

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI**  
**I SEMESTER 2020-21**

**DSE CL ZG628T DISSERTATION**

Dissertation Title: Knowledge Based Life Cycle Management for Applications & Infrastructure Components in Scaled Hyper Converged Software Defined Data Centers.

Name of Supervisor: Ravi kottapalli

Name of Student: Ravi Ranjan

ID No. of Student: 2018AB04501

**Abstract**

Proposing a Knowledge Based Life Cycle Management method for the Infrastructure Components and the Applications in the Scaled Hyper Converged Software Defined Data Centers is a project to manage life cycle Management (LCM) software which will look for “**Best Window time**” or “best time” to perform **Life Cycle Management**. So that the Administrator can perform LCM whenever upgrade or patch is available for any entity (Application or Infrastructure component) . This will help avoid any risk because of ongoing upgrades or patches.

**The Machine Learning Predictive Technique that we will be using here is:**

Analytic Engine which runs Machine Learning Technics. Predictive Machine Learning Technics runs against the Log Database which contains the details of each application usage with respect to time and data. The predictive data samples will be taken for a year date or more. More Historical data will give more accurate predictive results.

**Key Words:** Machine Learning, Upgrades, Life cycle Management, LCM, Best window time, Knowledge Based, Hyper Converged Software, Datacenter, Infrastructure

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**Dissertation Outline**

**1. Student details:**

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**2. Date:** 2 April 2021

**3. Dissertation Title:** Knowledge Based Life Cycle Management for Applications & Infrastructure Components in Scaled Hyper Converged Software Defined Data Centers.

**4. Supervisor details:**

Name: Ravi kottapalli  
Role in organization: Staff Customer Adoption Solution Engineer  
Qualification: MS  
Experience: 15+ years in Cisco & VMware  
Email id: talk2me.ravi@gmail.com  
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**5. Problem statement**

Today Administrators who are handling modern software defined data centers require or should have prior knowledge about the “**Best Window time**” or “best time” to perform **Life Cycle Management**. If Administrator performs LCM whenever upgrade or patch is available for any entity (Application or Infrastructure component) without knowing the best time to apply, then it might impact the current users of that particular entity and it is totally an inefficient mechanism in the present modern SDDC Era.

This is very important and critical information to know before Administrator going for any LCM operations in SDDC

**6. Business process flow, if any**

NA

**7. Objective of the project**

Proposing a Knowledge Based Life Cycle Management method for the Infrastructure Components and the Applications in the Scaled Hyper Converged Software Defined Data Centers

## 8. Uniqueness of the project

1. Based on Administrator/Customer request, Predict the best possible time to go for an LCMoperation for any given Entity In SDDC.
2. Dynamically identify the Entities that have “Available Upgrades” in SDDC and predict & propose a best possible time to triggertheAvailable Upgradesand also it will give the Risk Analysis with respect proposed time. Example –If Administrator triggers LCM with the **ML proposed time**, then how many users may feel performance impact or how many people may be users at the proposed time.
3. Dynamic Time based LCM -Dynamically associate the Application that is triggered by Administrator to LCM when Administrator chooses the proposed or predicted time suggested by this invention.
4. Adoptability of this innovation to VMware new architecture for VMware Cloud Foundation.

## 9. Benefit to the organization

Dynamically identify the upgrade window and without customer impact to operations or no downtime.

## 10. Scope of work

It will be used widely as every software needs maintenance and upgrades.

## 11. Resources needed for the project, including people, hardware, software, etc.

There is no specific requirement which needs paid services. It will use an open source sdk and module.

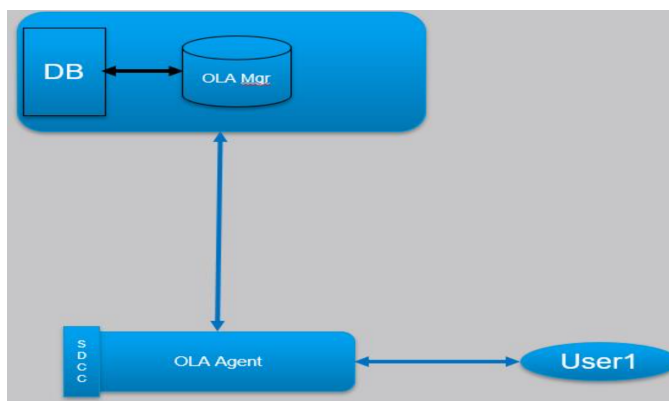
## 12. Potential challenges & risks in doing the project

No as such

## 13. Background of previous work done in the chosen area

Yes , I have worked on an automation project which will tell the current state of the SDDC Stack.

## 14. Solution architecture



### 15. Detailed Plan of Work (as follows)

#	Task	Expected date of completion	Names of Deliverables
1	Research/ Review/ analysis	3April -10April 1 week	
2.	Agent & Manager Implementation	10April- 30April 2021 2-3 weeks	
3	ML Techniques implementation	1May- 20May 2021 2-3 weeks	
4	DB Server, Log Server, Services Implementation	20June-10June2021 2-3 weeks	
5	Documentation	10June -15June 2021 5days	
6	End2End	15June - 5July 2021 2-3 weeks	

### Supervisor's Rating of the Technical Quality of this Dissertation Outline

EXCELLENT/GOOD/FAIR/POOR (Please specify): EXCELLENT

### Supervisor's suggestions and remarks about the outline (if applicable).

Big document for abstract, but the idea and project is very good

Date: 2 April 2021

Ravi Kottapalli  
(Signature of Supervisor)

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