

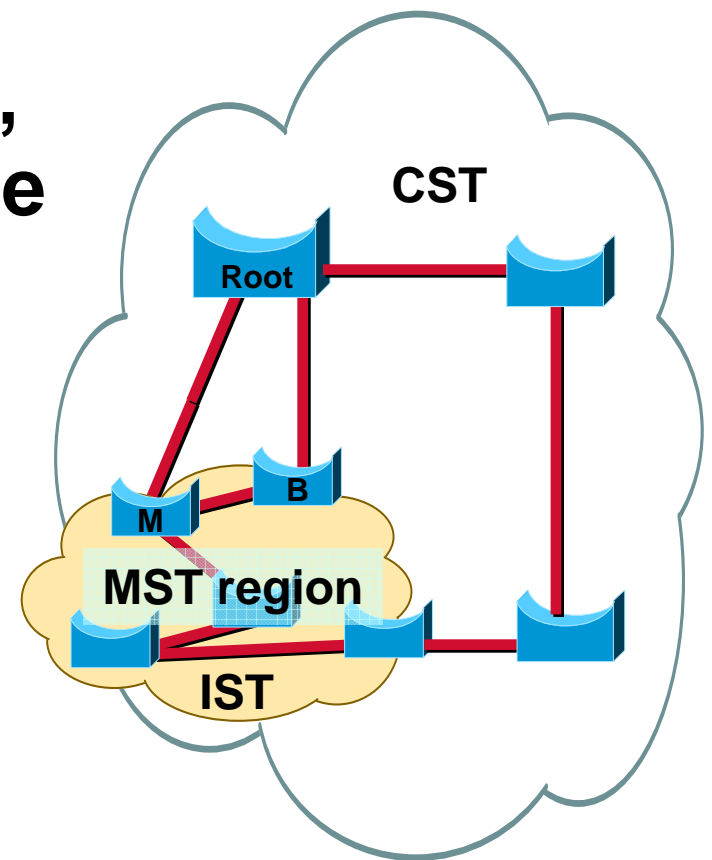
# MST BPDU Internal Fields

- **This is part of an old presentation I made in 2001 based on Cisco pre-standard implementation of MST.**
- **The terminology has evolved: IST = CIST, IST master = CIST Regional Root, the boundary role has evolved etc...**
- **The sender bridge ID and the IST Master fields have to be swapped in the BPDUs**

**Some additional changes might be necessary, I've not updated the content at all!**

# The IST Instance

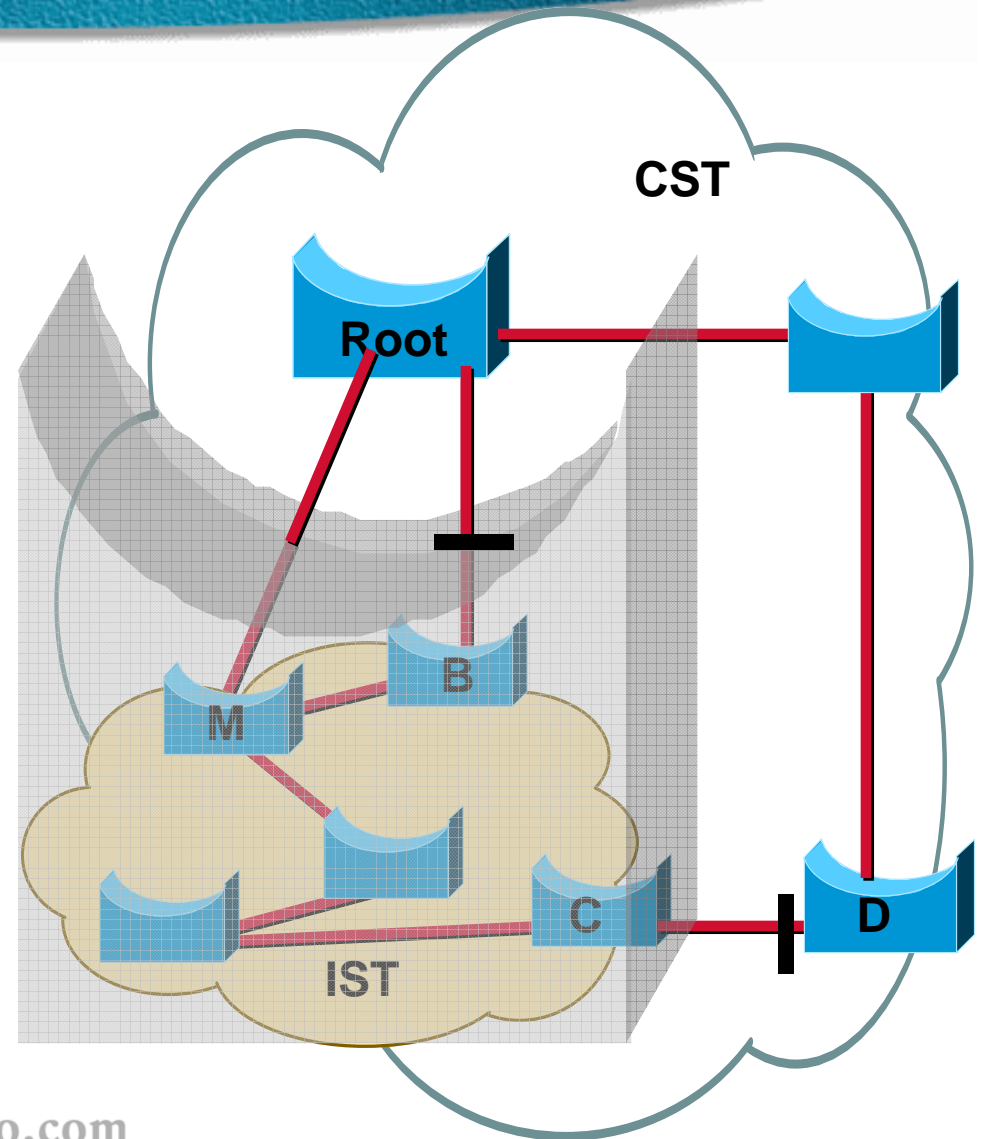
- In a standard 802.1Q network, there is only one STP instance called the CST (Common Spanning Tree)
- The IST instance is an RSTP instance that extend the CST inside the MST region.



# MST Region: a Virtual Bridge

**The goal of the IST is to have the MST region behave like a virtual CST bridge**

**Notice the position of blocked ports on the diagram!**



# IST Master

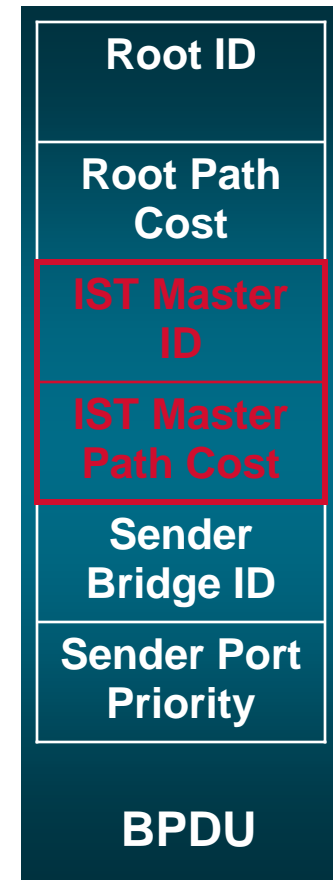
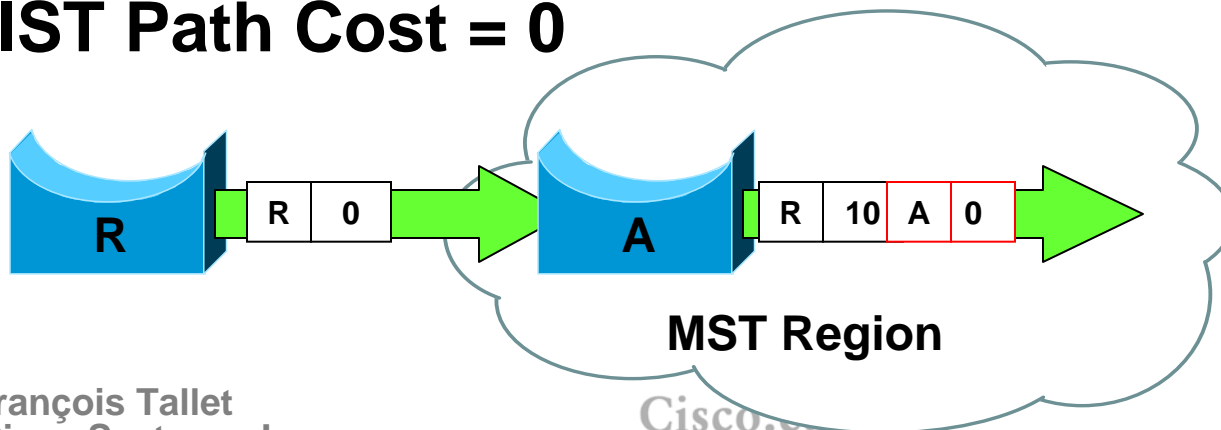
- At the boundary, a MST bridge adds:

- IST Master ID
- IST Master Path Cost

- By default:

IST Master ID = Bridge ID

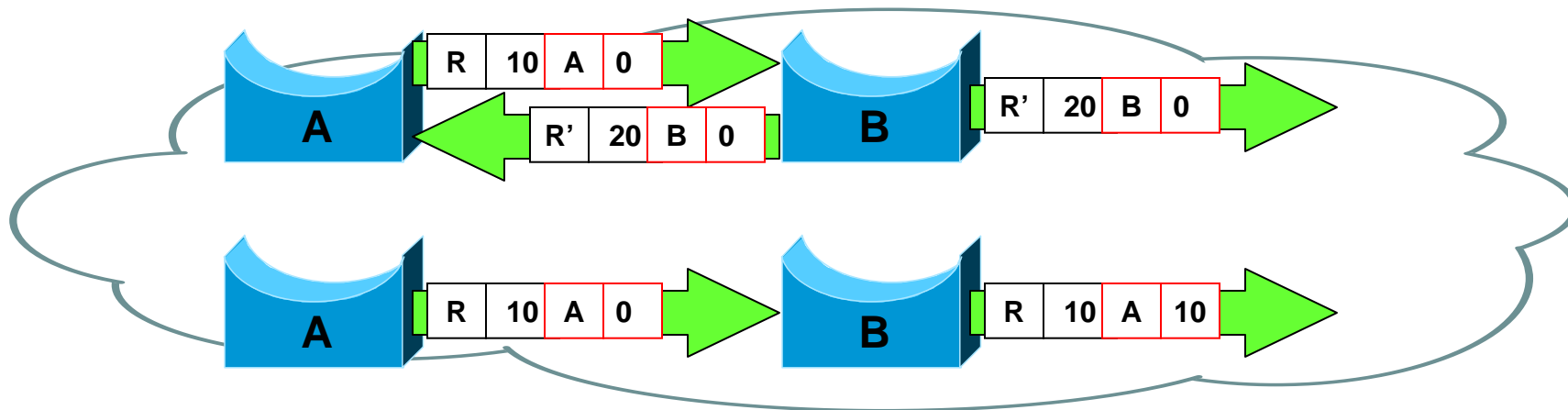
IST Path Cost = 0





# IST Master

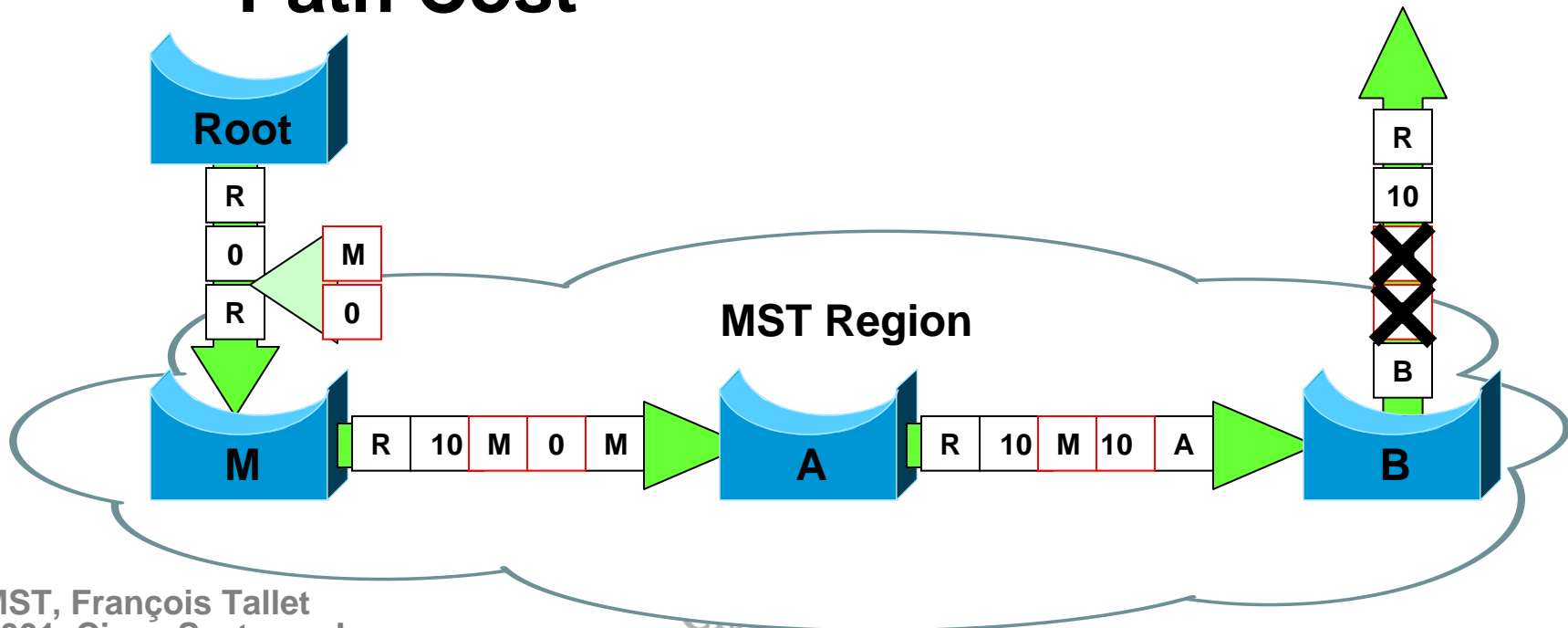
- In the beginning, all bridges in a region claim to be IST Master
- A bridge receiving a better BPDUs advertises the received IST Master



The process is similar to a root bridge election

# IST

- Inside the region the Root ID & Root path cost are left unchanged
- The IST only uses the IST ID and IST Path Cost

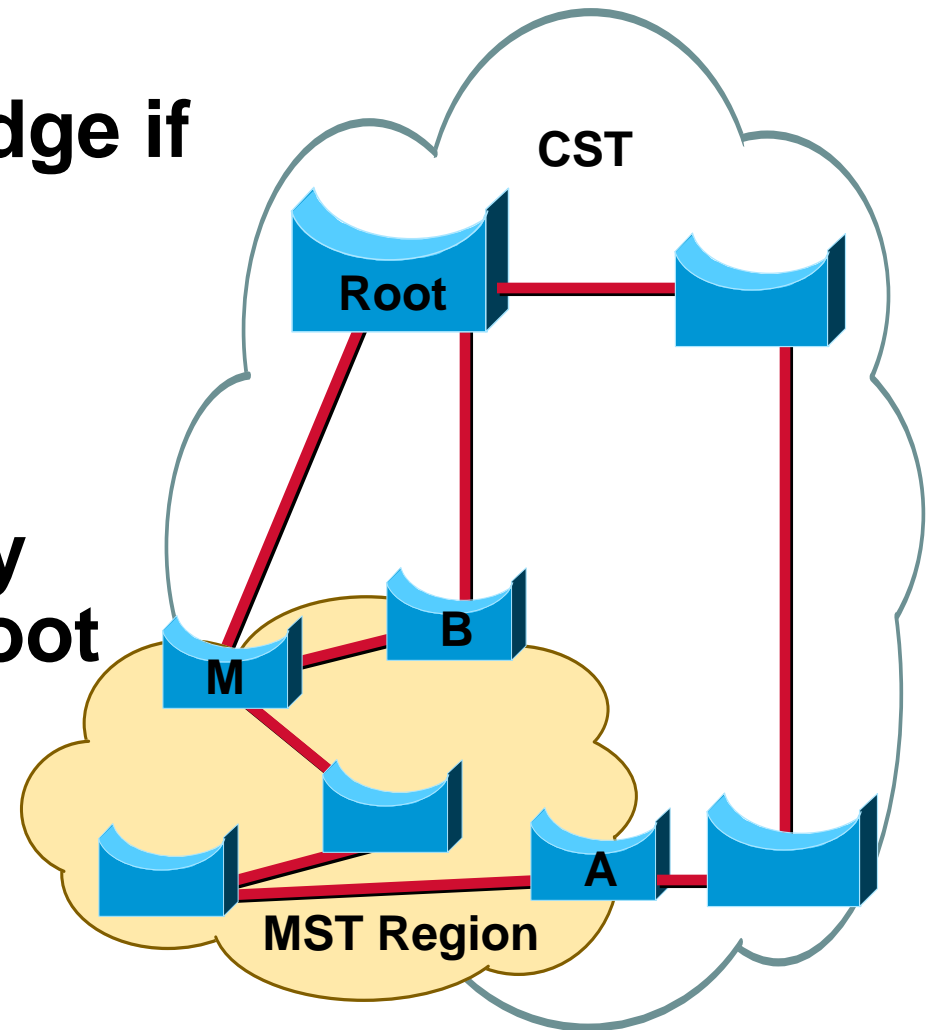


# IST

- **IST Master = Root Bridge if the root of the CST is inside the region**

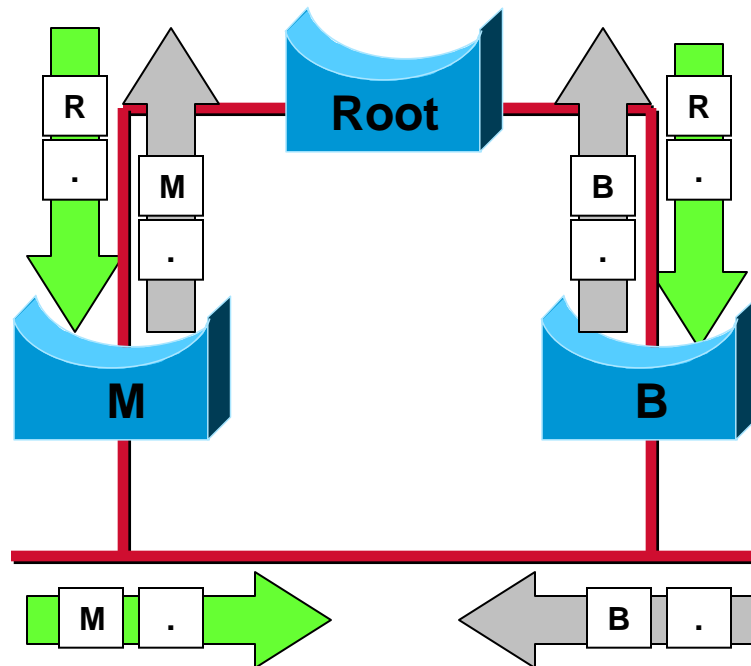
**Else**

- **IST Master = boundary bridge with smaller Root Path Cost**



# 802.1D Convergence Example

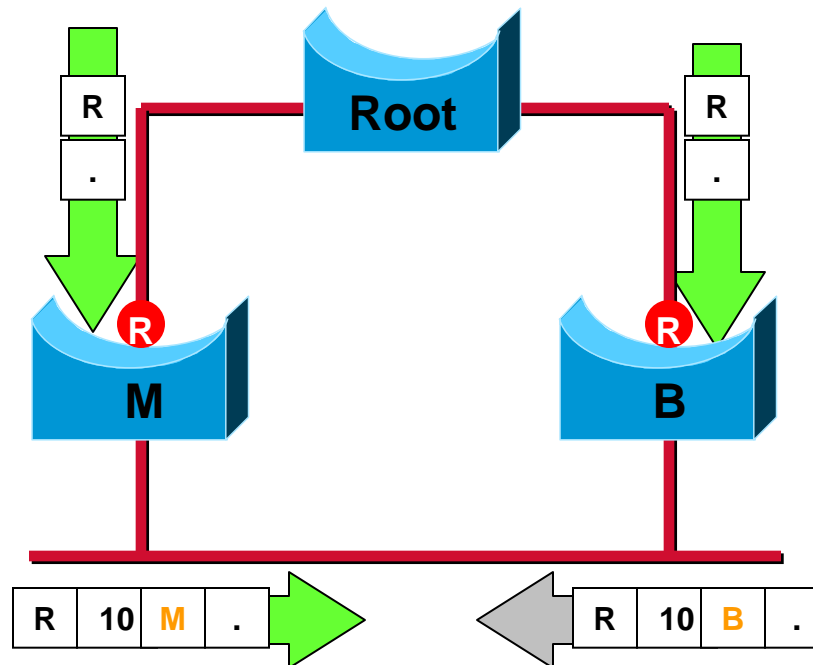
Root ID
Root Path Cost
Sender Bridge ID
Sender Port Priority





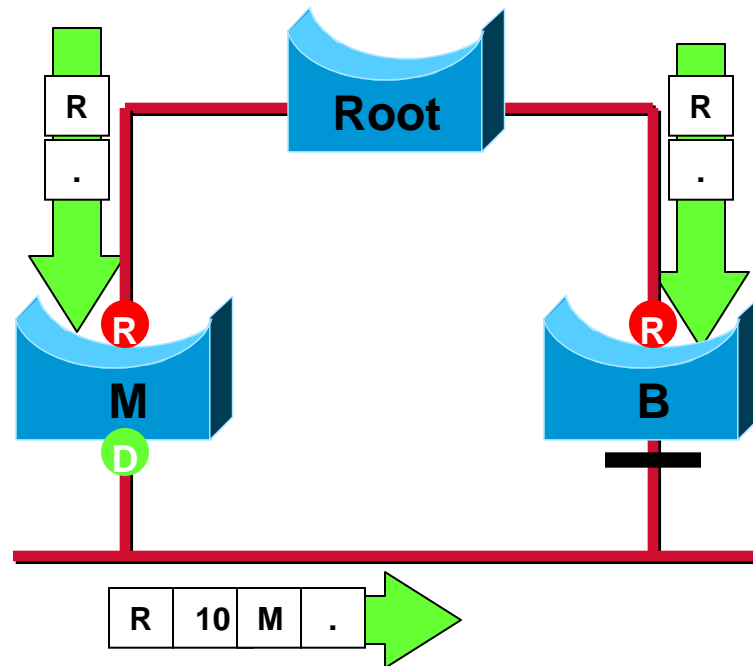
# 802.1D Convergence Example

Root ID
Root Path Cost
Sender Bridge ID
Sender Port Priority

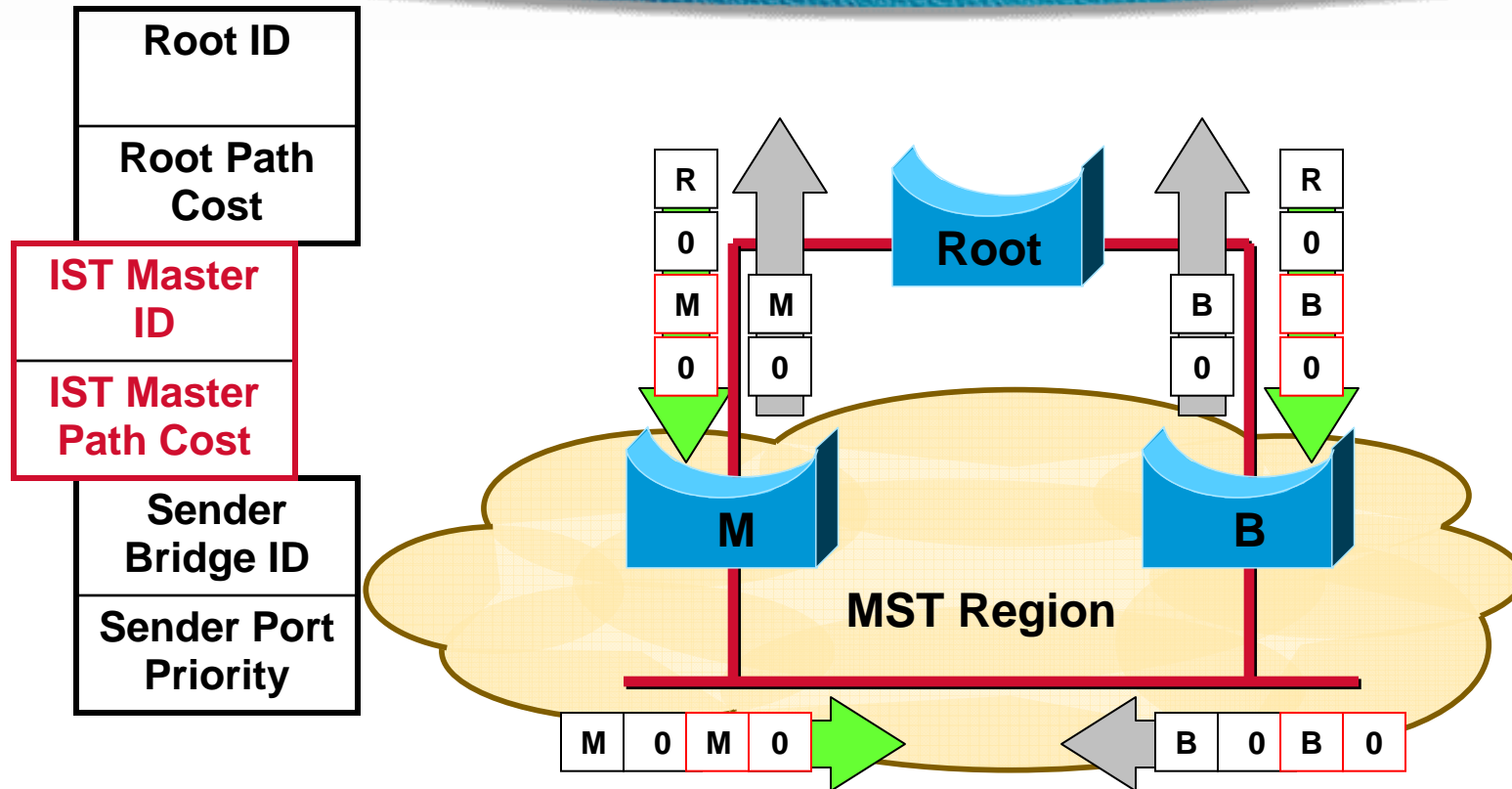


# 802.1D Convergence Example

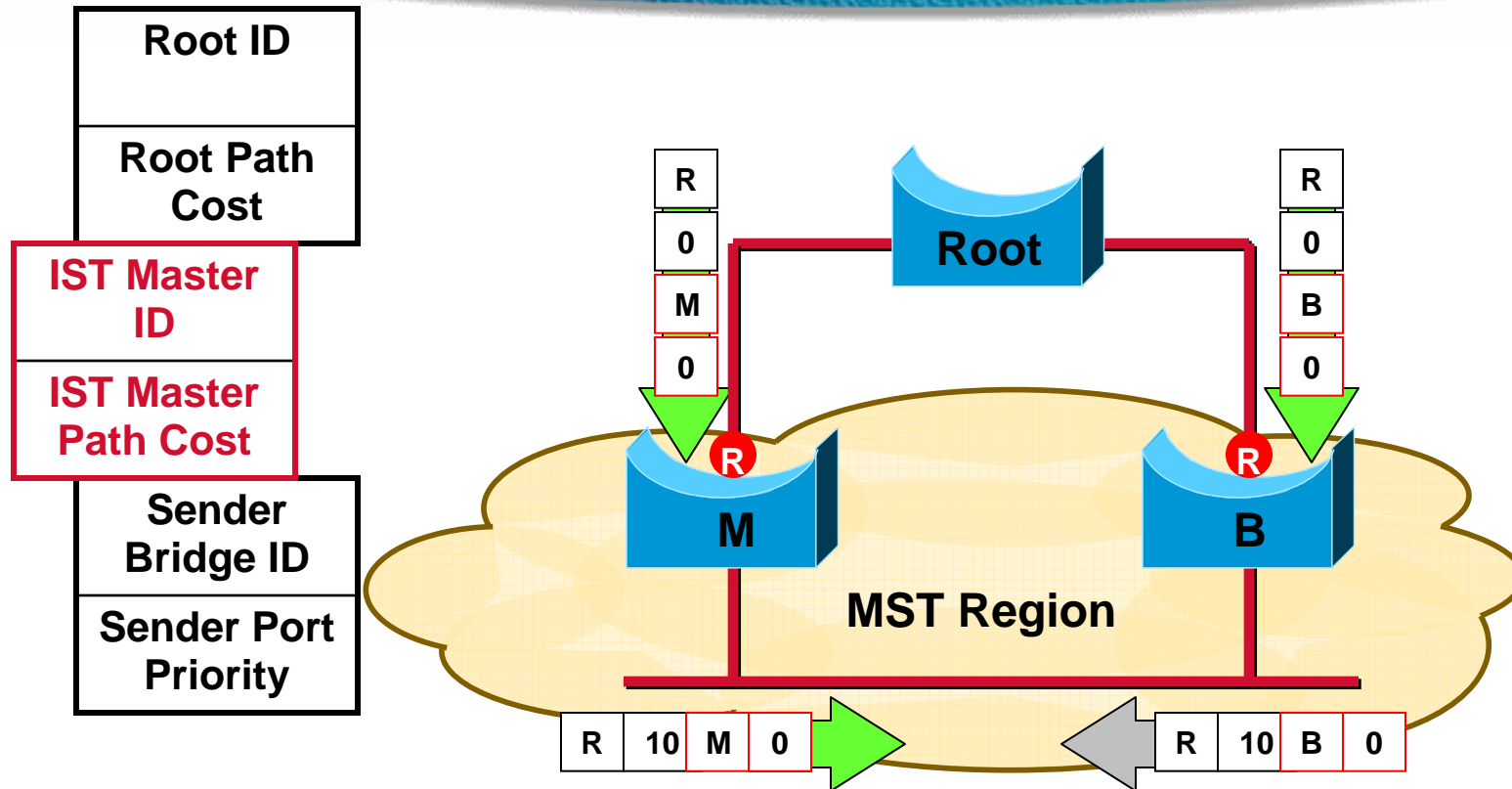
Root ID
Root Path Cost
Sender Bridge ID
Sender Port Priority



# MST Region Convergence Example

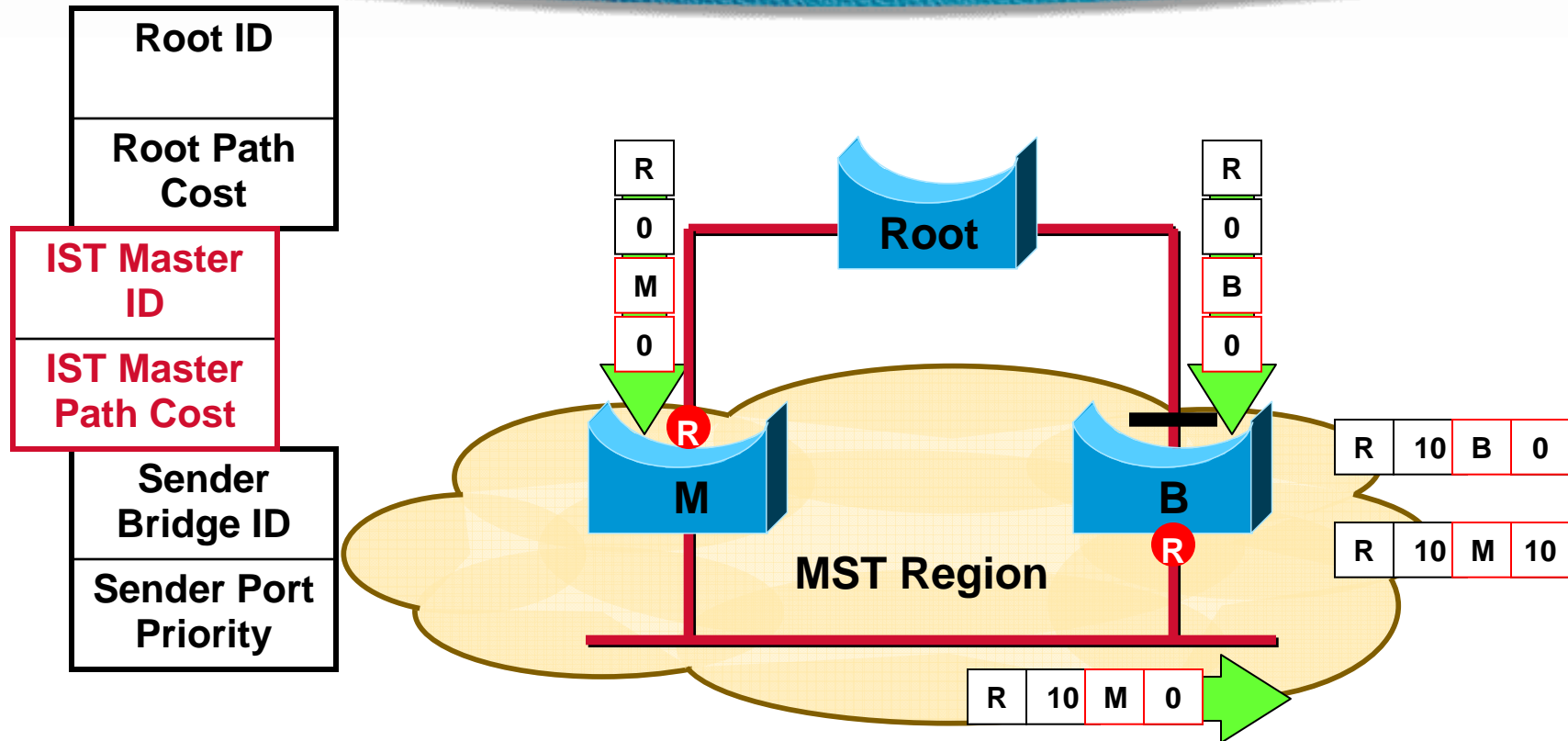


# MST Region Convergence Example





# MST Region Convergence Example



**Result: the BPDU received by B inside the region is now better than the one received directly from the Root**

# Result

- **Root port of the virtual bridge = root port of the IST Master**
- **Root port of other bridge in the region are internal to the region**
- **Traffic between 2 devices in the region stays in the region**
- **Things are much simple when the root bridge is in the region (Root = IST Master)**