

Optimizing Performance of Enterprise Web Application

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3.1 Introduction

An optimized website is quintessential to realize the end objectives of an online strategy by capturing and retaining the customer focus. Web performance optimization (WPO) has multidimensional impact and hence it forms a critical success factor for all online projects. Implementing a successful strategy for high-performance sites requires a multi-faceted approach involving various engineering teams.

This chapter aims at providing a comprehensive end-to-end strategy for WPO by drawing learning and best practices from numerous performance engineering exercises and real-world project implementations. It covers the performance-based design, performance-based development principles and testing approaches, and then elaborates on methodologies to monitor and maintain the optimal performance for long-term success. Numerous other factors that have an impact on performance such as infrastructure, caching, content strategy, multichannel access, and secure HTTP optimization and governance framework are also discussed in depth to provide a complete picture of all aspects of performance optimization. The chapter also discusses the following aspects related to performance:

- Impact factors of page components on overall page load time and common performance pitfalls
- Performance-based approach in each of a project's lifecycle stages
- Internal and external performance-based monitoring infrastructure components and methodologies
- Rapid rendering framework
- Key performance metrics and governance framework.

In this chapter, we discuss the importance and a brief overview of WPO. We then look at the performance principles in various Software Development Life cycle (SDLC) phases of a software project. Performance optimization for ecosystem elements such as caching strategy, content strategy, infrastructure, performance tools, and performance governance framework are discussed in subsequent sections.

3.2 WPO concepts and analysis

3.2.1 Basic concepts of WPO and its impact on online strategy

WPO is essentially related to methods and techniques to optimize the speed of web pages, which involves analyzing all web page components to optimize the page