

Holiday Season 2013: Capitalizing on Mobile and the Cloud

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According to eMarketer, mobile devices account for a rapidly growing share of U.S. retail e-commerce sales and are expected to contribute to strong growth this holiday season. In years to come, this trend shows no sign of abating: eMarketer predicts retail mobile commerce sales will reach \$41.68 billion this year and by 2017, retail sales made on mobile devices will climb to well over \$100 billion.

As consumers flock to the mobile web en masse over the next few months, not only will companies — particularly those in online retail and travel — experience more mobile web traffic, but traffic spikes will also become more unpredictable. With consumers free to access the mobile web at any time of day or night, no time is good for having slow or unreliable web performance.

To meet these challenges, many companies are turning to the cloud. But maximizing the cloud's value as a strategic mobile commerce enabler requires a focus on the true mobile user experience. This article explores three key ways the cloud can help companies better leverage the m-commerce opportunity this holiday season, and why it's critical to emphasize the true mobile user perspective as part of these techniques.

Real Users Really Matter

For years, businesses have understood the value of load testing web and mobile sites in preparation for peak traffic periods like the holidays. Today, the cloud plays a key role in load tests by generating high volumes of synthetic traffic from beyond the firewall, from multiple geographic locations and even across 3G and 4G networks. Leveraging the cloud in this way is one of several [load testing best practices](#) [1]. It gives a company true insight into the end-to-end performance – or, the speed and availability – of their web and mobile sites under various traffic loads.

However, when using synthetic monitoring, companies often focus on high-traffic paths and functions like login and checkout. Because synthetic monitoring must be scripted, it doesn't measure performance for every twist and turn in a user's journey. If a customer does something unscripted — if he or she acts human — certain areas of a web or mobile site may go unchecked. In addition, with synthetic monitoring it can be hard to determine if a prominent segment of mobile customers — Samsung Galaxy users with Android, for example — are experiencing elongated

response times during a process such as check-out.

This is where real mobile user monitoring comes in and is key to achieving a holistic view of not just what's happening under load, but what's happening under load across all areas of the site — scripted or unscripted — and for specific mobile device types. Organizations with mature application performance management (APM) capabilities augment synthetic monitoring of cloud-generated with real mobile user monitoring. This delivers a more holistic view of site performance under load; eliminates blind spots on a web or mobile site; and more comprehensively and precisely pinpoints areas for fine-tuning. Ultimately, this comprehensive approach empowers companies to satisfy stringent mobile user performance demands, as much as humanly possible.

Knowing When to Scale Up — and Scale Down

Elasticity — or, the ability of a system to provision and deprovision resources in an autonomic manner — can be a great potential benefit of the cloud during times of peak load. Essentially, being a cloud customer means a company can have ready access to enterprise-class technology, whenever traffic hits a certain level.

However, one problem with elasticity is that it takes time. A cloud instance can be launched at any time, but it may take up to several minutes for it to be ready to use. Cloud instance start-up time is dependent on several factors, including image size, virtual machine type, data center location and number. Cloud providers have different virtual machine start-up performance.

Elasticity can certainly offer some peace of mind during periods of peak traffic. However, due to the wait time involved, cloud customers often try as their first line of defense to optimally align cloud resource acquisition to actual computing needs. This requires a company to strike a delicate balance between under- and over-provisioning. Under-provisioning often leads to slow or unreachable web and mobile sites, which can have a significant impact on revenue, profits and brand. A recent consumer survey found that 37 percent of mobile web users will shop elsewhere if a site or app doesn't load in three seconds, and almost one-third of mobile shoppers say they are likely to complain on social media about poor mobile shopping experiences. On the other hand, over-provisioning from a cloud service provider can also be costly and cut into potential profits.

It used to be that companies could estimate with a fair degree of certainty when their peak online holiday sales periods would be, and provision accordingly — for example, Cyber Monday or Green Monday, which is traditionally the second Monday in December. But with the mobile web empowering consumers and enabling them to shop anytime, anywhere, typical traffic patterns have been skewed, and are

much less predictable and reliable. For example, Compuware research from the 2012 holiday season showed that Thanksgiving evening — as opposed to just Cyber Monday — is now also a prime time for online holiday shopping, as customers peruse their tablets from the comfort of their couches. This is a growing trend known as “couch commerce,” which has grown more prominent just in recent years. The result is that the lines between Thanksgiving evening, Black Friday and Cyber Monday are increasingly being blurred.

This lack of predictability places a premium on cloud elasticity. But how can a company maximize elasticity benefits, and minimize risks? The key is to first monitor performance from the real mobile user perspective to understand at what traffic level performance begins to degrade. This information — as opposed to a specific day or time — should dictate when failover to the cloud occurs. From there, the customer needs to monitor the real mobile user experience throughout peak traffic periods to ensure that failover has in fact occurred as planned, within an agreed-upon timeframe and with minimal impact on the user experience. Similarly, companies need to monitor the real mobile user experience during failback processes, to ensure that failback is seamless and invisible to mobile users and also occurs within a reasonable timeframe, thus avoiding unnecessary charges. Know If The Fault Lies With You, or Someone Else

To stay competitive, companies have no choice but to provide the best online experience to their online customers and shoppers. That means they must provide the ability to watch a product video, use a coupon, subscribe for a promotion, read customer reviews, share with their friends on Facebook or Twitter, select products and pay for them to be delivered within a defined timeframe. All of this constitutes a lot of minor services, many of which are based in the cloud. This often results in a company becoming a cloud customer indirectly, without their even knowing it! If a third-party service cannot scale under load, performance for an entire web page can suffer.

Increasingly, mobile customers are expecting the same level of feature richness on their mobile devices as they experience on a desktop PC. The inherent performance constraints of wireless networks and devices — combined with the somewhat irrational impatience of mobile users — can make the impact of a poorly performing third-party service under load even more detrimental. It's therefore critical for companies to avoid third-party performance meltdowns for mobile users as much as possible.

The key to doing this is a comprehensive load testing approach conducted from the mobile user perspective. Today, third-party services are just one of the many elements out there on the web that stand between the data center and mobile users. Measuring performance from the data center alone is insufficient for getting

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a true sense of the mobile user experience, unless, of course, a company's mobile users live in the data center, which is highly unlikely. The true mobile user perspective is the only place where a company can accurately gauge the experience under load, at the end of an extremely long and complicated technology path known as the application delivery chain. Today's new APM solutions can offer insight into the perspective of key mobile user segments under load.

Remember, cloud-based third-party services are routinely serving thousands of customers around the globe, and a peak traffic period for one is likely a peak period for all. For this reason, companies often find it useful to conduct load tests with up to ten times the amount of normal traffic. However, companies using third-party services should be warned not to rely on load tests alone, as performance aberrations can and do happen at any time. In addition to load tests, continuous monitoring of all mobile transactions, 24x7 is really what's essential for peace of mind.

It can also be helpful to establish a baseline for mobile user performance under load before a service is added, and compare this to after using synthetic load, which is less risky than using real mobile users as beta customers. This can help determine if a new feature is likely to drag down the overall experience for real mobile users, in which case adding the feature may actually hurt revenue-generation efforts.

Conclusion

In many ways, mobile and the cloud can be considered synergistic technologies. For many companies, the ability to tap the mobile commerce opportunity hinges upon the cloud. But, the key is to use the cloud in the smartest way possible, which requires a focus on the true mobile user experience. By augmenting synthetic traffic generated from the cloud with real mobile user traffic in load tests; using the real mobile user experience to guide and enforce cloud elasticity guarantees; as well as conducting load testing from the mobile user perspective to ensure the resilience of cloud-based third-party services, companies can better maximize both their m-commerce and cloud initiatives this holiday season.

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[1] http://www.compuware.com/content/dam/compuware/apm/assets/whitepapers/WP_21998_Graduate_LoadToPerformance.pdf