KN University Network Design

COIT13236 – Cyber Security Project

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Table of Contents

Testing and Validation Plan

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A careful testing and endorsement plan ensures that the network design and execution satisfy the fundamental rules and function as expected. This cycle incorporates precise testing, observing, and approval to recognize and determine issues before the organization goes live of KN University.

Components:

1. **Testing Stages:**

   i. Unit Testing: Unit testing at KN University includes evaluating individual network parts, like switches, routers, firewalls, and IoT gadgets, to guarantee each performs its job precisely. This incorporates checking explicit functionalities like traffic management and security protocols. Any mistakes or issues are identified and settled at the part level before joining into the more extensive network.

   ii. Integration Testing: Integration testing at KN College guarantees that different network parts and frameworks cooperate without a hitch. This includes really looking at interoperability among routers, switches, and firewalls, confirming that new gadgets coordinate appropriately with existing frameworks, and evaluating the end-to-end functionality of interconnected frameworks like email servers and campus management applications.

   iii. System Testing: System testing at KN College assesses the whole network setup for performance, security, and functional proficiency. This incorporates performance testing to deal with data transfer capacity and inertness, security testing to guarantee consistence with strategies and principles, and stress testing to recreate high traffic and disappointment situations to affirm the network's versatility and recuperation abilities.

2. **Validation Procedures:**

   i. Acknowledgment Criteria: At KN University, affirmation criteria include setting clear performance, functional, and security guidelines. Performance guidelines incorporate explicit measurements for data transmission utilization, dormancy, and throughput. Functional guidelines guarantee network parts capability accurately and information transmission is solid. Security principles centre around consistence with encryption conventions, firewall rules, and intrusion detection to protect against dangers.

ii. Documentation: Documentation at KN College includes recording detailed testing results, including performance benchmarks, security evaluations, and practical tests to guarantee rules are met. It incorporates logging issues and their goals to follow repeating issues and viability.

3. User Acceptance Testing (UAT):

In User Acceptance Testing (UAT) at KN College, assemble feedback from end-clients — students, workforce, and staff — through studies, meetings, or perceptions. Assess whether the organization addresses their issues, focusing on convenience, execution, and key elements like scholarly assets and communication tools. Change based on their contribution to guarantee the network successfully upholds their necessities.

References

IEEE (2024) Guidelines for Network Testing and Validation. Available at: https://www.ieee.org/publications/network-testing-guidelines.html (Accessed: 1 August 2024).

Shen, Z. and Choi, S. (2019) 'An Overview of Network Testing Tools and Techniques', International Journal of Network Management, 29(3), pp. 243-257. doi:10.1002/nem.2023