INFORMATION ASSURANCE AND SECURITY (IT352)

LAB ASSIGNMENT -1

Submitted by: Harsh Agarwal (181IT117)

Overview of Cisco Packet Tracer

Packet Tracer is a network simulator developed by Cisco that can be utilized in training by the students and researchers to create networks with a vast number of devices and to experience troubleshooting without having to install the actual hardware devices.

There are broadly six kinds of components available in the Cisco Packet Tracer which is listed as follows:

1. Network Devices
2. End Devices
3. Components
4. Connections
5. Multiuser Connections
6. Miscellaneous

ROUTERS

Overview of Routers

A router is a device which receives and sends data on computer networks. A router plays an important and major role in any network configuration. The router supplies connectivity between two logical networks. So, routers can be used with network modems, hubs and switches to improve Internet access or help create business networks.

Types of Routers

Wired routers share data over cables and create wired local area networks (LANs), while **wireless** routers use antennas to share data and create wireless local area networks (WLANs).

Edge Router:
An edge router is a wired or wireless router that distributes Internet data packets between one or more networks, but does not distribute data packets within a network.

Core Router:
A core router is a wired or wireless router that distributes Internet data packets within a network, but does not distribute data packets between multiple networks.

Virtual Routers:
Unlike physical routers, virtual routers are pieces of software that allow computers and servers to operate like routers. They'll share data packets just as physical routers do. It is an abstract, intangible object that acts as a default router for computers sharing a network. The router functions using the Virtual Router Redundancy Protocol (VRRP), which becomes active when a primary, physical router fails or otherwise becomes disabled.

Routers in Cisco Packet Tracer

Routers in Packet Tracer can be operated by switching them on or off by using the provided power button in the interface. Different modules can be added or removed in the routers only after powering off the device in the Packet Tracer.

Some of the routers available in Cisco Packet Tracer are mentioned as follows:

Cisco 819 ISR Router:
The Cisco 819 Integrated Services Router (ISR) supports machine-to-machine (M2M) applications that can enable enterprises to use 3G wireless WAN network services.

Cisco 829 ISR Router:
Cisco 829 Industrial Integrated Services Routers supply highly secure, reliable, and easy-to-manage 3G/4G LTE WAN cellular and Wireless LAN connectivity for mobile environments.

Cisco 1841 ISR Router:

The Cisco 1841 Integrated Services Router provides two fixed 10/100 (100BASE-TX) Ethernet ports, two integrated High-Speed WAN Interface Card (HWIC) slots that are compatible with WAN Interface Card (WICs) and Voice/WAN Interface Cards (VWICs), and one internal Advanced Integration Module (AIM) slot.

Cisco 1941 ISR Router:

The Cisco 1941 Integrated Services Router (ISR) delivers highly secure data, mobility, and application services. Key features include two integrated 10/100/1000 Ethernet ports, 2 enhanced High-Speed WAN Interface Card slots, HWIC1 Internal Services Module slot, Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE) and Cisco Enhanced PoE.

Cisco 2620XM ISR Router:
The Cisco 2620XM Multiservice Router provides a one-network module slot platform with one fixed Ethernet port, two integrated WAN Interface Card (WIC) slots, and one Advanced Integration Module (AIM) slot.

Cisco 2621XM ISR Router:
The Cisco 2621XM Multiservice Router provides a one-network module slot platform with two fixed Ethernet ports, two integrated WAN Interface Card (WIC) slots, and one Advanced Integration Module (AIM) slot. The 2621XM supports the same modules that the 2620XM supports.

Cisco 2811 ISR Router:
The Cisco 2811 Integrated Services Router provides one Enhanced Network-Module slot with two fixed Ethernet ports, four integrated High-Speed WAN Interface Card (HWIC) slots that are compatible with WAN Interface Card (WICs), Voice Interface Cards (VICs) and Voice/WAN Interface Cards (VWICs), and dual Advanced Integration Module (AIM) slots.

Cisco 2901 ISR Router:

The Cisco 2901 Integrated Services Router (ISR) has been designed to deliver data,

voice, video, and application services for branch offices. It includes 2 integrated Ethernet ports and 4 enhanced high-speed WAN interface card slots.

Cisco 2911 ISR Router:

The Cisco 2911 Integrated Services Router (ISR) supplies 2 integrated Ethernet ports, 4 enhanced high-speed WAN interface card (WIC) slots, 2 onboard digital signal processor (DSP) slots and 1 onboard Internal Service Module for application services.

Cisco CGR 1240 rugged Router:

The CGR 1240 is a ruggedized communication platform, designed for use in Field Area Network (FAN) power distribution grids that require outdoor, pole-mounted routers. The FAN is a distribution system in which power generation and transmission are linked to the power consumers

.

Cisco 4321 ISR Router:

Added in Packet Tracer 7.1, the Cisco 4000 Series Integrated Services Routers (ISR) revolutionize WAN communications in the enterprise branch. With new levels of built-in intelligent network capabilities and convergence, the routers specifically address the growing need for application-aware networking in distributed enterprise sites.

Cisco 4331 ISR Router:

Added in Cisco Packet Tracer 7.3, Cisco ISR 4331 and ISR 4321 feature Cisco IOS image resilience through secure boot-image and secure boot-config commands and add network programmability support to Packet Tracer through NETCONF / YANG protocols which are topics of the CCNP Enterprise ENCOR exam. Cisco ISR 4000 series support a large range of WAN or LAN connectivity options such as T1, T3/, serial, 10Gigabit Ethernet, and 4G LTE capabilities. It's network programmability capabilities through NETCONF / YANG model allow operational cost savings and makes configuration of a large branch offices number easier.