Project plan

Centralized Firewall

Semester 6 - Infrastructure

Fontys - Eindhoven

Version

Version	Date	Author(s)	Amendments	Status
1.0	9/22/2022	Group 1		In progress
2.0	9/29/2022	Group 1		Done

Document history

Revision

Version	Status	Date	Amendments
0.1	Concept	9/22/2022	First draft of the project plan
0.2	Concept	9/23/2022	Introduction & context added
0.3	Concept	9/23/2022	The project added
0.4	Concept	9/23/2022	Project management added
1.0	First version	9/25/2022	First version of the project plan
1.3	Concept		
1.5	Concept		
2.0	Second Version		

Approval

This document has the following approval:

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2.0			Project plan approval

Distribution

This document is sent to:

Version	Date dispatch	Name	Function
1.0			
2.0	9/29/2022	Mikhaeil Shagelani Lor	Tutor
2.0			

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1. Introduction

1.1 Purpose

The purpose of this document is to write and note all the basic and necessary information about the project to define the problem as best as possible. The other purpose is to document our progress during the project for the stakeholder, tutors, and other interested parties to review.
The company who gave us this assignment is the international IT company Sogeti.

1.2 About Sogeti

Sogeti is a company from France with experience in all kinds of different areas in IT. The Company was created in France in 1967 by Sergé Kampf for IT Consultancy. The company was named after the French words for Society for Enterprise Management and Information Processing. 40 years later this company grow into a large multinational.

1.3 Project Cooperation

The project consists of the following members and stakeholders:

Name	Role
Teun van der Zanden	Project group leader
Aleksandar Dobrev	Project team member
Luuk Teuling	Project team member
Mikaeil Shagelani Lor	Fontys Tutor
Raymond de Bie	Sogeti Stakeholder

2. Context and background

2.1 Assignment description

The customers of Sogeti use multiple cloud environments with all their own firewall solutions. Sogeti foresees multiple challenges and issues in the future with this strategy. One of the issues the company recognizes is that the maintainability and the operations of firewalls across multiple cloud environments becomes complicated. To add to this challenge, some customers use on site data centres. Which makes this matter a bit more complicated. Sogeti would like to make this more manageable and realise a centralized solution.

2.2 Benefits

Sogeti benefits from this project as they provide a working Proof of Concept deployed using templates, advice, and roadmap of our solution. They can later recommend our Proof of Concept to their clients.

2.3 Problem analysis

To substantiate the need for the report, the Systematic Problem Analysis (SPA) below was created:

Step 1: What is the problem

Sogeti clients use multiple cloud solutions with their own firewall.

Step 2: Analyse the problem

Sogeti wants to recommend their clients a centralized firewall solution. This solution could be easily deployed.

Step 3: Research the solutions

We will collect and various data which will help us to research various solutions for the stakeholder. The solutions will be defined with disadvantages and advantages.

Step 4: Implementing solutions

The solutions listed at the end of the report will be prepared based on implementation steps. As a result, a justification on paper is available as to why certain choices have been made.

Step 5: Evaluate the results

The results are evaluated in the interim with various meetings. In this way, the wishes and expectations can be adjusted if necessary.

3. The project

3.1 Objective

The customers of Sogeti use multiple cloud environments with all their own firewall solutions. Sogeti foresees multiple challenges and issues in the future with this strategy. One of the issues the company recognizes is that the maintainability and the operations of firewalls across multiple cloud environments becomes complicated. To add to this challenge, some customers use on site data centres. Which makes this matter a bit more complicated.

During this project we are going to do an investigation about how we can realise a centralized firewall solution, so that Sogeti can better handle the requests of this firewall (operations).

3.2 Intended result

The intended result consists of a Proof of Concept deployed using templates, advice, and roadmap of our solution.

3.3 Scope

The project includes:	**The project does not include:**
1. Cloud environment (AWS)	1. Programming language
2. AWS services and tools	
3. Proof of Concept	
4. Advice	
5. Technical design	
6. The implementation	
7. Terraform	
8. Architecture designs	

3.4 Research questions

We will need to do a lot of research to have a better understanding of the things that we want to use. Researching from the side will be quite an important ability, which includes paying attention to details, taking notes, having clear deadlines for our research, and understanding the information we receive and presenting information in a manner others can understand.

Main question:

- What are the options, alternatives, and challenges to realize a centralized firewall for a multi-cloud environment?

Sub questions:

1. What are the requirements?
2. Which methodologies can we use as solution for a centralized firewall?
3. How can Sogeti handle the requests for a centralized firewall Operations?
4. What services do we need in AWS and Azure?
5. How can we connect on-site environments? (Datacenters)
6. How can we use Terraform/CloudFormation in the best possible way?
7. What is the best way to create technical/functional design for implementation?
8. How can we create a PoC based on the technical design?
9. How can Sogeti update the firewall rules?

3.5 Requirements

Every requirement has its own value regarding the MoSCoW method. This method has 4 grades:

- **Must have:** needs to be in the final product
- **Should have**: this system work, but has its limitations
- **Could have:** this requirement can be extra
- **Won't have:** this will only be added in a follow-up case

There also is a priority to each requirement:

- **High:** everything needs to be done to get this requirement in the final product.
- **Medium:** it is nice to have it in the final product, but if there's not enough time, then this will be added later.
- **Low:** there is almost no effort needed to get this in the final product.

Nr.	Requirements	MoSCoW	Priority
PR01	A POC for a centralized firewall	Must have	High
PR02	Communication between AWS and Azure	Must have	High
PR03	Implementing firewall changes (by pipelines)	Must have	High
PR04	A network diagram made with Viso/Archimate	Must have	High
PR05	Solution should consider different customer types	Should have	Medium
PR06	A manual of the functionalities with background information	Must have	Medium
PR07	Security groups/ACLs should be applied in the cloud	Should have	Medium
PR08	Github code commit to AWS, and access control	Should have	Medium
PR09	Automation regarding firewall rules	Should have	Medium
PR10	Sharing files with GitHub	Should have	Low
PR11	Connection with on-site datacenters	Could have	Medium

4. Project management

4.1 Approach

We are going to use Agile methodology, and the reason for that is it's centered around adaptive planning, self-organization, and short delivery times. It's flexible, fast, and aims for continuous improvements in quality. It's not a single method but a collection of best practices that involve constant collaboration. After every sprint, we reflect and look back to see if there was anything that could be improved, so we can adjust our strategy for the next sprint.

4.2 Research methods

For the research, we will use the Development Oriented Triangulation (DOT) framework. This model will help us switch perspectives so that we can look at the issue from different angles and arrive at multiple possible solutions. The framework specifies research strategies and methods that we can use to collect data. In most cases, we use three different methods, which are Library, Workshop and Lab methods. The library method allows us to explore what has already been done or is known related to some parts of my project. The workshop method helps us to explore opportunities by prototyping, sketching, and co-creating activities. These are all ways to gain insights into what is possible and how things work. The final method, Lab, allows us to put our ideas and prototypes to the test to see if they work as we intended. Another thing that we will use is interviewing people about something to gain more information. Interviews are an appropriate method when there is a need to collect in-depth information on people's opinions, thoughts, experiences, and feelings. Interviews are useful when the topic of inquiry relates to issues that require complex questioning and considerable probing.

Sub questions	**Strategy**
What are the requirements?	Library - Literature study Field – Interview with the stakeholder Field - Problem analysis Field - Explore user requirements
Which methodologies can we use as solution for a centralized firewall?	Library - Literature study Library - SWOT analysis Workshop - Prototyping
How can Sogeti handle the requests for a centralized firewall Operations	Library - Literature study Workshop - IT architecture sketching Lab – System Test
What services do we need in AWS and Azure?	Library - Available product analysis Library - Literature study Workshop - Prototyping
How can we connect on-site environments? (Datacenters)	Library - Available product analysis Workshop - Brainstorm
How can we use Terraform/CloudFormation in the best possible way?	Library - Literature study Workshop - Prototyping Lab - Component test
What is the best way to create technical/functional design for implementation?	Library - Literature study Workshop IT architecture sketching
How can we create a PoC based on the technical design?	Library - Literature study Workshop – Prototyping Library - Best good and bad practices
How can Sogeti update the firewall rules?	Lab - System test Workshop - Brainstorm

4.3 Breakdown of the project

Phases	Weeks	Activities	Start	End
1	1-3	Intro to project	29-08-22	12-09-22
2	4-5	Preparation Finalizing the project Finalizing the requirements	12-09-22	30-09-22
3	5-12	Start of the technical design Start of the Proof of Concept	03-10-22	14-10-22
4	12-13	Continue to work on PoC and technical design Fixing bugs	17-10-22	28-10-22
5	13-18	Finalizing the final product Assessment	31-10-22	16-12-22