

WHY HOSTING MATTERS AND KEEPING YOUR SITE IN-CHECK

Preemptive and tactical site-sustaining measures



E2E x **HOSTING**

Roger LeFevre
CEO, VITAL BGS

Kevin Vlahos
Tommy Hilfiger

E2E *x* HOSTING



Why hosting matters and keeping your site in check
Preemptive and tactical site-sustaining measures

Capacity Scaling

“...scaling aims to maintain consistent site behavior regardless of how it fluctuates or in the event of heavy spikes in traffic.”

The massive expansion in online retailing in recent years means running a tight ship in order to have a stake in the ever-advancing digital marketplace. The key is handling traffic in the most efficient way possible. eCommerce sites function differently than content-only sites in that there are fluctuations in traffic, different volumes of people viewing and engaging with a site in a given moment, and variances in functionality between the two. eCommerce sites not only offer product, but interactive opportunities to engage with the brand—ways to get consumers itching to add more to their cart as seamlessly as possible. Capacity requirements are thus higher with all of these bells and whistles that come with running an eCommerce site. This is especially important when companies can anticipate drastic spikes in traffic, such as during the holiday season or when they are about to release a new product. Let’s look at Apple®, who’s producing what’s rumored to be in the mid-70 million range of iPhone 7 units for its fall 2016 release. Their eCommerce team has to take into account the heavy traffic that will come as a result of the release. Issues with the site can create millions of unhappy customers; scaling aims to maintain consistent site behavior regardless of how it fluctuates or in the event of heavy spikes in traffic. If a site runs on 10% of its capacity during most of the year but crashes during an unexpected peak, looking beyond the average peak and preparing for spontaneous spikes is a fundamental scaling concern.



Why hosting matters and keeping your site in check
Preemptive and tactical site-sustaining measures

Managing concurrent users

“...it’s all about managing high loads and taking proactive measures to safeguard against failover, site crashing and all other issues that leave consumers frustrated and unable to make purchases”

“Failover is defined as a method of protecting information technology systems from failure, where standby procedures automatically take over when the main system flounders”

A common question in the realm of website performance is how many concurrent users or simultaneous users should a site be able to withstand without undermining the functionality—how do companies know the specific threshold that, if exceeded, leads to failover? Well, it’s not easy to determine. Thus performance simulation and testing measures are important in order to gauge how many concurrent or simultaneous users a site can handle. Obviously online retailers have an interest in attracting as many users as possible at any given moment, so it’s all about managing high loads and taking proactive measures to safeguard against failover, site crashing, and all other issues that leave consumers frustrated and unable to make purchases. Many companies do not have the internal bandwidth to support such heavy loads and high concurrency of use, so they shift the burden of the load to third-party companies who have massive servers that can handle increased concurrency.

Let’s say a site has 2,000-5,000 visits per hour with 50-100 concurrent users at any given moment. Then let us assume that each visitor averages 10 requests per visit from site searches, updating account information, adding items to the shopping cart, and checking out. That’s 500-1,000 requests sent at any time—generic servers in an internal infrastructure will not likely be able to handle this kind of activity.



Why hosting matters and keeping your site in check
Preemptive and tactical site-sustaining measures

Routine and Catastrophic Failover

“Load balancing has an important role in ensuring the site traffic is well-managed and traffic is decongested among clusters of servers in this process of balancing requests and communication between servers”

Your landing pages are ready to go, you’ve carefully planned a PPC budget and created beautiful content, your ads are ready to roll—yet none of this matters if you haven’t accounted for the expected failover that comes with major holidays like Black Friday. Above-average traffic in the digital marketplace calls for these preemptive measures, focusing on how to manage failover. Failover is defined as a method of protecting information technology systems from failure, where standby procedures automatically take over when the main system flounders. Load balancing and failover technologies have made it possible for any given site and its data to be located on several servers, extending across multiple locations or jurisdictions. Today, this is the common practice among eCommerce websites. Establishing a failover architecture (employing multiple servers) that serve-up traffic if your main systems fail is wise and will allow you to maintain normal order processes and site functionality even when traffic is at its highest peak and placing a burden on the site’s ability to handle these spikes in traffic. Running a successful eCommerce business means implementing both routine, day-to-day failover and catastrophic failover so that you avoid losing consumers and avoid cart abandonment on a daily basis, and during critical high performance periods.



Why hosting matters and keeping your site in check
Preemptive and tactical site-sustaining measures

Load Balancing

“Load balancing has an important role in ensuring the site traffic is well-managed and traffic is decongested among clusters of servers in this process of balancing requests and communication between servers”

Load balancing refers to the processes of distributing network or application traffic across a number of servers to increase capacity (concurrency of use) and the reliability of site applications. The core function of load balancing is to take incoming traffic and access cloned servers to improve utilization, application availability, and responsiveness. Load balancers take incoming requests and distribute them equally across web servers. Let's say a web server is fully deployed or shut down. In that case, the load balancer will be informed of that status and will balance the requests accordingly. Load balancing has an important role in ensuring the site traffic is well-managed and traffic is decongested among clusters of servers in this process of balancing requests and communication between servers.

E2E *x* MAINTENANCE



Why hosting matters and keeping your site in check
Preemptive and tactical site-sustaining measures

Content Delivery Network (CDN)

“CDNs ensure that the content consumers want can be accessed whenever, wherever...fast”

A content delivery network (CDN) is a global system of proxy servers that deliver webpages and other Web content to a user based on the geographic locations of users, the origin of the webpage, and a content delivery server. eCommerce, media companies, and other content providers pay CDN operators to get their content (e.g., photos, videos and other rich content) to the targeted audience of end-users as fast as possible. CDN ‘nodes’ act as data centers whereby copies of content files are stored and subsequently delivered to shoppers depending on geographic proximity to the closest node. CDN networks represent a collection of distributed servers around the world, enabling eCommerce stores to deliver content to end-users as fast as possible.

Without CDNs, load times for eCommerce sites would be noticeably longer for users farther from host servers (eg., customers in Japan on a US-based site). CDNs ensure that the content consumers want can be accessed whenever, wherever... quickly. CDNs play a major behind-the-scenes role, one that the average consumer is unlikely to be aware of, yet its impacts are far-reaching when online shoppers want content immediately and make purchases based on their experience surrounding how rapidly the content can be served.



Why hosting matters and keeping your site in check
Preemptive and tactical site-sustaining measures

Cyber security

“eCommerce sites need to employ an end-to-end strategy to counter the efforts of cyberthieves, such as gaining an understanding of the key access areas and points of entry (e.g., where hackers might inject harmful code into a form, an application or the comments section of a website).”

Data breaches significantly undermine consumer trust and confidence in a brand. The rise in consumer anxieties and subsequent decreases in sales as a result of data breaches demonstrate how important secure data is with eCommerce. The risk of exposing credit card data, personal information and other private content to hackers poses a great challenge for online retailers, as consumer trust is on the line. Why retail, say versus banking sites? For starters, retail is among the top five industries targeted in cyber attacks given the extensive financial data these sites store. Even if less than a few percent of attacks are successful in obtaining consumer data, hackers are nonetheless unwavering and persistent in their attempts. Online retailers must be tenacious in their attempts to safeguard consumer data and the challenge to do so only becomes more strenuous as new technologies facilitate loopholes and ways for hackers to strike.

Online retailers must take a comprehensive, holistic approach to cyber security. All retailers must comply with payment card industry data security (PCI DSS), which is designed to protect cardholder data. These requirements increase the standard of protection—but no one is truly safe from hackers. eCommerce sites need to employ an end-to-end strategy to counter the efforts of cyberthieves, such as gaining an understanding of the key access areas and points of entry (e.g., where hackers might inject harmful code into a form, an application or the comments section of a website). Cyber security is no joke—not for you or your customers.



Why hosting matters and keeping your site in check
Preemptive and tactical site-sustaining measures

VITAL BGS

VITAL BGS is a progressive leader in full-spectrum End-2-End (E2E) consumer and business eCommerce. The organization enables B2C brands to sell worldwide, while feeling local to global shoppers. The company engages in virtually all vertical markets, and has case studies in nutraceuticals, fashion and apparel, luxury and leather goods, legal services, personal services, and innovative aspects of eGovernment.

vitalbgs.com

Roger LeFevre, CEO
Roger.LeFevre@vitalbgs.com



Why hosting matters and keeping your site in check
Preemptive and tactical site-sustaining measures

Sources

Buyya, R., Pathan, M., & Vakali, A. (2008). Content delivery networks. Berlin: Springer-Verlag.

eCommerce hosting. (2012). Costa Mesa: Experian Information Solutions, Inc.

Johnson, M. (2013). Cyber crime, security and digital intelligence. Farnham: Gower.

Mellouk, A., Hoceini, S. & Tran, H. A. (2013). Quality of experience for multimedia: Application to content delivery network architecture. London: ISTE.

Membrey, P., Hows, D., & Plugge, E. (2012). Practical load balancing: Ride the performance tiger. Berkeley, CA; New York: Apress.

Schmutz, P., Heinz, S., Métrailler, Y., & Opwis, K. (2009). Cognitive load in eCommerce applications--measurement and effects on user satisfaction. *Advances in Human - Computer Interaction*, 2009, 1-9.

Smith, H. (2011). Data center storage: Cost-effective strategies, implementation, and management. Boca Raton, FL: Auerbach Publications.

Winter, S. (2012; 2011). The rise of cyberinfrastructure and grand challenges for eCommerce. *Information Systems and eBusiness Management*, 10(3), 279.