

The Knowledge Hub



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Current situation

"The Knowledge Hub," a local library, is changing its current IT setup, currently unmanaged, and barely functional. The staff's productivity is hindered by slow systems and a lack of necessary tools, while visitors are met with a less than functional. This outdated infrastructure has become a bottleneck for growth, innovation, and service delivery.

They have approved an infrastructure overhaul, but they are on a modest budget. Their ambitions are clear: create a secure, efficient, and scalable internal IT environment.

Plan/Needs:

- Robust network; wired and wireless
- centralized file storage
- properly configured workstations
 - 10 staff members
 - 5 public access computers
- fundamental management
- security measures
- Virtualization to maximize hardware efficiency
- and detailed documentation

The needs of key stakeholders:

- **Library staff** need reliable systems, fast access to files, and secure printing to perform their daily tasks efficiently.
- **Management** seeks visibility, control, and assurance that the infrastructure supports future expansions.
- **Visitors** expect basic digital services, such as secure public Wi-Fi and responsive public terminals.
- **IT support personnel** require a manageable, well-documented environment that they can maintain with minimal effort.

Requirements

- **REQ-S2P1-01 (Centralized User and Resource Management):** There must be a central directory service established for controlled management and validation of access to internal digital resources (systems and other services) for staff and workstations.
 - *Create an AD service on the central server.*
- **REQ-S2P1-02 (Structured and Segmented Network):** The internal network must be logically segmented into distinct zones (e.g., for servers, user workstations, and public-facing services) to enhance organization and security. Devices in the user workstation zone should receive their network configuration automatically.
 - *Split network into Vlans and have the workstation inherit the correct OU.*
- **REQ-S2P1-03 (Secure Collaborative Storage):** A central digital location must be available where staff can securely store and share documents, with access rules automatically linked to an employee's role or department via the central authority.
 - *Set up a NAS or through the AD service.*
- **REQ-S2P1-04 (Protected Public Online Presence):** Publicly accessible services (such as the webserver) must be deployed in a dedicated network zone designed for exposure. The boundary between this zone and internal networks, as well as the internet, must be secured to minimize risk to internal resources.
 - *So the web server is on a DMZ, and then set up a firewall.*
- **REQ-S2P1-05 (Controlled Network Access at Boundaries):** All traffic crossing the boundaries between network segments (internal server, internal client, public/DMZ, and simulated internet) must pass through a dedicated control point where it is inspected and filtered according to defined security policies to enforce authorized communication paths and strictly restrict unauthorized access attempts.
 - *For this a router is needed with proper security settings.*

- **REQ-S2P1-06 (Virtual Infrastructure Deployment):** The core network components, servers, and segmented services described above must be implemented using virtual machines deployed within a virtualization platform, leveraging virtualization capabilities for logical separation and efficient resource management.
 - *The main server needs a hypervisor os, like proxmox or ESXi.*
- **REQ-S2P1-07 (Proactive System and Service Monitoring):** The status and performance of critical systems and their services/applications must be observed using developed scripts or tools to collect basic availability and performance metrics, with the capability for alerts upon deviations or issues.
 - *Monitor script.*
- **REQ-S2P1-08 (Automated Task Execution):** Repetitive administrative tasks related to users, systems, or services must be capable of being performed efficiently, using automation where possible, supported by a dedicated scripting environment.
 - *Automation script(s).*
- **REQ-S2P1-09 (Defined Management Processes):** Methods for introducing changes to components and services, and for restoring disruptions, must be designed.
 - *Something like Git.*
- **REQ-S2P1-10 (Standardized Workstation Management):** To ensure consistency and security, IT must centrally define and enforce configuration settings (e.g., security policies, user environment) for different groups of workstations (staff and public).
 - *Use the Group Policy function in the AD service.*