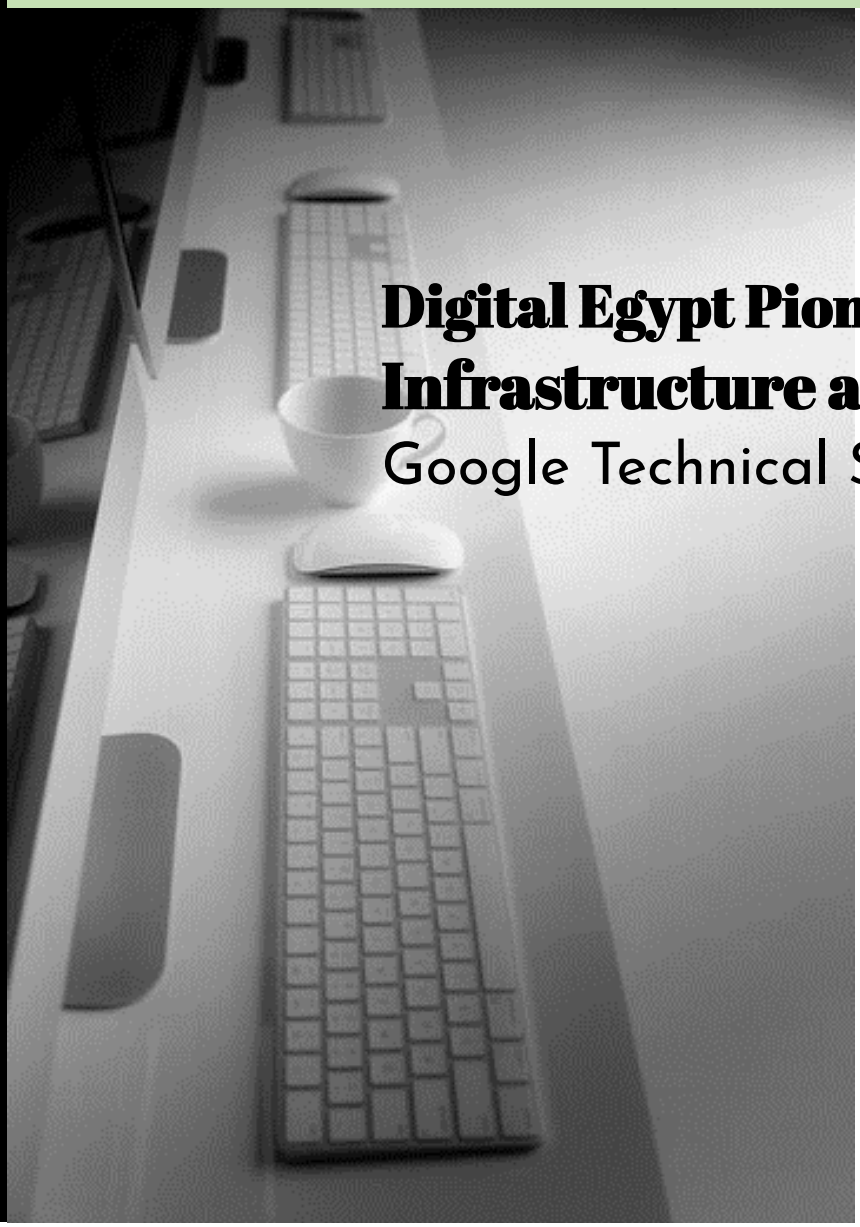

Digital Egypt Pioneers Initiative (DEPI)

Infrastructure and Security

Google Technical Support Specialist

- Network Setup & Configurations and Troubleshooting

Prepared By:
RAM_Team

Date:
15/10/2024

1. Executive Summary

This project aims to design, implement, and troubleshoot a comprehensive network setup to support the operational and security requirements of a medium-sized organization. The project will address the challenges of network configuration, connectivity issues, and security threats through systematic planning and troubleshooting methods.

Key Features:

- **Network Design:** Create an efficient network topology using routers, switches, and firewalls.
- **Configuration:** Set up and configure devices to ensure optimal performance and security.
- **Troubleshooting:** Identify, diagnose, and resolve network issues using best practices and tools.

2. Project Background

The project will be implemented using the following methodology:

1. **Planning and Analysis:** Conduct a needs assessment and define the technical requirements and objectives of the network.
2. **Design and Implementation:** Create a network design that meets the client's requirements and install the necessary hardware and software.
3. **Testing and Optimization:** Test the network's performance and security, and make adjustments as needed.
4. **Troubleshooting and Documentation:** Develop troubleshooting guides and document the network configuration

3. Project Goals & Objectives

The main objectives of this project are:

- **Establish a Robust Network Infrastructure:** Design a network topology that ensures high availability, reliability, and scalability.
- **Implement Security Measures:** Configure firewalls, VPNs, and network access control policies to secure the network.
- **Develop Troubleshooting Procedures:** Create a systematic approach to diagnose and resolve common network issues such as connectivity failures, slow network speeds, and security vulnerabilities.

4. Scope of Work

The project will be divided into the following phases:

1. **Network Design and Planning:**
    - Define network requirements and layout.

- Choose appropriate hardware and software solutions.
- Develop the network topology.

2. **Installation and Configuration:**
   - Install network devices (routers, switches, firewalls, and access points).
   - Configure network settings, IP addressing, and VLANs.
   - Implement security protocols.
3. **Testing and Optimization:**
   - Test network performance and security.
   - Optimize configurations to improve performance and reliability.
4. **Troubleshooting and Issue Resolution:**
   - Identify potential issues and implement troubleshooting procedures.
   - Use tools like Wireshark, Ping, and Traceroute for diagnostics.

5. Project Plan & Timeline

The project is expected to be completed in a span of 4 weeks, as detailed below:

Phase	Duration	Start Date	End Date
Network Design and Planning	1 week	15/9/2024	21/09/2024
Hardware and Software Installation	4 days	22/09/2024	26/09/2024
Configuration and Security Implementation	1 week	27/10/2024	04/10/2024
Testing and Optimization	3 days	05/10/2024	08/10/2024
Troubleshooting and Documentation	1 week	09/10/2024	15/10/2024

6. Resource Requirements

The project requires the following resources:

- **Personnel:**

  AbdulRhman AbdulGhaffar
  - Role: Network Setup & Configuration, and Documentation Project

  Mustafa Abdullah
  - Role: Design and Planning of Networks

  Ramzey Elsayed
  - Role: Network Troubleshooting

- **Tools & Technology:**
  - Hardware Devices:(Routers, Switches, Firewalls, Servers, Network Cables, Patch Panels, Racks, UPS)
  - Network Software:(PRTG Network Monitor, SolarWinds Network Configuration Manager, Cisco Firepower Management Center, Windows Server)
  - Testing and Troubleshooting:(Wireshark, Nmap, windows client, Cisco Packet Tracer)
  - Virtualization Software:(VMware Workstation, Hyper-V)
  - Documentation Tools:(Microsoft Visio, Cisco Packet Tracer, Microsoft Word, Chat GPT, Deeple write)

7. Budget Estimate

The estimated budget for this project includes:

Item	Cost
Hardware (Routers, Switches, Firewalls, Server)	$9,300
Software Licenses	$5,600
Configuration and Implementation Services	$7,000 - $16,000
Miscellaneous Expenses	$5,250 - $6,250
Total Project Cost	$ 28,900

8. Risk Management

Potential risks associated with the project and their mitigation strategies include:

Risk	Probability	Impact	Mitigation Strategy
Hardware compatibility issues	Medium	High	Ensure compatibility during the planning phase.
Network downtime during installation	High	Medium	Schedule installation during non-business hours.
Security vulnerabilities during setup	Low	High	Implement secure configurations and audits.

9. Conclusion

This project proposal outlines a comprehensive plan to design, implement and troubleshoot a network infrastructure that meets the needs of the Digital Egypt Pioneers Initiative. With a focus on security, scalability and efficiency, this project will serve as a fundamental step towards developing a robust IT environment for the organization, to access Documentation, please refer to the link below.
Documentation Link: https://drive.google.com/drive/folders/1ZOipQGdoix-3ZkQzCiAMW7CkS6qu7VBq