SM Retail gains valuable business insights from big data
HPE Vertica transforms reporting speeds for top retailer

SM Retail is one of the Philippines’ leading retailers. Success requires a constant focus on margins and daily analysis of inventory. HPE Vertica helps make sense of this business critical data, leading to improved stock management and better decision making.

Challenge
Serious information delays
SM Retail, Inc. is the leading department store in the Philippines. It holds the franchises for a number of internationally recognized brands such as Ace Hardware, Forever 21, and UNIQLO.

Like most enterprises in East Asia, SM Retail operates in a cash-based economy and conducts nearly 100 percent of its business through instore traffic. Few businesses rely on online sales.

“In this part of the world, retail is still done through bricks and mortar store operations,” explains Stephen Yap, senior vice president of Information Technology Services.

Objective
Improve performance of enterprise data warehousing, analytics and reporting

Approach
Evaluate four vendors according to strict performance and resource consumption criteria, install the Hewlett Packard Enterprise solution, HPE Vertica, and monitor growth in usage of improved analytics solution

IT Matters
• Reporting process that once required six to eight hours or more now takes less than 30 minutes
• A recent partnership between Manthan and HPE has resulted in ARC Vertica, an ETL analytics module that has made SM Retail’s ETL processing run 100 times faster

Business Matters
• Decision-making is improved because business-critical retail reports are now ready at 7am on business days instead of 11am or later
• Inventory KPIs—unavailable prior to Vertica—are now viewable via tablets and dashboards, enabling more accurate buying, product allocation, and forecasting
• Two new analytics modules being implemented to support store operations and promotions
“HPE Vertica is key to giving us a competitive advantage, letting us go quickly into the data and finding patterns and insights that wouldn’t otherwise be obvious. That’s the incremental value that puts retail companies ahead, and we think it will pay real dividends for us.”

– Stephen Yap, senior vice president of Information Technology Services, SM Retail Inc.

“On average cash is used in 70-75 percent of the transactions. But aside from not having an online business, the way retail works in the rest of the world still applies here. Success means finding that additional one percent or less in your margins, which really makes a difference to the bottom line. That’s our goal in using Big Data technology.”

Achieving that additional one percent margin requires consistent, daily analysis of inventory—you need to know which product lines are moving well, which should be dropped, how suppliers are responding to inventory demands and how sales campaigns are performing against projections.

SM had been using an enterprise data warehouse system based on a standard row-store database but as Yap explains: “In terms of Extract-Transform-Load (ETL) performance and usability of report data, we just weren’t making our SLAs.”

Longer term analysis requires comparisons of different stores, year to year performance and aging inventory data.

“With our prior system for analytics, we weren’t able to complete the processing of data—from transforming it, to loading it,” adds Yap. “We were supposed to have reports available by 9am, but we just weren’t making that deadline. Reports were never done until past 11am, sometimes past 12. And there were some reports that would never complete at all. This wasn’t acceptable.”

When marketing teams requested Stock Keeping Unit (SKU) level reports, system users would initiate their queries, then leave their computers and do something else during the hours of delay. The IT team was also planning to support even more users over time and the legacy platform would simply not provide for higher levels of demand.

Solution

Shoot out among Big Data contenders

Yap and his team knew that the database component of their existing system had to be replaced. “We knew better than to make a decision only on the basis of specifications and phone calls. We had a few scars and reminders of past contracts with technology that looked great on paper but just didn’t perform as expected.”

So the team devised a specific proof of concept for four competing vendors. Each was allowed one week to demonstrate use of the technology and provide highly quantified results.

The main criterion was performance. The team wanted to see speed in producing reports based on routine, daily queries, as well as speed in delivering results from ad hoc queries. In the event that performance tests yielded a tie between vendors, they included other measurements in the proof of concept, such as consumption of resources.

“We were concerned about cost; how much
hardware might have to be added and about query optimization. We didn’t want blinding speeds simply because a vendor spent lots of time on complex tuning of queries. Our users would never have the time for that,” says Yap.

The team insisted that similar queries be used by all four vendors and they ensured these would be the types of queries that users would run after the new system was deployed.

“In the end, there was no tie,” Yap says.

“HPE Vertica was the clear winner, not just on performance but in cost and ease of querying as well. We liked the results.”

For several years, SM Retail had been using an analytics front end from Manthan Systems, which specializes in analytic solutions for the retail industry through its ARC product line. In the summer of 2013, Manthan certified the HPE Vertica platform as an analytics engine, so HPE’s proof of concept was able to leverage the new Manthan-HPE partnership.

Benefit

New mobile modules and new capabilities

Today, SM’s HPE Vertica platform and the Hewlett Packard Enterprise partnership with Manthan Systems for improved ETL is delivering a 400 - 500 percent improvement in availability of data for decision-making.

“All we changed was the underlying infrastructure from Oracle to HPE Vertica,” says Yap. “With the Vertica team, all deliverables were met, including a very aggressive timeframe for deployment that involved SM, Manthan and Hewlett Packard Enterprise. This was a risky project for us, but I’m happy to say it got done.

“On the low-end, we had a few reports that once required 10 minutes and those now complete in seconds. But on the high-end, we had some reports that simply would never finish at all. Now those reports get completed in under a minute.”

In addition to improving the speed of reporting and ad hoc querying, the Information Technology Services team has begun using R (one of the most-used languages for statistical analysis and data science), and they are beginning to focus analytics capabilities on social media and video data as well.

Previously, while SM Retail’s analytics team was technically able to receive Inventory KPIs down to the SKU level, it was not possible for the business to view the results because of the system performance issues. “It would take two hours or more to churn out results and that was only if we didn’t get disconnected,” adds Yap.
**Case study**
SM Retail

**Industry**
Retail

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**Customer at a glance**

**Hardware**
- HPE ProLiant DL380p G8 Servers

**Software**
- HPE Vertica Analytics Platform
- Red Hat Enterprise Linux 6.x

**Services**
- Technology Consulting Services
- Vertica Implementation & Migration Services

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"Now that these KPIs are viewable on a timely basis, the analytics team is using the information for more accurate decision-making in buying, product allocation, and forecasting.

"We've also used the new analytics platform to re-launch 'Mobile BI,' Yap explains. "This will enable executives, branch managers, store managers, and category managers to view dashboards and KPIs on tablets." Mobile BI will provide traveling executives and managers with timely information on daily, monthly and YTD sales, as well as inventory ageing and store and merchandise performance.

Mobile BI will initially include two modules. Firstly, Store Operations Analytics will deliver insights on store profitability by monitoring discount ratios and exception returns and on cashier productivity, shortages and overage exception transactions. Secondly, Promo Analytics will be used by Merchandising and Selling Business units to analyze a particular promotion's contribution to the total sales of the store, to show promotion lift by margin, sales and transaction, to determine best and worst promo items and finally to indicate overall promo performance.

"A few years ago, I saw that people weren't using our prior system nearly as much as we had planned," Yap says. "Culturally speaking, people just don't complain here like in other parts of the world. When something doesn’t work, they simply stop using it." In SM Retail's case, Yap's team discovered that users had become tired of waiting for their queries to be answered or for reports to be generated. After HPE Vertica was installed, they noted a dramatic spike in usage.

"Our primary goal was to get our people something they could really use," says Yap. "Our user count is increasing, and that only means one thing: they're doing data analysis. They're using what they find in their marketing promotions, in their product selection, all the things that a retail company does to stay in business."

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