BUT R&T - Semestre 3

Concevoir un réseau informatique sécurisé multi-sites

S A E - 3 . C y b e r 0 3

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Les choix techniques

Découpage en sous réseaux

Sous-réseau	1	2	4	8	16	32	64	128	256
Masque de sous-réseau	/21	/22	/23	/24	/25	/26	/27	/28	/29

il nous faut 5 sous-réseaux minimum,
car nous avons 5 VLan à notre disposition

Les choix techniques

VLan

	ID réseau	Masque	Plage d'ID d'hôte	nb d'hôtes	adresse broadcast
VLAN 2	192.168.168.0	/24	192.168.168.1-254	254	192.168.168.255
VLAN 3	192.168.169.0	/24	192.168.169.1-254	254	192.168.169.255
VLAN 4	192.168.170.0	/24	192.168.170.1-254	254	192.168.170.255
VLAN 6	192.168.171.0	/24	192.168.171.1-254	254	192.168.171.255
VLAN 7	192.168.172.0	/24	192.168.172.1-254	254	192.168.172.255

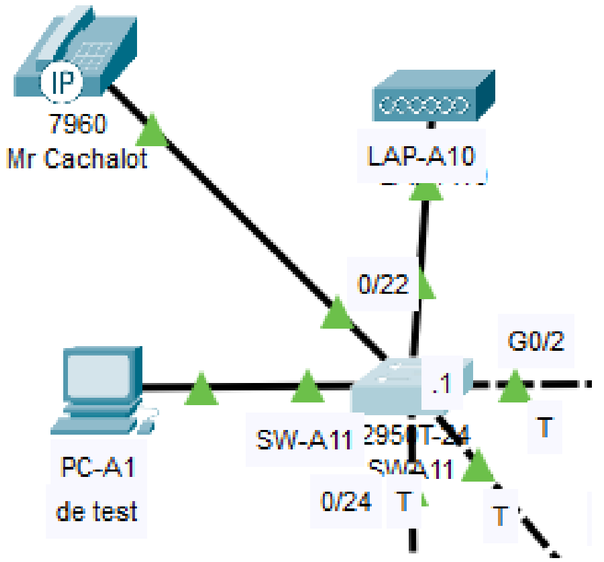
Les choix techniques

@privée choisie = 192.168.168.0/21
VLAN2 = Filaire Collaborateurs (ports 1 à 10)
VLAN3 = Filaire Administration (ports 11 à 20)
VLAN4 = Téléphonie IP (port 21)
VLAN6 - WiFi (port 22)
VLAN7 = GESTION

VLan

Exemple SW-A11

```
interface FastEthernet0/20
 description vlan3 -> Filaire Administration
 switchport access vlan 3
 switchport mode access
```

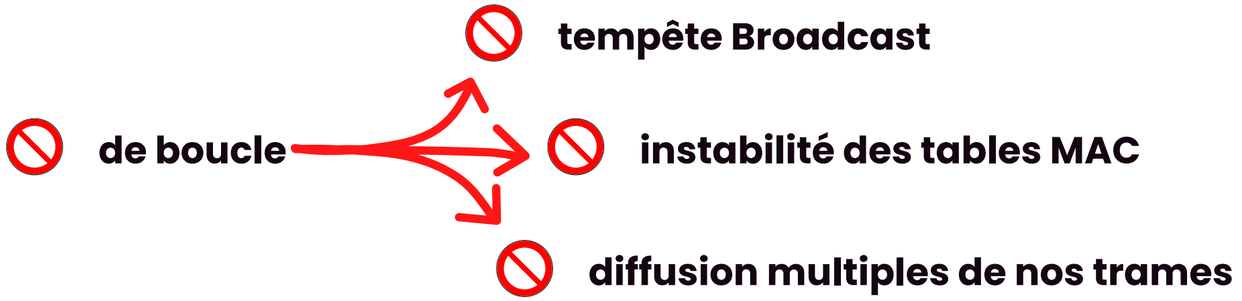


Les choix techniques

RSTP

Exemple SW-A12

```
spanning-tree mode rapid-pvst
spanning-tree extend system-id
```



RSTP > STP pour sa rapidité

6 secondes en temps de convergence en cas de panne !!

Les choix techniques

HSRP

Exemple RT-A1

Interface	Grp	Pri	P	State	Active	Standby	Virtual IP
Fa	2	100		Standby	192.168.168.252	local	192.168.168.254
Fa	3	110	P	Active	local	192.168.169.252	192.168.169.254
Fa	4	110	P	Active	local	192.168.170.252	192.168.170.254
Fa	6	100		Standby	192.168.171.252	local	192.168.171.254
Fa	7	110	P	Active	local	192.168.172.252	192.168.172.254

```
interface FastEthernet0/0.2
 encapsulation dot1Q 3
 ip address 192.168.169.253 255.255.255.0
 ip nat inside
 standby version 2
 standby 3 ip 192.168.169.254
 standby 3 priority 110
 standby 3 preempt
 standby 3 track Serial0/0/0
```

```
FastEthernet0/0.1 - Group 2 (version 2)
  State is Standby
    11 state changes, last state change 00:00:40
  Virtual IP address is 192.168.168.254
  Active virtual MAC address is 0000.0C9F.F002
    Local virtual MAC address is 0000.0C9F.F002 (v2 default)
  Hello time 3 sec, hold time 10 sec
    Next hello sent in 1.687 secs
  Preemption disabled
  Active router is 192.168.168.252, priority 110 (expires in 8 sec)
    MAC address is 0000.0C9F.F002
  Standby router is local
  Priority 100 (default 100)
    Track interface Serial0/0/0 state Up decrement 10
  Group name is hsrp-Fa-2 (default)
```

Les choix techniques

DHCP

Exemple RT-A1

```
ip dhcp pool VLAN2
 network 192.168.168.0 255.255.255.0
 default-router 192.168.168.254
 dns-server 134.59.136.1
ip dhcp pool VLAN3
 network 192.168.169.0 255.255.255.0
 default-router 192.168.169.254
 dns-server 134.59.136.1
ip dhcp pool VLAN4
 network 192.168.170.0 255.255.255.0
 default-router 192.168.170.254
 option 150 ip 192.168.170.254
 dns-server 134.59.136.1
ip dhcp pool VLAN6
 network 192.168.171.0 255.255.255.0
 default-router 192.168.171.254
 dns-server 134.59.136.1
```

distribution dynamique

Les choix techniques

Sécurisation NAT

Exemple RT-A1

```
.
ip nat inside source list 2 interface Serial0/0/0 overload
ip classless
ip route 0.0.0.0 0.0.0.0 10.200.4.6
!
ip flow-export version 9
!
!
access-list 2 permit 192.168.0.0 0.0.255.255
access-list 2 deny any
access-list 3 permit 10.200.4.4 0.0.0.3
```

```
interface Serial0/0/0
 ip address 10.200.4.5 255.255.255.252
 ip access-group 3 out
 ip nat outside
 service-policy output SITE_D
```

Les choix techniques

Sécurisation SSH

```
ip ssh version 2
ip ssh authentication-retries 5
ip ssh time-out 60
ip domain-name cachalot.com
```

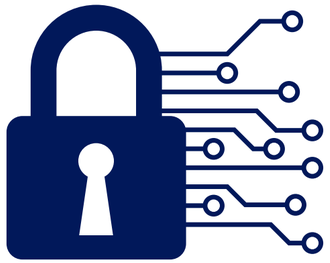
cryptographie à clé publique pour l'authentification du système distant

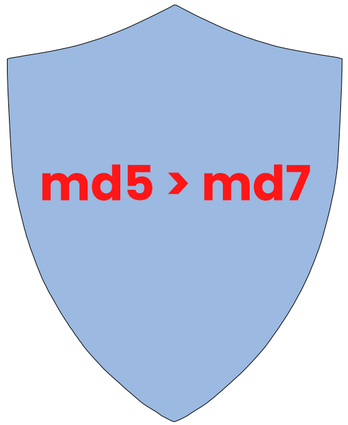
```
!
line vty 0 4
 login local
 transport input ssh
line vty 5
 login
```

Les choix techniques

Sécurisation mot de passe

```
username admin secret 5 $1$mERr$3EvDEHTCxbVcumtuBQRqC/
```





Les choix techniques

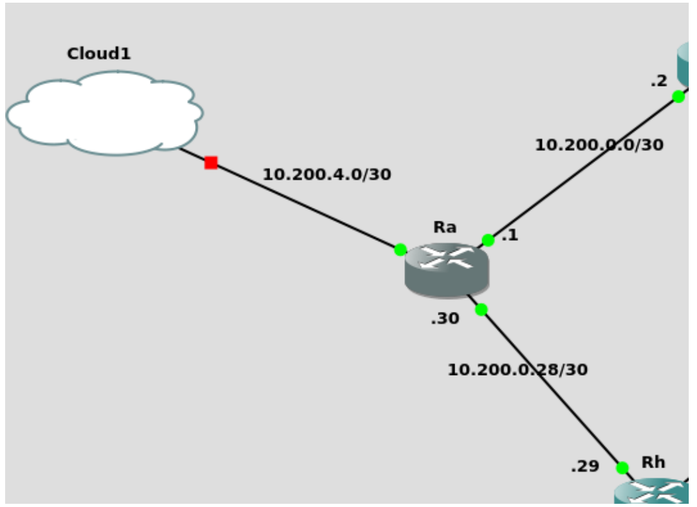
Téléphonie

Exemple SW-A11

```
interface FastEthernet0/21
 description vlan4 -> Telephonie IP
 switchport mode access
 switchport voice vlan 4
 mls qos trust dscp
```

Les choix techniques

GNS3



BGP

Ra

```
router bgp 100
 no synchronization
 bgp log-neighbor-changes
 neighbor 3.3.3.3 remote-as 100
 neighbor 3.3.3.3 update-source Loopback0
 neighbor 3.3.3.3 next-hop-self
 neighbor 10.200.4.1 remote-as 40
 neighbor 10.200.4.1 description ebgp
 no auto-summary
```

OSPF

```
router ospf 1
 log-adjacency-changes
 network 2.2.2.2 0.0.0.0 area 0
 network 10.200.0.0 0.0.0.3 area 0
 network 10.200.0.28 0.0.0.3 area 0
 network 10.200.4.0 0.0.0.3 area 0
```

Ri

```
router ospf 1
 log-adjacency-changes
 network 10.200.0.32 0.0.0.3 area 0
 network 10.200.0.36 0.0.0.3 area 0
 network 10.200.0.40 0.0.0.3 area 0
 network 10.200.0.44 0.0.0.3 area 0
```

Gestion de Projet GANTT