The IP-Based Distributed Entertainment Company.

Products Included:

DigiLinX

SwitchLinX™

DIGILINX™ Technical Bulletin

Recommended Rack Architecture for *DigiLinX*

This technical bulletin covers best practices in recommended rack architecture design for *DigiLinX*. There are four main areas of concern in designing a rack architecture for *DigiLinX*. These are:

- Heat
- Dirt
- Humidity
- Aesthetics

This technical bulletin also provides examples of good rack architecture design.

Heat

The following are general guidelines concerning heat and *DigiLinX* equipment:

- Remember that the maximum operating temperature for *DigiLinX* components is 50° Celsius or 122° Farenheit. With the equipment installed and operating, the room should not be above 80° Farenheit for best practices.
- Use a rack that is at least 20% to 25% larger than the rack units needed for equipment.
- Place high heat components toward the *top* of the rack.
- Do not mount *SwitchLinX* near hot components.
- Use blank plates or vented panels where possible to help bring cool air to dissipate heat and provide positive airflow through components.
- Plan for heat dissipation by providing ample space between components in the rack. Do *not* overcrowd the rack.
- Plan for positive displacement of air by using fans at the top and bottom of the rack.
- Beware of opposite heat flow and convection. Remember that:
  - hot air flowing out of one piece of equipment should *not* flow into another device.
  - you should know the direction of airflow in and out of equipment *before* designing your rack or mounting the equipment.

Dirt

Dirty components can prevent heat sinks from dissipating heat properly, as well as clog up fans and reduce airflow. A few guidelines to avoid dirt are:

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- Use filters on the suction side of movement fans to prevent dust buildup inside the rack.
- Clean filters regularly because the dirt in the filters will reduce airflow.
- Build these checks into your regularly scheduled service visits to the installation.

Humidity

A humid environment can cause condensation inside of equipment and that can lead to shorted internal components. Moisture inside equipment may also promote corrosion. Never install a rack in or near a high humidity area such as a pool, sauna, washroom, bathroom, or outdoors.

Aesthetics

A well designed rack will be neatly groomed and follow these best practices:

- Keep AC wires separated from audio wires and data wires.
  - The more current a device consumes, the larger the magnetic field around the power cable will be. Bundling audio cables or data cables with power *will* interfere with data transmission on UTP cables.
  - Use lacing rails to run power cables completely away from other cables.
  - To prevent “cyclic hum,” ensure that all interconnected equipment is fed from the same phase on the electrical feed line to the rack. It is always good practice to use power conditioners and/or a UPS (Uninterruptable Power Supply) system. If a power conditioner is used, ensure that all audio input/output equipment is fed from an isolation transformer. Panamax offers several models which offer such isolation.
  - If you *must* run audio or data wire across an AC feed, do so in a 90 degree attitude to minimize EMI (Electromagnetic Interference).
- Do not bundle AC wires and data cables because this can cause “digital clicking.” .
- Use lacing rails when trimming a rack. They will allow you to run audio cables together and separated from other cables. They will also keep your rack looking neat and tidy, as well as make changing out components and troubleshooting much easier.

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Examples of Good Rack Architecture Design

Figure 1 and Figure 2 are examples of good rack architecture design.

Figure 1 Example 1 of Good Rack Architecture Design

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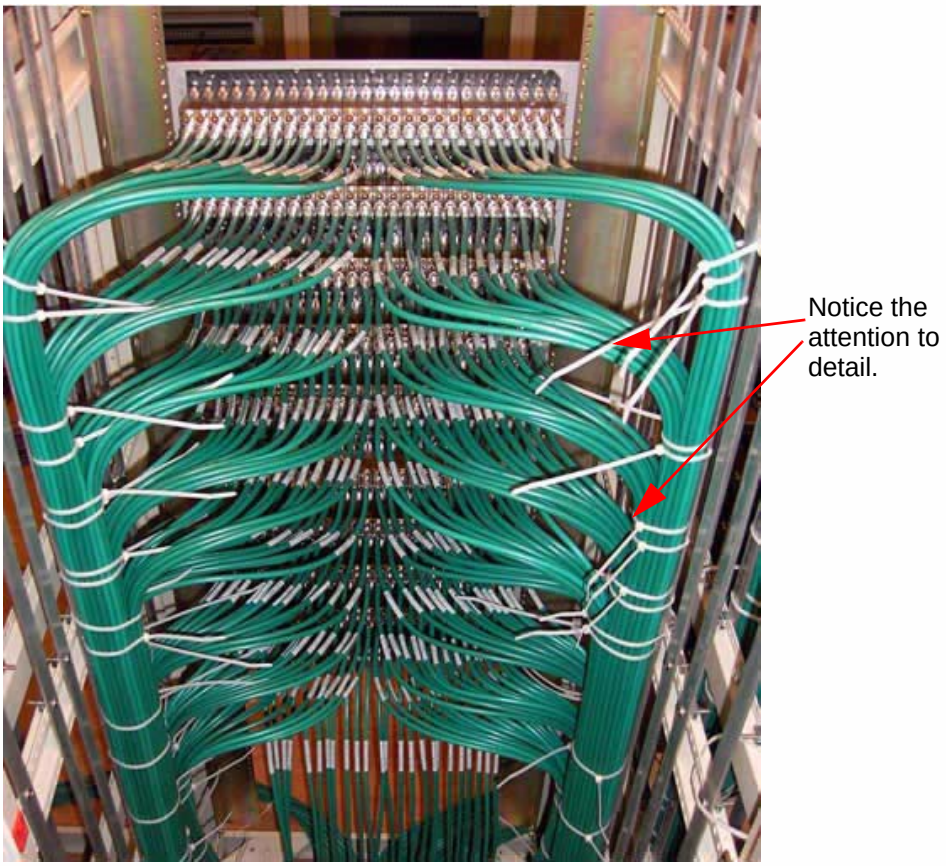

Figure 2 Example 2 of Good Rack Architecture Design

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