YET ANOTHER PROPOSAL FOR HSTR-F

Karl Reinke, Bay Networks, 11/13/97

After some discussions with other people on the HSTRA reflector and with other Fast Ethernet people I want to present this list of what I see as the current issues with HSTR-F and proposed solutions.

What Color light is used
(Or making sure everyone is on the same wavelength)

I see 4 solutions to this issue…

850nm

- PRO: compatibility with existing 4/16 products
- CON: reduces maximum run length at 100MB to 500m(?)

1300nm

- PRO: allows 2Km cable run length, 100Base-FX solutions exist
- CON: no support for existing 4/16 base, cross-connection issues with 100Base-FX

BOTH

- PRO: gets distance of 1300nm and compatibility with existing 4/16 base
- CON: may not be technically feasible, and if it is it may be cost prohibitive

EITHER/OR

I am proposing an either/or solution. Allow both 850nm and 1300nm wavelengths in the standard and leave it up to the implementers on what color they use. We will set distance recommendations for both wavelengths at all 3 speeds. If a vendor chooses to use 850nm for their 4/16/100 solution they must live with the 500m limit. However I believe that there are several solutions where this distance is acceptable (server/workstation links, links within the wiring closet). If the vendor wants 2Km links they would implement a 1300nm port/station. NIC vendors could also deliver solutions at 1300nm. To implement this would require an amendment to 802.5j for operation of 4/16 at 1300nm and operation of 100MB at either 850nm or 1300nm.

Making the Connection

There are a few solutions for the type of connector to be used. The proposal I wish to make is tied to the either/or solution to the wavelength question. We would key the connector to the wavelength used by the device. This would help prevent cross connection of 850nm and 1300nm devices. I propose that 850nm stations and ports use the current "SC" style connector as defined in 802.5j. For 1300nm devices we would define a new connector other than "ST". This should help to alleviate the fears of the 802.3 community. I will research this and post more info later. To implement this would require amending 802.5j stating that the current connector is used for 850nm solutions and the new connector is used for 1300nm solutions.

You say Fibre, I say Fiber

The issue of support for single mode fiber has come up. If I understand correctly 802.5j does not currently allow for support of single mode but does not prohibit it either. The 802.5j amendments would give standards for 100MB at 850nm and 1300nm over multi-mode. If we wanted to go back and add single mode support to 802.5j we can do it. It would be a matter of someone stepping up and setting lengths for all 3 speeds at both wavelengths. It would be an issue of manpower and testing to do it and whether we would want to wait for it to be done.

Crazy little things called 100Base-FX and FDDI

Again I wish to re-iterate the feedback from 802.3 that I have received about cross-connection of HSTR-F and 100Base-FX. Hopefully limiting use of the “SC” connector to 850nm and defining a totally new connector for 1300nm should alleviate their fears. If not we may have to do some research into the impact of this scenario and if there is some further that HSTR can do to minimize the risk without adversely impacting our schedule, hardware, software and cost. I think there may also be concerns from the marketplace about this occurring that we would have to address.

As for the impact on FDDI, well let’s just say if they don’t say anything we won’t. But we may wish to also look into the impact of this scenario also in case the marketplace asks this question.

Keying to Success

I now do believe that if we limit the scope of the initial fiber effort to a TXI solution then there will be no need to do 802.5j keying. The fiber link would be run identically to a copper link without phantom.

This means that this only becomes an issue for shared devices in the future. We can choose to do this now or do it later. It is my preference that we do it later. I also believe that we have not done anything to preclude using 802.5j in the future if need be because it is out-of-band of both the MII and PMD.

Hey Mac

As for additions to the mac I do not foresee any additional states other that those being defined for HSTR-T now. As for the issues here…

- COLOR - no impact on mac. I see no need to communicate the wavelength between the port and station since it cannot be changed.
- CONNECTOR - ditto for the connector.
- FIBER TYPE - no impact on mac. Station or port has no ability to know fiber type.
- KEYING - this would be the only thing we would advertise via a mac registration process if it is used in the future

As for existing items in the mac I do not anticipate any problem with a “trade-up” solution if one is defined. The only impact would be on phantom type registration. We would either map the keying definitions into this field or make it undefined for fiber operation and define a new field for keying registration. If we don’t do the key support right now then we can address this later.