

Chasing the Cloud

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Steve Banker

Cloud-based services evolving and expanding; on the threshold of moving into supply chain applications.

Cloud computing (aka The Cloud) is hot. How hot? Well, Hewlett-Packard, as one example, plans to invest \$1-billion to develop the next generation of cloud computing services. Additionally, the Cloud continues to be the main topic of commentaries, analyses, research, webinars and discussions while its deployment escalates in business, retail and consumer sectors, among others.

Today, software providers and others are on the cusp of making a push for Cloud-based deployment options for supply chain applications.

About the Cloud

Despite the early success of Cloud experiences, there remains a lack of a standard Cloud definition. Part of the rationale advanced is that the Cloud is still relatively new and evolving and that time is still needed for the nomenclature to be debated and resolved. However, there is no absence of descriptions of the Cloud concept:

- **“Cloud computing** is a style of computing in which scalable and elastic IT-enabled capabilities are delivered as a service to external customers using Internet technologies.” (Gartner, Inc., Stamford, Conn.)
- **“Cloud computing** is the set of disciplines, technologies and business models used to deploy IT capabilities as on-demand services.” (Burton Group, Midvale, Utah)
- **“The Cloud** is the next logical step in the web-enabled technology revolution. [It] is the logical extension and integration of SaaS and pay-as-you-go web-based storage.” (Sourcing Innovation blog: “Get Your Head in the Clouds!”)

“Cloud computing is the emerging technology deployment option that allows data and application functionality to be unconstrained by the location of the hardware infrastructure that hosts the application or data,” says Chad Collins, vice president, marketing and strategy, HighJump Software, Eden Prairie, Minn. “It is enabled by the Internet which provides access to infrastructure that is typically located outside of the user’s firewall.” Consumer examples of cloud computing include Internet-based e-mail, social networking applications and various mapping/driving direction applications.

Steve Banker, service director, supply chain management, ARC Advisory Group, Dedham, Mass., explains, “Cloud computing involves getting computer solutions via the Internet that in

the past would have resided on your PC or an internal network of servers and PCs.” He cites solutions such as:

- **Database services** (storing data on a database that is accessed via the Internet but which is not owned by your company and resides outside of your company’s local network)
- **Server services** (connecting to servers via the Internet that provide computing power but which are not owned by your company)
- **Content services** (accessing information that used to be saved in paper documents or on local PCs/Servers via the Internet)
- **Application services** (accessing software hosted elsewhere via the web)

When it comes to Cloud solutions, Banker says, “Some are free (Wikipedia), some are paid by advertisers (Google search) and some are leased, paid for via a monthly subscription fee (SaaS).”

Cloud and SaaS

When quickly scanning some of the explanations it is easy to assume that Cloud and SaaS (Software as a Service) are one in the same. In many examples Cloud and on-demand or SaaS are used interchangeably. In fact, one explanation stated that the Cloud is just another delivery method for multi-tenant SaaS.

According to Collins, “Because SaaS is a subset of Cloud computing, the two are often used interchangeably when discussing enterprise software applications.” However, he explains, SaaS typically refers to enterprise software applications that are hosted by the software provider and sold using subscriptions as opposed to perpetual licenses.

Jim Burleigh, former CEO, SmartTurn, now head of RedPrairie’s On-Demand WMS group (San Francisco), likens Cloud computing to an electricity distribution network. “You can have and operate your own generator to supply your power needs, or you can tap into a distribution network for electricity as you need it,” he explains. “That’s what Cloud computing is to me: a shared utility of computing power, a shared utility of storage capability, a shared utility of back-up capability.”

Specifically, he explains, “SaaS is having your application (WMS, TMS for example) as a shared utility. Having your infrastructure or platform as a shared utility—that’s Cloud.”

Cloud in the DC

While the Cloud phenomenon has been a relatively late arrival for supply chain applications, the activity nonetheless is expected to be robust as software providers develop, modify, and make available their solutions for Cloud. Two recent industry events indicate how this may occur over time. HighJump Software, for one, announced it is offering its warehouse management system in a Cloud delivery format. The hosted WMS will have the same features and functionality as the on-premise WMS, according to Collins, as well as the ability to build unique business processes using the HighJump adaptability tool. He further explained that in their Cloud deployment option the infrastructure is provided by a third party provider and the application is provided by HighJump.

He also shared that HighJump “already offers a Cloud-based option for TMS and route accounting systems.”

In the second industry development, RedPrairie Corporation (Waukesha, Wisc.) recently announced its acquisition of SmartTurn, an on-demand inventory and WMS provider. The acquisition adds a multi-tenant SaaS WMS to RedPrairie’s E2e productivity suite and creates a company, according to the announcement, with a WMS solution for distribution operations of all sizes and levels of complexity. Mike Mayoras, RedPrairie CEO, said the company will offer a RedPrairie Integration Module that “connects On-Demand WMS to our flagship WMS product.”

SmartTurn’s inventory and WMS solution will be rebranded as RedPrairie’s On-Demand WMS and will focus on less complex distribution operations.

Banker adds, “RedPrairie was already offering ‘Cloud’ services in the WMS area, hosting the database and servers offsite with the customers accessing the WMS solution via the Internet, and paying a monthly leasing fee.”

WMS is not the only application favored for Cloud delivery; so is TMS. “There has been significant growth in alternate TMS sourcing options—most notably the growing adoption and popularity of outsourced hosting such as SaaS and Cloud computing, which have added a new dimension to the marketplace,” according to

“Having your infrastructure or platform as a shared utility—that’s Cloud.”

Jim Burleigh

continued on page 10

"Transportation Lifecycle Management; Flexible Deployment Options for an Expanding Market," a white paper from Manhattan Associates, Inc., Atlanta.

An interesting observation in the paper is that determining whether SaaS or Cloud is the right solution has less to do with company size and revenue and more to do with the maturity or complexity of your overall transportation operation. "We recommend that our customers consider the operational maturity to determine what deployment option makes the most sense instead of their annual revenue," the white paper explains.

The three common deployment options include:

- **On premise.** An on-premise deployment strategy provides maximum flexibility and control. This deployment, as described in the white paper, "implies that the software will be hosted in your IT operation, on your hardware and provides you with unlimited flexibility in terms of configuring and modifying the software to the unique needs of your operation."
- **Public Cloud** (hosted multi-tenant/single instance). This deployment scenario "provides lower upfront costs and faster speed-to-benefit by leveraging an existing implementation that is pre-configured and ready to use. This model eliminates the need for an upfront investment in either a software license or

hardware." Banker notes that this option features software hosted "somewhere out there beyond our firewall that is based on just one instance of the software, but which many companies or users can utilize simultaneously." As an example he cites MapQuest, a routing application based on a single piece of software code but which many people (multi-tenant) are using at the same time.

■ **Private Cloud** (hosted single tenant/single instance).

This deployment strategy combines the flexibility of an on-premise option with lower up-front capital expenditures available from an existing SaaS or Cloud operational environment.

Cloud benefits

Cloud-based solutions are becoming more common alternatives to on-premise software because businesses are looking for ways to reduce their IT requirements and simplify maintenance and upgrades. As the system's infrastructure is based in an off-site, secure data center, according to Collins, Cloud solutions eliminate up-front capital expense and reduce the risk and time required by on-premise implementations.

"There's different benefits for different situations,"

SIDEBAR

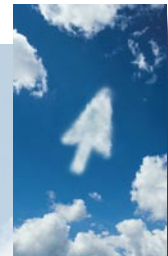
Is the Cloud the Answer for Your DC?

"Determining if a WMS with a Cloud delivery model is right for you depends on your specific functional needs and staffing priorities," notes "WMS in the Cloud; Real World Business Option or Just Fluff?" a HighJump Software white paper. The key benefits a Cloud option provides over a traditional on-site hosted solution are that you "gain the new WMS capabilities you want for your business, and the solution is implemented more quickly and with less strain on your IT staff—all without the large up-front capital expense."

To analyze whether the Cloud is the best option for your business, examine the various solutions that are available, the strengths and weaknesses associated with each, then calculate the costs of each as they relate to your operation. Other factors/issues to consider as outlined in the white paper:

- Do you have the expertise and the extra IT staff to dedicate to implementing and maintaining the new application?
- Is your current infrastructure over-taxed and in need of an overhaul?
- Do you have a pressing need for the new WMS capabilities, necessitating a faster implementation?
- Have you included operational costs such as energy, personnel and capital costs, including servers, storage and software, when comparing Cloud costs to hosting the same service internally?
- Have you considered the benefit of subscription-based pricing of the Cloud option?

And as a final recommendation: "Discuss the differences and the benefits with your operations and IT folks to determine what option is right for your business."




maintains Burleigh. "But, in general, the Cloud or SaaS approach is much less expensive because the costs for management, maintenance, upgrading and tuning, and other costs are actually shared among a large base of users resulting in each paying a much smaller amount." The alternative, he explains, for an individual DC that desires to have a web front end on their application, would require a firewall, a web server, an application server, a database server, storage, and to then multiply it all by a factor of two to insure a "failover" capability to avoid having the system go down.

"That eliminates about 95 percent of the facilities because they couldn't afford all that technology, plus the technicians needed for staffing," Burleigh explains. "At a minimum most facilities would sacrifice on the failover part and hope that the system wouldn't fail." He further maintains that with the Cloud, "you achieve a higher level of security, redundancy and performance than most facilities will ever have because they will not expend the capital required for the technical wherewithal to do all that."

Cloud deployment options provide a lower cost of ownership because you don't need to maintain server infrastructure, storage, hardware, maintenance costs on hardware and software, and IT staff to administer the infrastructure, according to Collins.

In addition, "The software will always be up-to-date and users will not need to do upgrades to receive functional enhancements," says Banker. Further, he adds, "product enhancements are added on an ongoing basis and typically are cutover into production in the wee hours of the morning when few companies are operating."

Banker also observes that multi-tenant software has the reputation of being simpler than traditional software. "These solutions were designed for smaller facilities using paper-based processes," he explains. "The payback, usually less than six months, comes in the form of almost perfect inventory accuracy." However, he's recently become aware of multi-tenant solutions that "while not as complex as traditional Tier 1 WMS, do offer benefits in the area of productivity improvements."

Burleigh is optimistic about the future. "Generically, for the industry, what you'll see evolve over the next ten years or so, is a very strong Cloud, SaaS supply chain platform and assortment of applications, some of which other functional IT areas have but are not yet available for the supply chain." 

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