

IEEE 802.5v - Gigabit Token Ring

Richard Knight

Irvine CA, 12th March 1998



Gigabit Token Ring - Assumptions

2

- Based on 802.3z/ab Gigabit PHY layers
- MAC layer similar to 802.5t (Albeit with GMII)
- 802.5t clause 13/14 frame sequence
- Media Options?
 - Fiber (MMF SX & SMF LX)
 - Copper (Short haul CX and Long haul T)



- **Based on Fibrechannel (ANSI X3.230-1994)**
- **8B/10B balanced coding scheme**
 - high transition density - no scrambler
 - run length limited with alignment symbols
 - DC balanced with disparity error check
- **PHY chips available**
 - Ex-fibrechannel ANSI 10B Symbol interface
 - Newer parts use 8-bit 125MHz GMII
- **Draft went to LMSC ballot Nov 1997**



Gigabit Token Ring - Fiber/Short Copper

4

- Sequence control uses Ordered Sets
- Start sequence delimiter set /S/ (1 octet)
- End sequence delimiter set /T/R/R/ or /T/R/ I / (3 octets)
- IFG & FILL sets / I / or / I / (2 octets)
- Autonegotiation Configuration set /C/C / (4 octets)
- Transmit Error set /V/ (1 octet)



- Is link configuration using /C/C / compulsory?
- 8-bit GMII
 - line error can appear as tx abort (NAJ66)
- GMII PHY Identifier register compatibility
- Can we use real phantom with CX PHYs?
- Short or long frame problems?
 - Any issues due to Carrier Extend
- Connector Wars



Gigabit Token Ring - Long Haul Copper

6

- **4-pair balanced Cat 5 UTP**
 - **Each pair supporting 250Mbit/s full duplex**
- **100 metres range**
- **FCC Class A support**
- **Link pulse autonegotiation**
- **125Mbaud 5-level PAM coding**
- **WG Ballot at this plenary**



- Please contact me with any comments/ideas for the first draft:

Tel: (+44) 1753 661293

Email: rknight@madge.com

