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Subject: Re: The Time distribution system

Posted by [Walter F.J. Müller](#) on Thu, 03 Mar 2005 19:43:32 GMT

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The essential function of a time distribution system is to distribute a low jitter clock and an absolute time information. The capability to cause system wide state transitions with clock cycle precise latency allows to implement the absolute time synchronization. All this just requires an unidirectional broadcast type communication.

I'm not convinced by the proposal to add a back channel on top of a passive optical splitter network. The downlink bandwidth available in this approach is very limited, certainly less than any simple ethernet based DCS network, and very likely simply not adequate for efficient control of a larger subsystem.

There are good reasons to run data, time, and control over the same physical link on the very last hop (or 2 hops) to the FEE, mostly if this is already done on an optical link.

However, merging the DCS with the time distribution functionality on one network at the system level is for me not an appealing idea. The first level concentrators or read-out controllers seem to me the right point to connect to the time distribution on one side and a control network (very likely an ethernet) on the other side. Also, it is essential to have a processor at each endpoint of the control network, and it is very convenient to have enough resources to run a full OS. A nice example is the ALICE DCS board.

In summary, I strongly favour to have at the system level two independant networks and interfaces, one for time distribution, and one for control.

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