal mobile devices to work, enabling social media and collaboration in the workplace. This concept, known as the consumerization of IT, is changing the way companies do business. It's also driving the need for mobile device management (MDM).
- **Increased affordability.** This is a result of price reduction because of increased vendor competition and SaaS providers reaching better economies of scale. This allows SMBs to acquire enterprise-class solutions at significantly less total cost of ownership
- **IT consumerization.** Wireless-enabled mobile devices have proliferated.
- **Social offerings.** SaaS applications offer a social component (e.g. CRM offering chat services)
- **Integration of additional ERP features by SaaS providers.** SaaS providers of individual ERP features are adding more ERP features to become more competitive and attractive to SMB buyers. The suite of ERP offerings includes financial management, customer relationship management (CRM), marketing, materials management, help desk and support, time and expense management, purchasing, order management and project management.
- **Efficiency:** Cloud services can be quickly and efficiently deployed, a positive for SMBs with generally fewer IT experts on staff.
- **Other:** Lesser factors include greater availability of broadband Internet connectivity

SaaS based SMB cloud applications that are seeing most innovation and rapid growth include:

- Customer Relationship Management (CRM)
- Online backup and storage sharing
- Human Capital Management (HCM)
- File sharing
Customer Relationship Management (CRM)

CRM sales to SMB customers are a $1.8 billion market in the US. On-site CRM solutions were 60% of the total market and while SaaS-based solutions accounted for 40% and is growing four times faster. CRM entails all aspects of interaction that a company has with its customer, whether it is sales or service related. CRM is used to manage business contacts, organize, automate, and synchronize sales, marketing, customer service, and technical support. Key SaaS-based CRM providers in the marketplace are Salesforce, Zoho, and SugarCRM.

CRM is a gateway to broader adoption of cloud applications, particularly in other ERP applications. CRM has the highest penetration of any cloud application at up to 55 percent, an increase from 34 percent in 2010.

CRM is a critical tool for SMB businesses to improve customer experience and amplify the voice of the customer within their business. SaaS vendors are well placed to provide this, by incorporating social media, developing customer interaction solutions that include mobile, and using business analytics together with digital marketing for improved marketing campaigns. Furthermore, SaaS vendors can address this better than on-premises by being able to more easily incorporate other web and SaaS based technologies – social media (e.g., Facebook), personal networking systems (e.g., LinkedIn), mobile, and cloud based services (e.g., big data scale analytics, customer campaigns). In addition, SMB can expect savings of roughly 25 percent from running CRM in the cloud.

Storage and Backup

Small and medium-sized businesses (SMBs) are rapidly adopting cloud-based storage services to reduce cost and IT complexity, thereby pushing market growth. SMB segments are the major adopter of cloud storage services and this trend is expected to continue for the next few years. Cloud storage has many advantages. It’s cheap, doesn’t require installation, doesn’t need replacing, has backup and recovery systems, has no physical presence, requires no environmental conditions, requires no personnel and doesn’t require energy for power or cooling. Cloud data storage, however, has several major drawbacks including performance, availability, incompatible interfaces and lack of standards.

The Cloud Storage market is growing at a CAGR of 40% and expected to reach $47 billion by 2018[1]. Leading Cloud Storage providers are Amazon S3, Google, Microsoft Azure Blob Storage, HP, and Rackspace. Collectively, they had 1 Exabyte (2 ^16 bytes) of data stored in 2012; the most dominant being Microsoft and Amazon. Amazon has over 1.2 trillion objects stored in S3 and continues to add 1 billion objects per week. A recent comparison of performance and reliability by Nasuni, gave Microsoft Azure Blob the top rank in the Cloud Storage Service provider category [5].
Human Capital Management

Human Capital Management (HCM) system manages human resources and provides functionalities for recruiting, talent management, learning management, performance, and compensation. Technology trends and demand for efficiency are pushing SMBs to consider investment in SaaS based solutions. Gartner projects U.S. HCM market to reach $10 billion by 2015, with $4.5 billion in talent management, 75% coming from SaaS [40]. Forrester expects subscription revenue to grow at 15 percent, in contrast to software licenses, which will decline by 1.5 percent through 2014 [20]. Gartner, IDC and Forrester all predict that HCM will see the broadest adoption of all SaaS-based Enterprise Resource Planning (ERP) components through 2015 [19].

In addition to new cloud-based entrants, existing on-premise vendors have also accelerated acquisition and development of cloud based solutions. SAP acquired SuccessFactors for $3.4 billion in December 2011 [41]; Oracle bought Taleo for $1.9 billion in February 2012 [42]; IBM purchased Kenexa for $1.3 billion in August 2012 [43]; Cloud-based startup Workday had a very successful IPO in October 2012, and its stock price has more than doubled [44]. The market hasn’t stopped evolving: in fact, another cloud-based startup Silkroad is planning for IPO this year [45]. Big players in HCM SaaS market include giant enterprise software vendors like Oracle, SAP, the biggest payroll vendor ADP, and cloud-based leader Workday. Another startup Silkroad has solid product offerings, so it is also selected in this research [21][24].

File Sharing

Cloud file sharing includes SaaS offerings that help customers share and access documents and files in the cloud from multiple endpoint devices. File sharing is vital in knowledge-intensive organizations since it enables document-centric team collaboration. IDC estimates that enterprise file-sharing market will be worth $20 billion by 2015 [51]. In a survey of various companies, 25 percent of companies reported that they plan to use SaaS for online file sharing and collaboration, which ranked third behind much more mature SaaS applications like CRM and e-mail.

SMBs are increasingly relying on cloud file sharing and collaboration tools to reduce upfront capex cost and management complexity associated with traditional on-premise file-server solutions from Microsoft, Netapp and EMC. Another major reason for the increased adoption of cloud file sharing and collaboration tools is the trend towards consumerization of IT, driven by the mass market adoption of consumer devices like smartphones and tablets and the increase in mobile and remote workforce. End users are driving the demand for cloud file sharing tools since they provide end-point and platform agnostic access, automatic synchronization, ease of sharing, and web-based easy accessibility.

Leading cloud file sharing providers include DropBox (55% user base), Google Drive (33%), Microsoft Skydrive (21%), and Box (21%). YouSendIt, SugarSync, Accellion, Citrix ShareFile, Egnyte and Adobe SendNow are also key players in this market [52].
Given that files and documents are key information assets, it’s important for companies to de-risk themselves against SaaS vendor lock-in. Without a mitigation strategy, events such as a massive security breach, significant loss of availability, or data corruption can significantly disrupt a company’s operations. End-user driven consumerization of IT is another key forcing function for avoiding the vendor lock-in trap. As the trend for new consumer devices continues, it’s likely that the current popular file sharing application will be replaced by a new one. This creates new mobility challenges not only for files shared in the cloud but also for applications using them.

Web Conferencing

Web conferencing allows for real-time sharing of media-rich content to many participants. The real-time content can include video, audio, instant messaging (chat) and data (desktop sharing, white boarding, file sharing). The nature of modern business requires collaboration across many companies each with their own infrastructure, policies and applications making cloud-based solutions the natural path for web conferencing.

Frost & Sullivan estimates that global revenues in the web conferencing market reached $1.62 billion in 2011 with a forward looking CAGR of 12 percent to reach $2.86 billion by 2016 [32]. North America accounted for 60 percent of global revenues of which 83 percent came from SaaS solutions[33]. The dominant solutions in the web conferencing market are Webex from Cisco, GotoMeeting from Citrix and Lync Online from Microsoft, together accounting for a 66 percent market share.

Those who use web-conferencing services frequently upload confidential documents, session recordings and presentations to the providers’ servers making security a critical issue. Most providers use SSL/HTTPS to encrypt data in motion and AES-256 bit encryption for data at rest. Application security features such as role based access control with the ability to disconnect individual users, lock or unlock conferencing sessions and control user participation are necessary to protect sensitive business information even within a company. Web conferencing tools must integrate with productivity tools like email and existing business process workflows in order to make web collaboration frictionless.

Evaluating SaaS providers

SaaS providers were evaluated against six criteria, listed below. We chose these criteria based on what we researched to be important to SMBs in their SaaS selection decisions. We decided not to have cost as a criterion, given that low cost is what initially attracted SMBs to SaaS.

Security

Security is by far the largest concern companies have regarding the cloud. Many companies get their feet wet in the cloud by using it for test and development environment without considering the security aspects and then find themselves stuck as their test and development projects become real and go live.
Mobility

The service providers should have a well-defined policy that allows customers to get their data in and out of their servers at any time in a vendor neutral format.

Availability of Service

The cloud provider must provide service-level agreements regarding availability of customer data in a timely manner, be accessible from any geography in the world and provide protection against natural disasters. No SaaS provider guarantees more than 99.9% uptime compared to 99.999% for on-premise deployments.
Scale

Cloud SaaS providers need to scale to the demands of multiple IT organizations and provide multi-tenancy capabilities at scale. They need to be able to scale the service quickly and transparently to customers.

Support

Good SaaS providers have flexible support schedules, highly qualified staff, comprehensive knowledge bases, self-help documentation and tutorials. They also make a large variety of communication channels available by which to get support.

Integration

Customers need to be able to seamlessly integrate their existing business processes with various SaaS applications. These would include support for customer provided identity management and industry standard API’s to export SaaS services to on-premise applications.

Evaluation

As shown in Table 1 and Figures 1 and 2 (Appendix), SaaS vendors fare well against some criteria, but not against all criteria. Scale is the strongest segment and Integration is the weakest segment. Other segment scores (security, mobility, etc.) may also be unacceptable to some SMB customers.

This variation in scores makes it difficult for a SMB customer to make a long-term commitment to a group of SaaS providers. We found many SaaS providers (the table is not exhaustive) and it will become difficult for SMBs to monitor which ones are improving against the criteria and which are not. SMBs will look for ways to simplify and reduce their dependency and risk.

Based on these results, we see opportunities for new companies or services to emerge. Examples include combining the best services of different providers or moving data between providers on behalf of the customer. These opportunities and trends will be covered in the next section.
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Opportunities and Trends

Cloud Broker

The concept of the cloud broker [29] has emerged as a way to deal with increasingly complex cloud environments. A cloud broker creates a buffer between the customer and the cloud solutions. A cloud broker manages the use, performance and delivery of cloud services, and negotiates relationships between cloud providers and cloud consumers. The analyst house predicts that by 2015, most cloud-computing customers will rely on a broker to handle a diverse range of SaaS services, from discounted pricing to custom application monitoring.

One example of a cloud broker is Cloudability. Cloudability automatically pulls billing data from any of these providers so you can get complete spending visibility into your cloud business. Another example is OneSaas [39]. OneSaas is a SaaS cloud integration platform that is designed to solve the challenges of integrating separate cloud-based or on-site software solutions. By integrating popular platforms from CRM, eCommerce, Invoicing, Email Marketing, Event Management, Project Management and Accounting, OneSaas gives you a way to simplify and optimize business processes.

A suite of cloud brokerage offerings from IT service provider NJVC meet National Institute of Standard and Technology guidelines that describe how organizations can copy and move data as well as migrate applications between different cloud providers, according to NJVC officials.

Mobility standards

A number of cloud data and application management and integration standards have been proposed. These standards are currently focused on simplifying and easing the migration and integration of on-premise applications to cloud. Some attempt to address vendor lock-in as a problem area.

The Open Data Center Alliance (ODCA) [53] was formed in 2010 and includes a consortium of over 300 leading global IT organizations. With Intel as the organization's technical adviser, ODCA is led by
heavyweights such as BMW, Deutsche Bank, JPMorgan Chase, and others. Together, these companies represent more than $100 billion in annual IT spending. ODCA has a mission to speed the migration to cloud computing by addressing the growing need for solutions developed in an open, industry-standard, and multi-vendor friendly fashion.

The ODCA SaaS interoperability Usage Model [54] targets the key mobility-related business drivers of Business System Migration and Business Continuity, amongst others. The Service transfer usage scenario addresses migration of a particular capability from one SaaS solution to another from the same or different SaaS provider.

Although it's unclear how successful this alliance can be, the growing momentum behind it, and the rising popularity of SaaS, points to an important trend. SaaS providers such as Citrix, Cisco, Symantec, SAS (Statistical Analysis Systems), and MapR have recently become ODCA members. New providers, who can structure their offerings with standardization in mind, might be able to gain a leg up over traditional vendors who might have a harder time adapting their existing solutions to conform to the standards requirements.

Cloud Data Management Interface (CDMI) [55] is a standard that defines the functional interface for managing data in the cloud. The interface provides capability discovery and mechanisms to manage containers, datasets, and metadata. As CDMI standard is embraced by private enterprise IaaS vendors such as Cisco, EMC, HP, Netapp, etc., it's expected that SaaS vendors, especially those in the file sharing and cloud storage application space, will start embracing CDMI as part of their Open Cloud Access Strategy.

**Storage and Backup**

Startups are beginning to provide services to move data from one cloud service provider to another. Examples are Backup Box and Cloudberry. Companies that can provide services without having to download files to a local machine and can keep up with the growing number of Cloud providers, will emerge as winners.
Backup Box [4] is a company that provides services to move files and objects from provider to another provider. See Figure 5, which shows Backup Box’s claims to be able to move files seamlessly between several providers. Such convenience is not free. Users with free accounts can make 10 transfers per month and transfer up to 1 GB per transfer. Paid accounts start at $10/month for unlimited transfers and a 25 GB/month transfer limit. Backup Box also offers a $99/month plan with a 500 GB transfer limit.

CloudBerry’s Cloud Migrator [6] is a service that supports data migration between Amazon S3, Amazon Glacier, Windows Azure Blob Storage, Rackspace Cloud Files and FTP servers. See Figure 5. The service allows users to copy files between different locations or accounts within one cloud storage provider as well as between different cloud storage providers’ accounts. This service is a solution to migrate data from one Amazon S3 bucket to another or from Amazon S3 to Azure Blob Storage or Rackspace Cloud Files and vice versa.

Integration & Customization

There are fundamental needs to integrate different SaaS applications in order to implement a streamline workflow, to exchange data, and to provide an integrated view of services to employees. In traditional on-premise deployment models, the extra customization and integration cost is spread across several years, as the license cycle is usually longer. However, the subscription business model of SaaS could make integration and customization a strong factor to lock SMB in particular providers. Many companies are eyeing the opportunities to develop solutions to simplify integration and customization, to reduce related costs, and to eliminate vendor dependency.

When SMB adopts more than one SaaS service, there are two typical scenarios for integration:

- **Acquire new services from the same provider to avoid integration.** This creates opportunities for SaaS vendors to enrich their application offerings through either development or acquisition, also puts smaller vendors into tough competition. Salesforce is raising $1 billion of debt for further acquisition [46]. Both Workday and Salesforce are actively developing new applications in HR/CMR areas.

- **Adopt an integration platform to integrate new services.** This approach creates strong demand for open standards, as well as the opportunity for integration platform. These vendors provide a platform to integrate various SaaS providers with proprietary or standard interfaces, and create an ecosystem on top of its platform. Leading providers are Dell Boomi, Informatica, IBM Cast Iron, Pervasive, SAP NetWeaver and Jitterbit [47][48]. Third party companies can use API provided by SaaS vendors to develop connectors on top of the platform [49][50].

Customization is another strong driver for open standards. SMBs want the same customization to work across different providers. For example, the customization of CRM workflow and data exchange with HR system should remain work after switching from Salesforce to SugarCRM.
Conclusion

We analyzed the top SaaS applications against six important criteria for SMBs. We discovered over 20 SaaS providers with varying degrees of success against the criteria. We also found a lack of standards and common interfaces to these providers.

We concluded that our original hypothesis of SMB customers wanting vendor independence and simplification was correct. There are real opportunities in the next three to five years for companies and integrators to provide solutions enabling migration of data between providers, cloud brokering, billing consolidation and standards development.
Appendix

Figure 1

![Average SaaS Scores by Segment](image)

Figure 2

![SaaS Scores against Criteria](image)
Human Capital Management

Human Capital Management (HCM) is one of the most critical systems in SMB IT environment. It manages human resources, and provides functionalities for recruiting, talent management, learning management, performance, and compensation. Technology trend and demand for efficiency to compete in Internet era are pushing SMB to consider investment in SaaS based solutions. Gartner projects U.S. HCM market to reach $10 billion by 2015, with $4.5B in talent management, 75% coming from SaaS. Forrester expects subscription revenue to grow at 15%, in contrast to software licenses, which will decline by 1.5% through 2014. Gartner, IDC and Forrester all predict that HCM will see the broadest adoption of all SaaS-based Enterprise Resource Planning (ERP) components through 2015.

“86% of deals this year are SaaS. It was 5% last year. That is not an evolution, it’s a revolution,” said Vinzenz Kremer, global head of HR IT consulting at Accenture in October 2012. Usability is a big driving force behind HR technologies, but many on-premise HR system vendors are struggling to make their systems easier to use. SMB are adopting SaaS solutions to improve usability to increase employee engagement by offering self-service; mobile; better interface, as well as to unlock value of big data by integration with business intelligence systems. Other driving factors of SaaS adoption are

In addition to new cloud-based entrants, existing on-premise vendors have also accelerated acquisition and development of cloud based solutions. SAP acquired SuccessFactors for $3.4B in December 2011; Oracle bought Taleo for $1.9B in February 2012; IBM purchased Kenexa for $1.3B in August 2012; Cloud-based startup Workday had a very successful IPO in October 2012, and its stock price has more than
doubled. The market hasn’t stopped evolving, another cloud-based startup Silkroad is planning for IPO this year. Big players in HCM SaaS market include giant enterprise software vendors like Oracle, SAP, the biggest payroll vendor ADP, and cloud-based leader Workday. Another startup Silkroad has solid product offerings and is preparing for IPO, so it is also selected in this research. Shown below is a graph of major competitors, and their competitive positions from Forrester Research.

Figure 4

![Forrester Wave: Human Resource Management Systems, Q1 '12](image-source: Mybackupbox.com)

Workday is a leading provider of cloud-based applications for enterprise financial management and human capital management. It was founded in 2005 by David Duffield, the founder of PeopleSoft, and went IPO in October 2012. Its solutions are built on an innovative and highly adaptive foundation of modern technologies. The customers span from medium-sized organizations to Fortune 50 businesses.

SilkRoad is a provider of cloud-based social talent management solutions ranging from recruiting, onboarding, to learning and career development. IDC recognized SilkRoad for its social recruiting and talent management capabilities that deliver a competitive advantage by improving the employee experience. It is expected to go IPO later this year.

Figure 5  (Image source: Mybackupbox.com)
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