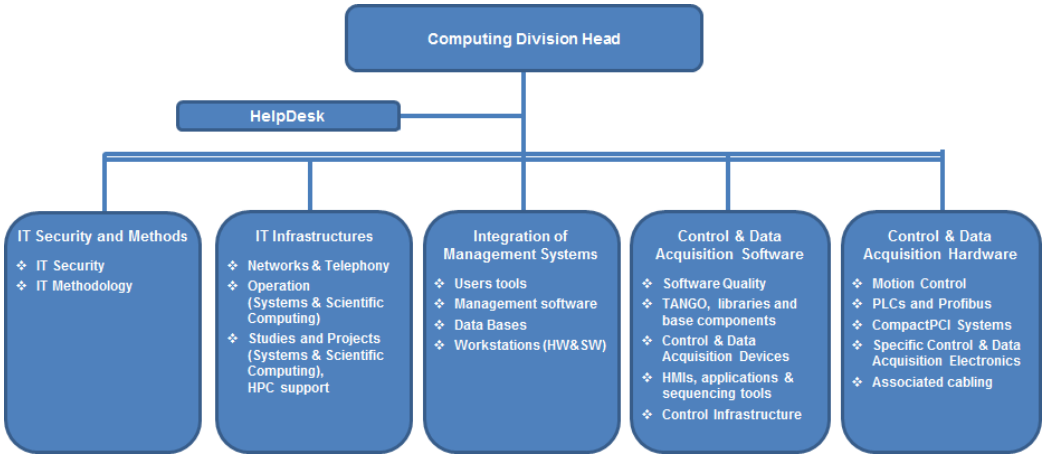
SOLEIL Computing Status

Alain Buteau
ICA group leader
On behalf of ICA group

Tango meeting – ALBA May 2013

ORGANIZATION SIDE

Organization of the SOLEIL Computing Division



- ***2012 : Some first changes in the organization***
  - Systems and Networks Group:
    - a new Group Leader: P. Martinez
    - Recruitment of a permanent engineer position to reinforce scientific computing
  - Control and Data Acquisition Software Group:
    - Recruitment on a fixed-term contract to help in scripting solution
    - Appointment of a staff engineer as a software quality engineer
    - Recruitment of an engineer position to reinforce BL support and HMI developments R.Girardot
- ***A security audit conducted at our request by the end of 2012***
  - Recommendations for the organization of IT security governance is to identify a structure/people dedicated to IT security
- ***Third "Computing Advisory Committee" in Q1 2013***
  - For the recommandations ask the "president" Andy Gotz

Resources and organization on software development at SOLEIL

- Reminders: Mission of the ICA group :
  - *"To specify, design, implement, maintain software for Controls and Data Acquisition"*
- Resources : ICA group is composed of 15 people (*10 engineers and 5 technicians*)
  - *Software engineering skills*
  - *3 people mostly focused on "Operation of Control Infrastructure"*
  - *6 people mostly focused on "Controls and data acquisition" with C++ expertise*
  - *6 people mostly focused on "High level applications" with java expertise*
  - *About 3 "Equivalent Full Time" subcontractors*
- *Our guidelines*
  - All development done must be put in Operation
    - *New software developments are driven by a "on the field" needs*
  - ICA group is responsible for SOLEIL long term software maintenance
    - *New software developments must take into account the existing software legacy*

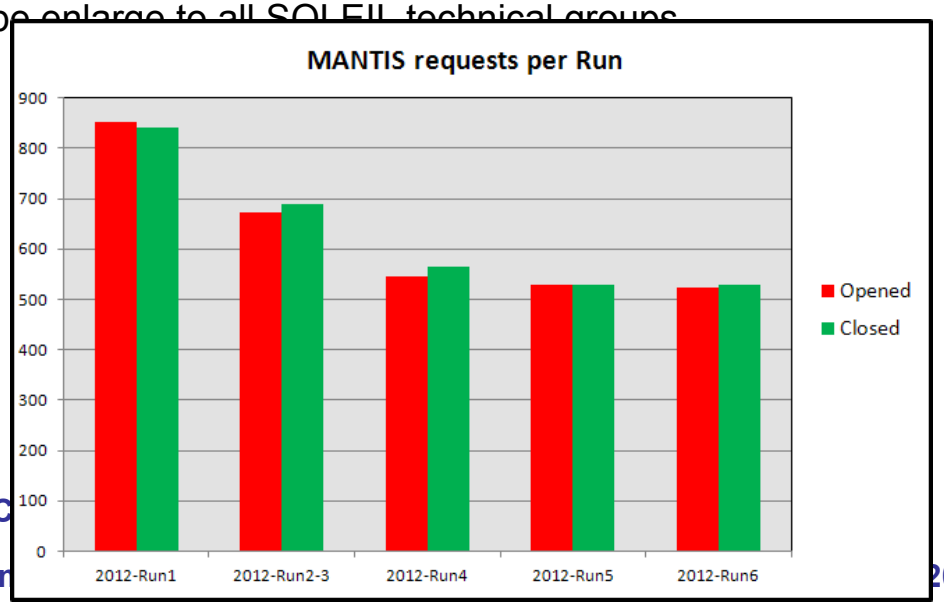
OPERATION SIDE status

Users requests

- **Reminder:**
  - MANTIS tool is used to track “software requests” by Machine, Beamlines and ICA group
- **Status 2012**
  - 3124 requests opened
  - 3156 requests closed
  - For the first time since SOLEIL started operation the balance between “ MANTIS opened requests “ and “MANTIS closed requests” is positive

➔ **2013 projects**

- JIRA tool has been selected to be the unique “request portal”
- It is foreseen to first deploy it for ICA , then for the all Computing division projects
- Then JIRA will be enlarge to all SOLEIL technical groups



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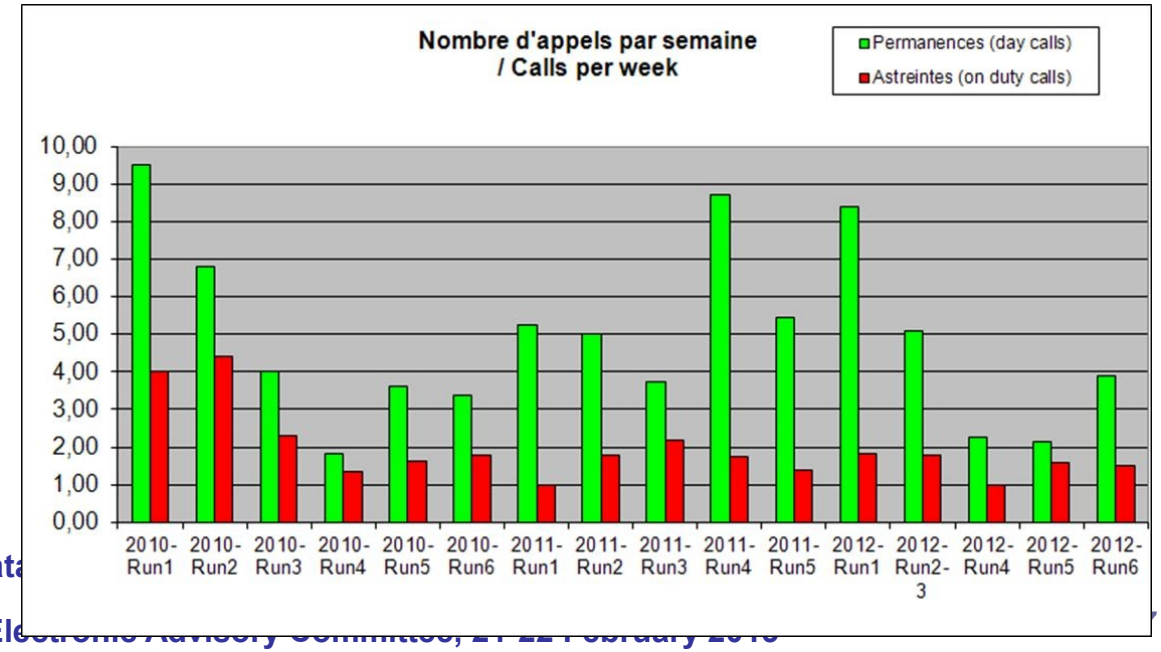
On call duties

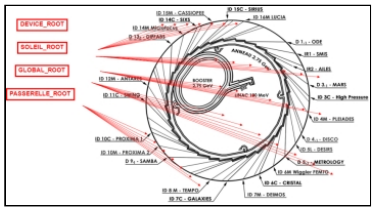
- **Reminder:**
  - 1 person of ICA group is on duty 7/7 24H/24H for Machine and beamlines
- **Status 2012**
  - Number of calls is slowly decreasing
  - Power outages have been the most important incidents
- 2013 :
  - See quality facts



Quality insurance projects

Reminders

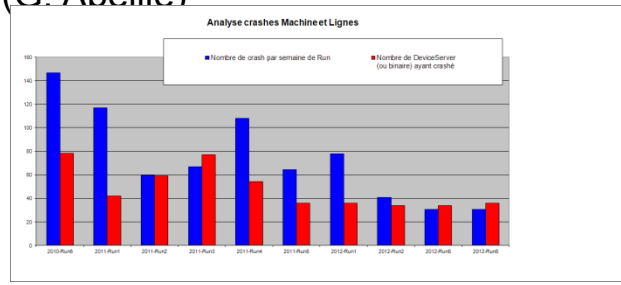
- Software applications are bundled in software packages thanks to our “continuous software integration system” with the following guidelines
  - *“Binaries are built on released source code modules”*
  - *“We deploy the same version everywhere”*
  - *“We deploy frequently and with strong support to our users”*
  - *“We analyze post-mortem software crashes”*



- Deployment of software packages is done during all technical shutdowns
- By the way our binary software packages are available on :
- http://www-controle.synchrotron-soleil.fr:8001/maven2/soleil/fr/soleil/packaging

Status 2012

- A continuous effort has been made to enhance applications which suffered of quality defaults:
  - *for example SALSA the GUI on top of the ScanServer*
  - *or Tango DeviceServers whose crashed dumps are analyzed in a systematic manner*
- An engineer is now dedicated to Quality activities in the ICA group (G. Abeille)
- Our JENKINS setup is out of date and difficult today to maintain

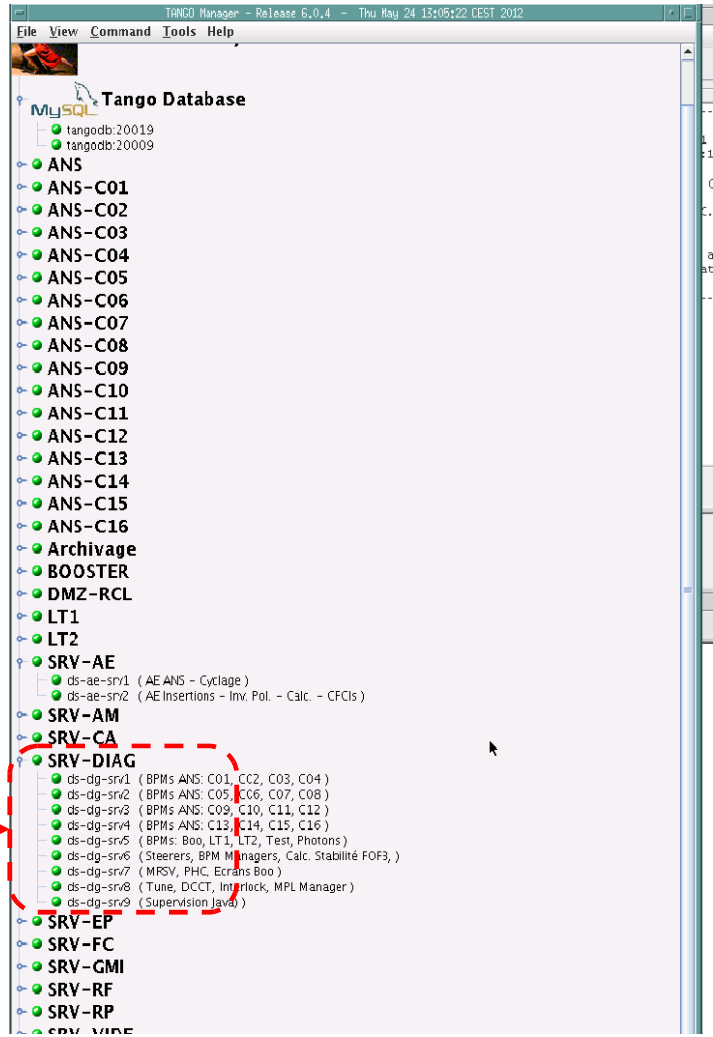


2013 projects

- Refactoring of JENKINS setup
- Make a systematic use of statical code analysis on all source code
- Enhance tests
  - Setup automatic tests of software frameworks :
    - *(Tango, Archiving, Comete, Lima, etc..)*

Status 2012

- *Virtualized infrastructure has been put in place for Accelerators controls*
- *Servers are now located in the 2 computing rooms*
- *We divided the number of physical servers by a factor 2*
- *The software deployment for Sources division is now more coherent with a*



Major software upgrades

- **Status 2012**
  - *Migration of ATK based GUI applications toward COMETE based applications is completed*
  - *Refactoring of motorized insertions devices controls (to support different motions systems and correctors feedback) done within the scope of the MAX-IV collaboration (GMID project)*

➔ **2013 projects**

- **To complete the migration to COMETE components within GlobalSCREEN SCADA**
- **To refactor all ADC based applications within the scope of the MAX-IV collaboration : AIController project on top of ADLINK boards**

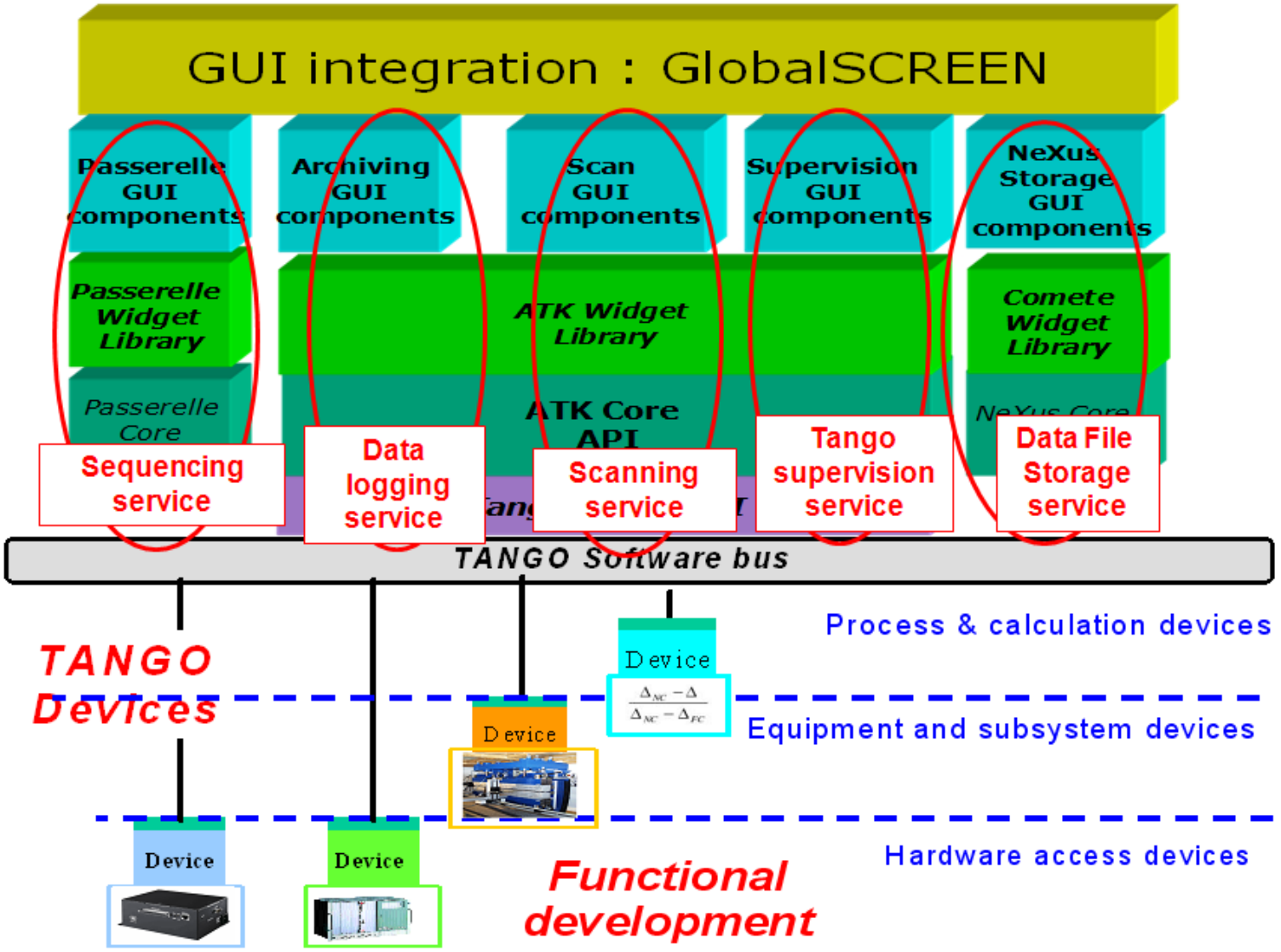
➔ **2013 : Tango 8 migration**

- **First tests have been recently done of recompiling Tango server with Tango8 on linux**
- **Plan is to migrate to Tango 8 during summer shutdown on linux side only**
  - *No change on gcc side*
- **On Win32 , transition is mode complex**
  - *Because we must migrate from VisualExpress 2005 toward VC10 or VC11*
- ***We would also prefer to directly move to Tango 8.1***

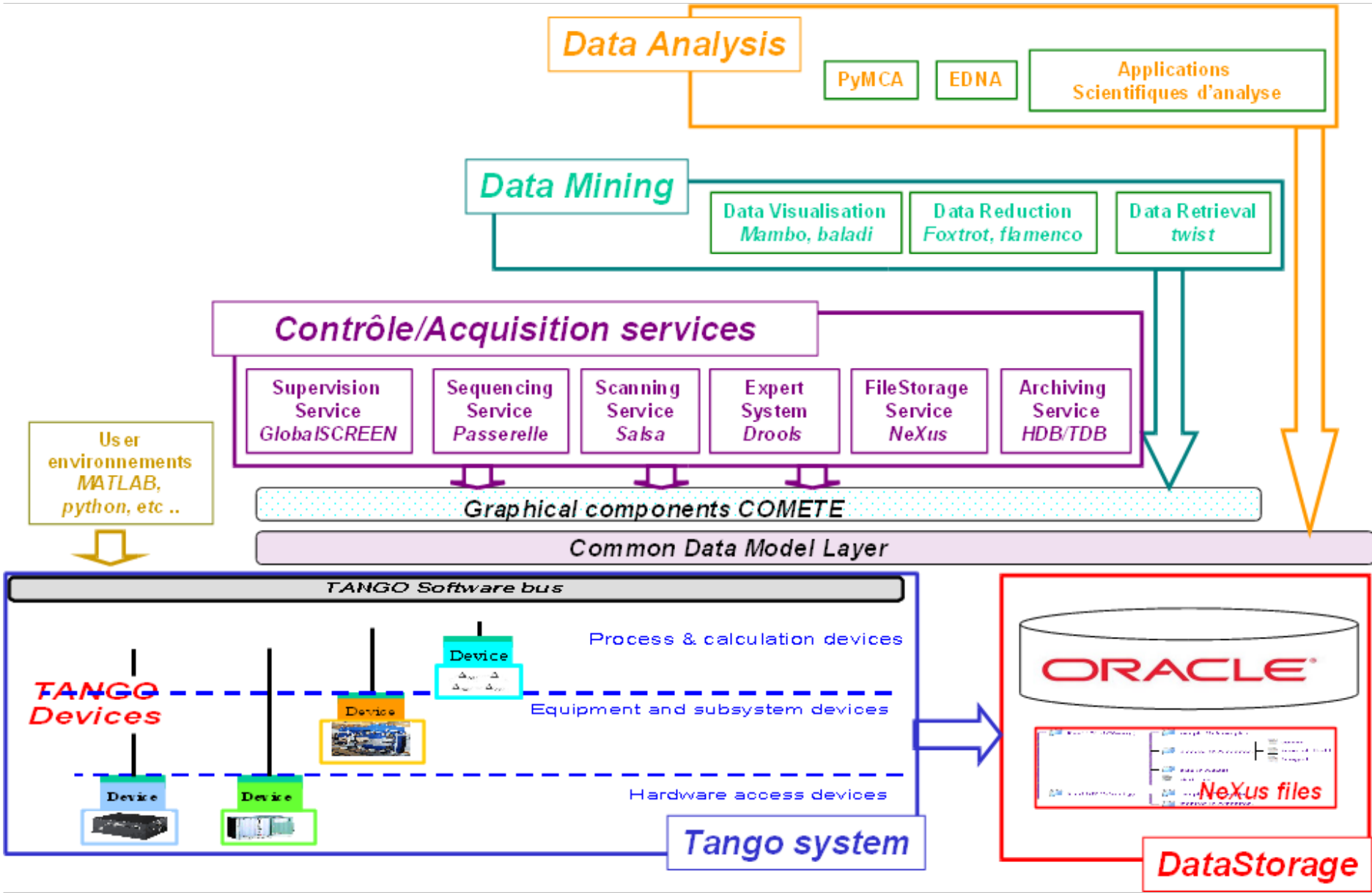
DEVELOPMENT SIDE

status, Difficulties, projects

From a Tango based software architecture



Toward a « data centric» software architecture



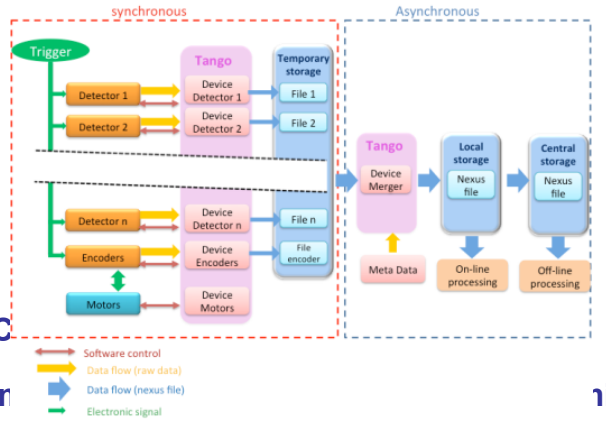
Acquire data in continuous mode while moving complex actuators

Status 2012

- *Test of the FlyScan software architecture successfully done on METROLOGIE beamline with Tango devices for 2D detectors and XIA detector*
- *Most of these software components are in operation on PX1 and SAMBA beamlines (for Quick EXAFS)*
- *Design of software solution for trajectory management has been done*
- *(Co)Development of LIMA plugins for XPAD, MarCCD, etc .*

Solutions and 2013 projects

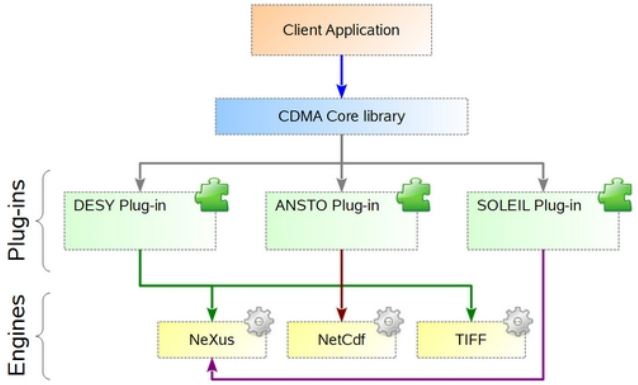
- *Deployment of FlyScan solution on a few beamlines*
- *Integration of new cameras in LIMA (AVIEX,..)*
- *Management of trajectories for complex actuators with Revolution and XPS motion controllers*



Unify access to data from all applications

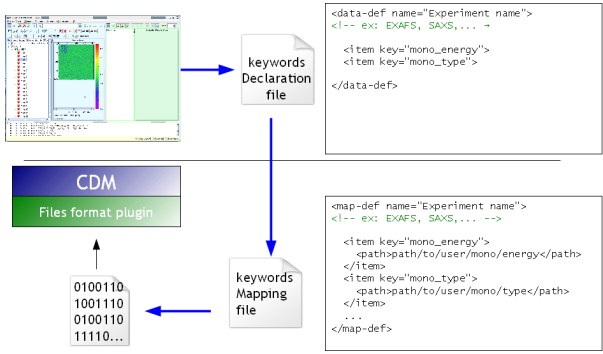
Reminders

- SOLEIL started in 2009 a collaboration with ANSTO and I on the **CommonDataModelAccess** project
- CDMA goal is to hide physical files format and data organization to “high level” (visualization, data reduction, analysis) applications



Status 2012

- *Version 3.2 of the Java API in operation*
- *Version 2.0 of the C++ API has been developed*
- *Development of the Tango HDB plugin (see Majid and Raphaël presentation)*
- *DESY delivered the python binding on top of the C++ library*



Solutions and 2013 projects

- *Put in operation the python binding*
- *Continue our efforts to enlarge CDMA community to other scientific institutes*
- *Develop plugins to access other data sources (Tango for*

Questions ?