

SYSNET NOTES

System And Networking Notes With Interview Questions

Rapid spanning tree (RSTP) Notes

Rapid spanning tree is not a revolution of the [original spanning tree](#) but an evolution from it. Behind the scenes some things have been changed to speed up the process.

In [original STP](#) we had [4 port-states](#). They are

- **Blocking**
- **Listening**
- **Learning**
- **Forwarding**

In RSTP, Blocking and Listening state is combined to one and total there are 3 states. They are

- **Discarding**
- **Learning**
- **Forwarding**

As in original STP, Root bridge election process in RSTP is same. **The switch with the best bridge ID (priority + MAC address) becomes the root bridge.** The other switches (non-root) have to find the shortest cost path to the root bridge. This is the root port. No change in this. **On each segment there can be only one designated port or we'll end up with a loop.** The port will become the designated port if it can send the best BPDU. Root bridge ports are always in designated mode.

Rapid spanning tree and Original STP are compatible. In original STP Root bridge only send BPDU to other non-root switches and they receive it on their root ports. But in **RSTP all switches generate BPDUs every two seconds (hello time).** This is the default hello time but you can change it.

The original STP uses the max age timer (15 seconds) so MAC addresses could be removed faster from the mac address table. In RSTP, BPDUs uses as a **keep-alive mechanism** similar to what routing protocols like OSPF or EIGRP use. If a switch misses three BPDUs from a neighbor switch it will assume connectivity to this switch has been lost and it will remove all MAC addresses immediately.

Original STP used to reject inferior BPDU. BUT RSTP accepts inferior BPDU (as the backbone fast feature is enabled)

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Rapid spanning doesn't use timers to decide whether an interface can move to the forwarding state or not. It will use a negotiation mechanism for this

Rapid spanning tree can only put interfaces in the forwarding state really fast on **edge ports** (port-fast in original STP) or point-to-point interfaces.

RSTP uses "**Sync**" mechanism instead of the "**timer-based**" mechanism that the Original STP (listening -> learning -> forwarding)

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