Ethernet over First Mile Copper

Broad Market Potential

- Multi-tenant residential and business access networks represent a market of greater than 25 and 4 million nodes respectively in the US (US DOE building survey)
- Less than 2% of these have data grade cabling
- Commercial services (MTU) include multi-megabit high-speed internet access and transparent LAN services
- Residential applications include alternatives to (coax) cable distribution of video
- Green-field opportunity exists to build video distribution networks

Compatibility

- EFM over Copper shall be compatible with 802 overview and architecture
  - EFM over copper must be a PHY layer only proposal
  - Ethernet media access control techniques
  - Transparent to upper layer protocols and services

Distinct Identity

- EFM over copper is distinct from existing 802 stds
  - Proposal for a unique media solution
    - Single pair of copper
    - Type/length of cable

Technical Feasibility

- Viability of EFM Copper solutions
  - xDSL is shipping in volume from major vendors
- EFM over copper proposals and implementations demonstrate the ability to run Ethernet over a single pair of voice grade copper at distances up to 18,000ft or speeds up to 52Mbps
- Potential exists to reference specifications from other standard bodies
  - ETSI TM6
  - ANSI/ASC T1/E1.4

Economic Feasibility

- Existing xDSL solutions provide a basis for reliable cost data for EFM over copper
- The combination of xDSL PHY with Ethernet protocol will reduce the solution cost as compared with competitive technology
- Enhances economic feasibility when using existing copper cabling

Objectives

- Copper
  - Single pair of non-loaded voice grade copper
  - Distance
  - Speed
  - Point-to-point full duplex topology
  - Short reach vs. long reach applications for VDSL
  - Symmetric vs. asymmetric modes
  - OA&M