A preliminary go at the afternoon discussion agenda

Below is a preliminary list of what CERN would like to discuss in the afternoon. The final strategy for the afternoon discussions will only be clear after the morning presentations, but some of these subjects deserve some thinking in advance, so they are posted beforehand to allow the different participants enough time to reflect on them if they consider it appropriate.

1) **Objectives:** it is important to have some objectives for the afternoon in order to keep discussions focused. Clearly, the final objective for CERN is to set up a collaboration that will enable us to launch the timing hardware renovation project with a certain degree of confidence in its outcome. This is certainly a very ambitious goal for a one-day workshop, so we prefer to break it into more realistic items and proceed step by step. It is also very important to discuss technical and managerial aspects separately. The list would then be:

   a. **Technical**
      i. To identify what are the shared/conflicting requirements between CERN and the other labs/companies. From this list, come up with a (list of) promising option(s) for the technical choices, and generate work packages to deal with preliminary studies.

   b. **Managerial**
      i. To make a proposal for the split of the work packages among the different actors.
      ii. To propose milestones/deadlines for the different work packages and a date to gather again and check progress.
      iii. To propose a management model for the collaboration.
      iv. To propose a financial model for the collaboration.

   While it is important to keep the objectives in mind, the discussion in the afternoon does not need to be structured this way. The CERN team will propose an agenda for the discussion after their 14:00-15:00 meeting, but we can already say that some subjects are interesting for us to discuss in any case. Other institutes/companies are welcome to feed the list below. Entries indicate who proposed each point.

2) **Technical options:**

   a. **Time-scheduled vs. event-based timing systems (CERN)**
   These are really two ways of doing things. The first one is very typical of Ethernet-based distributed systems. You tell node 1 to do something at 12:54:54.001, you tell node 2 to do another thing at exactly the same time. You send these messages way in advance, of course. Then your only concern is to have the same local time in every node, which you can do with PTP for example (NTP on steroids). Event-based systems are essentially what we have now at CERN: send a message though the timing network every time you want something to happen. All receivers are pre-programmed to react to this message (a.k.a. event at CERN).
   b. **Packet-oriented vs. time slotted/other transmission schemes (FISS)**
   Similar to the point above.
   c. **Standards compliance vs. proprietary solutions (FISS)**

d. **Mix Technical Network and Timing (CERN)**

How realistic is for a lab like CERN to mix Technical Network (IT) and timing in the same link? There is a clear industrial trend going this way, but do we really have an interest? Other people more oriented towards accelerators are selling dedicated timing systems and doing well.

3) **Collaboration issues:**

a. **Open source (CERN)**

CERN is not really interested in a timing system if it does not have access to its guts. How willing are companies to make business using the open hardware paradigm? This means open schematics, PCB layout, VHDL, etc.

b. **Collaboration models between labs and industry (CERN)**

Intellectual Property and so on.

c. **Funding (CERN)**

Try to set up a collaboration funded with EU money?