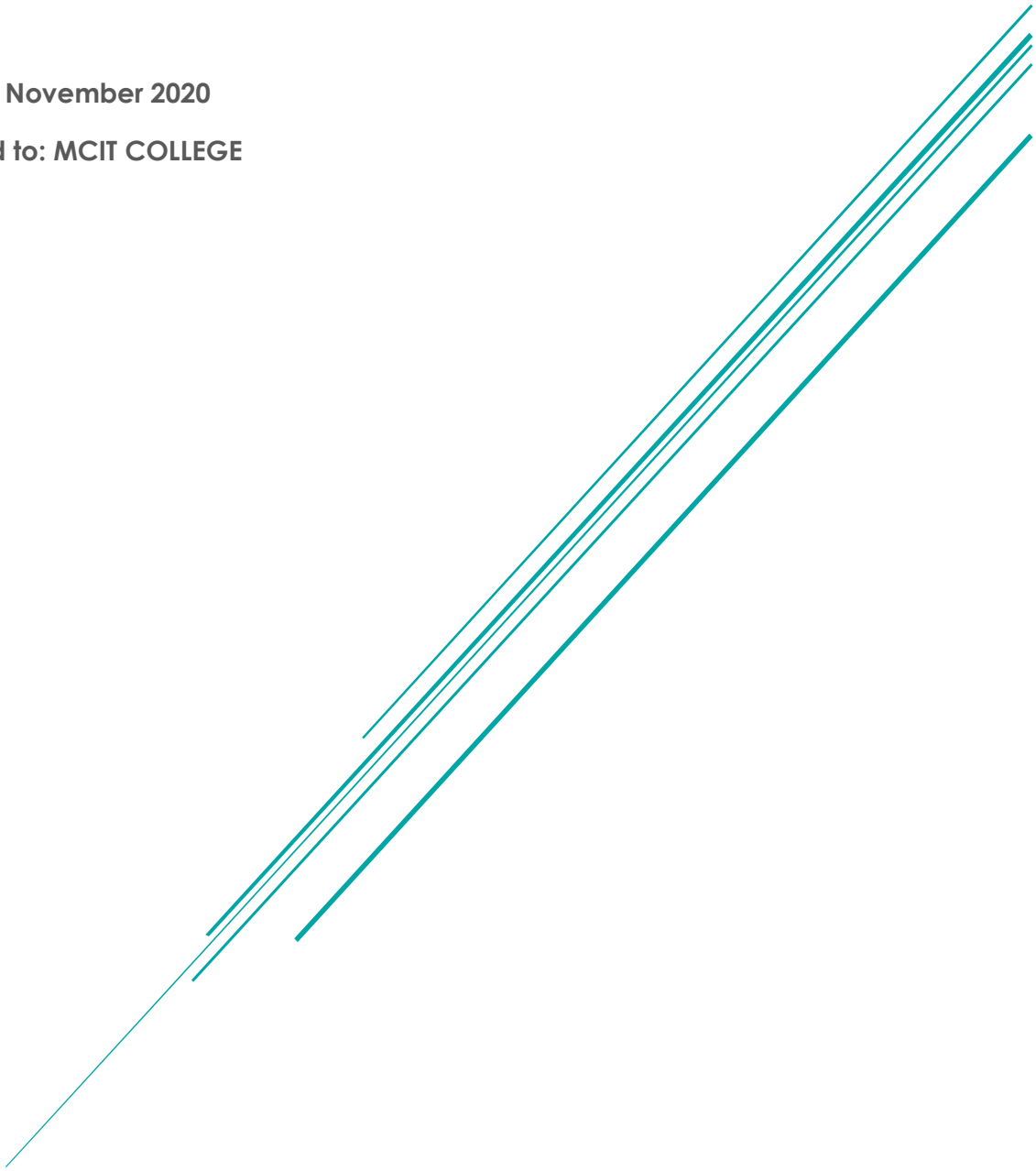
HEALTHCARE INSURANCE

Project Proposal

PROJECT: “ENABLING BIG DATA WITH CI/CD”

Date: 25th November 2020

Submitted to: MCIT COLLEGE



AUTHOR
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Table of Contents

Project Charter

Project Charter Document

GENERAL PROJECT INFORMATION			
PROJECT NAME	Enabling Big Data with CI/CD	**EMAIL ADDRESS**	conact@healthcare.ca
PROJECT SPONSOR	HealthCare Insurance	**PHONE NUMBER**	854-566-8615
PROJECT MANAGER	John Doe	**EXPECTED START DATE**	14 October 2020
ESTIMATED COSTS	$15,07,600	**EXPECTED COMPLETION DATE**	25 February 2021

DESCRIBE THE PROBLEM OR ISSUE, GOALS, OBJECTIVES, AND DELIVERABLES OF THIS PROJECT	
PROBLEM OR ISSUE	This company has big data computational requirements for actuarial calculations which are performed against a diversity of databases constantly. These databases run on nearly 600 VMs, and need to continually be managed, monitored, and upgraded. all while enabling continuous integration and development in testing and production environments.
PURPOSE OF PROJECT	Provide solution by deploying databases on demand, manage them, upgrade them as needed through a simple application blueprint while tying all of the pieces of the infrastructure and application together.
BUSINESS CASE	To increase the revenue and to enhance the operation speed by cutting down the time to hours and days that used to take weeks for deployment
GOALS / METRICS	Becoming a reliable, fast paced, efficient, and upgraded workforce environment while implementing an improved technical solutions
EXPECTED DELIVERABLES	A simplified automated architecture to deploy databases on demand, manage them, upgrade them as needed through a simple application blueprint

DEFINE THE PROJECT SCOPE AND SCHEDULE	
WITHIN SCOPE	Big Data Implementation, Database Management, Enable Automated workflow by implementing Continuous Integration and Continuous Delivery, Support for existing tool chain, Executing automated processes using Cloud services
OUTSIDE OF SCOPE	Additional security requirements, Developing in-house solution architecture, Adapting existing workflow, CMS

SCHEDULE	KEY MILESTONE	START	FINISH
	Project Charter	October 7, 2020	October 14, 2020
	Project Scope with WBS	October 15, 2020	October 23, 2020
	Requirement Gathering & Analysis	October 26, 2020	November 16, 2020
	Design	November 17, 2020	November 26, 2020
	Development	November 27, 2020	January 8, 2021
	Testing & Bug Fixing	January 11, 2021	January 29, 2021
	Deployment	February 1, 2021	February 19, 2021
	Post Implementation Review	February 22, 2021	February 25, 2021

DEFINE THE PROJECT RESOURCES AND COSTS	
PROJECT TEAM	Developers, Testers, Project Managers, Business Analysts, Cloud Practitioners, Database Administrators, Marketing & Sales Department
SUPPORT RESOURCES	MS Project, AWS Cloud, Chef.io, VMware, Docker, Jenkins, Whiteboards, Office 365, PCs, Internet Connection, Backup and Monitoring tools
SPECIAL NEEDS	N/A

COST TYPE	VENDOR / LABOR NAMES	RATE($)	QTY / HR	AMOUNT
Cloud Services	AWS Cloud Instances	$2,000.00	610	$12,20,000
Docker on Cloud	Docker Containers	$1,00,000.00	1	$1,00,000
Backup & Monitoring Tools	7 tools	$10,000.00	7	$70,000
MS Office 365	Microsoft Services	$420.00	280	$1,17,600
TOTAL COSTS				$15,07,600

DEFINE THE PROJECT BENEFITS AND CUSTOMERS	
PROCESS OWNER	John Doe
KEY STAKEHOLDERS	Management body, Sponsors, Investors, Developers, Testers, Project Managers, Business Analysts, Customers, Sales & Marketing team, Cloud Practitioners, Database Administrators, Service Providers
FINAL CUSTOMER	HealthCare Inc.

EXPECTED BENEFITS	A better work environment with several developments and company can work proficiently with enriched data security and reliability

DESCRIBE PROJECT RISKS, CONSTRAINTS, AND ASSUMPTIONS			
RISKS	Cybersecurity attacks, May be difficult to adapt for senior employees, Automating the wrong processes first, Lack of coordination between continuous integration and continuous delivery		
CONSTRAINTS	Workflow should be as simple as possible, Cloud services should be selected from which are available in the market, Resource utilization should be done properly for existing and new tools		
ASSUMPTIONS	New legacy systems and workflow will be easy to adapt, Anyone will be able to use it once the training is given, Fast and Secure operations ill be performed compared to old systems		
Prepared by:	Trisha Solanki	Date:	10 October 2020

Goal Statement

Company Description

The company is one of the largest insurance companies in the Canada and offers a wide range of primary and health insurance products to businesses (employees) and individuals (private). This publicly operated company currently has over 10,000 employees in total and has revenue of over $20 billion over its various business units and 18 branches throughout Canada.

Business Challenge (Current Situation)

This insurance company has Big Data computational requirements for actuarial designs which are executed against a fine range of databases habitually on daily basis. These databases run on nearly multiple Virtual Machines (VMs), and need to frequently be managed, monitored, and upgraded manually.

Databases are handled manually by the Data team of HealthCare Insurance. As the number of customers are increasing day by day it is becoming difficult to handle the huge amount of data from time to time.

The more the data, the more the efforts are needed to complete the regular operations. And because of the increase in data size now it has become tough to handle the tasks manually. To solve this we hired a few Data Engineers, but it only provided the temporary solution.

Now, we need a kind of solution which involves a permanent solution with updated technologies. Something that needs less people and that takes lesser time to execute the queries in an optimal way.

Business Case

Why Now?

As the company tried to solve the issue of implementing faster workflow by hiring more Data Practitioners, but it did not solve the issue and it stared costing further and further. So now HealthCare Insurance wants a solution that help company grow faster in a better way. And as the technology evolves the Data team feels that it is time to change the legacy systems and implement a new solution architecture.

Key Problems

- Data Insertion is done manually and sometimes the wrong data is entered which led us to wrong conclusions and cost the company a lot
- Database is cleaned manually which takes tremendous amount of time as the size of data that needs to be cleaned regularly is quite large
- Not all data engineers can perform the complex queries to solve some difficult problems
- Manual workflow can be accessed by anyone if the premises are not secure which can lead to serious data security issues
- Operations that are performed manually are not as reliable as they're done automatically
- Errors and Faults cannot be detected at an early stage by humans
- The company has to rely on Data Team if any issue arises
- The overall performance of the company is depended only on Data Team
- The operations and execution of work can be done at the company premises only, considering today's situation it would have been easier to complete all the tasks from home if such systems and architecture is implemented replacing the old and manual systems

Consequences of not doing this project

No.	Process	Priority
1	Company will keep be constantly in need of new Data Engineers as the data operation requirements increases	Low
2	Manual tasks take can be prone to errors and that leads to faulty information. It also becomes impossible to find errors leading to 2 things: wastage of time and damaged data	High
3	Manual operations are often risky as it can be modified by attackers which leads to data security issues	High
4	Because of the possibility of data loss, the company has to keep multiple copies of data which results in needing more data space and amplified costs	Medium
5	Because of the manual procedures, it needs more time to review the solution queries to make sure it does not have any errors which again leads to more efforts and time	Low
6	As human eye has less ability to detect the faults, it is not possible to detect the faults or errors beforehand	Medium
7	Maintenance of such legacy systems becomes cumbersome as everything needs to be done manually and company needs to rely on Data Team	High
8	Such architecture and workflow have become obsolete so the overall performance of the company is going to decrease if the company continues to use them	High

Project Scope

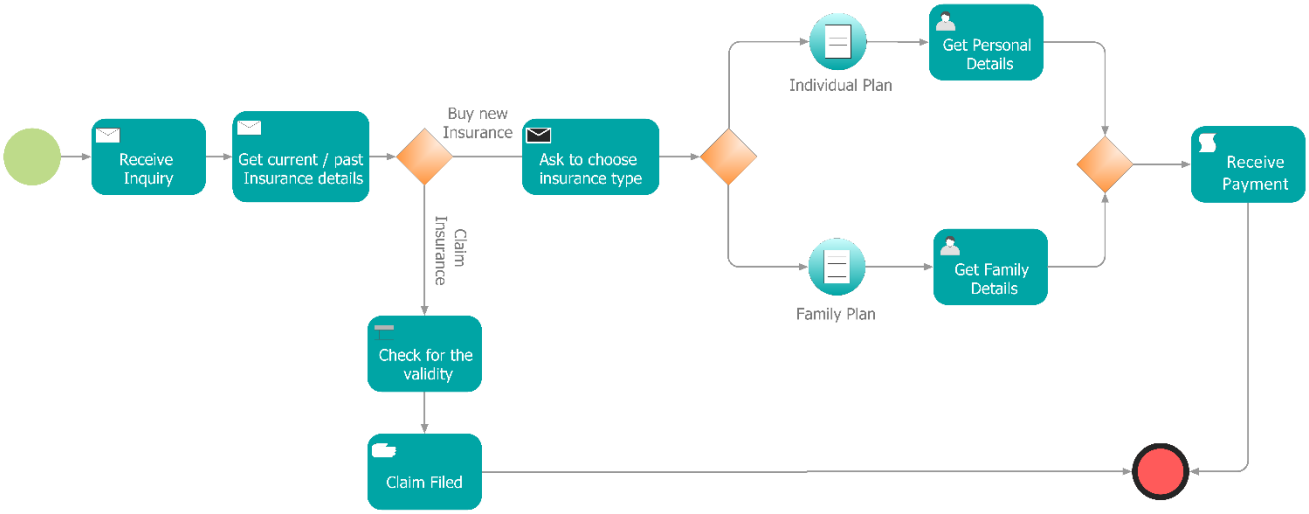
In Scope

- A new work environment to handle Data operations
- Deployment of latest legacy systems
- An automated custom CI/CD workflow
- Cloud based services and tools
- Big Data to handle complex Data requirements
- Latest Backup and Monitoring tools which can support the new systems
- Eliminate Hardware Data Storage (on premises storage)
- Transfer all the data to Cloud services
- Hiring Data Engineers (if necessary)
- Training for Data Team and other related employees to use the new technologies and tools
- Account setup, Permission assignments, and other security tasks

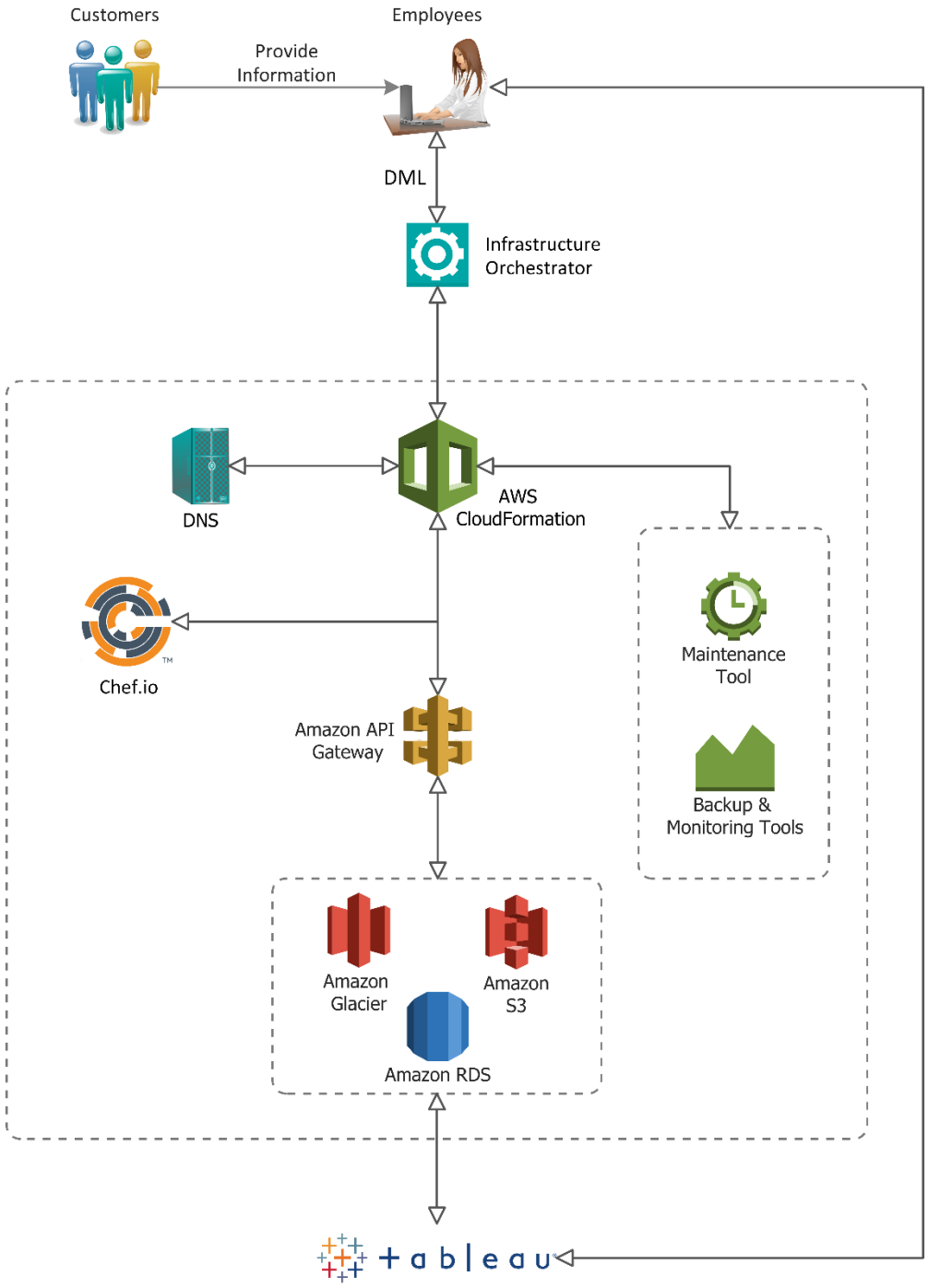
Out of Scope

- Support for any other team apart from Technical and Operations Team
- Allowance of more than one Cloud services
- Usage of manual (old) procedures, systems, or tools
- New Hardware implementation
- Customer Support (Engagement)

Business Process Diagram



BPMN


Customers
Provide Information
Employees
DML
Infrastructure Orchestrator
DNS
AWS CloudFormation
Chef.io
Maintenance Tool
Backup & Monitoring Tools
Amazon API Gateway
Amazon Glacier
Amazon S3
Amazon RDS
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