Cloud computing in the hospitality and tourism industry

Denis Rudd II
New Horizons Computer Learning Center

Dr. Denis Rudd
Robert Morris University

ABSTRACT

Cloud-computing is an emerging technology shift impacting all industries. The hospitality and tourism industry is an ideal candidate for the use of cloud solutions. This article will review the definition, application, available offerings, and cost savings of cloud technology as it relates to three key business technology areas: email storage and services; web conferencing; and web portal hosting. When necessary, specific vendor references will be made to illustrate the application of a current service available to customers.

Keywords: Provider interaction, Backed guarantee, SAAS, Web-based documents.

WHAT IS CLOUD COMPUTING?

"Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. " (NIST) It's definitions like this that create confusion among the general public, uninformed decision makers, and small/medium sized business. A more simplified definition of cloud computing can be found on Wikipedia: "Cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a metered service over a network (typically the Internet)." (Wikipedia,) This definition illustrates the core of cloud computing, which hinges on the process of other companies providing key business software applications and management of these applications via a single point of access: the Internet. Processing, management, and application development occurs outside of an organization's walls. There are three primary solution offerings available to business: SaaS (Software as a Service), PaaS (Platform as a Service); and IaaS (Infrastructure as a Service). This paper focuses on SaaS. SaaS is where "cloud providers install and operate application software in the cloud and cloud users access the software from cloud clients. The cloud users do not manage the cloud infrastructure and platform on which the application is running. This eliminates the need to install and run the application on the cloud user's own computers simplifying maintenance and support." (Wikipedia).

To be fair, cloud technologies are not a new service just arriving to the computing scene. Solutions using web-based services have been around for decades. "The actual term 'cloud' borrows from telephony in that telecommunications companies, who until the 1990s offered primarily dedicated point-to-point data circuits, began offering Virtual Private Network (VPN) services with comparable quality of service but at a much lower cost. By switching traffic to balance utilization as they saw fit, they were able to utilize their overall network bandwidth more effectively. The cloud symbol was used to denote the demarcation point between that which was the responsibility of the provider and that which was the responsibility of the user. Cloud computing extends this boundary to cover servers as well as the network infrastructure" (Wikipedia, Cloud Computing). Only recently, however, has cloud become mainstream and marketed to the masses. A clear trend for cheap, scalable, reliable, and easily managed software via a web browser has forced even the largest and traditionally desktop-centric software companies to bend to the will of demand and offer cloud services. Behemoth companies like Microsoft, Google, IBM, and Oracle are all racing to provide a wide variety of cloud offerings.
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BENEFITS AND EXPENSE REDUCTION

Cloud computing offers an incredibly diverse selection of tools to choose from and many share similar characteristics, "Cost is claimed to be reduced and in a public cloud delivery model capital expenditure is converted to operational expenditure. This is purported to lower barriers to entry, as infrastructure is typically provided by a third-party and does not need to be purchased for one-time or infrequent intensive computing tasks. Pricing on a utility computing basis is fine-grained with usage-based options and fewer IT skills are required for implementation (in-house)." (WikiPedia, Cloud Computing) Benefits in expense reduction are obvious to the painful observations of those who have tried to predict the IT budget. With constantly fluctuating costs

of server hardware, software upgrades,   Traditional models require IT departments to budget for new server equipment between a 3-5 year period. Existing systems are migrated or retired to support ever increasing demands. Looking at standard pricing the following table identifies a generalized capital expenditure as compared to a cloud based solution for the three main business communication and storage needs: email, web conferencing/IM, and business portals. This analysis is based on 100 employee sized organization and includes licensing and software costs.

Business Communication and Storage	Yearly Capital Expenditure (In-House Architecture)	Yearly Operational Expenditure (Cloud Services)
Email		
Web Conferencing/IM		
Business Portal		

FLEXIBILITY AND SCALABILITY

Implementations of in-house solutions can be extremely costly and time consuming. Beyond the employees costs such as training, IT salaries, and the cost of planning and of software can be overwhelming to small and medium-sized organizations. For those companies who don't have the expertise to use existing employee skills to execute these endeavors, consulting and contractual expenses are incurred. Companies are then locked into these services as they either do not have the budget to hire experts to manage the systems or are unwilling to pay someone internally to learn them. A distinct advantage of cloud services is the ability to manage enterprise systems through simplified web-based interfaces, allowing an average power user to maintain systems that required extensive IT knowledge. If employees with the skills leave a business, an employee can easily pick up the slack and continue managing the applications.

As new employees are hired and business needs increase, local IT solutions require maintenance, upgrades, and increasing performance boosts. Cloud services can instantly be updated to handle any increase in business needs. Through improved provisioning and click-to-add feature enhancements, many companies have found using cloud services a viable business solution for offering business applications to their employees.

IMPACT OF CLOUD COMPUTING ON BUSINESS

One of the biggest concerns over moving to a cloud strategy is security. If other companies are storing sensitive company information, what steps are providers offering to make sure there are no data breaches? "Security could improve due to centralization of data, increased security-focused resources, etc., but concerns can persist about loss of control over certain sensitive data, and the lack of security for stored kernels. Security is often as good as or better than other traditional systems, in part because providers are able to devote resources to solving security issues that many customers cannot afford." (Wikipedia, Cloud Computing). Geo-redundant data centers and strict data access policies provide a far better system than most companies can comprehend. Take Microsoft's management of the cloud. A 2 billion dollar network of data centers was created to help the software behemoth manage their cloud offerings. Google, as a well-established provider of web-based solutions, also has a large investment in servers and data centers to manage their cloud offerings.

Cloud offers the smallest of businesses instant access to features that were usually available for just large, enterprise companies. Companies are leery, however, to jump headfirst into replacing all their on-premises solutions to the cloud. Luckily, some heavy hitters stepped to the plate to offer an a la carte menu to choose from. Hybrid solutions provide the best opportunity for all sized business to serve up a cloud solution.

MICROSOFT AND OFFICE 365

Microsoft has made a significant shift in their business model. As a company whose revenue for locally installed software reached a high of XX in YEAR, Microsoft has developed a strong bevy of offerings. Office 365, a newly polished BPOS (Business Productivity Online Suite), has entered the cloud market as a strong competitor, offering Web-based solutions for email, web conferencing, and hosted portal services. Microsoft sees cloud as the future and has invested heavily in a vast army of data centers to manage and ground this cloud platform. Analysts believe Microsoft "plans to spend 90 percent, or $8.64 billion, of its $9.6 billion annual R&D budget on cloud computing" (Gigaom).

Management and administration of Office 365 is simple and accessible through a single portal, making implementation quick and painless. Scalability is as easy as clicking a button to add more users and services. Reliability of Office 365 is purported to have a 99.9% SLA backed guarantee and Microsoft puts money where their proverbial mouth is – a strong stance to take with a completely web-based platform. Cost savings are achieved through a variety of small, medium, and enterprise level monthly subscription plans; exploiting the desirable appeal of changing capital expenditures to fixed operational costs.

Three Office 365 services, Lync, Exchange, and SharePoint Online are described below:

LYNC ONLINE

"Microsoft Lync is an enterprise-ready unified communications platform. With Lync, users can keep track of their contacts' availability; send an IM; start or join an audio, video, or web conference; or make a phone call—all through a consistent, familiar interface." (Microsoft 1) Lync evolves two existing Microsoft communication tools; Communicator and Live Meeting. Lync Online is "one of several cloud services offered by Microsoft Office 365 for enterprises. These Internet-based services are designed to help meet the need for robust security, 24/7 reliability, and user productivity." (Microsoft 2) Lync Online is a cloud variation of the full Lync server platform Microsoft offers.

To use Lync Online, "end users require Microsoft Lync 2010, the desktop client for Lync Online. Currently, Lync 2010 is available to service subscribers at no additional charge as a promotional offer. Organizations can find information on how to download the current version of Lync 2010 in the Office 365 Administration portal." (Microsoft 2). This instant setup and configuration allows small and medium-sized organizations to get enterprise level communication faster and easier than any stand-alone server installation.

A very robust communication platform is at the finger-tips and any sized organization. Features of Lync Online include an intuitively developed web conferencing application and a tightly integrated instant messaging tool. Microsoft's own Online Service Description for Lync online states, "Lync Online is a next-generation, enterprise-grade communication solution that can improve business efficiencies, increase productivity, and provide cost savings." (MS Lync

Service Document) This solution includes these benefits: "Presence and click-to-communicate from Microsoft Office Outlook; Connect with people and be more productive through a rich and immersive online meeting experience; Collaborate within SharePoint site; Communicate with other organizations running Lync; and Communicate with Windows Live Messenger contacts" (MS Lync Service Document)

SHAREPOINT ONLINE

SharePoint is a web-based collaboration system, offering enterprise capable document storage, data management, social networking, and a myriad of other features and tools. Included in the majority of service plans for SharePoint Online is an external web site creation tool, granting even the most technophobic user a simple interface for updating, adding, and managing a professional looking public facing website.

"Microsoft SharePoint Online is a Microsoft Office 365 service for businesses of all sizes. Instead of installing and deploying Microsoft SharePoint Server on-premises, any business can now simply subscribe to SharePoint Online to provide their employees with an enterprise-grade solution for creating sites to share documents and information with colleagues and customers." (Microsoft 3)

SharePoint as a stand-alone installation has become one of Microsoft's fastest software products to reach the billion dollar mark in revenue. As a cloud service, it becomes even more accessible and offers an incredibly feature rich content and collaboration management system.

EXCHANGE ONLINE

Exchange Online offers an incredible email system that can be accessed from mobile devices, web browsers, and fully integrates with the latest versions of Outlook. Easy setup for new employees only takes minutes to create and distribute user credentials. Full integration with SharePoint and Lync presence makes it quick to get in touch with someone within your organization or as a user within your Office 365 plan. "Microsoft$^®$ Exchange Online is a hosted messaging solution that delivers the capabilities of Microsoft Exchange Server as a cloud-based service. It gives users rich and familiar access to email, calendar, contacts, and tasks across PCs, the web, and mobile devices. With Exchange Online, organizations can take advantage of sophisticated messaging capabilities without the operational burden of on-premises server software." (MS Exchange Service Document)

OFFICE 365 SUMMARY

Although each of the three products that match the three core business applications from Office 365 can be purchased separately, an added integration of all three really makes this suite of cloud services an easy sell. With plans as low as $5 a month per user, it is easy to see how appealing SAAS solutions can be to any sized organization.

Other Services

Microsoft also offers a few other cloud services that deem mention. Office Web Apps "use your web browser to create, view and edit Word, Excel, PowerPoint and OneNote files

online" (Office 365 main page for Office Web Apps). Office Web App plans are available that include a download of the local installations of the latest version of Office. Web and desktop multi-user editing is completely seamless. Azure is "an open and flexible cloud platform that enables you to quickly build, deploy and manage applications across a global network of Microsoft-managed datacenters. You can build applications using any language, tool or framework. And you can integrate your public cloud applications with your existing IT environment." (Azure site)

InTune "helps you manage and secure computers in your environment through a combination of Windows cloud services and upgrade licensing. Windows InTune delivers cloud-based management and security capabilities through a single web-based administrative console. With Windows InTune, you can manage computers from almost anywhere." (InTune Site). These additional solutions from Microsoft offer a wide variety of tools to any organization wishing to capitalize on the benefits of cloud computing.

GOOGLE

Google, not to be left out of the cloud race and actually the first to the starting line for popular web-based applications, offers a similar suite of tools to Microsoft. Google Apps, as it is dubbed, "offers simple, powerful communication and collaboration tools for any size business – all hosted by Google to streamline setup, minimize maintenance, and reduce IT costs. Google Apps includes Gmail for business, Google Docs, Google Calendar, Google Sites, and more for $5 per user per month." (Google Apps Site)

Gmail for Business

Gmail is an incredibly popular, free email program that any computer user can sign up for at no cost. "It offers 25 GB of storage per user, powerful spam filtering, BlackBerry and Outlook interoperability, and a 99.9% uptime SLA." (Google Apps Site). Since Gmail is a commonly used free consumer product, adoption for users is a seamless transition. Integrated is a voice, video, and IM system providing a simplistic way for employees to communicate.

Additional capabilities include synchronization with popular mobile devices, spam filtering, and powerful searching options.

Google Docs

Google Docs allows you to create "web-based documents, spreadsheets, drawings and presentations that let users edit the same file at the same time so you always have the latest version." (Google Docs Site). Since Google Docs was born on the Internet, it uses a streamlined and truly collaborative business software suite that lives entirely on the web. "Google Docs works in the browser on PC, Mac, and Linux computers, and supports popular formats such as .doc, .xls, .ppt, and .pdf." (Google Docs Site). Google was the one first to provide a web-based solution for common business applications, and thus have developed a very efficient and collaborative user experience. Microsoft was a bit later to market with their tools and is still partly tied to the desktop version to ensure complete Office capabilities.

Google Calendar

Google Calendar is "a web-based calendar application that enables employees to work together efficiently and helps minimize costs and IT hassles."(Google Calendar Site). The offerings are similar to Microsoft, but again, are completely web-based and do not require significant client installations. Benefits include, "easily schedule appointments; share project calendars; access with your mobile device; and publish calendars." (Google Calendar Site). Full integration with Gmail creates a cohesive combination of email and calendar tools, similar to many other software companies. Google's advantage is the complete immersion to the web.

Google Sites

Google Sites "is an easy way to create secure web pages for intranets and team projects. No coding or HTML required." (Google Sites Site). A capable web collaboration tool, Google Sites provides access to company documents, permission control, and cross-browser compatibility. While not as robust as Microsoft's SharePoint Online tool, Google Sites is a competitor in web-based content management. Google offers a hearty suite of cloud applications which are competitively priced and feature rich. Google touts "over 4 million businesses" are using their cloud apps, with some heavy hitters taking the plunge. National Geographic, Land Rover, Jaguar, Sales Force, and even Motorola use some form of Google Apps for Business. Like Microsoft, there are various subscription plans based on a per user basis.

OFFICE 365 VERSUS GOOGLE APPS FOR BUSINESS

Office 365 and Google Apps for Business offer compelling reasons to look to the cloud for business application solutions. The most challenging part for a business is to decide what feature set and tools are necessary to run communication and storage requirements. Where Microsoft and Google have disadvantages, each offers their own unique advantages.

Google does have a lead over other traditionally desktop only software companies: almost all their applications were born and live on Google's servers in the cloud. Google is adept at innovating at the speed of the internet. Microsoft has a challenge ahead of them, but back their offerings with the same names as the unbelievably successful Office, SharePoint, and Lync brand names.

Other software companies are not lying down to watch the clouds float by. Oracle, IBM, Intel, and others are staring to offer their own, powerful enterprise level services. As the landscape changes more and more, software will move from the desktop and our own servers to software vendors and their servers waiting to churn out new applications like a cloud maker.

Benefits in the Hospitality Industry

While there may be a plethora of other software as a service (SAAS) packages available, this article has focused solely on three core business applications: email, web conferencing with communications, and web portal hosting. To review all available clouds services available to an industry would be a much larger undertaking. Illustrating all the benefits of moving to cloud requires a few hospitality business scenarios to create a real world frame to draw and accurate

picture. From a small bed and breakfast to a chain of internationally and geographically separated hotels; from an Indian casino to a multi-billion dollar Las Vegas resort; to a family run restaurant to hundreds of coffee shops around the world; all channels in the hospitality industry can benefit from using some form of cloud services.

Scenario 1

A twenty four room hotel in Vermont atop the Green Mountains, open only three seasons of the year and with just 25 workers needs to keep in communication with employees and distribute important company documentation, provide a way to market and advertise to previous customers, and needs to communicate with suppliers and distributors throughout off and peak times.

Both Office 365 and Google Apps for Business provide the means to accomplish all of these requirements.

To keep in contact with employees, Exchange Online and Gmail for Business offer a simplistic way to give employees a way to receive and send email. Both offer web-based interfaces for managing and sending communications. When out of season, management can continue to keep a dialog going about upcoming changes and updates to hotel processes and procedures. At around $5 a month per employee, this hotel could easily provide these services at a minimal cost.

Providing marketing and advertising to their customers, SharePoint Online and Google Docs/Sites can provide a way to share discounts, seasonal menus, and get customer feedback about customer experience. SharePoint and Docs/Sites provides discussion boards, surveys, document sharing, and calendaring through external website access that can be provided to anyone – customer, employee, and vendor. No high-end development knowledge is required to setup, maintain, and manage these sites. Communicating with suppliers and vendors is easily handled through Lync Online or another Google service called Google+. Minimal configuration of a client machine opens up the ability for your contacts to video chat, instant message, and conduct quick ad hoc meetings on the spot. With minimal expenses, robust feature sets, and easy setup and management this small hotel high above the Green Mountains could definitely handle providing customers, employees, and suppliers a simple way to communicate and manage their needs.

Scenario 2

A large, geographically dispersed coffee shop company needs to provide all employees a way to access communications and receive updates on coffee shop procedure changes. Most of the shops only have one computer and managers are usually the only ones who access the system. Exchange Online and Gmail for Business provide the perfect option to handle this need. Since both offer web-based access to view, create, and manage email the one machine limitation would not be a hindrance to using this technology.

SUMMARY

Regardless of the type of business within the hospitality industry, cloud computing, or as described in this paper, SaaS, can provide a wide variety of technology solutions and cost effective ways to implement business applications. Beyond just the tools mentioned previously, there is an abundance of other services that are beyond the three core business applications of email, web conferencing/instant messaging, and portal hosting.

They key to implementing cloud technologies is to research and educate business decision makers on choosing the right tools for the needs of the business. Not every cloud solution is the best fit for a company. With any good technology comes the need to compare other products and make the right decisions. Cloud services are but one solution in a sky of options.

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