



SOLARIS

NATIONAL SYNCHROTRON
RADIATION CENTRE



JAGIELLONIAN UNIVERSITY
IN KRAKOW



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Solaris concept for DuO

Piotr Goryl, Solaris

Head of Control and IT systems

On behalf of R. Różańska, J. Szota-Pachowicz, T. Szepieniec et. al.

Grenoble, 15-16.06.2015

- The Solaris
- Solaris DuO
- More federation
- Summary

Overview

Solaris is a replica of the MAX IV 1.5 GeV Storage Ring and parts of the injection system being concurrently built in Sweden.

First electrons - December, 19th, 2014

First light – June/July 2015 (in progres)

Firs users – March 2016

Agreement established between Jagiellonian and Lund Universities for mutual cooperation in the construction of Solaris based on MAX IV.

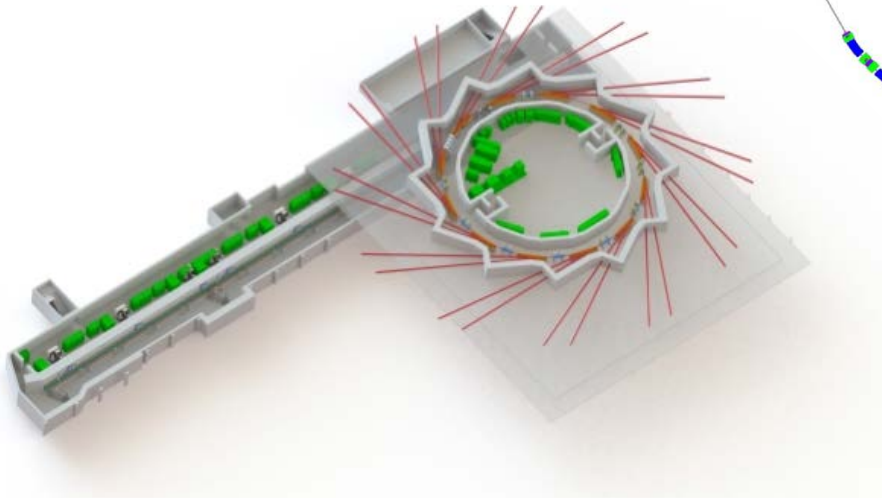
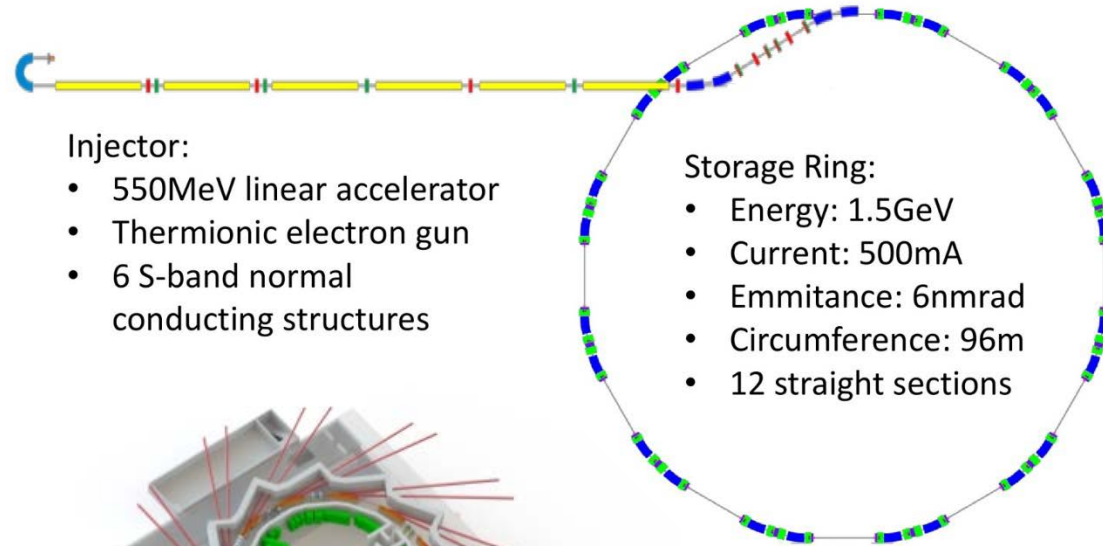
Solaris team was hosted at MAX-lab and participate in project activities and training.

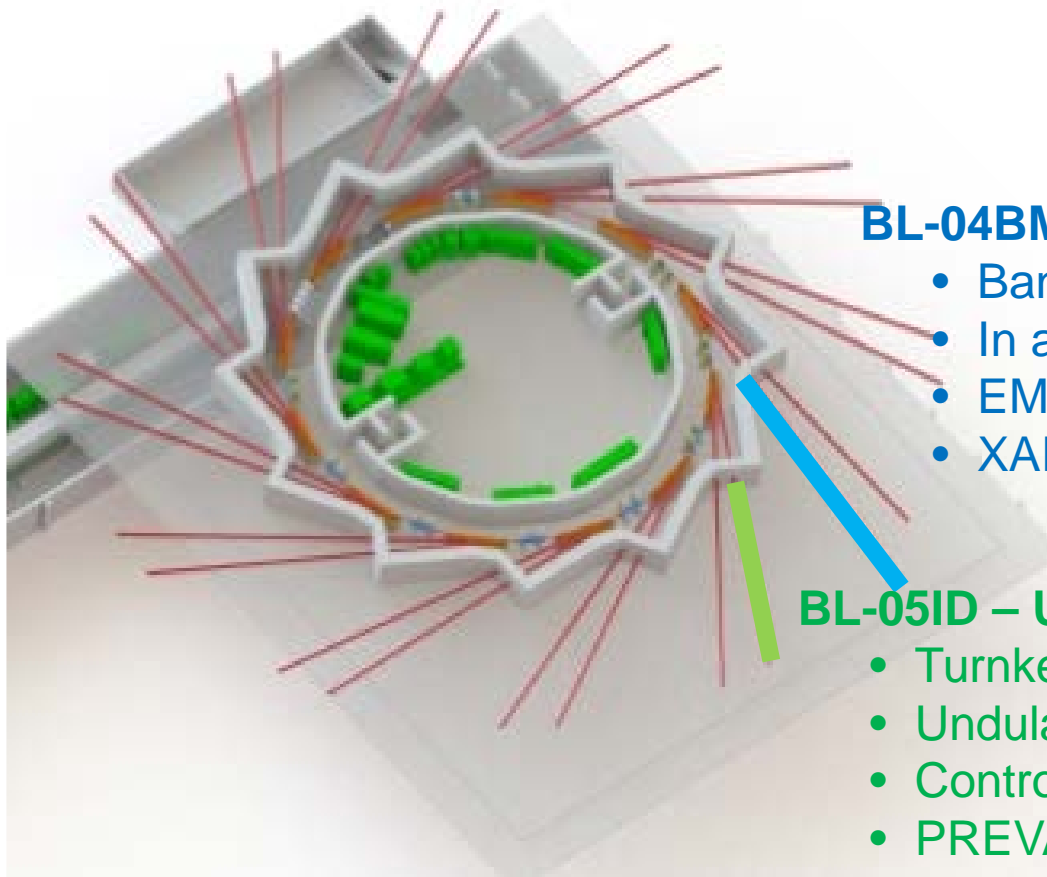
Sharing of mutual resources.

Procurements for Solaris are as options in MAX IV tenders.



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BL-04BM – PEEM

- Banding magnet based
- In assembly
- EMITEC end-station
- XAFS endstation

BL-05ID – UARPES

- Turnkey delivery by Elettra
- Undulator ID
- Control system commissioning
- PREVAC end-station



- **Solaris is collaborating with PL-Grid on development of a Digital User Office**
- **The system will be based on the EGI e-grant system**
 - PL-Grid will deploy the system also to support local PL-Grid users
 - The system is highly customizable
 - It provides brokering functionality
- **Federation friendliness is one of the main feature**
 - **Integration with Umbrella**
 - **Integration with Way For light**
 - **Connecting Solaris users with PL-Grid users (references)**



User profile management

Processes that require interaction between users and operators (grant request handling)

Tools for operators (searching, operation of preselected objects)

Authentication and attributes management (OpenID Connect)

Messaging management (e-mail, notification in web-portal)

Helpdesk implemented based on Atlassian JIRA



GRANTY

STRONA GŁÓWNA
 + DO KUMENTY
 PRZYCHODZĄCE
 + DO KUMENTY
 WYSŁANE
 + SZKICZ WNIOSKÓW
 GRANTOWYCH
 + email_26 45/06-11

Wniosek nie jest w pełni wypełniony; stąd też nie może zostać wysłany. Dokument gotowy do wysłania powinien mieć uzupełnione wszystkie wymagane pola (kolory czerwony) oraz wnioskodawca przynajmniej jeden rodzaj zasobów.

Wniosek o grant email_26 ☆

Status Dokumentu

Data stworzenia: 2015-06-11 14:07:26
 Stworzony przez: Rokszana Róžańska
 email@email.com
 ID Wniosku: 26
 ID Dokumentu: 46

Akceptacja wniosku: BRAK AKCEPTACJI
 Infrastruktura: PL-GRID
 Typ dokumentu: WNIOSKI O GRANT
 Stan wniosku: PRZED WYSŁANIEM

Opis grantu wraz z parametrami technicznymi

Informacje podstawowe oraz opis merytoryczny grantu

Start grantu * 2015-06-30
 Koniec grantu * 2015-06-30
 Kontynuacja grantu * Nie jest kontynuacj...
 ID zespołu * plggzesp01
 Działania badań * Fizyczne
 Temat grantu * Temat
 Opis celu badań naukowych * Opis
 Uzasadnienie wykorzystania zasobów * Uzasadnienie
 Spodziewany rezultat badań * Rezultat
 Sposób korzystania z grantu * QosCosGrid
 Zasoby obliczeniowe * 60000
 Usługi przechowywania danych *
 Sumaryczna przestrzeń danych [GB] *

Workflows
configured with
YAML

```
SendToBrokerPresent:
  show_in_menu: false
  Constraint: constraintsForSendToBrokerPresent
  action_type: <?php echo Action::ACTION_CREATE_NEW_LEAF ?>
  request_resources_source_type: <?php echo Action::RR_SOURCE_TYPE_FORM ?>
  parents_alias: BASE
  sv_alias: newRequest
  copy_states_from_parent: true
  redirect_to_this_version: true
  copy_related_business_entities_from: BASE
  Translation:
    en:
      name: Wyślij
      success_message: Wniosek SLA został wysłany do Operatora Infrastruktury
```

```
m1_1:
  id: 13
  required: 1
  unit: Godzina znormalizowana
  unit_graph: cores
  show_in_resources_graph: true
  Translation:
    en:
      name: Sumaryczny czas obliczeń
      description: Limit sumarycznego czasu obliczeń.
      descriptionP: Total computing time requested.
  MetricsCategory: mc_htc_computing
  poolable: true
  comparison_type: <?php echo Metric::COMPARISON_TYPE_MORE ?>
  aggregable: true
  aggregation_type: <?php echo Metric::AGGREGATION_TYPE_PROPORTIONAL_HOURLY ?>
  pool_max_per_request: true
  usage_graph: true
  ?php echo Metric::TYPE_INTEGER ?>
  ue: 100
  new_request: true
```

Application parameters
configured with YAML



Pool	Date	Price Per Unit [€]	Set Request	Price [€]
IFCA-LCG2_20	2015-02-01 2015-02-28	0.05	Total storage capacity 0/400	0.00
INFN-BARI_23	2015-02-01 2015-02-28	0.02	Total storage capacity 0/400	0.00
BG01-IPP_6	2015-02-01 2015-02-28	0.04	Total storage capacity 0/400	0.00
HG-08-Okeanos_18	2015-02-01 2015-02-28	0.14	Total storage capacity 0/400	
HG-06-EKT_17	2015-02-01 2015-02-28	0.14	Total storage capacity 0/400	
HG-02-IASA_13	2015-02-01 2015-02-28	0.14	Total storage capacity 200/400	
HG-01-GRNET_12	2015-02-01 2015-02-28	0.14	Total storage capacity 200/400	
HG-04-CTI-CEID_15	2015-02-01 2015-02-28	0.14	Total storage capacity 0/400	
HG-03-AUTH_14	2015-02-01 2015-02-28	0.14	Total storage capacity 0/400	
UNI-PERUGIA_30	2015-02-01 2015-02-28	0.01	Total storage capacity 0/230	
HG-05-FORTH_16	2015-02-01 2015-02-28	0.14	Total storage capacity 0/322	

They use different names and a bit different parameters set for EGI ;)

HG-05-FORTH_16

autocreated pool for p4u, site: HG-05-FORTH

Prices

Price for HTC computing Price for one HEPSPEC-hour € 0.05

Price for HTC Storage Price for one GB for 1 day € 0.14

[HTC] Computing			
name	requested	available	
Total computing time	40000	2085	⊖
Max job duration	24	72	✓
Min local storage	1	2	✓
Min physical memory per core	1	2	✓

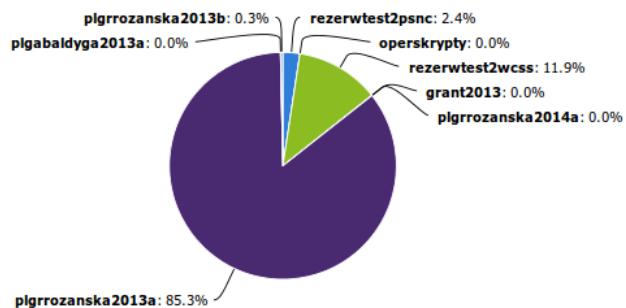
[HTC] Storage			
name	requested	available	
Total storage capacity	400	322	⊖

[Cloud] Computing			
name	requested	available	
Virtual Machines (maximum) - cores	58	0	⊖

[Cloud] Storage			
name	requested	available	
Capacity	600	0	⊖

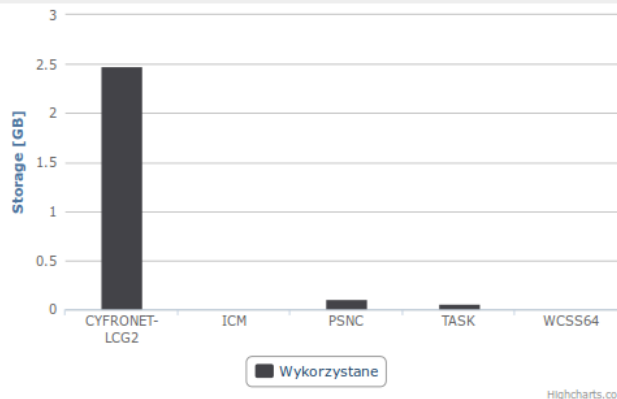
Witaj w Accounting Portalu PL-Grid

Dystrybucja wykorzystania zasobów obliczeniowych



Highcharts.com

[Raport wykorzystania zasobów obliczeniowych »](#)



Highcharts.com

[Raport wykorzystania zasobów dyskowych »](#)

Raporty wykorzystania zasobów w grantach

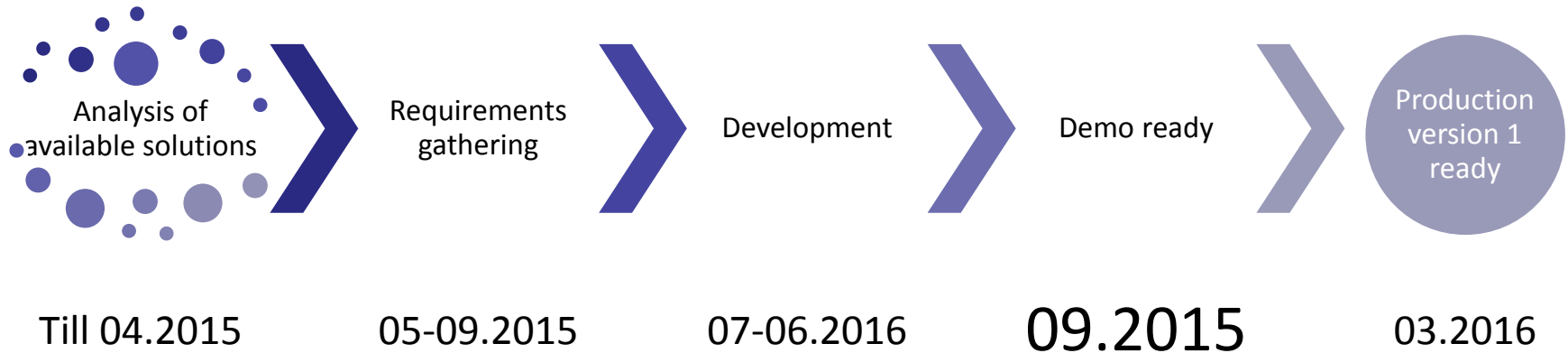
testsystgrant
bazaardemo3
voops2015
rezerwtest2wcss
auta3
plgrrzozanska2014b

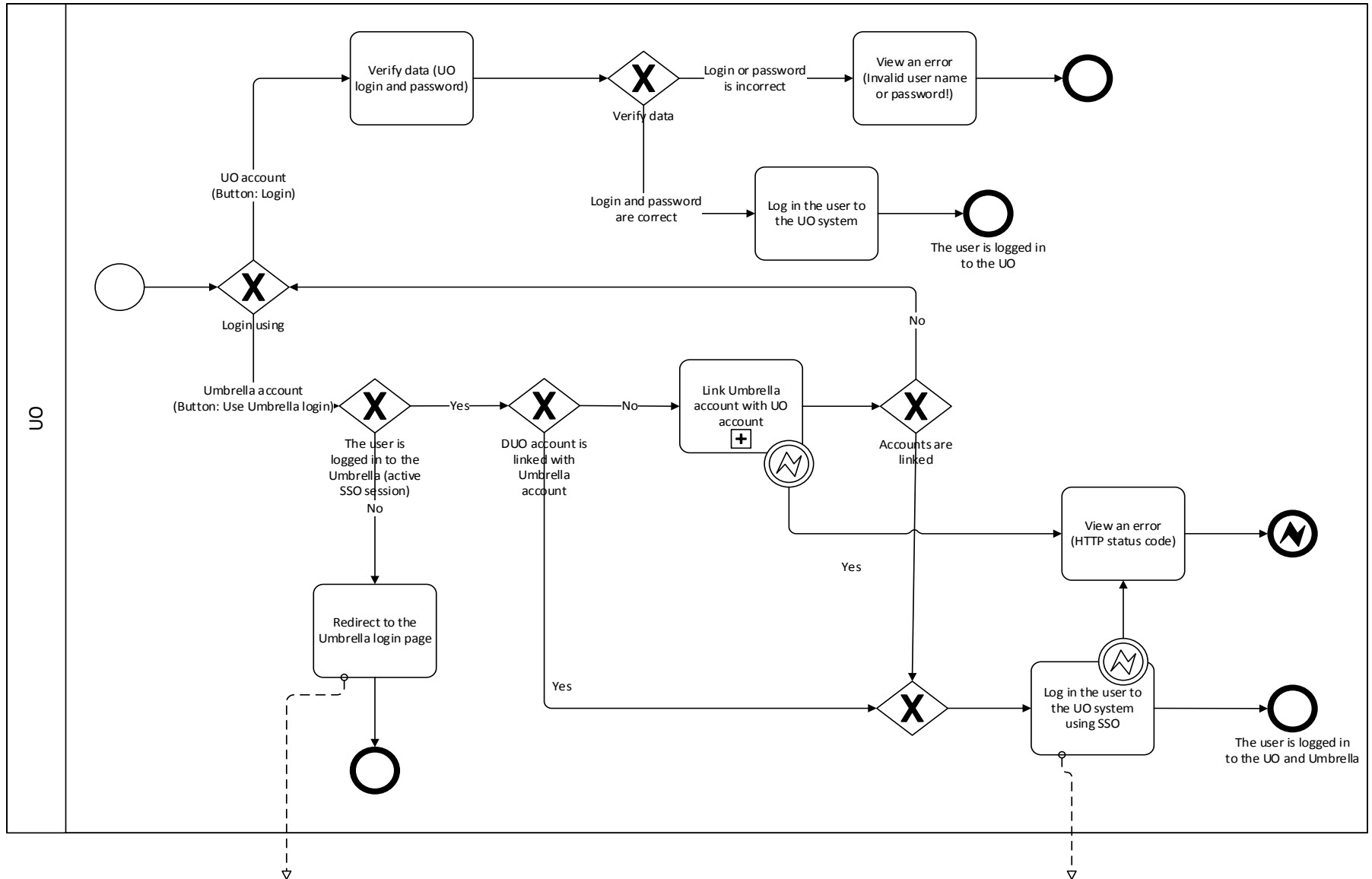
Raporty wykorzystania zasobów przez zespoły

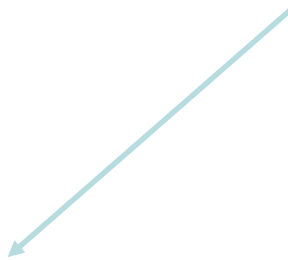
plggssopt	obliczeniowe	dyskowe
plggmagda	obliczeniowe	dyskowe
plggoperator	obliczeniowe	dyskowe
plggscripts	obliczeniowe	dyskowe
plgg-core	obliczeniowe	dyskowe
plgg-core-zadanie2	obliczeniowe	dyskowe

- Systems are build based on microservice architecture, which makes it scalable, extensible
- Components are connected using protobuf+rabbitmq
- Components can be developed in different proگرامing languages (currently using PHP, Java, Python)
- Additional REST APIs possible (if needed)
- Authorisation is based on modern web-based OpenID Connect, which is ready for federation but also can take accounts from LDAP (thanks to Unity).
- PLGrid system is deployed on 4 virtual machines, using MySQL as database







A light blue arrow pointing from the 'way for light' logo towards the 'write your standardized proposal' box.

write your standardized
proposal





- **User needs to follow multiple applications**
- **Each institute is processing the same proposal in a bit different ways**
- **Institutes does not know if the user sent the application to others**
- **User can be granted by multiple laboratories and his decision may need rescheduling for beamlines he doesn't choose**
- **The goal is to give a user resources and services that match his needs**



scientific case



scientific committee

technic



beamline

schedule



call / availability calendar

amenities



services



Is it possible to focus on scientific case and minimize effort to match technical requirements?



scientific case

reviewer

CPUs

cluster

data

storage

amenities

storage



matchmaker

- **Solaris is collaborating with PL-Grid on development of a Digital User Office**
- **The system will be based on the EGI e-grant system**
 - There are similar use cases between light source facilities and clusters
 - The system is highly customizable
 - It provides broker functionality
 - It can support users in choosing the right laboratory
 - It can support laboratories in awarding proposals
- **Are the European Laboratories interested in even more federated approach?**
 - CERIC is interested in
 - HZB is interested in





UNIA EUROPEJSKA
EUROPEJSKI FUNDUSZ
ROZWOJU REGIONALNEGO



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ze Środków Europejskiego Funduszu Rozwoju Regionalnego i z budżetu państwa,
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