Module 11

CCNA

**-Automation and Programmability**

KUMARSINH

**1)Explain How Automation Impacts Network Management**

Simplifies Operations: Automates configuration, management, and monitoring

Reduces Errors: Minimizes human errors for better reliability

Saves Time & Costs: Cuts manual work, saving time and money

Improves Control: Enhances visibility and control over devices

**2)Compare Traditional network with Controller based networking**

Traditional Network: Manual configuration; device-by-device management; slower and prone to human errors.

Controller-Based: Centralized control; automated management; faster, more efficient, and reduces error

**3)Explain Virtualization**

Virtualization: Creating virtual versions of physical resources like servers, storage, or networks, allowing multiple systems to run on a single hardware platform.

**4)Describe Characteristics of REST-based API**

Stateless: Each request is independent; no client context is stored on the server.

Resource-Based: Uses URLs to access resources.

Standard HTTP Methods: Utilizes methods like GET, POST, PUT, DELETE.

Uniform Interface: Consistent and standardized way of interacting with resources.

Scalable: Designed to handle large volumes of requests.

**5)Explain methods of Automation**

Scripting: Using scripts to automate repetitive tasks.

Robotic Process Automation (RPA): Employing bots to handle routine business processes.

Workflow Automation: Streamlining workflows with predefined processes and rules.

Artificial Intelligence (AI) Automation: Leveraging AI to perform complex tasks and decision-making.

**6)Explain SDN**

Software-Defined Networking (SDN): SDN is a network management approach that separates network control from hardware, allowing centralized control through software to improve network flexibility and efficiency**.**

**7)Explain DNA Center**

DNA Center: A centralized network management platform for designing, managing, and automating networks with a focus on enhancing network efficiency and visibility.

**8)Explain SD-Access and SD-WAN**

SD-Access: Centralized management for secure, automated network access.

SD-WAN: Virtual WAN for optimized, software-defined network traffic.