Fusion: From EGEEII to EGEEIII

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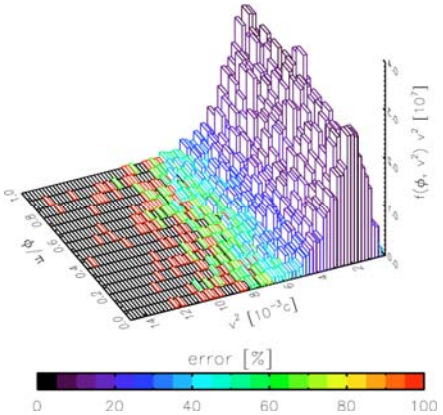
Information Society and Media

Outline

- **Cluster Structure and activities.**
- **Relation with other Projects:**
  - EELA.
  - EDGES: Ibercivis.
  - Euforia.
- **Goals & Metrics.**
- **Tools**

Cluster Structure

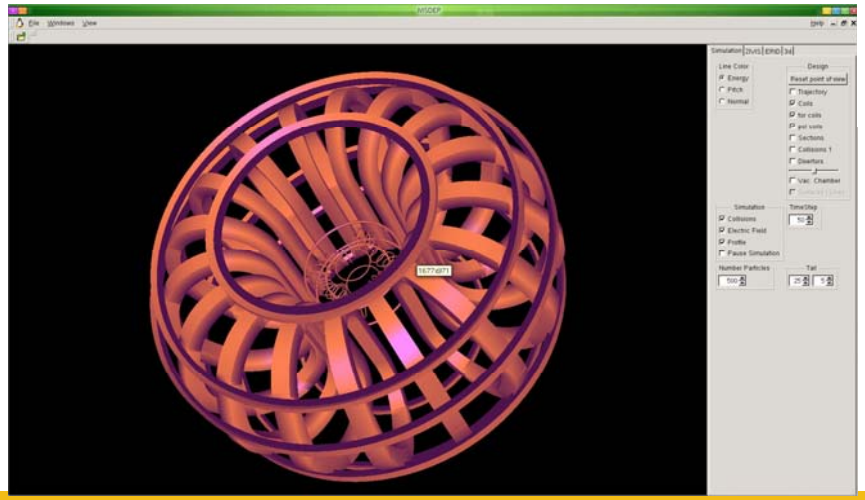
- **3 Lines. All the partners can contribute to the three lines:**
  - Application Selection and Porting (Leader: CIEMAT-BIFI).
  - Data Management in Fusion (Leader: Kurchatov)
  - Workflow Orchestration (Leader: CEA)



- **Steering Committee: One representative per work line (CEA representative to be determined)**
- **Cluster leadership: Leader + Deputy (to be determined).**

Cluster Structure

- **Application Selection and Porting (Leader: CIEMAT-BIFI).**
  - Improve and exploit the presently running applications.
  - Continue identifying applications suitable to run in the Grid: Distributed calculation + Fusion relevant.
  - Perform research using these applications: Demonstration effect: attracting the Community.
  - Establish complex workflows among grid applications (and among grid-HPC)



Cluster Structure

- **Data Management in Fusion (Leader: Kurchatov)**
  - Explore the possibility of usign the grid for data management & data mining in Fusion.
  - Presently, data management based on relational databases.
  - Large number of unexplored data.
  - Large cooperative experiments require international data sharing.

- **Workflow Orchestration (Leader: CEA)**
  - Use Kepler as the main workflow Orchestration tool.
  - Useful for Grid - Grid workflows and
  - for Grid - HPC workflows (more challenging)

Related Projects

- **EDGES: Distributed computing. Grid + Volunteer computing. Connect with Ibercivis: Project of stable Infrastructure for Volunteer computer in Spain (BOINC based).**
  - Run the purely distributed applications

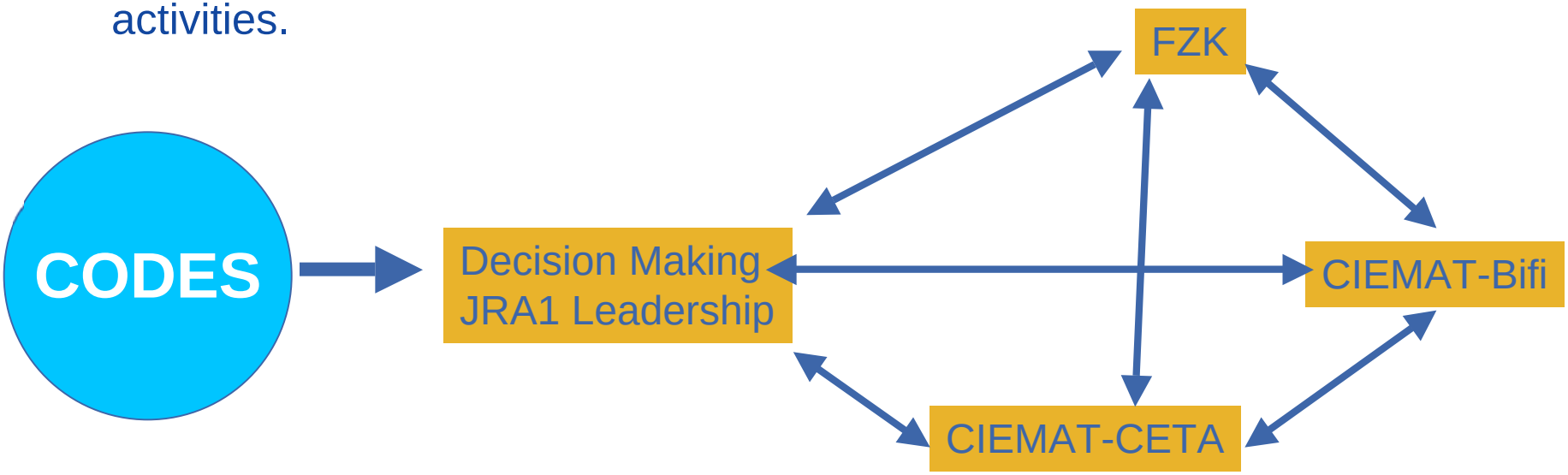
- **EELA: Grid Computing in Latin America.**
  - DKES: Standard fusion application to be ported to EELA Grid.
  - Collaborative exploitation: CIEMAT + UNAM + Sao Paolo University.

EUFORIA: EU fusion for ITER Applicatio

- New Project connected with EGEE.
- Provide a work & infrastructure frame for fusion simulation, linking fusion, grid and supercompu communities.
- Improve the modelization capacities for ITER through the adaptation, optimization, and integration of a set of applications that can expl and join the core-edge transport.
- New serial and parallel codes to be ported to th grid (4 codes in the first step).

Related Projects: Euforia

- **EUFORIA structure and EGEE:**
  - **JRA1**: Grid computing. Directly Related to TNA4.2.7. Integrate Kurchatov activities.



  - JRA2: Porting and Optimization of applications to HPC.
  - **JRA3**. Workflow orchestration with Kepler: Related to TNA4.2.7 (CEA)
  - SA1: Test bed for applications (including MPI)
  - NA3: Disemination. EGEE must take advantage of this activity.

Goals and Metrics

- I- Goal: Extend the use of Grid computing in the fusion community.
- I- Metrics: Number of applications running, CPU time consumed, and relevant international publications and presentations.
- II- Goal: Fusion data management demonstration.
- II- Metrics: Effective demonstration of data exploitation and mining using a real data set of a present device.
- III- Goal: Use Kepler for building complex workflows.
- III- Metrics: Having complex workflows with grid applications based on Kepler.

Tools

- Mailing list are used in EGEE and EUFORIA.
- INDICO is used both in EGEE and EUFORIA.
- MPI deployed in some sites.
- Kepler.