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BTS SIO SAINT LUC CAMBRAI

Session 2024-2025

TP_STP

 Dans un premier temps nous allons définir
 l'architecture de notre réseau, pour cela nous allons définir les vlan 10 et 20 avec 3 switches et 2 pc dans le vlan 10 et 2 autre pc dans le vlan 20/



TP_STP MISE EN PLACE DU PROTOCOLE

Switch>en

Switch#conf t Enter configuration commands, one per line. Switch(config)#no sp Switch(config)#no spanning-tree v Switch(config)#no spanning-tree vlan 1-1000 Switch(config)#sp Switch(config)#sp Switch(config)#spanning-tree mode pvst Switch(config)#sp Switch(config)#spanning-tree vlan 10 Switch(config)#spanning-tree vlan 20 Switch(config)#

- Le spanning tree est un protocole qui garantit une topologie sans boucle ce qui améliore la stabilité du réseau mais aussi les performances
- Pour commencer nous allons utiliser la commande <u>#no spanning-tree vlan 1-1000</u> ce qui enlever toutes traces de configurations,
- nous allons le configurer avec la commande e <u>#spanning-tree mode pvst</u>,
- puis nous allons déclarer chaque vlan au protocole avec la commande <u>#spanning-tree</u> <u>vlan x</u>

TP_STP MISE EN PLACE DU PROTOCOLE

- Pour vérifier si les commandes ont bien abouti nous allons taper la commande : sh spanningtree
- On retrouve bien le vlan
 10 et le vlan 20
- On retrouve aussi l'adresse su switch

	Physical Confi	ig <u>CLI</u> Att	tributes						
IOS Command Line Interface									
Switchfsh sp VLAN0010 Spanning tree enabled protocol ieee Root ID Priority 32778 Address 0000.0C09.343C Cost 19 Port 2(FastEthernet0/2) Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec									
	Bridge ID	Priority Address Hello Time Aging Time	32778 (priority 32768 sys-id-ext 10) 00D0.BC66.4261 2 sec Max Age 20 sec Forward Delay 15 sec 20						
	Interface Role Sts Cost Prio.Nbr Type								
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VLAN0020									
Spanning tree enabled protocol ieee									
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	Bridge ID	Priority Address Hello Time Aging Time	32788 (priority 32768 sys-id-ext 20) 00D0.BC66.4261 2 sec Max Age 20 sec Forward Delay 15 sec 20						

TP_STP MISE EN PLACE DU PROTOCOLE

NOUS ALLONS RÉPÉTER CETTE OPÉRATION SUR LES AUTRES SWITCHES

Witch#sh sp LAN0010 Spanning tree enabled protocol ieee Root ID Priority 32778 Address 0000.0C09.343C Cost 19 Port 2(FastEthernet0/2) Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 32778 (priority 32768 sys-id-ext 10) Address 00D0.BC66.4261 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Address 00D0.BC66.4261 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Address 00D0.BC66.4261 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Address 00D0.BC66.4261 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Address 0000.BC66.4261 Fine 2 sec Max Age 20 sec Forward Delay 15 sec Spanning tree enabled protocol ieee Root ID Priority 32788 Address 0000.0C09.343C Cost 19 Port 2(FastEthernet0/2) Hello Time 2 sec Max De 20 sec Forward Delay 15 sec	IOS Command Line Interface									
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Address 00D0.BC66.4261	Root ID Bridge ID	Address Cost Port Hello Time Priority	19 2(FastEthernet0/2) 2 sec Max Age 20 sec Forward Delay 15 sec 32788 (priority 32768 sys-id-ext 20)							
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Switch‡sh spanning-tree VLAN0010											
Spanning tree enabled protocol ieee											
Root ID	Priority	32778									
	Address	00D0.BC66.4	261								
	This bridge is the root										
	Hello Time	2 sec Max	Age 20 sec	Forward Delay	15 sec						
Bridge ID	Priority Address	32778 (pri 00D0.BC66.4	ority 3276 261	8 sys-id-ext 10)							
	Hello Time Aging Time	2 sec Маж 20	Age 20 sec	Forward Delay	15 sec						
Interface	Role St	s Cost	Prio.Nbr T	уре							
Fa0/23	Desg FWI	D 19	128.23 P	2p							
Gi0/1	Desg FWD 4		64.25 P2p								
VI.AN0020											
Spanning to	ree enabled a	protocol jes									
Boot ID											
	Address	00D0 BC66 4	261								
	This bridge is the root										
	Hello Time	2 sec Max	Age 20 sec	Forward Delay	15 sec						
Bridge ID	Priority	32788 (pri	ority 3276	8 svs-id-ext 20)							
-	Address	00D0.BC66.4	261	•							
	Hello Time	2 sec Max	Age 20 sec	Forward Delay	15 sec						
More											

Switch#sh spanning-tree VLAN0020 Spanning tree enabled protocol ieee Root ID Priority 32788 Address 0002.1790.068A This bridge is the root Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Bridge ID Priority 32788 (priority 32768 sys-id-ext 20) Address 0002.1790.068A Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec Aging Time 20 Interface Role Sts Cost Prio.Nbr Type

TP_STP MISE EN PLACE DU PROTOCOLE

- Comme nous avons pu le voir nous avons le même nombre de cost parmi les 3 configurations, car il fonctionne a la même vitesse
- Fast Ethernet (100 Mbps) : cost de 19
- Gigabit Ethernet (1 Gbps) : cost de 4
- 10 Gbps : cost de 2

LE GRAPHE DES SWITCH TRAVERSÉS POUR CHAQUE VLAN

- Rouge vlan 10
- Bleu vlan 20



TP_STP



- Configuration des ports ici nous allons configurer le switch 2 vers le switch 3
- Nous allons utiliser la commande switchport mode trunk pour qu'il puisse communiquer ensuite nous allons autoriser un vlan avec la commande switchport trunk allowed vlan x, pour notre configuration nous allons définir le vlan 10
- Ensuite il nous reste à faire la même chose à partir du schéma

TP_STP REDONDANCE



- Maintenant nous allons ajouter ajoute un lien Gigabit 0/1 trunké pour VLAN 10 et 20 entre sw2 et sw3
- Les raisons d'effectuer cette opération, dans un premier temps ça nous permettra d'avoir un chemin de secours en cas d'accidents sur le premier lien et dans un second temps ça permet d'améliorer la performance du réseau

TP_STP REDONDANCE

interface GigabitEthernet0/1
switchport mode trunk
spanning-tree vlan 10-20 port-priority 64

- Pour que le port gigabit soit pris en compte nous allons taper les commandes suivantes
- interface gigabitEthernet 0/1, qui qui va nous permettre de configurer le port
- spanning-tree vlan 10-20 port-priority 64. Cette commande donne à ce port une priorité plus élevée pour qu'il soit choisi en premier par le Spanning Tree pour les VLANs 10 et 20



DESSINEZ LE GRAPHE DES SWITCHS TRAVERSÉS POUR CHAQUE VLAN.

- Rouge vlan 10
- Bleu vlan 20

QUEL LIEN LES MESSAGES PRENNENT-IL POUR LE VLAN10 ? POUR LE VLAN 20 ?



- Rouge vlan 10
- Bleu vlan 20