Bridge protocol data unit (BPDU)

Switches running spanning-tree, exchange information with a special message called the (BPDU) bridge protocol data unit. BPDU is a data message transmitted across a local area network to detect loops in network topologies. A BPDU contains information regarding ports, switches, port priority and addresses.

BPDU can be called as the language of switch. **BPDU's are sent out all ports every two seconds, are forwarded to a specific MAC multicast address: 0180.c200.0000.**

When a switch is "**UP"** it starts sending BPDU through every ports.If a BPDU comes back to the switch,switch will know there is a redundant link.In such cases switch will run STP.

There are two types of BPDU

- Configuration BPDU
- TCN BPDU (Topology change notification)

When devices are initially attached to switch ports, they do not start data transmission immediately. Instead, they moves through different states while BPDU processing determines the network topology. A topology change notification (TCN) BPDU informs other switches of port changes. They are injected into the network by a non-root switch and propagated to the root. When a TCN is received, the root switch will set a topology change flag in its normal BPDU. This flag is propagated to all other switches to instruct them to rapidly age out their forwarding table entry switches.

When a root receives the TCN BPDU, it transmits a configuration BPDU message on all the ports with topology change flag set to 1. Switches that receive this BPDU on the root port filter the database and generate their own configuration BPDUs on designated ports. This propagates down the tree to the end of the path