DATALOGIC
AUTOMATIC DATA CAPTURE

WHITE PAPER

CLOUD COMPUTING AND MOBILITY

Introduction

Cloud computing technology is poised to revolutionize enterprise computing by reducing costs and infrastructure complexity, while providing greater flexibility.

Gartner's 2011 CIO Agenda Survey found that technology executives expect to expand their use of cloud and software-as-a-service (SaaS) technologies significantly. Three percent of executives currently have the majority of their IT systems running in the cloud; in the next four years, that number could leap to 43%. In the future, data, applications, storage capacity, and the servers providing the processing horsepower could move out of the enterprise and into the cloud, where companies can manage an increasingly complex IT infrastructure without having to invest in costly hardware or support capabilities.

But what does this mean for line-of-business mobile applications—warehouse management, field service, sales, maintenance? Cloud solutions for these applications can provide significant savings via lower infrastructure and support costs, faster implementations, faster application updates, and more flexible configuration models.

According to data from ABI Research, by 2015 more than 240 million business customers will leverage cloud computing services via mobile devices, pushing mobile cloud revenues to $5.2 billion. Much of this growth will be driven by providing access to enterprise data via cloud-based mobile applications. A more specific study conducted by The Service Council found that 53% of field service organizations surveyed were considering or planning to leverage cloud computing in their field service operations in the next two years.

In a cloud computing model, the mobile application is accessed via the Internet instead of being installed on every mobile device or on a server at the end user facility. By removing the application, data, and processing from the mobile computer, companies can greatly reduce the time it takes to deploy a mobile solution. Cloud computing can make these systems less costly and much easier to maintain, since the software vendor is responsible for all maintenance and updates. Enterprises no longer have to keep specialized staff on hand to manage application-specific servers and other equipment. What's more, cloud-based solutions provide tremendous flexibility and potential for expansion, while keeping solution costs predictable and manageable.

While there are plenty of benefits to moving a mobile application to the cloud, it is important for companies to evaluate their application needs, network capabilities, and security concerns before making the transition. Cloud solution providers should also be carefully vetted and evaluated to ensure data security and platform stability as well.

1.0 Technology Advancements Enable Hosted Solutions

Cloud computing comes in many forms. Some enterprises use off-site cloud services for data storage and back-up; others utilize flexible server capacity from cloud providers to reduce the expense of maintaining their own IT infrastructure.

For the purposes of this white paper, we will discuss cloud-based mobile applications, which are sometimes referred to as hosted or software-as-a-service (SaaS) solutions. Under this model, the application itself resides in the cloud; end users access the solution on the mobile computers via the Internet, and data processing and storage are managed by the solution provider at remote facilities.

The ability to use remotely hosted applications on mobile computers has been enabled by the proliferation of browser-equipped hand-held devices, as well as nearly ubiquitous wireless coverage that allows employees to access broadband connections no matter where they are (whether that is via a high-speed wireless LAN or wide-area wireless network).

There are plenty of examples of hosted or cloud-based mobile applications. If you use Google Maps or G-Mail on a smartphone, then you've already used a cloud-based mobile solution. In the enterprise, Salesforce.com has been the leading example of a hosted application that includes a mobile computing component.

Mobile field service, sales, marketing, warehouse management, logistics, maintenance/repair and other types of applications can easily be migrated to the cloud. End users in these scenarios are already using mobile devices, and in many cases work remotely; removing the need to maintain application servers can greatly reduce the cost and complexity of these solutions. Further, by migrating the data from these systems to the cloud, the information can be easily accessed by any employee, from any type of device.

The savings can be significant. For example, a food manufacturer deployed Scout Software's cloud-based topShelf inventory management solution at three locations, and went live within just eight days. Further, by utilizing a cloud solution, the company saved tens of thousands of dollars that would otherwise have been spent on data servers and other upfront costs. The company went from a disjointed, spreadsheet-based inventory management process to bar code-based automation within a few days, while increasing efficiency by 25% and improving inventory accuracy.

2.0 Benefits of Cloud Computing

According to data from VDC Research, 27.1% of current enterprise mobility users are utilizing these types of hosted solutions, while another 20.8% were currently evaluating or planning to evaluate such a solution in the next 12 months.

Why would a company want to utilize a cloud-based warehouse management or field service application? The benefits come primarily through cost savings and reduced implementation complexity, as well as the mitigation of technology obsolescence.

The cost savings can be as high as one-third of the typical cost of an on-premise solution, depending on the vendor and application. IDC pegged the savings for one specific cloud-based application platform at an average 54% reduction in total cost of ownership, and a 76% reduction in development and deployment time for the solution.

With a traditional premise-based solution, companies must invest in servers to host the application, and potentially incur downtime while the new equipment is installed. There is a large upfront fee to purchase the software (including licenses or seats), and IT staff must be trained to support the new system. All of these costs are reduced or eliminated in a cloud environment.

Cloud-based solutions can be up in running in a day (or even a few hours) rather than installed over several weeks—speed of deployment, in fact, was listed as the most important benefit by respondents in the VDC Research survey. If the software is upgraded, IT staff no longer have to spend time pushing updates out to each mobile device; the new functionality is available immediately.

The vendor is completely responsible for maintaining the servers, managing the upgrades, and addressing any support issues. Because the solution is available as a subscription, set-up costs are also much lower.

Determining exactly what the costs savings will be requires some up-front estimating based on how the cloud vendor charges for usage (this varies from company to company), and comparing that to the current usage of your on-premise solution (if you have one). Extrapolating those figures over 12 months can provide an approximate cost savings.

3.0 Making the Leap

Deploying a cloud solution can save costs and improve performance, but there are a number of caveats and concerns that enterprises should evaluate before migrating to the cloud.

3.1 Security

By far, the biggest concern that companies voice about cloud-based solutions is security, and the lack of direct control they have over the data and the application. Security breaches can occur, even to large, experienced companies like Google. Enterprises should demand transparency from the application provider regarding security (including internal security), encryption and authentication. If there is a breach, there should be language in the contract indicating how the provider will respond, and how they will compensate you for your loss of service (if there is a loss) through credits. However, if the breach involves sensitive customer data, the owner of the data ultimately bears responsibility to those customers.

A cloud provider should also ensure that your data is never co-mingled with another customer's information. For specific vertical markets, the vendor should also provide compliance with industry standards. (Healthcare applications, for instance, should comply with HIPAA requirements.) If mobile payment is involved, then it may be necessary for the solution to meet Payment Card Industry (PCI) data security standards.

3.2 Reliability

The application vendor should provide 24/7 uptime for the application, and the contract should specify how your company will be credited if an outage does occur. Evaluate the vendor's back-up and redundancy capabilities, including the availability of multiple data centers.

3.3 Customization

Once concern frequently voiced by customers is that their application requires too much customization to use a cloud solution that is also being utilized by other companies. Hosted solutions can be customized, however, and these changes and modifications can be made centrally, meaning that they are deployed much faster than they would be if each mobile device had to be upgraded on site.

3.4 Wireless Coverage

While wireless coverage is available almost everywhere, there are some applications where application access is not guaranteed. If your employees enter a wireless "dead zone", productivity will fall to zero. Thankfully, lack of coverage is rarely a problem now that wireless carriers have expanded their high speed networks and boosted performance.

For some field service applications, however, particularly those with workers operating in very remote, rural areas, coverage can be a challenge. In those instances, a subscription-based application is probably not the best fit unless the vendor can provide offline functionality.

For warehouse management and other applications that leverage a wireless LAN, users need to have a robust network in place, along with ubiquitous Internet availability across their facilities to ensure that a cloud-based solution will always be available to their front-line employees. A site survey and analysis prior to deployment should be conducted in order to identify any potential gaps in coverage.

4.0 Application Vendor Evaluation

Carefully scrutinize contracts with cloud application providers, so that you can get the most benefit from the solution. Contracts should include language about service and uptime guarantees, how security breaches or temporary loss of service will be handled, how data will be backed-up and managed (and how many live copies will exist), and what will happen in the event you decide to switch providers or end the contract. Depending on the application, you may want to handle some of the back-up issues on-site, or even contract with a separate cloud provider for that purpose.

If the vendor's service level agreement (SLA) is vague, ask for specifics in writing. Find out how the vendor awards credits in the case of an outage, and how long the continuous outage threshold is before credits are issued (this can vary by vendor). Pricing can also vary widely, so determine how you will be billed for application access, data storage, and bandwidth.

You should also evaluate the service provider to ensure they will be a reliable partner, and remain in business for however long you need to use their application. Find out how their application was developed, and keep a close eye on their financial solvency. Some newer providers rushed into the market using low prices to gain new customers, but this strategy has kept them from being profitable.

Talk to the vendor about what will happen to your data if they go out of business or stop supporting the solution. You should also determine what steps will need to be taken in the event you want to end the contract and migrate to a different solution provider. How easy will it be to access and move your data?

5.0 Conclusion

By reducing the complexity of the implementation, companies that take advantage of cloud services can significantly reduce their costs and boost the return on investment of a mobile computing solution. Savings come through reduced up-front deployment costs, and the elimination of dedicated servers and other infrastructure and support services, as well as improved flexibility to expand and upgrade the application.

Before migrating a mobile supply chain or field service application to a cloud computing environment, companies should evaluate their own network capabilities and data security requirements to ensure the application can successfully be transferred to a hosted model. They should also carefully evaluate the application vendor to ensure the solution will meet their needs, will be available 24/7, and will provide long-term cost savings.

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