

12G

# Optimización Dinámica

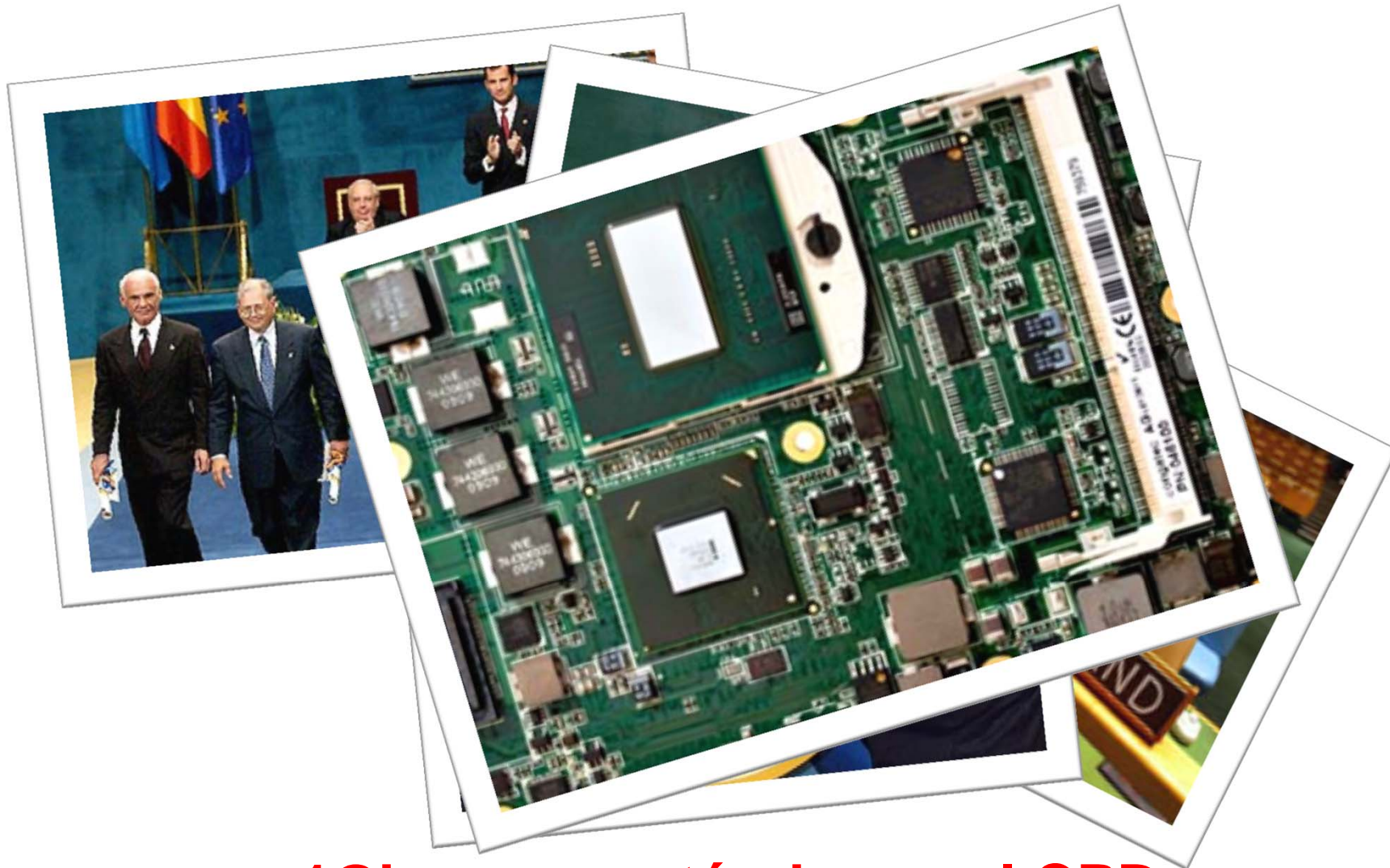


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Enterprise Technologist

Dell | Global SMB Enterprise Solutions Group

# Que Ocurrió en el 2002?



**1Gb como estándar en el CPD**

# Que ha cambiado desde entonces?

## Explosión del trafico de Internet

- Hasta 2009: 150 Exabytes\*
- Solo en 2010: 245 Exabyte
- En 2015: 1000 Exabytes

1000 millones mas de usuarios de Internet

15.000 millones mas de dispositivos conectados

- **Principalmente por la Consumerización**

\*1Exabytes = 1000 Petabytes

*MAS USUARIOS*



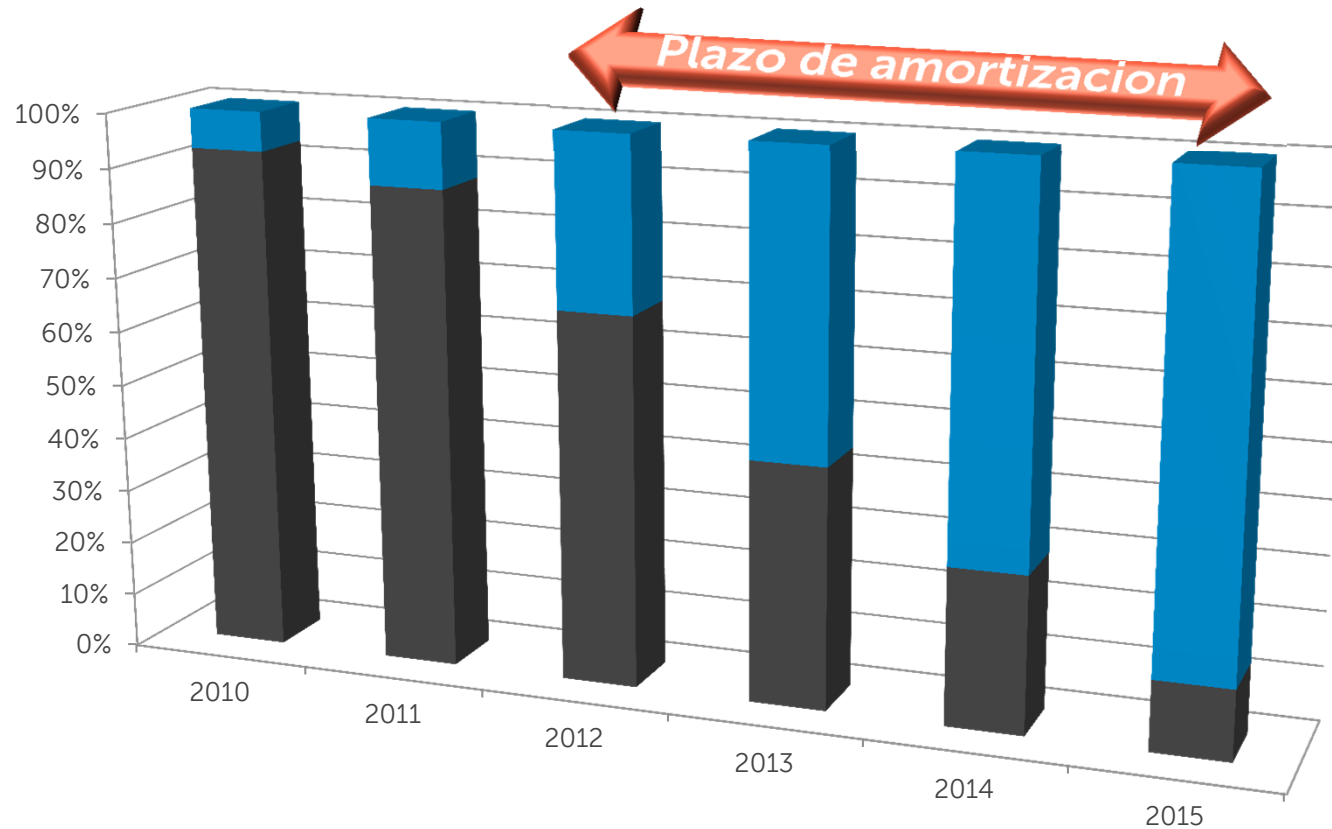
*MAS DISPOSITIVOS*



*MAS DATOS*



# Como nos cambiará dicho trafico?



Source: Q2CY11 Dell'Oro adapter annual forecast



t 10Gb?



# 10Gb D.C.B. - Data Center Bridging

*DCB es un conjunto de estándares **IEEE** para la mejora de Ethernet 10Gb.*

Estándares IEEE que contempla:

- **PFC** – Priority-based Flow Control (*802.1Qbb*)
- **ETS** – Enhanced Transmission Selection (*802.1Qaz*)
- **CN** – Congestion Notification (*802.1Qau*)
- **DCBX** - Data Center Bridging capability eXchange (*802.1Qaz*)



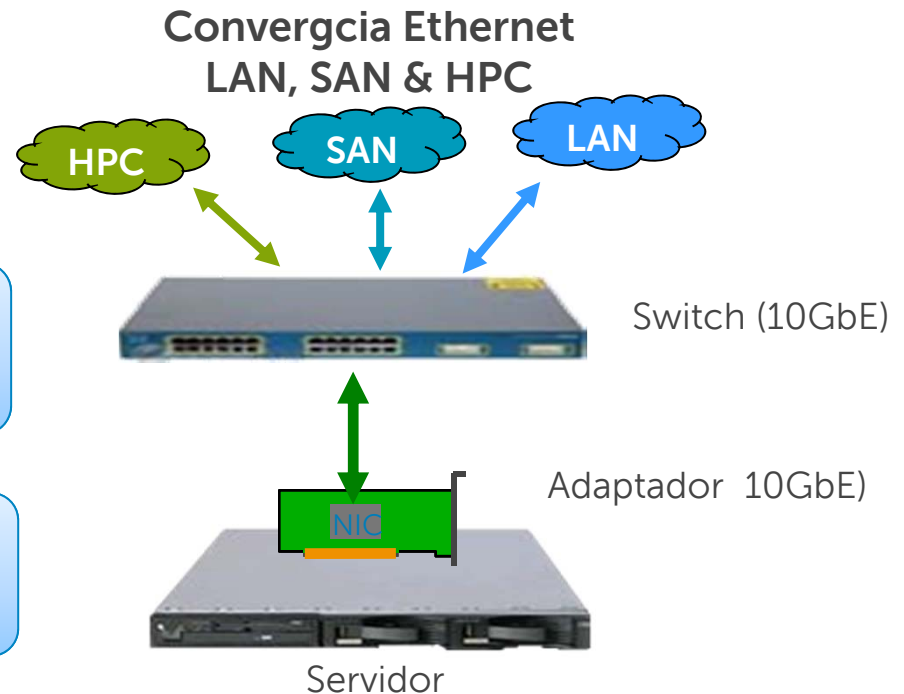
# 10Gb D.C.B. - Beneficios

**Convergen** aplicaciones y redes en una sola infraestructura

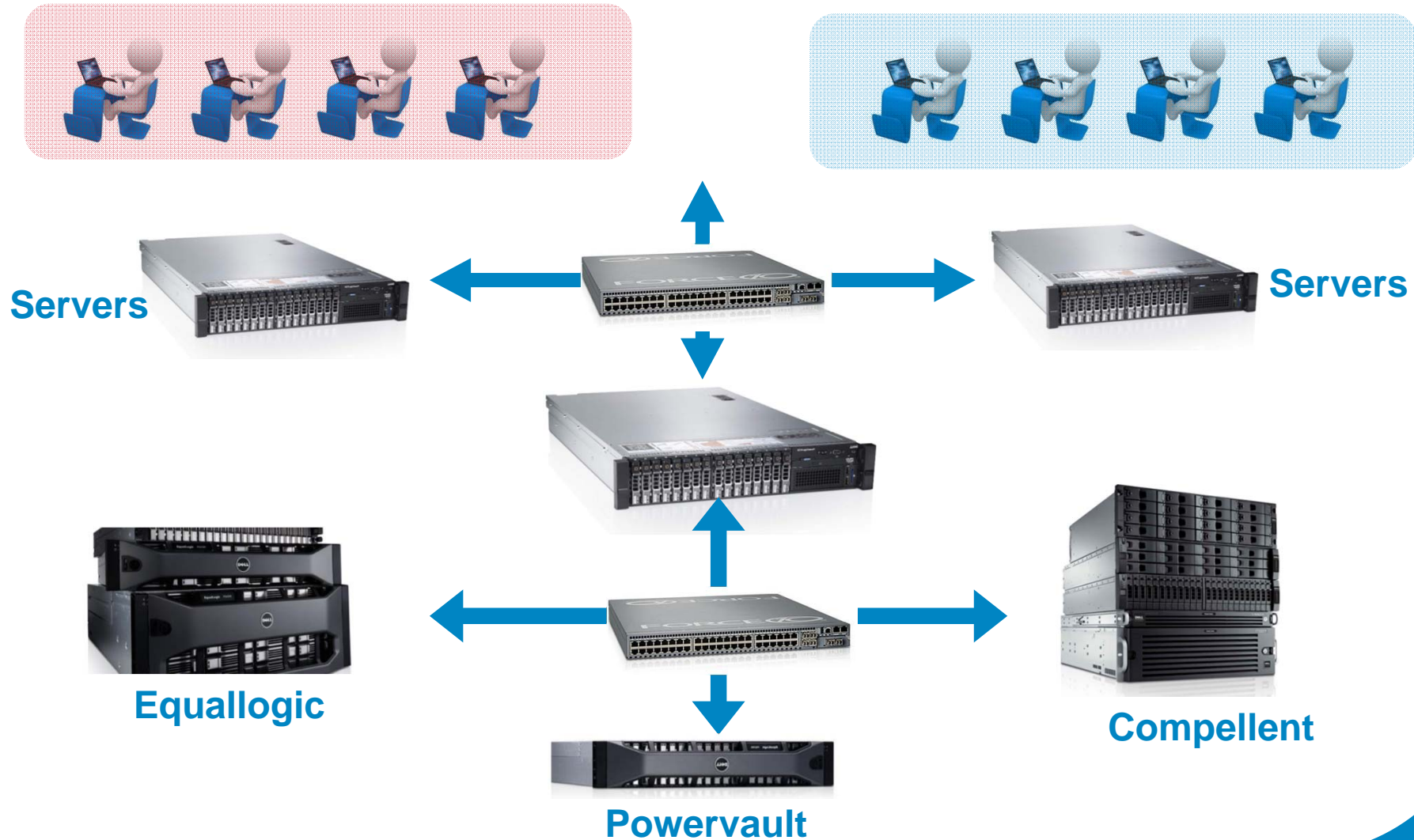
Diferenciar clases de trafico con distintos **niveles de servicio**

Configuraciones **end to end** con DCBX ( no switch to switch)

**Variedad de velocidades** en bridging (10GE a 40GE y 100GE)

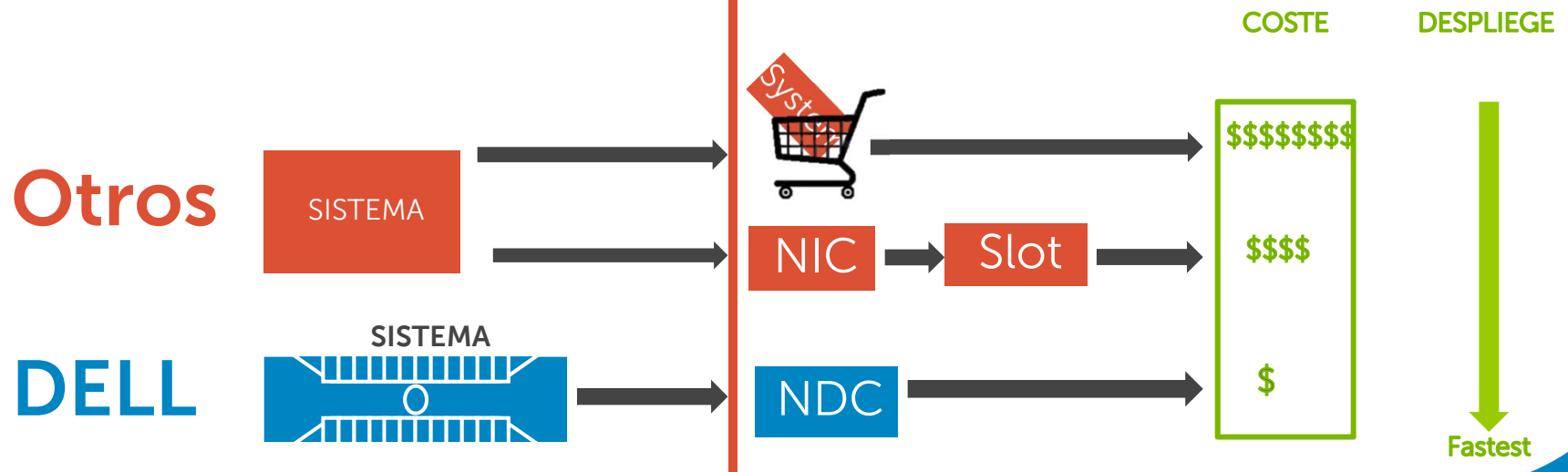
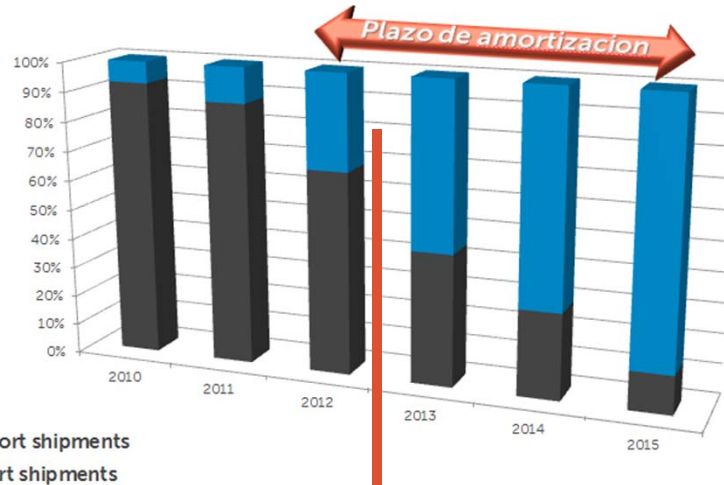


# 10Gb: Estándar en toda la infraestructura





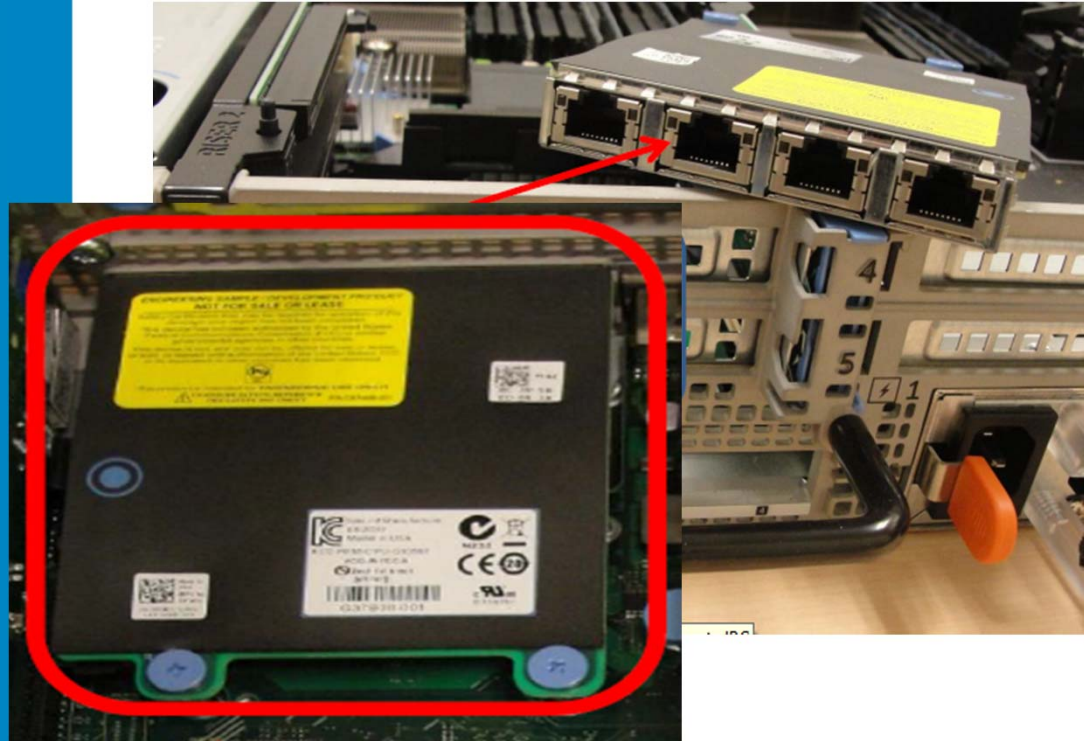
# NIC será clave para la protección de la inversión



Source: Q2CY11 Dell'Oro adapter annual forecast

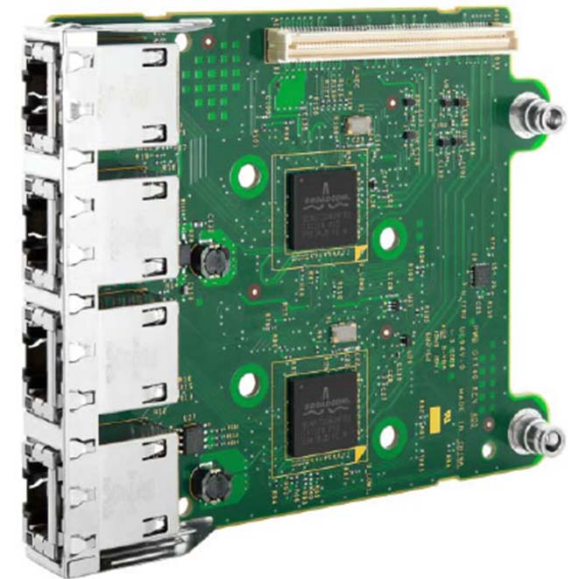
# erEdge network

(Lighter Card)

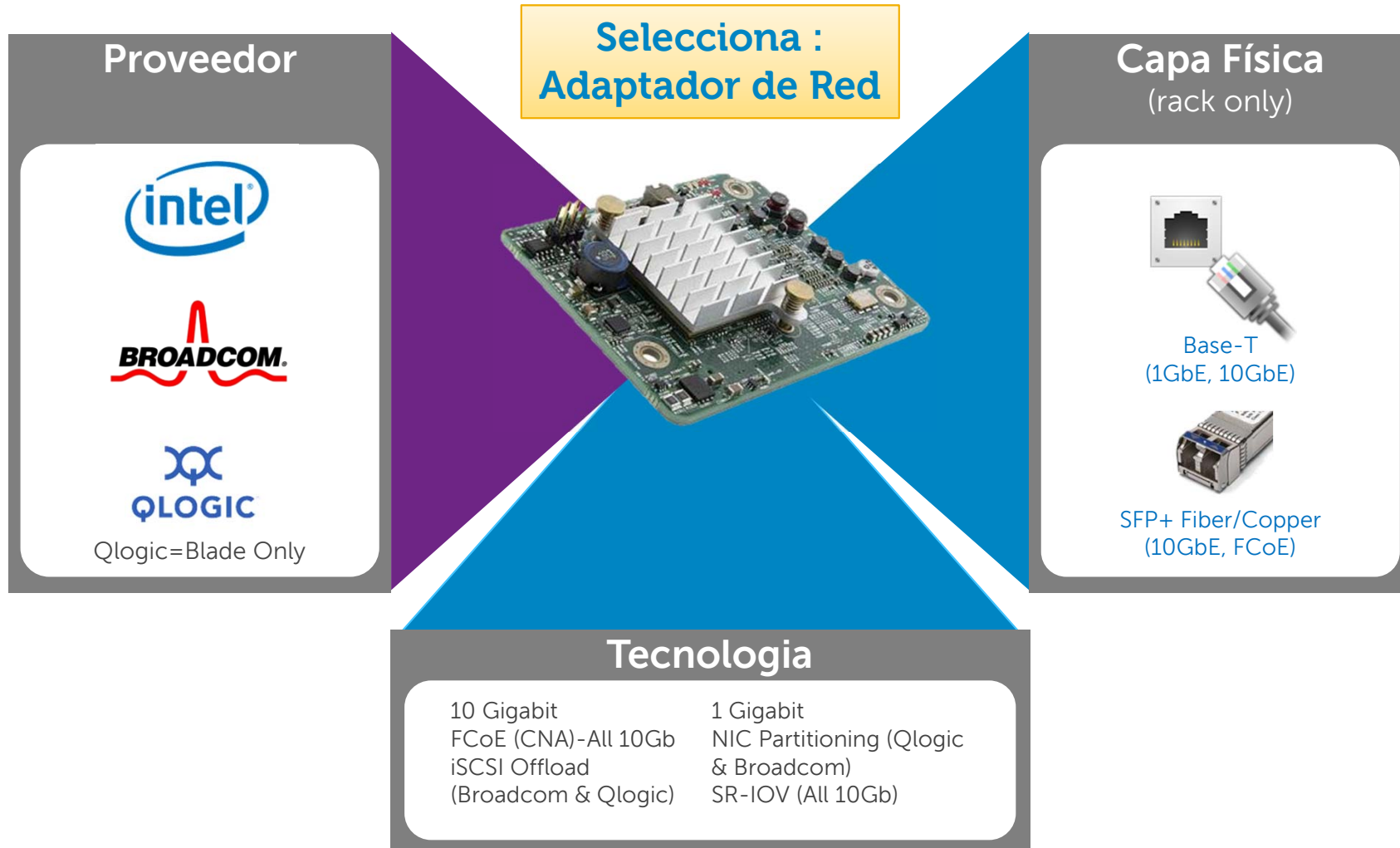


# PowerEdge Select Network Adapter

- Con [Select Network Adapter](#), nuestros clientes pueden seleccionar las tecnologías de red que mejor se adaptan a sus necesidades para integrarlas en los servidores.
- El SNA ofrece excelentes opciones de rendimiento flexibilidad:
  - Transición 1GE a 10GE
  - SFP+, Base-T (Rack) y KR (Blade)
  - Funcionalidades como FCoE, iSCSI, Switch Independent Partitioning o DCB



# Dell Select Network Adapter





# Portfolio Networking 12G

## 10Gb Ethernet

Broadcom 57810S 2P KR bNDC  
Broadcom 57800 2P SFP+ rNDC  
Broadcom 578100 2P SFP+ NIC  
Broadcom 57810S 2P KR Mezz

## 10Gb Ethernet

Intel x520 2P KR bNDC  
Intel x540 4P BT rNDC  
Intel x520 2P KR Mezz  
Intel x540 2P SFP+ NIC  
Intel x540 BT NIC

## 10Gb Converged Ethernet

Qlogic QMD8262-k KR bNDC  
Qlogic QME8262-k KR Mezz  
Qlogic QLE8262 SFP+ NIC  
Brocade BR1020 NIC  
Brocade BR1741M-k Mezz

## 8/4Gb Fibre Channel

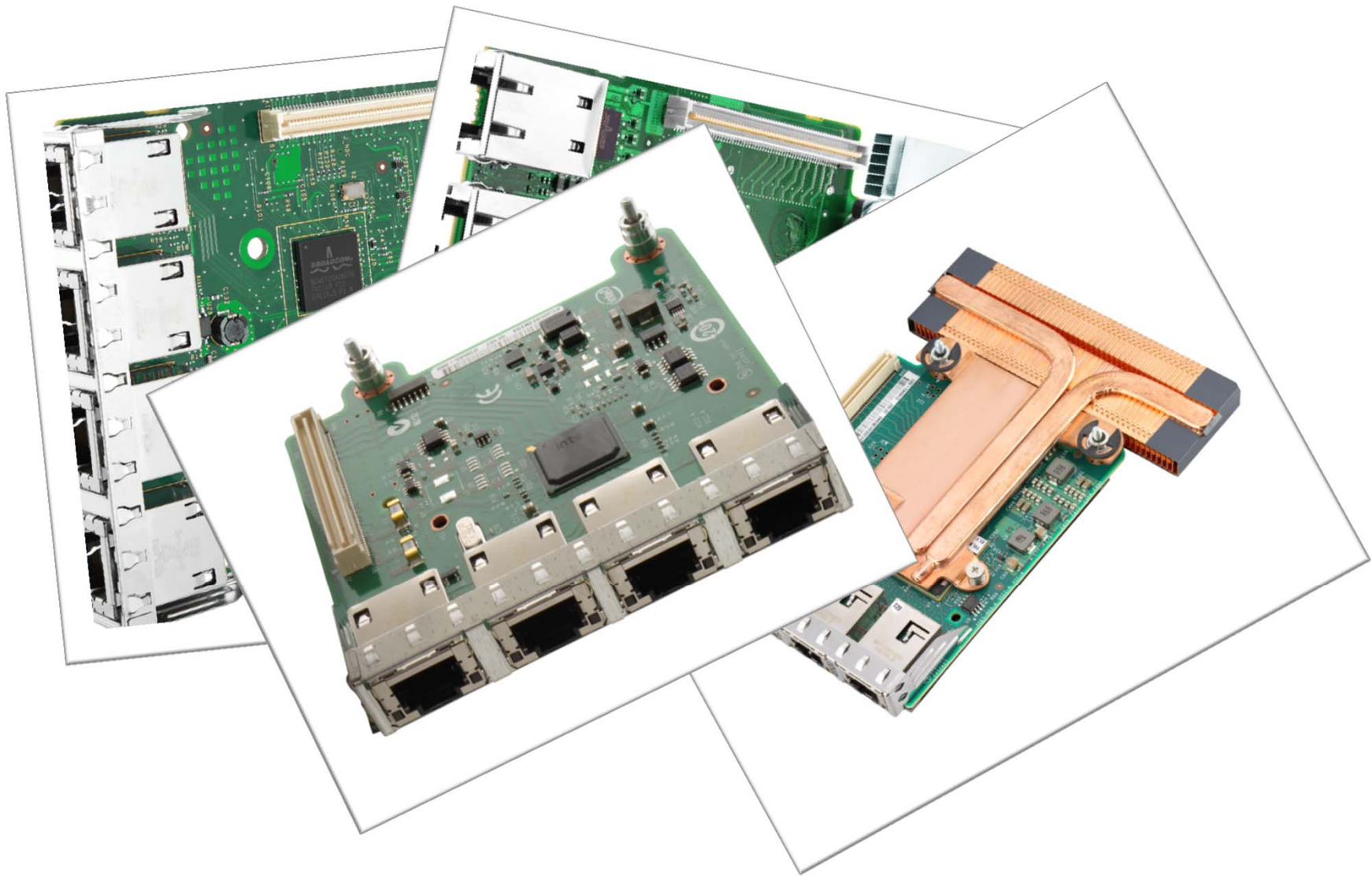
Qlogic QLE2460/QLE2462 HBA  
Qlogic QLE2560/QLE2562 HBA  
Qlogic QME2572 Mezz HBA  
Emulex LPe12000/12002 HBA  
Emulex LPe1205-M Mezz HBA  
Brocade BR815/BR825 HBA

## 1Gb Ethernet

Broadcom 5720 rNDC  
Broadcom 5720 2P NIC  
Broadcom 5719 4P NIC  
Intel i350 4P rNDC  
Intel i350 4P Mezz  
Intel i350 2P NIC  
Intel i350 4P NIC

## QDR/FDR InfiniBand

Mellanox CX3 QDR  
Mellanox CX3 FDR



ALIDAD

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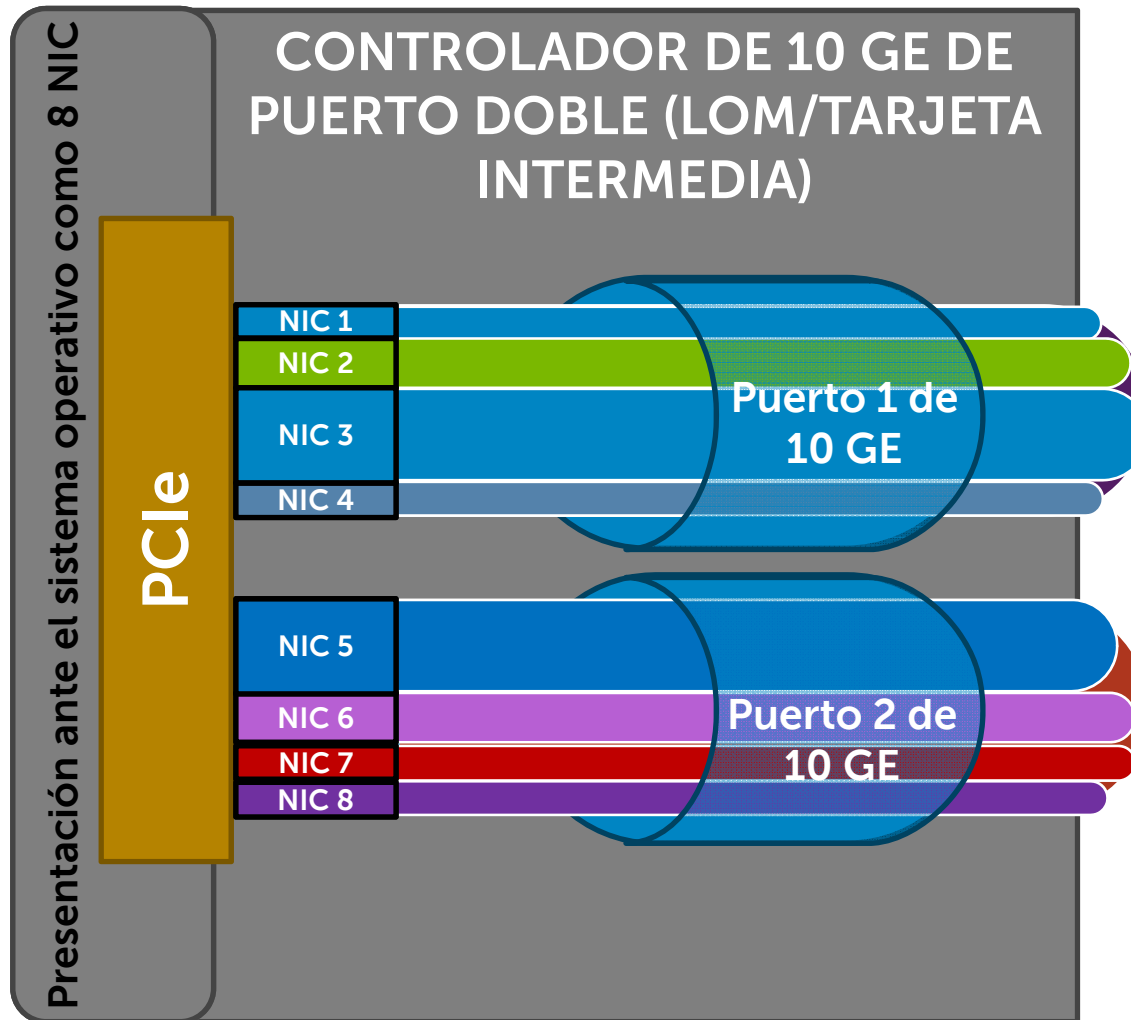


# Partición independiente de switch 10 Gb





# Partición independiente de switch 10 Gb



La capacidad de dividir un puerto NIC de 10 GE en diversos dispositivos PCI con capacidad de ancho de banda flexible que se presentan al SO y a la red como puertos NIC independientes (sin la obligatoriedad de disponer de una infraestructura de switch registrada y costosa).

# 10Gb Switch Independent Partitioning

The screenshot displays the VMware vSphere interface for a virtual machine named 'DUT6186'. The 'Device Manager' pane on the left shows the hardware configuration tree, with 'Network Adapters' expanded. The main pane shows the configuration for the selected network adapter, 'QLogic Dual Port 10 Gigabit Ethernet'. A red box highlights the configuration details for this adapter, which are as follows:

Device	Speed	Configured	Switch	MAC
vmnic3	down	Negotiate	None	00:25:00:25:00:25
vmnic2	down	Negotiate	None	00:25:00:25:00:25
vmnic1	down	Negotiate	None	00:25:00:25:00:25
vmnic0	down	Negotiate	None	00:0e:00:0e:00:0e
QLogic Dual Port 10 Gigabit Ethernet	down	Negotiate	None	00:0e:00:0e:00:0e
vmnic11	down	Negotiate	None	00:0e:00:0e:00:0e
vmnic10	down	Negotiate	None	00:0e:00:0e:00:0e
vmnic9	down	Negotiate	None	00:0e:00:0e:00:0e
vmnic8	down	Negotiate	None	00:0e:00:0e:00:0e
vmnic7	down	Negotiate	None	00:0e:00:0e:00:0e
vmnic6	down	Negotiate	None	00:0e:00:0e:00:0e
vmnic5	down	Negotiate	None	00:0e:00:0e:00:0e
vmnic4	down	Negotiate	None	00:0e:00:0e:00:0e

# 10Gb Switch Independent Partitioning

Plug-ins Help

Inventory

calhost VMware ESX, 4.0.0, 170877 | Evaluation (43 days remaining)

Setting Started Summary Virtual Machines Resource Allocation Performance Configuration Users & Groups Events **NIC Partition**

Number of NIC Partitions (NPARs) detected: 8      Number of ESwitch instance(s): 2

**NPAR Information & Configuration**

Please select NPAR for information and configuration:

- NPAR 1
- NPAR 2
- NPAR 3
- NPAR 4
- NPAR 5**
- NPAR 6
- NPAR 7
- NPAR 8

Default MAC Address: 01:23:45:67:89:ab

ESwitch Instance Number: 1

NPAR PCI Function Number: 0

Inner VLAN ID: 5

Minimum bandwidth (Mbps): 1000

Maximum bandwidth (Mbps): 10000

PCI bus 0, device 25, function 0

FCoE

Outer VLAN ID: N/A

**ESwitch Configuration**

ESwitch Instance Number: 1

Active VLAN Count: 10

Active unicast filters count: 2

- Ability to change operating MAC Address
- Replication of Rx multicast packets to NPAR
- Capability to Enable Promiscuous Mode
- Replication of Tx multicast packets to NPAR
- VLAN Tagged Packets from Host
- VLAN Filtering
- VLAN ID Stripping

OK

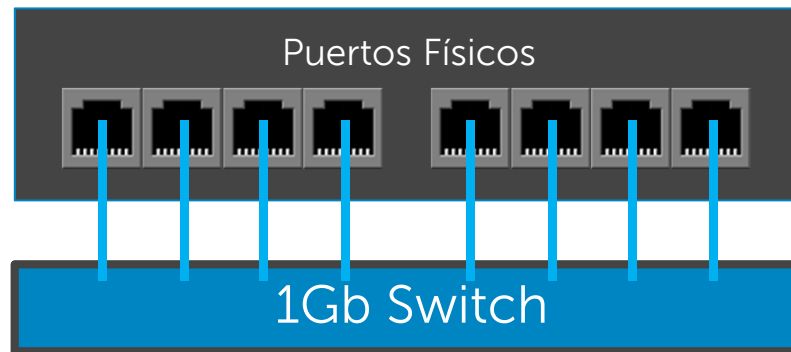
t 10Gb?



# 1Gb a 10Gb: Consolidacion

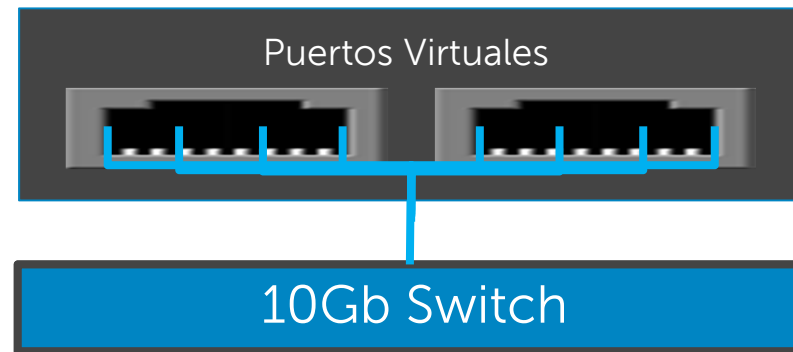
## Con 1Gb

Servidor con 8x 1Gb



## With 10Gb

Servidor con 2x 10Gb



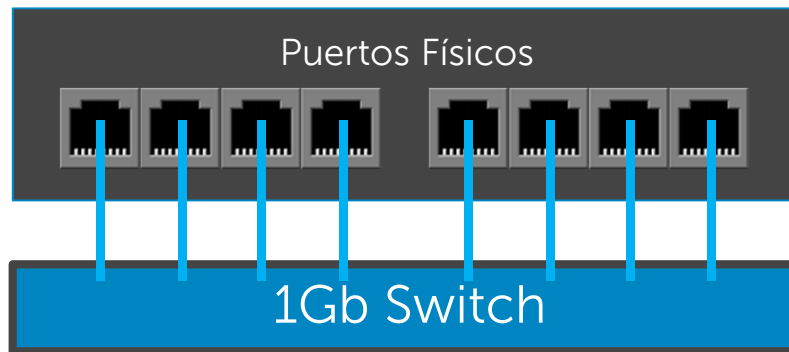
- Permite **consolidar múltiples canales**
- Cableado y **gestión de red** simplificada en 10Gb
- **50%-75%** ahorro de puertos



# 1Gb a 10Gb: Power and Cooling

## Con 1Gb

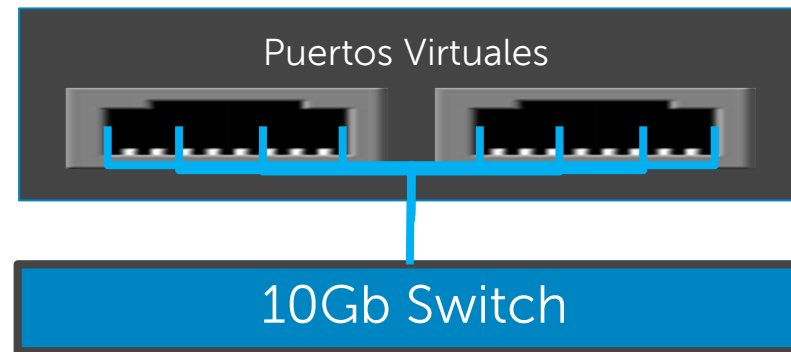
Servidor con 8x 1Gb



**13.2W** (Para 8 1Gb BT )

## With 10Gb

Servidor con 2x 10Gb



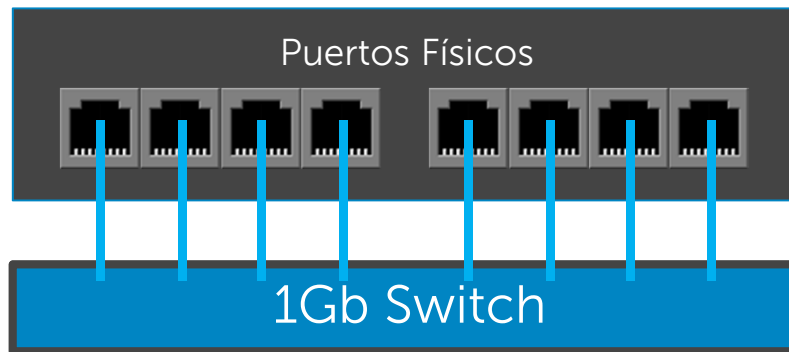
**8.0W** (Para 2 10Gb SFP+)

- **40% Reducción** de consumo
- **Eliminación de infraestructuras** = Eliminación consumo energético

# 1Gb a 10Gb: Menor coste, Mas valor

## Con 1Gb

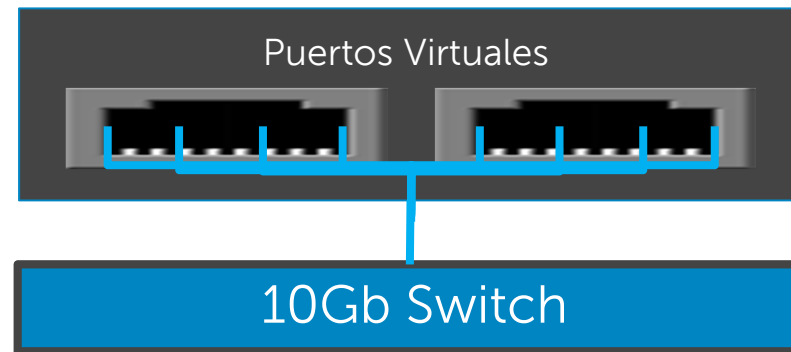
Servidor con 8x 1Gb



Coste : \$63/port/Gb

## With 10Gb

Servidor con 2x 10Gb


























Coste : \$58/port/Gb

- En 2012, el **coste de transferencia** en 10Gb ya es menor que en 1Gb
- Reducción de coste en **consumo, Espacio y administración**
- **Convergencia y Virtualización** son las claves

0



# 2010-2011

	<b>Force10 Networks</b> <ul style="list-style-type: none"><li>- High-performance data-centre networking</li></ul>		
	<b>RNA Networks</b> <ul style="list-style-type: none"><li>- (Memory Virtualization technology)</li></ul>		
	<b>SecureWorks</b> <ul style="list-style-type: none"><li>- (Managed Security Services)</li></ul>		
	<b>Insite One</b> <ul style="list-style-type: none"><li>- Cloud-Based Medical Archiving, Storage and D-R</li></ul>		
	<b>Compellent</b> <ul style="list-style-type: none"><li>- (Storage virtualization)</li></ul>		
	<b>Boomi</b> <ul style="list-style-type: none"><li>- (SaaS – cloud integration)</li></ul>		
 	<b>Ocarina Networks</b> <ul style="list-style-type: none"><li>- (Storage Optimisation)</li></ul>		
 	<b>Scalent Systems Inc</b> <ul style="list-style-type: none"><li>- (Systems Management)</li></ul>		
	<b>Kace Networks Inc</b> <ul style="list-style-type: none"><li>- (Systems Management appliance technology services)</li></ul>		
 	<b>Exanet Ltd</b> <ul style="list-style-type: none"><li>- (Storage/file-system software)</li></ul>		



# Porfolio de productos

**Data Center Switching**



**Dell Force10**

**Campus/Branch Switching**



**Powerconnect**

**Wireless & Mobility**



**W-Series**

**Blade I/O**



**M-Series**



# Portfolio de produtos

Layers 2-3

Data Center

Campus LAN/WLAN

## Wireless Controller



W-6000/M3



S25P



S25N/S50N  
S25V/S50V



S60



S55



S4810



S2410



E300 (FY13)



C150/300



E600/E1200i



Z9000



PCT 6200



PCT 5500



PCT 3500



PCT 2800



PCT 7000



PCT 8024

## Wireless Access Points



Indoor



Outdoor



Instant

## Wireless Access Systems



W-AmigoPOD (Q4)



M8024-k



M6220



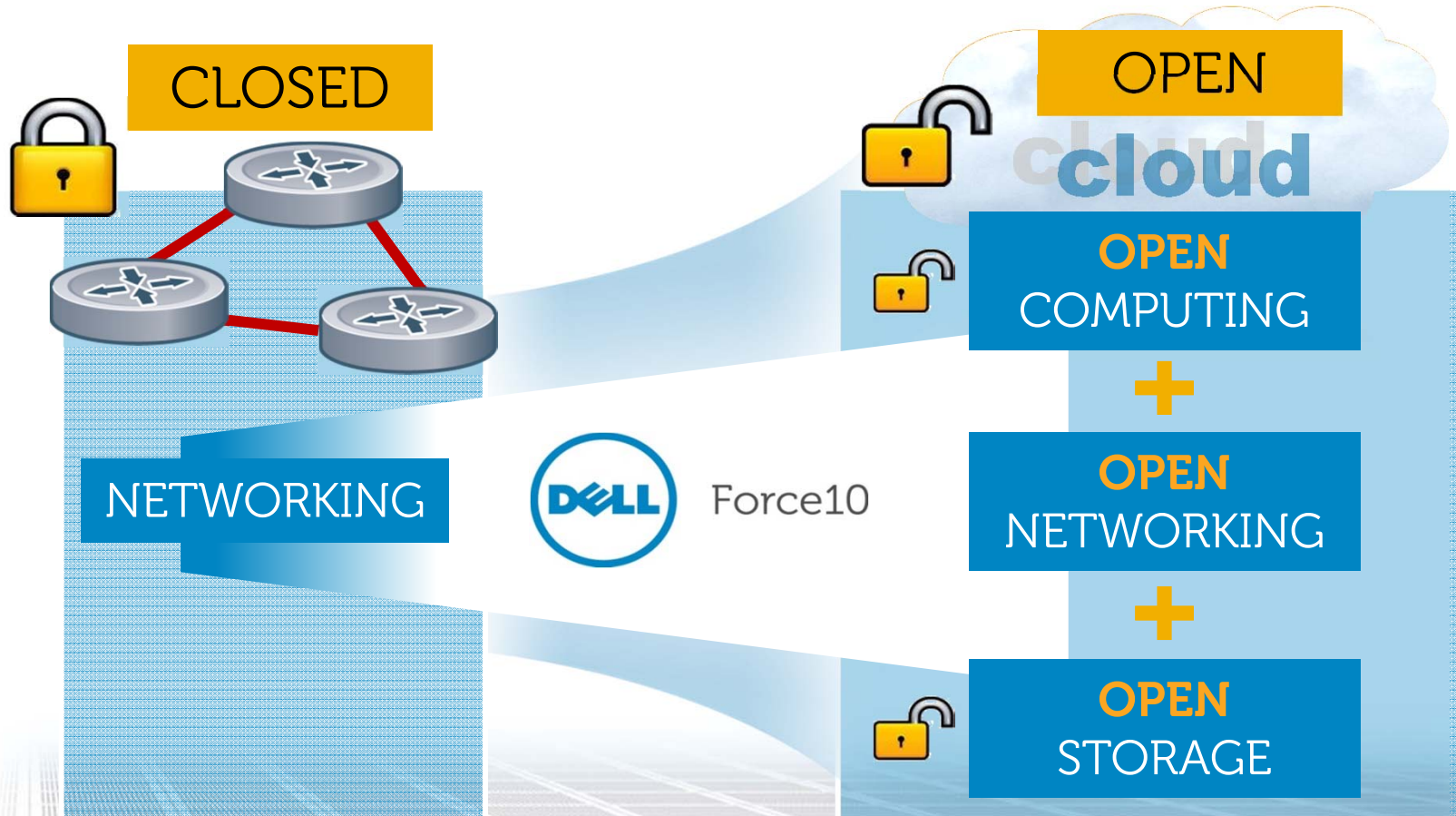
M6348



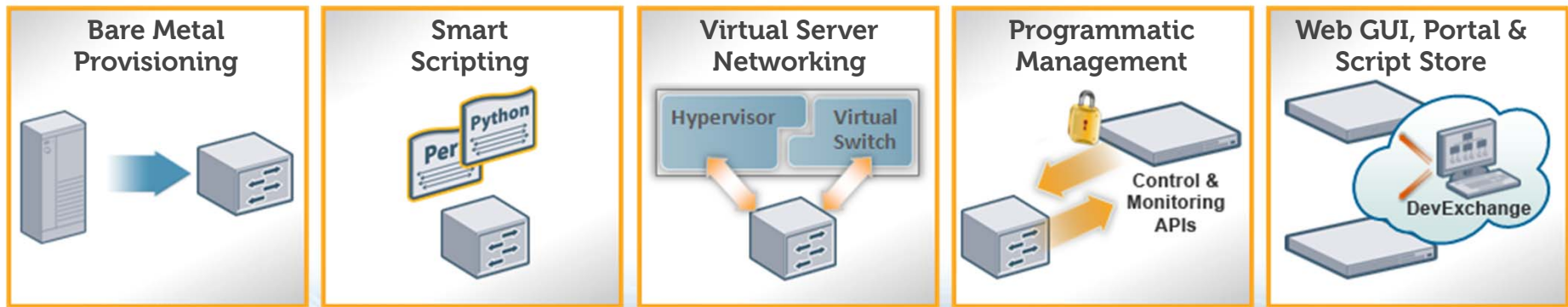




# Open Cloud Networking



# Open Automation 2.0





# Preguntas?

