*A well-functioning IT infrastructure is a must for any business. Without it, no system, application or service will work. A suitable IT infrastructure design is necessary to ensure business continuity and security throughout the organization.*

*Choose a mid-size organization, Plan and design an IT infrastructure*

*Considering the following:*

* *Collection and analysis of customers’ technical requirements*
* *Development of technical specifications*
* *Development of technical design and work documentation*
* *Development of operation documentation*

Detailed IT infrastructure design proposal for the hotel.

**I. Technical Requirements**

**A. Network Infrastructure**

Wi-Fi Network

The hotel will need Wi-Fi coverage in all guest rooms, public areas, restaurant, bar, and staff offices.

The Wi-Fi network will need to provide secure, high-speed access for guests and staff.

The network should support a large number of concurrent connections, as well as video streaming and VoIP.

A guest portal should be provided for guests to connect to the Wi-Fi network.

**LAN for POS System**

A dedicated LAN will need to be set up to support the POS system in the restaurant and bar.

The network should be fast and reliable, with low latency to support real-time transactions.

The POS system should be connected to the network via wired connections for maximum stability and security.

**Camera Network**

The hotel will need to support up to 200 cameras on the network.

The cameras will need to be connected to the same network as the Wi-Fi and other devices.

The network should support video streaming and recording, with adequate bandwidth and storage capacity.

**B. Security**

**Wi-Fi Security**

The Wi-Fi network will need to be secured with WPA2 password authentication for guests.

A guest portal should be provided for guests to enter their password and connect to the network.

The network should be configured to prevent unauthorized access, with firewalls, intrusion detection/prevention systems, and network segmentation.

**Network Security**

The network will need to be secured against cyber attacks, including malware, viruses, and ransomware.

Firewalls and anti-virus software will need to be installed on all network devices, including switches, routers, and servers.

Regular security audits and vulnerability assessments should be conducted to identify potential weaknesses in the network.

**Physical Security**

The hotel will need to install security cameras in public areas and staff offices.

The cameras should be connected to the same network as the Wi-Fi and other devices.

The cameras should be configured to provide 24/7 monitoring and recording, with remote access for security personnel.

**Data Protection**

Regular backups of critical data should be performed to ensure data protection and disaster recovery.

A disaster recovery plan should be developed to address potential data loss or network failure.

**C. Hardware and Software**

**POS System**

The hotel will need to purchase and install a POS system for the restaurant and bar.

The POS system should be reliable, easy to use, and support real-time transactions.

The system should be integrated with the hotel's reservation and billing system for accurate tracking of guest charges.

**Guest Room Entertainment Systems**

The hotel will need to provide guest room entertainment systems, including cable TV and streaming services.

The entertainment systems should be easy to use, with a simple interface and remote control.

The systems should be integrated with the hotel's reservation and billing system for accurate tracking of guest charges.

**Reservation and Billing Software**

The hotel will need to install reservation and billing software for the front desk staff.

The software should be easy to use, with a simple interface and intuitive workflows.

The software should be integrated with the POS system and guest room entertainment systems for accurate tracking of guest charges.

**Office Productivity Software and Hardware**

The hotel will need to provide office productivity software and hardware for staff.

The software should include email, word processing, spreadsheet, and presentation software.

The hardware should include desktop or laptop computers, printers, and other peripherals.

**II. Technical Specifications**

**A. Network Infrastructure**

**Wi-Fi Network**

The hotel will need to install Wi-Fi access points

in all guest rooms, public areas, restaurant, bar, and staff offices.

The access points should support 802.11ac Wave 2 standard for high-speed wireless connectivity.

The access points should support MU-MIMO technology for efficient communication with multiple devices.

The network should be designed to minimize interference and provide optimal coverage throughout the hotel.

**LAN for POS System**

The hotel will need to install a dedicated LAN for the POS system in the restaurant and bar.

The LAN should support Gigabit Ethernet for fast and reliable connectivity.

The LAN should be isolated from the rest of the hotel network for security and performance reasons.

The network should be designed to minimize latency and provide real-time communication between the POS terminals and the server.

**Camera Network**

The hotel will need to install a camera network to support up to 200 cameras.

The cameras should support H.264 or H.265 compression for efficient video streaming and storage.

The cameras should support PoE (Power over Ethernet) for easy installation and reduced cabling.

The network should be designed to provide adequate bandwidth and storage capacity for recording and archiving video footage.

**B. Security**

**Wi-Fi Security**

The Wi-Fi network will need to be secured with WPA2 password authentication for guests.

A captive portal should be provided for guests to enter their password and connect to the network.

The network should be configured to prevent rogue access points, unauthorized access, and denial-of-service attacks.

The network should be monitored and audited regularly to ensure compliance with security policies.

**Network Security**

The network will need to be secured with firewalls, anti-virus software, and intrusion detection/prevention systems.

The firewalls should be configured to block unauthorized access and prevent malware from entering the network.

The anti-virus software should be installed on all network devices, including switches, routers, and servers.

The intrusion detection/prevention systems should be configured to detect and prevent cyber attacks in real-time.

**Physical Security**

The hotel will need to install security cameras in public areas and staff offices.

The cameras should support high-resolution video capture, motion detection, and night vision.

The cameras should be installed in strategic locations to provide optimal coverage and deter crime.

The cameras should be connected to a centralized recording and monitoring system for easy management and remote access.

**Data Protection**

The hotel will need to implement a data backup and disaster recovery plan to protect critical data.

The backup system should be configured to back up data regularly to a secure offsite location.

The disaster recovery plan should include procedures for restoring data in case of data loss or network failure.

The plan should be tested regularly to ensure its effectiveness.

**C. Hardware and Software**

**POS System**

The hotel will need to purchase and install a reliable and easy-to-use POS system for the restaurant and bar.

The POS system should support real-time transactions and integrate with the hotel's reservation and billing system.

The system should support multiple payment methods, including credit cards, cash, and mobile payments.

The system should be configurable to meet the specific needs of the restaurant and bar.

Guest Room Entertainment Systems

The hotel will need to provide guest room entertainment systems, including cable TV and streaming services.

The entertainment systems should be easy to use, with a simple interface and remote control.

The systems should be integrated with the hotel's reservation and billing system for accurate tracking of guest charges.

The systems should support high-definition video and audio for a superior guest experience.

Reservation and Billing Software

The hotel will need to install reservation and billing software for the front desk staff.

The software should be easy to use,

with a user-friendly interface and provide real-time availability of guest rooms.

The software should integrate with the hotel's POS system and guest room entertainment systems for accurate billing and tracking of guest charges.

The software should be scalable to accommodate future growth and changes in the hotel's operations.

**Employee Management Software**

The hotel will need to install employee management software for managing employee schedules, payroll, and HR functions.

The software should be user-friendly and provide real-time visibility into employee schedules and performance.

The software should integrate with the hotel's reservation and billing system for accurate tracking of employee hours and payroll calculations.

The software should be scalable to accommodate future growth and changes in the hotel's workforce.

**D. Operation and Maintenance**

**Operation Documentation**

The hotel will need to develop operation documentation for all aspects of the IT infrastructure, including network, security, hardware, and software.

The documentation should include clear and concise instructions for installation, configuration, and maintenance of each component.

The documentation should be regularly updated to reflect changes in the IT infrastructure.

**Maintenance and Support**

The hotel will need to establish a maintenance and support plan for the IT infrastructure.

The plan should include regular maintenance tasks, such as software updates, security patches, and hardware replacements.

The plan should include a help desk or support center for employees and guests to report technical issues.

The plan should be regularly reviewed and updated to ensure its effectiveness.

**Training**

The hotel will need to provide training for employees on the use of the IT infrastructure, including the POS system, guest room entertainment systems, reservation and billing software, and employee management software.

The training should be comprehensive and include hands-on experience with each component.

The training should be regularly updated to reflect changes in the IT infrastructure and new software releases.

**In** **conclusion**, the proposed IT infrastructure design for the hotel includes a high-speed Wi-Fi network for guests, a dedicated LAN for the POS system, and a camera network for security. The design also includes measures for securing the network, protecting data, and maintaining hardware and software components. The operation and maintenance plan includes documentation, regular maintenance and support, and comprehensive training for employees.