Chapter 34
Testbed Platform:
Amazon Web Services for Library

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ABSTRACT

Libraries invest millions of dollars in developing and maintaining library applications that are core to their libraries and help them to improve their competitive advantage through operational excellence of libraries. Continuous changes in the library environment forces the library to innovate and optimize their library process, resulting in continuous changes in the software applications that support the library processes. As a consequence, delivering applications rapidly that are defect free, scalable, and reliable becomes challenging. Testing becomes a critical and vital step in the process – not only in terms of coverage but also in terms of performance, security, and usability. Setting up test environments that closely mirror the production environment can be expensive – in terms of hardware, licenses, people to manage library infrastructure and its application. "Testing as a Service" – a new paradigm of Cloud-based "On Demand" testing service can help libraries to address this challenge. This chapter focuses on how libraries can optimize their IT budget through a strategic initiative in the form of "On Demand" testing. This chapter describes Requirements of Testbed Platform, Cloud Testing, and Benefits of testing using cloud environment for library Amazon Web Services – Public Cloud Services.

INTRODUCTION

The recent sharp downturn in the economy is forcing libraries to reconsider their approach towards IT investments. In a world where companies are more focused towards improving efficiencies and return of capital employed, CIOs/CTOs need to reconsider how they can reduce their technology investments, or get higher return on the same or incremental investments. Testing is crucial to enhance user satisfaction and reduce support cost. However, testing requires libraries to invest in people, tools, and environments and can take up a significant percentage of the available budget. But quality can never be compromised. New ways of development and testing on AWS are enabling libraries to ensure higher quality but with significantly lower investments.

REQUIREMENTS OF TEST LAB

Testing is a vital phase in any software development and maintenance initiative. Frequently changing requirements coupled with a reduced development life cycle has increased the pressure on testing teams to do more with less. A dedicated test lab is one of the solutions to handle this challenge. Traditionally, to support a test lab initiative, an organization would need to put the following infrastructure/resources in place:

- Target testing environment, similar to production environment of library.
- Multiple target software platform for compatibility testing of library.
- Skilled library professionals to design, develop, and execute test scripts; and analyze the results of the tests.
- A good test automation library software with multiple virtual user licenses.
- Sufficient bandwidth for simulating real life scenarios of library operations.

CHALLENGES FACED

Setting up a dedicated, in-house test lab of libraries comes with its own set of challenges. Some of the major challenges faced are:

- **Infrastructure:** Hardware and software resources, establishment of proper tools and processes, and other resources like bandwidth. This creates a strain on the overall budget.
- **Scalability:** To ensure that software works in a real life situation, it needs to be tested in a real life environment. It is not easy for an organization to create a scalable infrastructure that simulates the production environment.
- **Cost:** There is a major capital investment required to own a proper test lab. Since most of the cost is a fixed cost (hardware, software, and tool licenses) it also creates a challenge to allocate budgets for this kind of investment and justify the ROI.
- **Availability of Skilled Library Engineers:** Skilled test engineers, especially automation engineers, are not available easily and are very expensive.

CLOUD TESTING: NEW PARADIGM

Cloud Computing, one of the most highly publicized IT technology trends, is a new approach to deploy/test applications "over the Internet." Cloud Testing utilizes the same computing concept to extend current testing paradigms using shared, scalable, "on-demand" testing infrastructure that is allocated on a "pay as you go" basis. This model provides an unparalleled flexibility of ramping up and tearing down a testing environment in short notice. A new test harness can be launched in the cloud with all the necessary configuration work completed, including operating system, software, and so forth, in almost no time. Libraries need not procure any server, tools or licenses – they need to hook up, deploy the software, test, and start paying for just the resource usage. Same efficiency applies to shutting off a cloud environment – just cancel what you don't need. The Cloud Testing model's flexibility reduces much of the capital cost, risk and effort associated with establishing an appropriate testing environment for the enterprise. More importantly, libraries can focus on their core capabilities.

CLOUD

The term "cloud" is used as a metaphor for the Internet based on how the Internet is depicted in computer network diagrams. It is an abstraction for the complex computing infrastructure it conceals. Cloud computing is a style of computing in which

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