Software

Management

and

Pilot Services

SUMMARY

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WP3 Objectives

- **Support the software lifecycle, from development to deployment and exploitation**

  - INDIGO Project developers (WP4, WP5, WP6)

  - INDIGO User communities (WP2) and External user communities
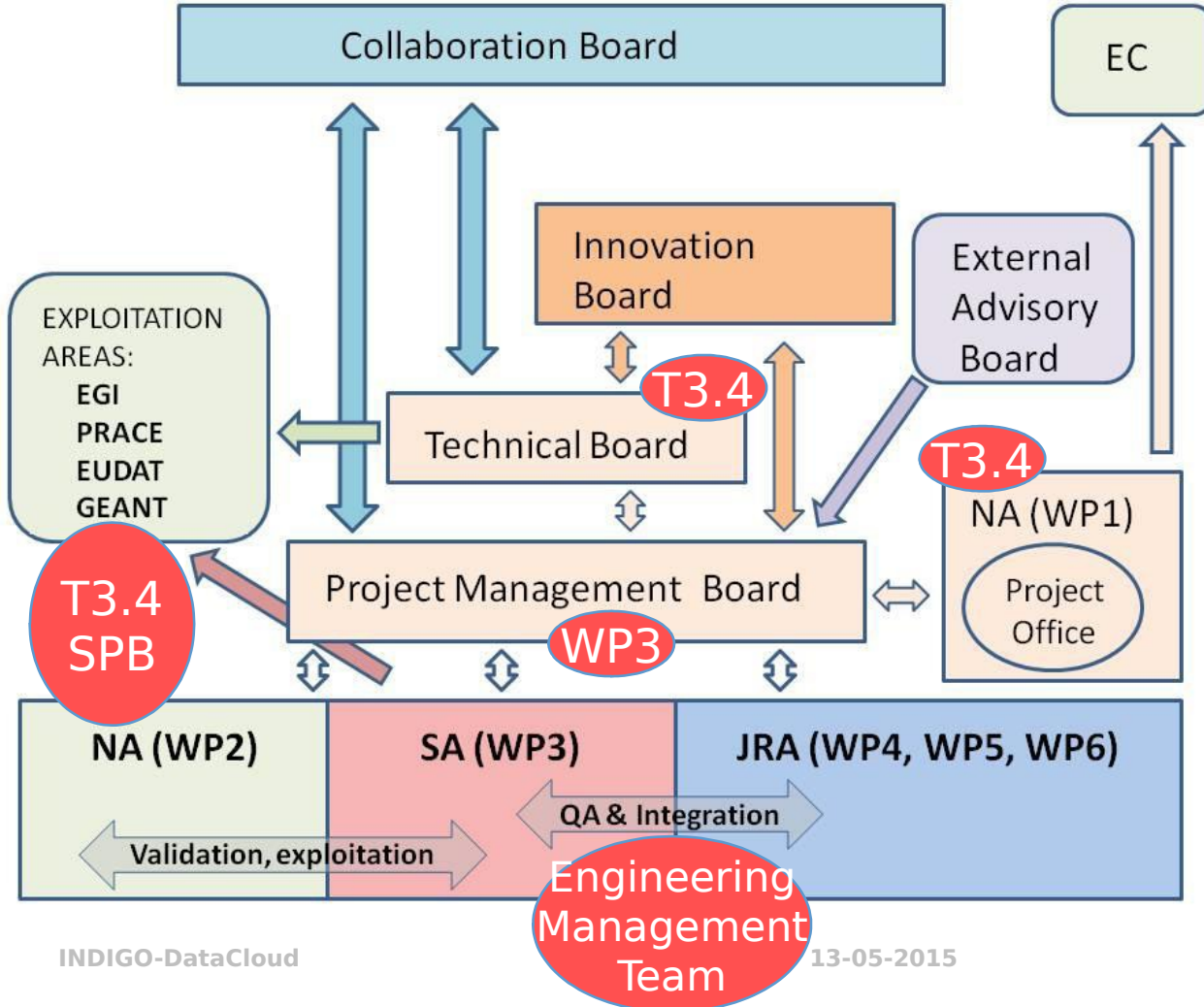
  - Infrastructure providers

WP3 Structure

- WP3
  - Jorge Gomes <jorge@lip.pt> (LIP)
  - Ludek Matyska <ludek@ics.muni.cz> (CESNET)

in PMB as well

- Task 3.1 Software quality assurance (59PM)
  - Pablo Orviz <orviz@ifca.unican.es> (IFCA)

- Task 3.2 Software release and maintenance (31PM)
  - Cristina Aiftimiei <cristina.aftimiei@cnaf.infn.it> (INFN)

- Task 3.3 Pilot services (93PM)
  - Mario David <david@lip.pt> (LIP)

- Task 3.4 Exploitation (31PM)
  - Peter Solagna <peter.solagna@egi.eu> (EGI)
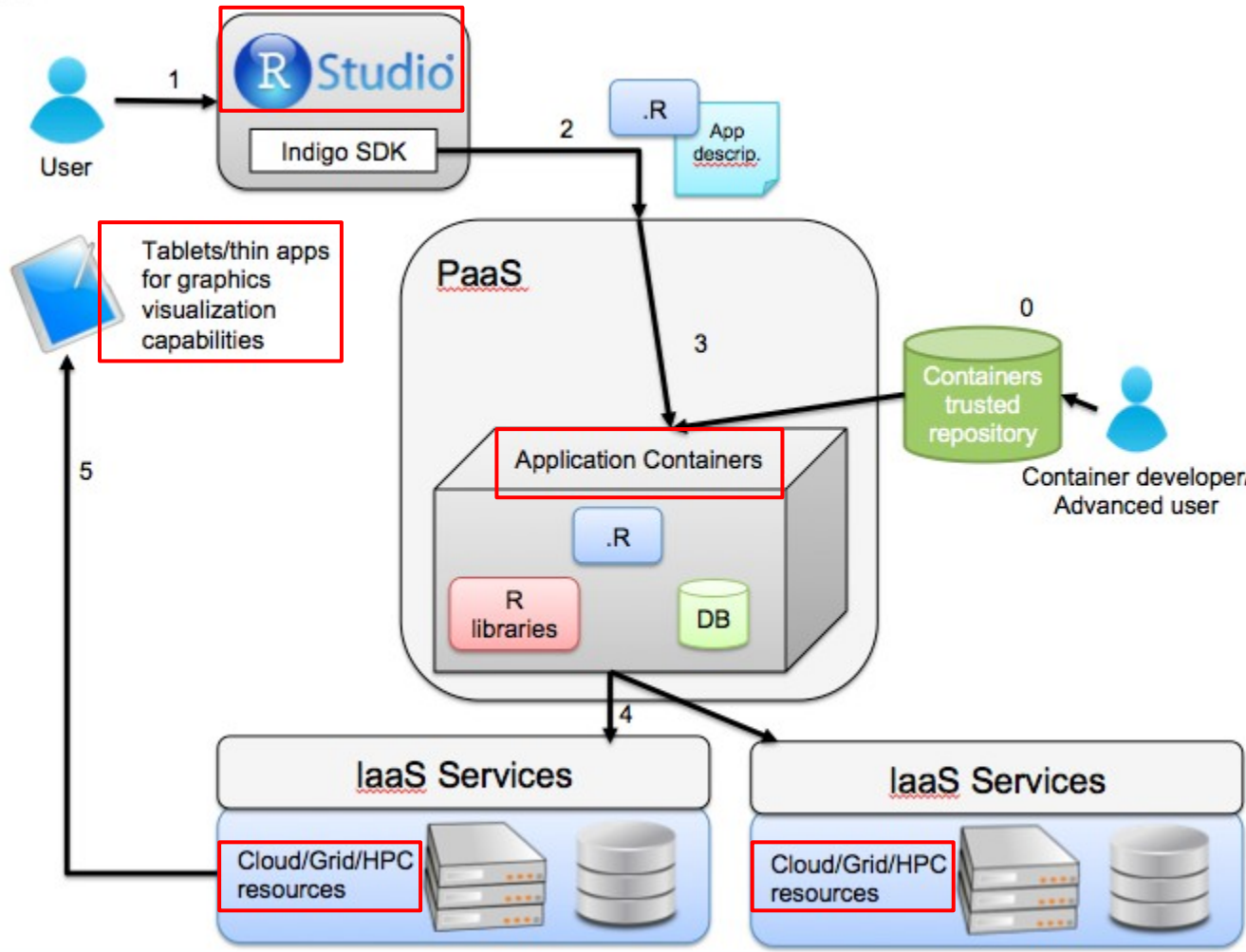
Project governance

- EMT
  - WP4, WP5, WP6 QA, pilot services

  - issue triage & prioritization,
  - technical mgmt of releases
  - integration issues
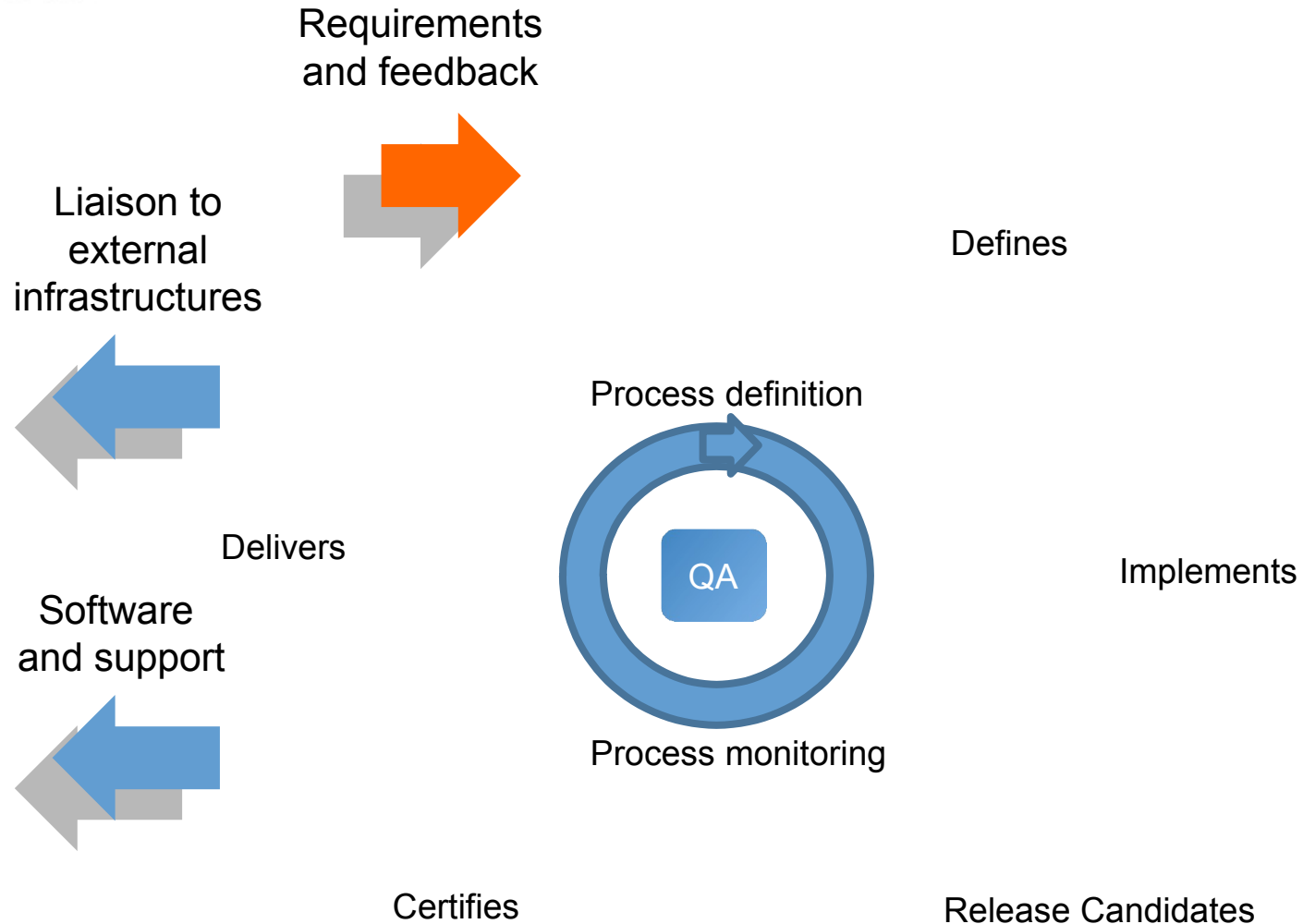 - user support request analysis

- SPB
  - Providers board

IaaS clouds, EGI cloud, EGI grid, Prace, HPC clusters, EUDAT, HelixNebula, Openstack, OpenNebula, Containers, GPUs, IB

Continuous process

Requirements
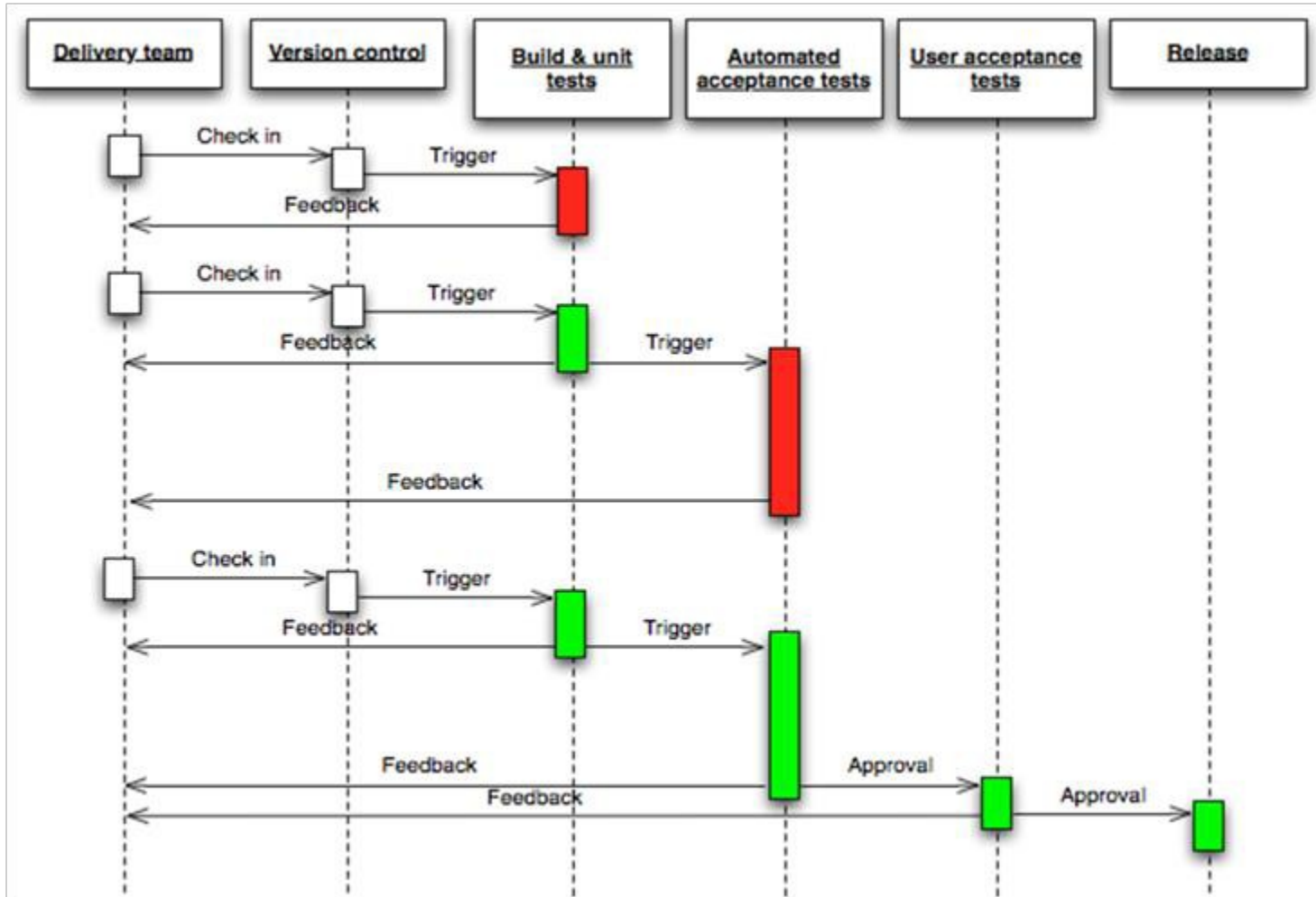and feedback

Defines

Liaison to
external
infrastructures

Process definition

Delivers

QA

Implements

Software
and support

Process monitoring

Certifies

Release Candidates

Process

Deliverables

- D3.1, Month 4 (R, PU): Initial plan for WP3 [LIP]
  - Definition of the software QA tools, processes, procedures, roles and responsibilities and the related metrics and measurement methodologies. Software Maintenance and Support processes, roles and responsibilities. Definition of the pilot integration and testing infrastructures. Plan for liaison with external infrastructures and resource providers.

- NEED INPUT FROM DEVELOPERS WP4,WP5,WP6

Milestones

- M3.1 [month 4]: Initial plan for WP3

- M3.2 [month 6]: Software lifecycle processes deployed and available

- M3.3 [month 16]: 1st public release

- M3.4 [month 24]: 2nd public release

- M3.5 [month 29]: Updated 2nd public release

- M6.1 [12]: First release of toolkits Workflow as a Service and interface extensions for scientific data analysis
- M4.2 [15]: at least 1 component from the storage area and 1 from the compute area, offering one commonly agreed authentication service, in addition to X509.
- M4.6 [15]: Support for container execution with trusted container repository and standard interfaces.
- M4.9 [15]: Implementation of spot-instances mechanisms
- M4.13 15]: Ref Implementation Prototype for QoS classes and policies in at least 1 storage implementation.
- M6.2 [15]: First release of a Science Gateways prototype. First release of the mobile apps
- M4.16 [15]: prototype implementation at least 1storage system for seamless access of data through ….
- M4.5 [16]: Integration of INDIGO-DC Service Discovery and Monitoring into WP4
- M5.3 [16]: First prototype of PaaS layer released.
- M3.3 [16]: 1st public release
- M6.3 [21]: Second release of, toolkit (including APIs), Workflow as a Service
- M4.3 [23]: components from all three areas offering a commonly agreed auth service fully interoperate with the PaaS
- M4.7 [23]: Execution of containers through batch systems.
- M4.14 [23]: Reference Implementation for QoS classes and policies in INDIGO-DC storage implementations.
- M4.2.17 [23]: Providing cross-site access to storage systems by cloud, web, object store and local access
- M4.18 [23]: Prototype implementation for local virtual networks.
- M6.4 [23]: Second release of a Science Gateways prototype. Second release of the mobile apps.
- M5.4 [24]: Second major release of PaaS layer released.
- M3.4 [24]: 2nd public release
- M4.21 [27]: Proposals and pilot versions of tools for using SDN across sites.
- M3.5 [29]: Updated 2nd public release
- M5.5 [30]: Final release of Improved PaaS components released.
- M4.10 [30]: Implementation of Advanced Scheduling Policies
- M4.11 [30]: Orchestration engine with standard interfaces whenever possible (TOSCA)
- M4.4 [30]: Complete AAI integration into all three areas of the infrastructure.
- M4.8 [30]: Proof of concept for accessing hardware accelerators (GPUs) and low latency networks (IB) in containers.
- M4.11 [30]: Orchestration engine with standard interfaces whenever possible (TOSCA)

- M4.15 [30]: Providing at least one prototype implementation of automatic QoS migration of storage based on

T3.1

- QA criteria and metrics

- Focus
  - Style and syntax checks
  - Code reviews (concerns about effort and time need effort)
  - Unit testing
  - Functional testing
  - Security

- Need automation !

Task 3.2
Software release and maintenance

- **Software Maintenance and Support**
  - Software Maintenance process - software preparation and transition activities.
  - Problem Management process - analyse and document problems
  - Change Management process - control code, configuration changes, retirement calendars
  - The support to released software.

- **Release management**
  - Publish **release schedules**
  - manage project public **repositories** of artefacts - packages and/or images
  - Continuous Integration (integration, building, testing)
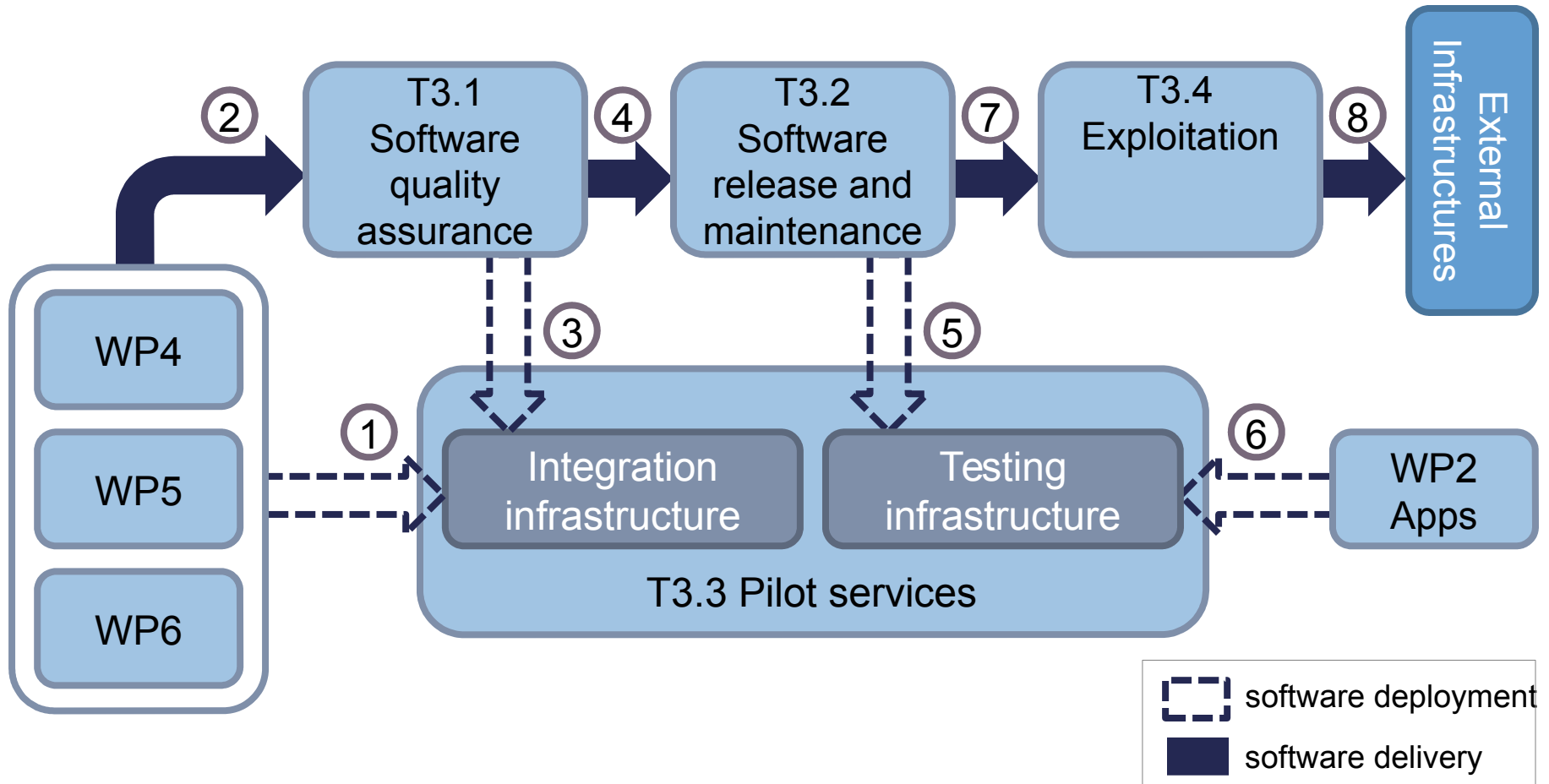 - Continuous Delivery (deployment in testing infrastructure)

Software release and maintenance

- Engineering management team EMT (WP3, WP4, WP5, WP6)
  - Communication channel with developers
  - Prioritization deal with issues

- What are the project artifacts products that we want to produce and deliver ?
  - binary packages, source packages, binary tarballs, source tarballs
  - Images or appliances, containers
  - Plus documentation, reports (build, test,etc)

- Support ?
  - Set-up GGUS SU
  - Define monitoring procedure
 - Set-up indigo-support mailing-list (?)

T3.3 infrastructures

T3.1 Software quality assurance ② ④ **T3.2** Software release and maintenance ⑦ **T3.4** Exploitation ⑧ External Infrastructures

WP4

WP5

WP6

① ③ Integration infrastructure ⑤ Testing infrastructure ⑥ WP2 Apps

T3.3 Pilot services

- ⌐ ⌐ software deployment
- ▬ software delivery

Survey for WP4-6: Results I

| 1 - WP	2 - Partner	4 - Software, tools, component you plan to develop in the project
WP4, WP5, WP6	KIT	➢ Cloud Storage ➢ AAI
WP2	Utrecht	➢ We are providing one use case in the form of our HADDOCK software and web portal which we intend to pack into a VM. Relevant link: http://www.bonvinlab.org/software/
WP6	CNRS	➢ JSAGA - http://software.in2p3.fr/jsaga
WP3	CEA	
WP3, WP4, WP5	CESNET	➢ WP4: Solutions for VM networking (extending & integrating existing tools, developing new ones where necessary) ➢ WP5: Extending/integrating Perun.
WP5, WP6	INFN	➢ UI Toolkit, AAI related libraries
WP4, WP5	INFN	
WP3, WP4, WP5	CERN	➢ Container/Docker related Paas functions ➢ Identity federation
WP4	CNRS	➢ Openstack services : Keystone, Nova, Glance, Cinder, Ceilometer, etc.
WP5	UPV	➢ Elasticity ➢ High Level Application Deployment ➢ Containers

Survey for WP4-6: Results II

5 - Experience with Version Control System
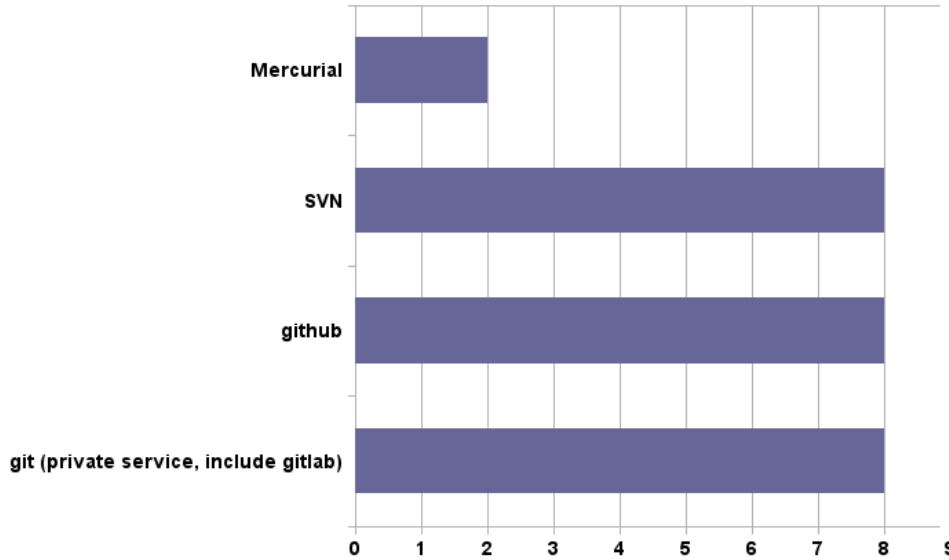
6 - Experience with tools to enable continuous integration, build and automated testing
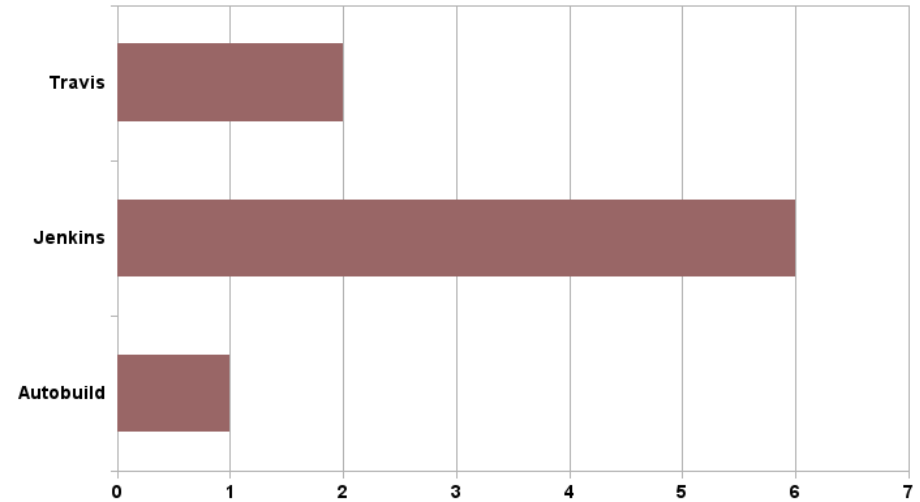
11 - Experience with Project management tools

Tests for code validation
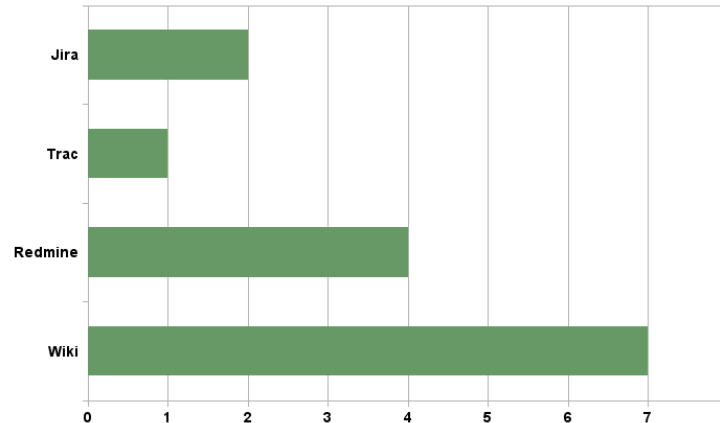
	7 - Unit tests	8 - Functional tests
Yes	4	5
No	1*	0
Not yet, but we should	1	1

* WP2 - use case in the form of our HADDOCK software and web portal

9 - Experience in Software provisioning/packaging

- ➢ RPMs
- ➢ DEBs
- ➢ tgz, zip
- ➢ Maven
- ➢ Pack into a VM
- ➢ Ruby GEMS
- ➢ python modules
- ➢ Ansible

- **10 - Are you available to support any of these services project wide (even if you are not part of WP3)?**
    - Positive answers from some partners
    - Other partners answered: to be discussed or dependent on hiring personnel
- **12 - Other suggestions, comments, tools you would need and were not specified**
    - Tools for code review and code metrics

INDIGO - DataCloud

T3.4 Exploitation

- Exploitation is a key aspect
  - Must be aligned and part of the project global approach
  - Integrate with WP1 effort and deliverables

- Exploit our solutions in external environments
  - Most effective is user driven pressure in infrastructures

- Resources Provider Board
  - With infrastructures and providers internal and external
  - Make sure our products are deployable

- Make software available as soon as possible

WP3

- Thanks !