Software and Computing:
a brief update

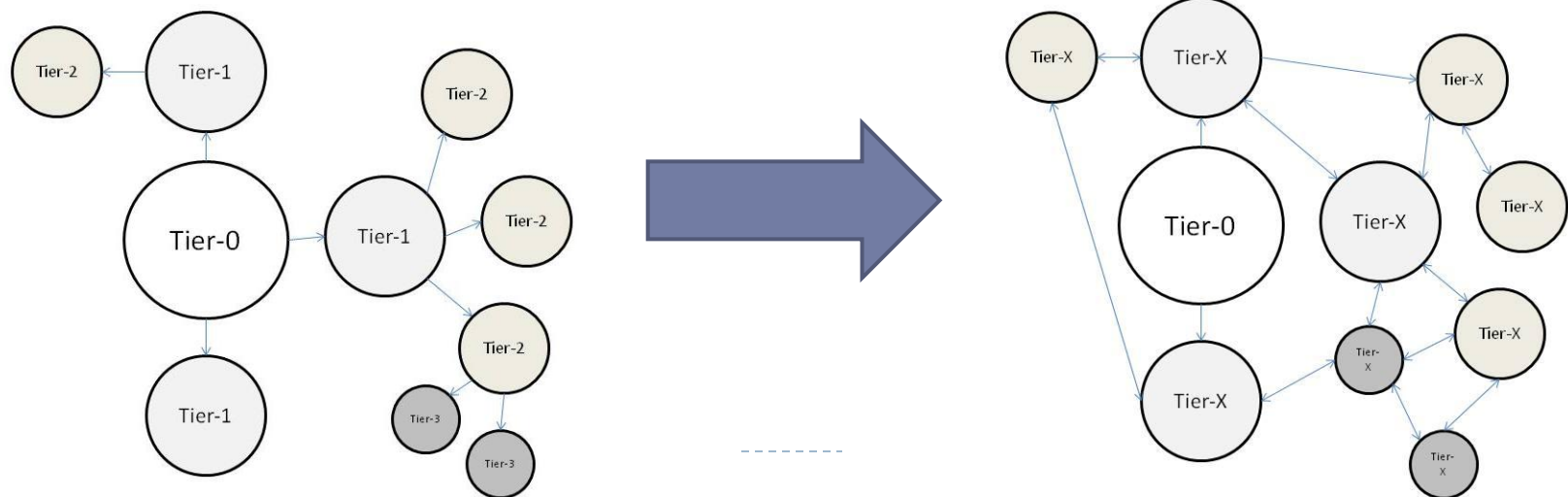Maxim Potekhin

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Preparation for the next review

▸ According to the May'14 review panel, the Computing Model is a priority deliverable for LBNE S&C with ETA of late 2014 for the first version.

▸ Since they also expressed the need of an actual plan, the Computing Model needs a follow-up (or a companion) document termed "Implementation Plan".

▸ A common practice in large experiments is to combine these components in a "Technical Design Report", which will then include

  ▸ The Requirements (these we already have)

  ▸ The Computing Model (work in progress)

  ▸ Implementation Plan

▸ We have also been asked to utilize experience of the LHC experiments…

▸ Review Panel recommendations

  ▸ The LHC Computing Models proved successful and need to be studied

  ▸ Desired characteristics – scalability and efficiency in the context of a large international computing organization with widely distributed resources

▸ Current status of the LHC Computing Models

  ▸ As of 2014, there is a universal trend to abandon the MONARC architecture and flatten the hierarchy of data and workload distribution

Other work needed for the next review

▸ We need to demonstrate the viability of our plans by implementing a few components and policies at least at a basic level. There are also near-term needs to be met which we must address.

▸ These are the action items that we'll have to work on in the remainder of 2014:

  ▸ "Portable Build": Brett, Ben Morgan, 1 to 2 new persons from FNAL possibly helping with CMake

  ▸ Testing/CI of LArSoft for the needs of LBNE developer (M.Stancari pointed this out a few times)

  ▸ D.Adams is taking on release management responsibilities

▸ "Technical Demonstrator" – the scope has somewhat shifted and is more focused on distributed data management

  ▸ Brett and RACF personnel are working to establish a new xrootd cluster at BNL which will provide transparent local access to most LBNE data here in the Lab

  ▸ See next slide…

Other news

▸ Amber Boehnlein (head of SLAC Computing Division) joined the S&C effort. She already helped us in our work during the May review.

▸ We had a phone conference on 8/5/14 (Liz, Tom, Maxim, Amber).

▸ Amber will play a significant role in developing the Computing Model, in particular the creation of the "spreadsheet model" for data rates, storage and other metrics, which will help us manage the variable nature of the LBNE configuration in a reasonable manner and provide crucial quantitative feedback to our documentation and plans, including the next review.

▸ Her position may also allow her to engage SLAC experts in extending the planned LBNE xrootd data network to SLAC, creating a prototype regional facility to store and process data on the West coast, and facilitate participation of scientists in the Physics Tools work.

Global outreach

▸ Liz and I think that there is potential in getting our international colleagues involved in certain aspects of infrastructure work and R&D.

▸ As an example, both CMS and ATLAS have experience in xrootd federation of the US and European resources.

▸ We can and should identify people (e.g. associated with ICARUS) who have expertise and willingness to help create an initial prototype of such federation – this is 100% compliant with the requirements of the Review and with the P5 outcome.

▸ S&C should be put on the map when talking to our present and future international colleagues – it appears that we are not making progress in this area.

xrootd federation (concept)