a. MULTI PROTOCOL LABEL SWITCHING (MPLS)

i. Multiprotocol Label Switching (MPLS) is a mechanism in high-performance telecommunications networks that directs data from one network node to the next based on short path labels rather than long network addresses, avoiding complex lookups in a routing table. Packet-forwarding decisions are made solely on the contents of this label, without the need to examine the packet itself. This allows one to create end-to-end circuits across any type of transport medium, using any protocol.

ii. MPLS operates at a layer that is generally considered to lie between traditional definitions of layer 2 (data link layer) and layer 3 (network layer), and thus is often referred to as a "layer 2.5" protocol. It was designed to provide a unified data-carrying service for both circuit-based clients and packet-switching clients which provide a datagram service model. It can be used to carry many different kinds of traffic, including IP packets, as well as native ATM, SONET, and Ethernet frames.

iii. MPLS (Multiprotocol Label Switching) data network provides connectivity that meets the industry standards for consistent, secure and reliable data delivery. IP services would be extended through carrier Ethernet access networks at all the POWERGRID (Telecom) locations, inter-connected to MPLS-IP CORE network. All the offices, factories & business locations of an enterprise can be networked to provide seamless connectivity for managed data & voice services exclusively for the organizations. This saves considerable revenue on telecom over & above virtually owning a telecom network.

iv. Three (3) tier architecture is planned:

- 8 Core locations, 26 Edge locations & 82 access locations
- Two (2) routers planned at each of protected Sub-stations for NTAMC
- Main NOC at Delhi and DR-NOC at Hyderabad. MPLS Lab at NOC.