Main Office and its Sub-branches

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Contents

Network Description

- Contains 3 locations 1-Main-office 2-sub offices
- IPV4 addressing
- OSPF configured on edge routers at each location
- Head-office connected to sub-office A as well as sub-office B
- Head office can ping its sub-offices and vice-versa, where sub-offices can’t ping each other

Router Model	Switch Model	Server Model	Phone Model
2621 XM	2959T-24	Server-PT	7960 IP PHONE

Features Implemented

REGION	FEATURES/DEVICES
MAIN-OFFICE	1. Voip 2. Port Security in Block 1 & 2 3. NAT (Network Address Translation) 4. OSPF
SUB-BRANCH A	1. OSPF 2. HSRP (Hot Standby Routing Protocol) 3. Wireless linksys protocol
SUB-BRANCH B	1. OSPF 2. RIP Routing

VOIP (Voice Over IP)

1. It allows us to call without having analog line .
2. we can make phone calls anywhere, anytime using an internet connected computer.
3. Examples of VoIP include the following.

   Discord.
   Skype.
   Teamspeak.
   Ventrilo.

Port Security

Port Security helps secure the network by preventing unknown devices from forwarding packets. When a link goes down, all dynamically locked addresses are freed. The port security feature offers the following benefit:

- You can limit the number of MAC addresses on a given port. Packets that have a matching MAC address (secure packets) are forwarded; all other packets (unsecure packets) are restricted.

Network Address Translation (NAT)

Network Address Translation (NAT) is designed for IP address conservation. It enables private IP networks that use unregistered IP addresses to connect to the Internet. NAT operates on a router, usually connecting two networks together, and translates the private (not globally unique) addresses in the internal network into legal addresses, before packets are forwarded to another network.

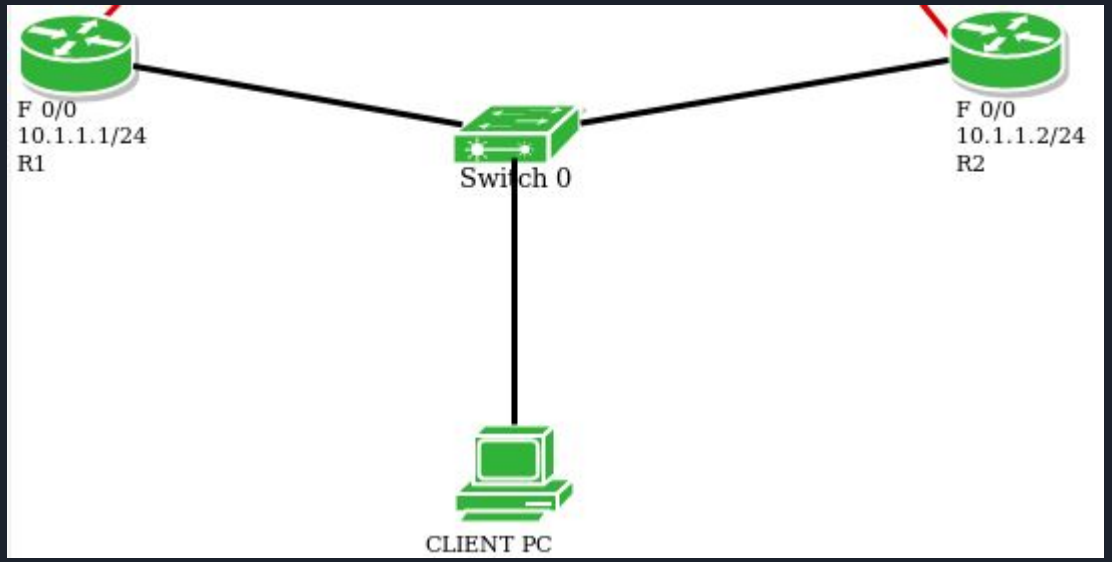
OSPF (open shortest path first)

1. It allows router to dynamically learn routes from other routers and to advertise routes to other routers
2. Keeps track of the states
3. Link state routing protocol
4. Operate within a single autonomous system
5. Supports VLSM/Classless

HSRP(Hot Standby Routing Protocol)

1. Hot Standby Router Protocol (HSRP) is a CISCO proprietary protocol, which provides redundancy for a local subnet. In HSRP, two or more routers gives an illusion of a virtual router.
2. HSRP allows you to configure two or more routers as standby routers and only a single router as active router at a time. All the routers in a single HSRP group shares a single MAC address and IP address, which acts a default gateway to the local network. The *Active router* is responsible for forwarding the traffic. If it fails, the *Standby router* takes up all the responsibilities of the active router and forwards the traffic.

HSRP Continued.....



Wireless Linksys Router

1. It is a hardware device or configured node on a local area network (LAN) that allows wireless capable devices and wired networks to connect through a wireless standard, including Wi-Fi or Bluetooth. WAPs feature radio transmitters and antennae, which facilitate connectivity between devices and the Internet or a network.
2. We use it as a wifi-hotspot also.

RIP Routing

Routing Information Protocol (RIP) is a dynamic protocol used to find the best route or path from end-to-end (source to destination) over a network by using a routing metric/hop count algorithm. This algorithm is used to determine the shortest path from the source to destination, which allows the data to be delivered at high speed in the shortest time.

Conclusion

1. It has a server connectivity through which it can ping the main-office
2. It is also having the port security so that we can prevent intruders to connect to any PC in the Main-office which consists of all the private information
3. IP phones are also present there so we can call without the internet anywhere and anytime that is 24 hours.
4. There is also WI-FI facility