Project Proposal For A New INCITS Standard
Fibre Channel - Inter-Fabric Routing

(FC-IFR)

T11/04-755v1

1 Source of the Proposed Project

1.1 Title

Fibre Channel - Inter-Fabric Routing (FC-IFR).

1.2 Date

7 December 2004.

1.3 Proposer(s)

INCITS TC T11, with a current membership of 52.

2 Process Description for Proposed Project

2.1 Project Type (Development or Revision)

Type D (Development done within INCITS TC T11).

2.2 Type of Document

Standard.

2.3 Definition of Concepts and Special Terms

None.

2.4 Expected Relationship with Approved Reference Models, Frameworks, Architectures, etc.

All Fibre Channel standards are intended for use in closed systems.

2.5 Recommended INCITS Development Technical Committee (Existing or New)

It is recommended that this project be assigned to TC T11, in order that the project be coordinated with work on other Fibre Channel standards.

2.6 Anticipated Frequency and Duration of Meetings

This project will make use of the regularly-scheduled bimonthly T11 plenary meetings. Informal Working Groups will be organized on an ad-hoc basis.

2.7 Target Date for Initial Public Review (Milestone 4)

October 2006.

2.8 Estimated Useful Life of Standard or Technical Report

It is anticipated that this standard will have a useful life of over 10 years.

3 Business Case for Developing the Proposed Standard or Technical Report

3.1 Description

This project proposal recommends the development of a set of protocols and methods to be used to enable selective communication among Nx_Ports connected to different Fabrics. This communication will be made possible by defininig a new type of Fibre Channel function called Inter-Fabric Router. The Inter-Fabric Router entity will enable this communication without requiring any change to the Fibre Channel FC_Ports defined in FC-FS and FC-AL-2, or to the Fibre Channel Switches defined in FC-SW-3. To the extent possible, an Inter-Fabric Router entity will operate in a manner independent of existing Fabrics and practices. Included within the scope of this project are the following items:

a) Definition of how an Inter-Fabric Router shall perform frame routing for both unicast and multicast/broadcast communication;

b) Definition of the information (in the form of additional Extended_Headers for FC-FS-2) augmenting the Fibre Channel header to allow Inter-Fabric Routers to perform frame routing across multiple Fabrics;

c) Definition of a method for Inter-Fabric Routers to discover other Inter-Fabric Routers connected to the same Fabric;

d) Definition of a Routing Protocol that operates among Inter-Fabric Routers over multiple intervening Fabrics to compute inter-Fabric paths;

e) Definition of inter-Fabric zoning to restrict inter-Fabric communication to the Nx_Ports administratively allowed to communicate;

f) Definition of inter-Fabric services;

g) Definition of how to augment the security techniques defined in the FC-SP project to cover the multiple Fabrics case;

h) Any other item deemed necessary for interoperability among different Inter-Fabric Router entities.

3.2 Existing Practice and the Need for a Standard

Today it is common for organizations to deploy different Fibre Channel Fabrics for different applications. Since each Fabric is completely separate and isolated, this deployment model often requires the replication of certain valuable resources (e.g., tape resources) across all Fabrics, increasing the costs of the deployment. There is the need for a solution that avoids this replication of resources. A better approach is to interconnect Fabrics without merging them. This can be accomplished through Inter-Fabric Router entities, allowing selective communication among Nx_Ports connected to different Fabrics. A standard is needed to define the interoperable behavior of Inter-Fabric Routers, without requiring changes to existing Fibre Channel Switches and FC_Ports.

3.3 Implementation Impacts of the Proposed Standard

3.3.1 Development Costs

This standard will be developed through the voluntary and cooperative efforts of T11 Task Committee members. No significant development costs are anticipated.

3.3.2 Impact on Existing or Potential Markets

The proposed standard will provide an upward growth path that complements and enhances existing supplier products and support schemes. The proposed standard will result in expanded applications for existing and conceived products in both the channel and network markets.

3.3.3 Costs and Methods for Conformity Assessment

The committee will consider the results of testing provided to the committee through the voluntary efforts of the participants in T11. With this method all costs are borne by the organizations of the various participants and have for the most part been mainly an adjunct of their normal development costs.

3.3.4 Return on Investment

The return on investment for this development is expected to be high, due to the commonality of effort directed to a singular method of providing the services covered by the proposed standard.

3.4 Legal Considerations

3.4.1 Patent Assertions

Calls will be made to identify assertions of patent rights in accordance with the relevant INCITS, ANSI and ISO/IEC policies and procedures. T11 is aware of patent assertions that have been made and letters indicating compliance with INCITS policies have been received.

3.4.2 Dissemination of the Standard or Technical Report

Drafts of this document will be disseminated electronically. Dissemination of the final standard will be restricted as the document becomes the property of INCITS, ANSI, or ISO/IEC.

4 Related Standards Activities

4.1 Existing Standards and Technical Reports

ANSI INCITS 332-1999, *Fibre Channel - Arbitrated Loop (FC-AL-2)*

ANSI INCITS 372-2003, *Fibre Channel - Backbone Generation 2 (FC-BB-2)*

ANSI INCITS 373-2003, *Fibre Channel - Framing and Signaling Interface (FC-FS)*

ANSI INCITS 384-2004, *Fibre Channel - Switch Fabric - 3 (FC-SW-3)*

ANSI INCITS 387-2004, *Fibre Channel - Generic Services - 4 (FC-GS-4)*

4.2 Related Standards Activity

Project 1466-D, *Fibre Channel - Backbone Generation 3 (FC-BB-3)*

Project 1570-D, *Fibre Channel - Security Protocols (FC-SP)*

Project 1619-D, *Fibre Channel - Framing and Signaling - 2 (FC-FS-2)*

Project 1620-D, *Fibre Channel - Link Services (FC-LS)*

Project 1674-D, *Fibre Channel - Switch Fabric - 4 (FC-SW-4)*

Project 1677-D, *Fibre Channel - Generic Services - 5 (FC-GS-5)*

4.3 Recommendations for Close Liaison

IETF (IPS and IMSS Working Groups).

5 Units of Measurement used in the Standard

Système Internationale d'Unités (International System of Units).