Cloud Computing Set to Transform Supply Chain Planning Applications

Cloud computing is a game changer for supply chain planning applications, but its potential is being underestimated by users and vendors who fail to differentiate true cloud-based solutions from traditional software-as-a-service (SaaS), says Bill Harrison, president of Demand Solutions.

Traditional versions of SaaS, where a vendor hosts the software on its own servers and users have access via the internet, work very well for transactional applications, he says. "But when you get into the more complex tools and statistical analysis needed for supply chain planning and forecasting, there are problems of scale. Planning applications like ours do a lot of number crunching, with big peaks on weekends and especially at month's end," Harrison explains. "In a traditional SaaS environment, you would have a lot of subscribers throwing out all these calculations at once, and that would bring the system to its knees."

The development of public cloud platforms and infrastructure by companies like Microsoft and Amazon is changing all that, says Harrison. These services offer massive and robust computing power using global networks of servers that are able to distribute the demand load, much like a power grid. This makes it possible for vendors like Demand Solutions to offer SaaS versions of its complex planning solutions equal to on-premises installations. "It simply wasn't possible for us to do that before, and it is this capability that makes true cloud solutions really revolutionary," he says.

Getting planning applications ready for the cloud, however, requires a lot of work on the vendor side. Demand Solutions was one of the first software vendors in the supply chain space to completely rewrite its client/server applications to run on Microsoft's highly rated Azure cloud platform and infrastructure. It also further enhanced its DSX product so that the exact same version could be deployed either on Azure or on premises at a client's location. "When we rewrote the code we made the conscious decision to ensure that every bit of functionality in the old system would also be in the new," says Harrison. "We refused to take parts of the solution and create a 'starter set' for the cloud. With more than 3,000 customers in 79 countries, we knew we could not offer converting customers a quarter of what they used to have. We had to put it all in there, and we did."

This was an expensive and often a painful process. Demand Solutions rewrote 5 million lines of code and had to support two code bases while going through the transition. "It was not a cheap or easy thing to do, and it is not for the faint of heart," Harrison says. "I can tell you there are scars on a lot of backs around here. But we have never regretted our decision – and our customers will never have to worry about getting left behind on outdated technology."

Nor will they have worries about downtime, Harrison says. Microsoft has multiple data centers around the world that ensure resiliency in the event of hardware failure, a guarantee that is reflected in Microsoft's robust service level agreement with Demand Solutions.

Moreover, the Azure platform enables each user to have its own virtual instance of the software as well as its own version of Sequel, so it feels exactly as if the application is running in house; except, of course, when it comes to maintenance and installation of updates, which are all handled by Demand Solutions. "We can send out updates with the push of a button," says Harrison. Aware that all companies may not want to receive an update at the same time, the DSX cloud solution allows users wide flexibility in choosing an update schedule. "Since each user has its own virtual instance, platform and infrastructure, we can push out to some without impacting the whole," Harrison says. This set-up also gives users more control over their data, he notes, as there are no restrictions on moving data into or off the cloud infrastructure.

Another benefit of Azure is that clients can easily flex up or down on the computing power they need. This is especially helpful to companies that deal in seasonal goods, where the bulk

of orders come in over a short period. "When customers need more horsepower it only takes a simple phone call to ratchet up capacity, say for two months, and then ratchet back down," says Harrison. "There is unlimited power when users need it, but they pay only for what they need."

Getting up and running on the cloud platform also is much faster than an on-premises implementation, he says. "Setting up an instance for a customer takes about half an hour and we are done." Of course, there still are upfront data issues that must be resolved. "This doesn't change, whether you install on premises or use a cloud solution," Harrison says. "You have to figure out how to export the right data to the system and then make certain the data is clean and accurate."

Dr. Fresh, the first customer to go live with the DSX cloud solution, demonstrates how Demand Solutions can help clients solve data challenges that may arise. Dr. Fresh is one of the fastest growing oral-care companies in the U.S., with brands that include Reach, Firefly, Binaca, Aim and CloseUp. Headquartered in California, the company distributes in more than 35 countries and emphasizes innovation and new product development to generate growth.

When it began preparing for a move to DSX forecasting from an in-house, Excel-based solution, the company wanted to continue its practice of having separate unit and dollar forecasts. "This was a data implementation challenge because it required another layer of data and data validation," says Scott Tillman, senior vice president of research and development at Demand Solutions. "It took us a little while to wade through and understand how to bring those cost and price streams over so the company could run its aggregations in the evening and the next morning see the impact on the forecast in both units and dollars. This was not typical of a pure demand planning forecast, but DSX

has the flexibility to do what the client needs. Once we resolved the data issues, it has run very smoothly and accurately."

Jignesh Vyas, IT director at Dr. Fresh, confirms that. "We are using the solution not only for inventory planning but for financial planning as well," he says. "It was very critical for us to match each and every dollar to units sold. With DSX, we are able to do that with a discrepancy of around .001 percent."

Dr. Fresh learned about DSX during its search for a forecasting and demand planning solution following the company's 2012 acquisition of the Reach brand. "This acquisition doubled our SKU portfolio, with many of the SKUs coming from overseas, so we really needed better tools to help us with issues like lead-time planning and planning for seasonal issues affecting our supply, such as Chinese New Year," says Vyas. "We definitely needed better structures with more data and statistical analysis capabilities."

Opting for the cloud version of the Demand Solutions software was an easy decision. "The trend is definitely going toward cloud," says David Law, director of supply chain finance and S&OP at Dr. Fresh. "Not having to maintain the hardware or have dedicated software

on site was a big driver of the decision. Rather than investing money in licensing and infrastructure, it is much more practical to pay as you go and a far better use of resources."

Scale and flexibility also were important, says Vyas. "Because of our rapid growth we needed a really scalable solution and one that our customers could access from anywhere. And the flexibility to plug in and plug out users as needed was a big benefit."

Since going live the last quarter of 2015, Dr. Fresh has greatly improved its forecasting process, says Law. "We have four management regions and going out to all of those with a spreadsheet to get information that we could turn into a forecast took at least two weeks before. Now people are remotely logging on to enter their data and the turnaround time is much faster."

To address concerns of existing on-premises customers, who already have made the capital outlay and now are paying only annual maintenance, Demand Solutions developed total-cost-of-ownership research that shows conversion to the cloud can still make sense.

"Our in-depth TCO studies convincingly show that even over 10 years,

SaaS is cheaper than on premises," says Harrison. Even he was surprised by this result. "When we started this research I thought SaaS would look very good in comparisons up to five years, but I really didn't believe there was any way it could compete when you got out to 10 years," Harrison says. "I was wrong. Our analysis shows that over 10 years, SaaS costs 15 percent less."

When you really dig down and look at all on-premises costs, the savings are undeniable, says Harrison. These costs include, for example, two replacement cycles for application and database servers, which typically have a maximum life of four years and cost around $20,000 each; new versions of SQL Server that must be purchased as older versions are regularly phased out; and recurring operating costs like power.

"According to an IBM article, the average server costs $340 a year to power, so a database and application server will cost $7,000 over 10 years. And that doesn't include power for air conditioning, which can run $600 per month for one little room," says Harrison.

In addition, there are labor costs. "A very conservative estimate would be that an application like ours requires 1/10 of a full-time IT worker to load and test every upgrade and to make sure all the interface files are running right, so that is $12,000 to $16,000 a year – these all are costs that you don't have with deployment on the cloud," Harrison says. In addition, he notes, large capital expenditures continue to be difficult for a lot of organizations, while monthly fees can be more easily managed.

Harrison acknowledges, however, that many companies have valid reasons for wanting to continue implementing supply chain planning solutions on site and under the stewardship of their IT staff. "We also recognize that such a decision could change in the future, and we are proud to offer the same robust solutions and technology platform using either option," he says.

Harrison is confident that cloud solutions will win the day and boldly predicts that within five years most supply chain planning vendors will no longer have an on-premises offering, at least for new customers. "Customers who already have an on-premises installation will get a reprieve, but new customers will likely have only a SaaS option," he says.

Market data supports this trend, though not necessarily the timing. Gartner's *Survey Analysis: SaaS Trends Providing Opportunity in the Supply Chain Market*, predicts that spending on new supply chain technologies this year will be divided about evenly between on-premises and SaaS solutions, with SaaS taking the lead in subsequent years. "The overarching assumption is that a transition to cloud and subscription, 'rental based' licensing for businesses will not necessarily be a free-will choice, but rather will be driven from suppliers predominantly offering SaaS and subscription-based licensing instead of perpetual on-premises licensing," the survey reports.

Gartner also notes that mature companies are showing more interest in cloud solutions for core supply chain planning applications. "If sentiment to move core SCP is sustained by successful deployments…an earnest licensing transition (could begin) over the next five to 10 years," it says.

Demand Solutions helps manufacturers, distributors and retailers improve their supply chain performance, customer satisfaction and profitability. Our cloud supply chain management platform includes demand and supply planning, production planning, inventory optimization, and IBP/S&OP. Designed for mid-market businesses, our solutions are affordable, easy to implement and use, and deliver rapid ROI.