# To Cloud Or Not?

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Cloud technology is proliferating throughout corporations around the globe, and manufacturing companies have been among the earliest adopters of cloud-based solutions. According to the July 2012 IDC Manufacturing Insights report, "Business Strategy: Cloud Computing in Manufacturing", 22 percent of manufacturers worldwide have already implemented cloud-based computing systems, and an additional 45 percent of those surveyed are actively evaluating cloud deployments to replace internally-managed IT infrastructures over the next 24 months. For the large number of manufacturers considering moving to the cloud, this article will provide a clear analysis of how cloud-based systems differ in their capabilities and costs from the traditional on-premise and hosted IT alternatives.

The manufacturing industry's move towards the cloud mirrors the prevailing trend towards cloud adoption in the broader IT market. According to Gartner research, the global cloud services market has tripled in size during the last 5 years, with an accelerating growth curve that is expected to continue well into the next decade. Merrill Lynch, calculates that the 2012 annual global market for cloud technology will surge to $95B from $20B today.

New technologies are fueling a rapid decline in storage and bandwidth pricing, important economic factors which drive the selection of cloud-based solutions over on-premise solutions for manufacturers of all sizes.

## Evolution

The Internet has been publicly available for approximately 25 years. The first servers on the Internet were storage devices intended for data and applications to be shared globally. These servers offered easily available multi-location access, plus efficient scalability, yet they were very costly and the applications were limited in their scope; pricing was relatively inflexible. By utilizing new technology, today's cloud services improve on the original Internet model by offering lower and more flexibly priced access to a broader range of applications.

## The Choices

Companies must evaluate the operational and economic benefits of different IT models for application and data management in order to determine whether the cloud best serves their business requirements. The three IT models discussed here differ in how their underlying software and hardware systems are designed and delivered. From the customer standpoint, these distinctions in design and delivery

amount to a trade-off between the level of upfront monetary investment required for a given IT model and the amount of control over customization that each model allows. On one end of the scale, on-premise solutions require the largest up-front investment and the most effort to maintain, while offering clients the greatest amount of control over their infrastructure; true cloud solutions, on the opposite end of the scale, offer the most cost-effective hardware and software investment at the expense of customizability and control.

The following sections provide a more detailed breakdown of each IT model's cost structure:

*On-Premise Solutions*

Traditional on-premise IT solutions have high, initial fixed costs, usually classified as a capital expenditure (CapEx) for hardware and software license purchases. In addition to the purchase of these assets, there is a large and often escalating variable cost, classified as operating expense (OpEx). The OpEx component comprises system installation and setup, ongoing patch and configuration management, version update and deployment, software maintenance fees, power and cooling costs, plus salaries for IT personnel to perform all of the management tasks. According to a 2012 IDC report, "The Cost of Retaining Aging IT Infrastructure", costs for server maintenance and management have soared during the last decade. The costs for maintenance and management have grown 4 times faster than server acquisition costs, while power and cooling have grown 8 times faster. Moreover, hardware and software assets age, and usually become obsolete after a 3-year life span. Obsolescence mandates additional CapEx investment to replace aging assets with new technology in order to assure maximum operational efficiency and productivity. Lastly, both the CapEx and Opex costs of on-premise solutions escalate as the solutions are scaled to meet the growth requirements of the business.

*Hosted Solutions*

A hosted solution is a hybrid IT model that reduces or eliminates some CapEx by utilizing cloud infrastructure or a software vendor's own infrastructure. Hosted solutions generally provide off-site, third-party ownership and administration of the hardware infrastructure and data storage resources. Hosted solutions offer lower CapEx costs by eliminating the hardware purchase element of on-premise solutions; the software licensing, upgrade, and maintenance costs, however, remain a corporate responsibility along with application and data management, which consume precious IT resources.

Third-party hosted solutions are available in two forms: Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS). PaaS offerings allow companies to deploy developed or acquired applications on third-party-hosted cloud infrastructure using programming languages and tools supported by the infrastructure provider. The third-party provider manages and controls the underlying cloud infrastructure including network, servers, operating systems, or storage, and the client IT staff is responsible for management of the deployed applications and possibly application

hosting environment configurations. IaaS offerings require additional client IT resources because they also allow companies to provision processing, storage, networks, and other fundamental computing resources and thenthemselves deploy and run software, which can include operating systems, applications and even network software such as firewalls. In both cases, the third party provider manages the underlying cloud infrastructure or hardware, but the client business has control over, and incurs, both CapEx and OpEx expenses for operating systems, storage, deployed applications, and sometimes select networking components. User fees can also be a component of hosted solutions.

*True Cloud (Software-as-a-Service)*

When compared to on-premise and hosted solutions, the operational and economic benefits of true cloud services are compelling. True SaaS platforms provide businesses with the ability to use the cloud solution provider's application running on a cloud infrastructure that may be owned and managed by either a data center or partially by the cloud solution provider itself. The applications are web-accessible from a variety of client devices yielding anytime, anywhere, mobile access. The cloud solution provider or the data center, or a combination of both, perform all of the hardware and software maintenance as well as management of the underlying cloud infrastructure including network, servers, operating systems, storage, and application capabilities, with the possible exception of limited user-specific application configuration settings. The customer can scale up or scale down without pain or extra expense.

Cloud services eliminate the long-term commitment, unnecessary expenses, and inefficiencies of both hosted and on-premise solutions while offering simplicity, scalability and cost-effective operation. In addition, true cloud solutions free precious IT resources and support disaster recovery of valuable corporate data, which can assist companies in meeting customer requirements and compliance regulations. Companies benefitfrom the removal ofall CapExand OpEx costs associated with the on-premise and hosted solutions. Equally important, the company is not distracted from focusing on its core responsibility – growing the business.

The term cloud computing can be ambiguous, and not all cloud services are created equal. There are significant differences among architectures of the various cloud offerings. As described, hosted services are often inaccurately described as “cloud solutions”, but they lack some of the elements that make true cloud computing so compelling. Mainly, these hosted solutions lack truly shared resources and the ability to scale up or scale down painlessly. Businesses worldwide are moving to cloud computing and the real-time, true cloud is driving the adoption rate because of the undeniable business benefits:

- *Cost-Effectiveness:* Businesses that use cloud applications reduce costs on many different levels – IT hardware and software expenditures are eliminated and no additional staff or support resources are needed for IT maintenance and management.

- *Ease-of-Implementation:* Moving to the cloud is simple. There is no need to provision hardware and software resources or spend time on installation and setup. Companies can be up and running quicklyand efficiently.
- *Improved Productivity:*A key benefits of a true cloud solution is that employees can access applications and data 24/7 from any location. The mobility and flexibility of cloud solutions yield maximum productivity.
- *On-the-Fly Scalability:* The flexibility to scale up or scale down to meet the needs of the business with a user-based "pay as you go" service allows businesses to easily increase their cloud usage as the business grows, or decrease spending if the business needs to scale down temporarily.
- *Disaster Recovery:* True cloud solutions provide improved business resilience. The cloud not only offers 24/7 access and operation, but also built-in redundancies to ensure information is always protected and available. This means less downtime than when managing IT in-house, plus increased compliance with regulatory mandates.
- *Green:*True cloud solutions use less energy than traditional models, which is important for cost savings and social responsibility. The energy efficiency comes from utilizing shared resources.

For a manufacturer considering a move to the cloud, it is critical to weigh customization requirements against the cloud's affordability and ease of implementation. It is important to note that, in the case of true cloud solutions, low customizability does not necessarily mean *no* customization or integration capabilities: many cloud solutions are designed to integrate seamlessly with the various ERP, CMS, and document management applications that a manufacturer already has in place, thus providing a degree of control that rivals the customizability of an on-premise infrastructure.

*Founded in 2002, Docassist specializes in cloud document management and workflow automation delivered through the secure Docassist cloud platform to mid-market and enterprise companies worldwide. Docassist streamlines manual processes and integrates with key business applications. For additional information, please visit* www.docassist.us *[1].*

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