Iteration 3: Support quality attributes scenarios

Step 2: Refactoring the architecture to achieve the quality requirements of the system

Section will record the outcome of iteration 1 for the CMS following the ADD procedure. Whereas the goal is to address quality attribute QA-1 and the inputs for this iteration will be the quality attribute scenario.

Step 3: The tiers addressed in iteration 1 has been chosen to decompose
QA-1

Availability	Student must have high availability and must announce downtime 48 hours ahead. Avoid any downtime if possible.

This quality attribute relates to all Use Cases since it involves the shutdown of the entire system. The elements that need to be decompose are the ones from iteration 1 that dictate the system structure.

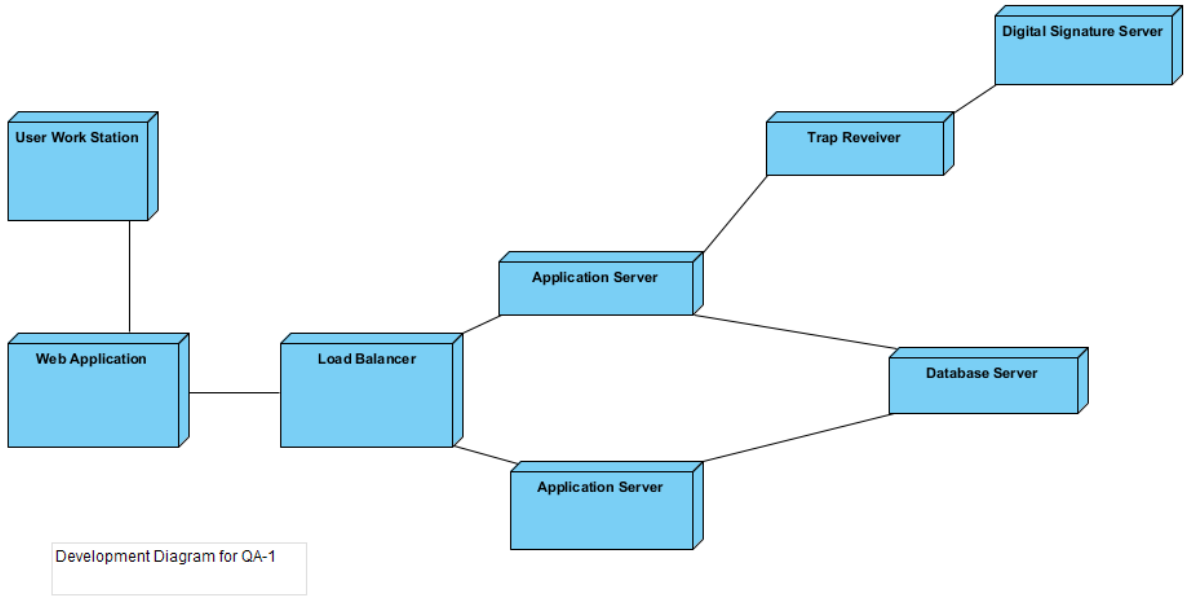
Step 4: Selection of design concepts

Design Decision	Rationale
Reliable System	System must be able to restore itself after a failure within a time limit
Introduce notification line	Allow users to be notified of the system updates
Duplicate application server	System can better withstand failure without affecting functionality

Step 5: Define elements, responsibilities, and, interfaces

Elements	Responsibility	Properties	Interface
Load Balancer	Manages the 2 application server	Time efficient	N/A
Application server	Synchronized application server to prevent overloading	2 application servers	N/A
Database server	Host database containing all types of data	Functional	N/A

User Workstation	Provide access to system	User-friendly	N/A
Web Application	Notifies user of system unavailability	Accessible	N/A
Trap Receiver	Receive signals and update system	Framework=SNMP4J	N/A
Digital Signature Server	Provides authentication	Active	N.A



Development Diagram for QA-1