1. Project status

- Questions
  - **Pierre to check why Korea University missing in the list of institutes**
  - Responsibilities
  - Total project cost

1. Dataflow - General 20' (Iosif-Charles Legrand)

- Topologies studies:
  - Normal structure FLPs-EPNs
  - Super-EPNs
  - Local switches
    - Sw must be topology dependent
- Simulation of IO processes
  - Omnet++: packet/frame level simulation. Lon
  - Monarc simulation
- Network topologies
  - Size and scalability
  - Prize
  - Transport layer: UDP, TCP, RDMA
- High speed network
  - 40 GbE requires special tuning
- Calibration data traffic
- Q
  - **How to conclude on FLP-EPN ?**
  - **TBD:**
    - **CPU needed for the data transport depending on the network technology (RDMA vs EPN).**
    - **More simulations:**
      - **Scheme with intermediate switches: simulate the impact of the data distribution. Review the relation between the network topology and the data distribution sw.**
      - **FLP buffering**
    - **Cost studies**

2. Dataflow - Dataflow simulation (Rifki Sadikin)

- Simulation setup in LIPI
- Network simulation
  - Simulation time too long: 1 hour for 4 FLPs and 4 EPNs
  - **Need to reduce simulation time. Maybe not full TCP/IP? Verify the simulation results with prototype measurements.**
  - **Implement it with the ALFA benchmark.**
  - **Other options:**
    - **Run the simulation on a faster node**
    - **use slower network and extrapolate the results**
- Storage simulation
  - Ready for new simulation ? Yes.
  - **Detector input** ? **Include detector data in the simulation framework ?**

- **Definition of the links stave-CRU and CRU-O2 based on a system-C simulation. (Input of Adam and possible collaboration with him). Based on MC data or real data.**
- **Realistic system simulation would require to include the CTP: busy signal, latency, congestion situations, back-pressure.**

3. Computing Platforms - GPU Computing platforms (Joohyung SUN)

- Benchmarking Kepler and Maxwell GPUs
- Using the online event reconstruction
- Kepler: 32 work queues fully scheduled independently
- Work in progress
  - Previous work ~1
- New work
  - Using Hyper-Q
  - Tesla K20c has only 2 copy engines
  - Outlook: Maxwell GPU
- **Measurements in conditions comparable as previous work**
- **Maxwell already ordered**
- **Pierre to give previous results**

4. Computing Platforms - Computing Platform Benchmarking (Boonyarit Changaival)

- Platforms benchmarking for ITS cluster finder hardware and software
- GPU, MIC, APU
- ITS cluster finder:
  - GPU ~OM(100) Hz. Not appropriate for this application.

5. Computing Platforms - Opportunistic use of CPU cycles from mobile devices (Tiranee ACHALAKUL)

- White Rabbit
- Application to get CPU cycles and make PR for Android devices
- **Number of donators for other large scientific projects ?**
- **Provide more precise parameters about the TOF calibration.**

6. Computing Platforms - Data processing on the Grid (KISTI)

- No presentations

7. Control - Status and plans for the Control, Configuration and Monitoring (Vasco Chibante Barroso)

- Presentation of the current system and the O2 CCM
- Control
  - Possibly with Petri-net
  - KMUTT: investigation on the tools
  - CERN: investigation for the TDR
- Configuration

    - System
    - Application

8. Control - Control and Configuration and Monitoring (Khanasin YAMNUAL)

- Test of tools for
    - Control
    - Configuration
    - Monitoring

9. Calibration and reconstruction - Plans for the TPC reconstruction (LIPI)

- Modelling the space charge in the TPC volume
- **What is the input ?**
    - **Geometry cannot be the only input for Run 3.**
    - **Time is an essential ingredient.**
    - **Complex and critical issue for the ALICE upgrade. Consider the work done before for the Space distortion during Run 1.**

10. Tools and software process - Tools and Procedure (Vasco Chibante Barroso (CERN))

- Summary of tools and procedure selected by CWG2
- Coding guidelines

11. Tools and software process - Continuous testing tool (LIPI)

- Test with Jenkins.

12. Architecture and Hardware – Storage systems (P. Vande Vyvre)

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13. DCS general overview (Peter Chochula)

- How different will be the system after the upgrade?
    - DDL3 to transfer the data
    - DCS data to O2 updated every 100 ms. Strategy: read all conditions and store them in a memory block. Update only values which changed. Inject them in the physics data.
    - DCS data transfer to O2 ? Media ?
- Interest by the Technical University and Academy of Sciences to participate to the ITS project.

14. General discussion and O2 workshop wrap-up

- O2 issues

- **ITS needs from O2 ?**
- **Readout of a half layer Q1 ’17 : O2 sw + 1 CRU + 1 FLP**
- **6 months of commissioning on the surface of the full detector Q4 ’18-Q1 ‘19**
    - **Cooling system and power supplies will be available**
    - **Would need 250 RU.**
    - **Minimum need half layer corresponding to 24 staves i.e. ~100 copper data links multiplexed to (TBD by ITS). The full system requires 10-20 CRUs and FLPs.**
    - **Test of a fraction of a detector needed because no time after installation.**
    - **Hall 167**
-
- **ITS needs from DCS ?**
    - **Plan being established: list of parameters, interface .**
    - **Test of inner-barrel test prototype will be launched with all the DCS services.**
    - **TBD: definition of the data format and e.g. inclusion of the time. Last limit summer ’15.**
    - **DCS team will take care of integrating the devices in the DCS sw framework.**