

Smart strategies for ensuring your systems are ready for the holidays

The 451 Take

With the notorious shopping holidays of Black Friday and Cyber Monday just around the corner, consumers will be online and out and about looking for deals. Retailers and credit card providers, as well as travel, entertainment and logistics companies will be all too eager to serve these consumers. But the glitter of the holidays can fade quickly when back-end systems can't handle data growth and user concurrency.

For many enterprises, the back-end technology – and particularly the database system – is quickly becoming a key component to ensure a successful holiday sales strategy. Certainly, businesses must maintain and have sufficient inventory on hand and empower sales personnel to move inventory.

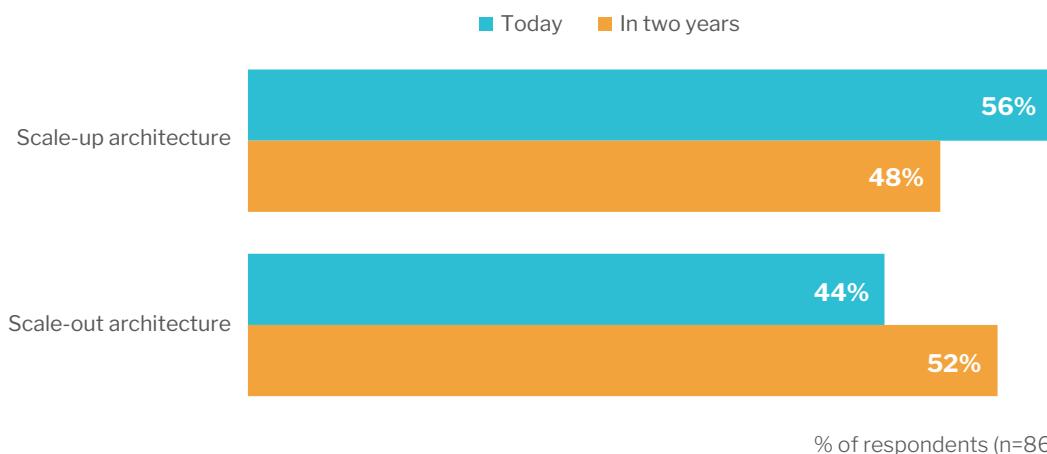
But when the database goes down, it can have a rippling effect on the entire business. Margins built into products may erode because fewer products can be sold. Inventory levels can be disrupted resulting in either too much or too little product because of an inability to manage logistics and supply chain processes. If online shoppers find the system taking too long to respond, they will likely move to a competitor.

So how do retailers manage the holiday shopping frenzy? It begins at the database level. Traditionally, organizations have accommodated data and concurrent user growth by scaling up, which consists of increasing the capacity of an existing system by adding memory, storage or computing power. Scaling up might work for retailers that experience moderate growth, but what about modern, web-based systems that need to accommodate thousands or even hundreds of thousands of users concurrently? For these situations, organizations need to leverage a scale-out strategy, which consists of adding servers such that the data is distributed across the environment to accommodate the load.

In a recent 451 Research study, respondents were asked about their operational transactional workloads (versus pure SQL-based transactions) and about the data platforms they use for those workloads today and plan to use in two years. One question was about respondents' scaling approach: 56% of respondents said they incorporate a scale-up architecture today, and 44% are leveraging a scale-out architecture. But the percentages nearly reverse in two years, with 52% of respondents expecting to adopt a scale-out architecture while 48% expect to scale up.

Scaling Strategy for Operational Transactional Workloads Today and in Two Years

Source: 451 Research's Voice of the Enterprise, Data & Analytics 1H 2019



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Business Impact

HANDLE UNPREDICTABLE WORKLOADS. Scale-out, distributed systems are designed to handle unpredictable loads, particularly when the requirement is to drive web-based applications. While singular, monolithic systems can be quite powerful, these systems have limits when the load exceeds the system's capacity.

LEVERAGE THE CLOUD. As an alternative to an on-premises environment, enterprises can turn to cloud-based environments, which offer several benefits for those looking to manage data volumes and user concurrency, particularly during the peak holiday shopping season. Enterprises can choose to manage the environment themselves (IaaS) or go with a managed service. Regardless, cloud deployments provide on-demand scaling advantages along with built-in security and other integrated enterprise functionality.

EFFICIENTLY MANAGE COSTS. Reducing costs is top of mind for many enterprises. When the load exceeds system capacity in a scale-up system, the system may have to be taken offline to update it, which means incurred costs, including potential loss of business. Scale-out systems can be updated while keeping the rest of the cluster up and running.

DRIVE DATA AVAILABILITY AND FAULT TOLERANCE. Distributed, scale-out systems can accommodate node failure – perhaps even as many as half of the nodes going down while maintaining data availability – giving enterprises a good deal of confidence when running mission-critical applications. For enterprises, it means reducing system risk because there is no single point of failure.

ENSURE PREDICTABLE PERFORMANCE WHILE SCALING. Monolithic systems can be quite powerful and capable, but even the best of these systems have limitations. The closer the system's workload approaches capacity, the more likely the system is to slow down. With distributed, scale-out systems, performance will be much more uniform because adding nodes does not require taking the system offline. New nodes are added while the system is up because the data is continually being balanced across the cluster.

Looking Ahead

On the consumer side, the most important aspects of the holiday shopping experience boil down to convenience, context and control. If unsatisfied, shoppers will move on to a competitor. On the retailer side, the most critical aspects include stability, manageability and reliability. When even one of these components falters, it definitely impacts the consumer side. In bygone years, database systems may have been able to provide stability and manageability, but reliability can falter, particularly with modern applications that handle significant data volumes with high user concurrency.

That leaves enterprises reaching for databases with a scale-out architecture. When deployed, they can mitigate several issues that can arise without such systems, such as high product margins, runaway inventory levels and poor user experience. Scale-out systems have been around for a while, so the future looks positive for these types of architectures, given technology advances. For instance, systems can split compute and storage, which allows them to scale incrementally, adjusting for various workloads. There is also the ability to run hybrid workloads (transactional and analytical) that span on-premises and cloud environments. Enterprises also continue to benefit from architectures with no single point of failure.

As the pace of both technology and competitive pressure accelerates, enterprises that ignore these trends do so at their own peril. As the holiday shopping season nears, enterprises want clusters to stay up and running at peak performance even if multiple physical nodes fail.