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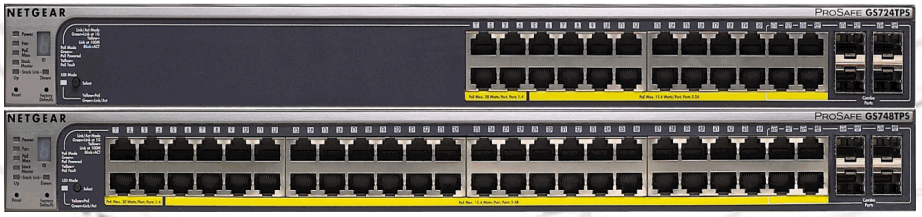
Instalación e infraestructura red

PROSAFE®



NETGEAR ProSafe LIFETIME WARRANTY

Xavier Lleixa
Sales Engineer Netgear

NETGEAR

Fundada: 1996, NTGR on NASDAQ

Central: San Jose, CA con oficinas en 26 paises

Trabajadores: 700+ nivel mundial

Crecimiento: $1Bn+, ~40% YoY growth

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Historia

- Trabajamos con 60 ISP a nivel mundial
- Más de 20 Millones de Clientes Empresariales
  - Soluciones para entornos de (1-1000 usuarios)
  - Global perspective + local support
  - Garantía de por vida
  - 24x7 soporte en castellano

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Ventajas Competitivas

- I+D
- Innovación
- Diseño
- Fiabilidad
- Aproximación al cliente
- Servicios

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NETGEAR Business Products

HOY :

Instalación e Infraestructura red

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Nuevas oportunidades de negocio

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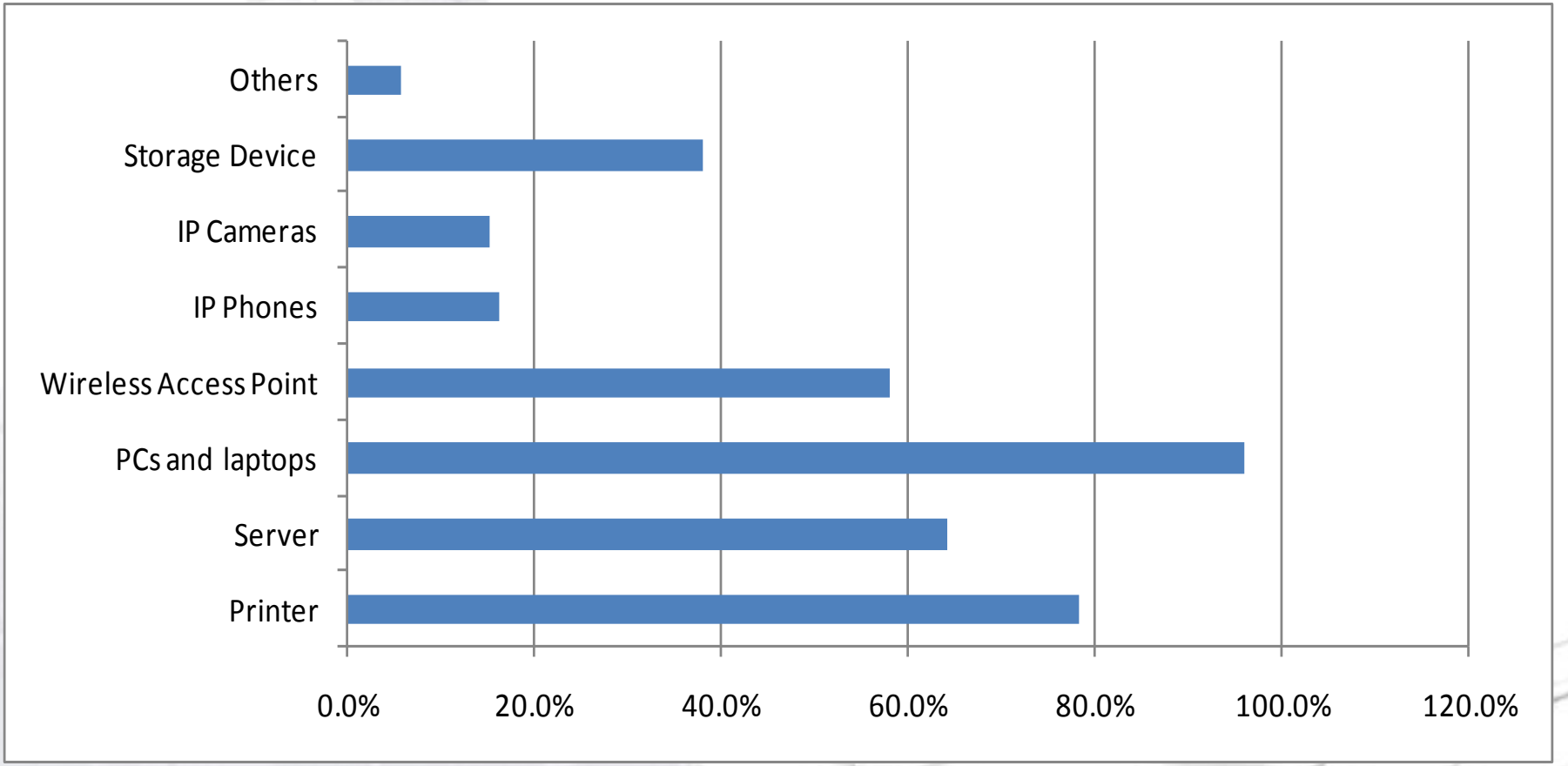
Equipos conectados a la red IP



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Agenda

- Estado y problemática redes actuales
- Diseño de redes convergentes:
  - Disponibilidad
  - QoS
  - VLAN
- Implementaciones redes convergentes
- Tendencias :
  - Ipv6
  - 10Gbps
- Ruegos y preguntas

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Situación Actual

- En las PYMES el 70% de la venta de switches son no gestionable
- La red Ethernet ya no sólo transporta datos:
  - Camaras IP
  - Telefonos IP
- Necesitamos sistemas que nos permitan crecer.
- Nuevas necesidades en la red como transmisión de video
- Los switches no gestionables no nos ofrecen ningún tipo de seguridad

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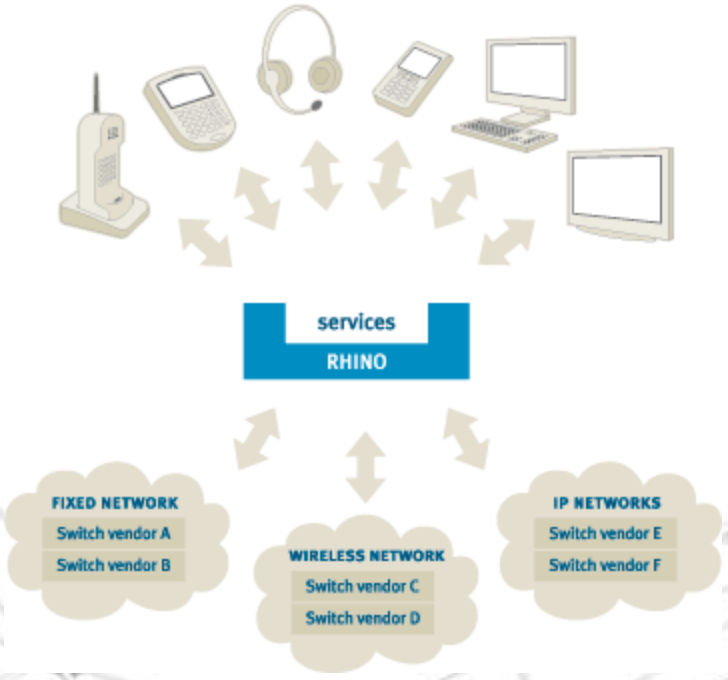
Problemática Actual

- *Convergencia de redes :*
  - *Telefonia IP*
  - *Sistemas de Videovigilancia*
  - *Datos*
  - *Sistemas de Almacenamiento*
  - *Megafonia IP*
  - *Domótica*



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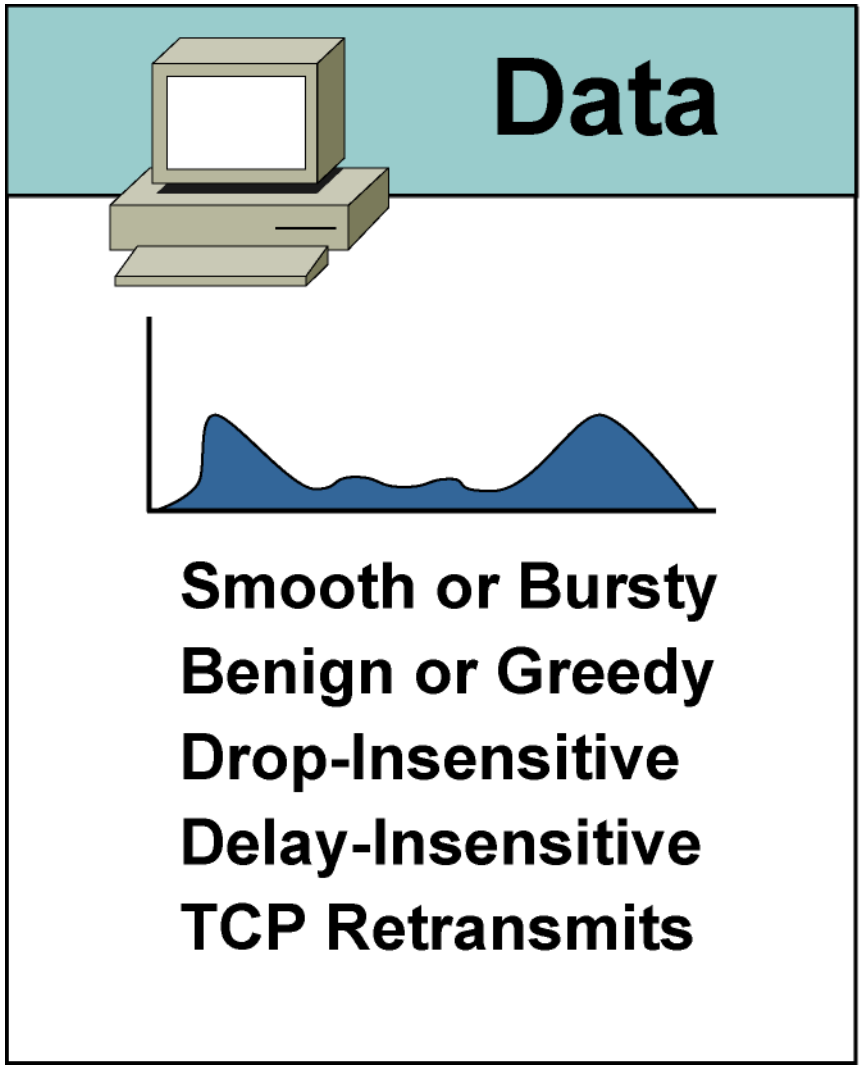
Problemas redes convergentes

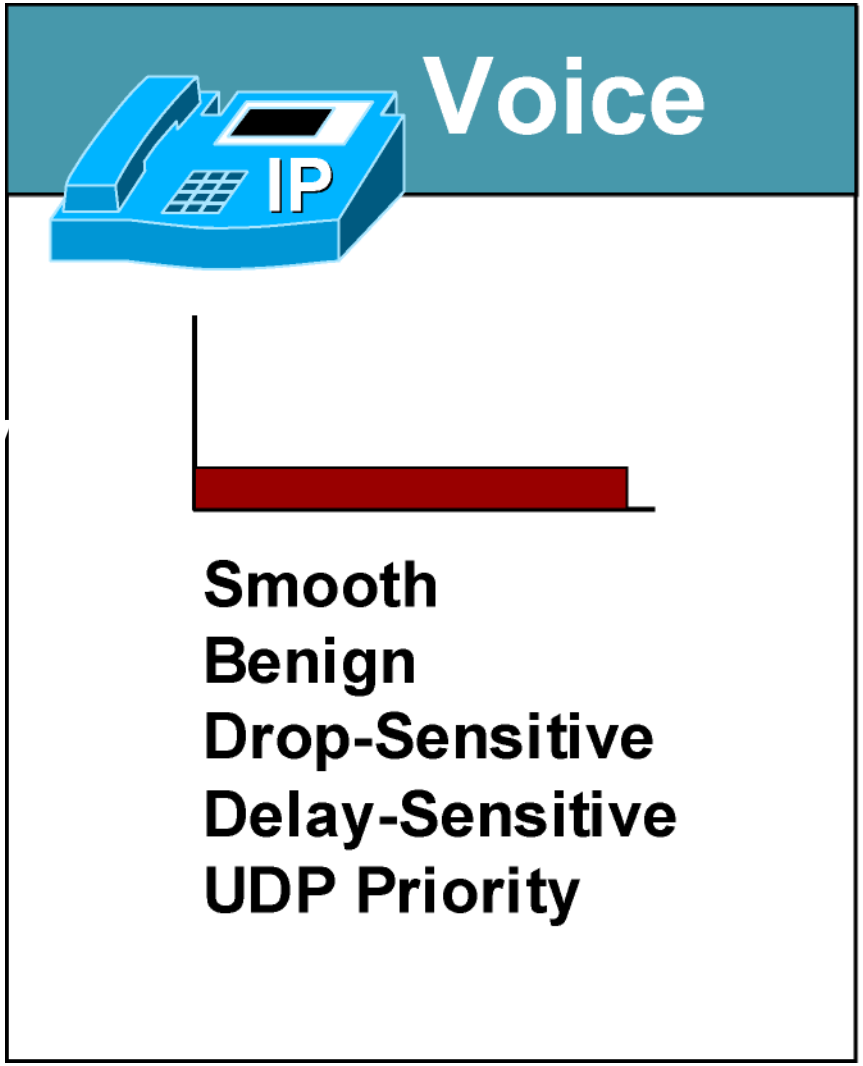
- Ancho de banda
- Retardo
- Variacion del retardo
- Perdida de paquetes

- **Diferentes tipos de caracteristicas.**
- **Diferentes perfiles de trafico.**
- **Clasificacion en diferentes perfiles**



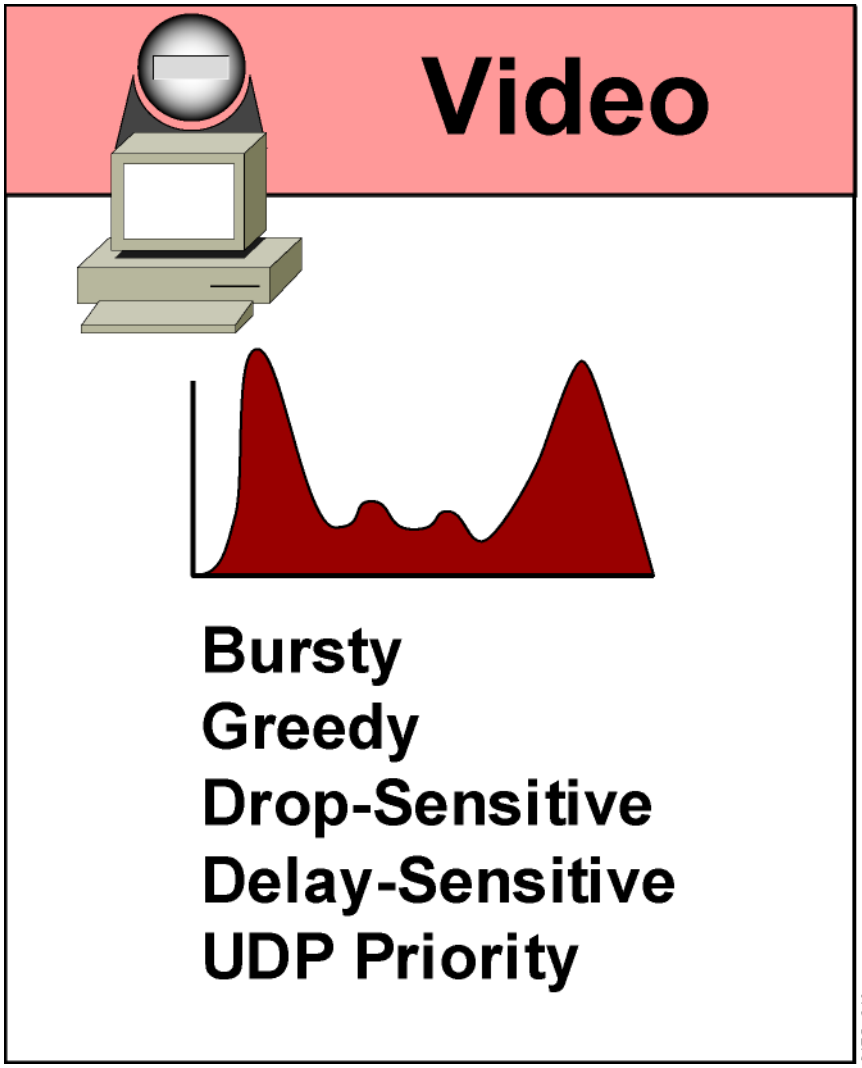
QoS Traffic Requirements: Voice

- **Latencia < 150 ms***
- **Jitter < 30 ms***
- **Pérdidas< 1%***



QoS Requirements: Videoconferencing

- **Latencia ≤ 150 ms***
- **Jitter ≤ 30 ms***
- **Perdidas ≤ 1%***



Redes Convergentes

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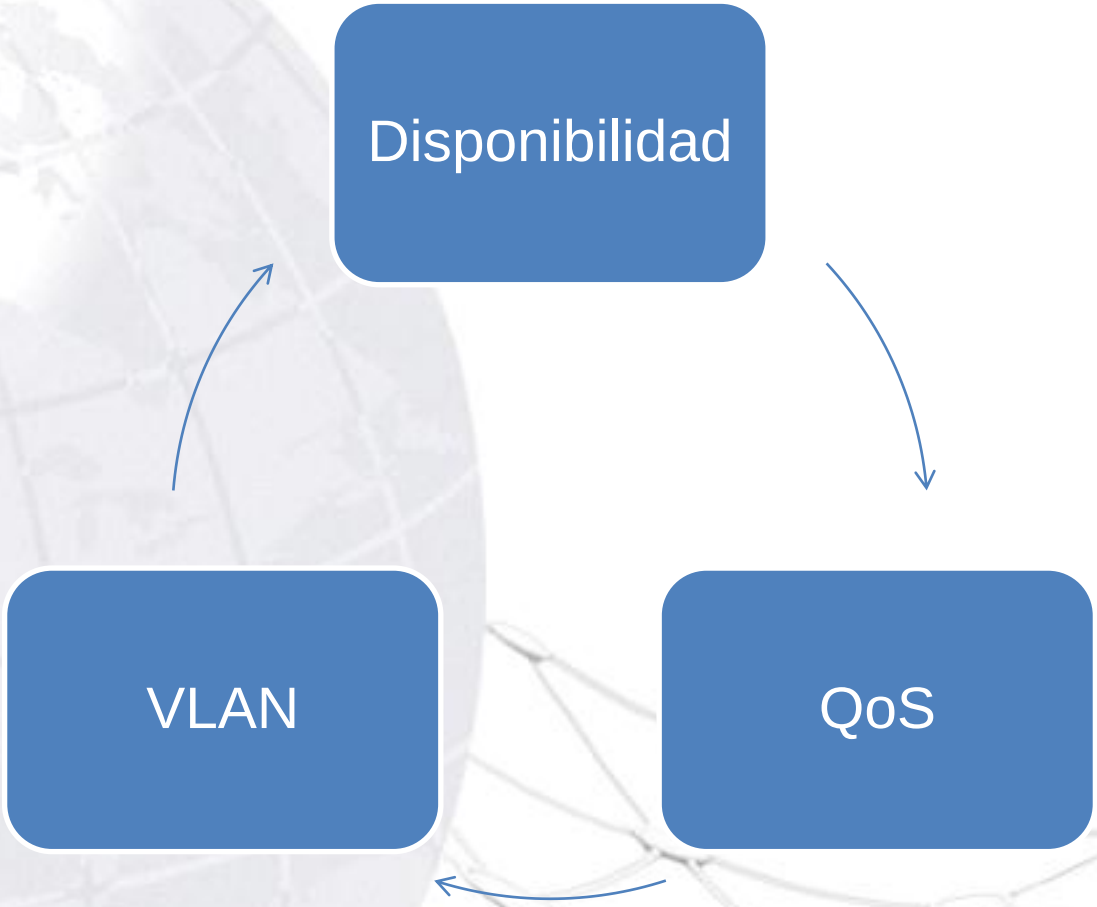
Agenda



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Necesidades Nuevas Redes

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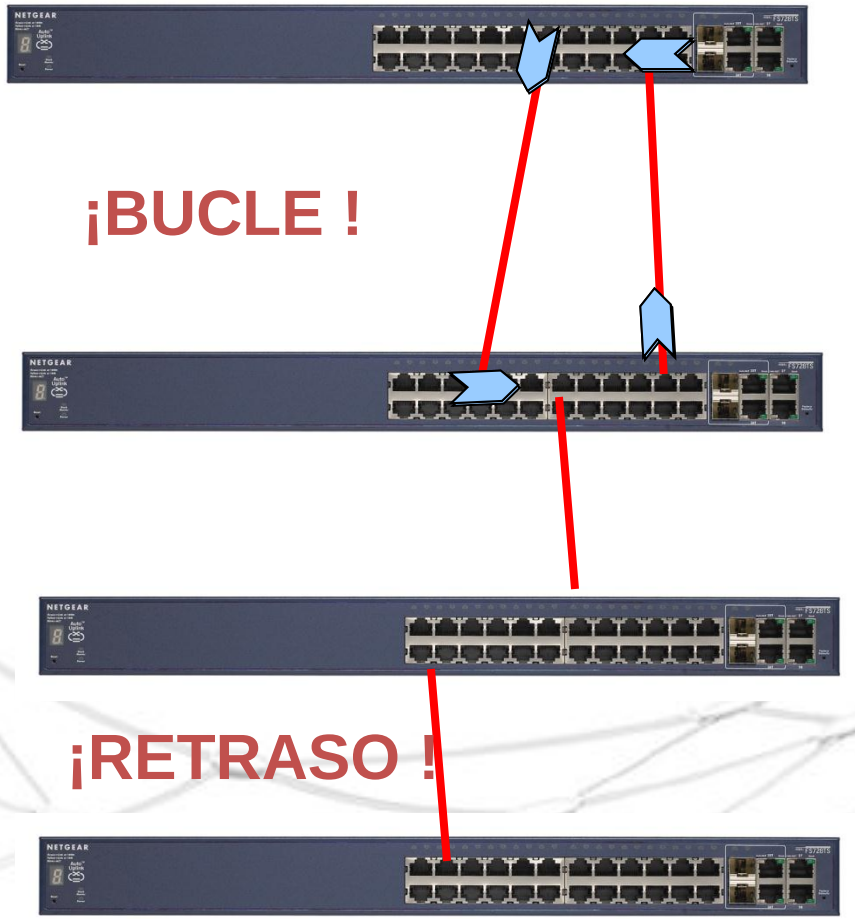
Crecimiento

- ***Switches no gestionables :***
  - ***Cuello de Botella***
  - ***Solo podemos unir un cable!***
- ***Solución SMART:***

LACP → Apilamiento



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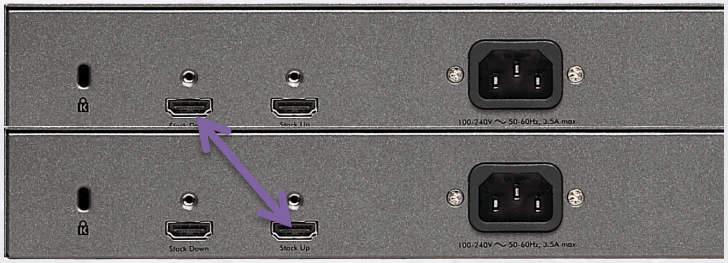
Stacking



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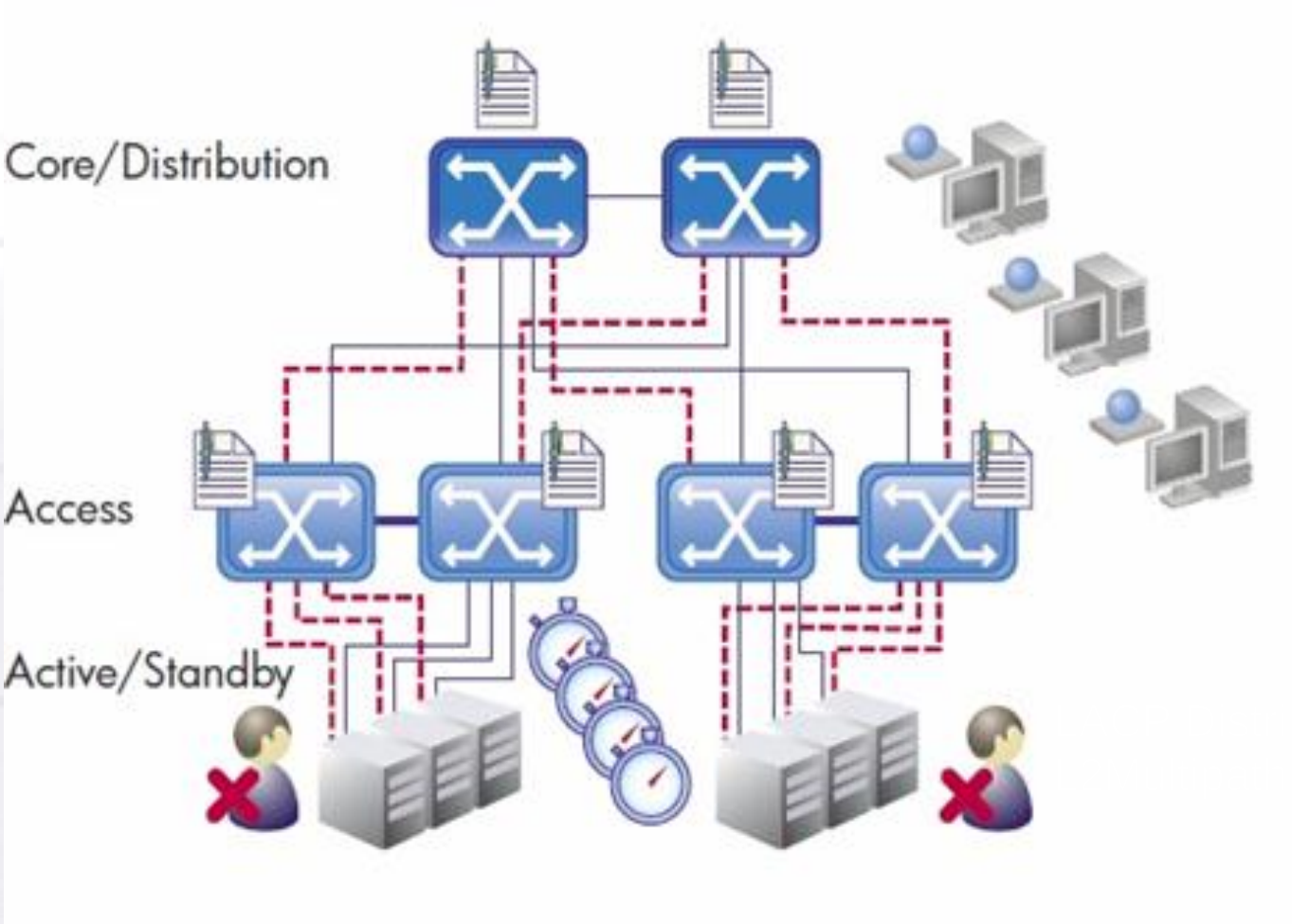
Con SPT



CON SPT

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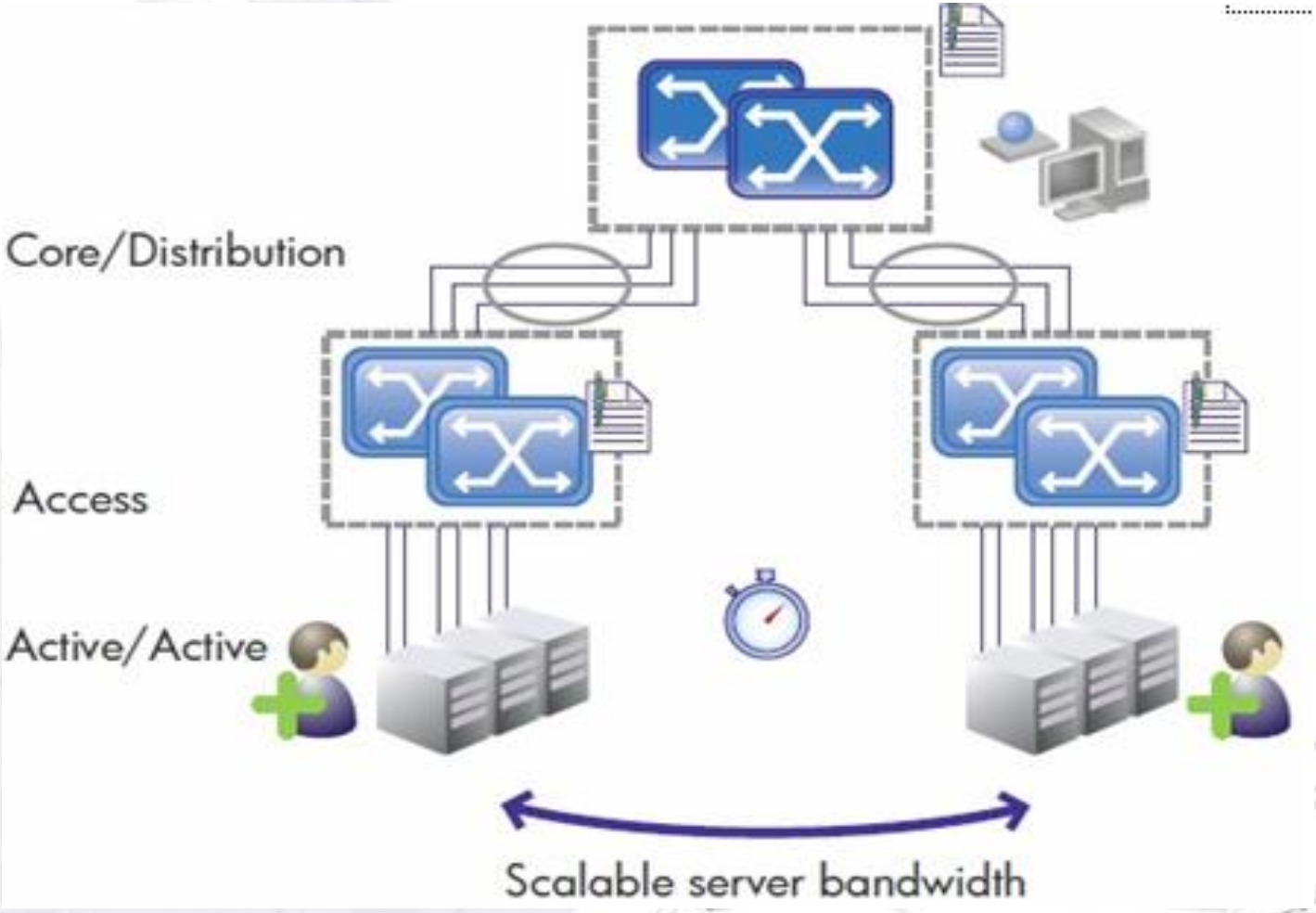
Sin PT



SIN SPT

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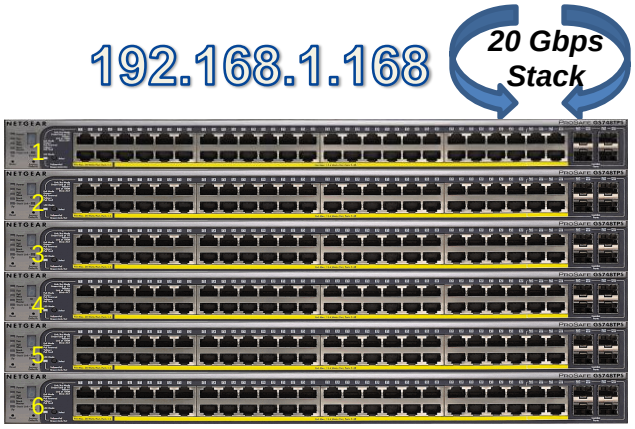
LACP

- Diferentes puertos físicos se convierten en un puerto lógico para proporcionar mayor velocidad.
- Link aggregation está definido y controlado por el standard 802.3ad

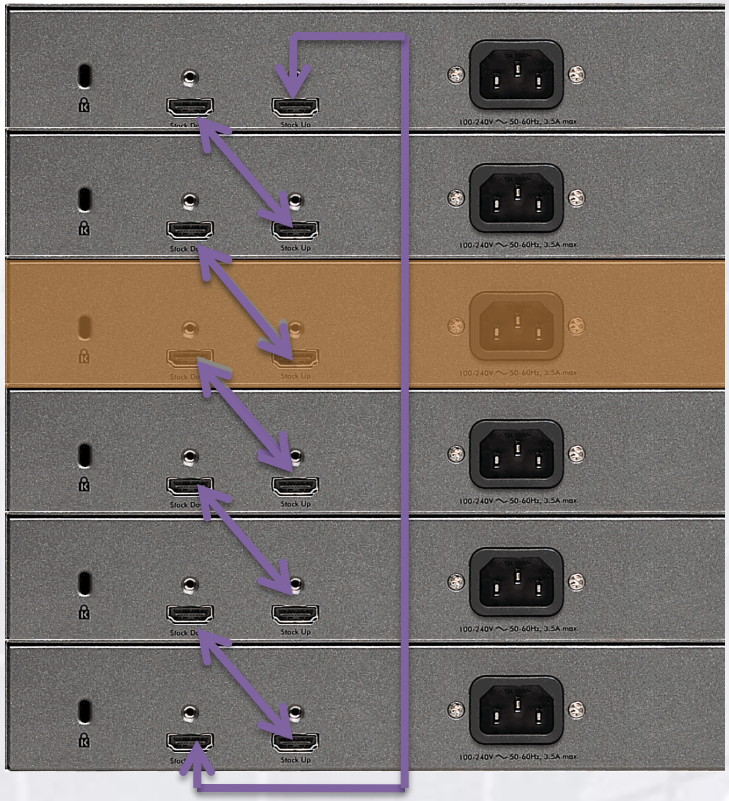
Fácil reemplazo y ampliación

AUR : Automatic Unit Replacement



6 x GS748TPS

288-Port Gigabit PoE



Si una unidad falla o se amplía la pila :

- **Se upgradea la pila automaticamente**
- **Se transmite la configuración**

Sin necesidad de configuración manual

- Sin reiniciar la pila
- Sin interrupciones

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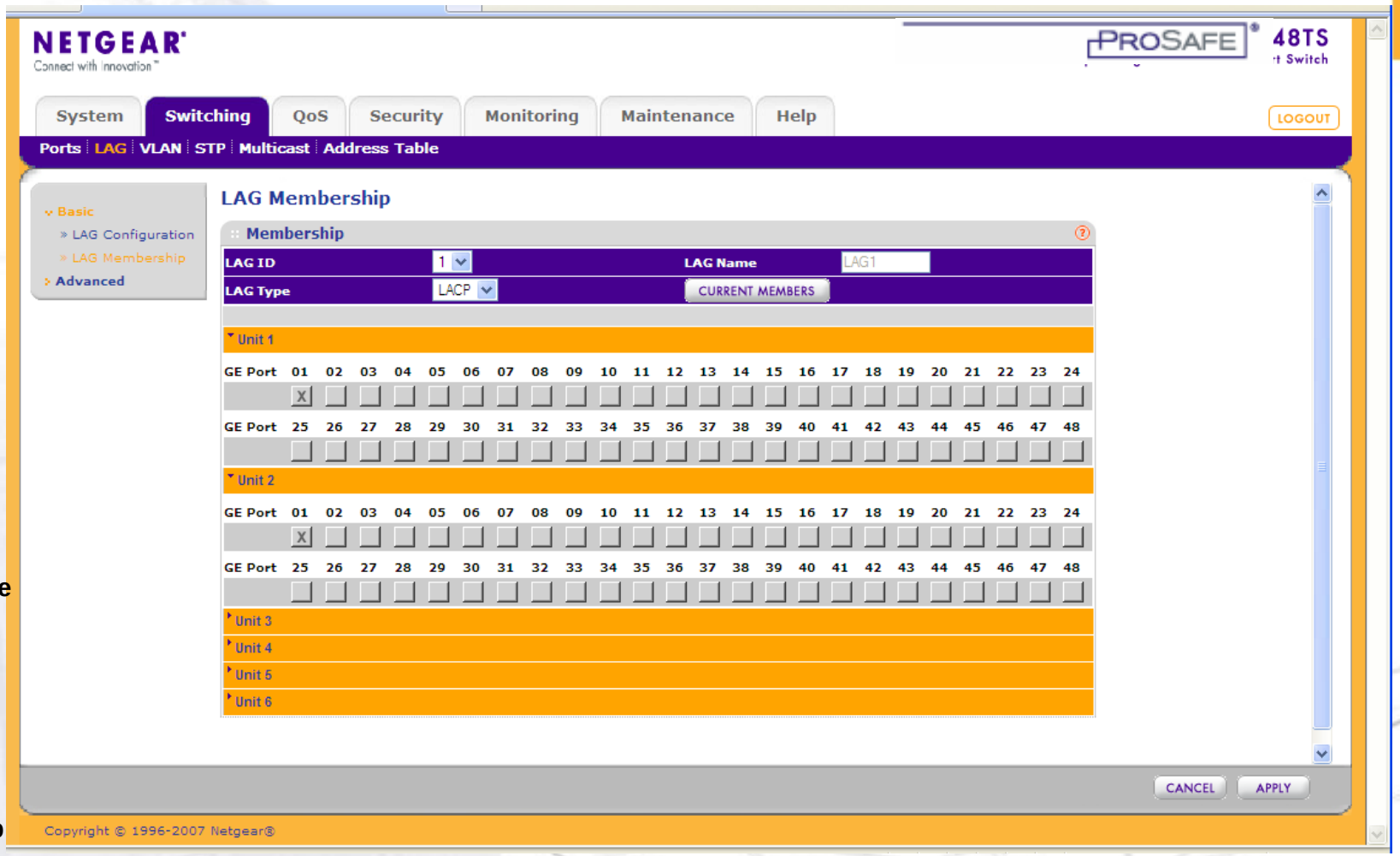
Gestión centralizada



Manage all ProSafe Gigabit Stackable Smart Switches as though they were only one unit !

ProSafe Control Center provide comprehensive management through a streamlined Web interface that eases navigation:

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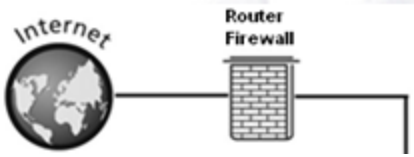
LACP – Todos los switches Smart y Gestionables

- Diferentes puertos físicos se convierten en un puerto lógico para proporcionar mayor velocidad.
- Link aggregation está definido y controlado por el standard 802.3ad

LACP + Apilamiento



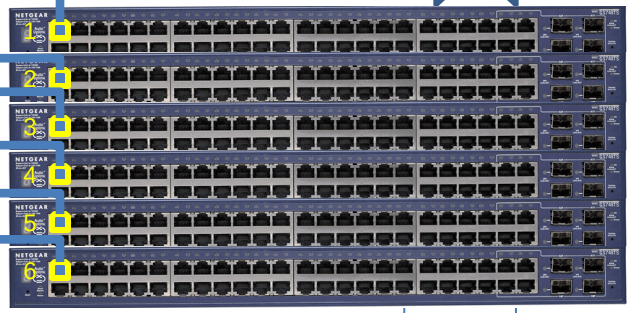
12 Gbps Trunk

Greater Performance

Better Redundancy

192.168.1.167

20 Gbps Stack



6 x GS748TS

288-Port Gigabit non-PoE

192.168.1.168

20 Gbps Stack

6 x GS748TPS

288-Port Gigabit PoE

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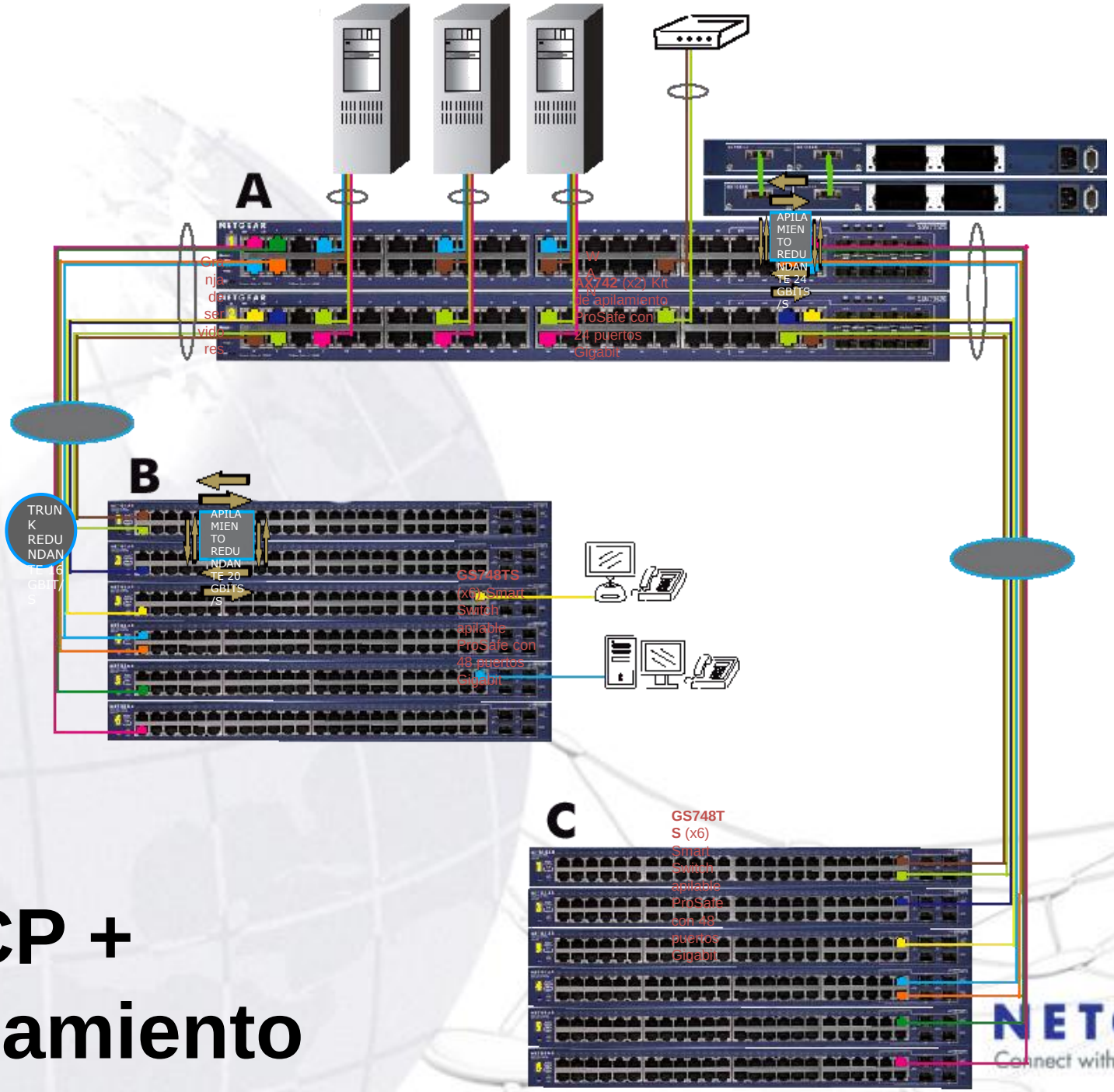

LACP + Apilamiento

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Necesidades Nuevas Redes

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Nuevo modelo

Antes:

=

Valor añadido

=

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VLAN = “Mini Switches”

VLAN 1

VLAN 2

VLAN 3

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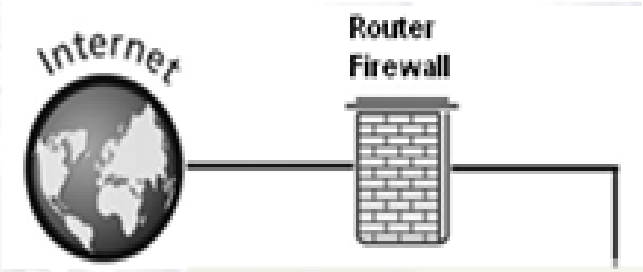
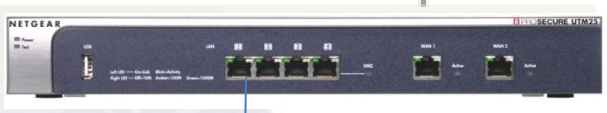
Ejemplo implementación





UTM25

1

2

3

4

5

6

GS724T

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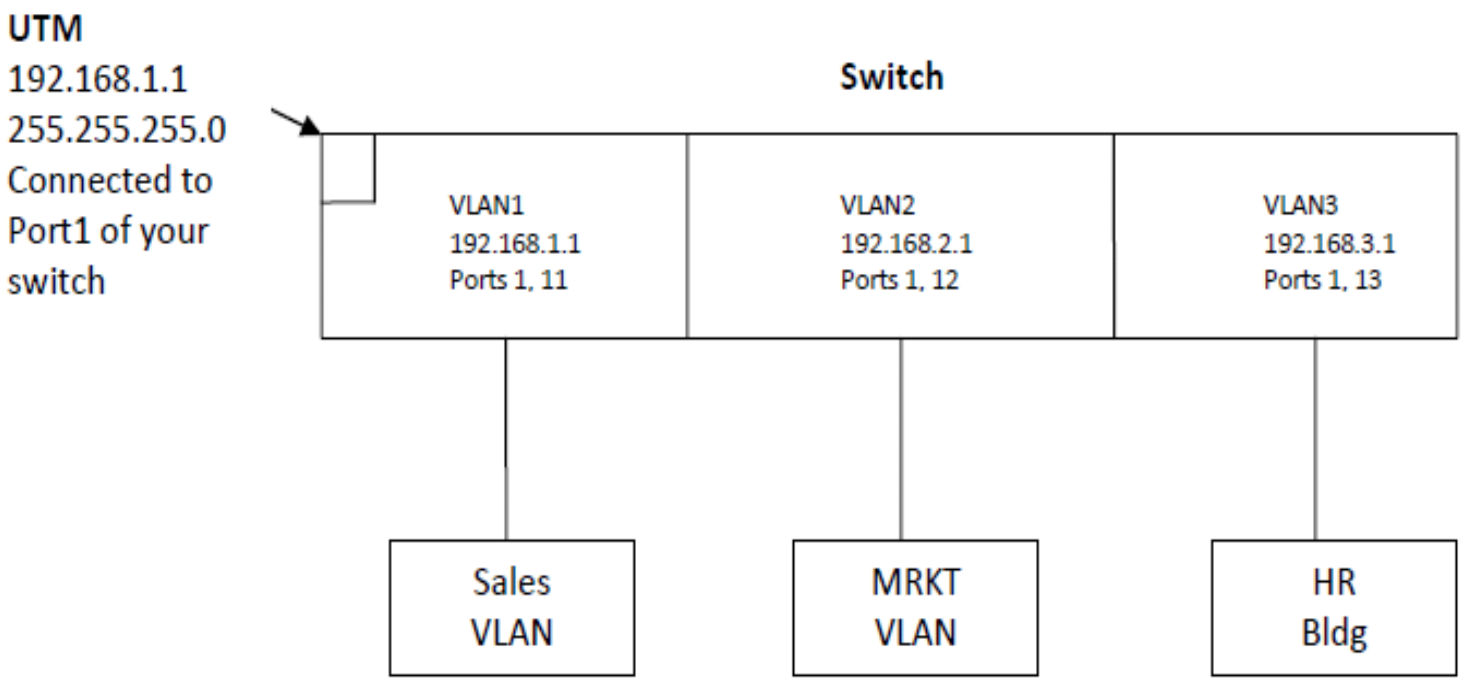
Esquema IP



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Necesidades Nuevas Redes

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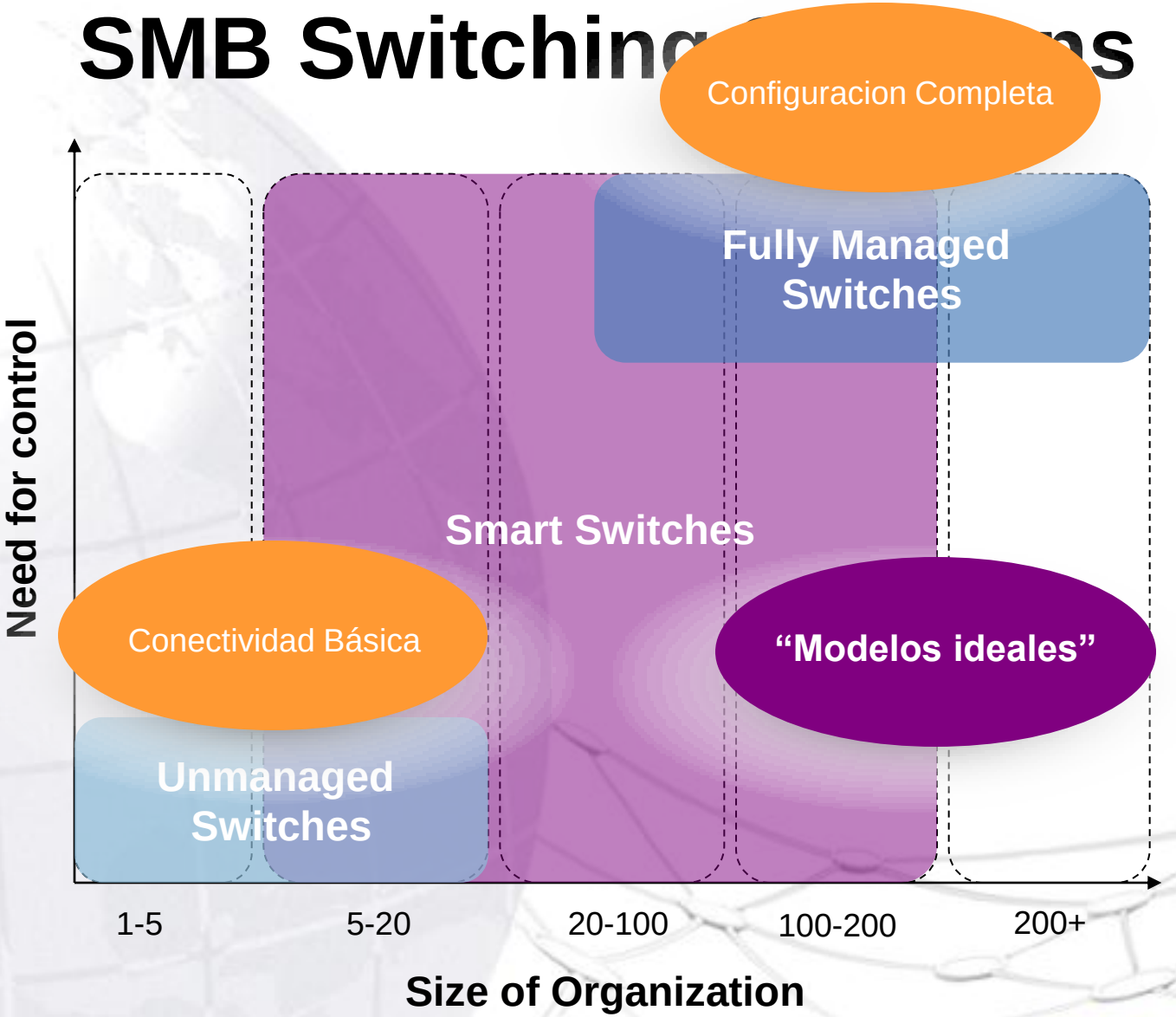
SMB Switching [illegible]ns



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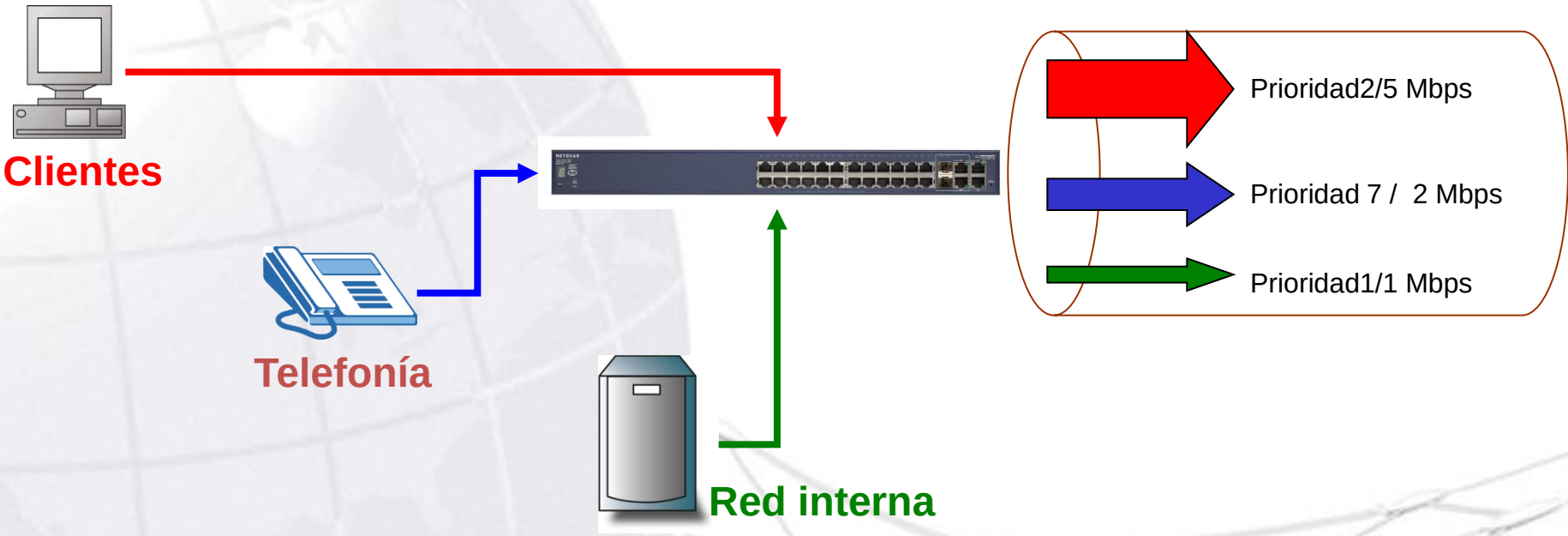
Situación ideal

- Debemos por tanto priorizar y segmentar la red



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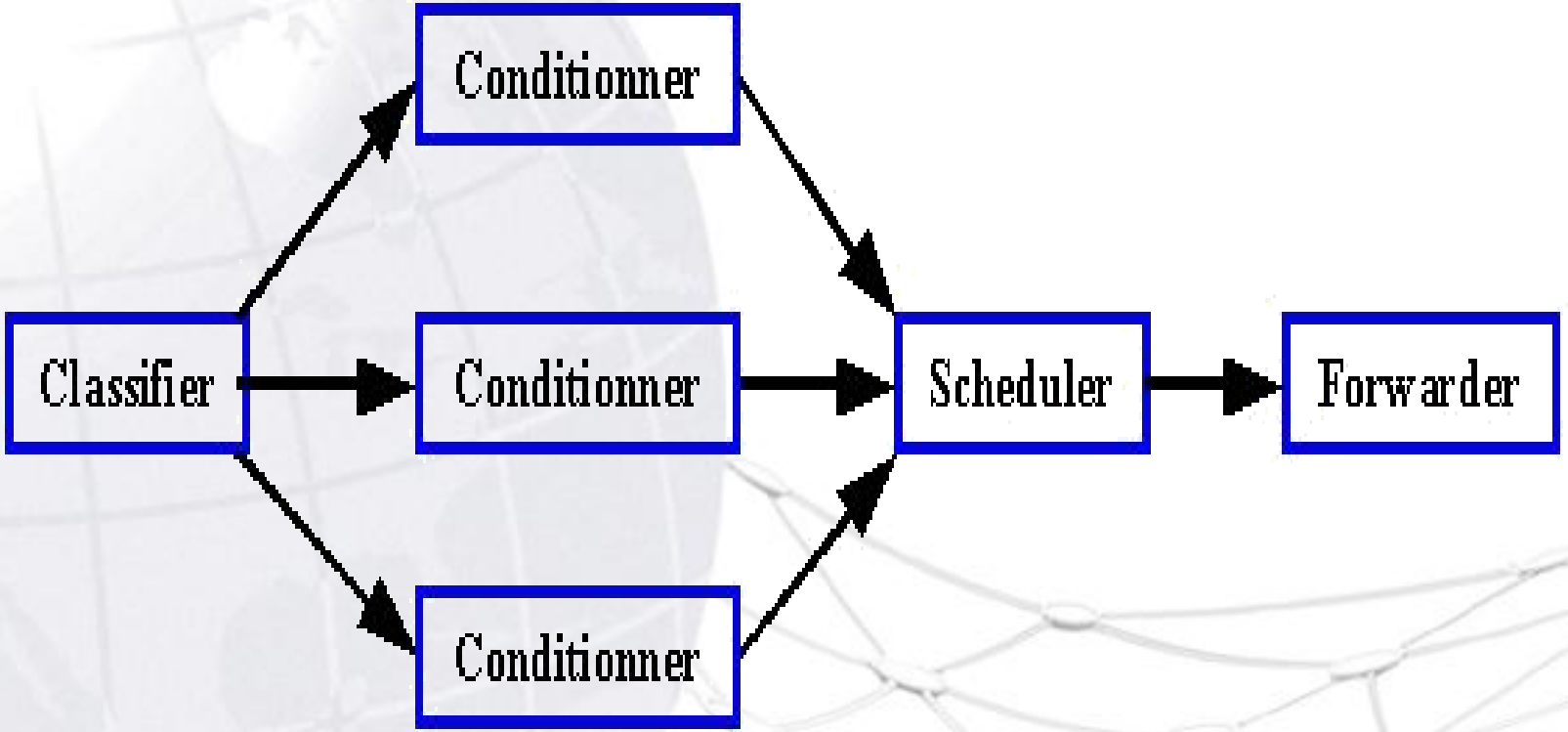
Calidad de Servicio

- QoS significa quality of service y se refiere a de que forma podemos asegurar los diferentes servicios en nuestra red
- Se está empezando a desarrollar en los últimos años debido a la convergencia de redes
- Es un conjunto de protocolos y estándares

Funcionamiento QoS



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Calidad de Servicio

- Clasificación de paquetes:
  - Nivel 1: Por puerto
  - Nivel 2: CoS
  - Nivel 3: DSCP
- Política de colas :
  - Estricta
  - Round Robin

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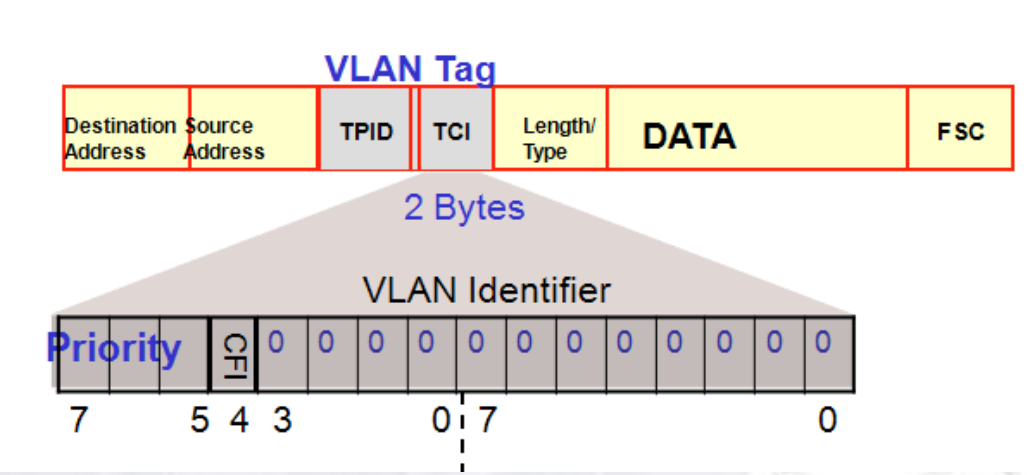
802.1p CoS

- Marcación de tramas a nivel 2
- El marcado de paquetes lo realiza el teléfono
- Se puede establecer la prioridad por puerto



Priority	Traffic Type
7 (highest)	Network management
6	Voice
5	Video
4	Controlled load
3	Excellent effort
0 (default)	Best effort
2	Undefined
1 (lowest)	Background

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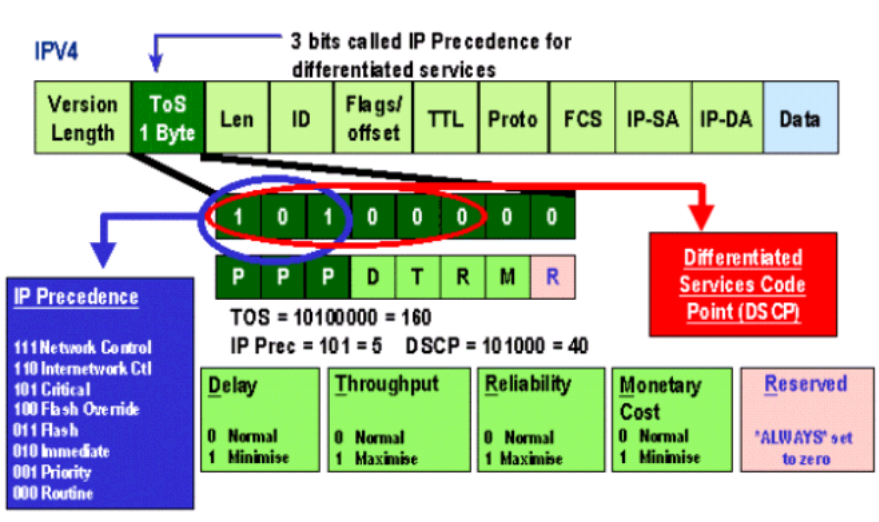
Ip Precedence/DSCP L3

- Marcado de paquetes nivel 3
- La clasificación normalmente se hace en función de parámetros como la ip origen, puerto origen puerto destino



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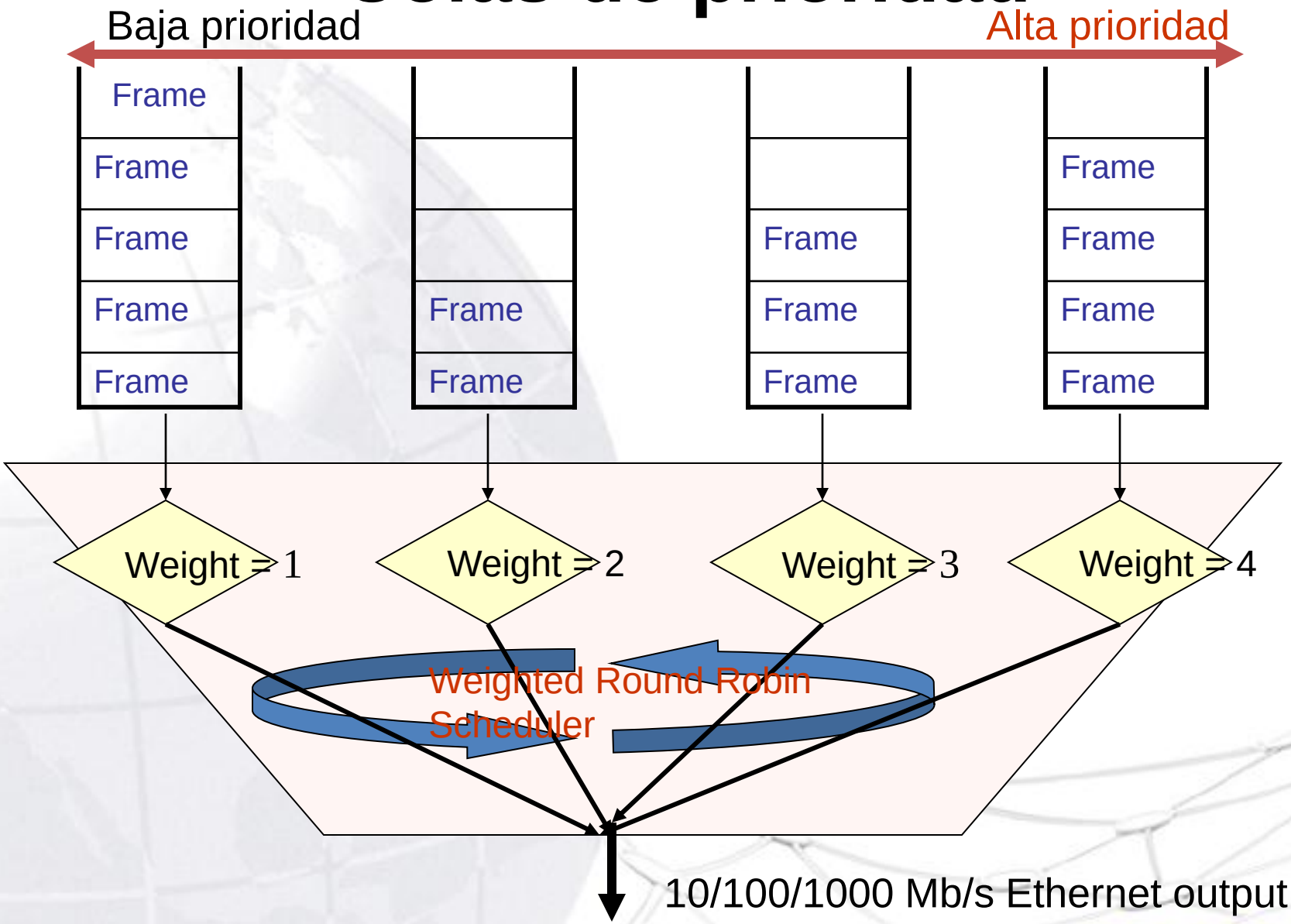
Colas de prioridad



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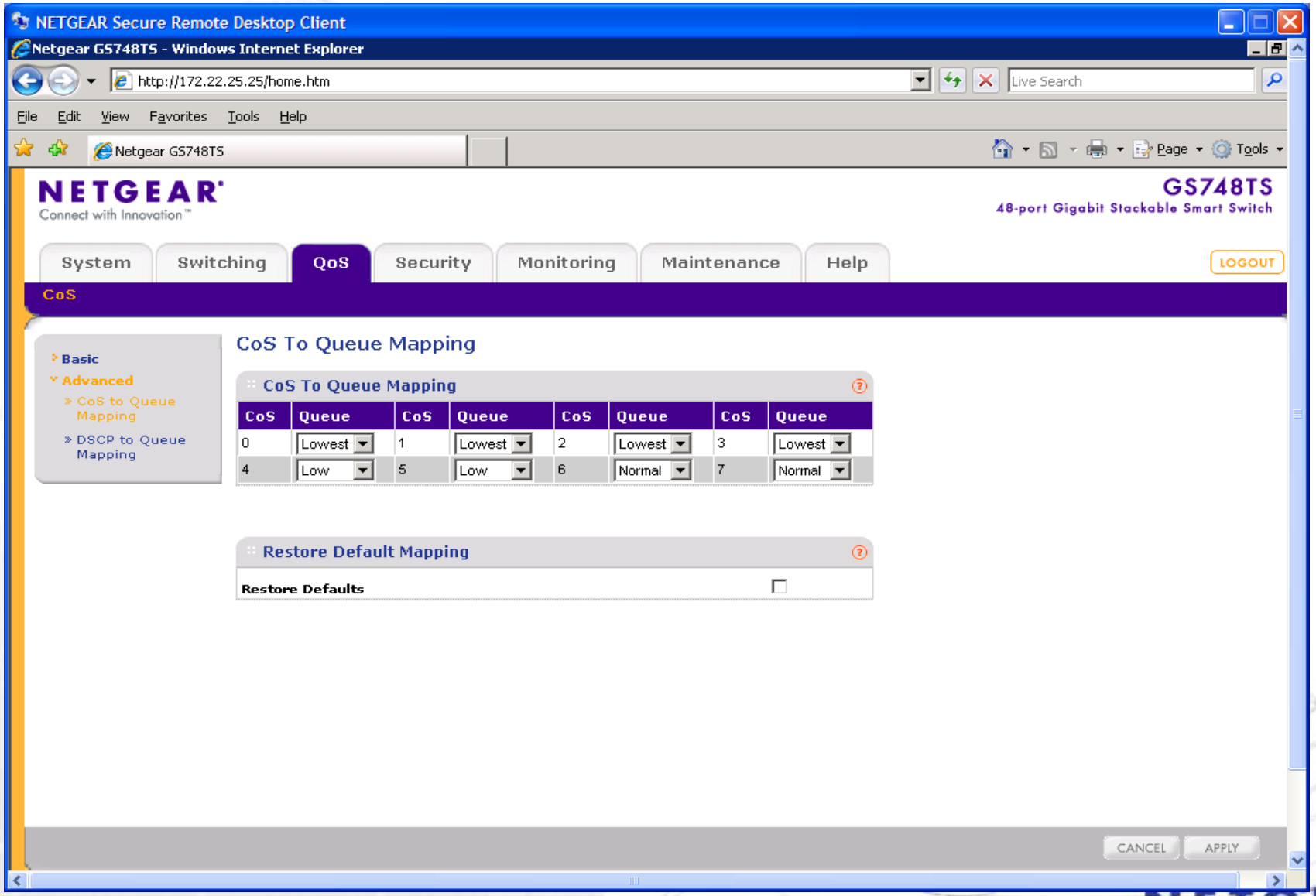

Necesidades Nuevas Redes

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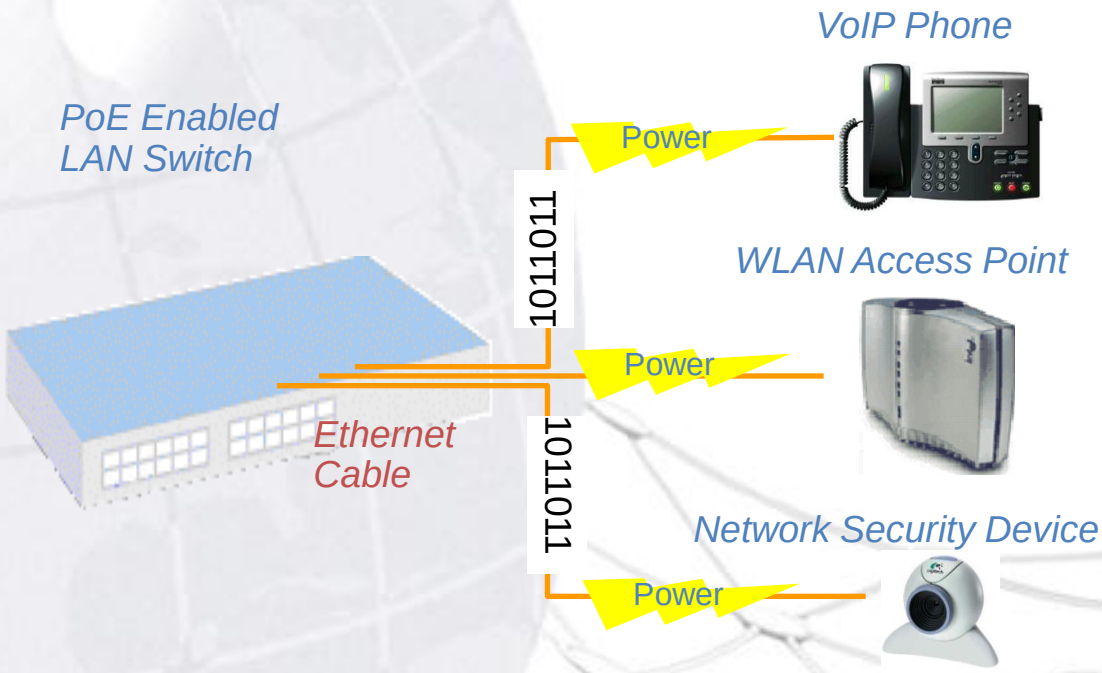
PoE Overview



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IEEE 802.3af Highlights

- PSE output: 350mA continuous, 44Vdc to 57Vdc.
- PSE continuous average output power: 15.4W min
- PD allowed consumed power: 12.95W max.

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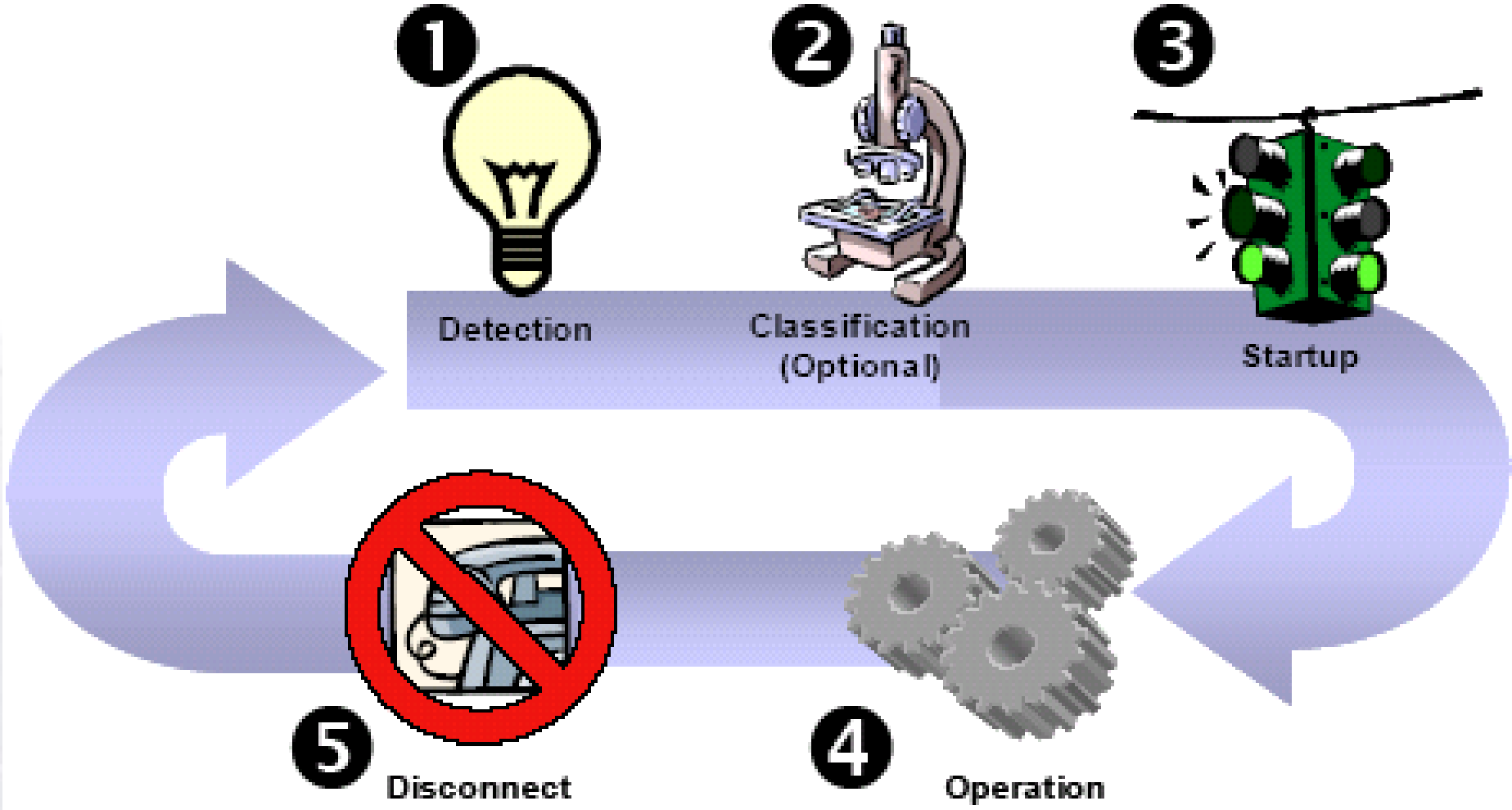
PoE Process



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PoE (IEEE802.3af) y PoE Plus (IEEE802.3at)

- PoE
  - Existe una gran demanda existente (AP, Telefonos IP, Camaras IP)
  - En 2008 los switches Gigabit PoE superaron los Fast Ethernet PoE
  - Con Gigabit PoE utilizamos todos los pares del RJ-45

- PoE Plus
  - Maxima Potencia(24W or mas) sobre CAT3 y superiores
  - IEE802.3at: Será ratificado en unos meses
  - Compatibilidad con equipos PoE
  - Utilización de ajuste de potencia mediante LLDP-MED

Aplicaciones para PoE+ -802.3at

- Wifi (Doble banda IEEE802.11n)
  - Con ancho de banda hasta 600Mbps
  - Ya existe equipamiento que soporta y requiere PoE+
- VideoVigilancia (Pan-Tilt-Zoom Cameras)
- Sistemas WIMAX
- Sistemas de Communicacion
  - Sistemas de videoconferencia
  - Video teléfonos
  - Thin clients
  - Sistemas distribuidos

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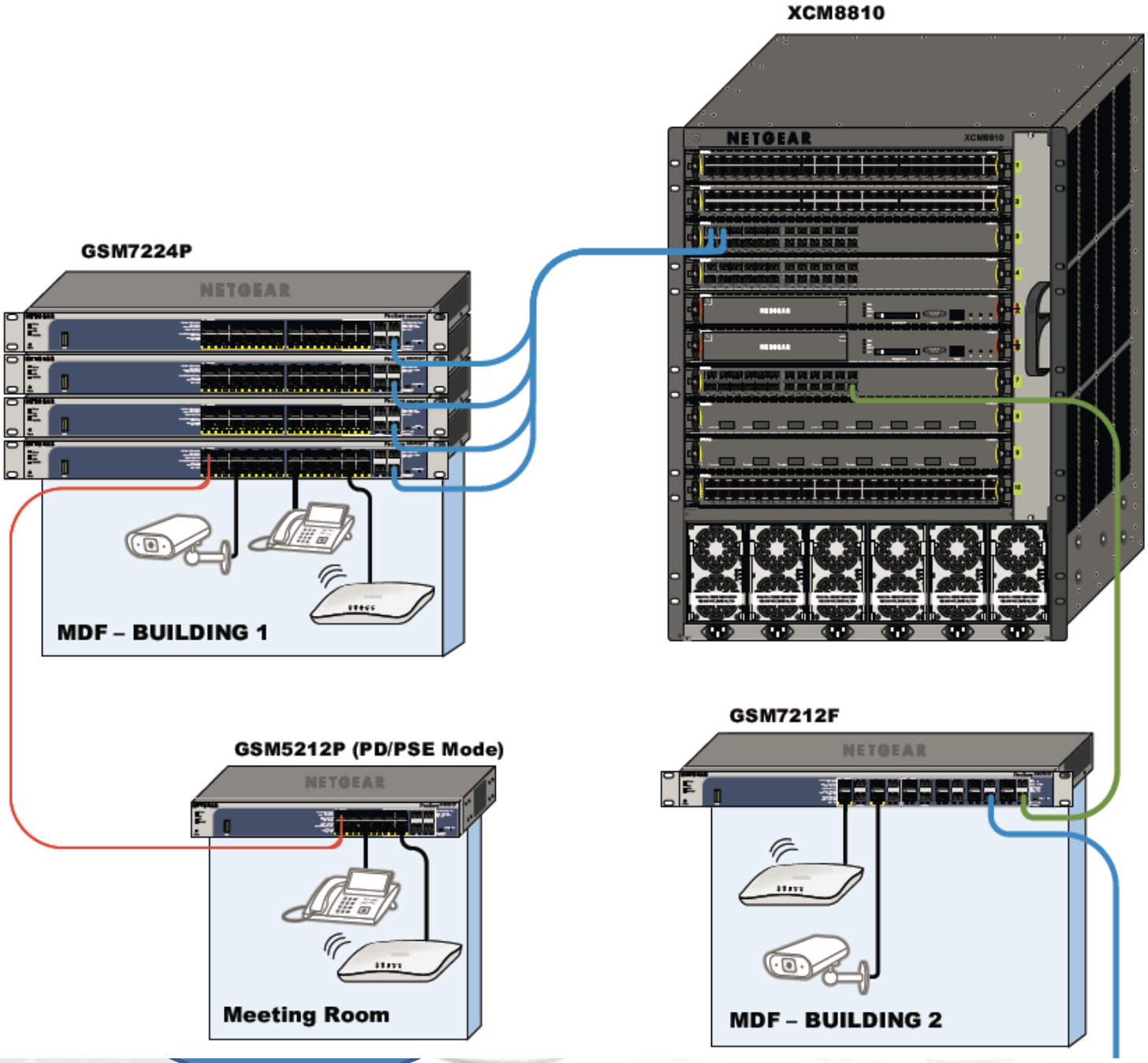
Clases de PD PoE

Class	PD Current - Classification Period [mA]	PD Power - Operation Period [W]	Note
0	0 - 4	0.44 -12.95	Default
1	9 - 12	0.44 -3.84	Optional
2	17 - 20	3.84 -6.49	Optional
3	26 - 30	6.49 -12.95	Optional
4	36 - 44	Future use	Future use


XCM8810
NETGEAR
GSM7224P
NETGEAR
MDF – BUILDING 1
GSM5212P (PD/PSE Mode)
NETGEAR
Meeting Room
GSM7212F
NETGEAR
MDF – BUILDING 2

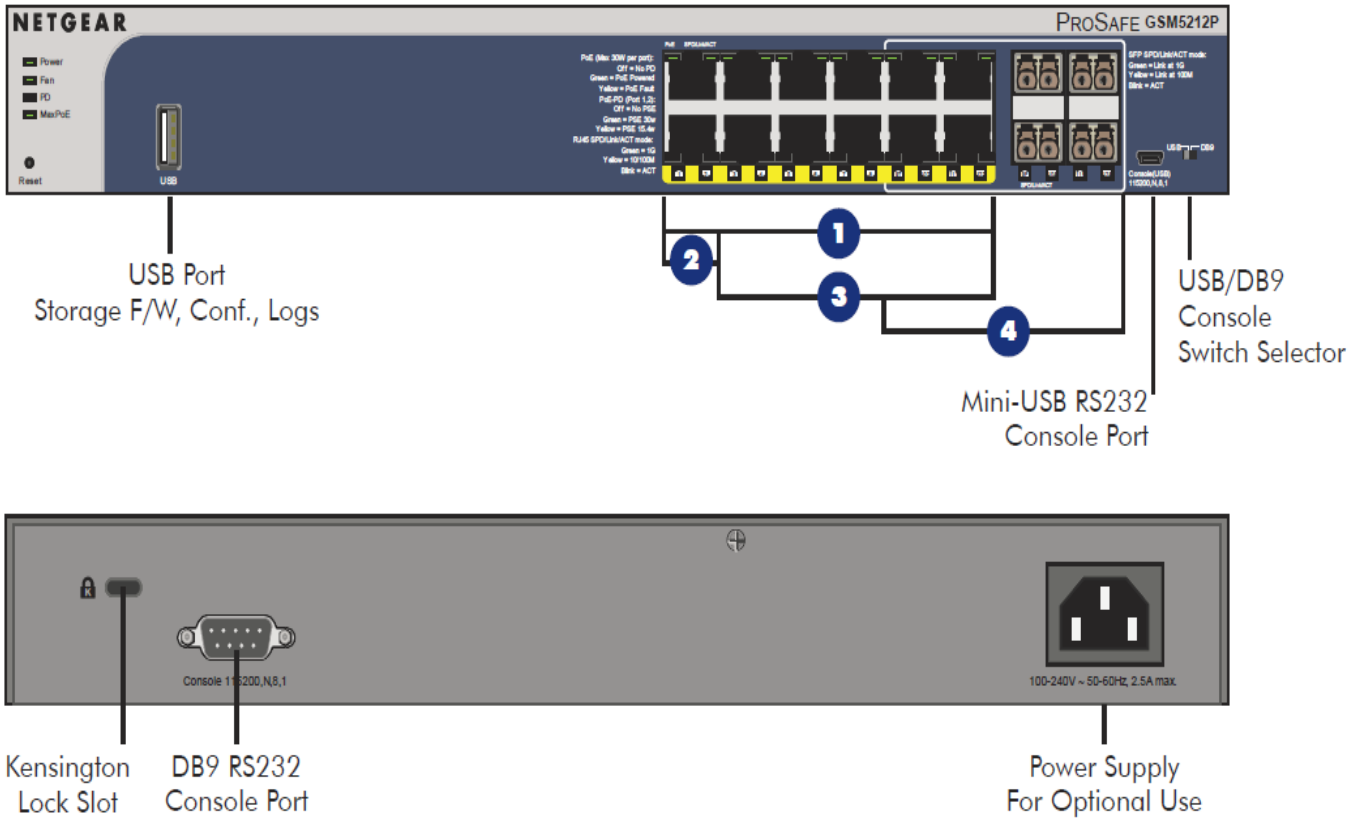
GSM5212P at a Glance

12 Gigabit Ports (RJ45) 1

2 PoE+ ports (PD – in) 2

10 PoE+ ports (PSE – out) 3

4 Combo SFP Ports 4



- **Switch Managed**
- **Layer 2+**
- **12 puertos activos con 4 SFP**

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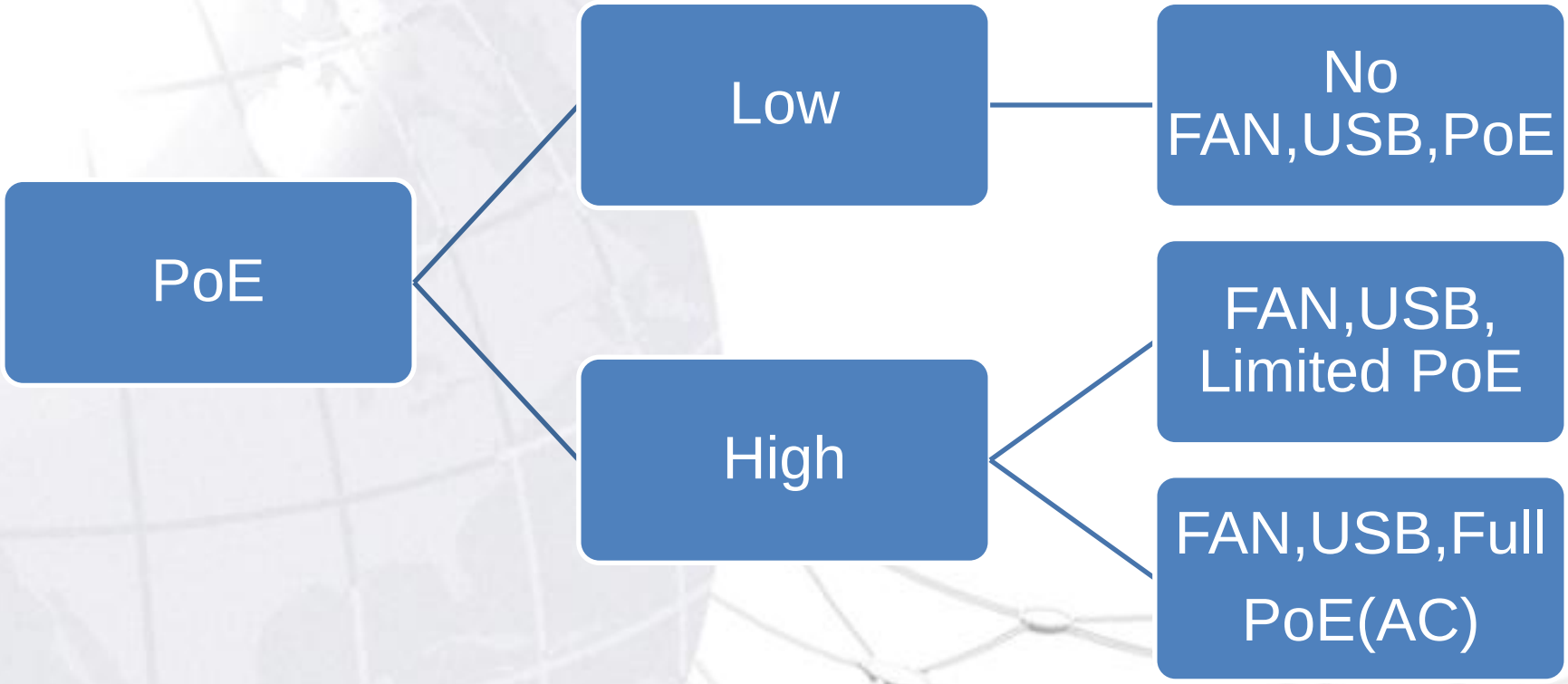
Modos Trabajo



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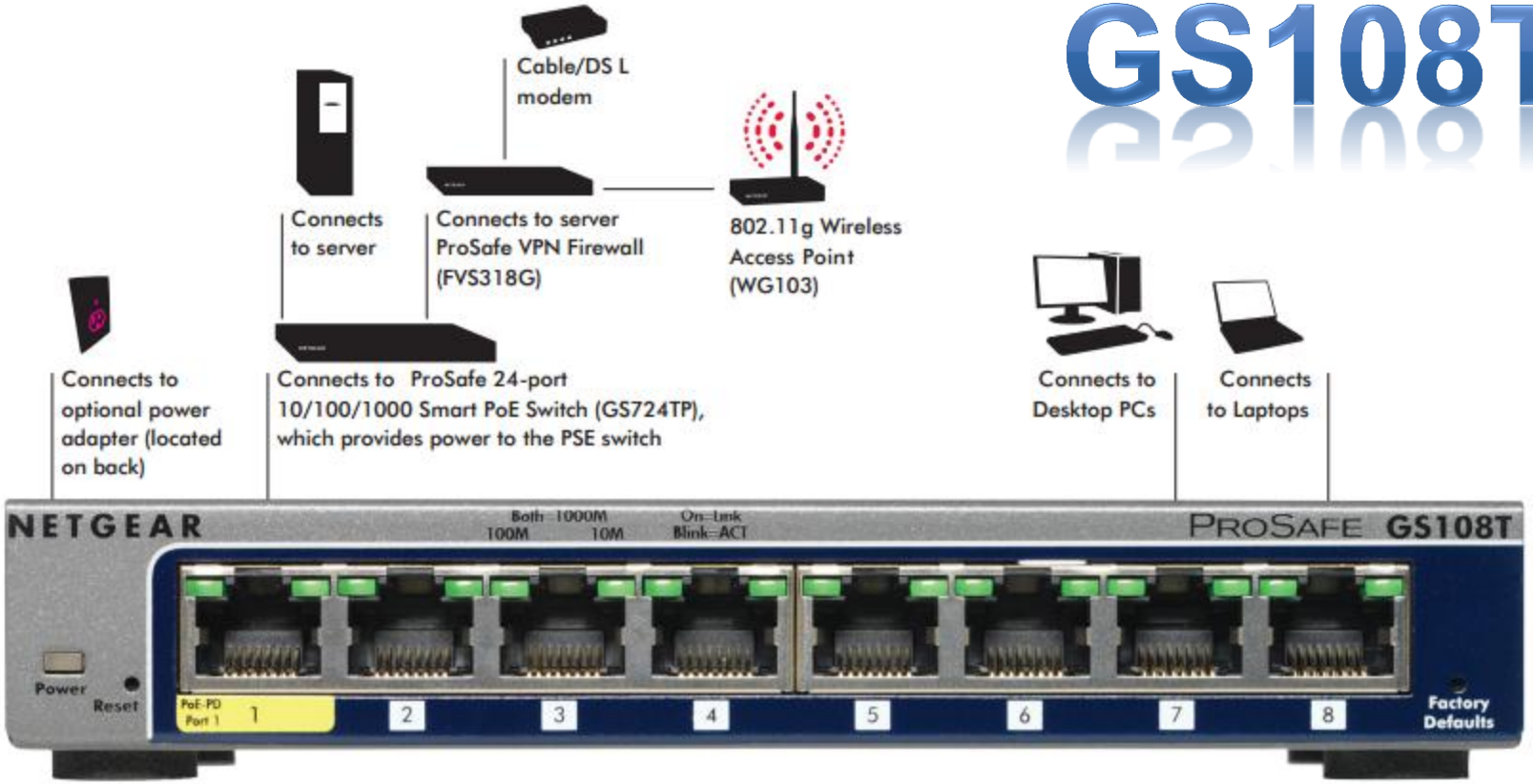
Sistemas de Alimentación

Powering Options	PoE Input for PD Ports	Functionality	PoE Budget (output) for PSE Ports
PoE Pass-Through (No AC Power)	PD Port 1: 15.4W input	• Low-power mode • SFP ports, fans, USB ports not operational	-
	PD Port 1: 30W input	• High-power mode • All functions operational	-
	PD Port 1:15.4W input PD Port 2:15.4W input	• Low-power mode • SFP ports, fans, USB ports not operational	Up to 13W Port 3 through 12
	PD Port 1: 30W input PD Port 2:15.4W input	• High-power mode • All functions operational	Up to 13W Port 3 through 12
	PD Port 1: 30W input PD Port 2: 30W input	• High-power mode • All functions operational	Up to 22W Port 3 through 12
AC Power (Power Supply)	-	• High-power mode • All functions operational	Up to 125W Port 3 through 12

GS108T



- Switch Smart 8 puertos Gigabit
- Alimentable por PoE
- VLAN y QoS

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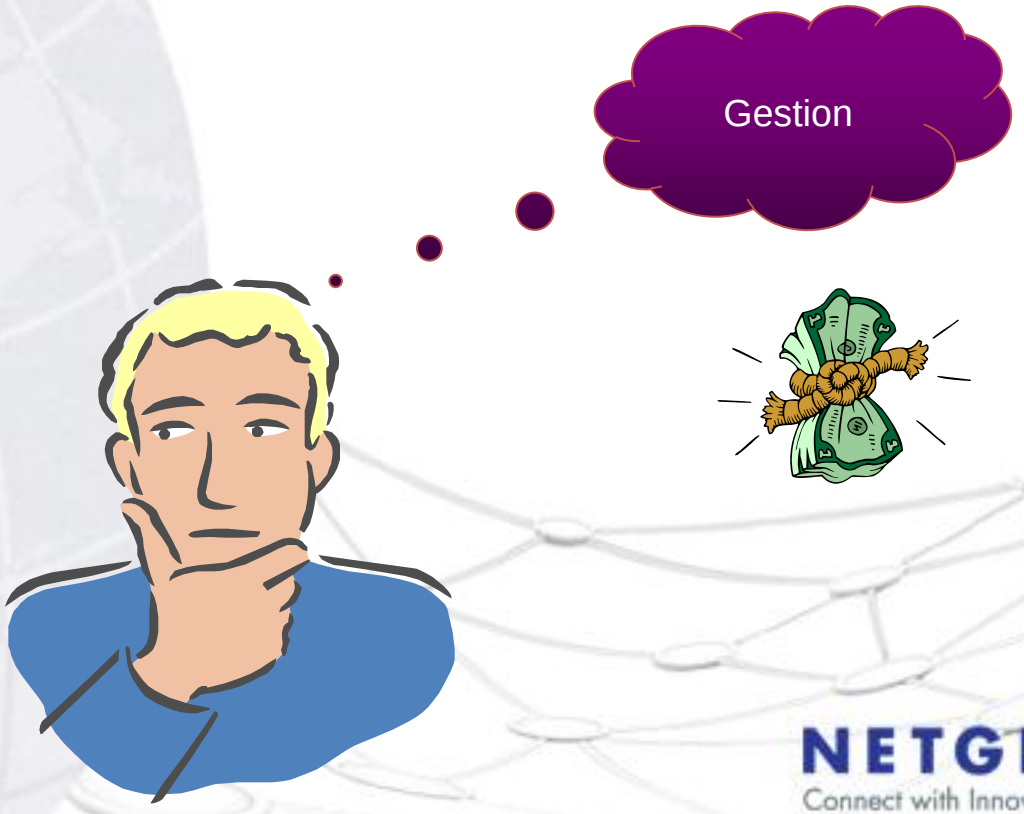
Requerimientos Implantacion



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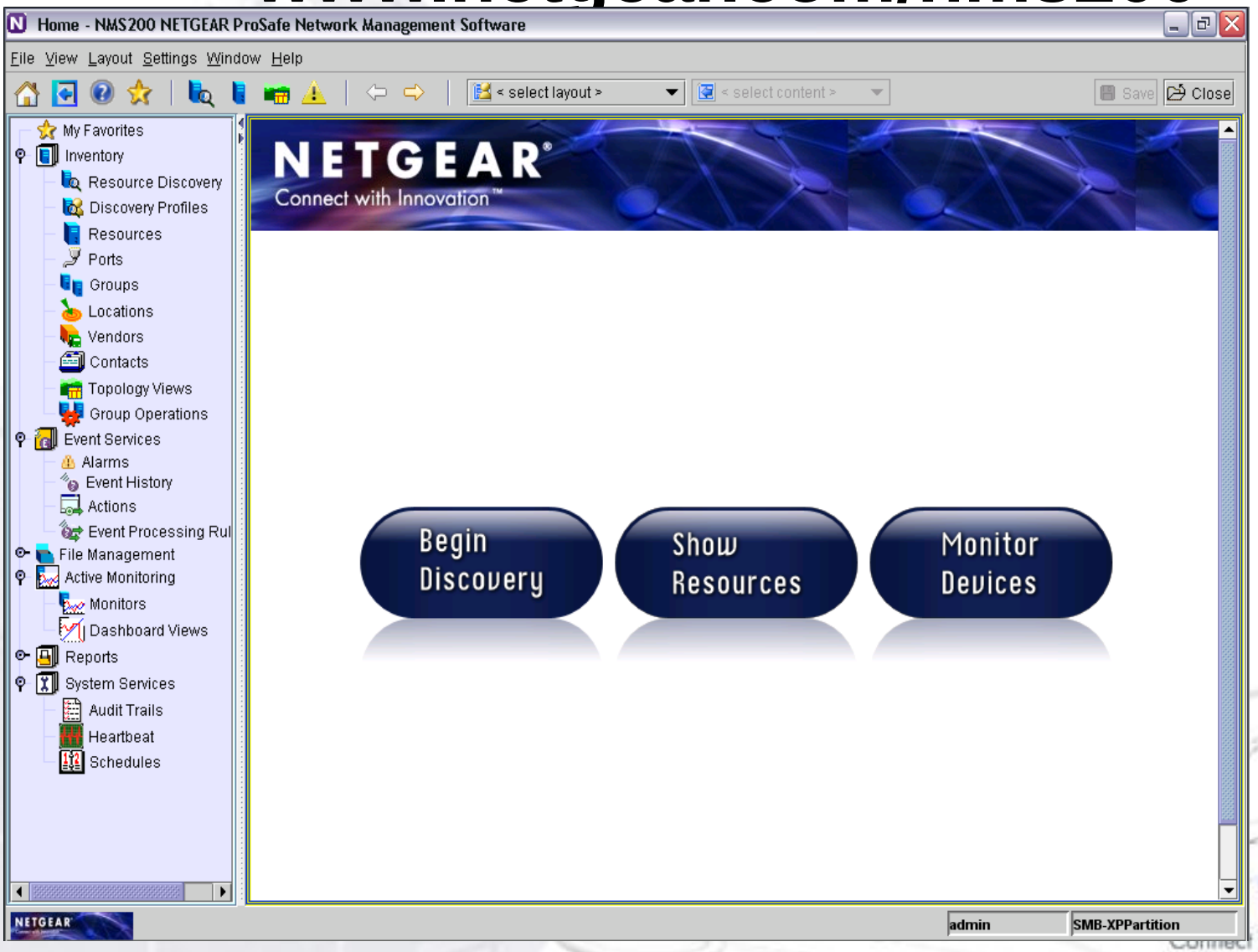
NMS200
www.netgear.com/nms200



NMS200

DESCUBRE

- Descubre los diferentes de red
- Soporta diferentes protocolos

CONFIGURA

- Configuracion centralizada
- Programacion de upgrade de firmware
- Acceso directo por CLI o GUI a los equipos

MONITORIZA

- Posibles cambios de infraestructura
- Programacion de alarmas

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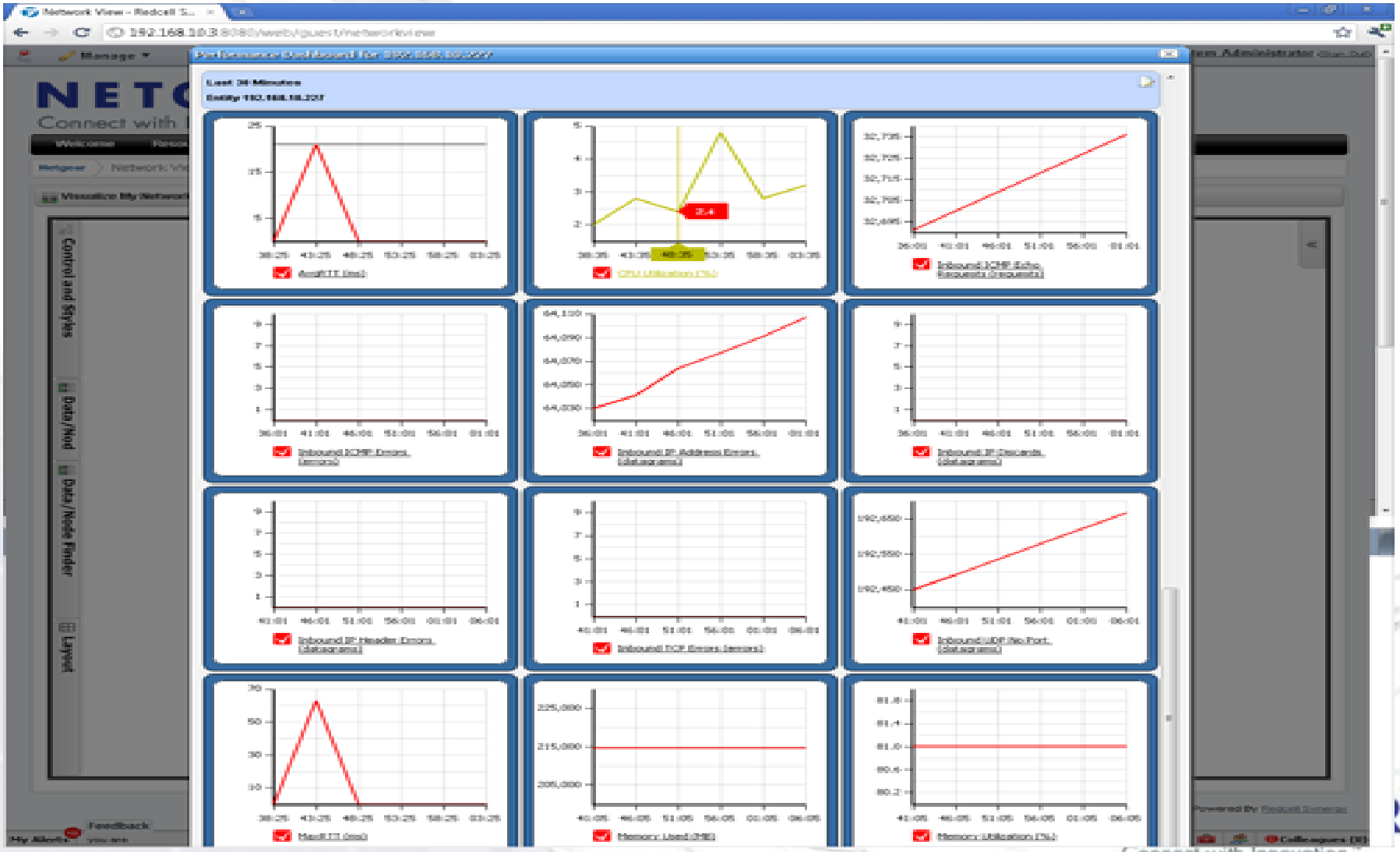
Monitorizacion NMS200



Implementacion Redes Convergentes

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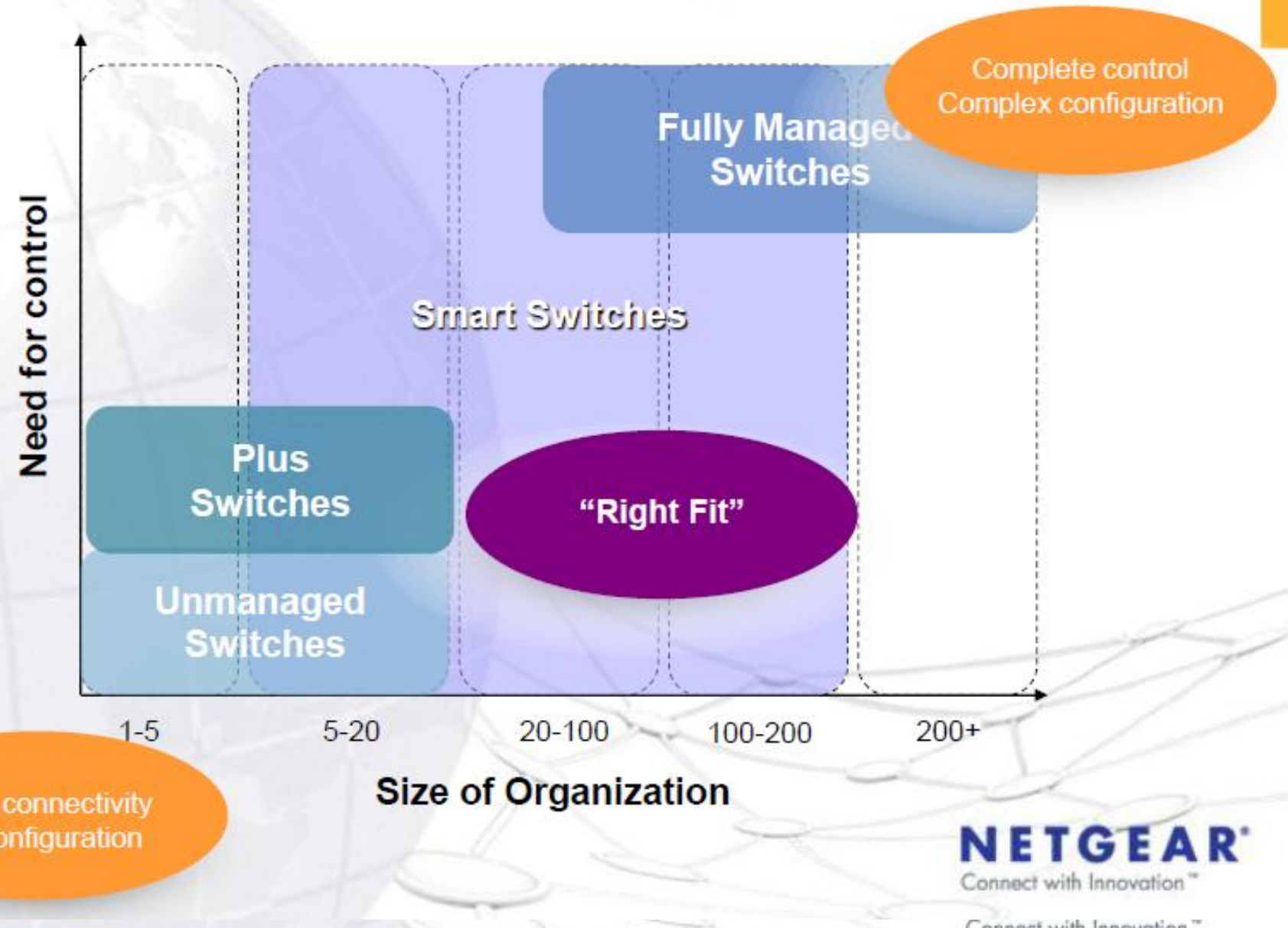
Business Switching Solutions



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Business Switching Solutions

Fixed port

Modular switches

Features / Availability

Unmanaged Switches

- Basic connectivity

Plus Switches

- More control

Smart Switches, Commodity

Right fit for SMBs

- Security, QoS

Fully Managed L2+

Scalability

- Intelligent Edge

Fully Managed L3

Distribution

- Performance

Chassis L3

Core

- Critical applications

20 – 50

50 - 250

250 - 500

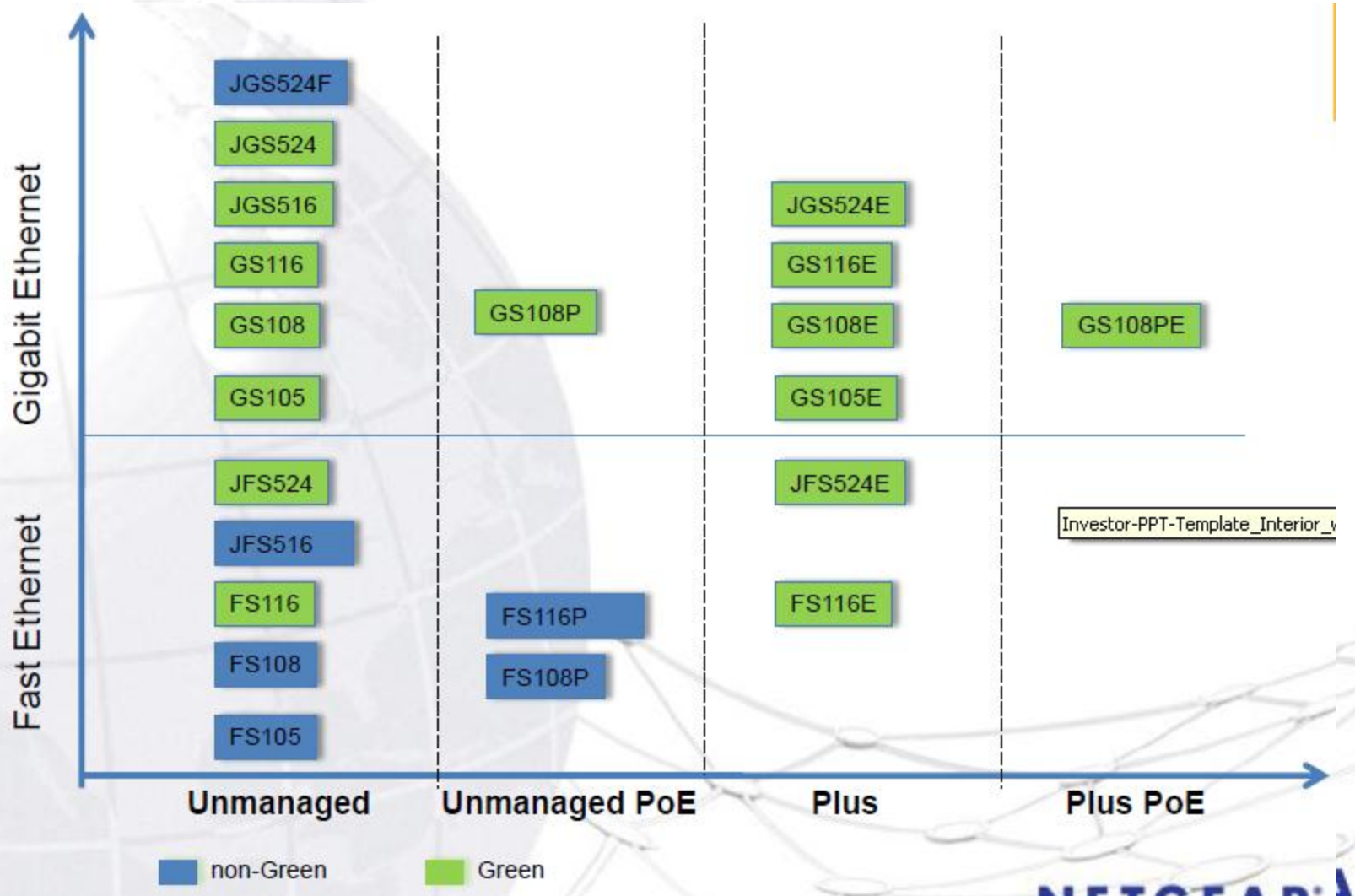
500 - 1000

# of Users

PROSAFE™

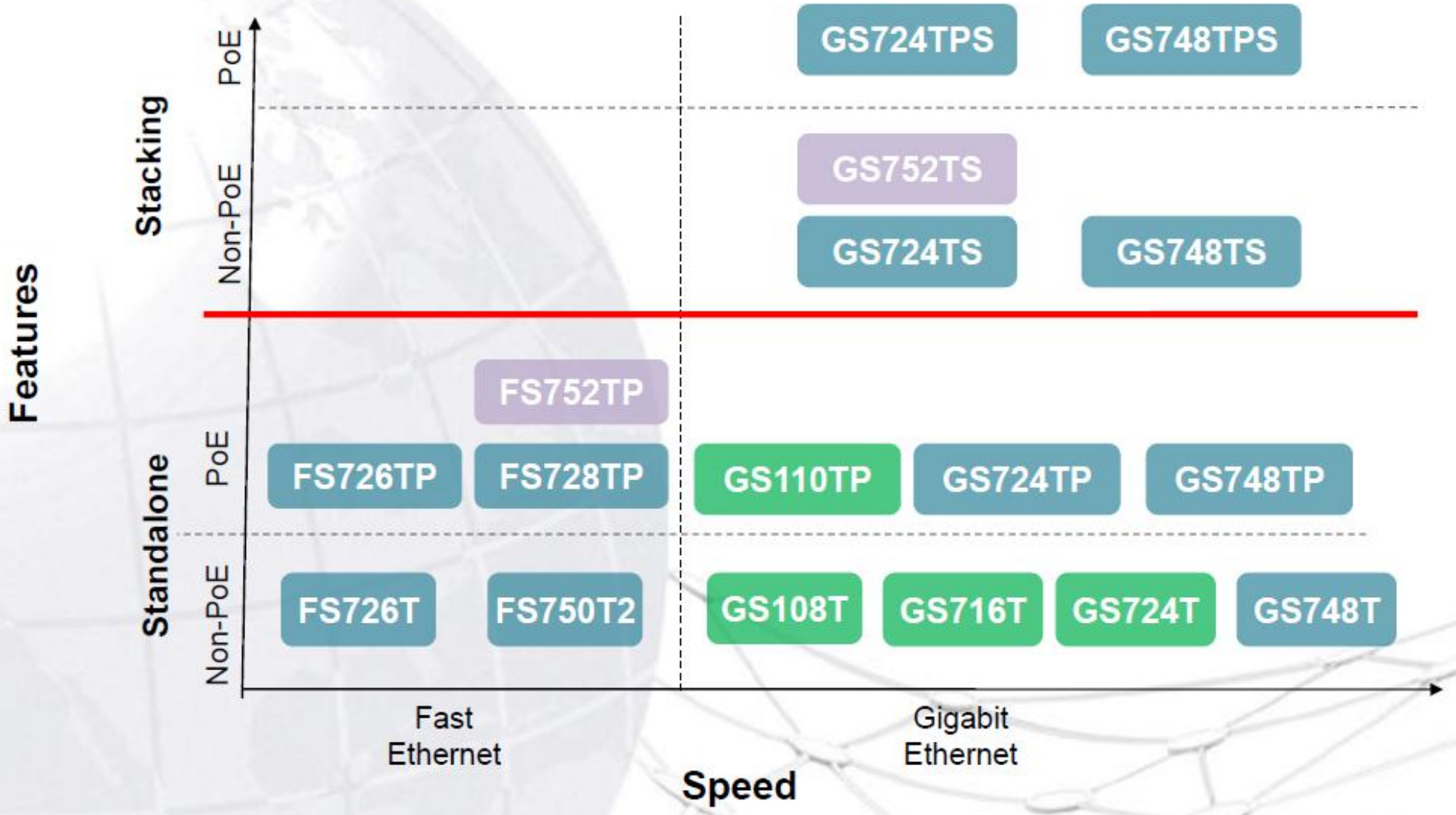
NETGEAR®
Connect with Innovation™

Unmanaged/Plus



Connect with Innovation™

Smart


Features
Stacking
PoE
Non-PoE
GS724TPS
GS748TPS
GS752TS
GS724TS
GS748TS
Standalone
PoE
FS752TP
FS726TP
FS728TP
GS110TP
GS724TP
GS748TP
Non-PoE
FS726T
FS750T2
GS108T
GS716T
GS724T
GS748T
Fast Ethernet
Gigabit Ethernet
Speed

Managed

Core

XCM8810 and XCM8806

Stack 8 switches – 384 ports (GE) + 16 ports (10 GE)

Layer 3

PoE

GSM7228PL

License

GSM7252PL

License

Non-PoE

GSM7328S

GSM7352S

GSM7328FS

XSM7224L

License

Intelligent Edge

Layer 2+

PoE

GSM7228PS

GSM7252PS

Simple Access

Non-PoE

FSM726

Layer 2 only

GSM7224

GSM7248

T.O.R Server Edge

XSM7224S

Fast Ethernet

Gigabit Ethernet

10Gigabit Ethernet

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Products Highlights

- PoE pass-through
- 4 SFPs
- 125W with PSU

- 360W Full Power
- 12x30W
- 4 SFP

Desktop 12-p PoE+

Rack 12-p PoE+

GSM5212P

GSM7212P

Gigabit L2+ VLAN routing

GSM7224P

Rack 24-p PoE+

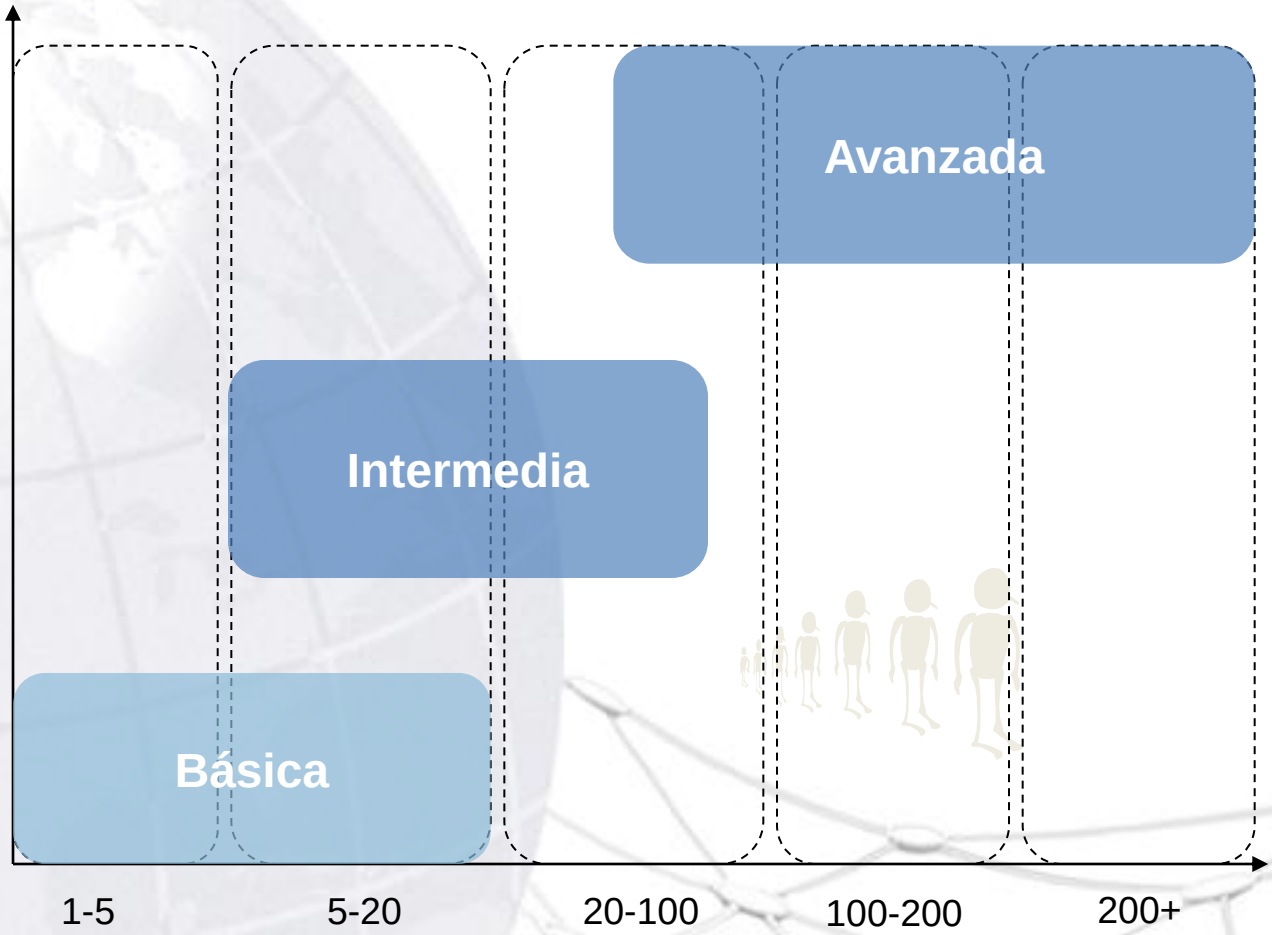
Rack 12-p Fiber

GSM7212F

- 384W (24x16W)
- External power for 720W Full Power

- 12 SFP combo
- 4-p PoE+
- 120W Full Power

Segmentacion LANs : Soluciones



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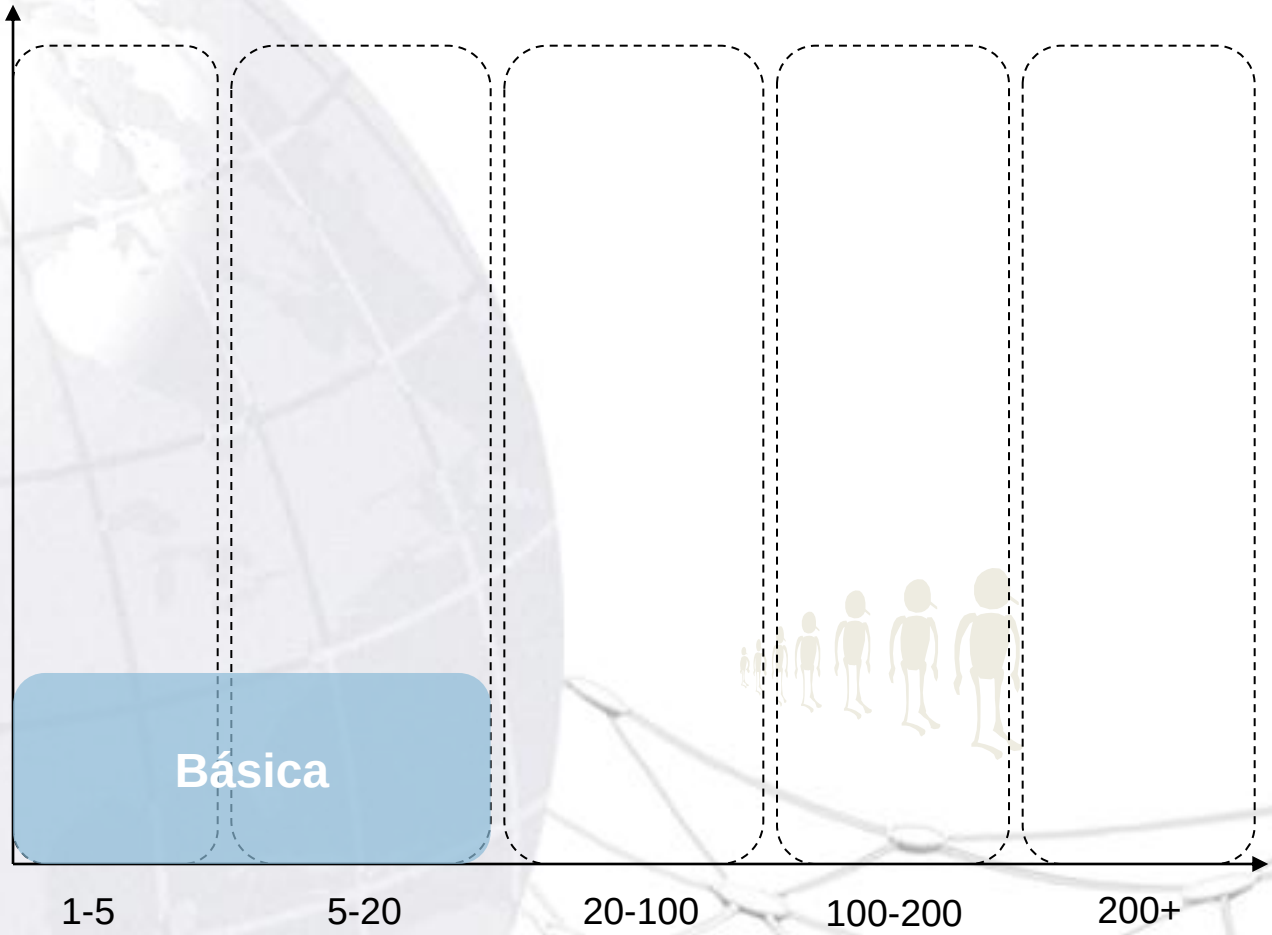
Segmentacion LANs : Soluciones



NETGEAR
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Equipamiento

- Switch :
  - ProSAFE Plus
  - Smart Switch

- Router Firewall (sin VLANs):
  - FVS318G
  - FVS336G/FVS318G/FVX538
  - Cualquier otro router

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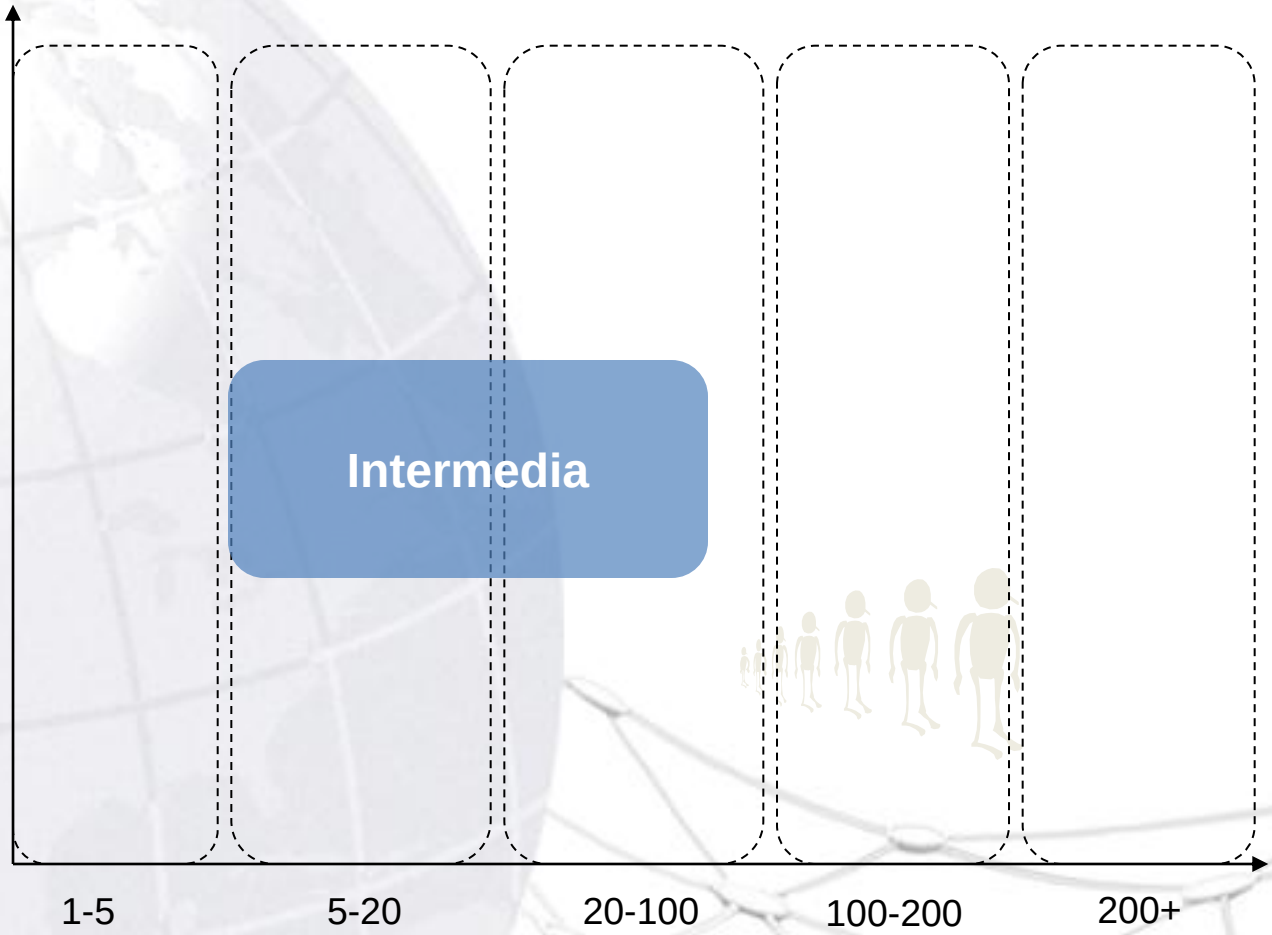
Segmentacion LANs : Soluciones



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Equipamiento

- Switch :
  - Smart Switch

- Router Firewall (con VLANs):
  - UTM 5/10/25/50/150
  - SRX5308

NETGEAR
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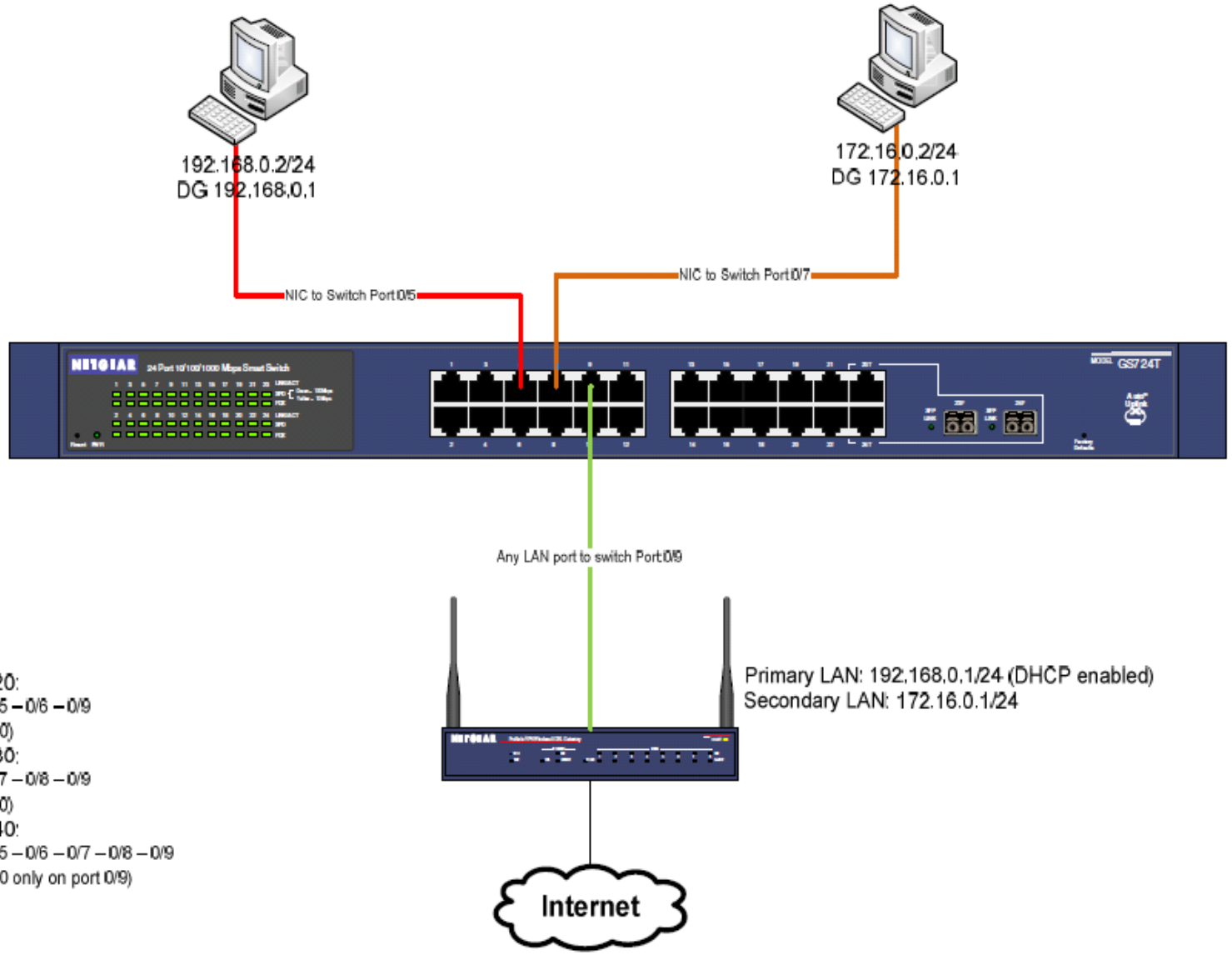

VLAN20:
Ports 0/5 – 0/6 – 0/9
(PVID 20)
VLAN30:
Ports 0/7 – 0/8 – 0/9
(PVID 30)
VLAN40:
Ports 0/5 – 0/6 – 0/7 – 0/8 – 0/9
(PVID 40 only on port 0/9)

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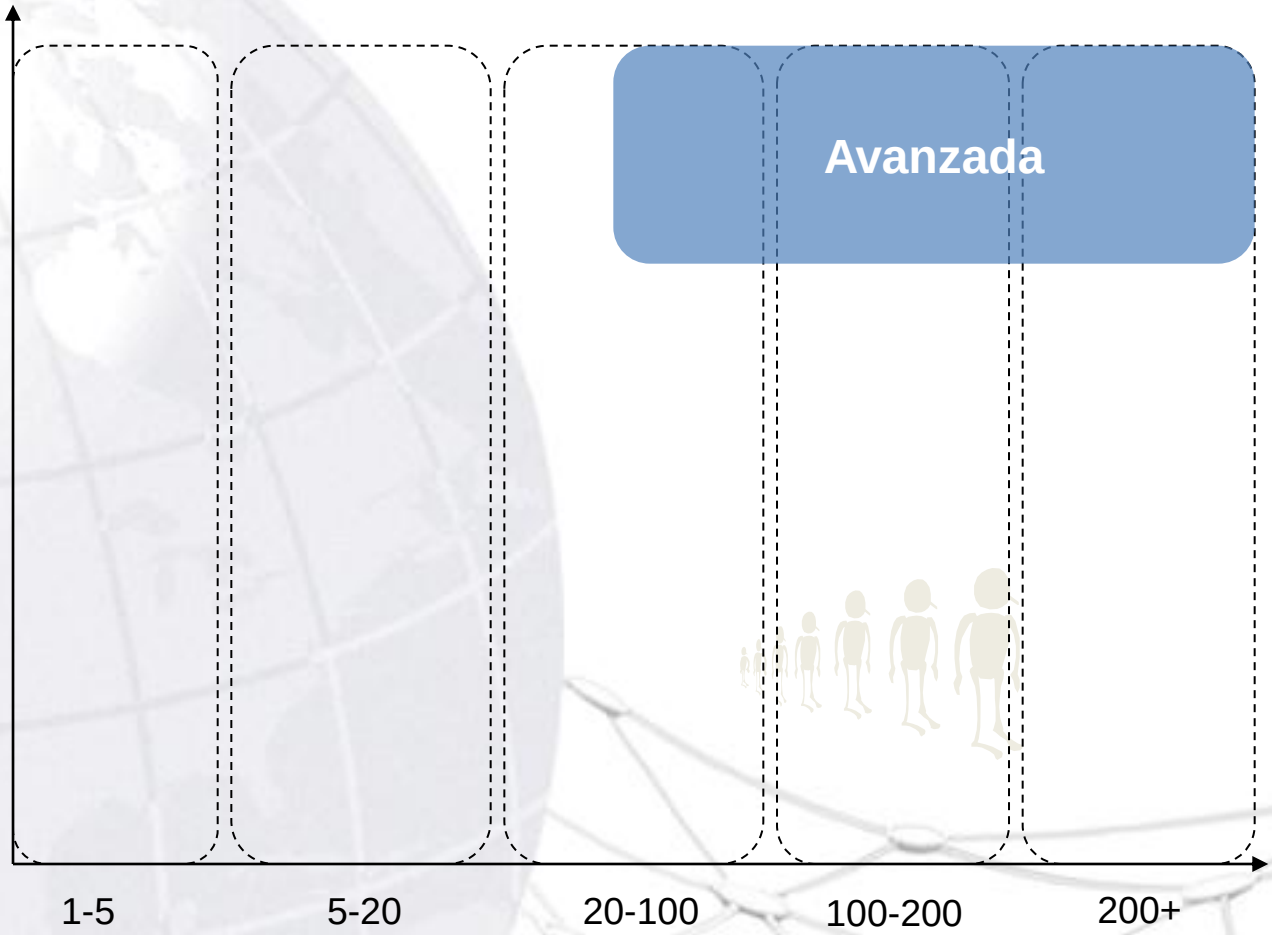
Segmentacion LANs : Soluciones



NETGEAR
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Equipamiento

- Switch :
  - Smart Switches
  - Managed Switch

- Switch Capa 3
  - GSM7224/GSM7352S
  - GSM7352S

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- Typical Mid-sized

- Inter-VLAN traffic handled by Router
- Inefficient use of Router – LAN and WAN traffic
  - Slow
  - Expensive

Tendencias

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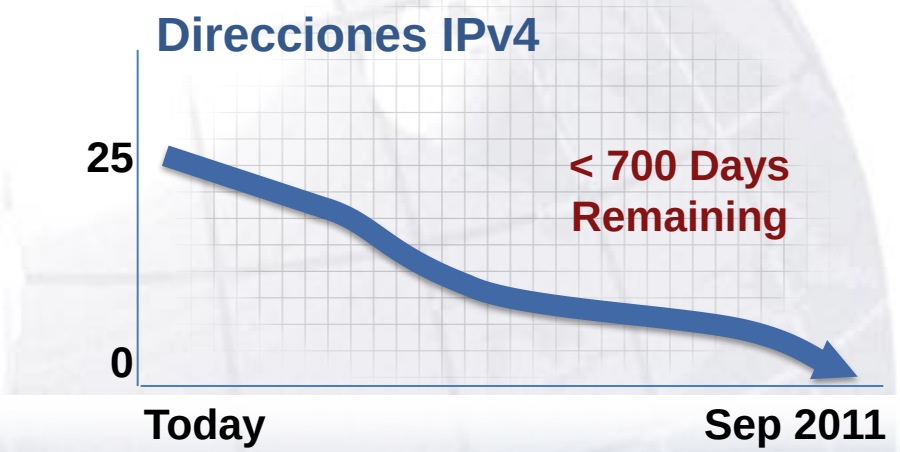
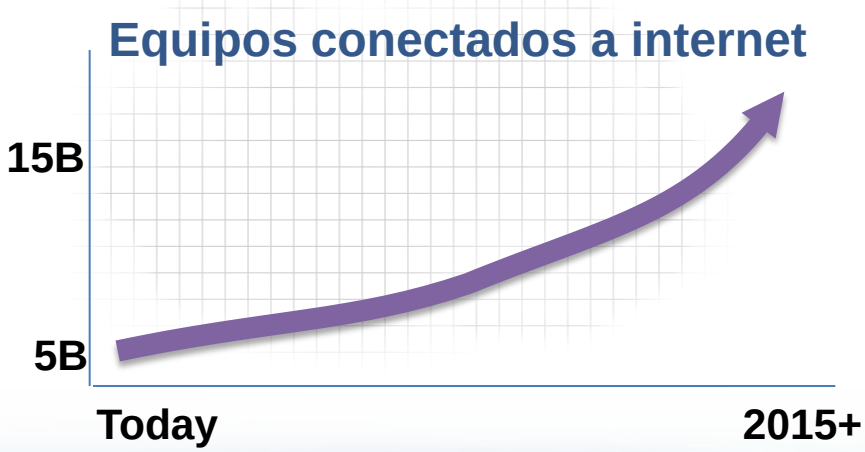
IPv6

NETGEAR®
Connect with Innovation™

Crecimiento en Internet

Cada vez quedan menos direcciones IPv4





¿Cómo está de cerca el fin?

Agotamiento IPv4 (Espanol)

INTEC Systems Institute, Inc. provides a blogpart version of "Agotamiento IPv4" that visualize the status of IPv4 address exhaustion. This blogpart is licensed under a Creative Commons License [Attribution-NonCommercial-NoDerivs 2.1 Japan].

[Overview] "Agotamiento IPv4" is a blogpart that visualize the status of IPv4 address exhaustion which mashed up with the "IANA IPv4 Address Space Registry" provided by IANA and "IPv4 Address Report" researched by Mr. Geoff Huston of APNIC.

[Deployment] Please copy a following deployment code (HTML tag) into design template or entry of your blog page, and HTML file of your Web page.

[Deployment Code]

```
<script
type="text/javascript"
language="javascript"
src="http://inetcore.com/p
```

[Explanation]

1 It shows a name of RIR(Regional Internet Registry) with the nearest exhaustion day.

2 It shows unallocated and total IPv4 address blocks in each RIR.

3 It shows the X-day, the days until X-day and the amount of IPv4 address in the nearest exhaustion RIR (estimation).

4 It shows whether you access via IPv4 or IPv6.

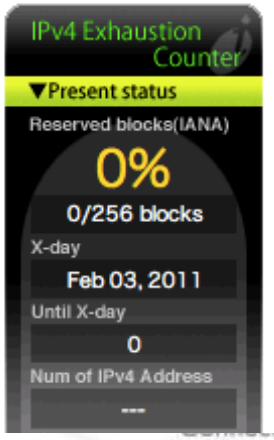
Ref:IANA What is RIR?

[IANA Please use a following deployment code (HTML tag) for Agotamiento

Select Language ...

Agotamiento IPv4 (RIR)

Agotamiento IPv4 (IANA)



IPv6

IPv4

Direcciones Ipv4

Casi Agotadas

Private IP

IPv6

Direcciones IPv6

56 billones por persona

Permite acceso global

Aumetnta Seguridad y eficiencia

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Ventajas de IPv6

- Autoconfiguración de Direcciones y configuración de Rutas
- Enrutamiento más sencillo
- Seguridad integrada en el propio protocolo con IPSEC

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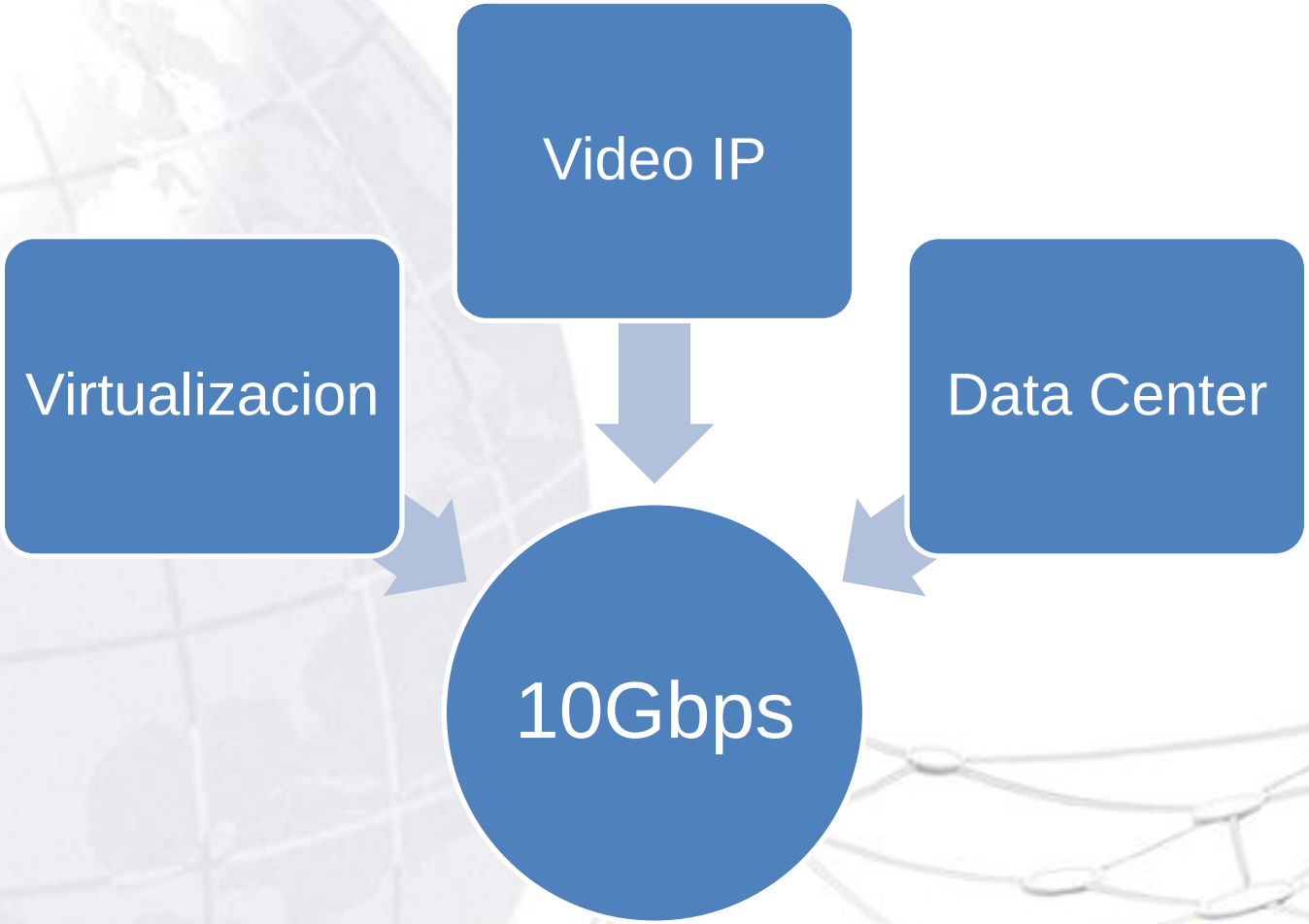
Ventajas de IPv6

- Ya no se gasta ancho de banda con Broadcasts
- Enrutamiento más rápido y eficiente gracias al procesamiento de los paquetes IPv6 en los routers
- Soporte en IPv6 para movilidad
  - Dispositivos mantienen una dirección estática incluso si cambian de ISP durante una sesión

10Gbps

NETGEAR®
Connect with Innovation™

Introduccion



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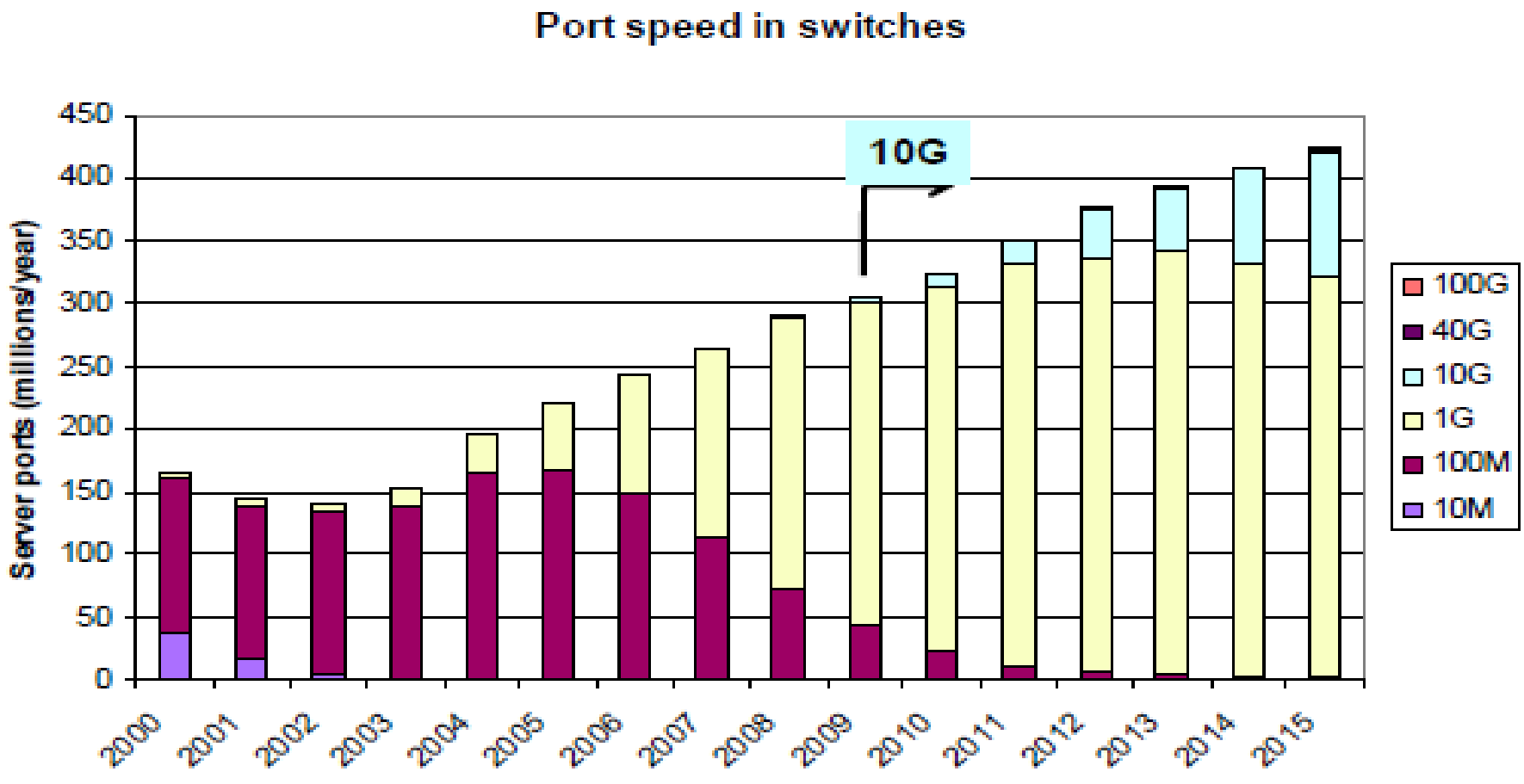
Puertos 10Gbps



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Fibra

Módulos SFP+

10GBASE-SR

- Multimodo
- 50 metros

10GBASE-LR

Monomodo

10 km

AXM761
(LC) SFP+

AXM763
(LC) SFP+

AXM762
(LC) SFP+

Fiber	**10GBaseSR**	**10GBaseLRM**	**10GBaseLR**
Single mode 9/125µm	☒	☒	☑ 10km
Multimode OM1 62.5/125µm	☑ 33m	☑ 220m	☑ 33m
Multimode OM2 50/125µm	☑ 33m	☑ 220m	☑ 33m
Multimode OM3 50/125µm	☑ 300m	☑ 260m	☑ 300m

Direct Attach SFP+

- Conexión Puertos SFP+
- Distancias hasta 10 metros
  - AXC761 : 1 metro
  - AXC763 : 3 metros
- Precio competitivo
- Conectores SFP+ integrados

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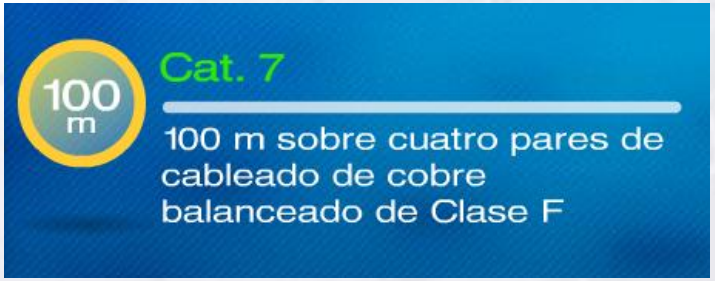
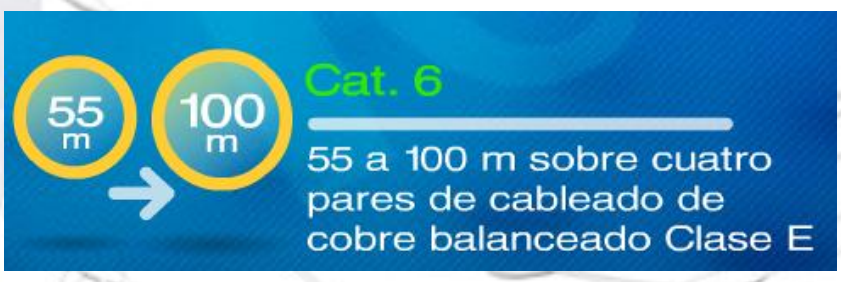
Par Trenzado

- 10GBASE-T
  - Estándar aprobado en 2006
  - Utiliza el par trenzado normal





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Productos 10Gbps

XCM8800 Series

XSM7224S

GSM7XXXS

GS752TXS

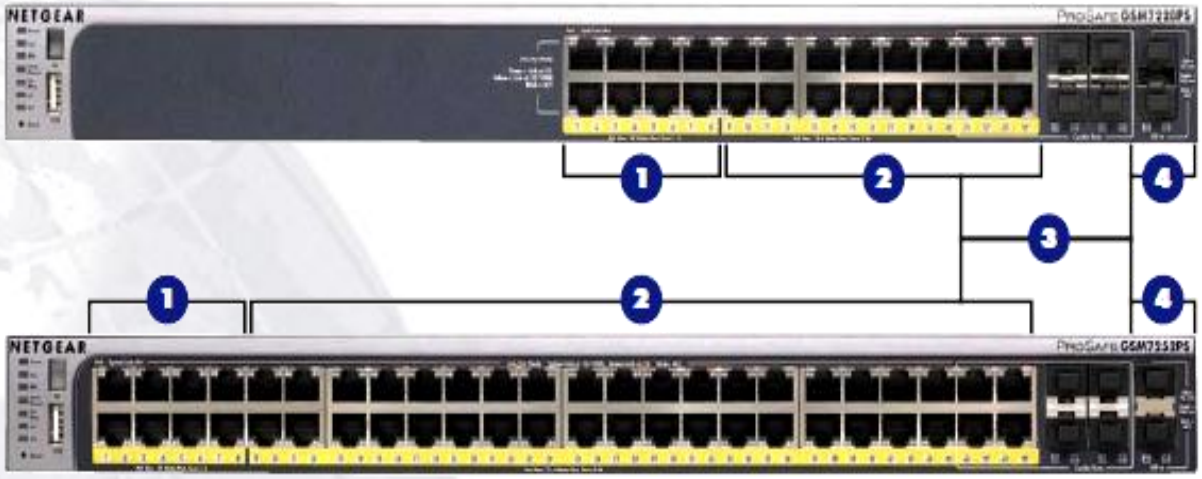
NEW

NETGEAR ProSafe

NETGEAR ProSafe LIFETIME WARRANTY

NETGEAR Connect with Innovation™

GSM7228PS / GSM7252PS



Built-in 10 Gigabit Ports

AX743
SFP+ Host Module

AXM761, AXM762 or AXM763
SFP+ 10GBase-SR, LR or LRM optics

- AX743 + AXM761/AXM762/AXM763 optics in each rear slot
- Two SFP+ modules are recommended for full 40 Gbps bandwidth and complete redundancy

NETGEAR®
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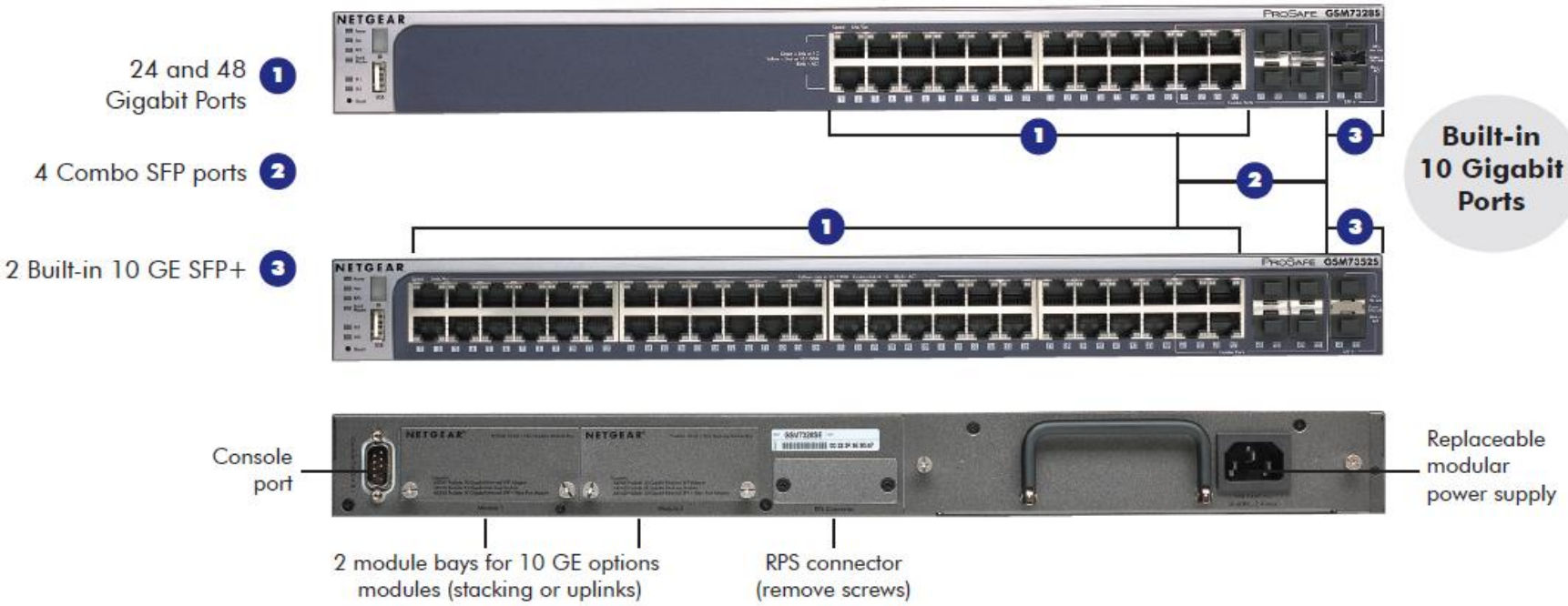
GSM7328S/GSM7352S



AX743
SFP+ Host Module

AXM761, AXM762 or AXM763
SFP+ 10GBase-SR, LR or LRM optics

- AX743 + AXM761/AXM762/AXM763 optics in each rear slot
- Two SFP+ modules are recommended for full 40 Gbps bandwidth and complete redundancy

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GSM7328FS

48Gbps Redundant Stack Technology

- **24 Puertos SFP**
- **4 x 10/24GE (10/24Gigabit) I/O Module bays (2 on the front, 2 on the rear)**
  - AX742 ProSafe 24Gigabit Stacking kit (2 x 24GE stack modules + stack cable)
  - AX743 SFP+ Host Module (for AXM761/AXM762/AXM763)
  - AX744 CX4 Module
- **Stack with GSM73xxS / GSM72xxPS**

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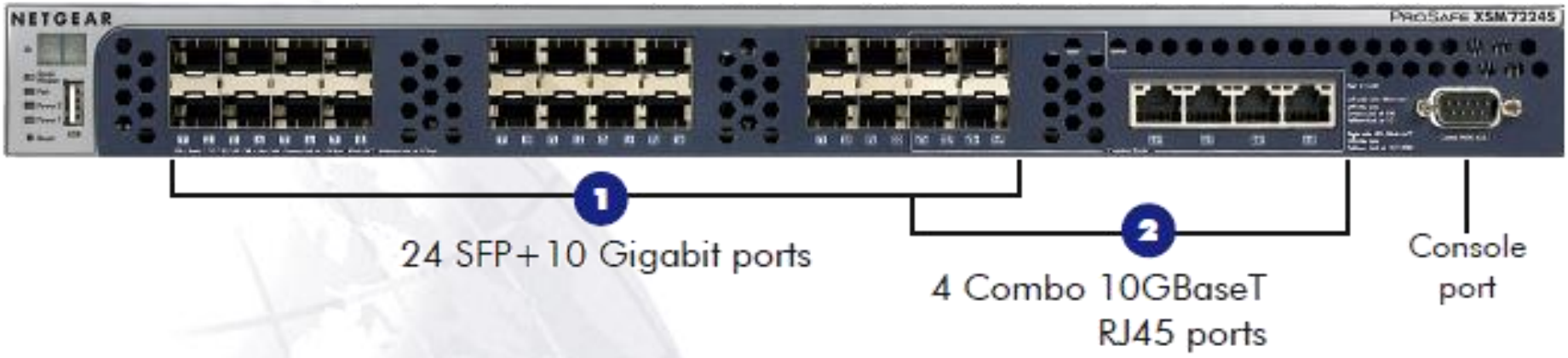
XSM7224S



- **24-puertos 10 Gigabit SFP+**
- **4 puertos 10GBase-T RJ45 uplinks**
- **Doble fuente de Alimentacion**
- **Apilable hasta 4 unidades**

NETGEAR
Connect with Innovation™

ReadyNAS 4200

- Hasta 24TB capacidad con RAID 0/1/5 y X-RAID2
- 4/12 bahías en formato rack
- Almacenamiento con doble fuente de alimentacion redundante
- Conectividad **10Gbps**

Windows Server 2008

symantec.

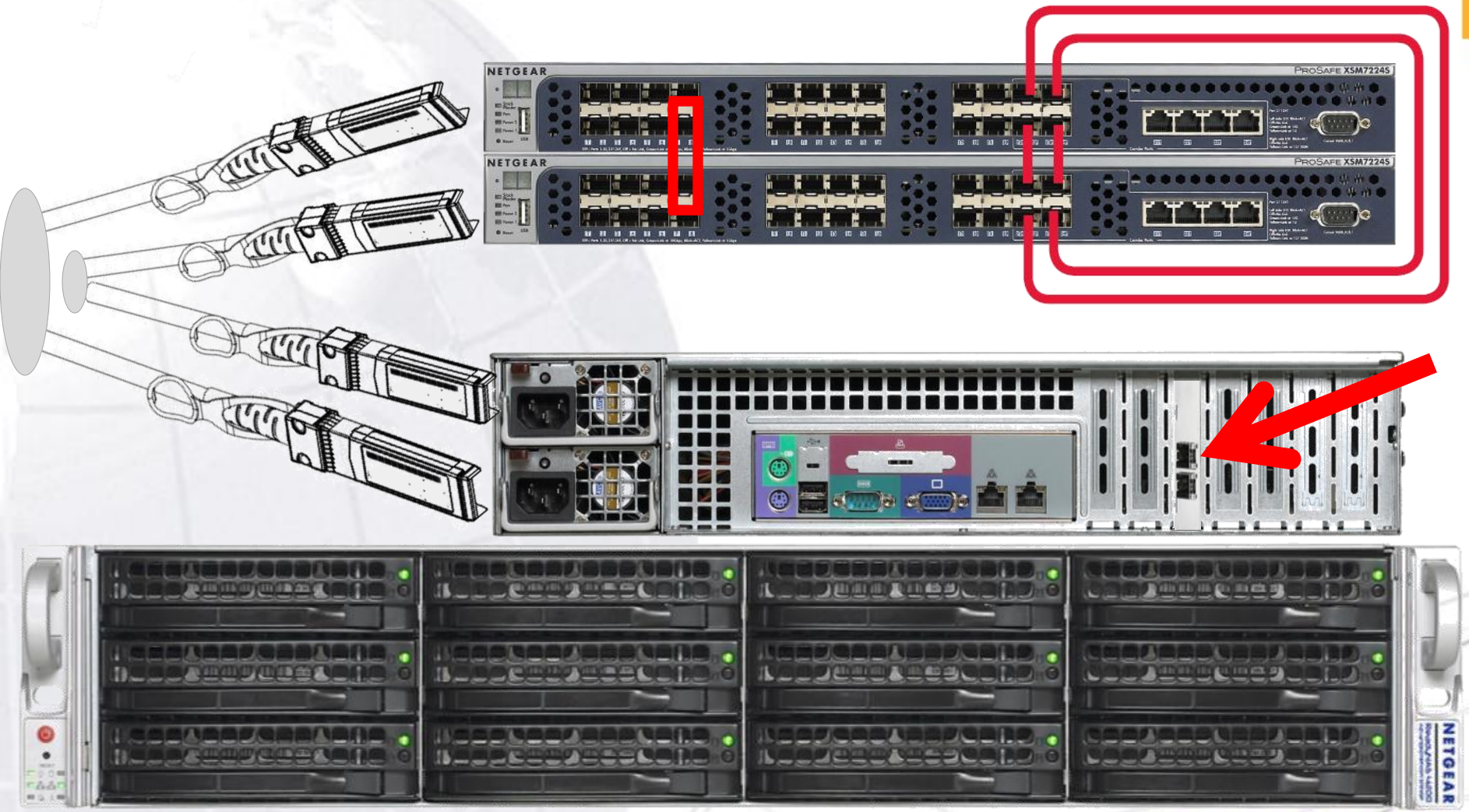
NETGEAR 5 YEAR WARRANTY

vmware READY

NETGEAR Green

NETGEAR Connect with Innovation™

Conectividad 10Gbps



ReadyNAS 4200 with Dual 10 GE SFP+ adapter

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Gracias

Xavier Lleixa
Sales Engineer Netgear
933443204
xlleixa@netgear.com