

IES ZAIDÍN-VERGELES

DISEÑO DE LA RED DE FIBRA

DEPARTAMENTO DE INFORMÁTICA



Grupo de trabajo

“TECNOLOGÍA EDUCATIVA A LA VELOCIDAD DE LA LUZ”



Conexión a Internet
Movistar 600Mbps

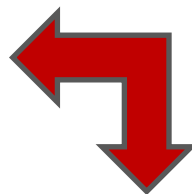
SC/APC fiber
optic cable



ONT Alcatel-Lucent I-240G-B



Cable UTP Cat 6
1Gbps



CCR1016-12S-1S+



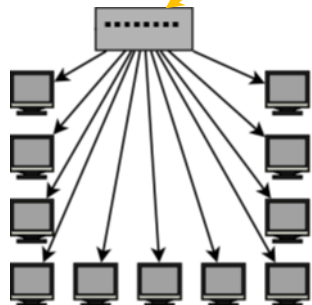
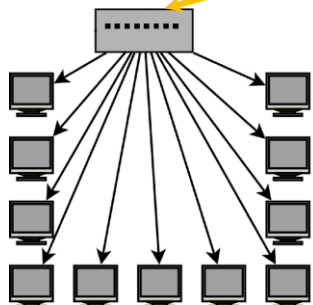
Multimode Fiber
Cable SFP+
10 Gbps



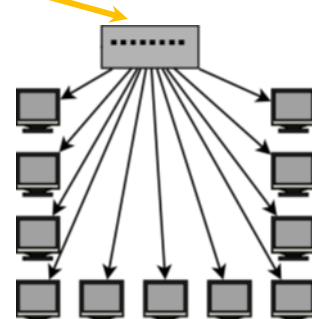
ROUTER SWITCH
CRS326-24S+2Q+RM



Multimode Fiber
Cable SFP+
10 Gbps



Aulas
Depar
Proxmox
Profes
NAS



↔ 1 Gbps

↔ 10 Gbps

ROUTER SWITCH CRS326-24S+2Q+RM



Multimode Fiber
Duplex Cable SFP+

AULA XXX

TPLINK TL-SG3428X



Link Aggregation
LACP
4x Cable UTP Cat 6



TPLINK TL-SG2424

CPD - PROXMOX



Link Aggregation
LACP
4x Cable UTP Cat 6



6 x PowerEdge R810 4x
NICs

↔ 1 Gbps

↔ 10 Gbps

Router
Equipo Dir.

CCR1016-12S-1S+

Cloud Core Router
CCR1016-12S-1S+

MikroTik

Router
Fibra -
WAN

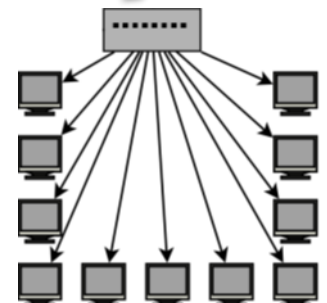
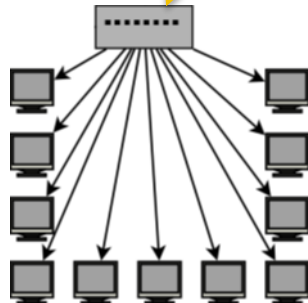
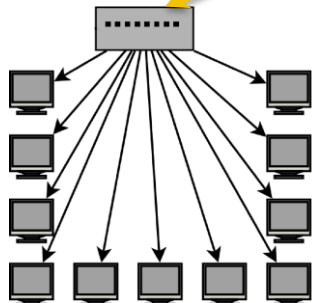
Multimode Fiber
Duplex Cable SFP+

ROUTER SWITCH
CRS326-24S+2Q+RM

Cloud Router Switch
CRS326-24S+2Q+RM

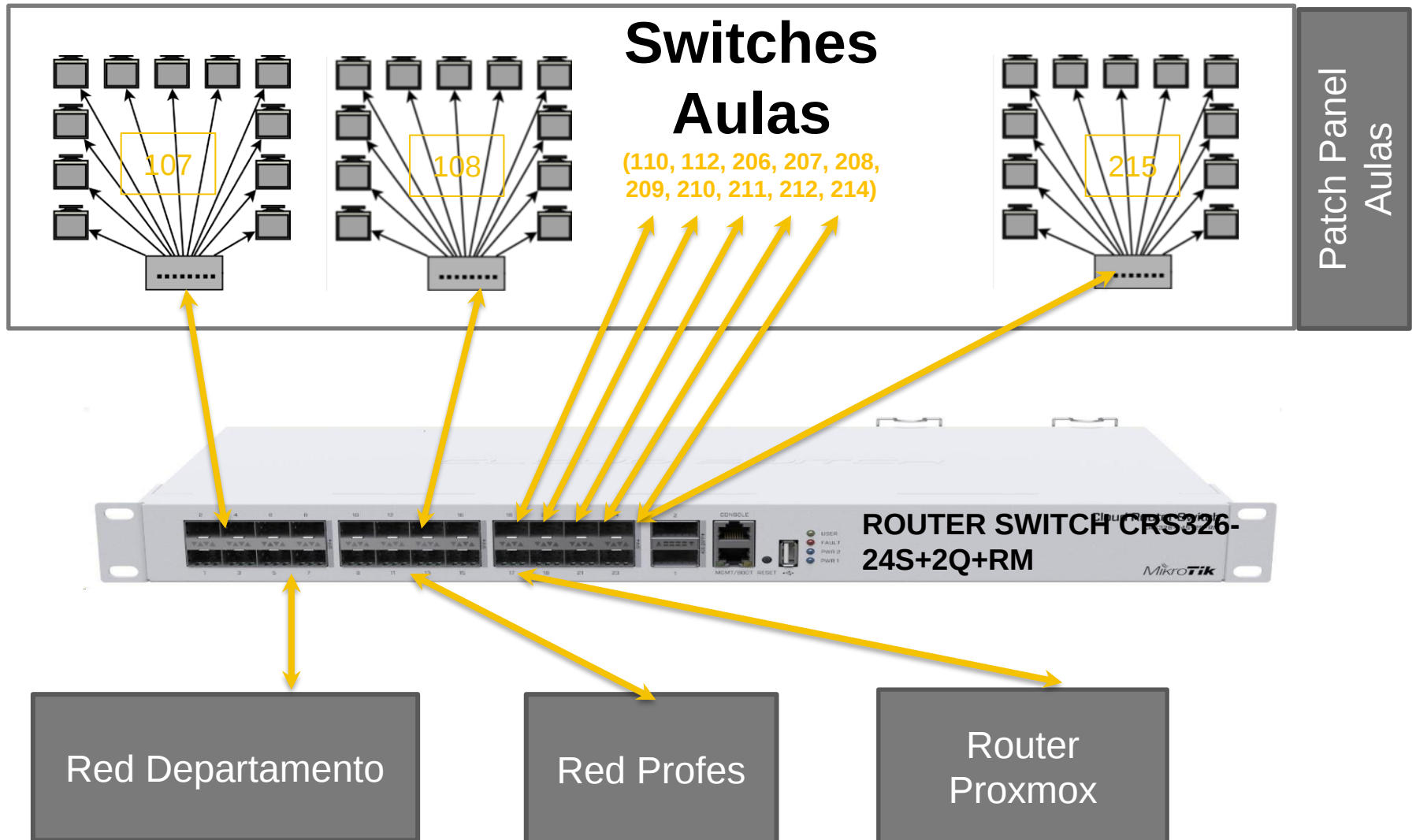
MikroTik

Aulas
Depar
Proxmox
Profes



CABLEADO DEL SWITCH

↔ 1 Gbps
↔ 10 Gbps



CONFIGURACIÓN WAN



informatica.ieszaidinvergeles.org
xxxxxxxxxx.ieszaidinvergeles.es

IP Pública

80.28.211.131

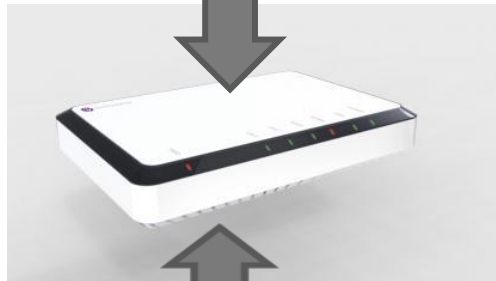
IPs Internas

10.0.aula.1 -> **Gestión Switch**

10.1.aula.1 -> **Profesorado**

10.2.X.1 -> **Departamento**

10.XXX.YYY.ZZZ -> **Aula XXX,**
Alumno YYY
Maquina ZZZ



Puerto 1 - WAN

PPPoE client – VLAN ID 6

DIRECCIONAMIENTO IP EN EL ROUTER



PUERTO	DESCRIPCION	RED	DIRECCIÓN	INTERFACE
Sfp1	WAN – Salida a Internet	80.58.67.86	80.28.211.131	sfp1 vlanONT
Sfp2	Red del Equipo Directivo	10.100.0.0/16	10.100.0.1	Sfp2
SFP+	Conexión Router con Switch	10.0.0.0/16	10.0.0.1 Router 10.0.0.2 Switch	SFP+

DIRECCIONAMIENTO IP EN EL SWITCH ROUTER



PUERTO	DESCRIPCION	RED	DIRECCIÓN	INTERFACE
SFP+1	Conexión con Router a INTERNET	?	?	Sfp+1
SFP+2	Aula 107	10.107.0.0/16	10.107.X.1	vlanAlumnos107
		10.1.0.0/16	10.1.107.1	vlanProfes
		10.0.0.0/16	10.0.107.1	vlanSwitches
SFP+3	Aula 108	10.108.0.0/16	10.108.X.1	vlanAlumnos108
		10.1.0.0/16	10.1.108.1	vlanProfes
		10.0.0.0/16	10.0.108.1	vlanSwitches
SFP+4	Aula 110	10.110.0.0/16	10.110.X.1	vlanAlumnos110
		10.1.0.0/16	10.1.110.1	vlanProfes
		10.0.0.0/16	10.0.110.1	vlanSwitches
SFP+5	Aula 112	10.112.0.0/16	10.112.X.1	vlanAlumnos112
		10.1.0.0/16	10.1.112.1	vlanProfes
		10.0.0.0/16	10.0.112.1	vlanSwitches
SFP+6	Aula 206	10.206.0.0/16	10.206.X.1	vlanAlumnos206
		10.1.0.0/16	10.1.206.1	vlanProfes
		10.0.0.0/16	10.0.206.1	vlanSwitches

DIRECCIONAMIENTO IP EN EL SWITCH ROUTER



PUERTO	DESCRIPCION	RED	DIRECCIÓN	INTERFACE
SFP+7	Aula 207	10.207.0.0/16	10.207.X.1	vlanAlumnos207
		10.1.0.0/16	10.1.207.1	vlanProfes
		10.0.0.0/16	10.0.207.1	vlanSwitches
SFP+8	Aula 208	10.208.0.0/16	10.208.X.1	vlanAlumnos208
		10.1.0.0/16	10.1.208.1	vlanProfes
		10.0.0.0/16	10.0.208.1	vlanSwitches
SFP+9	Aula 209	10.209.0.0/16	10.209.X.1	vlanAlumnos209
		10.1.0.0/16	10.1.209.1	vlanProfes
		10.0.0.0/16	10.0.209.1	vlanSwitches
SFP+10	Aula 210	10.210.0.0/16	10.210.X.1	vlanAlumnos210
		10.1.0.0/16	10.1.210.1	vlanProfes
		10.0.0.0/16	10.0.210.1	vlanSwitches
SFP+11	Aula 211	10.211.0.0/16	10.211.X.1	vlanAlumnos211
		10.1.0.0/16	10.1.211.1	vlanProfes
		10.0.0.0/16	10.0.211.1	vlanSwitches

DIRECCIONAMIENTO IP EN EL SWITCH ROUTER



PUERTO	DESCRIPCION	RED	DIRECCIÓN	INTERFACE
SFP+12	Aula 212	10.212.0.0/16	10.212.X.1	vlanAlumnos212
		10.1.0.0/16	10.1.212.1	vlanProfes
		10.0.0.0/16	10.0.212.1	vlanSwitches
SFP+13	Aula 214	10.214.0.0/16	10.214.X.1	vlanAlumnos214
		10.1.0.0/16	10.1.214.1	vlanProfes
		10.0.0.0/16	10.0.214.1	vlanSwitches
SFP+14	Aula 215	10.215.0.0/16	10.215.X.1	vlanAlumnos215
		10.1.0.0/16	10.1.215.1	vlanProfes
		10.0.0.0/16	10.0.215.1	vlanSwitches
SFP+15	Proxmox	10.5.0.0/16	10.5.X.1	vlanProxmox
		10.0.0.0/16	10.0.5.1	vlanSwitches