Linux Cluster Monitoring

Business Requirements Document (BRD)

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Date Submitted: March 29, 2023

Last Updated: April 6, 2023

Creation Date: March 23, 2023

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1. Executive Summary

Our organization is seeking a Linux Cluster Resource monitoring system to track our hardware usage in a data center for server planning purposes.

We aim to have this system launched within the second quarter and will evaluate systems, implement the system, and provide adequate training to users by August 1, 2023.

There are a number of requirements we're looking to satisfy, including data collection, data storage, reporting and analytics. A number of stakeholders will be involved in the selection and implementation of this system, including a project manager, Linux Cluster Administration team(business), implementation team (tech team), and support team (deployment and ongoing maintenance). This document details the selection of this system, the objectives, needs, scope, requirements, stakeholders, schedule, and cost-benefit analysis.

2. Project Objectives

The purpose of this Business Requirements Document (BRD) is to install the monitoring program on all 500 Linux servers and deliver daily usage reports by August 1, 2023. In it, we will set up a psql instance using docker on a computer for the development. Then, we will collect the hardware information and resource usage from each cluster. After that, we will create two tables to store the hardware specifications and resource usage data to perform data analytics. Finally, we will create a monitoring program to collect hardware specifications and resource usage data automatically.

3. Needs statement

The LCA team needs to get cluster hardware usage reports daily for hardware management and planning purposes. The LCA will add/remove servers if the cluster is overloaded/underutilized.

In addition, the LCA team needs to receive email alerts when a server is offline or goes over a certain usage threshold (e.g. receive an alert when CPU/RAM usage is over 90%).

4. Project Scope

The scope of this project is to evaluate and select technologies to collect, store, and analyze hardware data across a cluster. Within this, the implementation of a monitoring system and a website to subscribe and unsubscribe from reports and alerts are also included. Moreover, testing the program in DEV, QC/Testing, pre-prod, and prod environments and providing system training to the support team for maintenance purposes, and documents and manuals to the LCA team will be incorporate.

On the other hand, connecting the monitoring system with other programs within the company will be out of scope.

5. Requirements

The requirements needed are an agent program to collect hardware data from each node/server, a Relational Database Management System to store hardware data, and an analytics system for reporting purposes. Moreover, a website for subscribing and unsubscribing reports and alerts, and daily reports delivered before 6:10pm will be needed. Finally, an alert must be delivered each time a server is offline or goes over a certain usage threshold.

6. Key Stakeholders

Project Manager (Dave Smith): responsible for holding all parties accountable to the project timeline.

Linux Cluster Administration team (Brian Jones): responsible for providing business requirements such as required hardware data requirements for server planning purposes (e.g. RAM, IO, DISK, etc.), analytics, and report delivery time. Besides, is responsible for paying implementation and maintenance costs and consuming hardware reports and alerts for server management and planning purposes.

Implementation/Agile team (Glen Wiliams and Peter Davies) : responsible for developing and testing the monitoring system; the team consists of one scrum master, one product owner (can be the same project manager), one BSA, two developers, and one QA.

Support team (Seth Taylor, Riley Brown and Dan Evans): Responsible for deploying the application in the cluster (install agent to all servers and deploying the data) and ongoing maintenance such as upgrading new versions, monitoring program health, and level 2 support.

7. Schedule time, and milestones deadlines.

Gather business requirements from all stakeholders by March 1, 2023

Complete a MVP by March 21, 2023 (Implementation/Agile team)

Implement the monitoring program by May 1, 2023 (Implementation/Agile team)

Test program in DEV, QC/TEST, and PRE-PROD (or PAT/Pre Acceptance Testing), and PROD environments by May 15th, 2023 (QA from the Agile team)

Deploy the system to PROD by May 21th, 2023 (Support team)

Knowledge transfer with the LCA team by May 31th, 2023 (Implementation team and LCA)

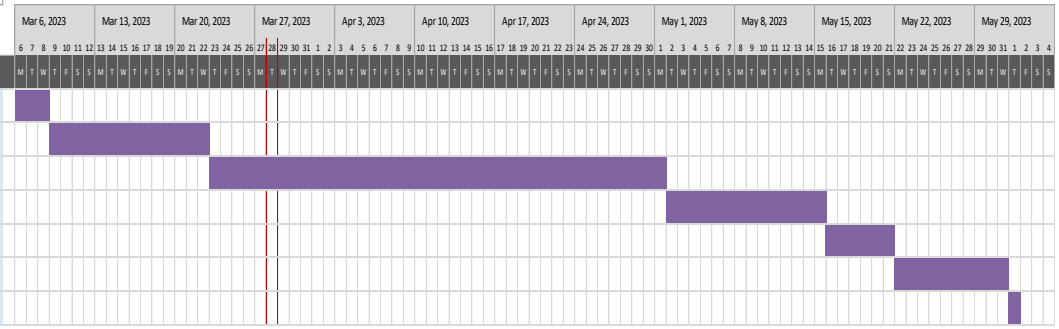
Deliver the first cluster hardware usage reports and alerts by June 1, 2023 (Support team)

LINUX CLUSTER RESOURCE MONITORING SYSTEM

Jarvis Linux Cluster Administration (LCA)
Ignacio Soto

Project Start: Wed, 3/1/2023
Display Week: 2

TASK	ASSIGNED TO	PROGRESS	START	END
Gather Requirements from Stakeholders	BSA	0%	3/1/23	3/8/23
Complete MVP	Implementation/Agile Team	0%	3/9/23	3/22/23
Implement Monitoring Program	Implementation/Agile Team	0%	3/23/23	5/1/23
Test program in DEV, QC/TEST, and PRE-PROD and PROD enviroments	QA from Agile Team	0%	5/2/23	5/15/23
Deploy the system to PROD	Support Team	0%	5/16/23	5/21/23
Knowledge transfer with the LCA team	Implementation team and LCA	0%	5/22/23	5/31/23
Deliver the first cluster hardware usage reports and alerts	Support Team	0%	6/1/23	6/1/23



8. Cost-benefits analysis

Reduce time and costs of resources to collect and manage data manually by 15% from all servers.

Reduce spending of purchasing excessive servers by 10% by removing the clusters underutilized.

Reduce the risk of project delay by 20% by identifying overloaded clusters.

Benefits of better resource planning for the future due to the knowledge gained in this project regarding the use of clusters.