### **Iteration 3: Addressing Quality Attribute Scenario Driver**

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### **Step 2: Establish iteration goal by selecting Drivers**

For this iteration, the focus is on QA2- Availability: No unexpected downtime/ expected downtime to be announced at 48 hours in advance. Downtime only during low-intensity hours, at most 4 hours/month.

### **Step 3: Choose One or More elements of the system to refine**

Application server and Database server are chosen for refinement.

### **Step 4: Choose One or More Design Concepts that satisfy the selected Drivers**

### 

|  |  |
| --- | --- |
| Design Decision | Rational |
| Apply active redundancy in application layer | This allows system to respond in the event of an application failure, by switching to a replica of the current operating application. |
| Replicating database | This reduces the dependency on one database. In the event of one database failure, there is always another backup to support the system operation. |

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### **Step 5: Instantiate Architectural Elements, Allocate Responsibilities, and Define Interfaces**

|  |  |
| --- | --- |
| Design Decisions and location | Rationale |
| Implementing another replicated version of the server | Besides being a backup plan, the second server helps distribute the workload of the original server |
| Utilizing AWS cloud service | Having a backup database in the cloud adds another safety layer upon current database. |

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### **Step 6: Sketch Views and Record Design Decisions**

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### **Step 7: Perform Analysis of current Design and review iteration Goal and Achievement of Design Purpose**

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|  |  |  |  |
| --- | --- | --- | --- |
| Not Addressed | Partially Addressed | Completely Addressed | Design Decisions Made During the Iteration |
|  | QA-1 |  | No relevant decision. |
|  |  | QA-2 | Replicated application server and database solve the issue. |
|  | QA-5 |  | No relevant decision |
|  |  | QA-10 | Replicated servers allow easy maintenance. |
| CON-1 |  |  | No relevant decision |
|  | CON-2 |  | Distributed workload allows application to handle more requests. |
|  |  | CON-4 | Fully addressed. |
|  |  | CRN-1 | No relevant decision. |
|  |  | CRN-2 | No relevant decision |
|  |  | CRN-3 | No relevant decision. |