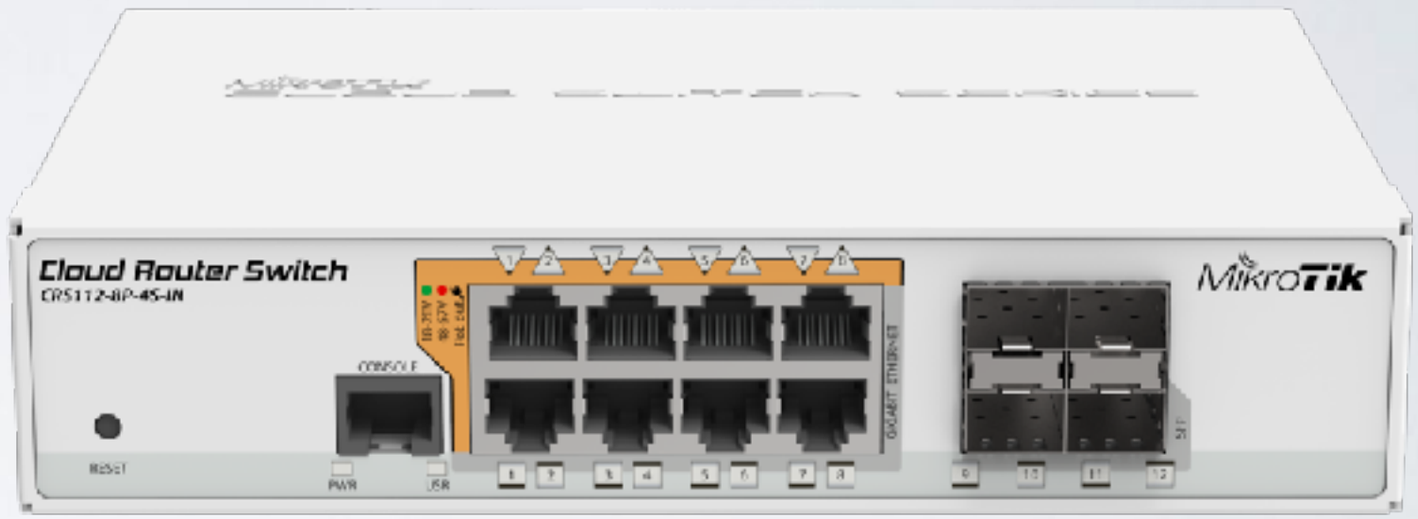
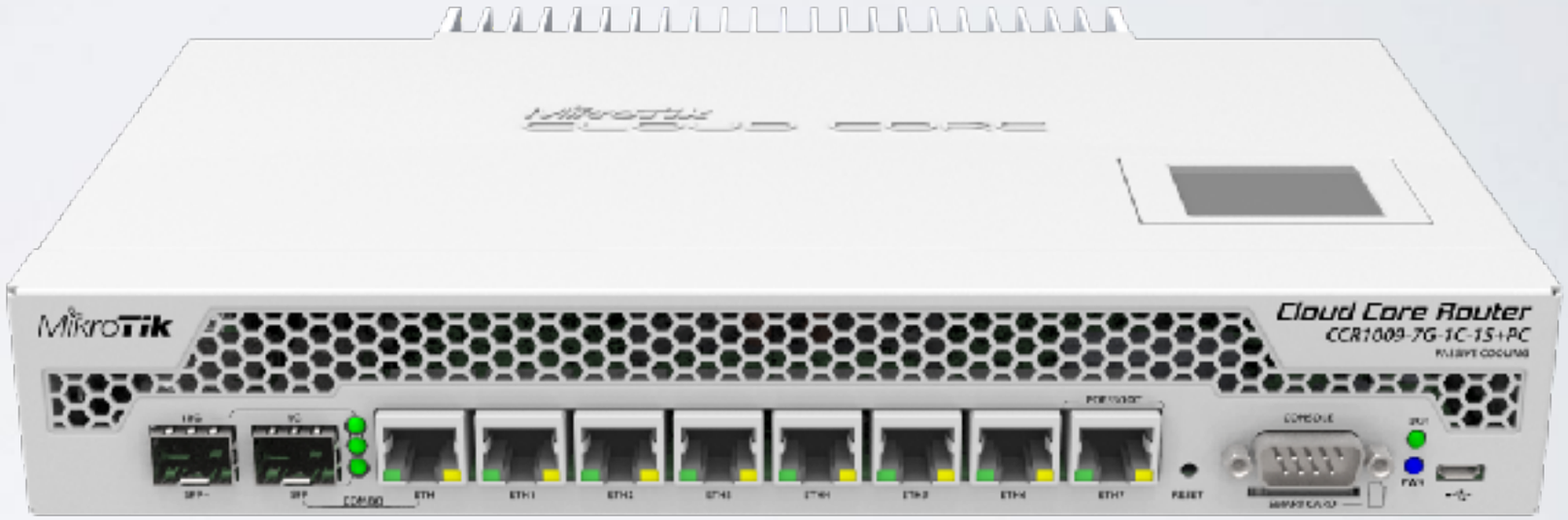
Switch?

- Many ports
- L2/Ethernet traffic
- VLAN
- Wire-speed on MikroTik switches



Router?

- L3/IP Traffic
- Firewall
- Tunnels
- BGP/OSPF etc.



MikroTik switch advantages

- + Price!
- + Number of ports
- + wire speed
- - RouterOS advanced features decreases speed

MikroTik Switches

MikroTik switches

- SwOS
- SwOS/RouterOS
- RouterOS

Switch configuration

Before MikroTik RouterOS 6.41

- Configuration was difficult
- Non scalable
- We put big effort to make it easier

MikroTik RouterOS 6.41

- Main configuration is done at /interface bridge
- /interface bridge ports controls switch configuration
- VLAN configuration is done at bridge settings

hw=yes or hw=no

- hw=yes, wire speed is available, switch chip is used;
- hw=no, CPU is used to process packets, no wirespeed

hw=yes and wire speed

RouterBoard/[Switch Chip] Model	Features in Switch menu	Bridge STP/RSTP	Bridge MSTP	Bridge IGMP Snooping	Bridge VLAN Filtering	Bonding
CRS3xx series	+	+	+	+	+	+
CRS1xx/CRS2xx series	+	+	-	+	-	-
[QCA8337]	+	+	-	-	-	-
[AR8327]	+	+	-	-	-	-
[AR8227]	+	+	-	-	-	-
[AR8316]	+	+	-	-	-	-
[AR7240]	+	+	-	-	-	-
RB750Gr3 [MT7621]	+	-	-	-	-	-
RB1100AHx4 [RTL8367]	+	-	-	-	-	-
[ICPlus175D]	+	-	-	-	-	-

- hw=no on every other device with bridge

hw=yes or hw=no

- hw=yes, wire speed is available, switch chip is used;
- hw=no, CPU is used to process packets, no wire speed

Wire speed

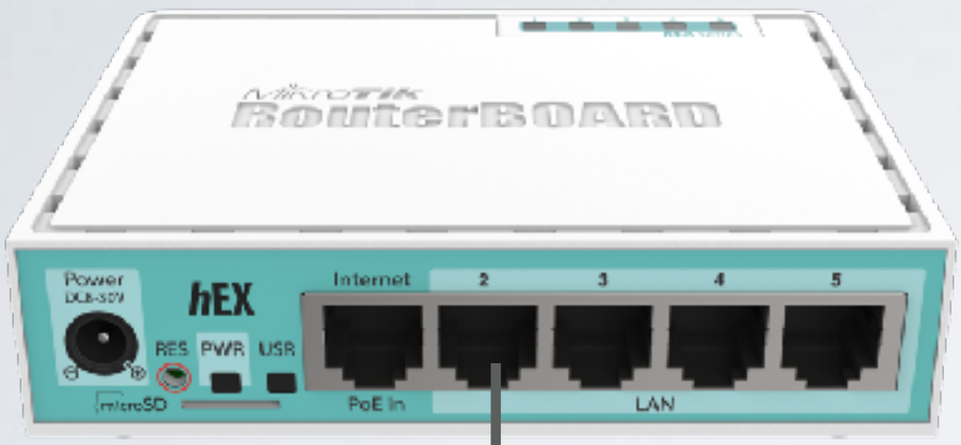
- RSTP and MSTP
- VLAN
- IGMP Snooping
- Bonding
- CRS326, CRS328, CRS317

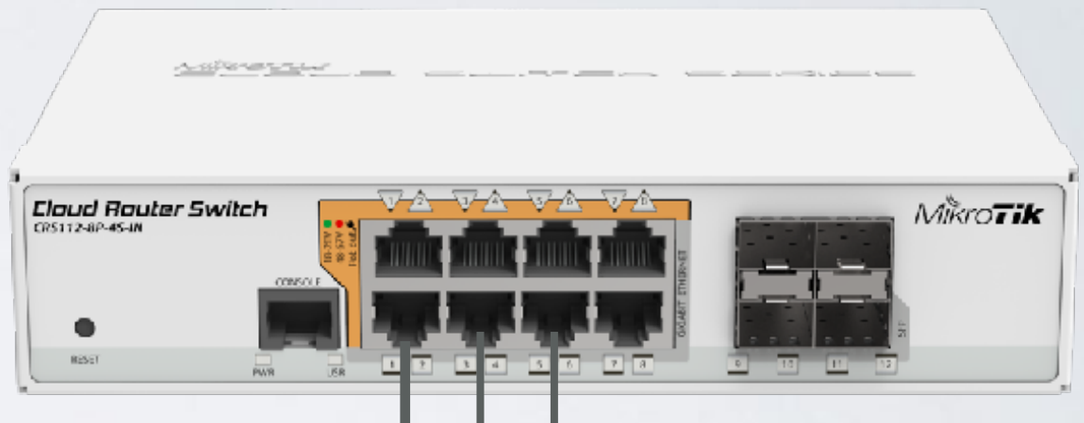
Wire speed

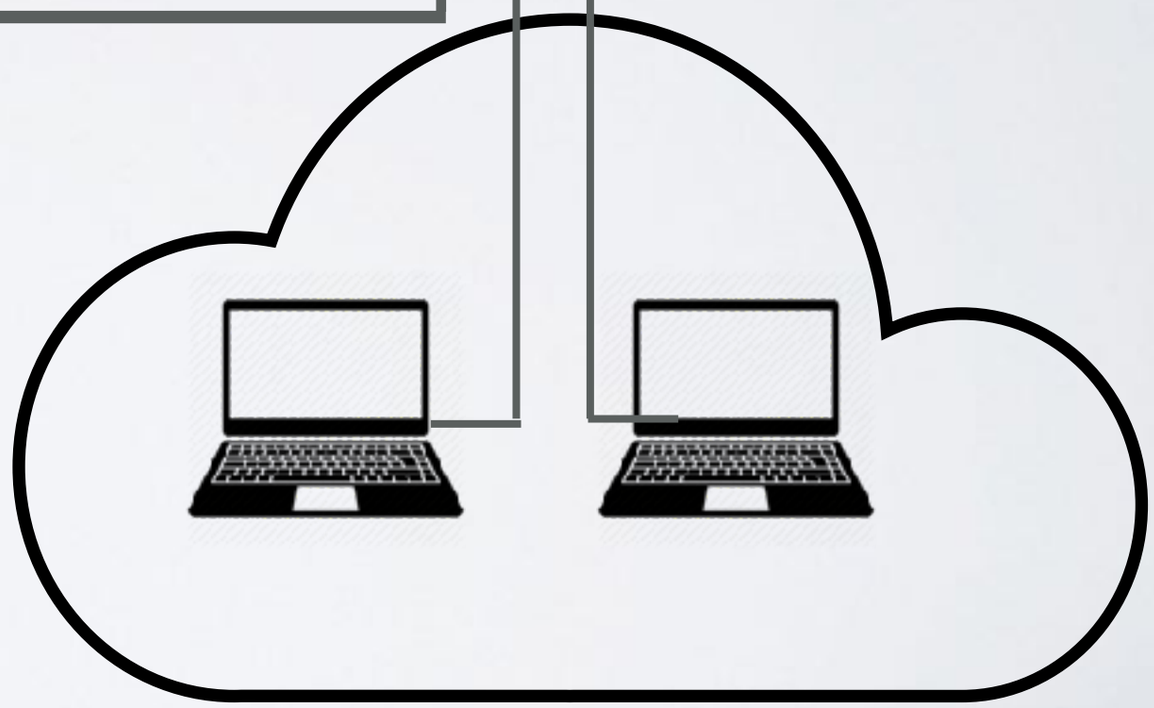
- RSTP
- IGMP Snooping
- Bonding
- CRS1xx and CRS 2xx series

Configuration examples

Simple switch



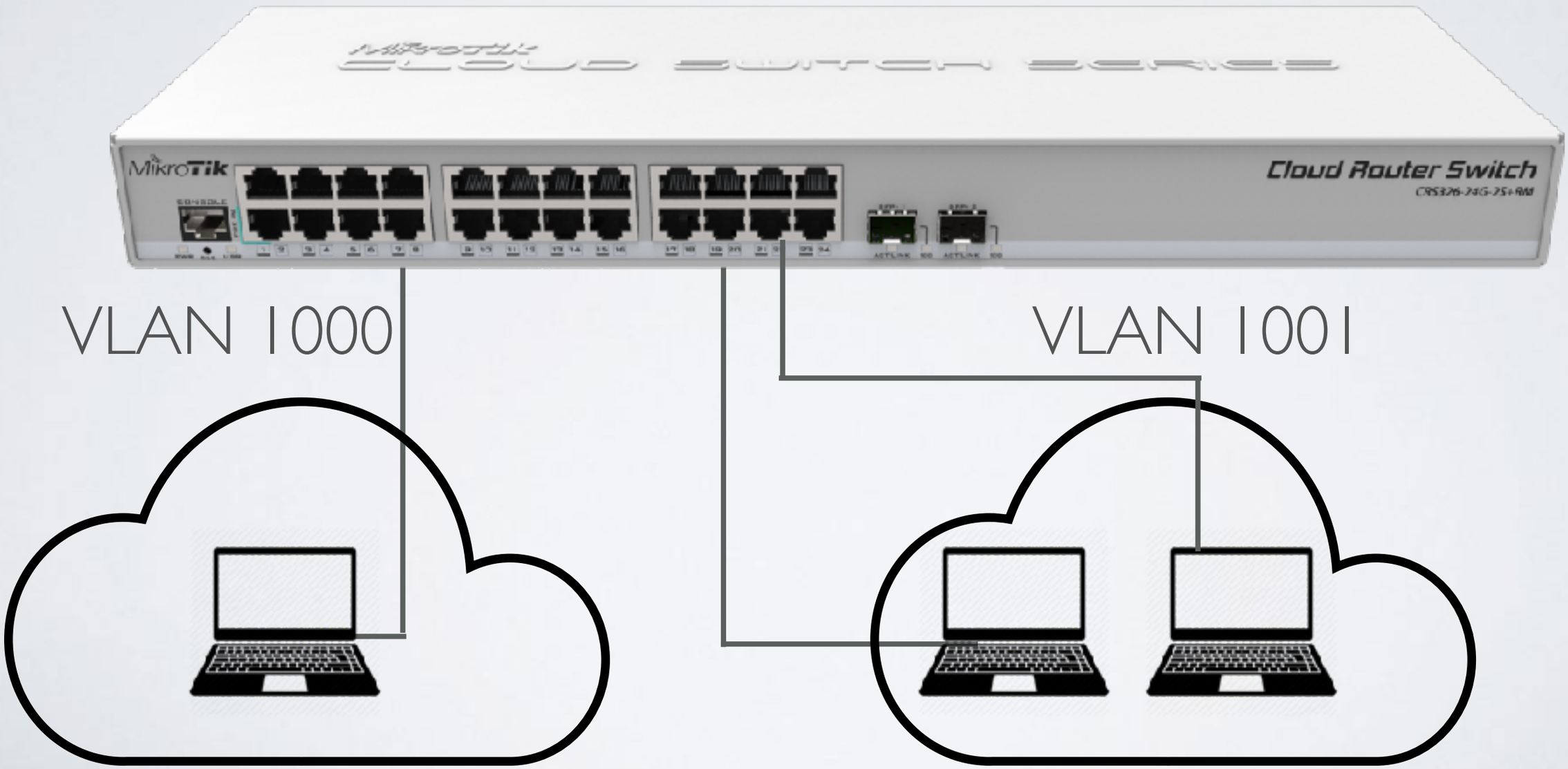




Simple switch [or bridge]

- /interface bridge add
- /interface bridge port add bridge=bridge1 interface=ether3
- /interface bridge port add bridge=bridge1 interface=ether5

Trunk and access ports CRS3xx



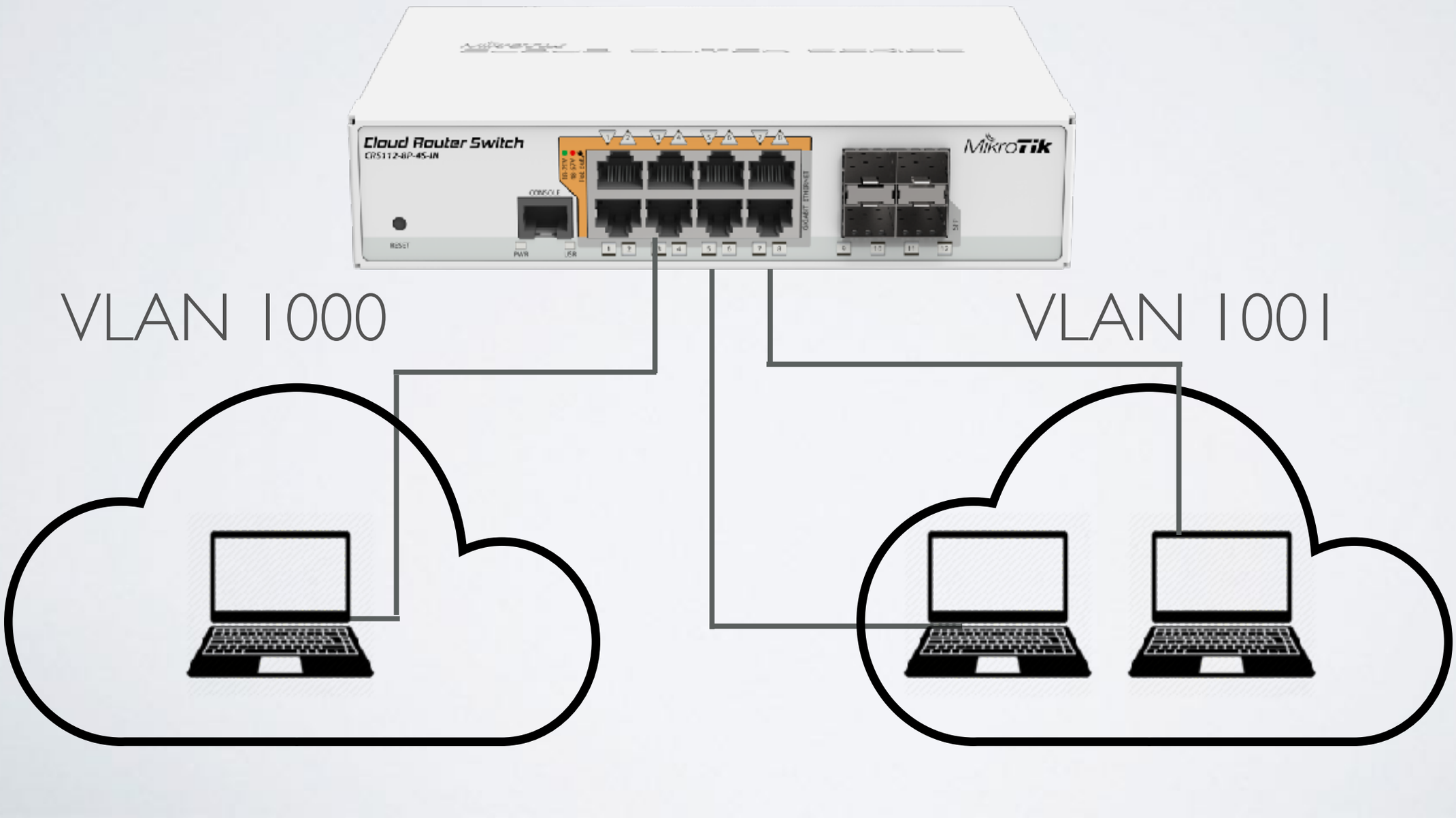
Trunk and access ports CRS3xx

- /interface bridge add
- /interface bridge port add bridge=bridge1 interface=ether7
- /interface bridge port add bridge=bridge1 interface=ether19
- /interface bridge port add bridge=bridge1 interface=ether21

Trunk and access ports CRS3xx

- Configure VLAN
- /interface bridge port set ether7 pvid=1000
- /interface bridge vlan add bridge=bridge1 tagged=bridge1,ether1 untagged=ether7 vlan-ids=1000
- /interface bridge port set ether19,ether21 pvid=1001
- /interface bridge vlan add bridge=bridge1 tagged=bridge1,ether1 untagged=ether7 vlan-ids=1001
- Enable VLAN filtering /interface bridge add name=bridge1 vlan-filtering=yes

CRS1xx/CRS2xx



CRS1xx/CRS2xx

- /interface bridge add
- /interface bridge port add bridge=bridge1 interface=ether3
- /interface bridge port add bridge=bridge1 interface=ether5
- /interface bridge port add bridge=bridge1 interface=ether7

CRS1xx/CRS2xx

- /interface ethernet switch vlan
- add ports=ether1,ether3 switch=switch1 vlan-id=1000
- add ports=ether1,ether5,ether7 switch=switch1 vlan-id=1001

Large scalable network example

GW#1

GW#2

GW#3

10Gb backbone

C#1

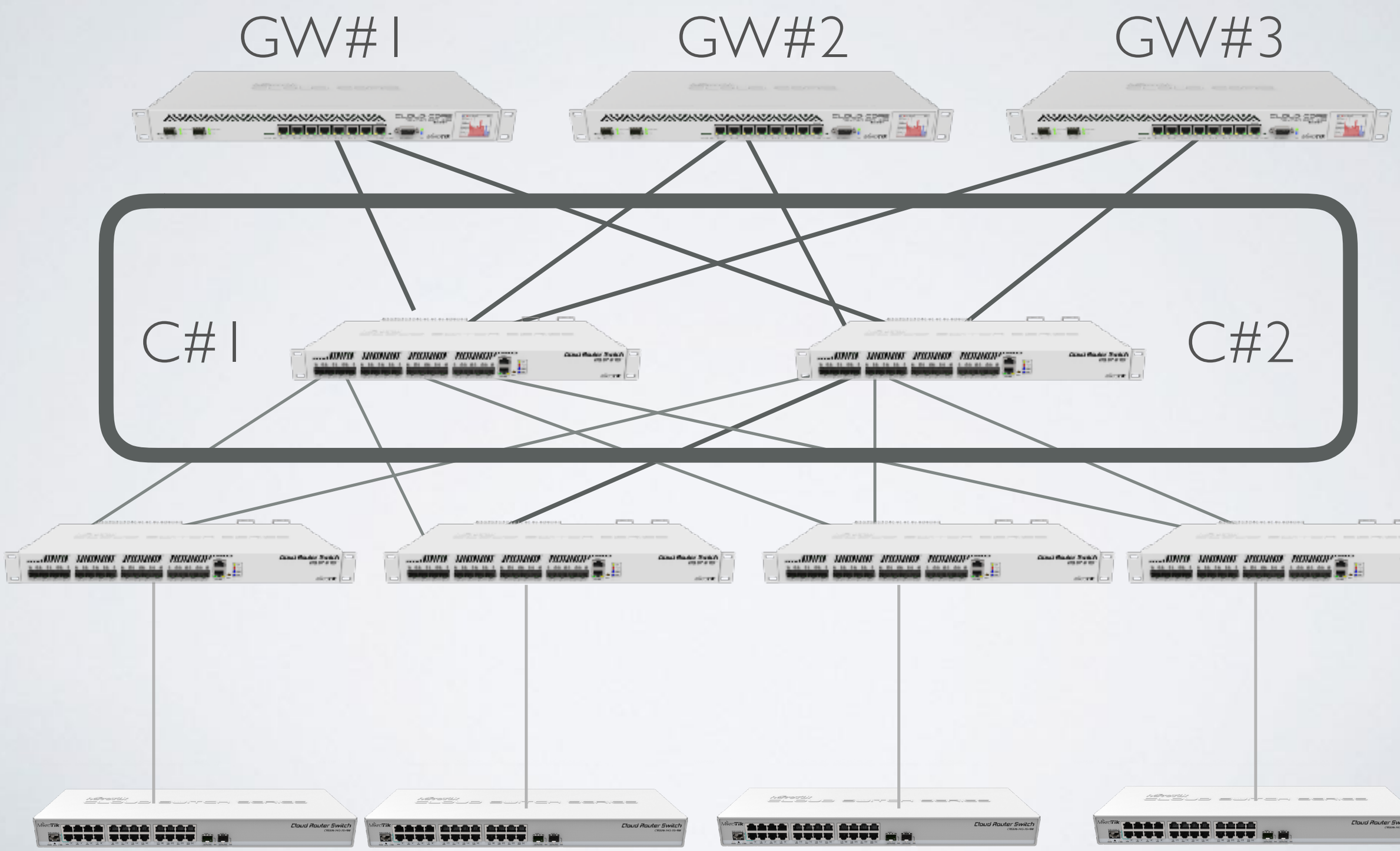
C#2

Up to 14 sw
336 computers

Large network example

- Each CRS317+CRS326 up to 336 1Ggbps wired clients
- CRS317+CRS317 up to 224 10Gbps wired clients

Switch configuration #1



Large network example

- DHCP-server configured on GW#X VLAN interface
- VLAN1000,1001,1002,1003,100x are distributed to end clients

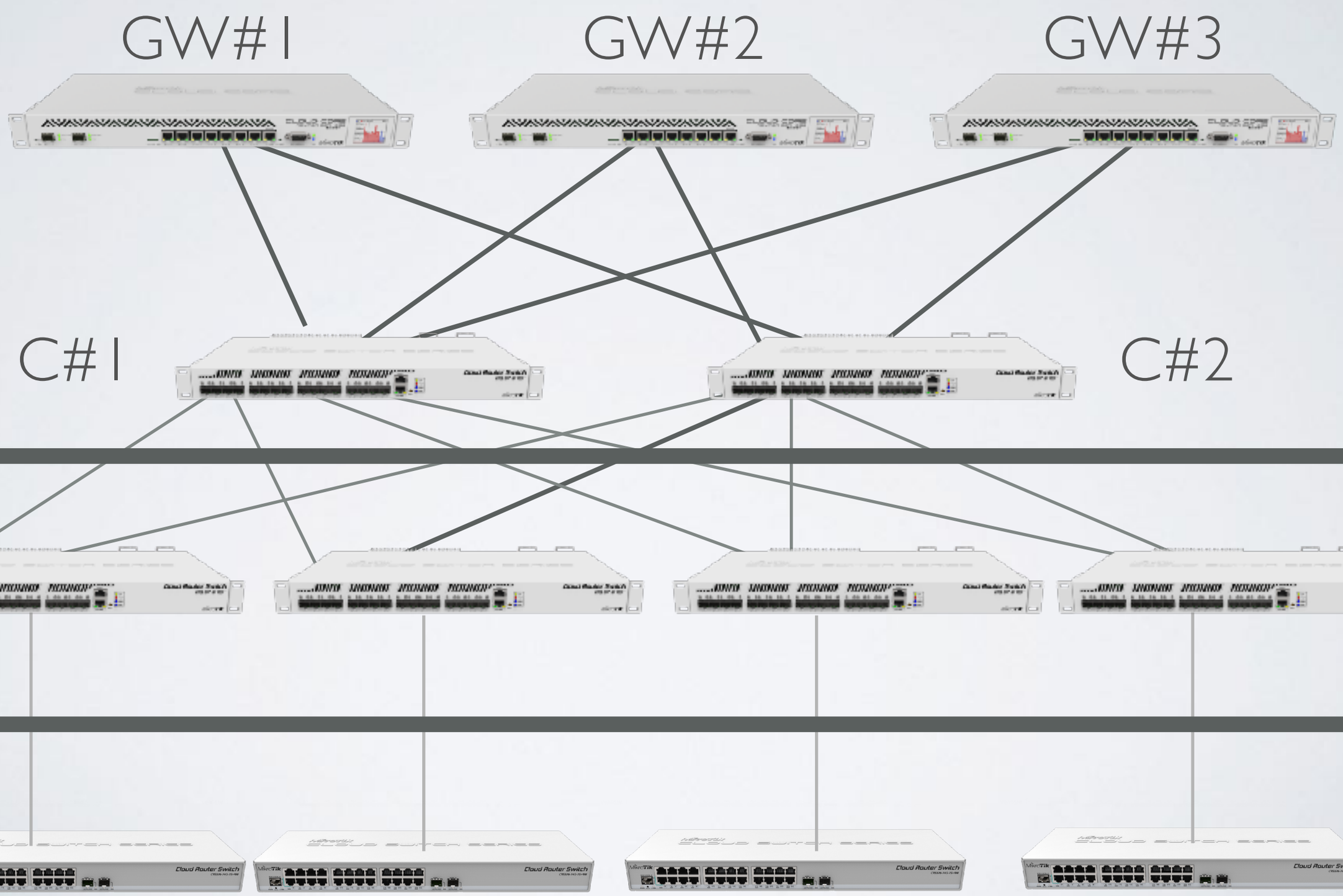
Switch configuration #1

- /interface bridge add fast-forward=no name=bridge1 priority=0x100 vlan-filtering=yes
- /interface bridge port add bridge=bridge1 frame-types=admit-only-vlan-tagged interface=sfp-sfpplus**x**

Switch configuration # 1

- /interface bridge vlan
- add bridge=bridge1 tagged="bridge1,sfp-sfpplus1,sfp-sfpplus2,sfp-sfpplus**x**" vlan-ids="1000,1001,1002,100**X**"

Switch configuration #2



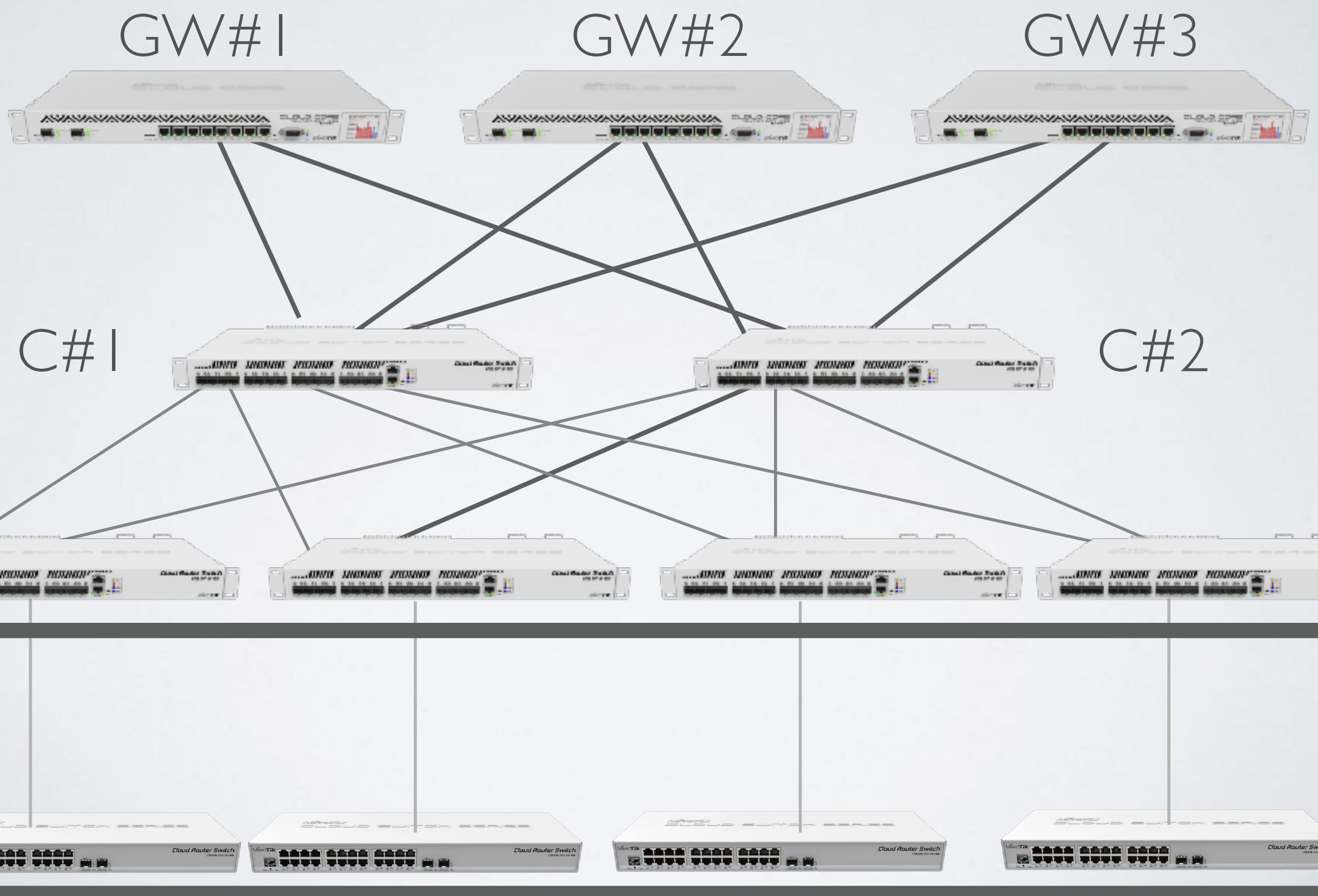
Switch configuration #2

- /interface bridge add fast-forward=no name=bridge1 priority=0x1000 vlan-filtering=yes
- /interface bridge port add bridge=bridge1 frame-types=admit-only-vlan-tagged interface=sfp-sfpplus1, sfpplus**x**

Switch configuration #2

- /interface bridge vlan
- add bridge=bridge1 tagged="bridge1,sfp-sfpplus1,sfp-sfpplus2,sfp-sfpplus**x** vlan-ids="1000,1001,1002,200**x**"

Switch configuration #3



Switch configuration #2

- /interface bridge add fast-forward=no name=bridge1 vlan-filtering=yes
- /interface bridge port
- add bridge=bridge1 interface=ether2 pvid=1000
- add bridge=bridge1 interface=ether3 pvid=1001
- add bridge=bridge1 interface=ether4 pvid=1002
- add bridge=bridge1 interface=ether5 pvid=100x
- add bridge=bridge1 interface=sfp-sfpplus1
- add bridge=bridge1 interface=sfp-sfpplus2

Switch configuration #2

- /interface bridge port
- add bridge=bridge1 interface=ether2 pvid=1000
- add bridge=bridge1 interface=ether3 pvid=1001
- add bridge=bridge1 interface=ether4 pvid=1002
- add bridge=bridge1 interface=ether5 pvid=100x
- add bridge=bridge1 interface=sfp-sfpplus1,sfp-sfpplus2
- /interface bridge vlan
- add bridge=bridge1 tagged=bridge1,sfp-sfpplus1 untagged=ether2 vlan-ids=1000
- add bridge=bridge1 tagged=bridge1,sfp-sfpplus1 untagged=ether3 vlan-ids=1001
- add bridge=bridge1 tagged=bridge1,sfp-sfpplus1 untagged=ether4 vlan-ids=1002
- add bridge=bridge1 tagged=bridge1,sfp-sfpplus1 untagged=ether5 vlan-ids=100x

Switch configuration misc

- Bridge priority configuration

- Highest on GW, then on C# 1 and C#2

MikroTik