KN University Network Design

COIT13236 – Cyber Security Project

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Network Performance and Optimization

Ensuring ideal network execution incorporates a mix of convincing administration and steady improvement techniques. The goal is to stay aware of high network performance, limit downtime, and further develop the client experience.

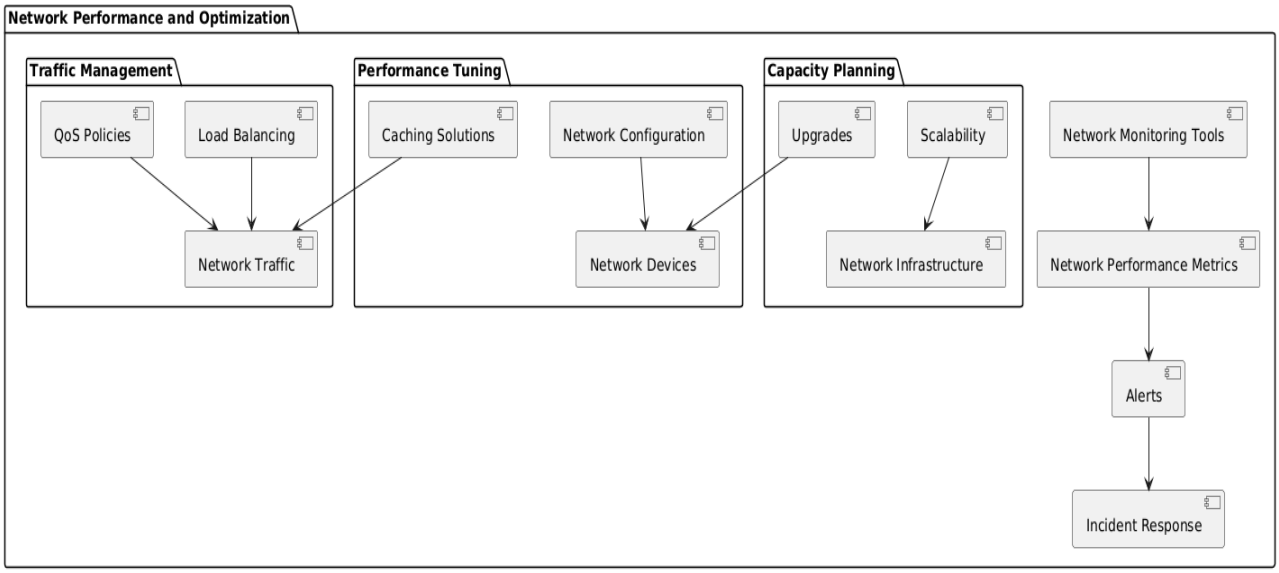

Fig: Network Performance and Optimization Plan

The diagram is a schematic for a Network Performance and Optimization Plan at KN University. A solid monitoring framework supports every one of the endeavours, following parameters connected with network performance, setting off alerts and guaranteeing brief issue response to protect an exclusive standard of network performance and constancy all through the university.

Components:

1. **Network Monitoring:**

   i. Devices: Network observing tools like packet tracer, Wireshark will be used to track performance metrics like bandwidth usage, dormancy, and packet lost.

   ii. Cautions: Design alarms for performance issues or organization abnormalities. Set up computerized alarms to advise executives of network issues like gadget failures, traffic spikes, or security breaks considering predefined limits.

2. **Traffic Management:**

   i. Quality of Service (QoS): Carry out QoS arrangements to focus on basic intellectual and regulatory applications, like internet learning stages and exploration data sets.

By managing bandwidth allocation, guarantee that fundamental services get satisfactory assets, reducing the risk of clog and keeping up with ideal performance for key applications.

ii. Load Balancing: Use load balancers to disseminate network traffic equitably across various servers facilitating college administrations, like email, web applications, and campus management system. This keeps any single server from becoming overpowered, alleviating the risk of bottlenecks and guaranteeing predictable performance and accessibility for clients.

3. Performance Tuning:

i. Network Setup: At KN University, improve network performance by moving up to high-speed routers and switches that can deal with expanded data loads and backing quicker speeds. Design these gadgets to streamline data flow, limit bottlenecks, and focus on basic applications through VLANs, Quality of Service (QoS), and interface aggregation.

ii. Caching: At KN University, execute caching solutions for decrease latency and further develop reaction times for oftentimes accessed information. Use web reserving with servers or CDNs to store and immediately convey web content like academic assets. Apply application reserving with in-memory arrangements like Redis or Memcached to upgrade data set and application execution by lessening question times.

4. Capacity Planning:

i. Scalability: At KN College, consistently evaluate network limit and execution to anticipate future development in view of understudy enlistment, workforce needs, and arising advances. Use observing tools to follow use and execution measurements, distinguishing patterns and bottlenecks for proactive changes and scaling. This guarantees the organization framework can deal with expanded traffic and backing new applications.

ii. Upgrades: At KN College, perform steady moves up to the organization framework to oversee expanded traffic and backing new applications. This incorporates overhauling equipment, like routers and switches, refreshing network management and security programming, and extending data transmission. Develop a well-defined plan of action for these moves up to line up with university objectives and focus on considering effect and necessities.

References

Wilson, R., 2022. Strategic network upgrades for higher education. 2nd ed. Chicago: University Press.

Jones, A., 2021. High-Speed Network Infrastructure: Upgrading Routers and Switches. 1st ed. London: IT Solutions.