

Network Management

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1.

An IoT monitoring system is used in a smart building that has many connected devices such as temperature sensors, security cameras, motion detectors, and smart lights. These devices constantly send data to a central network. The network administrator must monitor the system to make sure all devices are online and working correctly. If one device fails or sends unusual traffic, it could affect the whole system. Monitoring tools are used to track network traffic, device status, and performance in real time. Alerts are set to notify the administrator if a device goes offline, uses too much bandwidth, or behaves abnormally. This helps prevent bigger problems like security breaches or system downtime. Proper monitoring ensures the IoT system runs smoothly, keeps users safe, and maintains reliable network performance. This scenario shows how important network monitoring is in environments with many connected devices.

2.

SolarWinds Network Performance Monitor (NPM) is a tool used to monitor the health and performance of a network. It helps administrators track network devices such as routers, switches, and servers. SolarWinds NPM collects data like bandwidth usage, response time, and device availability. The tool provides dashboards and alerts that show network problems in real time. This allows administrators to detect issues early before they become serious. SolarWinds NPM is useful in large networks because it simplifies monitoring and troubleshooting. It helps improve network reliability and reduces downtime by quickly identifying performance issues and faulty devices.

3.

Wireshark was configured to monitor network traffic on a local machine. After selecting the active network interface, packets were captured and analyzed in real time. The tool showed details such as source and destination addresses, protocol types, and packet sizes. Filters were used to focus on specific traffic like HTTP and DNS packets. This made it easier to understand how data moves across the network. The practice showed how Wireshark helps identify network issues, suspicious traffic, and performance problems. Although it requires some learning, Wireshark is a powerful tool for monitoring and troubleshooting network activity.

4.

The monitoring workflow diagram uses simple square shapes to explain how network monitoring works. The first square represents network devices such as routers, servers, and IoT devices. The second square shows the monitoring tool collecting data from these devices. The next square represents data analysis, where the tool checks performance and detects problems. Another square shows alerts being sent to the network administrator. The final square represents corrective actions such as fixing faults or adjusting settings. This diagram helps explain the monitoring process clearly and shows how problems are detected and resolved quickly.