Infrastructure case study 1

**

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# Project definition

## Project background

This is the second semester's first project for the ICT and infrastructure profile.

We have been assigned by the company "Make IT Work4U" with the responsibility of developing an infrastructure for one of their clients. The business client with whom we are charged is a small office staffed by part-time experts.

## Problem definition

The customer connects to the Windows VMs via Thin clients. One of the VMs serves as an Active Directory, DHCP, and database server, while the other serves as a Windows client. On the server, each user should have their own home folder. Every piece of data must be backed up to an external server. Employees travel abroad, henceforth desktop files should be synchronized with remote server. "Make IT Work4U" requires a management application of their infrastructure and clients.

## Project goal

The project objective is making a successful copy of the client's infrastructure and improve it as desired.

## Expected result

The expected result is for everyone to be able to connect to the server and have own working space. Management should establish a connection to AD, which is regarded to be personal. A backup policy will be developed to protect all servers and their data. Furthermore, a real time dashboard with server and client's statistics, which will be used to manage the infrastructure and clients.

## Way of working

For this project, we want to be as productive as possible during the project hours specified in our timetable. These hours are every Monday from 09h00 until 16h00 and every Friday from 09h00 until 12h00. This does not mean this is the only timeslot we will be working on the project. We would like to do as much preparation as possible prior to these hours so we can begin immediately without losing time on tasks that could be done from home. If needed, we will use our time after school and in weekends.

# Project structure

## Development team

We are expected to work in groups of three students on this task. We were appointed by a company called Make IT Work4U. This organization develops enhanced infrastructures for small and medium-sized business clients. Their clients require assistance in modifying their infrastructure to meet the ever-increasing demands of the end user. We are tasked with developing a method for simulating a customer's existing infrastructure. Make IT Work4U tests upgrades and adjustments in-house using this development environment. If the company approves the changes, they will be made available to their clients. We'll begin with an introduction so you can get to know us a little better.

### Mihai Glodici

My name is Vasile Mihai Glodici and I am nineteen years old. I am a cyber security enthusiast trying to gain experience with infrastructure. I believe that the group project will provide me with the necessary networking skills for pursuing a career in this field.

### Yoan-Asen Popov

Hello there! My name is Yoan-Asen Popov, and I am a nineteen-year-old student. Currently I am studying at Fontys University in the Netherlands. I come from Bulgaria. There I studied in an ICT profile. I learned a bit from everything just like in the orientation phase of the first semester at Fontys. That was when I made up my mind that I am going to continue my growth in this field of work. I I have had some internships, considering IT, like in a repair shop for computers. Also in my high school, I’ve helped to setup the computers and in making the network. I’ve gone to a couple of programming courses, too. I think all of this ‘experience’ helped me with my choice of coming in the Netherlands and continuing with IT.

### Joep Vinken

Hi there, I’m Joep Vinken, a 21-year-old student from the Netherlands. This year, I started my first HBO study after finishing high school in Belgium. I went to Belgium because of their good school programs and the option to get some more practical lectures as well. My first 4 years, I chose for the science package, but this got too difficult, and I wouldn’t like to do a job regarding chemistry of physics. That’s when I changed to electro-mechanics. This is a bit more practical and prepared me to work on electrical motors and setting up and building new products.  
 After finishing this study and graduating, I decided to take a sabbatical in order to make a wise decision about my next study. In September of last year, I applied for the air traffic control study to become an air traffic controller in one of those big towers at the airport. Unfortunately, I didn’t manage to pass the second part of the application.  
 I didn’t want to sit at home the whole year and travelling was difficult because of COVID. I went looking for a full-time job for the year and managed to get accepted at Apple.

This is where I worked for their customer service and gain a lot of extra technological knowledge of mobile devices (mostly iPhones and iPads). This made me think about starting an ICT study. Looking around on the internet made me come past by the Dutch police force. There were some very interesting jobs which needed a degree first. This was the moment I decided to start the HBO ICT study here, at Fontys. My ultimate goal is to work for the digital investigation department of the Dutch police force, but first finish this study.

## Tutor

Our project and management & securing (M&S) tutor will be Mehrzad Verdizadegan.  
E-mail: [m.verdizadegan@fontys.nl](mailto:m.verdizadegan@fontys.nl)

Our connecting & provisioning (C&P) tutor will be Bart van der Zanden  
Email: [bart.vanderzanden@fontys.nl](mailto:bart.vanderzanden@fontys.nl)

Our programming tutor will be Tim Jansma.  
E-mail: [t.jansma@fontys.nl](mailto:t.jansma@fontys.nl)

# Risk Assessment

**Risks**

Each project entails some risks. The greatest risk is failing to complete project assignments on time. Due to the high value placed on time these days, it is critical to adhere to deadlines. Apart from time constraints, data loss is a serious concern that must be avoided at all costs. Losing data, settings, virtual machines, and so forth, can result in a significant setback. This failure could result in significant delays and the inability to meet deadlines.

**Probability**  
Not delivering in time or missing deadlines is something we don't expect to happen, but always is something to keep in mind. Losing data is something highly unlikely to happen but the risk is still there.

**Impact**  
Not delivering the assignments on or before the deadlines, could result in an unsatisfied client and can also affect our grades. Losing data and settings could cause us to have delays which could result in a lower grade and make our client upset as well.

**Risk mitigation**  
In order to avoid delays our missing the deadlines, a good schedule is required. This results in time periods that are preserved for working on one, specific task. Addressing one task at a time results in a better end product since everybody is focussed on the same issue or subject. Any faults, mistakes or errors can be solved together to all get a better understanding of the issues and infrastructure.

# Deliverables

\* Project Plan

\* Complete Design document (must include MoSCoW-table)

\* Research (process) report (must include Work division and all the evidence from week 1 to 10 for example meeting’s minutes, agreements)

\* Presentation for week 10 demo

\* Updated personal development portfolio (PDP)

# Planning/Pert

This will be our planning for the upcoming weeks.

|  |  |  |  |
| --- | --- | --- | --- |
| **Week:** | **Task name:** | **Est. duration in minutes:** | **Deadline:** |
| 2 | Make the project plan | 150 | 20-02-2022 |
| 2 | Make the Design Document | 120 | 03-04-2022 |
| 2 | Start installing the software on personal PCs and the server | 120 | 20-02-2022 |
| 3 | Creating Active Directory with Hyper-V | 60 | 27-02-2022 |
| 4 | Creating a Firewall (gateway) with pfSense | 70 | 13-03-2022 |
| 4 | Installing and configuring DHCP and DNS. | 80 | 13-03-2022 |
| 5 | Creating users, OU, group and group policies | 120 | 20-03-2022 |
| 5 | Adding a test VM | 60 | 20-03-2022 |
| 5 | Enable folder redirection for user’s “Desktop” | 30 | 20-03-2022 |
| 5 | Prevent changes to proxy settings on IE on every user’s machine | 30 | 20-03-2022 |
| 6 | Self-signed certificates for web servers | 75 | 27-03-2022 |
| 7 | Creating backup policy | 60 | 03-04-2022 |
| 7 | Making a dashboard for KPI | 75 | 03-04-2022 |
| 7 | Making a dashboard for virtual clients | 45 | 03-04-2022 |
| 7 | Making a dashboard for checking all logs | 30 | 03-04-2022 |
| 8 | Set up VPN connection | 60 | 10-04-2022 |
| 8 | Implementing an event and incident management system | 120 | 10-04-2022 |
| 8 | Security management analysis | 90 | 10-04-2022 |
| 8 | Making a CRUD application |  | 10-04-2022 |
| 9 | Make the test report | 160 | 17-04-2022 |
| Extra services | 240 |
| 10 | Demo & Presentation | 45 | 19-04-2023 |