Iteration 3: Addressing Quality Attribute Scenario Driver

Step2: Establish Iteration Goal by Selecting Drivers

The main focus for this scenario is on QA-2: The system downtime does not exceed 4 hours/month, QA-6: The server is backed up routinely to prevent data loss in the event of a server crash, and QA-7: The server performance must be within acceptable limits i.e. typical responses of 1-2 seconds at maximum despite increased server loads.

Step 3: Choose one or more Elements in the System to Refine

- Client/Server modules
- DBMS module

**Step 4: Choose one or more Design Concepts that Satisfy the Selected Drivers**

Design Decisions and Location	Rationale and Assumptions
Implement server and database backups	Server and database backups are required to prevent data loss in the case of a malfunction or crash event
Implement redundant servers to reduce down-time.	Redundant servers will allow the client to be routed to another server if one of the servers is down for any reason.
Implement performance monitoring	Performance monitoring combined with redundant servers will allow for server load management and server switching when server load gets too high

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

Design Decisions and Location	Rationale
Creation of back up servers	Back up servers are needed to mirror live server and database functionality to serve as a backup for data loss prevention
Installation of backup software	Backup software is required to make full use of backup servers by automating routine and incremental backups for all servers
Addition of a load balancer	A load balancer would need to be added to the server configuration to allow for server switching both for performance and maintenance / server crash events
Server monitoring module	A server monitoring module will assist the load balancer to switch to an available server in the event of a server crash / high server load
Creation of an application server	An application server separates the functionality from data processing. This allows for faster performance and easier maintenance.

Step 6: Sketch views and record design patterns

The following diagram shows the server configuration:
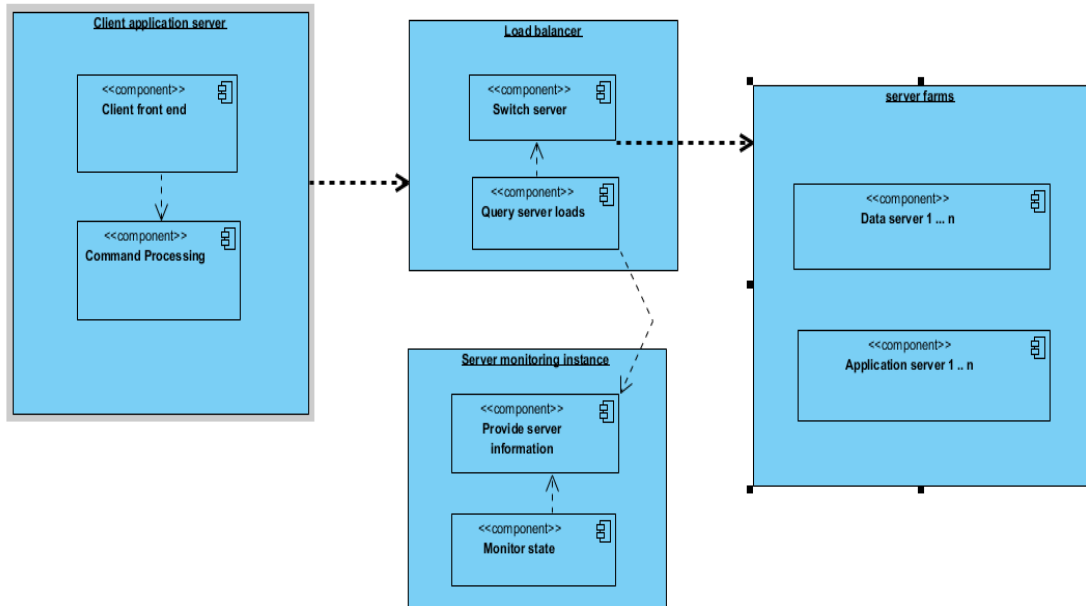
Step 7: Perform Analysis of Current Design and Review Iteration

Not addressed	Partially Addressed	Completely Addressed
		QA-2
	QA-6	
	UC-9	
		CON-1
	CON-5	