

Site reliability engineering (SRE) is playing an increasingly important role in modern IT practices. Service-level objectives (SLOs) are one of the foundational opportunities to link SRE value directly to business outcomes that drive reliability and great customer experiences.

# *SRE Blueprint: Creating and Fulfilling SLOs for Optimized Business Outcomes*

October 2020

**Written by:** Stephen Elliot, Program Vice President, Management Software and DevOps

## *Customers Demand Great Experiences*

Business and technology executives face economic and competitive challenges to expand their customer engagement models and deliver meaningful customer experiences. Successfully driving growth requires customer engagement from high-performing services. If services do not perform, customers simply spend time and resources with a competitor. Importantly, customers bring their own expectations when it comes to reliability.

Services often utilize multiple cloud platforms and are a mix of classic and modern application (i.e., containers and microservice) architectures that increase complexity. To manage these business and technology challenges, CIOs and their teams have created new organizational structures and adopted modern operating principles using Agile, DevOps, and site reliability engineering (SRE) so that service reliability drives great customer experiences. Executives increasingly realize that their technology architecture is, in fact, their business architecture — and service reliability has a direct impact on revenue growth and business stability.

Executives increasingly realize that their technology architecture is, in fact, their business architecture — and service reliability has a direct impact on revenue growth and business stability.

## *SRE Principles and SLOs Solve Common IT Challenges*

Almost every software organization has a set of common challenges that inhibit great customer experiences and increase costs. Adopting SRE principles and a service-level objective (SLO) strategy can help reduce these pain points. They put the focus on the user, reducing political inertia and streamlining a vast array of internal, often opinion-driven discussions. Some of the core challenges are as follows:

- » **Tool sprawl monitoring.** Complex systems and multiple tools make critical metrics hard to find; the SRE model and SLOs enable discussions on the metrics that matter to individual services by understanding the user journey and what users value in their service experience.
- » **User/internal customer understanding.** SRE works across the organization to define users or internal customers and what they value, and SLOs map that value to the technology metrics that drive the right level of service reliability. 100% service reliability is not a feasible or desirable goal.

- » **Cost containment.** SLOs place the focus only on the metrics that matter from monitoring systems to deliver the right level of reliability for each service, thus maintaining an optimal cost containment strategy that aligns with keeping customers happy through highly reliable services. SLOs also help reduce how many metrics are stored in the long term, further reducing the cost of monitoring.
- » **DevOps modernization and acceleration.** SRE principles enable a modern developer-driven approach to service reliability and customer experience capabilities. SLOs empower operations discussions to evaluate investment trade-offs and focus on the user journey and the associated metrics that support a positive, reliable user experience.
- » **Business context.** SRE principles and SLOs compel organizations to focus on users (both internal and external) and their business journey with the company; they drive visibility into how users experience services and what users value from the services. Great customer experiences drive trust, which requires reliable services.
- » **Service sprawl and dependency depth.** SLOs help address tail latency problems driven by high fanout systems, which are increasingly common with container and microservices architectures.

## *The Business Value of Adopting SRE Principles and SLOs*

SRE principles are playing an increasingly important role in modern IT operations practices, redefining the role of operations in IT organizations by applying software engineering principles to infrastructure and operations tasks. In fact, SRE is an implementation of the DevOps paradigm and its related principles; SRE implements practices with a focus on service reliability by using principles, implementing automation, focusing on user journeys, and taking a pragmatic approach to outcomes focused on the customer experience and its associated value. From a cultural perspective, SRE principles have also helped CIOs migrate their culture toward a more data-driven, fact-based decision-making environment. To deliver business outcomes, SRE typically focuses on three questions that shape the foundation for success:

- » **What is the service and user journey?** The SRE team should have a deep understanding of what the components of the service are and how the user journey is executed to deliver value and a positive customer experience. The SRE team must understand how the user experiences the service.
- » **What is the SLO?** Service-level objectives establish performance and reliability targets for a service over a specified time. SLOs should reflect the level of service availability that would satisfy users, therefore defining the amount of unavailability that would not disappoint them to an unacceptable degree. This in turn has implications for budgeting the infrastructure spend.
- » **What are service-level indicators (SLIs)?** SLIs are performance metrics collected to inform the SLOs. SLIs are the metrics that drive SLOs and reliability targets. It is important to focus on the metrics that matter to the SLO reliability goal.

Why are SLOs important to drive an increase in productivity and higher levels of reliability? They offer SRE the ability to scale out a service as user demand grows while ensuring high levels of reliability with clearly defined performance and reliability targets that align teams and behaviors. SLOs empower SRE and developer teams to better understand what users care about in the service. SLOs also allow teams to prioritize their work during the life of the service. As user demands change, the service can more efficiently adapt to deliver value. Adopting SLOs helps engineering teams deliver optimized reliability, reduce team burnout, and provide a high-performing digital experience.

## Creating Effective SLOs

Defining SLOs takes a collaborative team that includes product managers, engineers, and site reliability engineers. In addition, a good SLO reflects transaction volume and value. When enterprises take the time to build good SLOs, they will ensure that their evaluation of reliability takes into account the user experience. Some enterprises use the following seven-step process for creating SLOs:

Determine and define the SLI types that best capture users' experiences.

1. Determine and define the SLI types that best capture users' experiences. Define how users most commonly interact with the service, identify the features they use, and understand the components that create the service. Examples include how long an operation takes to complete, whether it completes successfully, or whether the data it provides is correct.
2. Define and align the SLIs (metrics) that matter most in the user journey by defining the actions that matter most to users.
3. Choose how to measure SLIs using a monitoring/observability system and capture the actual user experience.
4. Collect SLIs (typically two to four per service) for several weeks to create a service performance baseline, and then estimate the initial SLOs per service.
5. Create error budgets (an error budget is the maximum amount of time that a service can be unavailable without contractual or user consequences) from the initial SLOs to establish targets that drive user happiness and a positive customer experience. Ensure that SLOs that have been reviewed and approved are required before a new service can be put into production so that SLOs become part of the service definition.
6. Publish SLOs to broader stakeholders to make the SLO values available to users to help them understand the reliability guarantees that the service offers. This often includes what the service is and how it's used, the defined types of SLIs being measured, how the SLIs support the SLOs, the SLO definitions, and the business/technology context for why the SLIs and SLOs were chosen for the service.
7. Review outages and SLOs on a regular basis to ensure existing SLIs capture outage scenarios and tune objectives where appropriate. This supports the idea of continuous improvement.

## Conclusion

As economic and business environments change, so do the way customers engage with businesses and their expectations for the engagement. Most customers now use (and often depend on) digital services that are highly complex and utilize multiple infrastructure types to deliver a positive experience. Service reliability and deep customer relationships are fast becoming indicators of revenue growth, customer renewal rates, and business reputation.

To drive competitive advantage through software reliability, SRE principles and SLOs are increasingly required to contain costs and deliver services that users appreciate and find valuable. As IT organizations continue to drive competitive advantages with the business, SRE and SLOs are increasingly the secret weapons in driving great user experience and loyalty.

## About the Analyst



### **Stephen Elliot, Program Vice President, Management Software and DevOps**

Stephen Elliot manages multiple programs spanning IT Operations, Enterprise Management, ITSM, Agile and DevOps, Application performance, Virtualization, Multi-Cloud Management and Automation, Log Analytics, Container Management, DaaS, and Software-Defined Compute.

## MESSAGE FROM THE SPONSOR

### **Service-Level Objectives Help Achieve Efficient Reliability**

If you're looking to improve reliability and deliver services in a cost-efficient manner your organization can use SLOs help to define goals and engineer appropriate solutions. For additional resources on SLOs, check out Nobl9's Resource Library, SLO Bootcamps, and SLO platform.

Nobl9, the software reliability platform startup, is in the noble pursuit of reliable software. Founded by Marcin Kurc and Brian Singer, who joined Google via acquisition of Orbitera, Nobl9 helps software developers, DevOps practitioners, and reliability engineers deliver reliable features faster through software-defined Service-Level Objectives that link monitoring and other logging and tracing data to user happiness and business KPIs. The company is backed by Battery Ventures, CRV, Bonfire and Resolute Ventures and is headquartered in Boston with a distributed team. More at [nobl9.com](https://nobl9.com).

### IDC Custom Solutions

The content in this paper was adapted from existing IDC research published on [www.idc.com](https://www.idc.com).

This publication was produced by IDC Custom Solutions. The opinion, analysis, and research results presented herein are drawn from more detailed research and analysis independently conducted and published by IDC, unless specific vendor sponsorship is noted. IDC Custom Solutions makes IDC content available in a wide range of formats for distribution by various companies. A license to distribute IDC content does not imply endorsement of or opinion about the licensee.

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2020 IDC. Reproduction without written permission is completely forbidden.

**IDC Research, Inc.**  
5 Speen Street  
Framingham, MA 01701, USA  
T 508.872.8200  
F 508.935.4015  
Twitter @IDC  
[idc-insights-community.com](https://idc-insights-community.com)  
[www.idc.com](https://www.idc.com)