



Managing OMS To Improve Customer Satisfaction

Abstract

With online shopping and smartphones becoming the predominant mode of shopping and information abundance bringing true price transparency, today's shoppers have taken the perquisite to compare, review and buy products on the move. This advantage becomes even more apparent during holiday season such as Black Friday and Cyber Monday, where customers hunt from a plethora of deals. As per eMarketer.com, eCommerce sales will grow by 17 percent during the holiday season 2016 and form 10 percent of the total retail sales during holiday season[<https://www.emarketer.com/Article/Holiday-Retail-Ecommerce-Sales-Will-Grow-17-this-Year/1014529>].

Online channel has become the fastest growth engine for retailers. However, to cater to the demand, e-stores should be available, scalable, reliable, and robust to provide great shopper experience. Gone are the days of resource-light websites, frequent outages and system

errors; high growth has brought new challenges for retailers to make their online channels scalable and available 24*7. More retailers than ever are adopting Omni-channel / hybrid store strategies to increase sales and provide a seamless experience to consumers.

A critical component of this growth requires scalable Order Management System (OMS), which acts as a custodian of orders by interacting with different systems such as order capture, product management, pricing, promotions, payment authorization, fraud management, tax, warehouse management, payment settlement system and financial systems. This puts additional stress on OMS, as Low performance of OMS impacts the lifecycle of orders and can lead to sub-optimal customer experience.

It is therefore imperative for retailers to stress test e-store and OMS thoroughly.

Current Trends in Order Management Systems

OMS has come a long way from being a standalone desktop application to a complex integrated system in the enterprise architecture. Today, order management systems are moving towards build anywhere, customize anywhere and sell anywhere applications. Most of the

order management packages are now moving towards the cloud and host multiple retailers with diverse needs on a single platform. These systems not only manage orders but also integrate with different systems such as Big Data for Analytics, Mobile Apps and Social Media.

OMS in the Enterprise Architecture Landscape

OMS interacts with myriad enterprise systems from order capture to order delivery, during the order life cycle, and therefore, forms the core of enterprise architecture for any retailer.

Figure 1 represents the snapshot of the main components that OMS interacts while fulfilling the order.

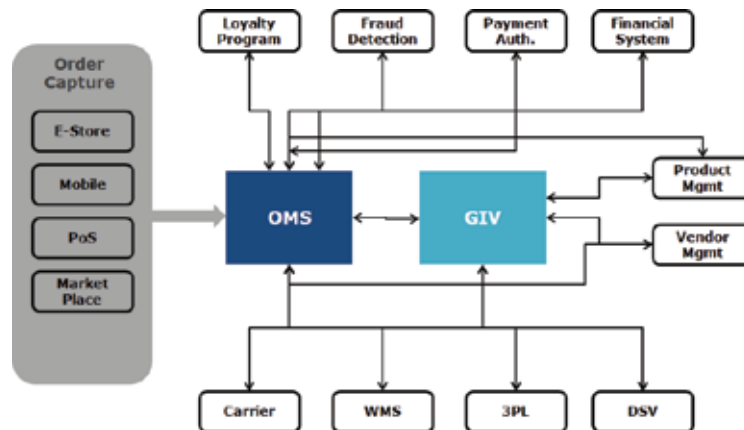


Figure: 1 | Components That OMS Interacts While Fulfilling the Order

¹<https://www.emarketer.com/Article/Holiday-Retail-Ecommerce-Sales-Will-Grow-17-this-Year/1014529>

The architecture depicts different sources of order capture channels such as Point-of-Sale (PoS), Mobile, Desktop, Market Place and Kiosks etc. Customers and associates can access the omni-channel basket and modify it across channels. OMS also helps in fulfilling different line items in an order as per the needs of the channel. For example, in the same order the customer can buy online pick up at store, ship from store, ship from warehouse, ship to multiple locations etc. OMS gives retailers flexibility to have seamless integration with third party systems such as drop ship vendors, carrier services, third party logistics systems, market place vendors, fraud detection and prevention systems. During holiday

season, online and offline channels spike at different days. For example, offline store sales spike on Thanksgiving Day while online sales spike on Black Friday and Cyber Monday.

For example, figure 2 provides the snapshot of spikes during these two different days. From the graph, the initial hourly sales on Thanksgiving Day are zero, since the stores are closed. But we see continuous orders from online channel. When the stores open in the evening, we see spike in store sales, but no spike in online sales. On Black Friday as the day progresses, we see rise of online orders, while the store sales decline.

Snapshot of Spikes during Two Different Days

Online Vs offline sales

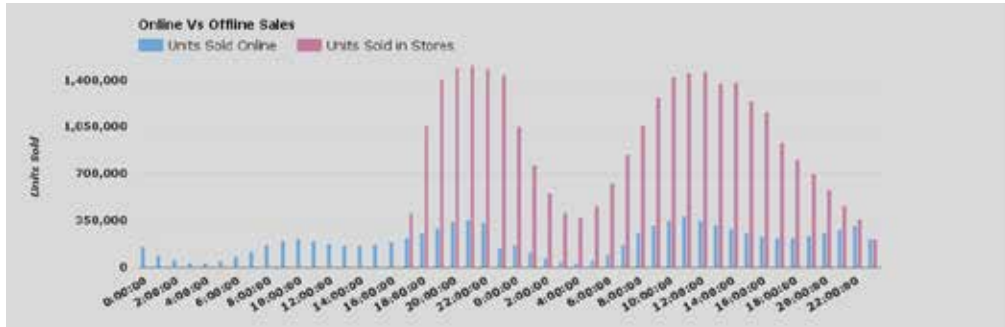
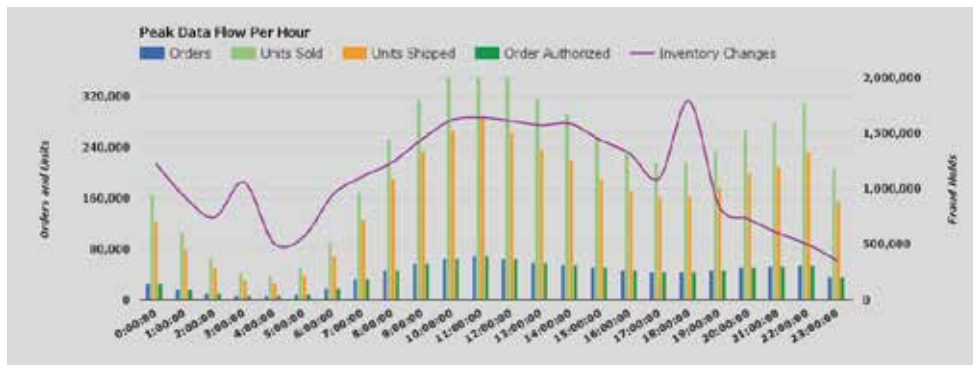


Figure: 2 | Snapshot of Spikes during Two Different Days

Load variation during Peak

The peak load on OMS does not spike at the same time. Over a period of time, the load is distributed among different functions/modules. At any given hour, only few modules / functions will peak while other functions/modules will be at normal load. Below is the hourly graph of peak load.

Peak data flow per hour



The numbers of orders created online and number of units sold is directly proportional to each other. OMS is capable of sourcing these orders through different stores, DCs, RDCs and 3PLs. The general trend is that Logistics team in stores, DCs, RDCs and 3PLs will not be able to ship all the

units that are sold in a given day. The logistics will have considerable backlog during the holidays such as Thanksgiving. But as the number of units sold per day subsides after Cyber Monday, these same logistics teams are able to ship all the backlog units plus the units sold per day.

Repercussions of low performance of OMS

Ramifications of low performance of OMS ranges from lower online sales, logistics chaos, and unhappy customers.

- **Inaccurate Inventory Information To E-Store:**

High load on OMS slows down the inventory calculation for items. Due to this e-store does not receive the real time inventory information from OMS. The delay in the inventory information makes the e-store inventory information inaccurate and leads to the next issue.

- **Over-Sell Or Under-Sell On Inventory:**

Inaccurate inventory information at e-store leads to showing available item as unavailable and unavailable item as available. This leads to under or oversell and impacts customer promise on orders.

Effect of overbooking and underbooking the others



- **Operational Issues Logistics and Partners:**

When OMS is unable to fulfill orders, precious man hours of logistics staff around fulfillment centers is wasted. The logistics team does not have sufficient shipments to occupy their time completely. Similarly, as the holiday season passes and load on OMS is decreased, OMS starts sending the shipments to the fulfillment centers. The logistics team then has shipments more than their shipping capacity

are backordered and then cancelled. Cancelled orders lead to bad customer experience, as customers are devoid of the items they purchased, with a significant customer experience impact during holidays. This in turn leads to negative feedback and word-of-mouth for retailers, impacting sales.

- **Poor Customer Experience:**

During overbooking, customer orders

- **Delayed Deliveries Of Orders:**

If OMS is unable to keep -up with processing of orders, order fulfillment is late, thereby impacting customer promise.

Effect of low sourcing on logistics



Key Steps to Overcome OMS Performance

- **Build a performance strategy and measurable goals**

It is important to create performance test strategy before starting the stress test. All the stakeholders - upstream and downstream system owners should be educated about the test strategy as OMS will constantly interact with these systems. The performance test strategy should mention clear performance objectives, assumptions, milestones and performance test plan.

- **Finalize NFRs**

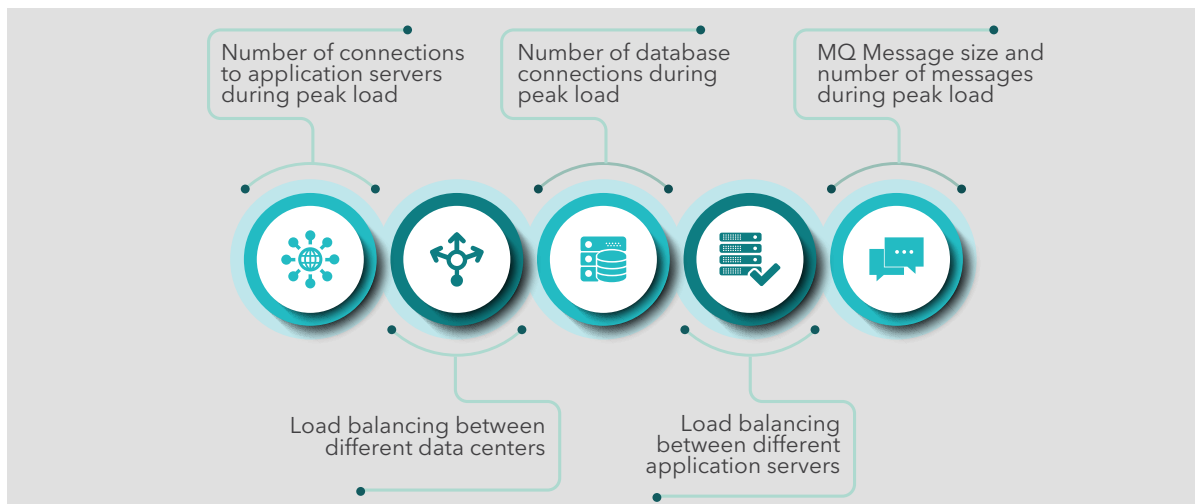
A good way to create NFRs is to get peak numbers, OMS has for different modules. Each module has different workloads such as total number of order creation during peak, total

order lines in order, ory calculations, total units to fulfill during peak. Business should approve the NFRs so that they are agreeable to all the stakeholders

- **Plan Hardware Capacity**

Before starting the performance test, it is important to understand current hardware capacity. Based on NFRs, initial hardware capacity should be determined. During performance testing, hardware bottlenecks can be identified and appropriate hardware should be added. Same hardware configuration can then be advanced to production.

While defining the hardware capacity following points should be considered:



- **Create realistic order profile for peak load**

Performance test cases should be created based on the business functions that would be under high load. Not all the modules of OMS or integrating systems will peak at the same time. Hence, it is important to performance test different modules together to identify system behavior and take remedial steps to resolve performance issues.

- **Conduct Integrated Testing with upstream and downstream system**

Though individual testing of OMS can uncover many bottlenecks, integrated performance testing among different upstream and

downstream systems such as e-store, payment gateways, data warehouse, warehouse management systems etc. will help in identifying the bottlenecks at integration points.

Retailers should appreciate the criticality of OMS and the tremendous duress OMS undergoes during holiday peak. Any performance issue on OMS side will result in delays in fulfilling customer orders. Unhappy customers will hamper the retailer's brand. Therefore, retailers should create long term performance test strategy for OMS and leverage its omni-channel capabilities for growth.

About the author

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Reviewer: Amit Dhall

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