

InCA

The point of view of the main users

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On behalf of the users

Outlines

- *Motivations*
- Architecture
- LEIR & PS (Users & Experts)
- Issues follow-up
- PSB Deployment
- Roadmap
- Conclusion

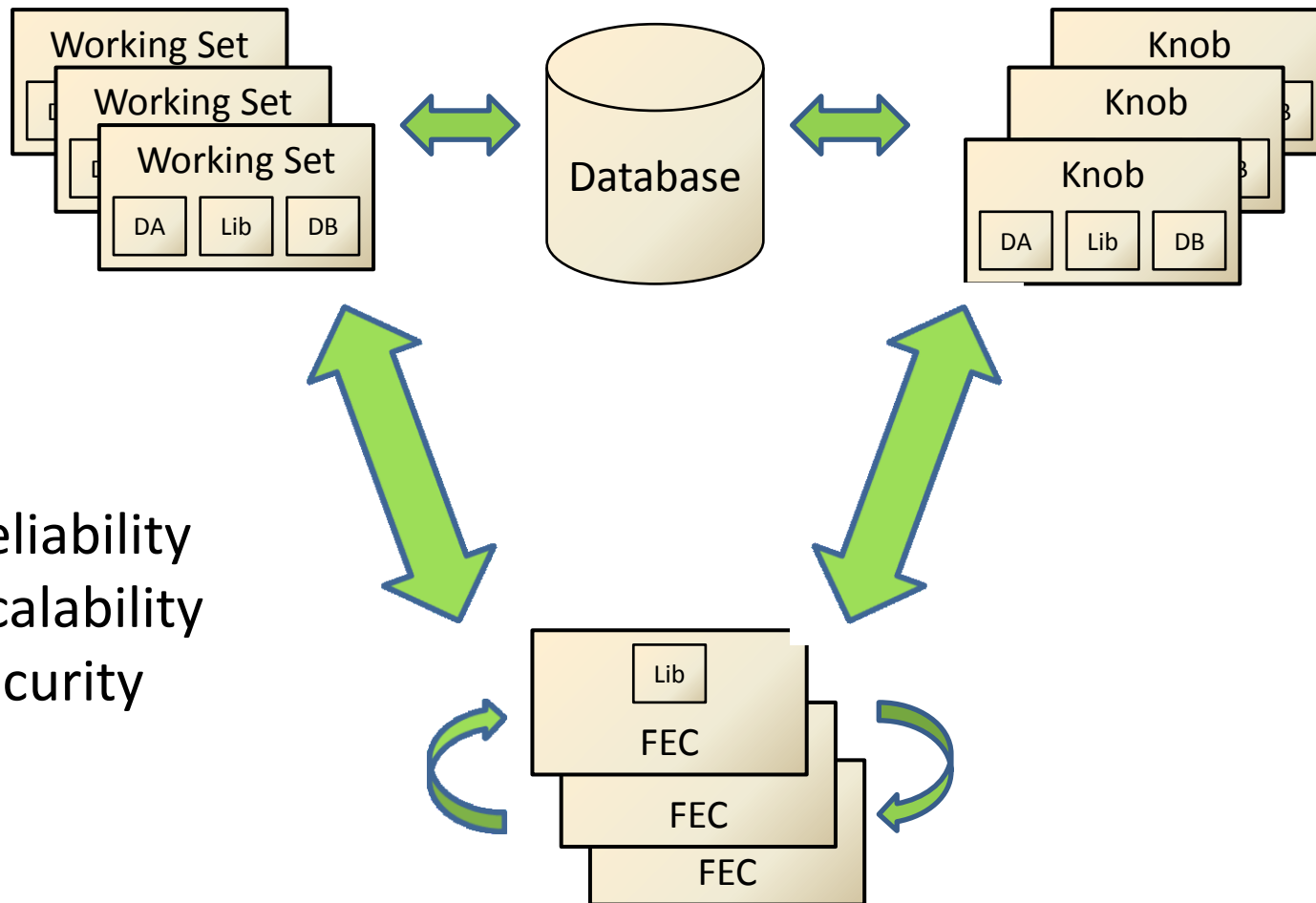
InCA - Motivations

- Control System Renovation
- Homogenisation
- Manpower for 2 control systems
 - Development
 - Support
- New Functionalities
 - LSA for Injectors
 - YASP
- Architecture
 - Scalability
 - Performance
 - Security

Outlines

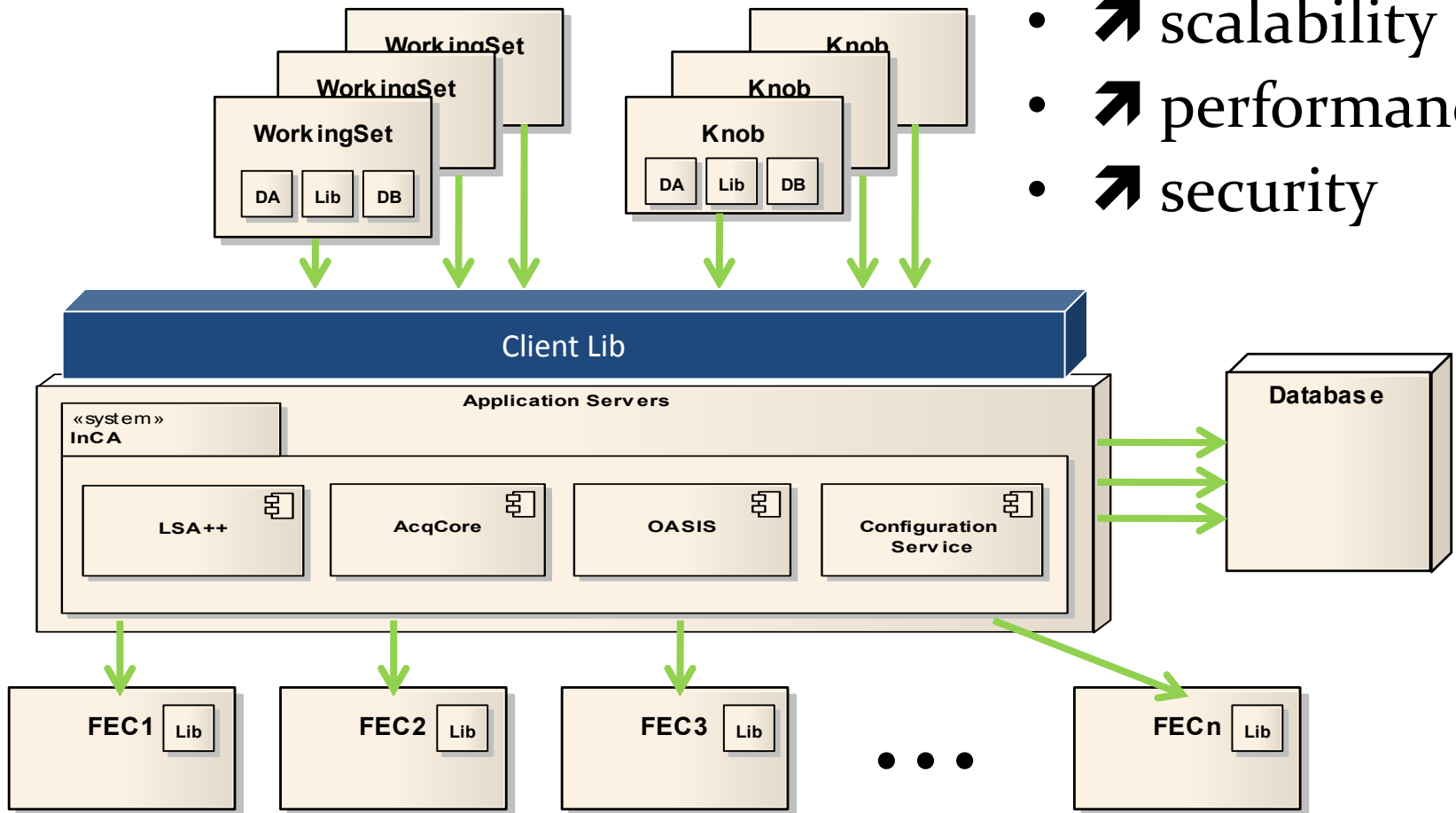
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PS Control System (2-Tier)



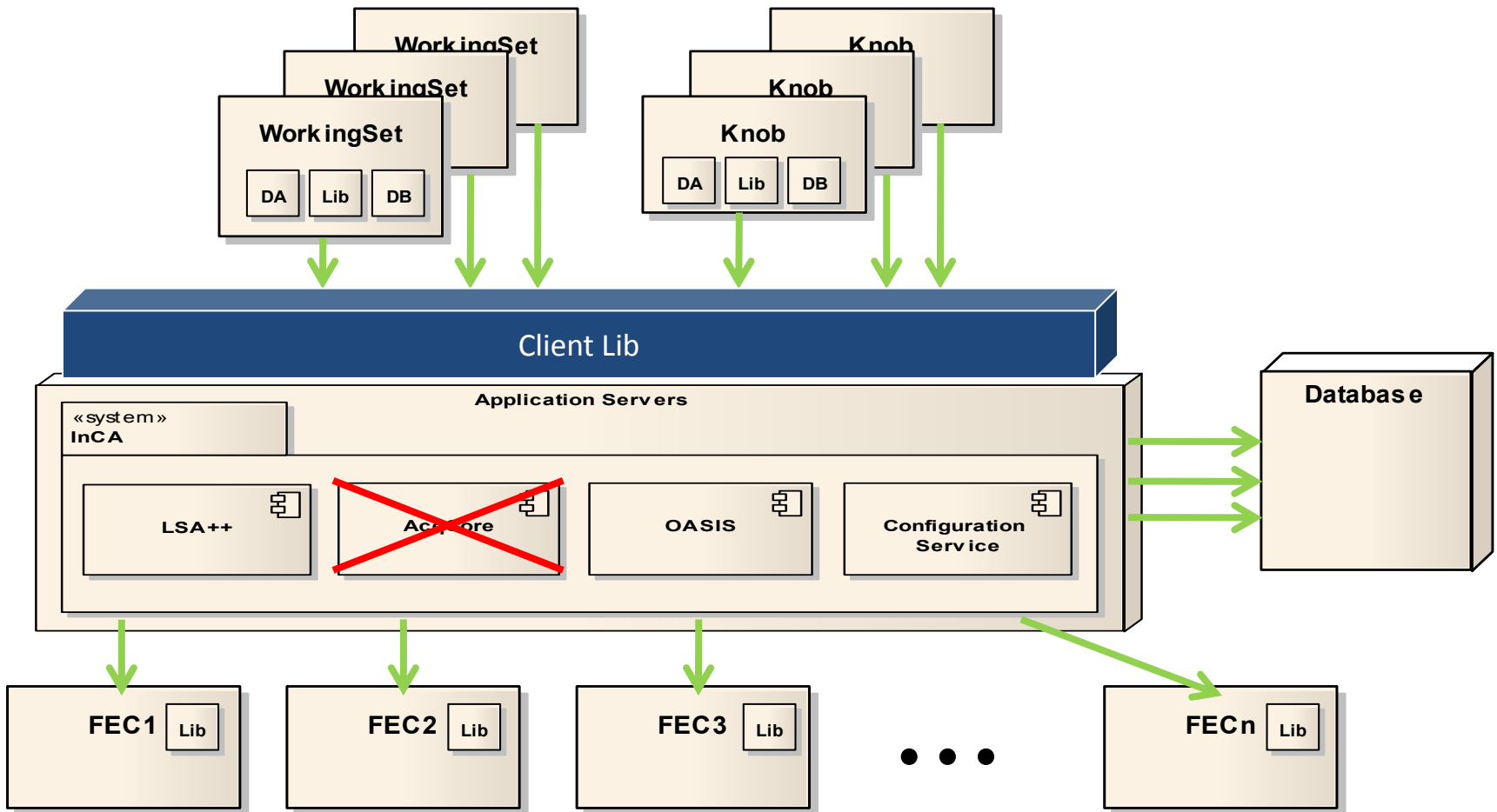
- ✓ Reliability
- ❖ Scalability
- ✗ Security

Injector Control Architecture



- ↗ scalability
- ↗ performance
- ↗ security

InCA (Current)



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Deployments

- LSA
 - LEIR 2005 - 2007 (β tester)
 - Very hard debugging
 - Hybrid Control system
- InCA
 - LEIR 2009 (β tester)
 - Debugging start 2 months before beams
 - PS 2010 (29/06/2010)
 - Several MD's before the D-day
 - Fallback solution (InCA flag)

InCA @ LEIR 2009 (Users)

- ✘ InCA Configuration
 - Properties not defined
 - Properties values not initialized
 - Properties definition LSA \neq FESA
- ✘ InCA ? Strange behavior
 - Null pointer - Cycle selector name too long – connection refused – Class not found – Incoherent device status etc..
- ✘ Function Editor not operational
- ✘ Releases
 - INCA/LSA
 - Generic controls
 - *FESA classes*
- ✓ InCA team very reactive

InCA @ LEIR 2009 (Feedback)

- ❗ InCA should integrate strict configuration rules from bottom to top
 - FESA classes version or New FESA classes
 - Devices
 - Working set, knobs , archives etc..
 - Etc..
- ❗ Releases
 - Tests before release
 - Understand edge effects
 - Communicate
- ❗ Essential tools were not fully operational
 - Function editor
 - Archives
- ❗ Improve Training & Documentation

InCA @ PS (Users)

✘ Cycle Creation

- Complicate to use
 - Waste of time during cycle creation
 - Not intuitive. Too many applications
 - Not enough CPS oriented
 - New terminologies
- Need debugging
- Lack of documentation

InCA @ PS (Experts)

➤ Cycle Creation

- Must stay generic
- Some default settings have been implemented
- Cycle Creation Suite soon available
- Online help available
- Cycle cloning (cycle type & cycle) will be improved
- Documentation will be improved
- Users need time to learn and to use new concepts
- Experts Support
 - For creating procedures with OP
 - For creating Easy Cycle Creation with OP

InCA @ PS (Users)

✘ LKTIM

- Partial implementation
- Values changes are not propagated to all cycles.
- Manual changes are needed on each cycle.
- Response time

InCA @ PS (Experts)

➤ LKTIM

- Requirements (CO + RF) => Done.
- Analysis & Design (CO) => Ongoing.
 - Not only LKTIM also HARM , PCAL , Virtual GFA , ...
- Create “make rules” + GUI (OP)
- β versions with partial functionalities during May
- Operational with full functionalities at the end of summer 2011

InCA @ PS (Users)

✘ PPM Copy

- Too many bugs
 - MTE cycle was corrupted
 - Waste of time for recovering the MTE cycle
 - MTE cycle was not fully recovered
 - MTE cycle had to be rebuilt
 - MTE setting-up delayed
- Only between resident cycle
- Only between cycle with the same length
- Dead lock

InCA @ PS (Experts)

- PPM Copy
 - Application re-factored
 - Release with OP Validation
 - Operational

InCA @ PS (Users)

- ✘ Machine check (Compare HW and DB)
 - Not useful
 - Too many false alarms are reported
 - Precision of the comparison
 - too high (10^{-10})
 - Rounded values
 - Rounded values in the hardware and the requested values are different

InCA @ PS (Experts)

➤ Machine Check

– Precision of the comparison

- Feature available
- Configuration is needed in the server to adapt precision for each devices

– Rounded values

- Feature not available in the Front End
- Part of the Control System renovation

InCA @ PS (Users)

✘ Sending Command

- It is impossible to send the same command or setting twice consecutively
 - For example the RESET sequence is “RESET–OFF–RESET–ON”
- The continuous switching ON and OFF of the RF equipments reduce their lifetime

InCA @ PS (Experts)

➤ Sending command twice

- It reduces the control system performance
- Should separate command (Reset) and setting (On, Off, ... , ccv)
- GM classes (POW-V,RFPS) don't support this separation

Part of the Control System renovation

- RF FESA classes can support this separation with minor modifications

InCA @ PS (Users)

✘ Configuration

- Too many databases
- Incoherencies between CCDB and LSA DB
- Waste of time for the configurators

✔ YASP

- Users are happy with the functionalities
- Improve GUI (expert & normal mode)

InCA @ PS (Experts)

➤ Configuration

- Specific application interface CCDB & LSA DB
- Will be implemented as soon as possible
- It is not planned to build a tool which makes it possible to configure in a simple way all CO databases needed for the operation

InCA @ PS (Users)

✘ Documentation

- No documentation
- Waste of time to understand and use the tools

✦ Training

- Need more
- Oriented sessions for MD's
- Oriented sessions for day to day operation

InCA @ PS (Experts)

➤ Documentation

- Online help available
- To build in collaboration with OP

➤ Training

- Sessions were done before and during deployment
- Lectures were done during shutdown courses

InCA @ PS (Users)

✓ Release

- Well planned
- Without perturbation

✓ Support

- On best effort 24/7
- Very appreciated
- Very reactive
- Follow up

InCA @ PS (Priorities)

- ❗ Improve Cycle Creation
- ❗ Improve LKTIM
- ❗ Improve PPM Copy
 - Allow to send command twice
 - Improve Machine Check
 - Improve Configuration process
 - Documentation
 - Need training

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Follow-up operational issues

- ✓ InCA technical meetings (OP + CO + ...)
- ✓ JIRA (issues tracking system)
- ✓ eLogbook OP Issues
 - Create an event in the eLogbook
 - Send the Issues to JIRA with reference to the event
 - Add URL to the Issue in the event
- ✓ Specific InCA tag event in the eLogbook
- ✗ Insert feedback from JIRA to eLogbook when Issue is resolved

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InCA @ PSB

- January – June
 - InCA Configuration
 - To convert the specific applications
 - Parasite MD's
- July
 - Deployment of the Control Setting
 - Same InCA support as PS
 - Same training as PS
- AcqCore
 - Mandatory for FGC (Q3 - Q4 2011)
 - BLM

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Roadmap

- AD (2012)
 - Major challenge is the Cycle Editor
 - How Elena Decelerator will be implemented ?
- CTF (2013)
- InCA Consolidation (2014 – 2015)
- SPS (to be discussed)
 - It already uses LSA but it is also an injector !

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Conclusion (1/2)

- Improve first
 - Cycle Creation , LKTIM , PPM Copy
- Some InCA functionalities depend of status of the Control Renovation
- Accelerate the migration from GM to FESA
- AcqCore must be deployed at least for the PSB
- InCA must reduces its complexity for the main users

Conclusion (2/2)

- Important functionalities must be tested more carefully and deeply before their deployment
- Simplification of the configurations processes
Too many DB
- Create a documentation
- The support was excellent and it should stay at the same level for the other deployments