

Cloud Computing:

What is it and why should it matter to retailers?

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What is cloud computing and why should it matter to online retailers?

Retail has always relied on technology, online retail even more so. However, it is not always possible to build and manage everything in-house and on-site; and that is exactly where cloud computing comes in. In essence cloud computing simply means moving things from on-site servers to remote data centres. Business software hosted and run on these servers can then be delivered to users' web browsers directly from the cloud and this is known as Software as a Service (SaaS).

Other benefits of the SaaS model and the reason it's gaining in popularity include; low risk, minimal investment, pay-as-you-go, leveraging flexibility and economies of scale, as well as gaining access to the resource and expertise of the cloud/SaaS provider.

Trends – Cloud Computing is gaining in popularity

Whilst the terms Software as a Service and Cloud Computing have been bandied around the IT industry for several years, these technologies are now both mature and increasingly mainstream. Two years ago people may not have ever heard of Cloud Computing, yet today it is one of the world's largest growth industries. Today many data centres are the size of small towns, and the vast majority of new servers are being installed into "the cloud".

According to a recent report from Gartner, the use of SaaS solutions is maturing, with more than 40% of organisations using SaaS for more than three years. Nearly 90% of organisations expect to maintain or grow their use of SaaS, with more than one third transitioning from on-premises to SaaS. They also forecast a continued growth with a 17.7% compound annual growth rate through 2013.

Worldwide Software Revenue for SaaS Delivery Within the Enterprise Application Software Markets (Rounded to the nearest Million £)

	2009	2008
Content, Communications and Collaboration (CCC)	1,664	1,385
Office Suites	44	36
Digital Content Creation (DCC)	40	28
Customer Relationship Management (CRM)	1,475	1,211
Enterprise Resource Planning (ERP)	802	761
Supply Chain Management (SCM)	534	459
Other Application Software	305	250
Total Enterprise Software	4,865	4,133

Source: Gartner (November 2009)



Today's turbulent economic environment has also been a catalyst for its growth. Nearly every segment of technology faces significant challenges, but cloud computing and SaaS is perfectly positioned to capitalise on the economic uncertainty. The ease and speed of deployment as well as the pay-as-you-go model forgoing the hassles, uncertainties, added costs or risks associated with traditional, on-premise hardware and software, have ensured its success.

SaaS and its relatives in the cloud

- **SaaS**

This type of cloud computing is where a single instance of an application runs on a server and is delivered through a browser to thousands of customers using multitenant (multiple "tenants") software architecture. On the customer side, it means no upfront investment in servers or software licensing; on the provider side, with just one application to maintain, costs are low compared to conventional hosting.

- **Web services in the cloud**

Closely related to SaaS, Web service providers offer Application Program Interfaces (APIs) that enable developers to exploit functionality over the Internet, rather than delivering full-blown applications. An API is an interface implemented by a software program to enable interaction with other software, much in the same way that a user interface facilitates interaction between humans and computers

- **Platform as a service**

Another SaaS variation. This form of cloud computing delivers development environments as a service. You build your own applications that run on the provider's infrastructure and are delivered to your users via the Internet from the provider's servers. Like Legos, these services are constrained by the vendor's design and capabilities, so you don't get complete freedom, but you do get predictability and pre-integration.

- **MSP (managed service providers)**

One of the oldest forms of cloud computing, a managed service is basically an application exposed to IT rather than to end-users, such as a virus scanning service for e-mail or an application monitoring service (which Mercury, among others, provides).

- **Service commerce platforms**

A hybrid of SaaS and MSP, this cloud computing service offers a service hub that users interact with. They're most common in trading environments, such as expense management systems that allow users to order travel or secretarial services from a common platform that then coordinates the service delivery



and pricing within the specifications set by the user. Think of it as an automated service bureau.

SaaS vs ASP

SaaS applications differ from ASP applications in that SaaS solutions are developed specifically to leverage web technologies such as a browser, thereby making them web-native. The database design and architecture of SaaS applications are specifically built with multi-tenancy in mind, thereby enabling multiple tenants (customers or users) to access a shared data model. In this way the same features and functionality are offered to all users, who then benefit from a better managed, maintained and supported solution. SaaS leverages virtualisation to share resources efficiently and effectively, delivering significant economies of scale and ensuring excellent server utilisation rates.

An ASP (application service provider) application on the other hand in most cases is a typical Client-Server application (meant for a single client) that is accessed over the internet and therefore includes an independent instance of Database and feature-set that is specifically meant for a unique user. The hardware and software resources are not shared, as under the SaaS model, delivering only minor economies of scale in areas such as system management and support. As a result, the servers remain underutilised and organisations have the same constraints regarding flexibility and scalability as those running on-premises systems.

Many people are moving away from the ASP model in favour of SaaS for a number of reasons:

- ASP has a higher set-up cost
- Billing for ASP is per server or per user, whereas SaaS can be billed per bytes transferred.
- The growing strength of interfaces such as web services and mashups means better SaaS deliverability
- Ubiquitous, higher speed networks increase the usability of SaaS
- The flexibility of the SaaS subscription model allows a much more flexible adoption approach
- ASPs were undifferentiated; SaaS providers actually have different propositions, fulfilling different needs
- SaaS has proven not only to be for the IT-strapped small and mid-sized businesses anymore but is now used by companies of all sizes



Advantages of SaaS

- **Cost**

There is no capital outlay or high setup costs as fees are typically paid on a monthly subscription basis and can be adapted in line with business needs. This flexible pay-as-you-go model means operational IT costs are tightly aligned with organisational requirements. This enables retailers to reduce costs during quiet sales periods and ramp up during periods of high demand.

- **Scalable: Easy to grow your applications**

The SaaS model enables the supplier to add or remove server resources as required, ensuring the monthly fee reflects an organisation's demand, from adding or removing users, to adding or removing software modules used to support new or temporary business opportunities.

- **Enable rapid business change**

The pay-as-you-go method (only paying for what you need) means trailing and enabling new business opportunities is quick and easy and relatively low risk with no fear of incurring long term IT costs. If the new venture fails to meet expectations, that functionality can be switched off and the costs removed just as quickly as it was switched on. In this way SaaS fundamentally reduces the cost of innovation.

- **Achieving economies of scale**

With the resources and expertise of the SaaS service provider at the users' disposal, their requirements can grow with no fear of being held back by capacity issues.

- **Staying up-to-date with the latest technology**

Through the SaaS arrangement the supplier is able to accelerate the delivery of product enhancements owing to the economies of scale. New functionality can be delivered to all tenants more quickly, providing a fast track to product enhancements.

- **Everything managed under service level agreements (SLAs)**

Ensuring that you know exactly the service you will be receiving and that the service provider lives up to its commitments.

- **Environmentally friendly**

Overall environmental benefit (lower carbon emissions) achieved through many users efficiently sharing large systems.



And the concerns

- **What happens if your supplier suddenly decides to stop supporting a product or system you've come to depend on?**

With its rise in popularity and more companies offering SaaS services, it is now easier than ever to switch suppliers. It's important to research your proposed supplier thoroughly and research their company history, client base and partners to determine the reliability and pedigree of the company before deciding to use them. Asking the company to register with a source code escrow is another possibility to ensure the continued use of the SaaS even if the company does discontinue. An escrow agent is a third party who will hold onto a version of the source code which is to be released by the agent to either party upon specific terms of the escrow agreement, such as the company going into receivership.

- **Security and privacy issues**

Organisations are also concerned about the security of key data – especially customer data. There often the mistaken perception that data held on-premises is more secure. But in many cases the knowledge required to keep the data secure is not available within the company. Whereas companies providing cloud services, heavily invest, and continue to invest, in knowledge and processes to keep data secure. With the addition of clauses in the SLA for backups and provisions for lost data, organisations can end up far better protected.

- **Restricted and out-of-date services**

If you're buying in services, you can buy only what people are providing, so you may be restricted to off-the-peg solutions rather than ones that precisely meet your needs. The vendor may also become static and not upgrade the solution with the changing times. Customer case studies are useful to work out whether the solution on offer will suit your needs and you should ask if you can a development log or history to determine the company's rate of advancement.

- **SaaS is dependent on an internet connection, what happens if something happens to that?**

It's important to realise in SaaS there are actually three parties, the software provider, the software user and your ISP which is the conduit between the two. It is therefore important to research your ISP before signing up with them to ensure maximum up-time. There should never be a critical failure of the internet as a whole as the internet has built in resilience because traffic can always find other IP address routes to go through. The SaaS company should have failover and disaster recovery systems in place should their hosting servers and/or ISP go down.



Cloud computing

What does this mean for retailers?

Retailers need to adapt to survive and change constantly with the moving times. However in the current climate expansion plans are undoubtedly curbed by the need to review operational processes driving down costs and improving efficiency. The challenge is to create a flexible, adaptable organisation that can streamline operations whilst also enabling low risk expansion.

By opting to purchase technology via the SaaS approach, retailers can achieve expansion objectives whilst controlling costs and minimising corporate risk.

The cost and flexibility of this model compares very favourably with the traditional on-site IT investment undertaken by retailers in the past which has led many to over invest in expensive resources just to cope with the anticipated short lived peak shopping periods such as Christmas. This resource then remains underused for the rest of the year.

About MetaPack

Established in 1999 during the dot.com boom, MetaPack's delivery software now manages the deliveries for 1 in 10 online retailers.

Originally created as single instance software for large retailers such as Boots, it has been adapted and perfected over the years to become a SaaS platform serving everyone from the larger brands such as John Lewis, Asos, Dixons, Laura Ashley and M&S to a whole host of smaller retailers sending anything from 20 parcels a day. MetaPack's uptime has been 99.8% to date.



Appendix 1: Some examples of Cloud Computing

Applications

- Peer-to-peer / volunteer computing (BOINC, Skype)
- Web applications (Webmail, Facebook, Twitter, YouTube, Flickr)
- Security as a service (MessageLabs, Purewire, ScanSafe, Zscaler)
- Software as a service (Google Apps, Salesforce, Zoho, MetaPack)
- Software plus services (Microsoft Online Services)
- Storage [Distributed]
 - Content distribution (BitTorrent, Amazon CloudFront)
 - Synchronisation (Live Mesh)

Platform

- Services
 - Identity (OAuth, OpenID)
 - Payments (Amazon Flexible Payments Service, Google Checkout, PayPal)
 - Search (Alexa, Google Custom Search, Yahoo! BOSS)
 - Real-world (Amazon Mechanical Turk)
- Solution stacks
 - Java (Google App Engine)
 - PHP (Rackspace Cloud Sites)
 - Python Django (Google App Engine)
 - Ruby on Rails (Engine Yard, Heroku)
 - ColdFusion (Adobe Systems)
 - .NET (Azure Services Platform, Rackspace Cloud Sites)
 - Proprietary (Caspio, Force.com, Wolf Frameworks)
- Storage [Structured]
 - Databases (Amazon SimpleDB, BigTable)
 - File storage (Amazon S3, Nirvanix, Rackspace Cloud Files)
 - Queues (Amazon SQS)

Infrastructure

- Compute (Amazon CloudWatch, RightScale)
 - Physical machines
 - Virtual machines (Amazon EC2, GoGrid, Rackspace Cloud Servers)
 - OS-level virtualisation
- Network (Amazon VPC)
- Storage [Raw] (Amazon EBS)

Source: Wikipedia