

# Linux Cluster Monitoring Agent

Created By	To be Reviewed By	Date Submitted	Changes Made	Version
Kalaivani KG	Trevor Doto	28/03/2023	Initial Draft	v0.1
Kalaivani KG	Trevor Doto	06/04/2023	Corrected Alignment, Added contact information for key stakeholders, detailed version of the project objective, and cost-benefit analysis	v0.2

# Table of Contents

<b>TABLE OF CONTENTS .....</b>	<b>2</b>
<b>1. EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>2. PROJECT OBJECTIVE.....</b>	<b>3</b>
<b>3. PROPOSED PROCESS .....</b>	<b>3</b>
<b>4. PROJECT SCOPE.....</b>	<b>3</b>
4.1. IN SCOPE .....	3
4.2. OUT OF SCOPE .....	3
<b>5. REQUIREMENT .....</b>	<b>4</b>
<b>6. KEY STAKEHOLDERS.....</b>	<b>4</b>
<b>7. SCHEDULE, TIMELINE, AND MILESTONE DEADLINES .....</b>	<b>5</b>
<b>8. COST-BENEFIT ANALYSIS.....</b>	<b>5</b>

## 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 July 1, 2023.

There are several requirements we're looking to satisfy, including data collection, data storage, reporting, and analytics. Several 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 Objective:

The primary goal of this project is that we will install the monitoring program on all 500 Linux servers and deliver daily usage reports by July 1, 2023. In those servers, 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. Proposed Process:

The LCA team needs to get daily cluster hardware usage reports 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:

- In scope:

Evaluating and selecting technologies to collect, store, and analyze hardware data across a cluster. Implementing a monitoring system and storing the data in the database. Test the program in DEV, QC/Testing, pre-prod, and prod environments. Providing system

training to support the team for maintenance purposes. Providing documents and manuals to the LCA team.

- Out of scope

Setting up a data center is not a requirement. Implementing a website to subscribe and unsubscribe from reports and alerts.

## 5. Requirement:

An agent program to collect hardware data from each node/server (e.g. Bash scripts, Python, Java). A database to store hardware data (e.g. RDBMS, NoSQL). An analytics system for reporting purposes (SQL, Excel, Tableau, MATLAB, Python). A website for subscribing and unsubscribing reports and alerts. Daily reports must be delivered daily before 6:10 pm. Alerts must be delivered to the support team and implementation team

## 6. Key Stakeholders:

Role	Name	Responsibility	Mail id	Contact info
Project Manager	Trevor Doto	Responsible for holding all parties accountable to the project timeline	Trevor.doto@jrvs.ca	+1 4379034273
Linux Cluster Administration team	Arun Samy, Sara Antony, Clinton duroc	<ul style="list-style-type: none"> <li>○ 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.</li> <li>○ Responsible for paying implementation and maintenance costs</li> <li>○ Consuming hardware reports and alerts for server management and planning purposes</li> </ul>	Linux.admin@jrvs.ca	NA
Implementation/Agile team	Pramila Muruga, Fabio Perfetto, Emily Sara	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.	Implementation.team@jrvs.ca	NA
Support team	Amy Jackson, Erika Lara, Morteza Fadaee	Responsible for a) deploying the application in the cluster (e.g. installing agent to all servers and deploying the data) and b) ongoing maintenance such as upgrading new versions, monitoring program health, and level 2 support.	Support.team@jrvs.ca	NA

**7. Schedule, timeline, and milestone deadlines:**

1. Gather business requirements from all stakeholders by April 1, 2023
2. Complete an MVP by April 21, 2023 (Implementation/Agile team)
3. Implement the monitoring program by June 1 (Implementation/Agile team)
4. Test program in DEV, QC/TEST, PRE-PROD (or PAT/Pre Acceptance Testing), and PROD environments by June 15th, 2023 (QA from the Agile team)
5. Deploy the system to PROD by June 21st, 2023 (Support team)
6. Knowledge transfer with the LCA team by June 31st, 2023 (Implementation team and LCA)
7. Deliver the first cluster hardware usage reports and alerts by July 1, 2023 (Support team)

**8. Cost-benefit Analysis:**

Costs of resources to collect and manage data manually from all servers. Costs of purchasing excessive servers (in case the cluster is underutilized). Opportunity costs of project delay due to lack of hardware resources (in case the cluster is overloaded). Improved system availability leads to less downtime and increased productivity. The Agent monitors the system automatically and sends the report for analysis.