# Architecture Working Group

- **Background**
  - ATLAS TDAQ completed a 2-year phase of intensive design & development
  - Reviewed in July 2002
  - Next major milestone: TDR by June 2003
    - TDR will propose an architecture for ATLAS TDAQ
  - TDSG initiates a working group to coordinate definition of overall TDAQ architecture

- **Context**
  - ATLAS TDAQ organised in systems (Level-1, HLT and DAQ)
  - Systems are organised in sub-systems (e.g. DAQ includes online, dataflow, part of DCS)
  - Responsibility for design/development of TDAQ parts lies with systems/sub-systems
  - The architecture WG spans TDAQ systems & sub-systems and it is an integral part of the ATLAS TDAQ project structure

# Initial Membership

- Beniamino di Girolamo
- Bob Dobinson
- Saul Gonzales
- Benedetto Gorini
- Reiner Hauser
- Sergei Kolos
- Giuseppe Mornacchi

# Objectives and Scope

- Coordinate (within the organisation of the ATLAS TDAQ project)
  - The definition of an overall architecture. Compatibly with performance, budget, scalability and deferral scenarios.
  - The identification, prioritizing and (if necessary for the TDR) solution of TDAQ system wide issues which fall outside of the competence of individual systems/sub-systems.
- Scope
  - Coordinate the definition of the TDAQ architecture:
    - Identify components, specify component requirements, define “relationships” between components
  - Coordinate the identification (and solution) of system wide issues
  - Provide coordination for issues such as:
    - External dependencies, general operational aspects, suggestion of measurements…

# Scope & Constraints

- Not in scope:
  - Implementation in general
  - Internal design of major components
  - Definition and organisation of test beds.
- Constraints
  - Evolve from the current ATLAS TDAQ developments
  - The design of Level-1 (as documented in the Level-1 TDR)
  - Budget, staging, deferral, scalability
  - TDAQ organisation & structure
  - TDR milestone (June 2003)
  - Findings of “Global issues working group”

# Mode of Operation

- Breakdown in phases:

  For convenience the activities are grouped in two main steps: one for the definition of the work to be done and for the gathering of information, the second, based on the information gathered in the first phase, for the definition of the architecture, identification of global issues and tackling these latter. Depending on how the production of the TDR is organised, a third phase might be envisaged for writing those parts of the TDR relevant to the architecture.

# Information Gathering

- Input
  - Mandate prepared by TDAQ steering group
  - Results of TDAQ review (July 2002)
- Deliverables
  - A definition document for the working group
  - Initial description of the current TDAQ architecture
  - A definition of parameters and standard values of global interest to TDAQ
- Means
  - Background material
  - Informal discussion with people from TDAQ systems/sub-systems

# Phase 2

This phase is based on the architecture extracted from the current designs during the first phase. The role of the working group is that of coordinating the evolution of the current architecture into one that is valid for the TDR:

Identification of design weaknesses, necessary modifications and non-addressed issues. For example identify a weakness in the interface or boundaries between two components.

- Suggest an action to be undertaken, this could typically be the suggestion that one or more sub-systems collaborate together to find a solution to the problem identified. The member, or members, of the working group that represent the sub-system(s) will participate to the common effort to study the solution.
- The working group takes up the solution and includes it in the TDAQ architecture definition.

The working group acts as a catalyst, individuating “problems” and suggesting actions. It is not the role of the working group, as a whole, to supply solutions; this role belongs to the sub-systems. Nevertheless individual working groups members do participate to the elaboration of the solutions.

# Status

- Organisation
  - Working group definition
  - Sketch of a workplan
- Parameters & Standard Values
  - Being collected
  - Organisation in a data base
- Current architecture
  - Guidelines for informal discussions
  - Informal discussions started
  - Some issues individuated
  - Expect first open meeting very soon
  - Status report during ATLAS week