Peak Volumes: Can Your Systems Handle The Pressure?

Read this, and learn how to mitigate risk with routine system load tests

– A White Paper by Tryon Solutions

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Load-testing technology offers today's overworked logistics executive a powerful weapon in the fight against risk of supply chain disaster. As broader globalization, increased complexity, and shorter fulfillment times continue to increase pressure on supply chain operations, the range of possible outcomes has widened, with the good and the bad becoming more extreme.

A number of factors can put your logistics applications at risk – the key is having confidence that your system will perform when the unexpected hits. This is where load testing comes in.

LOAD TESTING 101

Simply put, load testing is the process of deliberately putting demand on a software system or computing device, then measuring its response. In essence, it "tests" whether your IT systems can handle a range of possible situations without waiting until they occur and hoping it will all work out. Load testing is the Holy Grail of testing – most logistics managers want to implement it, but often do not know where to start or cannot afford the time and resources it requires. Typically load testing is done using sets of data that act as instructions for performing tests on a given system to determine the system's behavior under both normal and anticipated peak load conditions.

"In supply chains, this means testing how your systems will perform in high-stress situations like peak season, new-product launches, or any kind of shift in operations, such as switching to omni-channel fulfillment or bringing a new warehouse picking system online," said Nyle Morris, SVP of Sales and Marketing at Tryon Solutions. "The costs of failing to smoothly implement such changes are high, yet it's a risk many logistics managers are forced to take because they haven't learned how to effectively integrate testing into their regular operations."

A classic example is the Christmas delivery debacle in 2013 that left UPS and Amazon forced to offer refunds to customers who did not receive their orders on time after a larger-than-expected surge in last-minute online shopping caught the shipping giants off guard. The brutal fact is that, if they'd done load testing across all operations before hand, they would have known that delivering all those orders on time was an impossible feat.

The trick is identifying how you can conduct load testing on a regular basis as part of your daily or weekly operations. Traditionally, testing—especially load testing—is billed as a separate effort with special budget and time allowances, and it is usually left to the end of a project. This approach requires significant time and resources, and can put a major strain on operations. If you're lucky, you might be able to allot enough resources for testing at the end of a large project or implementation, but logistics managers are rarely afforded the luxury of testing as much and as often as they'd like. More often than not, you're stuck crossing your fingers and hoping for the best when volumes peak or changes are pushed into production.

A BETTER APPROACH

Integrating testing into the project methodology at the onset of the project is a much more effective approach than determining the benchmarks of success or failure later on. Ideally, you will be able to document requirements in a way that can be translated directly into executable tests with minimal editing. This approach demands two critical requirements from your testing software: first, tests must be written in plain text with no specialized language or code so that both business and technical users can understand and edit them. When invited to participate earlier in the project methodology, business users can draft tests directly in line with requirements. Thus, tests become a by-product of your workflow rather than a separate effort tacked onto the end of a project, when timelines and budgets get cut short.

Second, testing software must be capable of testing systems comprehensively. Well-designed load testing doesn't just test back-end system infrastructure; it tests systems from all angles, including an end-user perspective, making sure that everything runs as it should for the workers on the warehouse floor, in the receiving dock and everywhere else. Sound testing closely mimics "day in the life" scenarios, when your warehouse is actually under strain. "In our experience, people inevitably end up using software in ways that are different to how it was designed," said Josh Owen, VP of Product Development at Tryon Solutions. "That's only natural, so it's important to consider what high-stress volume will look like to someone doing their job. Good load testing will emulate human interactions with the system in addition to testing back-end infrastructure simulating how operations would actually run."

The advantages of adopting this type of testing approach are multiple, allowing you to:

- Develop a strong test strategy prior to launching a project. At Tryon Solutions, we provide sample project briefs that give your team an outline for tackling testing—from identifying stakeholders to documenting the project plan and measuring results.
- Stress system components that may be subject to performance degradation prior to trying out a new production environment. Our tests are engineered to stress hardware, vet contention and measure total system capacity. They often find unexpected points of weakness.
- Test to failure. Pushing your system to failure enables you to pinpoint exactly when and where functions break so you can address weaknesses before moving to production.

STRATEGY FOR SUCCESS

Gone are the days when you could expect a peak once a year. Load testing is crucial, and doing it repetitively can give your company a competitive edge. "Beyond load testing, the need for regular regression and unit testing following hotfixes, modifications and upgrades can give companies a real advantage when it comes to delivering on customer expectations," said Morris.

Supply chain managers need to take testing in hand and move to an integrated, automated methodology. The stakes are high. Product launches that rely heavily on high-performance IT applications are key events for a huge number of companies. The company and systems must meet sky-high customer-service expectations, or face customer outrage and a public firestorm on social media. On the bright side, this is exactly the kind of proactive, automation-based strategy that will help you gain a competitive advantage in the marketplace. It makes your company look well-versed and responsive in the current culture of immediacy.

Equally important: do not make the mistake of believing this is a matter simply for your IT department. With the growth of multi- or omni-channel supply chains and the increased complexity that brings, workforce productivity is becoming more and more business-driven. Everyone has a stake in making sure software systems work, as these systems are becoming more integrated and dependent upon each other. "It's no longer enough to rely on your IT department alone to anticipate and fix the inevitable integration bottlenecks that will affect downstream applications," said Owen. "It is a far more effective approach to anticipate areas of concern and collaborate across teams to test and resolve those issues before customers are impacted."