CLOUD STORAGE IMPLEMENTATION

QUALITY MANAGEMENT PLAN

SUBMITTED BY

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VERSION HISTORY

Version Number	Implemented By	Revision Date	Approved By	Approval Date	Description of Change
1.0	*Cloud Aggie Consulting team*	*03/26/2016*	*Project Manager – Great Benefits*	*03/28/2016*	--
1.1	*Cloud Aggie Consulting team*	*03/28/2016*	*Project Manager – Great Benefits*	*03/28/2016*	Corrected defects and typographical errors

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1   INTRODUCTION

1.1   PURPOSE OF THE QUALITY MANAGEMENT PLAN

The Quality Management Plan documents the necessary information required to effectively manage project quality from project planning to delivery. It defines a project's quality policies, procedures, criteria for and areas of application, and roles, responsibilities and authorities.

The quality management plan for Cloud storage implementation is initiated during the Application Rationalization phase when the people responsible for quality are identified and the process timelines are planned. The quality metrics targeted are **Security, Loss of Control, Integration, and Availability & Reliability.**

2   QUALITY MANAGEMENT OVERVIEW

2.1   ORGANIZATION, RESPONSIBILITIES, AND INTERFACES

Name	Role	Quality Responsibility
Alex Grant	*Project Manager*	*Quality mentoring & coaching*
Cloud Aggie Consulting	*Consulting*	*Consulting regarding quality management*
Tim Wright	*Quality Analyst*	*Oversee overall quality testing*
Shane Williams	*Trainer*	*Trains people to sustain quality standards*

2.2   TOOLS, ENVIRONMENT, AND INTERFACES

Tool	Description
Pareto Analysis	*Identify possible defects and their root causes*
Scatter diagram	*Identify possible defects and their root causes*
Assumptions and	*List the assumptions and constraints of the environment in which the application is based.*

Constraints Log	

3 PROJECT QUALITY MANAGEMENT

The following sections define how this project will apply each of these practice groups to define, monitor and control quality standards.

3.1 QUALITY PLANNING

Quality planning for the cloud storage implementation involves defining project quality and measuring project quality.

3.1.1 Define Project Quality

The quality of the application after migration and after the pilot will be assessed under these 4 broad categories:

Security, Loss of Control, Integration and Availability & Reliability. The issues identified during the pilot run were found to mostly affect the above mentioned concerns.

Refer Appendix B for a detailed list of the defects found and which quality metric they would impact.

3.1.2 Measure Project Quality

We have used Pareto Analysis to assess quality of Group 11's cloud storage implementation. After the data migration phase, our Work Breakdown Structure has 7 days allocated for Pilot project implementation. Conducting a pilot project does not guarantee success in the final implementation, but it does increase the likelihood. Pilot studies fulfill a range of important functions and can provide valuable insights.

During this pilot, teams from Great Benefits and Health Management used the application and reported defects. This was very essential to assess the quality of the end product. Based on the defects logged, we came up with the top 10 defects. The top 10 defects reported form the X axis of the Pareto graph. Based on the defects, the root-cause of the defect was analyzed and then fixed.

3.2 QUALITY ASSURANCE

Quality Assurance in the cloud storage migration mainly deals with ensuring that the service is not interrupted during the course of migration and even after the services and data have moved to cloud. It deals with ensuring that appropriate levels of security are maintained and that there's no data loss after the migration.

3.2.1 Analyze Project Quality

This phase deals with analyzing the performance of the application during the pilot run and documenting the performance statistics for analysis. The performance of the system during the test run serves as a good indicator for how the system would perform under regular operation. Several defects were found and the root causes of the defects were analyzed and documented.

3.2.2 Improve Project Quality

The defects and their root causes are analyzed and measures are taken to avoid them in the actual implementation. List of defects identified and their root causes are explained in detail in the Pareto Diagram and the Scatter Plot.

3.3 QUALITY CONTROL

Quality control is a process that will be carried out throughout the cloud migration. Based on the defects identified in the pilot run, different control actions will be set in place to avoid the recurrence of the defects during the actual implementation. The Project Manager, quality analyst and the trainer from Great Benefits are the stakeholders who will verify that standards are met. Cloud Aggie Consulting team will work very closely with the quality stakeholders to ensure quality is not compromised.

Appendix A: Quality Management Plan Approval

The undersigned acknowledge that they have reviewed the ***Cloud Storage Implementation* Quality Management Plan** and agree with the information presented within this document. Changes to this **Quality Management Plan** will be coordinated with, and approved by, the undersigned, or their designated representatives.

Signature:	*Aarthi Venkatesan*	Date:	03/27/2016
Print Name:	Aarthi Venkatesan (For Cloud Aggie Consulting)		
Title:	Consultant		
Role:	Consultant		

Signature:	*Alex Grant*	Date:	03/27/2016
Print Name:	Alex Grant		
Title:	Project Manager		
Role:	Project Manager		

Signature:	*Tim Wright*	Date:	03/27/2016
Print Name:	Tim Wright		
Title:	Quality Analyst		
Role:	Quality Analyst		

APPENDIX B: LIST OF DEFECTS AND THE ROOT CAUSES IDENTIFIED DURING THE TEST RUN

We have used Pareto Analysis and Scatter plot to assess quality of Group 11's cloud storage implementation. After the data migration phase, our Work Breakdown Structure has 7 days allocated for Pilot project implementation. Conducting a pilot project does not guarantee success in the final implementation, but it does increase the likelihood. Pilot studies fulfill a range of important functions and can provide valuable insights.

During this pilot, teams from Great Benefits and Health Management used the application and reported defects. This was very essential to assess the quality of the end product. Based on the defects logged, we came up with the top 10 defects.

Using Pareto Analysis and Scatter plot helped us assess the quality of the implementation. Pareto Analysis is a statistical technique in decision-making used for the selection of a limited number of tasks that produce significant overall defects. It uses the Pareto Principle (also known as the 80/20 rule). The basic premise is that not all defects reported have the same or even proportional impact on a given output.

The top 10 defects reported form the X axis of the Pareto graph. Based on the defects, the root-cause of the defect was analyzed and then fixed.

1. **Network bandwidth issue – Availability and Reliability Metric:**
    The network bandwidth issue is mainly caused due to large amount of file transfer between the physical server and cloud. This takes up much of the network bandwidth thus leading to slow performance. Since Great Benefits has acquired Health Management, the number of users of the system has also gone up leading to high traffic on the server.
    In order to address this quality issue, we would have to add more bandwidth.

2. **Data Loss and Inconsistency – Security and Availability & Reliability Metrics**
    Migration to the cloud can affect the data consistency of the application. There might have some loss of data during the migration which could impact the quality of data. A customer or an employee using the system could see different versions of the same data leading to data inconsistency. This affects the Security and Availability & Reliability metrics. One way to avoid data inconsistency is to identify relationships between data and group them

together for migration so that no data is isolated. Also ensure that historical data are moved first so that we don't lose them.

3. **User Interface issues – Integration Metric**

Integration of the application servers of Great Benefits and Health Management could lead to a new user interface which might be difficult for users to get accustomed to. The integrated user interface might have additional functionality that users might not be aware of or might know how to use. This defect arises due to integration and affects both the users and employers of the system. In order to avoid quality issues with the user interface, it is recommended to provide a training manual or have a FAQ page on the website to address common issues.

4. **Cultural differences due to merger – Integration Metric**

The merger causes people from 2 different organizations to work as 1 unit. The environmental and organizational differences in operations and processes might cause differences of opinions among employees and could affect the quality of deliverables. In order to avoid quality issues arising due to the merger, it is recommended to organize team building activities.

5. **Social Engineering – Security Issues**

The migration leads to data loss where private, confidential data is leaked and users and employers start receiving anonymous calls. There is another issue of data security is left to the hands of the vendor implementing the cloud. It is recommended to have a hybrid cloud – private cloud to house confidential data and public cloud to house other data.

6. **Latency in Payment processing system – Security and Availability & Reliability Metric**

Great Benefit's payment processing system runs on IBM mainframes located in 5 data centers, one for each state. When we talk about latency in hosting payment processing system, we are dealing in fractions of a second. Perhaps 10-500 milliseconds when loading a web page. Whether this seems like a long delay to the user is relative. It all depends on how

cloud service is used and by whom. One of the ways to fix this problem is to allow more requests to happen concurrently. Page load speed can be broken down into smaller elements, most of which are addressed by optimizing website content, and the rest addressed on the server and network side.

7. **Lack of proper documentation for reference – Loss of Control and Availability and Reliability Metric**

   Application Rationalization phase involved decommissioning of 6 identical legacy applications from Health Management and making use of common applications from Great Benefits to reduce budget and free up resources. Pilot phase just lasts for 7 days and there isn't enough documentation for employees of Health Management to understand the usage of these new applications.

8. **Issues take too much time to fix – Availability & Reliability Metric**

   The production support team of Great Benefits and Health Management is new to the cloud architecture and hence fixing the issue takes times. Also the cloud is implemented by the vendor and so production support team communicates with the vendor for support and maintenance. This was found to be the main reason why fixing of issues took too much time.

9. **Learning curve to use application – Integration Metric**

   A supporting team structure will proactively look into the change management activities. Situational awareness of change will help in improving the learning curve to use the application. Technical training is very important for continuous, efficient and effective performance.

10. No clear process flow – Availability and Reliability Metric

Though both the firms are health insurance firms, after the merger between the two firms it was not easy for people of Great Benefits to comprehend the process flows of Health Management and vice versa.