

FAQ for Trunking Technology

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General overview

Q: What is trunking? How's the function and spec for these products?

The concept of trunking firstly used by Cisco. 3Com called it "port trunking" and Cisco call it "Fast EtherChannel".

The simple meaning for "trunking" is "Aggregate more link as a big pipe(trunk)". Most of switch vendor they support 4-link as a trunk, it provide 400Mbps x2 (full-duplex) for maximum capacity in this trunk.

Q: Is there any standard or de-facto standard, or proprietary standard for "Trunking"?

There is a study group in IEEE 802.3ad. They call "trunking" or "Link aggregation" (for more info:

<http://grouper.ieee.org/groups/802/3/index.html>)

Q: How many vendors implement "Trunking" feature in their product, NIC, hub or switch?

3Com: switch 3300 and NIC

Intel: switch and NIC

Cisco: switch

Bay: Switch(Bay 350T f/w:2.0)

Q: How's the compatibility for those products?

It's currently Very poor. That's why 3Com, Bay, Cisco, Sun want to propose their standard in IEEE 802.3ad study group.

The interoperability problem will be solved after the standard is finalized.

Q: What vendor support trunking function on their Server card?

1) How many vendors have this? 3Com, Intel

2) How's the function? including D-Link's?

load sharing and backup link

3) How do they work with trunking device?

3Com's server NIC implement VLAN tag into their NIC software to work with 3Com switch's trunking function. Intel also implement VLAN to work with "Cisco's trunking function".

Sun's solution: <http://www.sun.com/products-n-solutions/hw/networking/whitepapers/trunkingwp.shtml>

Intel's solution INTEL Etherexpress Pro/100 Server Adapter

(The Etherexpress Pro/100 Server Adapter is an intelligent

10/100 Mbit/s server adapter designed to maximize LAN server resources. It supports Cisco ISL Virtual LANs and includes an

i960r processor that offloads a server's CPU and improves response times. It costs \$2,850, price info: May/98, PC Magazine Middle East)

Q: Why do we need trunking in switches? (and in server NIC as well)

Reason 1. Compete with Stackable LAN switch solution

Reason 2. Provide 4 Fast Ethernet NIC(200Mbps x4) as the alternative for Gigabit Ethernet NIC (800Mbps~1000Mbps)

The LAN switch with port trunking feature, user can expand their network by "stack" more switch with existing one. We called it is a 'pseudo' stackable switch solution. Most of net manager will connect workgroup server into LAN switch port for better performance. In this case, the trunking feature from the Server NIC not only can provide aggregate bandwidth, but also provide link redundancy and load balancing. For example, the 4-port server NIC can have 800Mbps bandwidth capacity to the switch with port trunking feature.

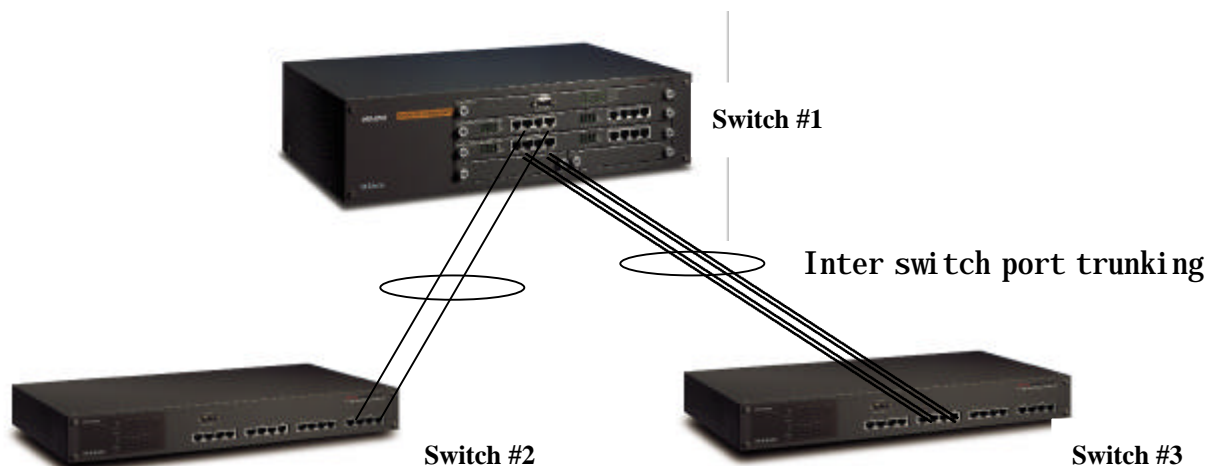
Q: What's the benefit of choicing 4-port server NIC, instead of Gigabit NIC?

User can use current Fast Ethernet technology to enjoy the high bandwidth(800Mbps,max.) near Gigabit Ethernet.

Technical

Q: How does the port trunking function work in DES-5024 and DES-3224 ?

The DES-5024 and DES-3224 support port trunking feature. If there are more than two switches connected together, the switches can be connected through more than one port. The bandwidth between two switches will not be constrained to be 100*2 Mbps. Bandwidth constraints depend on how many ports are connected together. Please refer to the following diagram. Port 1 and 2 of switch #1 are connected to port 1 and 2 of switch #2. Port 9,10,11,12 of switch #1 are connected to port 5,6,7,8 of switch #3. The bandwidth between switches 1 and 2 can be up to 200*2 Mbps, the bandwidth between switch 1 and 3 can be up to 400*2 Mbps. For DES-3224 or DES-50xx, port trunking feature is flexible, it can be 2~8 port per trunk group, maximum trunk group can support up to 7.



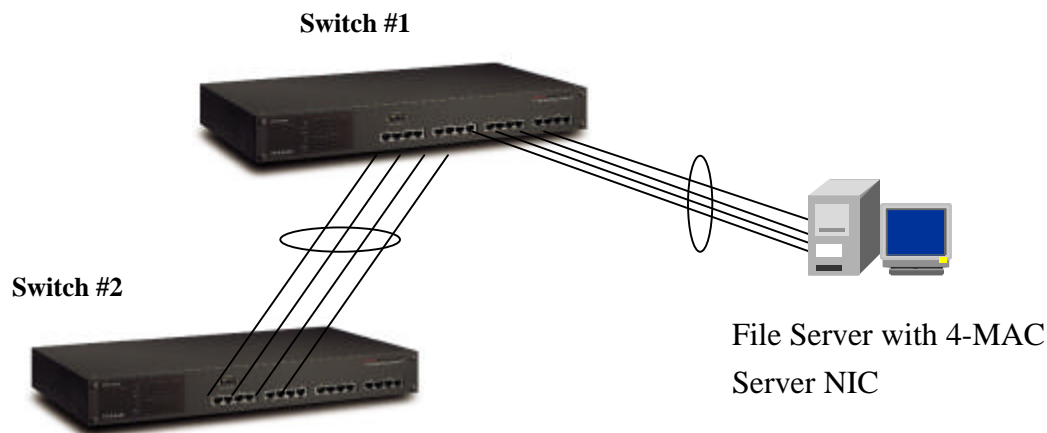
Q: How does the trunking function work in DES-1016 and DES-1024 ?

-Link aggregation

Link aggregation and trunking basically is a method treat multiple physical link as a single logical link.. four ports can be grouped together as a single trunk port.

-Static load balancing

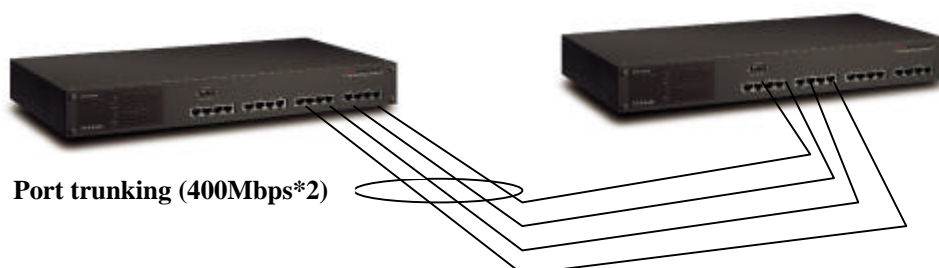
The switch distribute the network traffic load balancing in a four-port trunk. It depends on the lowest byte of the source MAC address of all packets. Besides the trunking function work between switch-to-switch, it also work between switch-to-server. For example: use a 4-Mac server NIC with optional load balancing software. In this case, the server take the control right and user don't need to enable port trunking function on the switch site.



Q: What is the difference between the application of trunking and the stackability of switches? The trunking function might be able to compete with stackable switches.

The stackable switch using additional interface to cascade several LAN switch together, it basically is a proprietary solution. Most of stackable switch vendor will charge additional cost from the customer in stackable cable or stackable interface(or expansion module).

For the LAN switch which support port trunking,, it can connect multiple link to create a dynamic high-bandwidth "backplane" with the front panel ports. It can easily used standard category 5 cable, and it's more flexible for the customer to scale their office network.



Q:Is there port cannot be set to port trunking for DES-3224 and DES-5024?

Yes, there are some port in the switch cannot be set to port trunking.

For DES-5024, port 5/6/7/8 and port 17/18/19/20 are not the first ports of the PSP, these ports cannot be selected as part of the trunk group.

For DES-3224, port 3/4, 11/12, 15/16 and 23/24 cannot be selected as part of the trunk group.

Q:Is there any limitation for setting port trunking in DES-1016?

Yes, DES-1016 totally support four trunk groups, it ONLY allow user to set 4 port as a trunk group.

Reference

1. IBM Ethernet Workgroup Switch Raven/Cardinal(DES-5024,DES-3224) Software Functional Specification. Draft v1.02
2. D-Link DES-1016 Software Internal specification