

Non-Industrial Use of P802.3cg

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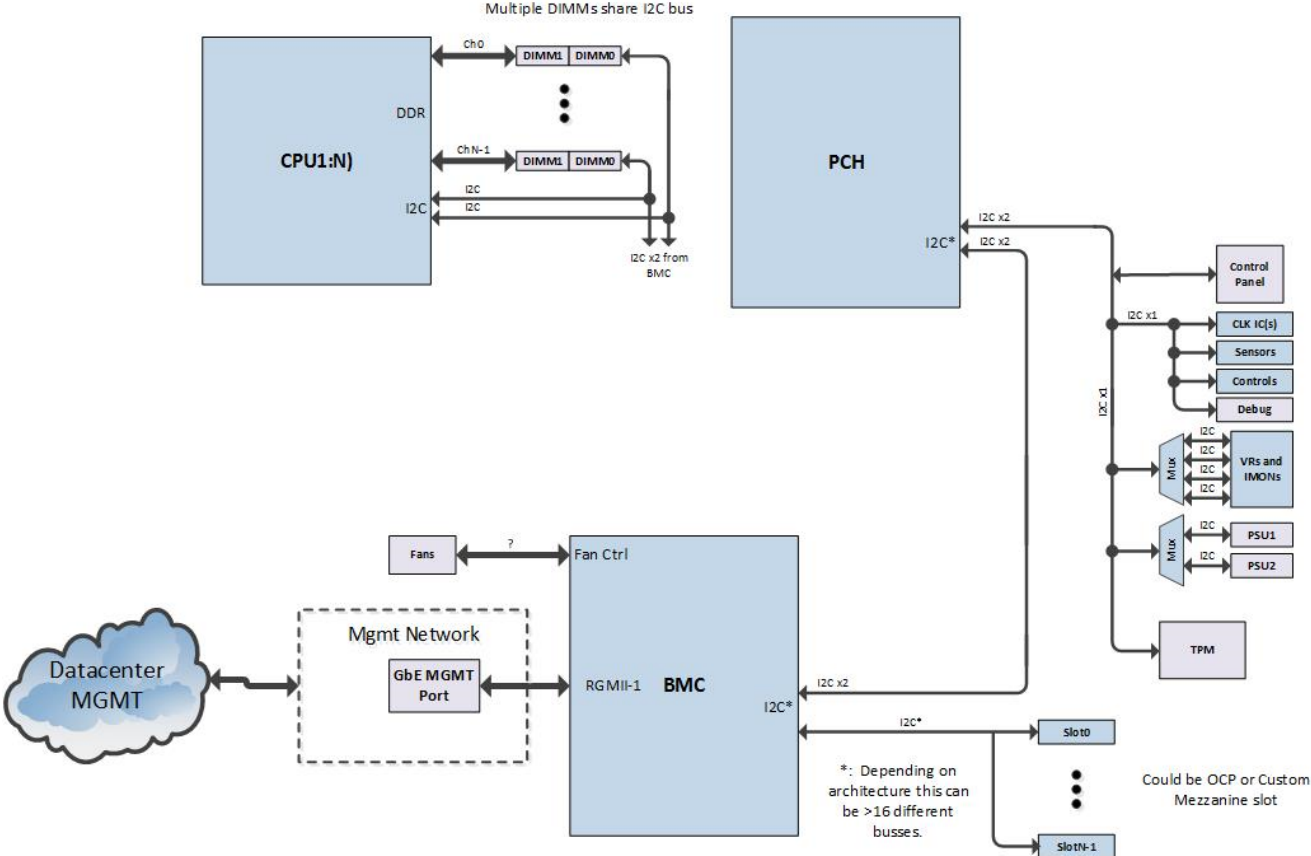
The Dell EMC logo is located in the bottom right corner of the slide. It features the word "DELL" in a white, sans-serif font, followed by a stylized icon of three curved lines representing a Dell logo, and then the word "EMC" in a white, sans-serif font. The background of the slide is a dark, high-contrast photograph of a city skyline at night, with numerous skyscrapers illuminated by lights, creating a bokeh effect in the foreground.

DELL EMC

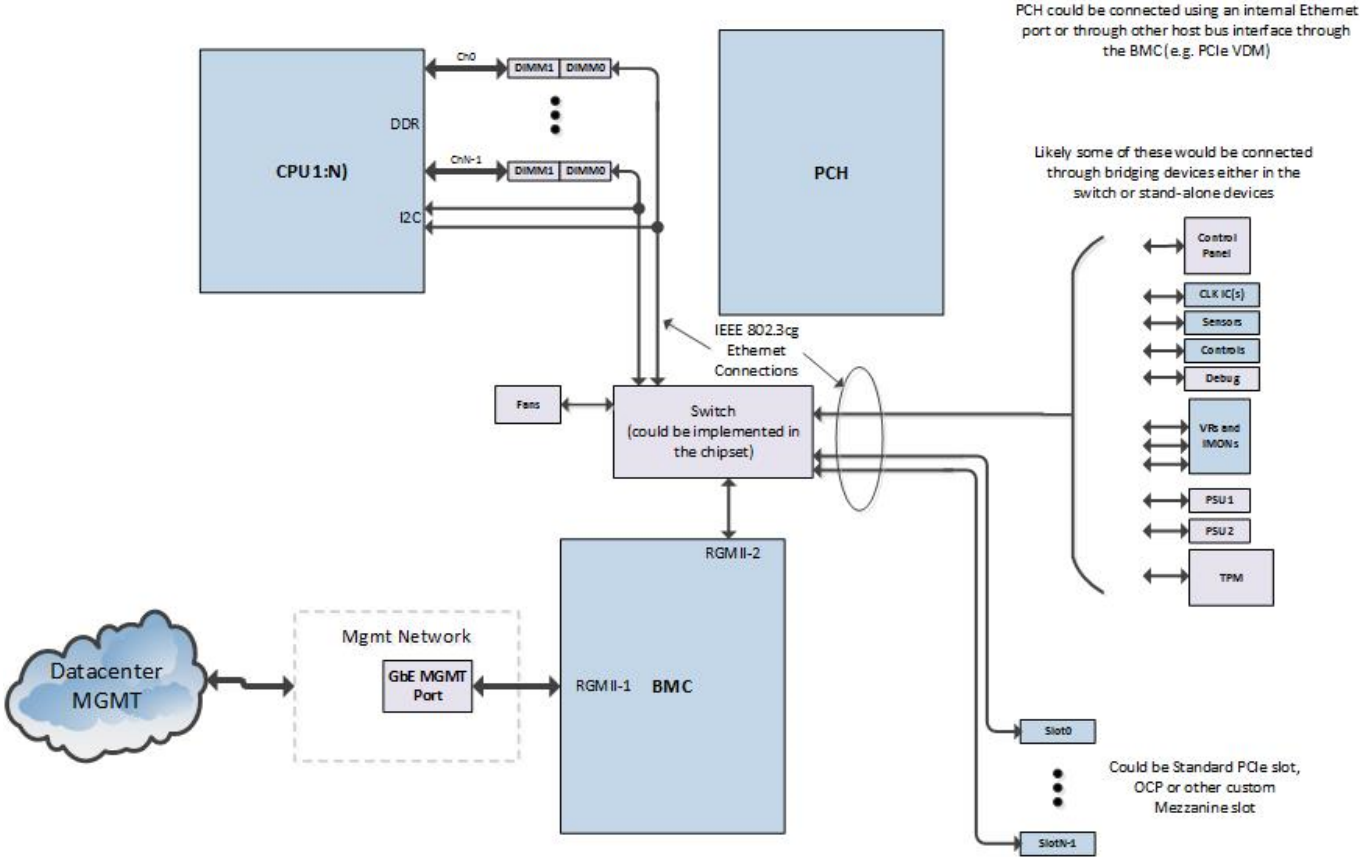
Current Server Architecture

- Device to device communication in a server uses a variety of bus technologies typically connected using multiple topologies.
 - SMBus/MDIO (or I2C)
 - SPI
 - UART
- These legacy busses while having performed well for many years are a design challenge for baseboard management controllers (BMCs) especially from a SW perspective.
 - Many of the devices while claiming “compliance” require special drivers to operate properly

Block Diagram – Current Architecture



Proposed new architecture (Near Term)

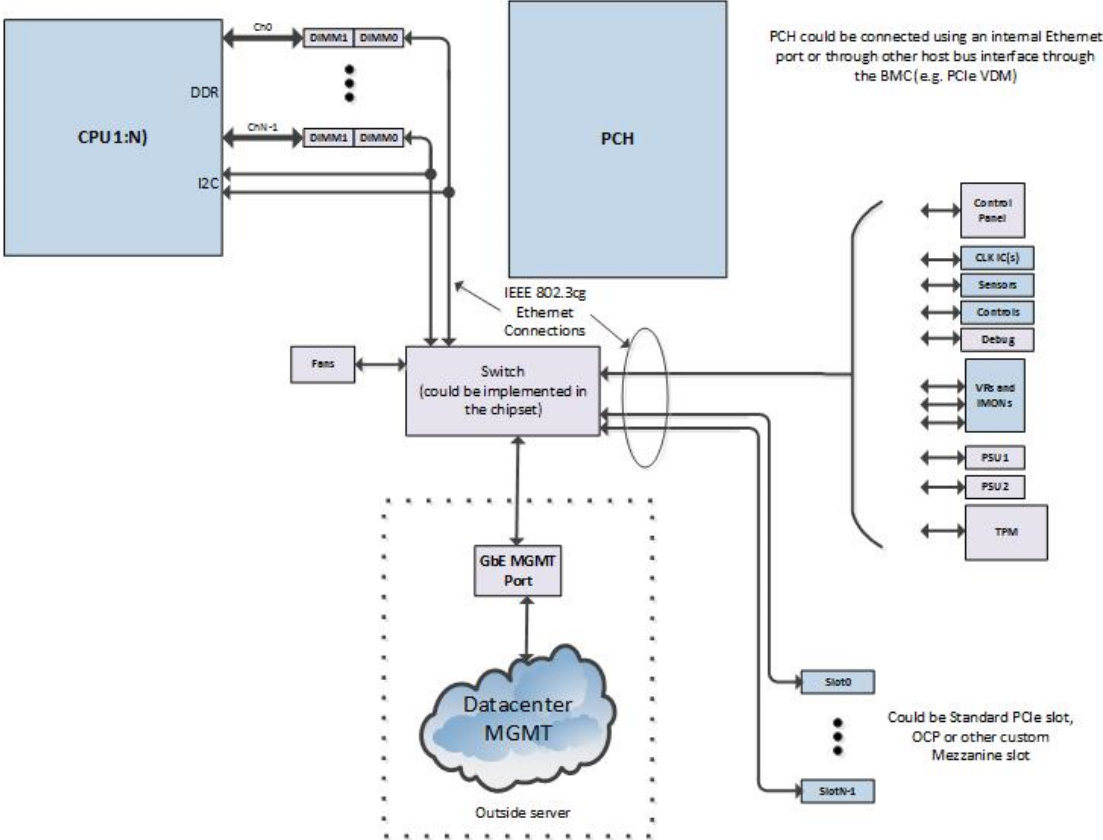


PCH could be connected using an internal Ethernet port or through other host bus interface through the BMC (e.g. PCIe VDM)

Likely some of these would be connected through bridging devices either in the switch or stand-alone devices

Could be Standard PCIe slot, OCP or other custom Mezzanine slot

Future new architecture (Long Term)



Why 10 Mbps Single Twisted Pair Ethernet?

- Same number of pins as SMBus which would maintain current PCIe standard pin count while adding network functionality.
- Using Ethernet allows for discovery of devices using a common BMC driver.
 - Going from >10 custom drivers to a standard Ethernet driver reduces complexity on the BMC coding and will greatly reduce validation time now required for all custom implementations.
- As the compute node and networking “converge” there is a fine line between what is in a traditional server and what is in the networking “Ether”
 - External PCIe Expanders
 - Chassis servers
 - Modular server implementations. Ethernet provides a standard ubiquitous management communication path
- Easier for automated alerts than multi-master SMBus.
 - Using SMBus multiplexers makes multi-master difficult → impossible. Thus scanning the bus continuously is required.
 - Using Ethernet the endpoint could transmit the alert at any time without a master/slave relationship.

What is being requested?

- PHY capable of supporting at least 24" of PWB trace on standard FR4 material using standard routing guidelines.
- Potential for silicon vendors to provide bridging devices to expedite moving to this topology.
- Consider multi-drop to reduce the total number of required segments.
 - Some manageable devices do not need a substantial amount of data transfer. These devices would still benefit from moving away from the master/slave topology and allow automated alerts.
 - › DIMMs are one example where this could be used. Alternatively a bridge device could be designed that would act as a DIMM controller for management features (temp, ...)

Thanks 😊