

THE 5 CRITERIA (100 Mbit/s DTR over 2-pair cabling)

- Show that the proposed solution satisfies the "5 Criteria"
- IEEE 802.5 Criteria
  1. Broad Market Potential
  2. Compatibility
  3. Distinct Identity
  4. Technical Feasibility
  5. Economic Feasibility

## **1. BROAD MARKET POTENTIAL**

### **REQUIREMENT:**

A standards project authorized by IEEE Project 802 shall have a broad market potential. Specifically, it shall have the potential for:

- Broad Sets of Applicability

### **RESPONSE:**

This standard will specifically address the needs of the Token Ring marketplace which is presently estimated to be more than \$2 Billion/year. The following classes of applications have been identified that would benefit from the availability of higher bandwidth technology:

- High-Speed transfer of traditional data
- Client/Server Computing
- Database
- Imaging
- Computer Aided Design and Modeling

There are also emerging applications which will benefit from higher throughput with bounded latency including:

- Video and teleconferencing
- Interactive Video training
- Real time control

28 Participants have expressed interest in working on this project.

**FOR: 21 AGAINST: 0 ABSTAIN: 0**

**REQUIREMENT**

- Multiple vendors, numerous users

**RESPONSE:**

As stated above, the Token Ring market exceeds \$2 Billion / year. A High Speed Token Ring offering will provide that user base with a technology that allows straightforward bridging and interconnect to the legacy installation with a minimal increase in network complexity.

High Speed Token Ring frame format and management compatibilities with existing 802.5 Token Ring applications will ensure a large number of users can seamlessly migrate to this technology.

28 participants representing at least 16 companies indicate that they plan to participate in High Speed Token Ring standardization.

One survey of 27 Fortune 1000 users showed strong support for introduction of this technology. A second survey of 20 Fortune 1000 users also showed strong support for introduction of this technology.

**FOR: 21 AGAINST: 0 ABSTAIN: 0**

**REQUIREMENT:**

- Balanced costs (LAN versus attached stations)

**RESPONSE:**

Since High Speed Token Ring will use much of the same MAC design used in Token Ring and readily available high speed PMD hardware, the costs should be in line with these proven and accepted technologies.

**FOR: 20 AGAINST: 0 ABSTAIN: 1**

## **2. COMPATIBILITY**

### **REQUIREMENT:**

IEEE Project 802 defines a family of standards. All standards shall be in conformance with 802.1 Architecture, Management and Interworking. All LLC and MAC standards shall be compatible with ISO/IEC 10039, MAC Service Definition at the LLC/MAC interface. Within the LLC Working Group there shall be one LLC standard, including one or more LLC protocols, with a common LLC/MAC interface. Within a MAC Working Group there shall be one MAC standard and one or more Physical Layer standards with a common MAC / Physical Layer interface.

Each standard in the IEEE Project 802 family of standards shall include a definition of managed objects which are compatible with OSI systems management standards.

### **RESPONSE:**

High Speed Token Ring will be based on the 802.5 frame format and therefore will be compatible with the LLC/MAC interface, and 802.1 interworking. Its scope includes managed objects consistent with 802.1 Management.

There will be a single MAC, supporting multiple physical layers.

The High Speed Token Ring proposal is conformant to 802 Functional Requirements.

It is compatible with 802.1 architecture.

**FOR: 21 AGAINST: 0 ABSTAIN: 0**

### 3. DISTINCT IDENTITY

#### REQUIREMENT:

Each IEEE Project 802 standard shall have a distinct identity. To achieve this, each authorized project shall be:

- Substantially different from other 802 projects

#### RESPONSE:

High Speed Token Ring is distinct from other LAN solutions including FDDI, 802.12, and 802.3, because none of these also provide support for all the following capabilities:

- Eight native user priority levels allowing for priority differentiation in bridging and routing across the LAN.
- Variable frame sizes ranging from 22 to 18200 octets.
- Compatibility with present applications designed for 802.5 Token Ring.
- Same cable and pin usage as existing Token Ring applications.
- Native source routing support.
- Compatibility with existing Token Ring management applications.
- Allows seamless and inexpensive migration and upgrade path for existing 4/16 Mbit/s Token Ring users.
- Leverage Customers' and Implementers' knowledge and experience base with regard to: Building, managing, and running their networks.

FOR: 18 AGAINST: 0 ABSTAIN: 2

#### REQUIREMENT:

- One unique solution per problem

#### RESPONSE:

High Speed Token Ring over two pair copper wiring is unique since it is the only proposed technology addressing the native 802.5 transport of Token Ring frames at 100 Mbit/s over two pair copper wiring.

FOR: 20 AGAINST: 0 ABSTAIN: 0

#### REQUIREMENT:

- Easy for document reader to select relevant specification

#### RESPONSE:

The PICS Proforma of the standard will clearly identify the relevant specifications supported by conformant product.

FOR: 20 AGAINST: 0 ABSTAIN: 0

#### **4. TECHNICAL FEASIBILITY**

##### **REQUIREMENT:**

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:

- Demonstrated system feasibility

##### **RESPONSE:**

Token Ring MAC devices are available today and have a proven track record.

Dedicated Token Ring functionality is also available.

100 Mbit/s PMDs are available to provide transport for High Speed Token Ring frames.

There are no significant technical obstacles to developing a solution from these subsystems to implement High Speed Token Ring.

**FOR: 20 AGAINST: 0 ABSTAIN: 0**

##### **REQUIREMENT:**

- Proven technology, reasonable testing

##### **RESPONSE:**

The MAC technology is similar to 4 and 16 Mbit/s Token Ring entities.

The PMD hardware will be comparable to that used to deliver Fast Ethernet.

It is expected that no implementation "breakthroughs" will be required to implement this standard.

There are millions of end stations and ports in operation.

**FOR: 20 AGAINST: 0 ABSTAIN: 0**

##### **REQUIREMENT:**

- Confidence in reliability

##### **RESPONSE:**

The reliability of existing Token Ring products provides adequate confirmation that the High Speed Token Ring interface will be reliable.

High Speed Token Ring will be based on technology which has evolved specifically for Local Area Networks.

**FOR: 20 AGAINST: 0 ABSTAIN: 0**

## **5. ECONOMIC FEASIBILITY**

### **REQUIREMENT:**

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated), for its intended applications. At a minimum, the proposed project shall show:

- Known cost factors, reliable data

### **RESPONSE:**

It is expected that cost factors will be comparable with present Token Ring hardware.  
The technology will reuse low cost PHYs combined with Token Ring MACs.

**FOR: 18 AGAINST: 0 ABSTAIN: 3**

### **REQUIREMENT:**

- Reasonable cost for performance

### **RESPONSE:**

High Speed Token Ring will offer considerably better cost/performance than existing 16/4 Mbit/s Token Ring.

**FOR: 17 AGAINST: 0 ABSTAIN: 4**

### **REQUIREMENT:**

- Consideration of installation costs

### **RESPONSE:**

Provides a graceful upgrade path for existing Token Ring users.

Migration changes will be targeted to the backbone, wiring center equipment, servers, and those work stations requiring higher network bandwidth.

ISO/IEC 11801 compliant wiring plants with CAT5 or STP cabling will not require modification to support High Speed Token Ring.

**FOR: 19 AGAINST: 0 ABSTAIN: 2**