OPTIMIZING RACK SPACE AND AIR FLOW IN RACKS AND CABINETS.

Today's Category compliant patch cords are made with 24-AWG copper conductors. Substituting 28-AWG patch cords which are 36% skinnier will result in obvious space savings and improve airflow in all datacenter environments. Substitute conventional 1RU and 2RU horizontal cable managers with A'n D Cable "ZeroU" RackOrganizers$^{®}$ and the savings in space and equipment expenses become considerable.

Here is how it is done.

A very common two-rack configuration consists of one rack used for horizontal cross connects and the other primarily used as a network rack, housing the switch and power source. This scenario is a staple in many Data Centers and office Telephone Rooms.

The cross connect rack contains (9), 2-RU patch panels, each with 48 ports. The rack also contains (10), 2-RU horizontal managers for a total of 38 rack units. *Replacing these (10) 2-RU horizontal managers with "ZeroU" RackOrganizers will immediately free up 20RU space in this rack or cabinet*

The network rack contains (2), 2-RU horizontal managers; (1), 2-RU patch panel containing 48 ports; (1), 1-RU fiber tray; a Cisco Catalyst 65xx network switch, and (2), 3-RU power supplies. This equipment takes up 33 rack units. *Replacing the 2-RU horizontal managers with "ZeroU" RackOrganizers will immediately free up 4RU space in this rack or cabinet*

In summary, in the conventional configuration, 71 RU is used between the two racks to provide 480 ports, leaving 19 RU of available rack space. *Using A'n D Cable "ZeroU" RackOrganizers **47RU** is used between the 2 racks leaving 33RU available rack space.*

At this point you have already gained 24RU rack space just by utilizing A'n D Cable "ZeroU" RackOrganizer$^{®}$ Cable Managers.

Using 28-AWG patch cabling, which are 36% skinnier, can help increase rack utilization and open more available space in the same rack layout. Using the identical port count (480) and network equipment. On the cross connect rack, the 28-AWG cabling allows us to effectively use high-density patch panels - 48 ports in 1 RU rather than in 2 RU - thereby *cutting in half the RU space needed for patch panels. So 9 RU, rather than 18 RU*, are occupied by ports.

You now are occupying only a total of 38RU between the 2 racks.

Now that you know the concept in general terms, I am going to apply equipment costs to show you how much you can save on your refit or next installation of a typical 2 rack system.

<u>Rack Refits:</u>
After removing (10) 2-RU horizontal managers and replacing each with a "ZeroU" RackOrganizer® you have freed up 20RU space in this rack or cabinet.
Your cost for the (10) ZeroU RackOrganizers® is $340.00

You have now freed up enough space on this rack for another 432 ports.
Install your next (9) 2-RU patch panels and (10) "ZeroU" RackOrganizers® in this same rack.
By spending $680.00 you have eliminated the need for a $1600 to $3000.00 cabinet for your next system. You have also gained the footprint of a rack in your datacenter because you now are occupying only 3 racks instead of 4.
Repeat this process a few more times and you can see the savings stack up!

Take it one step further and replace bulky space hogging vertical cable managers with 4" wide Vertical managers and now you are able to place more racks in a row. You will have created an organized and efficient cable management system which contributes to a positive ISO audit.

<u>New installations:</u>
Using 28-AWG patch cabling, which are 36% skinnier, increases rack utilization and opens more available space in the same rack layout. 28-AWG cabling allows you to use high-density patch panels - 48 ports in 1 RU rather than occupying 2 RU - thereby cutting in half the RU space needed for patch panels. <u>So 18 RU, rather than 36 RU, are occupied for 864 ports.</u> This same rack using 28AWG patch cords and A'n D Cable "ZeroU" RackOrganizers® with 1RU 48 port patch panels will hold another 864 ports.

<u>CONCLUSION: Every 4 systems now require only 5 cabinets or racks instead of 8</u>

Note: Patch cord considerations when using 28-AWG cords.

TIA-568-C specifies a maximum 100-meter length channel for copper cabling, which comprises 90 meters of permanent link cabling (typically solid cable) and a total of 10 meters of patch cabling. If you use 28-AWG patch cabling, you must adhere to a de-rating factor that reduces the maximum channel length achievable.

If your goal is to maintain the 90-meter permanent link, *a total of 6 meters of 28-AWG patch cord can be used, for a 96-meter channel length.*

If your goal is to maintain *10 meters of total patch length*, then the maximum permanent-link length must be adjusted to 83 meters, for a maximum channel length of 93 meters.

Contact Louis Chompff at A'n D Cable to see how you can optimize the rack space in your data center or telephone room.

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