

How are SaaS and Cloud computing related?

By Ranjit Nayak

With the terms “Cloud computing” being used by pretty much all vendors, like many, I pondered on its relationship to Software as a service (SaaS). Are they synonymous? If not, what is the overlap? Analysts, reporters and vendors, all seem to have their own definitions for the two concepts.

[Gartner](#), a research firm, defines SaaS as “hosted software based on a single set of common code and data definitions that are consumed in a one-to-many model by all contracted customers, at any time, on a pay-for-use basis, or as a subscription based on usage metrics”. The pay-for-use is often construed to be a monthly subscription fee but this is different from the pay-for-use based on usage as we see in our electricity utility cell phone bills. According to [internet news](#) “Software as a Service may also be referred to as simply, hosted applications”. The second description implies that a software vendor could get a hosting company to host an instance of the software and voila, they now have SaaS offering. This is not different from an ASP (Application Service Provider) model. ASPs would buy software from a vendor and then operate the same in data centers and charge companies for operations and maintenance.

So let us see how Salesforce.com the poster child of the SaaS industry fits in to the definition of SaaS. Yes, there is a hosted solution, and yes they charge an annual subscription fee. They also charge different fees based on the features available for use. However, there is a significant characteristic which differentiates salesforce.com from an ASP - and that is “multitenancy”. This means salesforce.com does not create a new instance of the software installation for every new customer. A [businessweek special report](#) on cloud computing does’nt explicitly call salesforce.com a cloud provider but the description identifies it as one.

Now let us look at Cloud computing. Cloud computing seems to have originated from the hardware side of computing, precursors being utility computing and grid computing. Amazon’s EC2 offering has been referred to as “Hardware as a service” (HaaS) in the near past. A blog entry on [gigaom.com](#), contrasts utility computing from cloud computing. In summary the author says “Utility computing relates to the business model in which application infrastructure resources — hardware and/or software — are delivered. While cloud computing relates to the way we design, build, deploy and run applications that operate in a virtualized environment, sharing resources and boasting the ability to dynamically grow, shrink and self-heal.” With this description it feels like every new technology with a potential upside is part of cloud computing. An article in the Jan 2009 edition IEEE Computer magazine has a more agreeable description of Cloud computing and related concepts. According to the article, major ingredients of the Cloud computing model are, a) distributed networked servers for applications and data, b) virtualization and grid technology for dynamic sizing, c) APIs and communication capability over the internet and finally d) a usage monitoring and billing mechanism.

The Cloud Computing therefore includes all the hardware and software components needed to satisfy the pre-requisites listed above. This is not very different from what SaaS vendors need or currently use. Based on this description of Cloud computing, it is clear to me that SaaS vendors

must adopt the cloud computing infrastructure to deliver services and customer value. As such, SaaS is software delivered using cloud computing infrastructure. The article in the IEEE magazine shows this relationship in a visual representation.