COMP714 Network Project Scenario

Optimus Consultants is a new company specialising in structural and civil engineering design work. It is being formed from several smaller companies and individual engineers. One of the main constituent companies has gone into liquidation after a series of IT disasters resulted in information losses, leading to design projects not being completed on time and customers forced to go elsewhere.

The new CEO of the fledgling company knows that effective information security is a key element in forming a successful company. He has come to you to design and prototype an Information Technology infrastructure which will be reliable and scalable and effectively support the operations of the company.

The company will have a head office in Hamilton, with branch offices in Auckland, Whangarei, Thames, Tauranga, Rotorua, Palmerston North, and New Plymouth. Staff will also be able to work from home.

Around 100 staff will initially be employed across all the branches. Their roles will be Structural Engineers, Civil Engineers, Technicians, Management, Accounting, Payroll, Marketing, and Office Manager/Reception.

The type of work undertaken will be providing specific designs for the construction of domestic houses and commercial buildings, roading, subdivisions and public amenities. The typical workflow would be a client – a builder or architect, approaches the company for a specific design. For example, this might be to produce a design for steel beams required in a larger house. A project manager is assigned to the project, and one or more engineers will work on the design using software like AutoCAD, MS Excel and other engineering applications. A report will be produced containing detail drawings and calculations. The report is checked by a senior engineer. The client is invoiced for the report and once the invoice is paid, the report is delivered to the client.

Network Infrastructure Services

The network infrastructure services to be delivered by the project are: -

- Local Area Network on each site
    - Virtual LANs
    - Directory services: Network Users and groups
    - Domain controller
    - DHCP
    - Print Server
    - Deployment/Imaging services
    - Authentication server (e.g. RADIUS)
    - DNS server
    - Licensing server (a shared folder)
    - Internet access
    - Data Storage with system of shared folders created, with: -
        - Folder for each user – accessed only by that user and the IT Administrator.
        - Folder for each project – Write access only for project manager and staff working on that project. Read access provided to Accounts and Senior Management.

        - Folder for each major department e.g. Accounts, with appropriate permissions.
        - The principle of “least privilege” should be used when assigning permissions to folders. Staff can ask the IT Administrator when they need more access.
        - “Shadow copies” will be enabled so that staff can retrieve older versions of documents.

- Security
    - Virtual Private Networks between sites and/or leased lines
    - VPN for remote access users
    - Device and end-user security
    - Firewalls
    - Social Network Policies
    - Group Policy
    - URL filtering on internet connection
    - Data Backup, storage and security (extremely important)
    - Draft security policy written for submission to the CEO so the company can maintain high security standards.

- Intranet and external website (simulation)
- Digital Phone system/teleconferencing/VOIP
- Routing between sites.

Proposed Company Structure

- Hamilton – Head Office
    - Managing Director
        - Michael O’Neill
    - Senior Engineers
        - Nico Hassan
        - Ruben Flynn
        - Ashley Osborne
    - Project Managers
        - Allison Singleton
        - Robert Flanigan
        - Piers McCulloch
    - Structural Engineers
        - Tiffany Lin
        - Kaci Durham
        - Aliyah Casey
        - Lauryn McCartney
        - Siobhan Morales
        - Christian Kumar
        - Rhys Guevara
        - Pierce Buckley
        - Barney Barnett
    - Civil Engineers

        - Jemima Tillman
        - Hudson Dudley
        - Jessie French
        - Olivia Armstrong
        - Rowan Little
        - Gareth Rodriquez
        - Rick Mendez
        - Dylan Rodrigues
        - Dean Cross
        - Gordon Downes
    - Geotechnical Technicians
        - Jeremy Murphy
        - Ashley Greenwood
    - Accounting
        - Mark Solis
        - Eilish Lindsey
    - Payroll
        - Hollie Wilder
    - Marketing
        - Leonard Hayward
        - Debbie Keenan
    - Reception
        - Luke O'Connor
    - IT Administrator
        - <your name>

- Auckland
    - Project Manager
        - Ajay Nash
    - Structural Engineers
        - Melanie Quintana
        - Felicia Paterson
        - Dillan Kerr
        - Isaac Horton
        - Tom Moore
    - Civil Engineers
        - Trinity North
        - Minnie Laing
        - Tom Barton
        - Victor Warner
    - Geotechnical Technician
        - Remi Jones
    - Reception
        - Verity Hyde

- Whangarei
    - Project Manager
        - Tamsin Beaumont

    - Structural Engineers
        - Aston Bradshaw
        - Leona Ellwood
        - Marcel Hollis
        - Henry Currie
        - Max McKay
    - Civil Engineers
        - Aston Bradshaw
        - Leona Ellwood
        - Woody England
    - Geotechnical Technician
        - Elodie Chen

- Thames
    - Structural Engineer
        - Kirk Worthington
    - Civil Engineer
        - Isabella Walmsley

- Tauranga
    - Project Manager
        - Chantelle Watkins
    - Structural Engineers
        - Annabel Lancaster
        - Mason Kenny
        - Cory Stevenson
        - Dawn Beck
    - Civil Engineers
        - Asher McDougall
        - Malakai Pearson
        - Madelyn Long
    - Geotechnical Technician
        - Annabel Lancaster

- Rotorua
    - Project Manager
        - Mason Kenny
    - Structural Engineers
        - Astrid Searle
        - Vivienne Hardy
        - Rachel Southern
        - Cory Stevenson
        - Keenan Bowler
        - Walter Marshall
    - Civil Engineers
        - Barry Nava
        - Rodney Calvert
        - Jordon McGregor

        - Harper Wilkinson
        - Lucy Yu
        - Chantelle Watkins
    - Geotechnical Technician
        - Adrian Potter

- Palmerston North
    - Project Manager
        - Arun Amin
    - Structural Engineers
        - Syeda Patrick
        - Cora Forrest
        - Evelyn Bain
        - Luke Milne
        - Sidney Campbell
        - Evan Robbins
    - Civil Engineers
        - Sacha Cordova
        - Anjali Harrison
        - Sebastian Welsh
        - Robert Kenney
    - Geotechnical Technician
        - Gemma Gregory

- New Plymouth
    - Project Manager
        - Jarrad Holman
    - Structural Engineers
        - Jaydon McClain
        - Rex Wardle
        - Lennon Griffith
        - Reeva Spooner
        - Catherine Mcintosh
        - Melissa Hunt
    - Civil Engineers
        - Jon Walmsley
        - Mathew Walter
        - Matthew Boyle
        - Ellen Hurst
        - Carol Braun
        - Aleena Burch
    - Geotechnical Technician
        - Briana Lawson

Deliverables

1. The Head Office and three branch offices modelled on four computers in E2.04 using removable hard drives.
    a. Servers and/or workstations will be installed on each computer using virtualisation software, implementing virtual local area networks.
    b. The computers will be connected together using VPNs implemented using the Cisco ASA Firewalls and routers creating an internetwork.
    c. The internetwork will also be connected to the internet using an ASA Firewall.
    d. Devices on the internetwork will implement the services listed above.

2. Design and Documentation
    a. A design diagram for the complete internetwork, showing locations of devices, connections between devices, and network addresses.
    b. Detailed and complete documentation of the configuration of devices and implementation details of the services listed above.
    c. Draft security policy.

End of document.