

ISP redundancy:

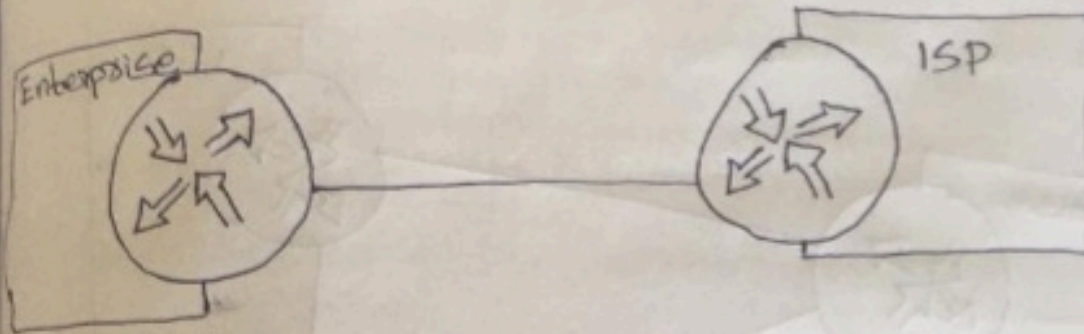
ISP redundancy connects a security gateway to the internet through redundant internet service providers (ISP) links. ISP redundancy monitors the ISP links and chooses the best current link.

(1) single homed:

The single homed design means you have a single connection to a single ISP. With this design, you don't need BGP since there is only one exit path in your network, you might as well just use a static default route that points to the ISP.

The advantage of a single-homed link is that it's cost effective, the disadvantage is that you don't have any redundancy. Your link is a single point of failure but so is using single

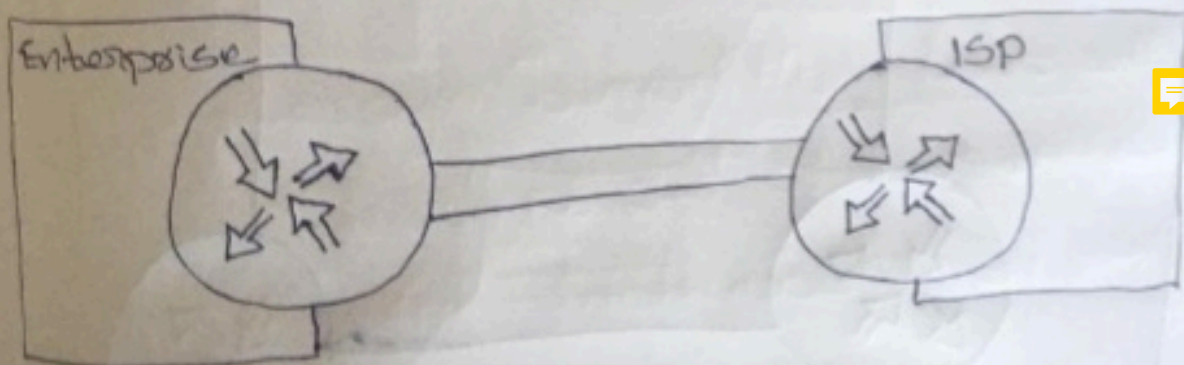
single homed.



(2) Dual homed:

The dual homed connection adds some redundancy. you are still only connected to a single ISP. but uses two links instead of one. The variations of dual homed is.

Dual homed.



single router on both ends but having redundant links.

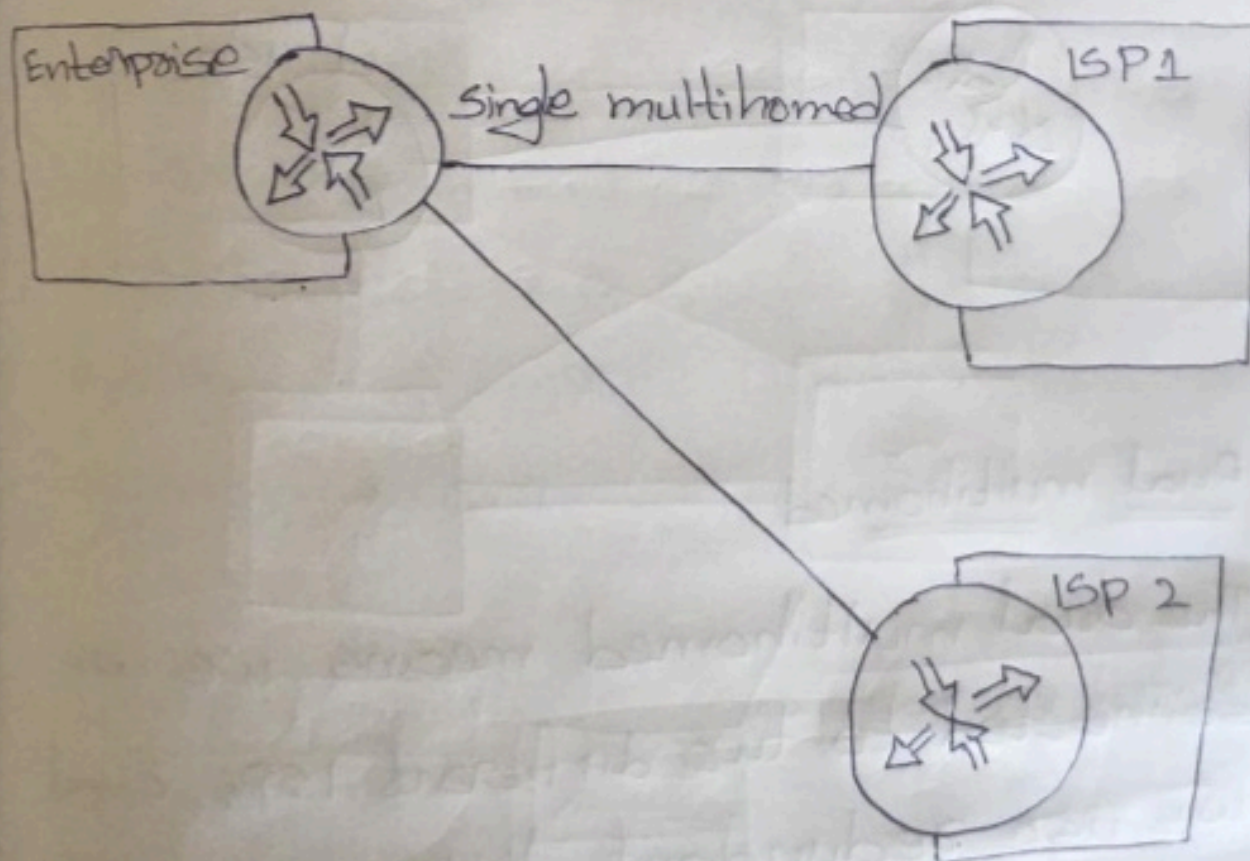
(3) multi homed:

It has two types they are

- (i) single multi homed
- (ii) dual multi homed.

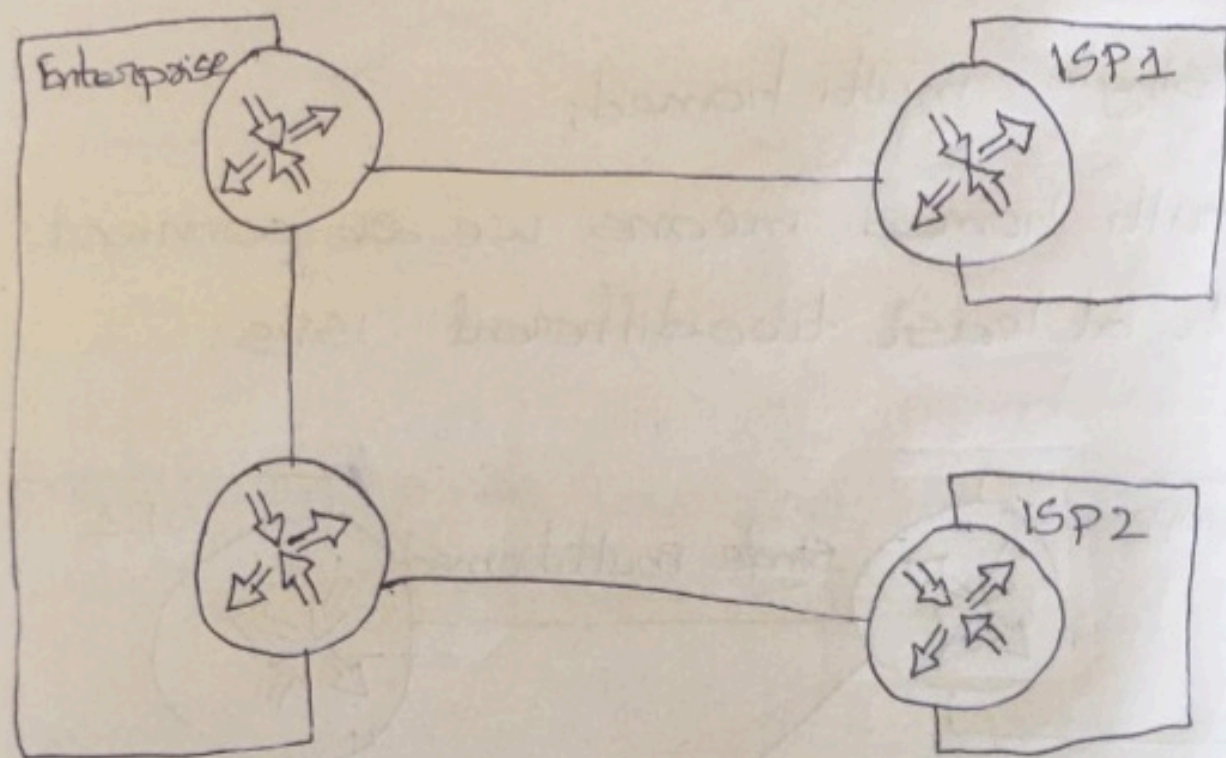
(i) single multi homed:

multi homed means we are connect to at least two different ISPs.



Single Router at the customer connected to two different ISPs.

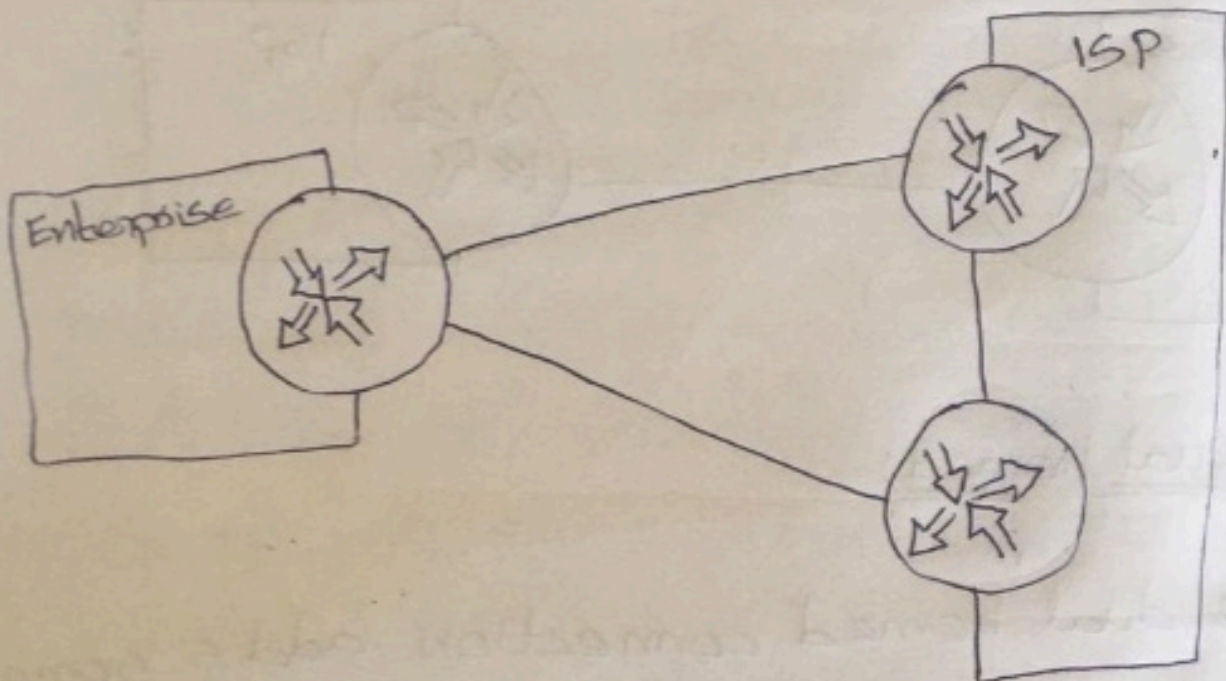
Single multihomed with single link but we are connected to two different ISPs using different routers.



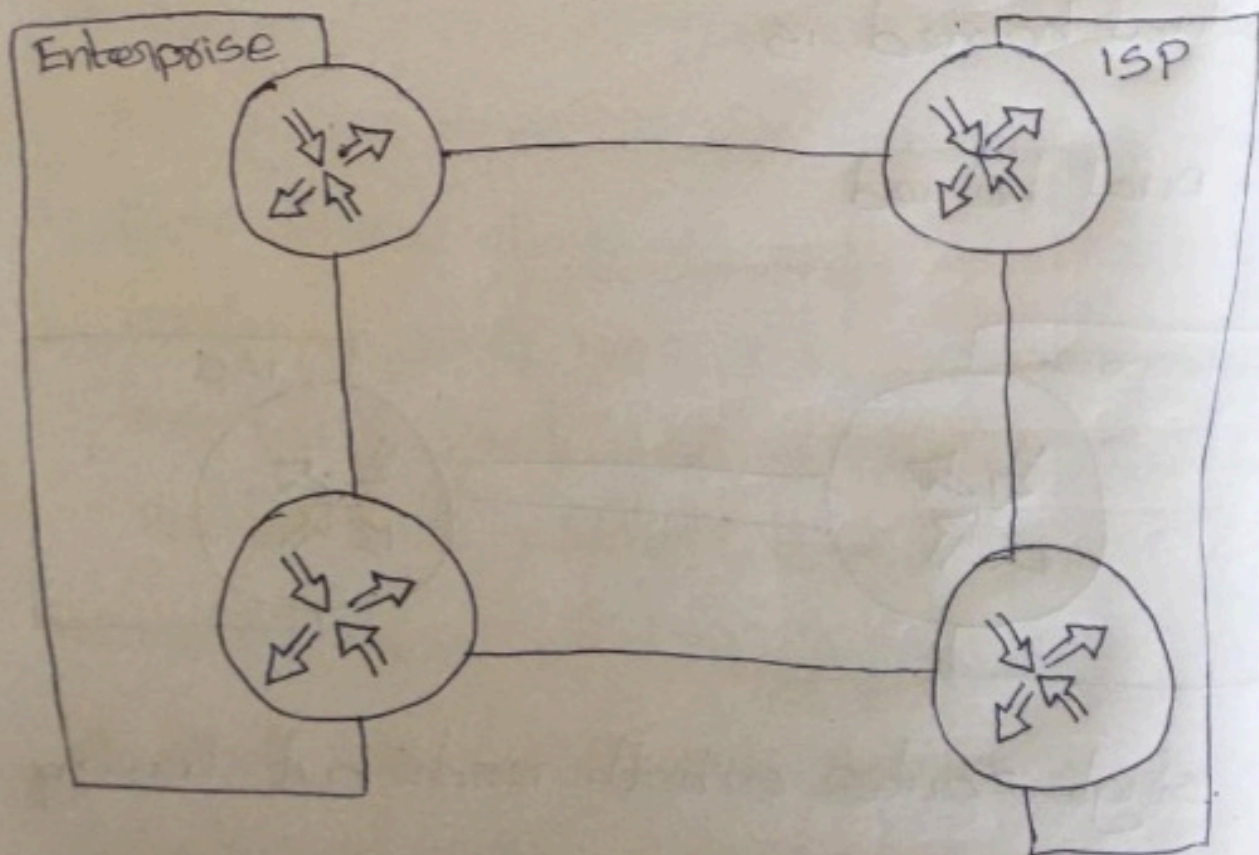
Dual multihomed

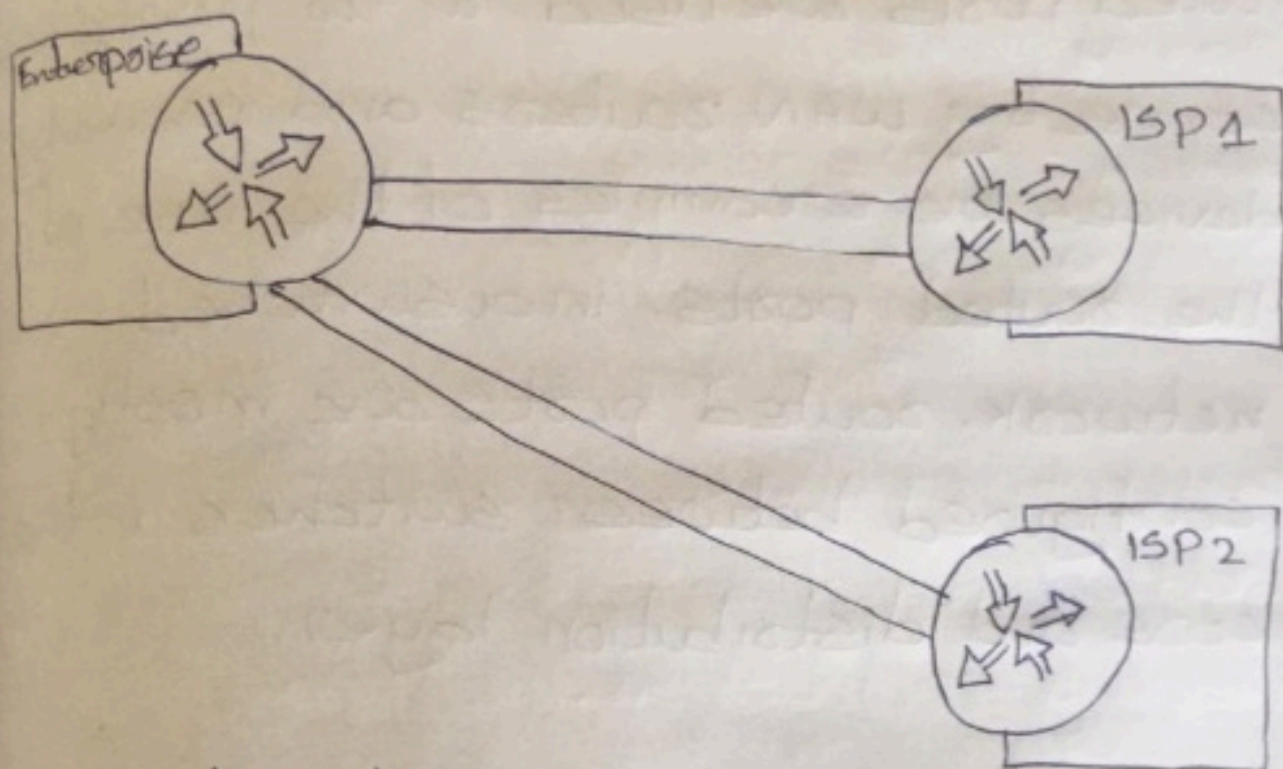
The dual multihomed means we are connected to two different ISPs, and we use redundant links.

Dual homed with second router.



Dual homed ~~we~~ have two links and two routers on both ends.





connected to two different ISPs. Using one router and two links to each ISP, we have redundant ISPs and links, but the router still a single point of failure, we improve this by adding a second router.

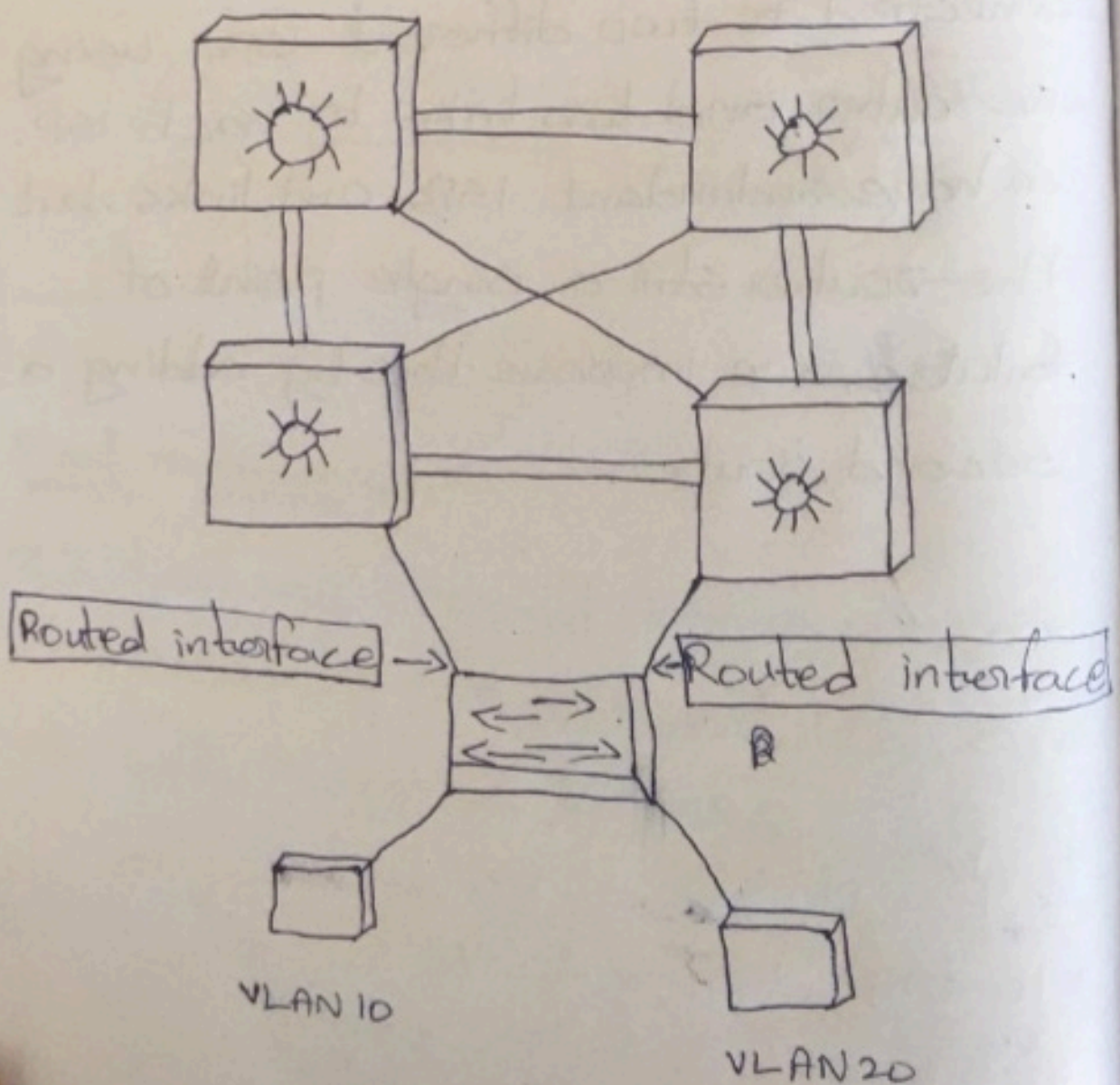
4. Specify an IP
routing protocol.

```
switch(config)# router  
routing-protocol <options>
```

This step is necessary for the switch to exchange dynamic routing update with other routing devices. the routing protocol specified may require additional options. ~~Refer~~

Routed ports; question 2(a)

Routed ports are used ~~to~~ for point-to-point connecting WAN routers and security devices are examples of the use of the routed ports. in a switched network, routed ports are mostly configured between switches in the core and distribution layer.



configuring a routed port.

configure IP routing.

switch(config) # ip routing

create a routed port.

switch(config-if) # no switchport

Assign an IP address to the routed port

switch(config-if) # ip address ~~to~~ ip-address
mask

configure the IP routing protocol if needed

switch(config) # router ip-routing protocol
<options>

Steps for inter VLAN routing configuration

① switch(config) # ip routing.

Enable ip routing on the router

② switch(config) # no switchport.

create the SVI interface or
navigate to configuration
mode for the interface

③ switching(config-if) # ip address n.n.n.subnet
mask

Assign an IP address to the
SVI for the VLAN.

question 2 (b)

OSPF : packet types.

There are five types of packet types.

① Hello :

<u>source</u>	<u>destination</u>	<u>purpose</u>
Link local address	FF02::5 [all routers]	Discover and maintain neighbors
Link Local address	Link-Local address	Initial adjacency forming, immediate hello.

② Data base description :

<u>source</u>	<u>Destination</u>	<u>purpose</u>
Link Local address	Link-local address	summarize ~~information~~ data base content

③ Link state request :

<u>Source</u>	<u>Destination</u>	<u>purpose</u>
Link local address	Link-local address	Database information

question 2 (c)

(i) Fast convergence.

it is about improving protocols to provide best convergence.

it is convergence is an important  a set of routers that engage in dynamic routing. All interior gateway protocols rely on convergence to function properly.

(ii) partial updates.

EIGRP uses the term partial as bounded when referring to its update packets. unlike RIP, EIGRP does not send  periodic updates. instead EIGRP sends its updates only when the metric for a route changes.

The term partial means that the update only includes information about the route changes.

(iii) multi network layer support.

Multi network layer support - EIGRP supports IP, internetwork packet exchange using protocol - dependent modules that are responsible for protocol requirements specific to the network layer.

(iv) successor and feasible successor.

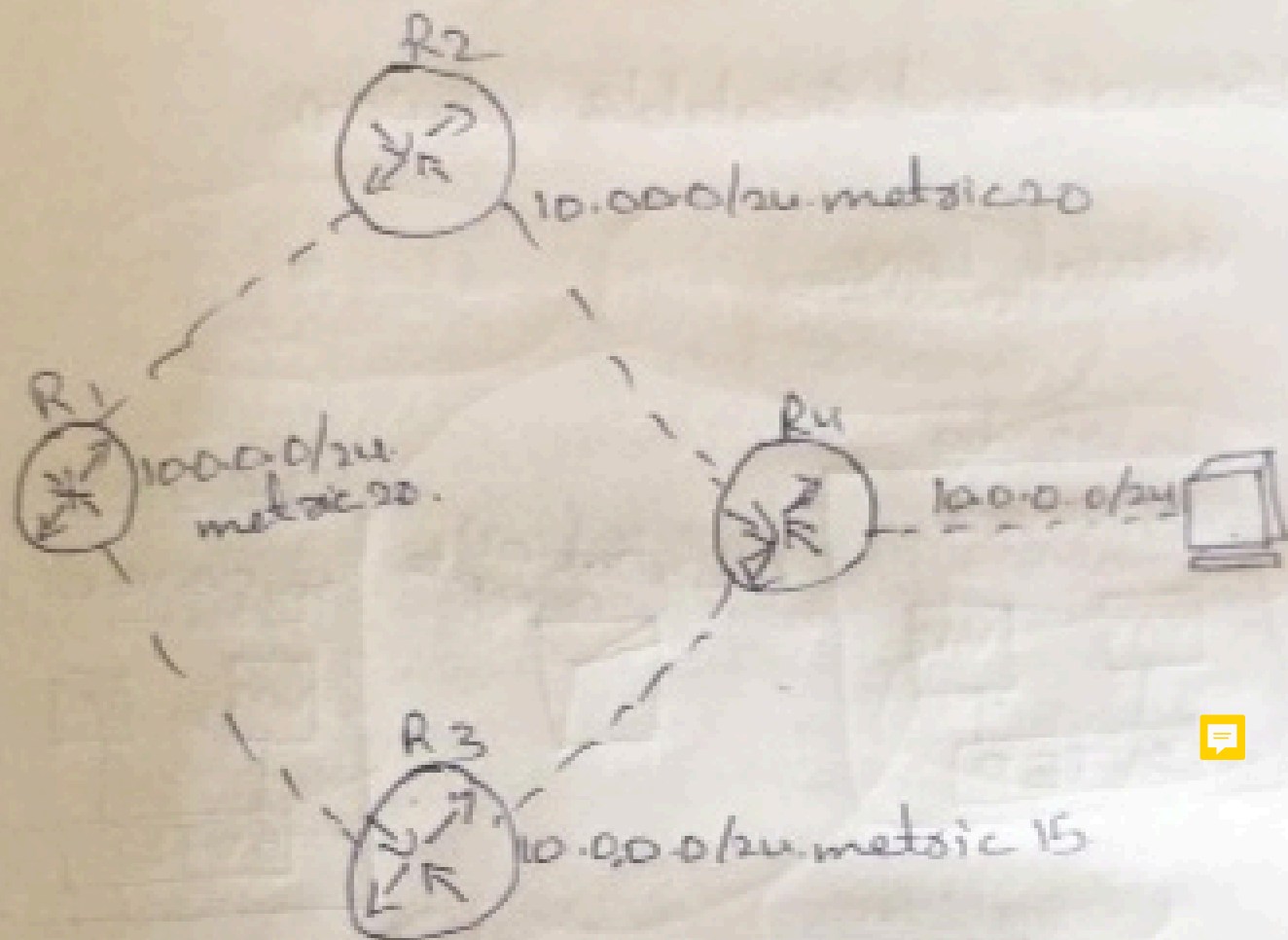
Another two terms that appear often in the EIGRP world are successor and feasible successor. A ~~successor~~ is the route with the best metric to reach a destination. The route is stored in the routing table. A feasible successor is a backup path to reach that the same destination that can be used immediately if the successor route fails.

④ Link state update

<u>Source</u>	<u>Destination</u>	<u>Purpose</u>
Link local address	link-local address	initial adjacency forming in response to a link-state request.
Link-Local address [from DR]	FF02::5 [all routers]	Database update
Link local address [From non-DR]	FF02::6 [DR/BDR]	Database update

⑤ Link state acknowledgement:

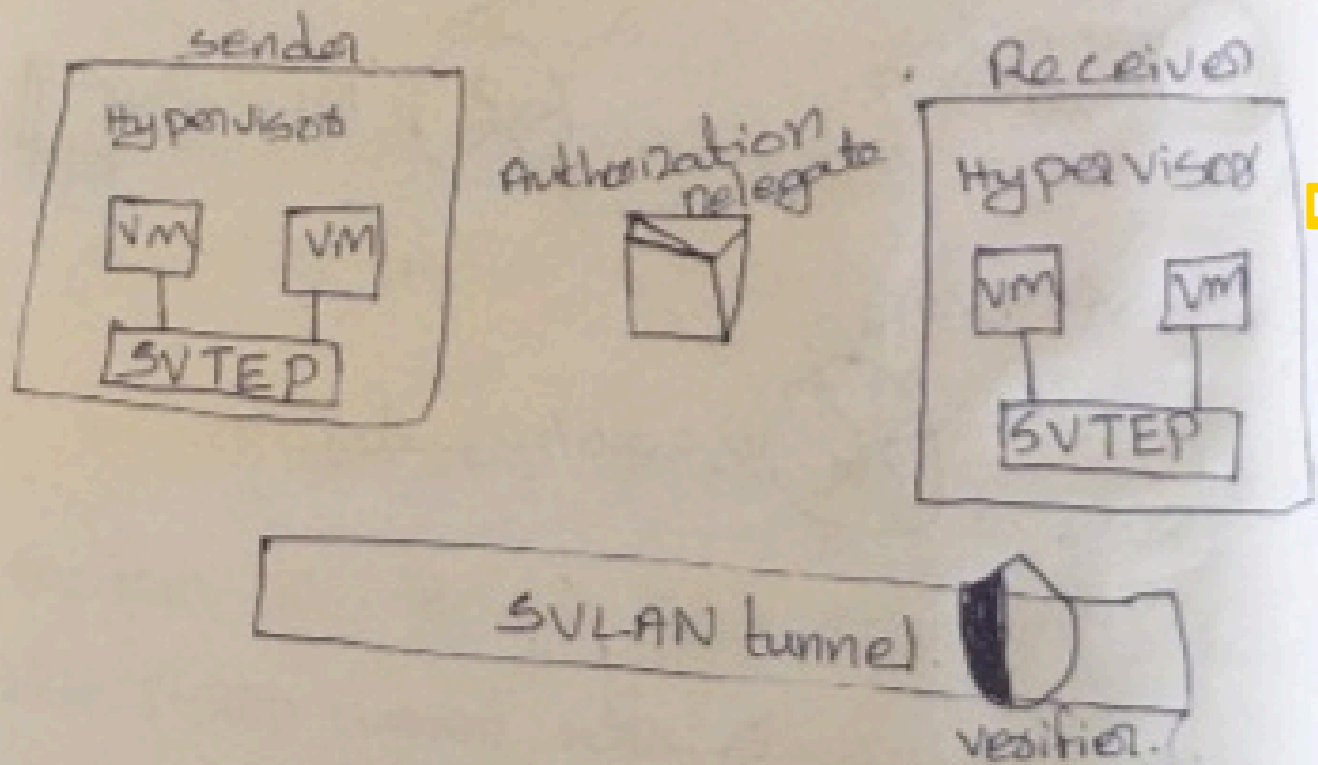
<u>Source</u>	<u>Destination</u>	<u>Purpose</u>
Link-local address	Link-local address	initial adjacency forming in response to a link-state update.
Link-local address [From-DR]	FF02::5 [all routers]	Flooding acknowledgement
Link-local address [From non-DR]	FF02::6 [DR/BDR]	Flooding acknowledgement.



question ③

(i) Secure and scalable network.

virtual LAN.



(ii) Network

(ii) Network management:

Network management is the process of administering and managing computer networks. Services provided by this discipline include fault analysis, performance management, provisioning of networks and maintaining quality of service.

The purpose is to ensure that the IT side of a business is set up in a resilient, sensible way which can minimize disruptions, ensure high performance, and help you avoid security issues.

monitoring an active communications network in order to diagnose problems and gather statistics for administration and fine tuning.

