**Risk Management Plan**

**Kubernetes Project**

**NSCC Institute of Technology**

**Capstone – INFT3000**

**Pod 5**

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# Introduction

The purpose of this document is to provide a structured approach to identifying, assessing, and mitigating potential risks to the Kubernetes installation, ensuring its continued availability, performance, and security throughout its lifecycle. Given the dynamic nature of Kubernetes and the evolving needs of the IT curriculum, this risk management plan is designed to adapt to changing requirements, technologies, and personnel, enabling future generations of students to maintain and expand upon the system with minimal disruption.

This document serves not only as a guide for the initial setup and management but also as a resource for future stakeholders, ensuring that the knowledge and strategies used to mitigate risks are passed down and updated as necessary. By fostering a proactive approach to risk management, we aim to ensure that the Kubernetes installation remains a reliable and effective tool for teaching, experimentation, and real-world IT operations.

# Top Three Risks

It is important to explicitly state the top three risks to the project in the Risk Management Plan. This will make management aware of the top risks for the project and the nature of the risks.

The top three high probability and high impact risks to this project are:

**Delay in Server Equipment**

Due to a manufacturer’s production backlog, the servers are not available for large scale application testing causing a delay in the project schedule. The project manager will mitigate this risk by using servers from the backup data center if needed.

**Fiber Optics Connection Not Completed**

Due to construction delays in installing the fiber optic cable between the data center and the headquarters facilities users will not have a high speed connection between their site and the datacenter resulting in slow responses from the application making it unusable. The Project Manager will implement a site to site broadband Ethernet radio network between the data center and headquarters facility.

**Network Operations Center (NOC) Not Appropriately Staffed**

Due to lead times associated with hiring and training additional staff, the NOC does not have the necessary staff to monitor the additional bandwidth associated with the project resulting in a delay to the project schedule. The project manager will mitigate this risk by working with the NOC to create an alternate work schedule to compensate for the staffing shortage until additional staff hiring and training is complete.

# Risk Management Approach

This section provides a general description for the approach taken to identify and manage the risks associated with the project. It should be a short paragraph or two summarizing the approach to risk management on this project.

The approach we have taken to manage risks for this project included a methodical process by which the project team identified, scored, and ranked the various risks. The most likely and highest impact risks were added to the project schedule to ensure that the assigned risk managers take the necessary steps to implement the mitigation response at the appropriate time during the schedule. Risk managers will provide status updates on their assigned risks in the bi-weekly project team meetings, but only when the meetings include their risk’s planned timeframe. Upon the completion of the project, during the closing process, the project manager will analyze each risk as well as the risk management process. Based on this analysis, the project manager will identify any improvements that can be made to the risk management process for future projects. These improvements will be captured as part of the lessons learned knowledge base.

# Risk Identification

This section explains the process by which the risks associated with this project were identified. It should describe the method(s) for how the project team identified risks, the format in which risks are recorded, and the forum in which this process was conducted. Typical methods of identifying risks are expert interview, review historical information from similar projects and conducting a risk assessment meeting with the project team and key stakeholders.

For this project, risk identification was conducted in the initial project risk assessment meeting. The method used by the project team to identify risks was the Crawford Slip method. The project manager chaired the risk assessment meeting and distributed notepads to each member of the team and allowed 10 minutes for all team members to record as many risks as possible.

**Expert Interview**

Two Expert Interviews were held for this project. The interviews revealed several risks which were then mitigated by making changes to the project plan. The remaining risks are included in the Risk Register.

**Risk Assessment Meeting**

A risk assessment meeting was held with key team members and stakeholders. The risks identified during this meeting were added to the project plan and Risk Register.

**Historical Review of Similar Projects**

The project team reviewed the history of similar projects in order to determine the most common risks and the strategies used to mitigate those risks.

# Risk Qualification and Prioritization

Once risks are identified it is important to determine the probability and impact of each risk in order to allow the project manager to prioritize the risk avoidance and mitigation strategy. Risks which are more likely to occur and have a significant impact on the project will be the highest priority risks while those which are more unlikely or have a low impact will be a much lower priority. This is usually done with a probability – impact matrix. This section explains risks were qualified and prioritized for this project. For more information on how to qualify and prioritize risks refer to our ***Risk Assessment Meeting Guide.***

In order to determine the severity of the risks identified by the team, a probability and impact factor was assigned to each risk. This process allowed the project manager to prioritize risks based upon the effect they may have on the project. The project manager utilized a probability-impact matrix to facilitate the team in moving each risk to the appropriate place on the chart.

Once the risks were assigned a probability and impact and placed in the appropriate position on the chart, the recorder captured the finished product and the project manager moved the process on to the next step: risk mitigation/avoidance planning.

# Risk Monitoring

This section should discuss how the risks in the project will be actively monitored. One effective way to monitor project risks is to add those risks with the highest scores to the project schedule with an assigned risk manager. This allows the project manager to see when these risks need to be monitored more closely and when to expect the risk manager to provide status updates at the bi-weekly project team meetings. The key to risk monitoring is to ensure that it is continuous throughout the life of the project and includes the identification of trigger conditions for each risk and thorough documentation of the process.

The most likely and greatest impact risks have been added to the project plan to ensure that they are monitored during the time the project is exposed to each risk. At the appropriate time in the project schedule a Risk Manager is assigned to each risk. During the bi-weekly project team meeting the Risk Manager for each risk will discuss the status of that risk; however, only risks which fall in the current time period will be discussed. Risk monitoring will be a continuous process throughout the life of this project. As risks approach on the project schedule the project manager will ensure that the appropriate risk manager provides the necessary status updates which include the risk status, identification of trigger conditions, and the documentation of the results of the risk response.

# Risk Mitigation and Avoidance

Once risks have been qualified, the team must determine how to address those risks which have the greatest potential probability and impact on the project. This section explains the considerations which must be made and the options available to the project manager in managing these risks.

The project manager has led the project team in developing responses to each identified risk. As more risks are identified, they will be qualified and the team will develop avoidance and mitigation strategies. These risks will also be added to the Risk Register and the project plan to ensure they are monitored at the appropriate times and are responded to accordingly.

The risks for this project will be managed and controlled within the constraints of time, scope, and cost. All identified risks will be evaluated in order to determine how they affect this triple constraint. The project manager, with the assistance of the project team, will determine the best way to respond to each risk to ensure compliance with these constraints.

In extreme cases it may be necessary to allow flexibility to one of the project’s constraints. Only one of the constraints for this project allows for flexibility as a last resort. If necessary, funding may be added to the project to allow for more resources in order to meet the time (schedule) and scope constraints. Time and scope are firm constraints and allow for no flexibility. Again, the cost constraint is flexible only in extreme cases where no other risk avoidance or mitigation strategy will work.

**Risk Register**

Every project must maintain a risk register in order to track risks and associated mitigation strategies. This section describes the risk register criteria as well as where the risk register is maintained and how these risks are tracked in the project schedule.

The Risk Register for this project is a log of all identified risks, their probability and impact to the project, the category they belong to, mitigation strategy, and when the risk will occur. The register was created through the initial project risk management meeting led by the project manager. During this meeting, the project team identified and categorized each risk. Additionally, the team assigned each risk a score based on the probability of it occurring and the impact it could potentially have. The Risk Register also contains the mitigation strategy for each risk as well as when the risk is likely to occur.

Based on the identified risks and timeframes in the risk register, each risk has been added to the project plan. At the appropriate time in the plan—prior to when the risk is most likely to occur—the project manager will assign a risk manager to ensure adherence to the agreed upon mitigation strategy. The each risk manager will provide the status of their assigned risk at the bi-weekly project team meeting for their risk’s planned timeframe.

The Risk Register will be maintained as an appendix to this Risk Management Plan.

**Sponsor Acceptance**

Approved by the Project Sponsor:

Date:

<Project Sponsor>

<Project Sponsor Title>

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