Charles Darwin University

**Distributed Denial of Service Forensics using MapReduce**

Project Management Plan

**Created by:**

Mayra Dwight - s316934

Sachin Malik - s325383

Ankit Chanana - s321903

Abhijith Reddy - S323564

**PRT 581 - Principles of Software Systems**

Dr Sami Azam

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# Revision History

This document has been revised as follows:

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| 17/03/2020 | Initial | Mayra Dwight  Sachin Malik  Ankit Chanana  Abhijith Reddy | First release |
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Approval

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| Charles Yeo |  | Date |

Distribution

| **Name** | **Title** |
| --- | --- |
| Charles Yeo |  |
| Sami Azam |  |
| Mayra Dwight | Information Systems |
| Sachin Malik |  |
| Ankit Chanana |  |
| Abhijith Reddy |  |

# Purpose of Project Management Plan

[ADD]

# Project Charter

## Project Background

A Denial of Service (DoS) attack is used in order to make the Internet resources unavailable by overwhelming the victim with large number of requests(Karthik, S et al., 2008).In recent years with the advancement in technology, DoS attacks has shifted from single source attacks to multi-source attacks known as DDoS(Distributed Denial of Service) attacks. To perform a DDoS attack, the attacker first infects large number of devices with a malware. These infected devices are known as bots or zombies and are controlled by the attacker known as bot master. Attacker can command these infected devices to send SYN requests to the target website, server or an application at same time and use all its resources to crash it. DDoS can be broadly categorised into bandwidth attacks and application layer attacks. In bandwidth attacks the attacker floods the bandwidth of the victim with high volume of requests and as Internet is limited in its processing capability therefore it is unable to process further and fails to respond to legitimate users. Attacks such as TCP attack, UDP attack and ICMP flooding are categorised as bandwidth attacks. Application layer attacks include low-and-slow attacks, GET/POST floods and attacks that target Apache vulnerabilities. The main aim of these attacks is to crash the web server. There are various tools available online which require minimal or no technical knowledge to perform a DDoS attack. Some of the common tools that are used to launch a DDoS attack are: Tribal Flood Network (TFN), Low orbit ion cannon (LOIC), Trin00, Trinity and Mstream (Arun Raj Kumar, P et al., 2009).Based on the time of action DDoS defence mechanisms can be classified into three categories: Before the attack, During the attack and After the attack

1. Before the attack: This type of defence mechanism is used in order to prevent the attack from happening.

2. During the attack: Mechanisms in this category are used when the attack is happening. These mechanisms are used to detect the attack. Intrusion Detection and Prevention Systems (IDPS) and firewalls are used under this category.

3. After the attack: This mechanism is used once the attack is detected and is used to trace back the attacker. Forensic investigation comes under this category(Rajkumar & Nene, M, 2013).

In our project we will be focusing on the third part of the classification (After the attack) of the DDoS defence mechanism i.e. forensic investigation.

As the amount of data produced during a DDoS attack is enormous, analysing the log files and then recovering from the attack takes a very long time. In this project we will be investigating the use of Hadoop and MapReduce to detect packets that belong to a DDoS attack. MapReduce is a software framework introduced by google for supporting the distributed computing of large data sets on cluster computers. The basic idea of our project is to divide the enormous log files into sub parts which can be then analysed parallelly to determine the packets which belong to a DDoS attack.

## Project objectives

## Project scope

## Project feasibility

## Project milestones

## Business requirements

# Project Governance

# Project Approach

## Project Schedule

The project schedule has been included in this Project Management Plan. Refer to [Attachment A.](#_Attachment_A_–)

The project schedule is a living document that will continue to be updated by the project team as the activities are executed or scheduled.

# Attachment A – Initial Project Schedule

