VTP Interview Questions And Answers

Ques1. What is VTP?

VTP stands for **VLAN Trunking Protocol**. VTP is a Cisco proprietary protocol used in Layer 2 switched network for the management of the VLANs. VTP carries VLAN information to all the switches in a VTP domain. With VTP, network administrator can synchronize VLAN information (like VLAN ID or VLAN name) with switches inside the same VTP domain.

Currently there are three version of VLAN Trunking Protocol (VTP) – VTP v1, v2 and v3. The functions of VTP Version 1 and VTP Version 2 are almost similar. The support for Token Ring VLANs is there with VTP v2. VTP version 3 has some major enhancements which include reduced risk of unintended changes, support for extended and private Vlans and separate MST instance.

Ques2. What is the benefit of VTP?

Benefits of VTP are enlisted below –

- VTP maintains consistency in VLAN configuration by managing the addition, removal and renaming of VLANs across multiple Cisco switches in a network
- VTP reduces errors in VLAN configuration on each switch by automatically sharing VLAN configuration information across switches instead of logging to each device and creating /deleting VLANs.
- Reduces overhead of man-hours in creation/deletion/change to VLANs in each switch under VTP domain.
- VTP provides a way to manage Cisco switches as a single group for VLAN configuration purposes

Ques3. What are requisites for exchanging VTP messages between 2 switches?

In order for the switches to exchange VTP messages amongst themselves following conditions must match -

- VTP mode on switch should be either client or server.
- The link between the switches should be trunk link.
- VTP Domain ID must match on both switches.
- VTP versions must match.

Ques4. What are different VTP Modes?

There are 4 modes of operation of VTP:

- Server
- Client
- Transparent
- Off

While VTP version 1 and 2 support 3 modes of operation i.e. Server/Client/ Transparent, VTPs latest version 3 has introduced a new mode Off. Below table shares comparison of 4 modes as under –

Parameter	Server	Client	Transparent	Off
Can be used to configure Vlan	Yes	No	Yes	Yes
Supports Vlan IDs	1-1005	1-1005	1-4094	1-4094
Originates VTP updates	Yes	No	No	No
Forwards VTP updates **	Yes	Yes	Yes	No
Synchronizes Vlan database based on received VTP updates	Yes	Yes	No	No

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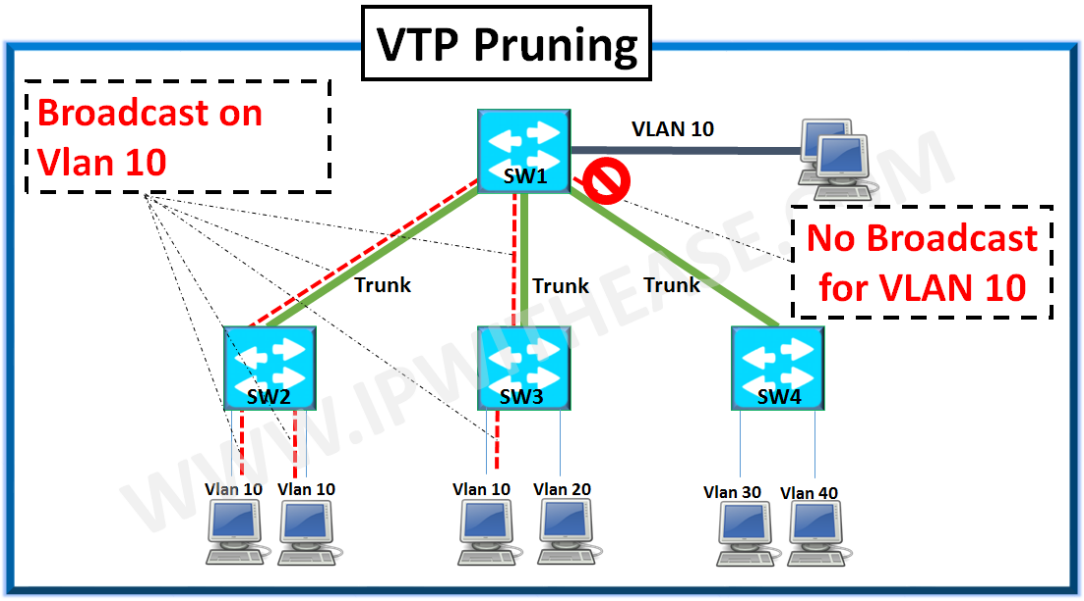
Ques5. What is VTP pruning?

VTP pruning is a method of avoiding the layer 2 broadcast or unknown unicasts to be sent on the trunk links not having intended VLAN at far end. This creates unnecessary network traffic.
For example - in diagram below we are pruning VLAN 10 on the trunk link between Switch 1, Switch 2, Switch 3 and Switch 4 as there is no VLAN 10 on the switch 3.So when PC in VLAN 10 sends a broadcast for VLAN 10 that isn't sent over the trunk link between Switch 4 and Switch 1.



Ques6. Is it possible to have two different VTP domains on the same client switch?

One switch can only be a part of one VTP domain.

Ques7. What are two benefits provided in VTP Version 2 that are not available in VTP Version 1?

There are few benefits of VTP version 2 over VTP version 1 as follows:

- VTP version 2 supports Token Ring LAN switching and VLANs.
- In VTP version 1, a VTP transparent network device inspects VTP messages for the domain name and version, and forwards a message only if the version and domain name match. VTP version 2 forwards VTP messages in transparent mode without checking the version.
- In VTP version 2, VLAN consistency checks (such as VLAN names and values) are performed only when you enter new information through the CLI or SNMP. Consistency checks are not performed when new information is obtained from a VTP message, or when information is read from NVRAM.

Ques8. Which are the advertisement types VTP uses to exchange information between VTP switches?

VTP sends 3 types of advertisements -

Summary Advertisements: VTP Servers send summary advertisements every 300 seconds and every time a VLAN database change occurs. This advertisement carries information like VTP version, domain name, revision number, number of subset advertisements to follow, time-stamp, etc. If VLAN configuration changes, one or more subset advertisements follow the summary advertisement.

Subset Advertisements: VTP Servers send subset advertisements after a VLAN configuration change occurs. These advertisements contain the specific changes that have been performed, like add or delete of a VLAN, change of name of a VLAN, status of a VLAN, etc.

Advertisement Request from Clients: A VTP Client may request any VLAN information. This could be due to the Client switch might be reset and has lost VLAN information or it might hear a higher revision number than it's locally stored. The Server switch responds to these Advertisement Requests with a summary advertisement followed by a subset advertisement to bring the Client up-to-date.

Ques9. What is a VTP configuration revision number?

VTP revision number is an important parameter in the VTP domain. When we configure a new switch with VTP domain it has revision number 0 and any changes to the VLAN database from there onwards increase this revision number by 1.VTP revision number is stored in VLAN.dat file in NVRAM and isn't reset by power cycling the switch.

If a switch advertises its VLAN information with a higher revision number than all the switches in the network will update their VLAN database with this new information. That is the reason for any new switches to be added in the network their revision number should be reset to zero before introducing them into the network.

To reset revision number -

- Change VTP mode to transparent and then back to server.
- Change VTP domain to any bogus name and then back to original.

Ques10. Which command can you use to check see whether the pruning is enabled in you network or not?

We can use the '**show vtp status**' command to check if pruning is enabled in network.

Ques11. What is difference between VTP v1 and v2?

Major difference between **VTP v1 and VTP v2** are:

- In **VTP version 1**, a VTP transparent mode network device inspects VTP messages for the domain name and version, and forwards a message only if the version and domain name match. VTP version 2 forwards VTP messages in transparent mode without checking the version.

- In **VTP version 2**, VLAN consistency checks (such as VLAN names and values) are performed only when you enter new information through the CLI or SNMP. Consistency checks are not performed when new information is obtained from a VTP message, or when information is read from NVRAM.

Further, below table details on difference between VTP version 1 and Version 2 –

Parameter	VTP v1	VTP v2
Mode	Server / Client / Transparent	Server / Client / Transparent
Token Ring support	Not Supported	Supported
Unrecognized Type-Length-Value (TLV) Support	Not Supported	Supported
Version-Dependent Transparent Mode	In VTP version 1, a VTP transparent network device inspects VTP messages for the domain name and version and forwards a message only if the version and domain name match	VTP version 2 forwards VTP messages in transparent mode without checking the version
Consistency Checks	Not Supported	Supported
Propagation of extended Vlan range	1 to 1000	1 to 1000
Private VLANs	Not Supported	Not Supported
Support for propagation of any database in a domain	a VTP server is used to back up	a VTP server is used to back up
Authentication	Plain text password	Plain text password

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Ques12. What is difference between VTP v2 and v3?

Difference between VTP v2 and VTP v3 are -

- Support for extended VLANs (4094) in VTP v3 and not in VTP v2.
- Support for the creation and advertising of private VLANs in VTP v3 and not in VTP v2.
- Support for VLAN instances and MST mapping propagation instances in VTP v3 and not in VTP v2.
- VTP v3 Adds a new mode called "primary server" which is the only one allowed to make changes to the domain.
- Improved server authentication in VTP v3. VTP version 2 stores the password as ASCII in the running config. V3 stores it a hex number.
- Ability to be configured on a per-port basis in VTP v3 only.

Parameter	VTP v2	VTP v3
Mode	Server / Client / Transparent	Server / Client / Transparent / Off
Version-Dependent Transparent Mode	VTP version 2 forwards VTP messages in transparent mode without checking the version	VTP version 2 forwards VTP messages in transparent mode without checking the version
Propagation of extended Vlan range	1 to 1000	1 to 4094
Private VLANs	Not Supported	Supported
Support for propagation of any database in a domain	a VTP server is used to back up	Supported
Authentication	Stores the password as ASCII in the running configuration	Stores it a hex number
Per-port basis configuration	Not Supported	Supported
Primary Server and Secondary Server concept	Not Supported	Supported
VLAN instances and MST mapping propagation	Not Supported	Supported

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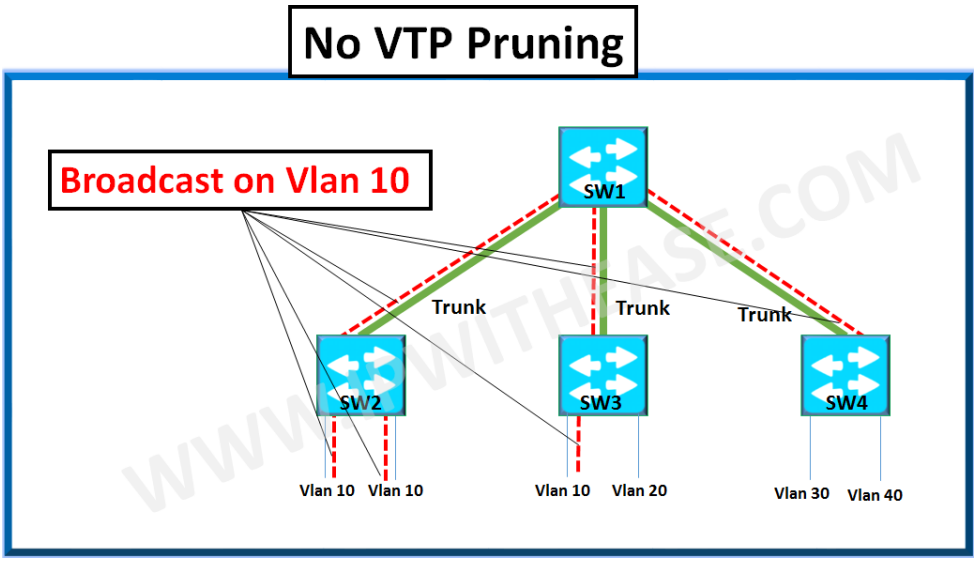
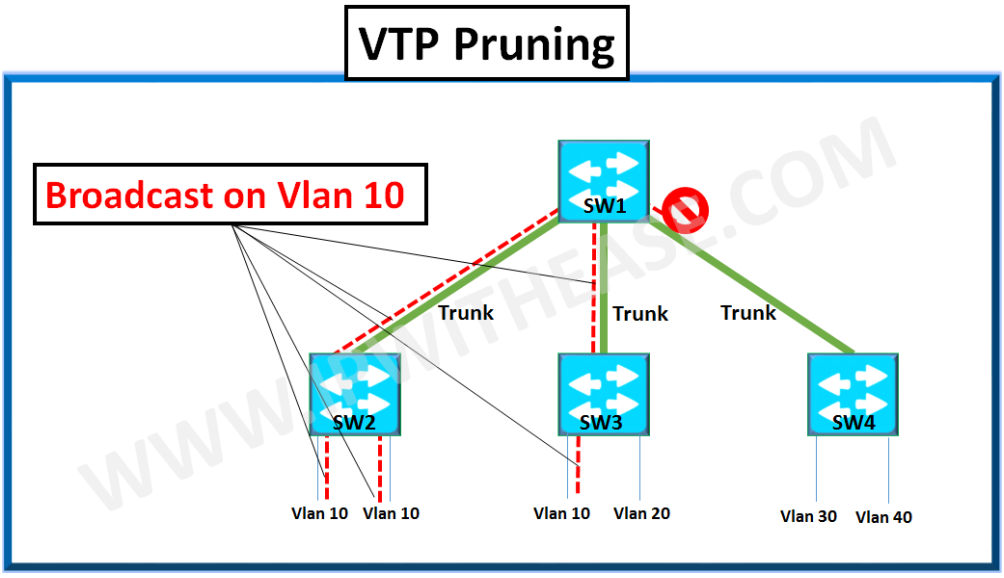
Ques13. How does VTP pruning improve network bandwidth?

Below example will help provide better detail on how VTP Pruning can improve network bandwidth.

In the 1st diagram, we see that SW2 and SW3 have access ports connected on VLAN 10 while no access ports have been configured under VLAN 10 on SW1 and SW4.With no VTP pruning is enabled, a broadcast sent by any device on VLAN 10 will be sent across all the trunk ports of Switches which includes trunk port of SW1 – SW4 inspite of no port configured for VLAN 10.



In next diagram, we see VTP pruning enabled on all switches. Now when a broadcast for VLAN 10 is to be sent, the SW1 will not forward this broadcast on trunk port towards SW4 knowing that no access port on SW4 belongs to VLAN 10.



This mechanism of VTP pruning helps network to reduce broadcast from being propagated over trunk links that actually don't need the information and hence saves unnecessary broadcasts from eating up uplink port bandwidth.

Ques14. What is default mode of VTP?

Default VTP mode is VTP **server.**

Ques15. Which VTP mode is capable of local VLANs?

VTP mode **transparent** is capable of having local VLANs.

Ques16. What is difference between VTP transparent and client mode?

VTP **client mode** will simply update its VLAN database as per the VLAN information received from the server.
VTP **transparent mode** doesn't update its VLAN information with information received from server. Instead it only relays the information received from the server.

Ques17. We have 2 switches and require the network to have only one VLAN. Do you need to implement the VTP between the switches?
In this case no VTP is required to be run between the switches as this network will have only 2 switches and a single VLAN. VTP is mainly needed for larger switched networks with multiple VLANs where management of VLANs becomes cumbersome.

Ques18. A switch up-dates its VLAN configuration based on what information?
A switch updates its VLAN configuration based on the VTP advertisements received from other switches with higher configuration revision number.

Ques19. A VTP Server is removed from the network. Does the network go down in this scenario?
If the server is removed, it has no impact on the functionality of VLANs on other VTP switches.

Ques20. 2 VTP enabled switches are connected to each other via access port (Vlan 2).Will the VTP information traverse across both switches?

No, VTP information travels only on the trunk ports and not between the access links.

Ques21. Is VLAN Trunking Protocol enabled or disabled by default on all switches?

By default VTP is disabled on all the switches.

Ques22. Is the VTP domain name automatically configured on client switch which receives advertisement from VTP Server (Server has VTP domain name configured)?

No we will have to enable VTP manually and configure the domain name on all switches manually.

Ques23. The VTP functions at which layer of the OSI Model?

VTP operates at the layer 2 of the OSI model.

Ques24. What is the primary function of VTP?

Primary function of VTP is to manage the VLANs on the layer 2 switches network. So if any VLAN changes are required we can do it on the VTP server and VTP client will update their information automatically after receiving VTP advertisements from the VTP server.

Ques25. How many VTP domains can a switch be configured in?

A switch can only be a part of 1 VTP domain.

Ques26. What is concept of "VTP Bomb"?

Let's assume in our production network we connect an old switch that was being used somewhere else earlier without resetting the VLAN configuration revision number. Now if this old switch happens to have a configuration revision number higher than all your switches in the network it will cause all the switched network to go down as all the switches in your VTP domain will update their VLAN database with the VLAN information sent from this newly introduced switch in your production network. This condition can be termed as **VTP bomb.**

Ques27. What are the provisions in Switches to address "VTP Bomb" issue from happening?

To prevent VTP Bomb reset the configuration revision number to zero using below two approaches:

- Change VTP mode to transparent and then back to server.
- Change VTP domain to any bogus name and then back to original.
- With VTP version 3, only a switch can be a primary server which is allowed to update other devices in LAN. Secondary servers will update its database from the Primary exclusively. This resolves the issue faced in VTP bombing in VTP version 1 and 2.

Ques28. Which command provides the "VTP configuration revision number" info on VTP enabled switches?

To check the configuration revision number use the below commands:

- IOS switch -

Switch# **show vtp status**

- CatOS switch -

Switch>(enable) **show vtp domain**

Ques29. Can I change the switch from client mode to transparent mode?

Yes, we can change the mode from client to transparent. Below is the configuration –

SW1#**configure terminal**
SW1(config)#**vtp mode transparent**

Ques30. Which VLAN range is eligible to be pruned when a network engineer enables VTP pruning on a switch? Does this hold true for all version of VTP?

VLAN 1 and VLANs 1002 to 1005 are always pruning-ineligible; traffic from these VLANs cannot be pruned. Extended-range VLANs (VLAN IDs higher than 1005) are also pruning-ineligible. Therefore VTP pruning can be applied only from VLAN 2 to 1001.