SOLUTION SHEET

Deliver Fast and Reliable Digital Experiences with k6

Solution Sheet.pdf Executive Summary.pdf

As more consumers spend time on well-engineered websites and applications, their expectations regarding digital experiences rise. Consumers expect a great user experience from every site they visit and every application they use. Online businesses must always deliver a first-class digital experience to stand above the competition and retain customers.

Consumer expectations have put pressure on software development teams to continuously build new and improved features and deploy releases faster. Many engineering teams have now adapted to a new era of software development that involves agile methodologies, DevOps, and cloud technologies to ship software to end-users as fast as possible.

> **65% of respondents** surveyed for the 2020-2021 World Quality Report **consider the technology stack essential** or almost essential for successful agile and DevOps adoption.

To create the best online experiences for customers, businesses must stop using legacy testing solutions and leaving quality assurance (QA) as an isolated activity at the end of the development process. Various roles across the organization should collaborate on testing and always follow testing best practices.

If you want your business to provide the best digital experiences for customers, you need your development teams to move away from legacy testing solutions and towards a modern testing solution that enables them to:

- Improve the digital experience for customers.
- Prevent slow response times and errors in applications.
- Prepare applications for unexpected demand.
- Accelerate the time-to-market.
- Innovate while avoiding software regressions.
- Improve costs, quality, and speed in the testing process.

Enter k6, a modern load testing platform that ensures your teams build high-performing websites and applications that help achieve the overall goals of your business.

Improve the digital experience for customers

As more and more digital products compete for the attention of consumers, delivering a vastly superior user experience is critical to increasing product adoption, customer trust, and brand loyalty. Seamless and instant online interactions increase customer satisfaction, having a strong correlation with your conversion rate and future revenue.

> A Propellernet study found that when **website visits on a desktop** were faster than average, users were **19% more likely** to convert compared to desktop visits that were slower than average. When **website visits on a mobile device** were faster than average, users were **41% more likely** to convert compared to slower than average mobile visits.

Savvy customers expect your website to be fast and may take their business to competitors if they experience slow-performing pages. Unhappy website visitors may post about their negative experiences on public forums like social media and customer review websites.

The cost of public failure and damage to a brand is harder to quantify than decreasing conversion rates, but they still pose a significant risk. However, with k6, teams can continuously test websites and applications, discovering performance issues before they become problems for your business.

Prevent slow response times and errors in applications

Users expect all the interactions with your digital products to be fast and error-free. As the number of users who visit web applications from mobile devices increases, slower mobile networks make tuning for speed important. And offering a seamless and frictionless experience across all devices is now an essential requirement for digital products.

Traditional site reliability engineering practices dictate that errors are inevitable. Therefore, engineering teams should build a resilient infrastructure that can recover from errors quickly without impacting users.

> A Split Software survey found that **23% of teams discover slow pages or database queries** after releasing a new feature.

A powerful load testing solution like k6 will facilitate your teams to simulate user flows that are important for your business. Your teams can then find unexpected issues, proactively preventing slow responses and errors, minimizing the risks of breaching your SLAs.

Prepare applications for unexpected demand

The demand for a website or application rarely stays the same—things like marketing campaigns, high-season events, and product launches can trigger a high number of unexpected visitors. Peak events are often a crucial moment for an online business, so the engineering team must ensure that applications scale to meet unexpected demand.

Every business incurs a cost when a website or application experiences an outage. Small companies might lose an opportunity to grow and expand their user base. For larger companies, outages often lead to missed sales, a tarnished reputation, and the loss of customer trust.

> The Costco website experienced an outage on Thanksgiving Day 2019 that lasted about 16 hours. The retail and deals site Love the Sales estimates that the **outage cost Costco $11M** in **lost sales**.

Engineering teams must perform spike and stress testing so that websites and applications can handle peak events and sudden unexpected traffic surges. And with k6, they can perform spike and stress testing with ease proactively preparing their systems for critical events.

Accelerate the time-to-market

In recent years, IT organizations have changed their software development process from the waterfall model—a linear workflow with each phase completed sequentially— to agile and continuous integration and continuous delivery (CI/CD). This approach alleviates the friction of ineffective testing because testing is a continuous process across various teams and not an isolated activity at the end of the development cycle. Also, many companies have moved towards automating much of the testing process, allowing teams to deploy products to market faster.

> The State of DevOps report found a correlation between software delivery velocity and automation. Teams with a higher degree of testing automation can ship products more quickly than teams who must spend a lot of their time on manual testing work.

k6 provides a convenient enterprise solution for the various roles participating in testing, reinventing performance testing with the best developer experience and native automation to speed up software delivery. Using k6, you can automate much of the testing process, allowing teams to spend more time building software and less time working through QA issues.

Innovate while avoiding software regressions

Innovation requires experimentation, especially when it comes to software development. However, the slightest change in code can lead to unexpected problems for an application. And some teams don't spend much time on regression testing, making sure that code changes don't break or slow down other parts of the application.

For product and engineering managers, shipping incremental releases continuously is a proven process to learn quickly from the needs of customers and build solutions to fulfill them faster. However, the risks of moving fast and breaking your SLAs are high.

> Nearly 20% of organizations release features daily. **82% of teams discover bugs or defects** after releasing features, and **27% encounter an outage/downtime** after releasing a feature, according to a Split Software survey.

k6 integrates well in the CI/CD process, allowing teams to continuously test existing SLOs and deploy new features without breaching them. With k6, you can detect software regressions before deployment, preventing customers from finding bugs or defects in your software.

Improve costs, quality, and speed in the testing process

In the testing industry, aligning the best practices of agile methodologies and continuous delivery has brought benefits in costs, quality, and speed without making trade-offs. This is important because QA and testing activities often make up 15% to 30% of an organization's total engineering budget. If you shift part of the testing workflow to developers, you can increase testing quality and reduce the costs associated with ineffective testing operations. Moreover, continuous testing and automated testing can help your entire software organization complete projects faster without compromising quality.

> "Achieving not just quality, but value, at speed remains the focus of quality transformation, and that's why we're seeing growth in test automation, and in shift-left, and more," states the World Quality Report. According to the report, **52%** of respondents said they **always or almost always** prepare and execute testing as early as possible (shift-left).

By incorporating k6 into your technology stack you can improve your testing process dramatically. Add k6 Cloud and you can direct your teams to focus their full attention on developing the core features of your software products. They don't have to spend any time on load testing infrastructure; we handle it all - from load generation and result storage to report creation and alerts. With k6 Cloud, you get all the benefits of a modern cloud load testing platform.

Continuous and consistent load testing with k6

Delivering reliable and fast applications at any time is the promise of load testing.

k6 is an open-source load testing tool and cloud service that provides a great developer experience and a more convenient, easier, and faster way of testing. Our solution brings cross-functional teams — including developers, DevOps, SREs, and QA teams — together to test early and often, ensuring that every application performs well.

> k6 Cloud Enterprise has enabled our quality engineering team to build more confident testing and streamline the process for deployment of new features and products, creating an all-around first-class experience for our customers.
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> **Eric Stone**
> Software Engineer, Carvana Case Study

> Performance and reliability of our platform are of the utmost importance for Olo, our brands, and our partners. As a result, k6 has become an invaluable part of our test stack. k6 helps us quickly experiment with new ideas and verify that releases are production-ready.
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> **Jake Travisano**
> Staff Software Engineering in Test, Olo Case Study