CLOUD MYTHBUSTERS
Dispelling the Myths of Manufacturing in the Cloud
Given that the typical manufacturing employee spends up to sixty percent of their time collecting and processing information\(^1\), you would think that employers would rally behind promising new developments in technology that centralize information, standardize data formats, and facilitate more rapid communications among manufacturing sites, suppliers, vendors and more.

That development is “the cloud”: technically speaking, it refers to the use of computers that communicate to each other via real-time networks such as the Internet. But in business speak, it means access to computer power liberated from the obligations of maintaining your own hardware or software.

With cloud computing, every authorized person can have access to the same information at the same time, regardless of device or location. Physical barriers to information dissolve, while manufacturers can open new opportunities for remote collaboration or control. Cloud-based solutions can enable real-time visibility into the supply chain, support lean manufacturing processes, and automate the data collection necessary for effective quality control.

While some manufacturers, as you’ll see in this paper, have embraced cloud computing, many others are reluctant to let go of their familiar environment – and all the structures that go into supporting it. Given the stakes, it’s entirely reasonable that manufacturers prudently consider their options before making significant changes. Yet when it comes to the cloud, too many manufacturers are fogged by unreasonable assumptions, a number of unfounded myths that may be inhibiting them from seizing considerable advantages.

In *Cloud Mythbusters: Dispelling the Myths of the Manufacturing in the Cloud*, we replace fiction with fact, encouraging you to take a second look at a technology option, cloud computing, that may have sky’s-the-limit potential for your business.

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\(^1\) “Study Forecasts Rise in Manufacturing Intelligence Investments,” TechMatchPro, December 20, 2011
Sure, when you think of who’s doing business in the cloud, you think of the big consumer brands that get so much media attention, like Amazon or Hulu.

But behind the scenes, services like Salesforce.com, Dropbox and Microsoft’s Office 365 prove that the cloud is as efficient a means for delivering value to businesses as it is to consumers. In fact, many financial services and trading firms — industries that labor under intense regulatory pressures and compliance demands — depend on the cloud to fulfill their services.

Lettuce suppose you have to manage 16 locations – without a single IT team

That’s the reality of a major produce supplier who oversees sixteen food processing sites in two different parts of the country: Salinas Valley, California and Yuma, Arizona. For seven months, they operate on the coast, then when the seasons change they shift east to Arizona. In just one weekend, they move their entire facility – machines, lines, equipment – from one place to another without missing a harvesting beat. Yet, for all the sites and all the movement, the company does not have an IT team. Instead, they work with one cloud-based contractor for quality control. Through one cloud service, they have eliminated the time and dollar costs of installation and implementation, and found an efficient way to coordinate quality at all their facilities, all year round.

Consider what cloud computing could facilitate for manufacturers:

FLEXIBLE CAPACITY
Combined, automated data access and data standardization give the manufacturer a fast and effective way to adjust capacity across multiple worksites to meet changing market conditions.

STANDARDIZATION
Because of their autonomous nature, on-site solutions tend to take on a life of their own, and different terms may be used for the same process at different sites. That lack of standardization can wreak havoc at the corporate level when leaders attempt to compare or combine data from various facilities for analysis. A cloud-based system ensures all facilities are using standardized terms and measurements, making data analysis easier.

AUTOMATIC DATA ACCESS ACROSS MULTIPLE SITES
Every site with its own system remains a silo; without manual intervention, data from one site cannot inform activities at another. Cloud computing integrates data across locations, allowing both local inputs and centralized management.

REDUCED IT BURDEN
Your business is about manufacturing things, not maintaining IT departments. Cloud computing and/or cloud-based services relieve you of the burden of buying, installing, supporting and implementing IT on your own.
Just as cloud computing moves technology from your on-site locations to off-site services, it moves your financial structures as well, from a capital investment to an operations expense. Getting started on the cloud takes considerably less money than building a data center. Unlike a capital expenditure that is eventually paid off, however, the cloud is a reoccurring cost that will remain on the company books indefinitely, discouraging some companies from the cloud.

When you look long, don’t neglect to look deep. Companies often fail to consider the intangible costs required with on-site solutions such as:

- Installation and implementation costs
- The expense of assembling and sustaining an IT staff
- Hardware infrastructure costs such as electricity
- Software maintenance and upgrade expenses
- Bug-fix costs and responsibilities
- Finally, the big one: obsolescence. Your large IT investment will have to be renewed with new capital investments to keep pace with changing technology. On the cloud, your service provider keeps pace with technology for you.

In typical cloud deployments, routine maintenance, installation and upgrade costs are included in the service contract. As the technology improves, your provider automatically adjusts, sparing you the expense of new technology investments. That’s why, in both the short term and the long run, cloud solutions tend to impose a lower total cost of ownership. Not only is cloud computing much faster to deploy, it is more amenable to consistent financial management reflected in predictable, ongoing operating expenses.
In an imperfect world, there is no such thing as perfect security. The real issue isn’t whether the cloud is completely secure for everyone all the time; it’s whether or not it’s as secure as on-premise computing.

The truth is, it’s not as secure — **it’s more secure**.

In a revealing paper, *State of Cloud Security Report*, released by Alert Logic in the spring of 2012, the company revealed the results of a year-long examination of common attacks on more than 1,500 of its customers. In both levels of occurrence (percentage of customers experiencing attacks) and frequency (number of incidents per impacted customer), study participants who used on-premise computing experienced more security assaults than participants who computed on the cloud.

<table>
<thead>
<tr>
<th>Nature of attack</th>
<th>On-premise occurrence</th>
<th>Service provider (cloud) occurrence</th>
<th>On-premise frequency</th>
<th>Service provider (cloud) frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web application attack</td>
<td>71%</td>
<td>65%</td>
<td>46.6</td>
<td>32.4</td>
</tr>
<tr>
<td>Brute force</td>
<td>84%</td>
<td>44%</td>
<td>47.3</td>
<td>22.4</td>
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<tr>
<td>Reconnaissance</td>
<td>51%</td>
<td>42%</td>
<td>10.1</td>
<td>2.4</td>
</tr>
<tr>
<td>Vulnerability scan</td>
<td>54%</td>
<td>37%</td>
<td>22.9</td>
<td>21.8</td>
</tr>
<tr>
<td>Malware/botnet activity</td>
<td>43%</td>
<td>2%</td>
<td>28.1</td>
<td>8.4</td>
</tr>
<tr>
<td>Application attack</td>
<td>9%</td>
<td>2%</td>
<td>6.2</td>
<td>6.2</td>
</tr>
<tr>
<td>Misconfiguration</td>
<td>12%</td>
<td>1%</td>
<td>4.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Participants in Alert Logic’s study included businesses such as Hosting.com, LogicWorks, Rackspace and Sungard Availability Services. In every category of attack, service provider (cloud) operations experienced greater security than on-premise computer operators.

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Supply chain strategies tend to focus heavily on the managing the logistics of the supply chain – procurement, lead times, and delivery – with a focus on “Is the product in the right place at the right time?” Yet, post mortems of quality failures often reveal that the problem could have been avoided if stringent testing protocols for critical attributes were in place. The traditional model of supply chain management can leave businesses exposed to risk from the “domino effect” that results when supplier quality failures result in adverse events.

The cloud allows companies to establish collaborative networks with their suppliers that facilitate real-time analysis of process performance and critical product attributes. The new model allows supply chain managers to look further than “is the product in the right place at the right time?” to answer “is the product is in the right place at the right time and verified to the right specification?”

For suppliers, quality systems allow them to accomplish two goals: win new business and keep costs low. Those and the reasons below are driving suppliers to not just accept cloud computing connectivity, but welcome it.

Supplier advantages:

- Integrated cloud computing closes the feedback loop, giving suppliers real-time data they can apply instantly to their operations
- Rapid data access accelerates improvements and reduces waste
- Win/win: both you and your customers benefit from fewer and shorter production delays
- For suppliers, the quality control improvements they gain through cloud connectivity to one client can also be applied to improve other processes for other clients

Establishing and maintaining standardized manufacturing quality for a global enterprise poses numerous challenges and barriers not only from a geographical standpoint, but also when considering different languages, available tools and resources, and even a localized preference for varying best practices. A global food and beverage leader with a history of more than 50 years producing some of the world’s most recognizable beverages and snack foods accepted this challenge in an effort to standardize quality across 143 bottling plants worldwide. A private cloud deployment allowed the company to attain time-to-value as they fully deployed the system across 143 sites in less than 18 months.

At the time, the $20-billion company had been using a homegrown product for its quality checks that was installed on site at each of the plants. However, with the realization of the need to incorporate an off-the-shelf product with external support services, the company chose InfinityQS ProFicient. Powered by statistical process control (SPC), this software could easily accommodate the established quality checks and offered features and functionality to promote continuous improvement efforts.

For deployment, however, the prospect of travelling to each of the 143 individual plants to evaluate and upgrade the existing system was unfathomable, requiring significant time and financial commitment. As an alternative, the global F&B leader turned to cloud technology. This created an environment where the software application would be installed in one location and each plant would use a local browser or thin client to access the centralized application and database via the Internet. With the cloud, plant managers’ options expanded, as they could now incorporate tablets and mobile devices for lines that were removed from the main plant floor area or for management to access reports and analytics while away from the facility.

InfinityQS also helped the company create naming conventions based on thousands of product codes from the company’s ERP software and integrated them with the user-level, location-based permissions so that operators in the United States would only see the product codes for the beverages that were being produced for North American distribution, and so on around the world. The engineers also worked to integrate electronic data collection devices in laboratories for sample testing, on production lines to automate collection of data for net content control, HAACP compliance, federal regulations, and specification limits on PET bottle creation.

With careful planning of the underlying architecture and meticulous attention to initial deployments, the global food and beverage leader fully deployed the software to all 143 plants with 18 months.

The time to value and ongoing management benefits are compelling the manufacturer to assess other systems and identify opportunities to leverage cloud technology to overcome the challenges big data is imposing on the global supply chain.
Should you take a second look at the cloud?

Today, IT is an integral part of any manufacturing process. If your organization is considering its next step up in applying computing power to manufacturing quality, efficiency and productivity, it may be time to consider cloud-based alternatives to on-premise IT commitments.

Use the following questions to see if cloud computing might be useful to you:

- Can your current IT system coordinate and manage data from multiple sites?
- Does your system facilitate standardization of terms, measurements and processes?
- Does your current network structure allow you to match capacity to rapidly shifting market conditions?
- Are you comfortable carrying the burdens of managing your own IT?
- Do you have to manage installations, upgrades, maintenance, on your own?
- Can you get automated updates and bug fixes?
- Can you turn your IT investments into a more predictable operations expense?
- Is your on-premise technology as secure as cloud service options?
- Can you provide your suppliers with the advantages of real-time data access and analysis?

If you answered “no” to most of these questions, it may be time to say “yes” to cloud computing. Learn more about your options for quality control via the cloud by talking to an InfinityQS expert at 703-961-0200 or sales@infinityqs.com. Or visit us online at http://www.infinityqs.com.
About InfinityQS International, Inc.

InfinityQS is the global authority on Manufacturing Intelligence and real-time enterprise quality. The company’s enterprise quality hub, ProFicient, delivers real-time visibility on the shop floor, across the enterprise and throughout the supply chain, allowing top manufacturers to take control of quality. Powered by a centralized statistical process control (SPC) analysis engine, ProFicient leverages Manufacturing Intelligence to help global manufacturers improve product quality, decrease costs, maintain compliance and make strategic, data-driven business decisions. Headquartered in Fairfax, VA and founded in 1989, InfinityQS now serves more than 2,500 of the world’s top manufacturers with over 40,000 active licenses globally. For more information, visit www.infinityqs.com.