Product Testing Considerations Enterprise Architecture Module 4 notes:

Introduction

Enterprise systems need **testing environments** for the users to work in to **prevent damage to the functioning production systems**. A testing environment can be created for infrastructure or software changes. Isolating the testing regions will prevent the users from any confusion that might occur if they misunderstand the differences between the testing and production environments.

Enterprise System and Developer Testing Regions

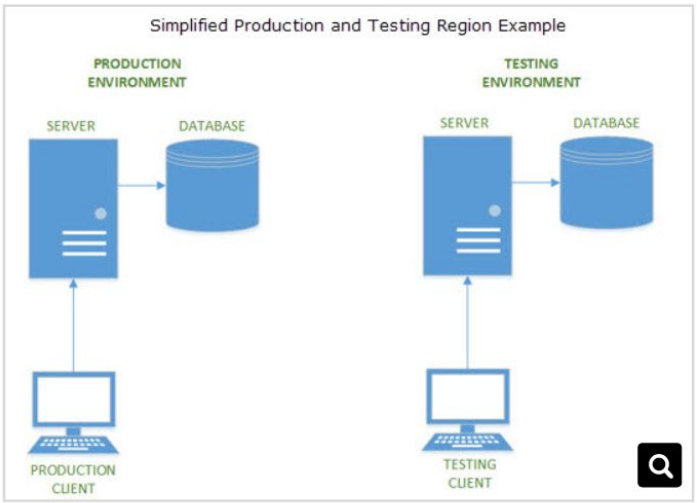
There are a couple environment conditions to consider with every testing region such as the **duplicated infrastructure** and the **developer's software changes**. Not all businesses with a local Information Technology (IT) infrastructure can afford to have a testing region.

A **testing region** is a **separate,** and for many organizations, an **isolated environment** that contains the *exact same servers, databases, and software* needed to *duplicate the production environment*. The purpose of the testing region is for a single tester or group of testers to test a product or service. A tester with experience can make a difference in the quality of the product.

Testing a product is sometimes automated with other software tools designed for testing a product or service. A programmed test can go through a product using customized software code and quickly test all of the products components. *Keep in mind that a customized program testing tool will only do what it is **programmed** to do.*

Human testers can do the same test and return either the *same results, better results, or worse results depending on the humans understanding of the business rules* behind the product or service being tested.

Duplicate Testing Environment



The responsibility of a system administrator is to duplicate all the enterprise systems within the testing environment and mirror the production environment (e.g. above image - Production and Testing Environments). If the systems are not similar then the test in the testing region could be flawed. Imagine spending two weeks of your time testing a product or service in a testing environment that is older than the production system.

The kinds of problems the product and service will experience in production are limitless, if the product and service were moved from this type of testing environment to a functioning production environment. **The testing and production environments should have the same hardware, software, operating system, and hotfix patch updates**, *so that each test will run and act as it would in the production environment.*

Developer's Responsibility

The developer's responsibility in a testing region is to make sure the user has the latest software changes to test. Typically, the developer will coordinate the test with each user so they know when to test. The users should not be in the testing region unless they have a purpose. It is possible that a tester might think they are in a production system.

In some testing regions, it should be clear what the differences are between the testing and production systems. **Many** enterprise **testing environment regions are physically located in a special place** for the users to work in so they do not get confused between the testing and production systems. *A tester with more experience within that enterprise environment can access the testing regions remotely.*

Another developer responsibility makes sure the system administrators **update all testing region database** with the **most current production databases** as often as it is needed. This is **called a refresh** when the developer requests the system administrators to update the testing region databases with the production databases.

Building a Testing Script

A **testing script** is a **documented procedure that helps the tester walk through the test step-by-step** as the product or service was designed. There are some good reasons for using a testing script and some reasons to avoid testing scripts. A testing script can help someone who is not familiar with the product or service. The testing script sample shown below, can help a tester understand the purpose of the test and help them learn more about the product. *A testing script is not always necessary if the tester is already familiar with the product.*

Testing Script Sample

Purpose: This script should walk the tester through a set of steps to verfiy the SSN validation is working properly.

Step #1
Enter a value into the SSN field

Did the field accept a string value? (yes or no)
Did the field format the SSN as you were typing? (yes or no)
Can you enter a hyphen into the field or other special characters? (yes or no)

Step #2
Press the save button

Did the button respond with a prompt such as "Are you sure you want to save?" (yes or no)

Step #3

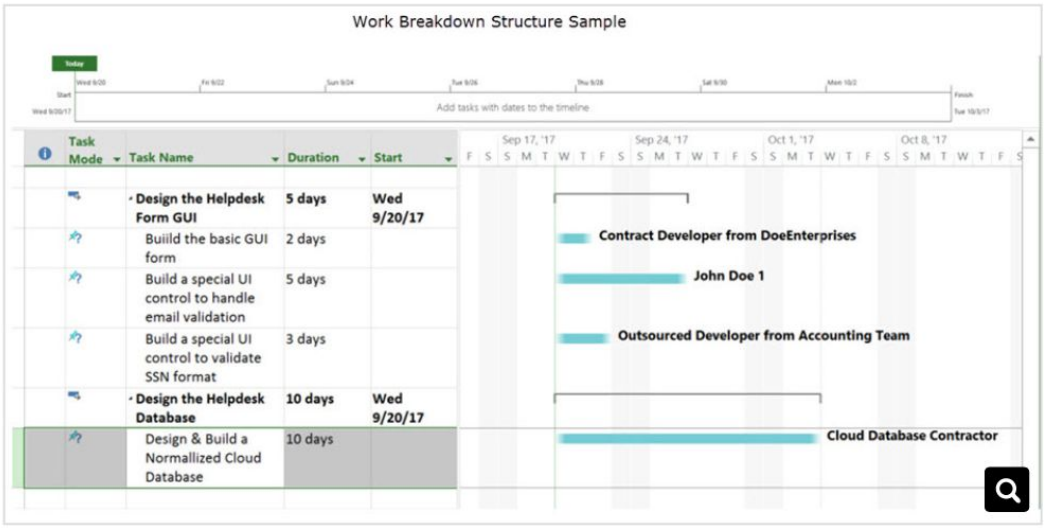
If any of these steps failed, contact the system administrator at (111-222-3333)

Developers test as they are building the product or service and this becomes an issue with a developer writing a testing script. Programmers will test the product as it was designed and documented in the project use-case but they do not test the product as a normal user would. The users will walk through the product and look for functionality in each test that the developer might not notice.

Project managers like to know who is working on each of their projects. *A **kickoff meeting** is the type of meeting that gets everyone together to discuss the purpose of a project.* During this meeting, the project manager learns who is on the project and their roles, which simply means your purpose in the project.

A **work breakdown structure** also known as **WBS** is an itemized list of tasks. The project manager builds the WBS into **groups of tasks with timelines and costs** to help the managers understand the **cost of each deliverable**. The WBS is necessary so the project manager can watch each task as they begin and end. The WBS is a critical process for managing each project since the PM needs to know who will perform the action required for each task and when it will be executed.

WBS



The above image is a sample of a project **Work Breakdown Structure** for a simplified application. The WBS shows **two main deliverables** such as “Design the Helpdesk Form GUI” and “Design the Helpdesk Database”. The tasks in each deliverable have one or more tasks that are assigned to a developer such as “John Doe 1” or “Contract Developer from DoeEnterprise”.

These tasks also have a timeline of 2, 3, or 5 days. This is critical information that a project manager can look at and make sure that the right person or team of developers working on specific tasks within a specific amount of time. Deliverables are critical to the project since the project manager and project sponsors watch the deliverables as a project milestone.

Summary

A developer can work within many testing regions since an enterprise environment can have several testing regions for each IT project.

The different testing regions need to be setup so the testers clearly know what environment they are working in. **It is the developer's responsibility to make sure the tester knows what test region contains which product test.**

The project managers will make sure the developers know what item they supposed to work on and what the due dates are for each work item.