451 Research
S&P Global
Market Intelligence Business Impact Brief

Beyond Chaos – Reliability Management in the Age of Cloud Native

The 451 Take

Both cloud-native technology and chaos engineering are evolving in the enterprise, presenting opportunities as well as challenges for today's organizations. Cloud native holds the promise of providing benefits such as efficiency, developer speed and productivity, and portability. To achieve these objectives, though, enterprises must overcome common cloud-native challenges such as security and compliance concerns, complexity and lack of skills/staff. Chaos engineering is also evolving, with use cases rapidly expanding beyond simply testing for smaller, more technical faults and system failures to ensuring and managing reliability across a complex landscape of infrastructure and applications. *Chaos engineering must evolve beyond these smaller instances to create realistic simulations that accurately reflect today's market and risk.*

These two trends are converging on the key area of technical and business resiliency, with a wider scope of reliability management to allow teams to work more quickly while avoiding failures, outages and downtime. Recent events — dramatic changes in the market such as new technology and services, security issues and a global pandemic — have emphasized the need for digital transformation, organizational agility and technical and business resiliency. All of these factors are forcing today's enterprise developer, DevOps and site reliability engineering (SRE) teams to increasingly focus on user experience and other business outcomes even more than elegant code and scripts (see figure below). Standardization and automation must play a part in enabling teams so they can focus on innovation, performance, scale and resiliency to deliver business benefits in addition to faster releases.

User experience tops desired DevOps outcomes

Q. Which of the following outcomes is your organization attempting to achieve by adopting DevOps and its continuous integration/continuous delivery (CI/CD) tools and practices? Please select up to three.

Base: All respondents (n=494).

Source: 451 Research's Voice of the Enterprise: DevOps, Organizational Dynamics 2021.

Business Impact

Today's enterprises must move beyond chaos engineering and tactical testing for system failures. Instead, they should consider the entire software development and deployment process to fully leverage the benefits of faster DevOps releases. Cloud-native technologies such as containers and Kubernetes are also critical to accomplishing this move to reliability management, which more strategically and broadly tests for failures to drive a standardized, automated approach.

Reliability management also means infrastructure, applications and processes are resilient across a range of services and use cases, regardless of infrastructure (on-premises, private cloud, multiple public clouds, edge, etc.). Cloud native has also proven to be a good match for these hybrid and multicloud deployments because it can serve as a consistent, central control plane across all of them. However, cloud native can also add to the complexity of managing reliability.

While resiliency is a key component of reliability management, it is also important to integrate security elements and strategy early in processes to reduce risk. These components can enable organizations to move beyond tactical, triage-type reactions to more strategic, standardized and automated reliability management. Organizations should not have to rely on failures to measure reliability; they should be able to take a proactive approach by measuring and improving progress and outcomes.

When developers, DevOps and SRE teams can leverage more consistent and automated platforms, tools and integrations through reliability management, they are better placed to focus on improving user experiences, customer satisfaction and other positive outcomes. This is increasingly a hallmark of advanced teams that are seeking benefits beyond improvement of internal processes; they are considering end users and customers as they never have before. According to our Voice of the Enterprise: DevOps, Organizational Dynamics survey, this is reinforced by a growing number of enterprises that use business-level metrics — such as user experience and customer satisfaction (50%) — alongside quality (60%) and performance (57%) metrics to measure DevOps success.

Looking Ahead

As enterprises leverage cloud-native and DevOps approaches to achieve not only technical objectives including speed and efficiency, but also business benefits such as improved user experience and customer satisfaction, they will need to move beyond chaos engineering to reliability management that enables them to truly understand what's going on with infrastructure and applications. They will also have to leverage standardization and automation to drive resiliency and move beyond tactical system testing for failures to more holistic, strategic reliability management that allows teams to focus on shipping new features and products rather than compiling components or configuring environments.

This approach can also produce greater organizational agility so enterprises can effectively respond to changes in the market. With broader reliability management, organizations will be better positioned to achieve data-driven and business-driven DevOps outcomes that center on business and customer-oriented objectives.