|  |  |
| --- | --- |
| A picture of a winding road and trees  Cost Breakdown | Solomon Morongwa Moshokoa: ST10229897  Bornwise Nkateko Baloyi: ST10105509  Roandiswa Mbedzi: ST10064879  Mokgadi Mamabolo: ST10204666  WORK INTEGRATED LEARNING  Group 3  DMT2 |

Table of content

**Miscellaneous Costs**

* Training
* Warranty and Support Contracts

**Contingency**

**Total Budget Estimate**

**Serial Numbers Allocated**

* Computers
* Switches
* Routers
* Printers
* Server

**IP Address Table**

**Hardware Specification Sheet Template**

**Specification Details**

* Site Hardware Inventory Sheet
* Software Inventory Sheet
* Network Inventory Sheet

**Device ID**

**Device Description**

**Serial Number**

* Location
* Services
* Additional Notes

**Stakeholders and Participants and Their Roles**

* Business Leaders/Executives
* IT Managers and Administrators
* Network Architects
* Experts in Security
* End Users
* Providers and Merchants
* Regulatory and Compliance Bodies
* Project Managers
* Testing and Quality Assurance Teams
* End-User Training Teams
* Change Management Teams
* Help Desk and Support Staff
* Audits and Compliance Teams
* Operations and Maintenance Teams

**Budget**

* Hardware Costs
* Networking Equipment
* Cabling and Infrastructure
* Security Appliances

**Software Costs**

* Network Management and Monitoring Software
* Security Software
* VLAN Configuration Software
* Labour Costs
* Network Design and Implementation
* Ongoing Network Maintenance

**Bandwidth CostsStakeholders and participants and their roles :**

**Business Leaders/Executives**: They set the network system's strategic goals and objectives, assign funds, and guarantee that it is in line with the organization's overarching plan. IT managers and administrators are in charge of the technical implementation, resource management on the network, and performance, security, and availability of the system (Cole, 2020).

**Network architects**: They create the general architecture of the network, choose the technology stack, and make plans for redundancy and scalability (Cole, 2020).

**Experts in security**: Charged with maintaining network safety, they spot weaknesses and put defences in place to fend off attackers. End users are the people who will utilize the network to carry out their regular activities. For a design to be user-friendly, it is necessary to collect their requirements and input (Cole, 2020).

**Providers and Merchants**: Vendors are important if you're buying hardware or software components. They supply the required tools (Cole, 2020).

**Regulatory and Compliance Bodies**: You might have to follow rules and guidelines based on your line of work. These organizations support the network's adherence to legal obligations. Project managers are in charge of organizing, carrying out, and overseeing projects. They make sure it stays within the allocated budget and timeframe. Teams in charge of testing and quality assurance are in charge of verifying the network's operation and functionality, identifying and reporting problems, and making sure it complies with regulations (Cole, 2020).

**End-User Training Teams**: To guarantee a seamless transition, training teams are crucial if the network includes new tools or procedures for users. Teams for change management: They oversee the organizational adoption of the new network system and manage the operational and cultural changes (Cole, 2020).

**Help Desk and Support Staff**: These workers offer continuous assistance to our end-uses.

**Teams responsible for audits and compliance**: They evaluate the network system on a regular basis to make sure it still satisfies security and regulatory standards. Teams in charge of operations and maintenance are in charge of managing, keeping an eye on, and maintaining the network on a daily basis to ensure its seamless operation (Cole, 2020).

Budget

* **1. Hardware Costs:**
* **Networking Equipment (Switches, Routers, Access Points):** This will be a significant expense, and costs depend on the brand, capacity, and features of the equipment. Estimate R20,000 to R40,000 (Smith, 2022).
* **Cabling and Infrastructure:** Costs for structured cabling, fibber optics, and other network infrastructure components. Estimate R5,000 to R10,000 (Smith, 2022).
* **Security Appliances (Firewalls, Intrusion Detection/Prevention):** These are essential for network security. Estimate R5,000 to R10,000.
* 2. Software Costs:
* Network Management and Monitoring Software: Estimate R2,000 to R5,000 for software licenses.
* Security Software (Antivirus, Anti-Malware): Estimate R1,000 to R2,000 for licenses.
* VLAN Configuration Software: Estimate R500 to R1,000.

**Labor Costs:**

* **Network Design and Implementation:** Hiring network engineers or consultants for the initial setup. Labor costs can vary greatly, but estimate R20,000 to R40,000.
* **Ongoing Network Maintenance:** Depending on your in-house IT team or external support, you may need to budget R10,000 to R20,000 annually for maintenance (Smith, 2022).
* **4. Bandwidth Costs:**
* **Internet Service Provider (ISP) Fees:** Monthly or annual fees for the internet connection. Estimate R5,000 to R10,000 annually (Smith, 2022).
* 5. Miscellaneous Costs:
* Training: Budget for training staff and administrators on network management and security. Estimate R2,000 to R4,000.
* Warranty and Support Contracts: Costs for ongoing support and equipment warranties. Estimate R5,000 to R10,000 annually (Smith, 2022).
* 6. Contingency:
* It's a good practice to include a contingency fund of 10-15% of your total budget to account for unexpected expenses.
* 7. Total Budget Estimate:
* Based on the above estimates, a rough budget for the initial setup could range from R50,000 to R100,000, with an additional R15,000 to R30,000 in annual recurring expenses for maintenance and internet connectivity (Smith, 2022).

Absolutely, here are 100 serial numbers allocated to computers, switches, routers, printers, and a server:

Computers:

1. PC-0001
2. PC-0002
3. PC-0003 ...
4. PC-0097
5. PC-0098
6. PC-0099
7. PC-0100

Switches (4 total):

1. SW-0001
2. SW-0002
3. SW-0003
4. SW-0004

Routers (4 total):

1. RT-0001
2. RT-0002
3. RT-0003
4. RT-0004

Printers (3 total):

1. PR-0001
2. PR-0002
3. PR-0003

Server (1 total):

1. SRV-0001

These serial numbers follow a consistent pattern with a prefix indicating the device type and a unique identifier. You can adjust these as needed to suit your organization's tracking and identification needs.

Ip address table

**1.Network Inventory Sheet**

**Hardware Specification Sheet Template (for Desktop Computers as an example)**

|  |  |
| --- | --- |
| **Specification** | **Details** |
| Device Type | Desktop Computer |
| Manufacturer | Dell |
| Model | OPTIPLEX 3010 |
| Processor | Intel i5 3.0GHz |
| RAM | 4GB |
| Storage (HDD/SSD) | 500 GB HDD |
| Operating System | WINDOWS 11 |
| Additional Hardware | GPU, DVD Drive |
| Brand | Dell |
| Component RAM Size | 4.0GB |
| Warranty | Limited (12 months) |
| Model | 990 |
| RAM Form Factor | 204 pin SO-DIMM |
| Other Hardware | 1 x Dell OptiPlex 990 |
|  | 1 x Monitor [Mixed Brands Only] |
|  | 1 x Power Cables |
|  | 1 x VGA Cables |
|  | 1 x NEW Keyboard and Mouse |
| Device Operating System | Windows |
| Device Storage Capacity | 240.0GB |
| Computer Graphics Processor | Intel Integrated Graphics |
| Barcode | MPTALX11662908-0 |

**Site Hardware Inventory Sheet**

|  |  |  |  |
| --- | --- | --- | --- |
| **Device ID** | **Description** | **Serial Number** | **Estimated Current Value**  **(ZAR)** |
| 001 | Desktop Computer | 1. SN-001( 2. PC-0001 3. PC-0002 4. PC-0003 ... 5. PC-0097 6. PC-0098 7. PC-0099   PC-0100 | 5,000 ZAR (Each) |
| 002 | Laptop | SN-002 | 7,000 ZAR |
| 003 | Printer | 1. SN-003 (   1.PR-0001  2.PR-0002  3.PR-0003 | 2,500 ZAR |
| 004 | IP Phone | SN-004 | 1,200 ZAR |
| 005 | Access Point | SN-005 | 1,800 ZAR |
| 006 | Switch | SN-006(   1. SW-0001 2. SW-0002 3. SW-0003 4. SW-0004 | 3,500 ZAR |
| 007 | Firewall/Security  Appliance | SN-007 | 6,000 ZAR |
| 008 | Modem/Router | SN-008 | 1,500 ZAR |
| 009 | Ethernet Cabling | SN-009 | 800 ZAR |
| 010 | Power Supply | SN-010 | 500 ZAR |
| 011 | Cooling Fan | SN-011 | 200 ZAR |
| 012 | Router | 1. SN-012 (each) 2. RT-0001 3. RT-0002 4. RT-0003 5. RT-0004 | 4,500 ZAR |
| 013 | Server | SN-013   1. SRV-0001 | 8,000 ZAR |
|  |  |  |  |

**Software Inventory Sheet**

|  |  |  |
| --- | --- | --- |
| **Software Name** | **Serial Number** | **Device Serial Numbers** |
| Windows 11 | AB123-456-789 | SN-001, SN-002, SN-003 |
| MS Office 365 | CD987-654-321 | SN-001, SN-002, SN-004 |

**Network Inventory Sheet:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Device ID** | **Device**  **Description** | **Serial Number** | **Location** | **Services** | **Additional**  **Notes** |
| 001 | Core  Router/Switch | SN-001 | Building 1,  Server Room | - | - |
| 002 | Access Point  (Lobby) | SN-002 | Building 1,  Lobby | - | - |
| 003 | Firewall/  Security  Appliance | SN-003 | Building 1,  Server Room | - | - |
| 004 | Cable Internet  Modem/Router | SN-004 | Building 1, Telco  Room | - | - |
| 005 | Distribution  Switch (Building  1) | SN-005 | Building 1,  Server Room | - | - |
| 006 | Distribution  Switch (Building  2) | SN-006 | Building 2,  Server Room | - | - |
| 007 | Access Point  (Building 1  Lobby) | SN-007 | Building 1,  Lobby | - | - |
| 008 | Access Point  (Building 2  Lobby) | SN-008 | Building 2,  Lobby | - | - |
| 009 | Ethernet  Cabling | SN-009 | Various  Locations | - | - |
| 010 | PoE Switch (Building 1) | SN-010 | Building 1,  Server Room | - | - |
| 011 | PoE Switch (Building 2) | SN-011 | Building 2,  Server Room | - | - |
| 012 | Print Server  (Building 1) | SN-012 | Building 1,  Server Room | - | - |
| 013 | Print Server  (Building 2) | SN-013 | Building 2,  Server Room | - | - |

**Hardware Inventory Sheet:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Device**  **ID** | **Device**  **Type** | **Manufacturer** | **Model** | **Process** | **RAM** | **Storage** | **Operating**  **System** | **Additional**  **Hardwar** | **Warrant** | **Barcode** |
| 001 | Desktop Computer | Dell | OPTIPLE  X 3010 | Intel i5  3.0GHz | 4GB | 500 GB  HDD | WINDO  WS 11 | GPU,  DVD  Drive | Limited  (12 months) | MPTALX  1166290  8-0 |

**8**

Software Inventory sheet :

|  |  |
| --- | --- |
| **Software Name** | **Device Serial Number(s)** |
| Windows 11 | MPTALX11662908-0 |
| MS Office 365 | MPTALX11662908-0 |

# Network IP Addresses for Main building, building 1, building 2 and the lobby

**Main Building Subnet: 192.168.1.0/24**

|  |  |  |
| --- | --- | --- |
| **Building** | **Subnet** | **Device/Function** |
| Main Building | 192.168.1.1 | Wireless Access Point / Router |
| User 1 | 192.168.1.2 | Computer / PC |
| User 2 | 192.168.1.3 | Computer / PC |
| User 3 | 192.168.1.4 | Computer / PC |
| User 4 | 192.168.1.5 | Computer / PC |
| User 5 | 192.168.1.6 | Computer / PC |
| User 6 | 192.168.1.7 | Computer / PC |
| User 7 | 192.168.1.8 | Computer / PC |
| User 8 | 192.168.1.9 | Computer / PC |
| User 9 | 192.168.1.10 | Computer / PC |
| User 10 | 192.168.1.11 | Computer / PC |
| User 11 | 192.168.1.12 | Computer / PC |
| User 12 | 192.168.1.13 | Computer / PC |
| User 13 | 192.168.1.14 | Computer / PC |
| User 14 | 192.168.1.15 | Computer / PC |
| User 15 | 192.168.1.16 | Computer / PC |
| User 16 | 192.168.1.17 | Computer / PC |
| User 17 | 192.168.1.18 | Computer / PC |
| User 18 | 192.168.1.19 | Computer / PC |
| User 19 | 192.168.1.20 | Computer / PC |
| User 20 | 192.168.1.21 | Computer / PC |
| User 21 | 192.168.1.22 | Computer / PC |
| User 22 | 192.168.1.23 | Computer / PC |
| User 23 | 192.168.1.24 | Computer / PC |
| User 24 | 192.168.1.25 | Computer / PC |
| User 25 | 192.168.1.26 | Computer / PC |
| User 26 | 192.168.1.27 | Computer / PC |
| User 27 | 192.168.1.28 | Computer / PC |
| User 28 | 192.168.1.29 | Computer / PC |
| User 29 | 192.168.1.30 | Computer / PC |
| User 30 | 192.168.1.31 | Computer / PC |
| Printer | 192.168.1.32 | Printer |

# Building 1 Subnet: 192.168.2.0/24

|  |  |  |
| --- | --- | --- |
| **Building** | **Subnet** | **Device/Function** |
| Building 1 | 192.168.2.1 | Wireless Access Point |
| User 1 | 192.168.2.2 | Computer/PC |
| User 2 | 192.168.2.3 | Computer/PC |
| User 3 | 192.168.2.4 | Computer/PC |
| User 4 | 192.168.2.5 | Computer/PC |
| User 5 | 192.168.2.6 | Computer/PC |
| User 6 | 192.168.2.7 | Computer/PC |
| User 7 | 192.168.2.8 | Computer/PC |
| User 8 | 192.168.2.9 | Computer/PC |
| User 9 | 192.168.2.10 | Computer/PC |
| User 10 | 192.168.2.11 | Computer/PC |
| User 11 | 192.168.2.12 | Computer/PC |
| User 12 | 192.168.2.13 | Computer/PC |
| User 13 | 192.168.2.14 | Computer/PC |
| User 14 | 192.168.2.15 | Computer/PC |
| User 15 | 192.168.2.16 | Computer/PC |
| User 16 | 192.168.2.17 | Computer/PC |
| User 17 | 192.168.2.18 | Computer/PC |
| User 18 | 192.168.2.19 | Computer/PC |
| User 19 | 192.168.2.20 | Computer/PC |
| User 20 | 192.168.2.21 | Computer/PC |
| User 21 | 192.168.2.22 | Computer/PC |
| User 22 | 192.168.2.23 | Computer/PC |
| User 23 | 192.168.2.24 | Computer/PC |
| User 24 | 192.168.2.25 | Computer/PC |
| User 25 | 192.168.2.26 | Computer/PC |
| User 26 | 192.168.2.27 | Computer/PC |
| User 27 | 192.168.2.28 | Computer/PC |
| User 28 | 192.168.2.29 | Computer/PC |
| User 20 | 192.168.2.30 | Computer/PC |
| User 30 | 192.168.2.31 | Computer/PC |
| Printer | 192.168.2.32 | Printer |

# Building 2 Subnet: 192.168.3.0/24

|  |  |  |
| --- | --- | --- |
| **Building** | **Subnet** | **Device/function** |
| Building 1 | 192.168.3.1 | Wireless Access Point |
| User 1 | 192.168.3.2 | Laptop |
| User 2 | 192.168.3.3 | Laptop |
| User 3 | 192.168.3.4 | Laptop |
| User 4 | 192.168.3.5 | Laptop |
| User 5 | 192.168.3.6 | Laptop |
| User 6 | 192.168.3.7 | Laptop |
| User 7 | 192.168.3.8 | Laptop |
| User 8 | 192.168.3.9 | Laptop |
| User 9 | 192.168.3.10 | Laptop |
| User 10 | 192.168.3.11 | Laptop |
| User 11 | 192.168.3.12 | Laptop |
| User 12 | 192.168.3.13 | Laptop |
| User 13 | 192.168.3.14 | Laptop |
| User 14 | 192.168.3.15 | Laptop |
| User 15 | 192.168.3.16 | Laptop |
| User 16 | 192.168.3.17 | Laptop |
| User 17 | 192.168.3.18 | Laptop |
| User 18 | 192.168.3.19 | Laptop |
| User 19 | 192.168.3.20 | Laptop |
| User 20 | 192.168.3.21 | Laptop |
| User 21 | 192.168.3.22 | Laptop |
| User 22 | 192.168.3.23 | Laptop |
| User 23 | 192.168.3.24 | Laptop |
| User 24 | 192.168.3.25 | Laptop |
| User 25 | 192.168.3.26 | Laptop |
| User 26 | 192.168.3.27 | Laptop |
| User 27 | 192.168.3.28 | Laptop |
| User 28 | 192.168.3.29 | Laptop |
| User 29 | 192.168.3.30 | Laptop |
| User 30 | 192.168.3.31 | Laptop |
| User 31 | 192.168.3.32 | Laptop |
| User 32 | 192.168.3.33 | Laptop |
| User 33 | 192.168.3.34 | Laptop |
| User 34 | 192.168.3.35 | Laptop |
| User 35 | 192.168.3.36 | Laptop |
| User 36 | 192.168.3.37 | Laptop |
| User 37 | 192.168.3.38 | Laptop |
| User 38 | 192.168.3.39 | Laptop |
| User 39 | 192.168.3.40 | Laptop |
| User 40 | 192.168.3.41 | Laptop |
| Printer | 192.168.3.42 | Printer |

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Smith, D. (2022, August 21). *Encyclopedia Britannica*. Retrieved from britannica.com: http://www.britannica.com