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Assignment 1 – Initial Idea
Due: Monday Jan 28 2013
EE – 322 – Design 6

LED Ethernet Cable

When trouble shooting a network problem a first step can be to verify the physical network connection. If the end device in question is right next to its next hop it is an easy job; check the cable is in working condition, verify that the cable is connected into the correct ports and that the link light are on at either device.

However it can be a rare case when the two are in close enough proximity for this to be possible. Devices can be located anywhere within a data center or a Main Distribution Frame which can spread over hundreds of feet, or even on different floors of a building. If there are only the two devices it would be a simple feet over the distance, but this is not usually the case; the devices will be mixed in a field of hundreds or even thousands of devices and connections. Depending on existing documentation and physical organization of the equipment it could be very time consuming to locate cables and connection points, and then determine which point is the cause of failure.

As there are link lights at each device one can then easily determine if there is a basic network connection active, that is if one has access to each device. Rather than it being a requirement to have access to the device to see a link light, it could be possible to go to any connection point in the run and see a link light. This can be accomplished by have LEDs embedded within the connectors at either end of every cable within the end-to-end run. These LEDs would look similar to those in some USB devices that light up when connected. They would not require any additional cabling to power as they can utilize that which is in the Ethernet, however may require Power over Ethernet devices. These LEDs could display information such as full end-to-end connection being active, or only a connection up to a certain point is active.

The cables could add functionality, without requiring extra outside equipment to use. They could be used in a verity of applications further that just assistance in trouble shooting. In the initial set up of devices, or with a changing environment, it would be easier to determine which connections were active, inactive, or need to be made active without the need to go to every end device that was added or removed.