CONESTOGA
Connect Life and Learning

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|---|---|
| **Group Number:** | Group 1 |
| **Deliverable:** | Project Outline |
| **Course Name:** | NTWK8216-Sec2-Capstone |
| **Date Due:** | 10/01/2024 |

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## Project Overview / Introduction

        The aim of this project is to build up an office infrastructure for a web hosting company in two cities, Singapore and Los Angeles. This development includes selecting suitable hardware that will be used for front-end support and office staff. In addition, the main aim of this project is to supply effective system administration, redundancy, and security. Furthermore, the project includes server hardware for virtualization, collaboration tools, monitoring, a customer service portal, Active Directory (AD) integration, website hosting, database integration, Mobile Device Management (MDM) solution, and Docker-based deployment. Finally, it guarantees safe device control and communication between two sites using collaboration tools.

## Project Details

- Project Title: **Deployment of web hosting infrastructure and centralized management.**

- Project Outline Due Date: - 30th September 2024

- Project leader: - Pragnesh Chaudhary

- Project Members: -

| Name | Student Number |
|------|----------------|
| Pragnesh Chaudhary | 8937680 |
| Urvish Sangani | 8947081 |
| Rishi Patel | 8940502 |
| Yug Patel | 8938573 |
| Aagam Shah | 8934450 |
| Taranjit Chani | 8861991 |

## Network Diagram
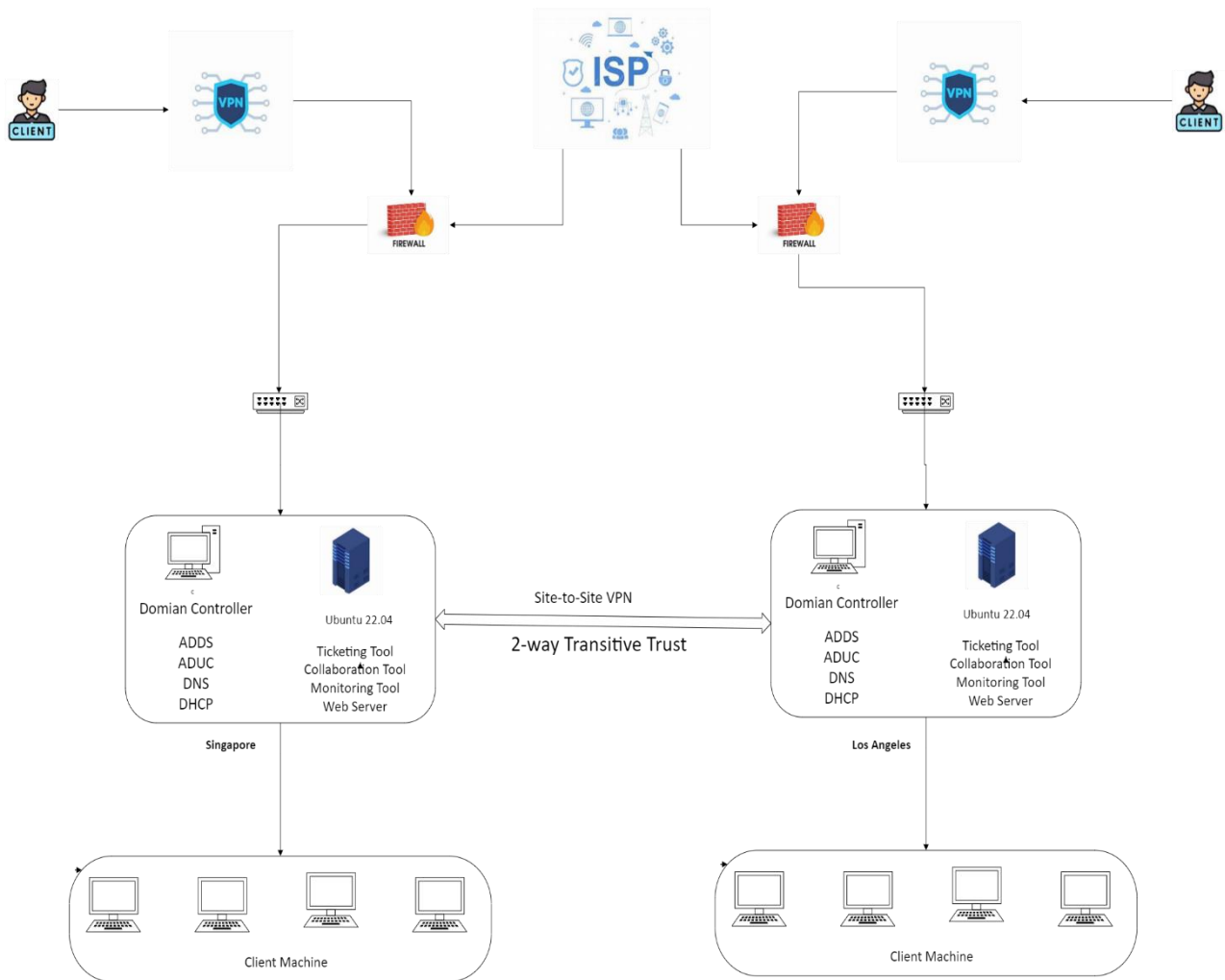
## Project Objective / Key Deliverables

- Build office infrastructure for web hosting companies in Singapore and Los Angeles.

- Choose suitable hardware for office staff and front-end support for each site.

- Install server hardware for virtualization.

- Provide smooth system administration with redundancy and security.

- Integrate monitoring tool and customer service portal.

- Hosting a website with database implementation.

- AD integration with collaboration tool in LINUX to authorize users and computers.

- Implement Mobile Device Management (MDM) for device control.

- Apply docker-based deployment to provide stable and reliable service between two sites.

## Project Scope

- ➢ Create an IT environment for both sites with multiple users.
- ➢ Design network infrastructure with IP addresses.
- ➢ Set up system administration with redundancy and ensure HA (high availability) and failover work using virtualization.
- ➢ Deploy a Linux-based monitoring tool and customer service portal.
- ➢ Hosting website using Apache or Nginx in LINUX with MySQL database.
- ➢ Integrate Active Directory with collaboration tool in LINUX.
- ➢ Deploy this using docker.

## Task Distribution

| NAME | TASK | OS |
|------|------|-----|
| Aagam Shah | Customer service portal with ticketing tool | LINUX |
| Rishi Patel | Monitoring tool and deployment | LINUX |
| Pragnesh Chaudhary | Collaboration tool | LINUX |
| Urvish Sangani | Security solution and Deployment | WINDOWS+ LINUX |
| Taranjit Chani | MDM Solution | Multi-OS |
| Yug Patel | Website hosting tool | LINUX |

## Project Risk

- ❖ If any problem occurs in trust between both sites, it could result in a single point of failure.
- ❖ Network Connectivity would be lost if any network device is not working.
- ❖ Sometimes, applications might not load fast, or the website may not run smoothly because of the delay in communication between the LA and Singapore offices.

## Project Cost

| Domain controller | |
|---|---|
| CPU | 16 cores |
| Ram | 64 GB |
| SSD | 1 TB |
| OS | Windows Server 2022 |
| Cost | $2500-3500 |

| Linux server | |
|---|---|
| CPU | 32 cores |
| Ram | 128 GB |
| SSD | 2 * 1 TB |
| OS | Ubuntu Server 22.04 LTS |
| Cost | $3000-4500 |

| | |
|---|---|
| Router | $ 6000-7000 |
| Switch | $ 3000-4000 |
| Firewall | $ 900-1500 |
| VPN | $ 500-800 |
| Cables, Rack | ~$ 12500 |

| | |
|---|---|
| Rent | $70000/year |
| Labor and installation | $20000-25000/year |
| Maintenance | $18000-20000/year |

| | |
|---|---|
| 4 * Domain controller | $12000 |
| 4 * Linux server | $16000 |
| Other costs | $130900 |
| ~Total | $158900 |

## **Project Timeline**

Week 1-2: Planning and information gathering

- Describe the project objective and scope.

- Research the hardware, software, and network requirements.

- Research and finalize tools for different requirements.

Week 3-4: Server creation

- Build IT infrastructure for installing and testing tools and software

- Installed base server and client machine for both locations.

- Installed Linux servers (Ubuntu/Fedora- headless server)

- Design network architecture, including IP address.

Week 5-6: Installing tools and AD integration

- Started installing monitoring tool (Name) and ticketing tool (Name)

- Hosting a sample website using Apache in LINUX

- Started working on a collaboration tool

- AD integration with tool (Name)

Week 7-8: Working on database, security solutions and MDM

- Database creation as per requirement and integration with the website

- Implement security solutions for Windows as well as Linux systems

- Installed MDM in project

Week 9-10: Docker implementation

- Deployment of all tools using docker across both sites

## **Project Timeline**

Week 11-12: Testing

- Check the functionality of all the hardware and software

- Perform security checks for all tools

- Validate communication between two sites

- Check whether all tools collaborate with each other or not as per expectations

Week 13-14: Final documentation and completion

- Prepare the final document regarding the project

- Adding all the details and procedures for tools and software.

- Project completion and handover

- Prepare PowerPoint presentation

Week 15: Presentation and Project Demo

- Presenting our work

- Explaining our challenges and solutions

- Give a detailed demo of the project

## Conclusion

To conclude, this project will successfully build a strong office infrastructure for a company with branches in Los Angeles and Singapore. We guarantee that the system will run smoothly by integrating redundancy and virtualization and selecting the correct software along with AD integration, monitoring tool, ticketing tool, and decker-based deployment.

## Conclusion