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Fibre Channel use of IEEE Global Identifiers X3T10/95-276 (GID 48) coming: GID 64!

The highest level architecture of Fibre Channel (FC) consists of multiple Nodes (workstations, disk arrays, supercomputers etc.) interconnected by an active intelligent interconnection scheme called a Fabric. Allowance is made for Nodes which have multiple ports (N_Ports), and each N_Port is connected to a separate Fabric port (F_Port). In the base FC standard - ANSI X3.230-1994, Fibre Channel Physical and Signaling Interface (FC-PH) - the N_Port to F_Port interface is defined explicitly but the operation of the Fabric is only defined in terms of a functional model. However other FC standards define Fabrics using specific technologies, and based on a specific topology.

The Fabric model defines a single, homogenous, 24 bit address space, and those "short" addresses are the basis for routing information within the Fabric. However the protocol supported by the N_Port/F_Port interface is also capable of transporting "long" addresses of up to 60 bits in length. These addresses may be globally unique types defined by a number of standards bodies worldwide. FC-PH generically refers to these addresses as WorldWide Names (WWNs). Methods of address resolution are provided between the WWNs and the FC "short" addresses.

These WWNs have two different uses. First, they are used to provide unique identification of items within a FC configuration. Second, they are used to facilitate routing in situations where the FC configuration is a small part of a larger wide area network, or where the Upper Layer Protocols being transported by FC assume the use of those long addresses. A prime example of such an Upper Layer Protocol is the IEEE 802.2 Logical Link Layer protocols mapped to FC as defined by the FC Link Encapsulation (FC-LE) scheme.

For the first use, it is acceptable that a single WWN be provided for each Fabric and each Node, and this is then used with a local qualifier to identify the specific port.

The situation for the second use is more complex. Where:

a) an application designed for an IEEE 802 LAN is moved with minimal modification into a FC environment;
b) communication occurs between an FC-LE Entity and an IEEE 802 station on a LAN; or
c) FC provides an intermediate part of a path between two IEEE 802 stations on LANs. (which is handled by IEEE 802.1G remote bridging.)

it is strongly suggested that each N_Port and F_Port be assigned its own WWN.

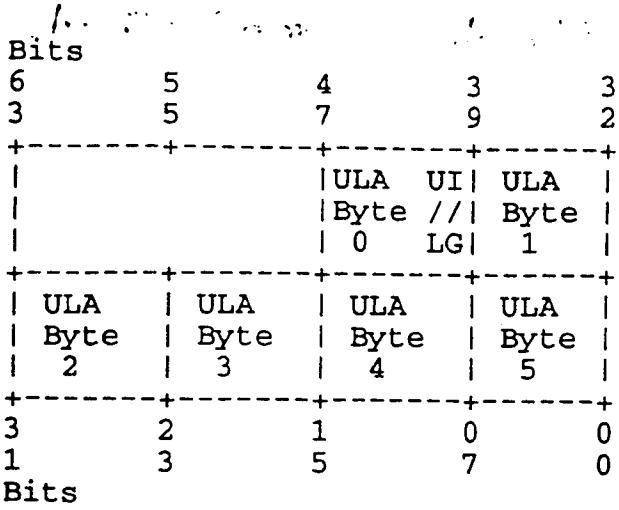
In addition, the use of bridging techniques to communicate between Entities implementing FC-LE and systems on an IEEE 802 LAN to:

a) allow the FC-LE entity be able to address the system on the IEEE 802 LAN; and
b) allow the system on the IEEE 802 LAN to use ULAs to address the FC-LE Entity

requires that each N_Port and F_Port be assigned its own WWN.

One of the formats defined as usable for a WWN is an IEEE 48 bit address format. This is specified to contain a 48 bit IEEE Standard 802.1A Universal LAN MAC Address (ULA). The ULA is represented as an ordered string of six bytes numbered from 0 to 5. The least significant bit of byte 0 is identified as the Individual/Group Address (I/G) bit. The next least significant bit is identified as the Universally or Locally Administered Address (U/L) bit. It is further specified that layout of the bytes in two FC standard 32 bit

words is as follows:



Note that all fields in the FC-PH standard are defined as having the most significant bit in the highest numbered bit position, and the most significant byte in the position closest to the start of the FC-PH Packet.

The FC-PH standard identifies no further details of the contents of the ULA.