Belle II Update

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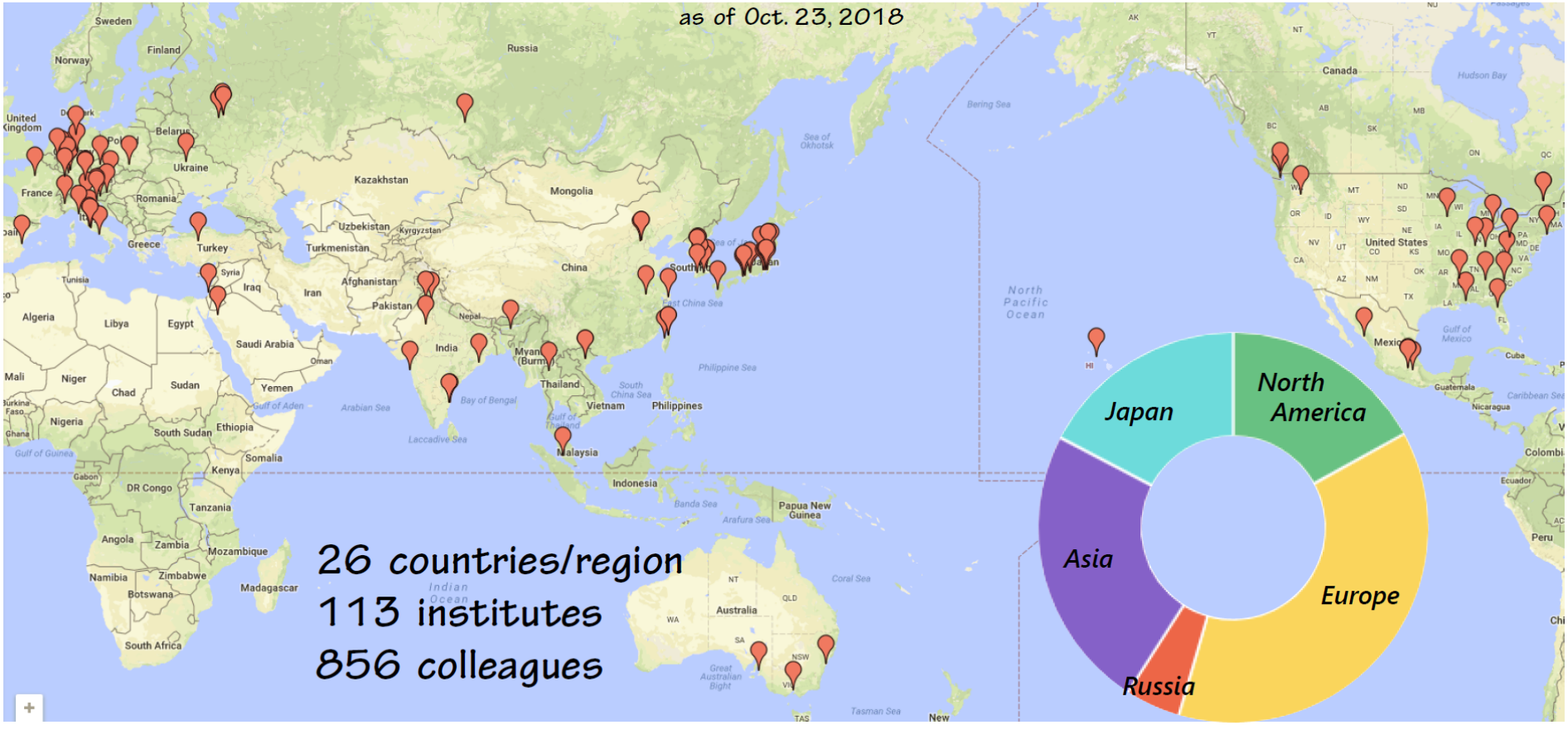
INFN

DPM WorkShop
BERN - 13-14 June 2019

Belle II Collaboration



Phase3 beam run has started on 3/11 !

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A communication resource from the **world's particle physics laboratories.**

SuperKEKB Phase 3 (Belle II Physics Run) Starts

Belle II and SuperKEKB are poised to become the world's first Super B factory facility. Belle II aims to accumulate 50 times more data than its predecessor, Belle, and to seek out new physics hidden in subatomic particles that could shed light on mysteries of the early universe.

Read the Release

https://www.kek.jp/en/newsroom/2019/03/11/1600/#!

KEK 大学共同利用機関法人 高エネルギー加速器研究機構

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KEK > News > SuperKEKB Phase 3 (Belle II Physics Run

SuperKEKB Phase 3 (Belle II Physics Run) Start

2019/03/11 Pressrelease ACC IPNS

On March 11th, 2019, Phase 3 operation of the SuperKEKB project begar
marking a major milestone in the development of Japan's leading particl
phase will be the physics run of the project, in which the Belle II experim
taking data with a fully instrumented detector.

The KEKB accelerator, operated from 1999 to 2010, currently holds the w

physicsworld

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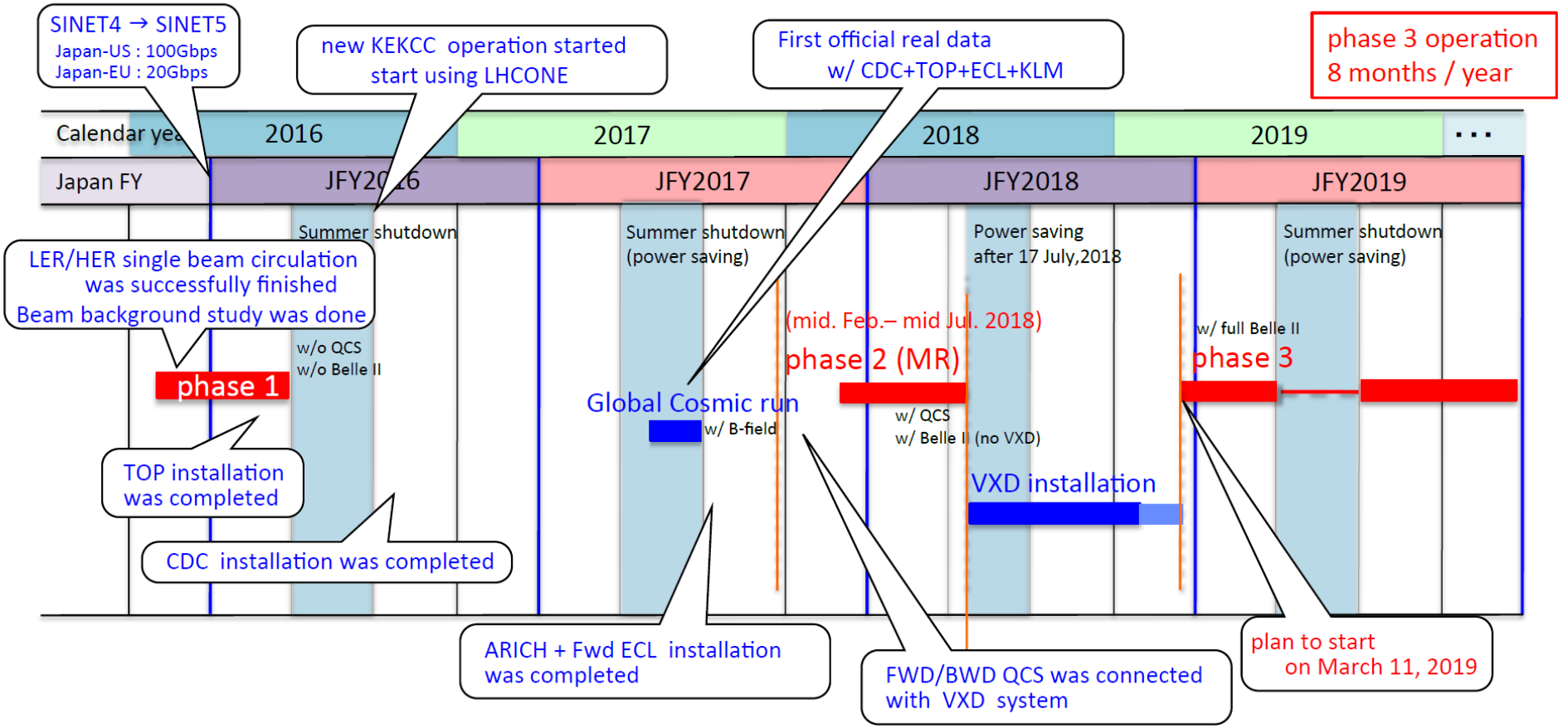
https://physicsworld.com/a/major-revamp-complete-at-superkekb-particle-physics-facility/

projects and facilities

PROJECTS AND FACILITIES | NEWS

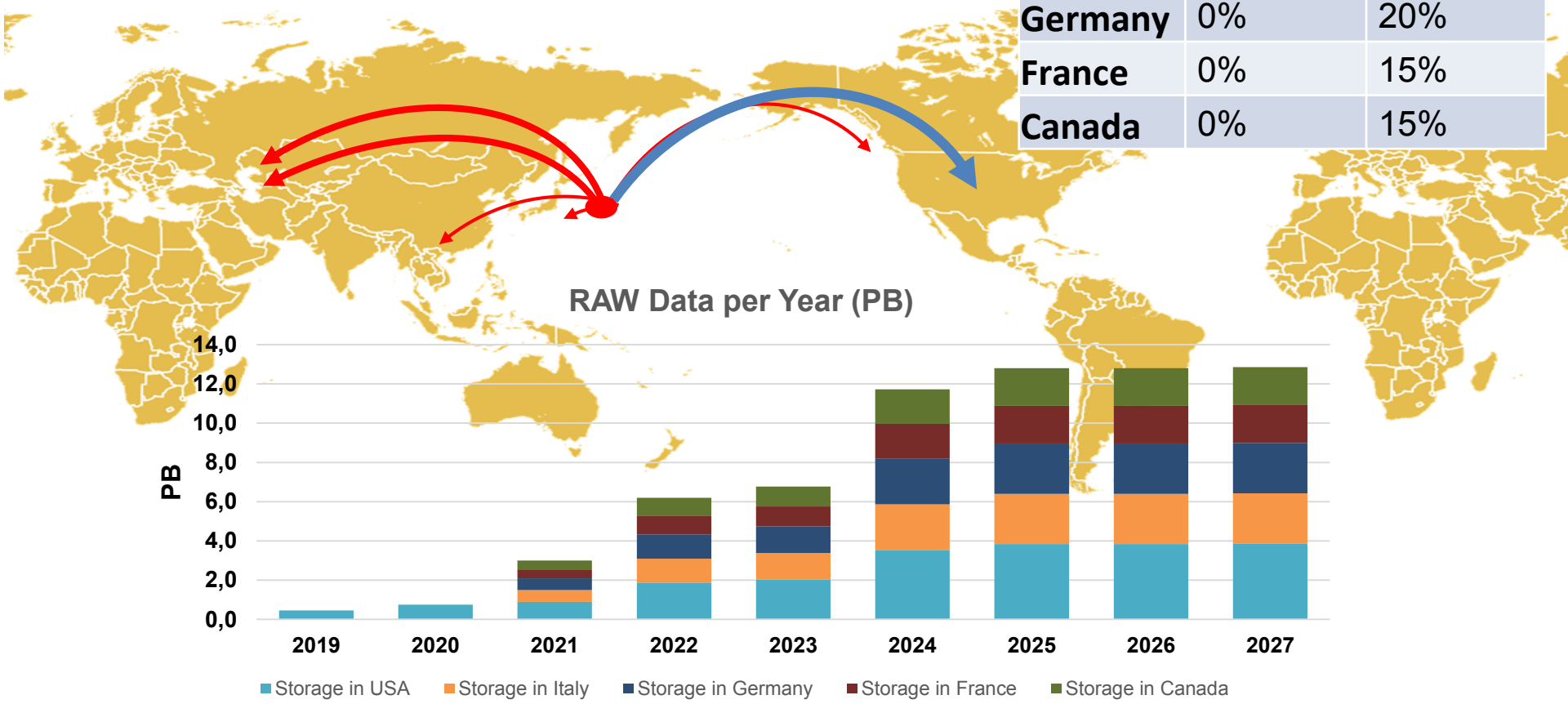
Major revamp complete at SuperKEKB particle-physics facility

Belle II Experiment : Global Schedule



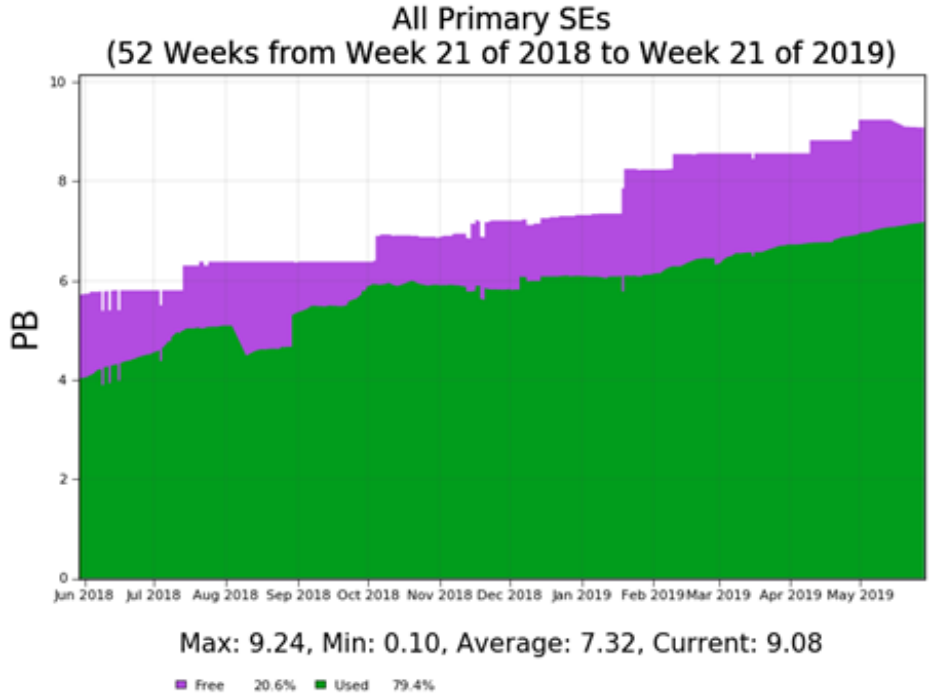
2° RAW Data Copy Replication Strategy

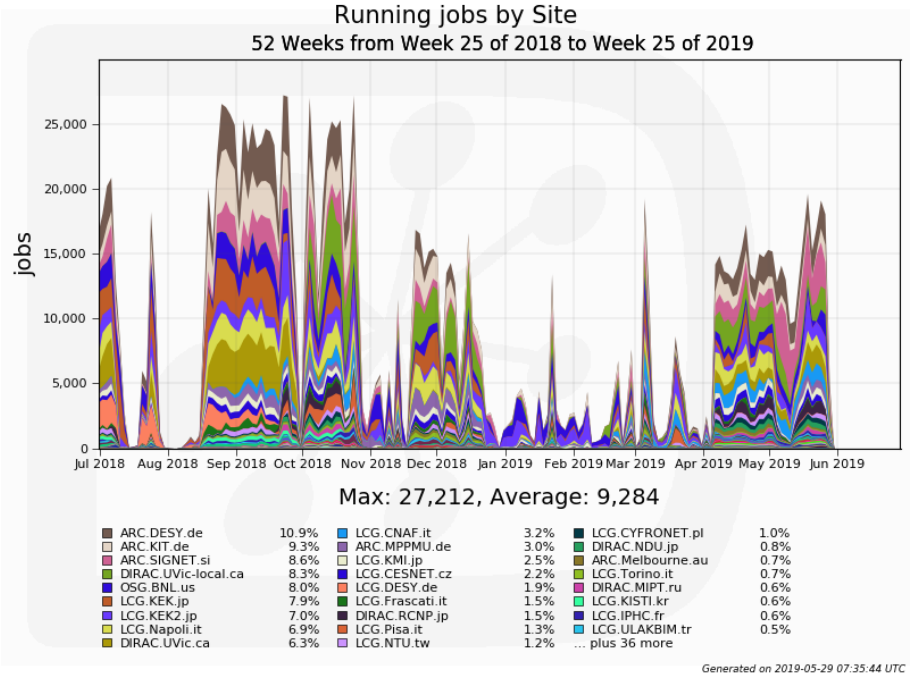
Year	2018- 2020	2021-2024
USA	100%	30%
Italy	0%	20%
Germany	0%	20%
France	0%	15%
Canada	0%	15%



CURRENT RESOURCE USAGE

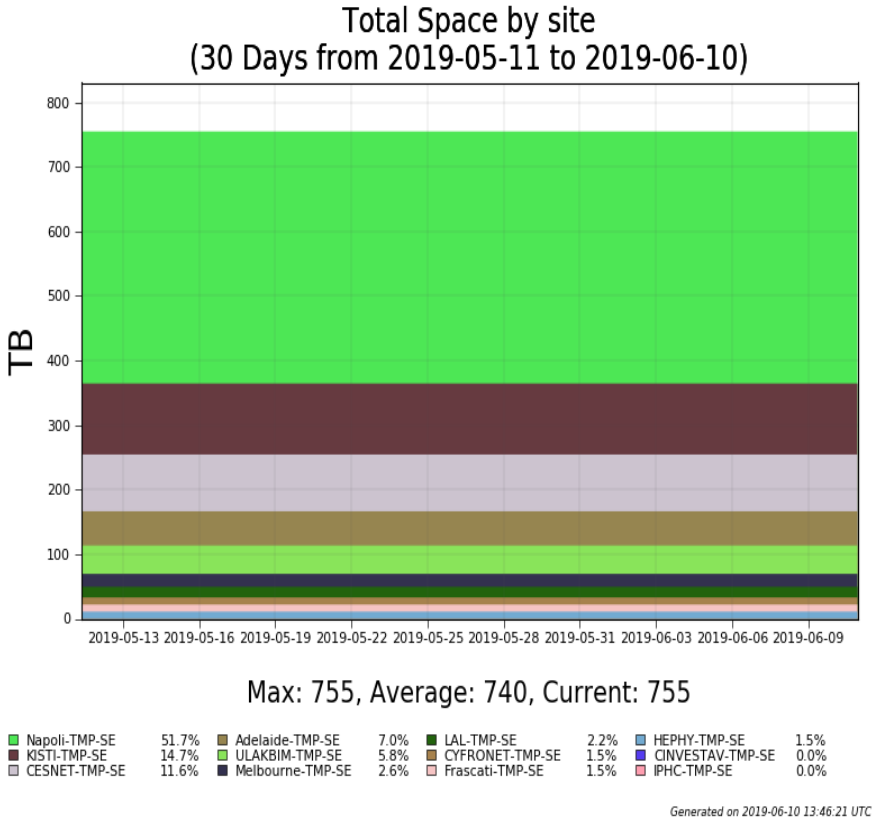
- **9PB available on the main Storage Elements (7 PB used)**
- **62 Sites used in the last 12 Months**
- **Up to 27k Running jobs**





DPM STORAGE IN BELLE II

NAPOLI-SE – 1.12.0-1 QT, gridftp redirection
CESNET-SE – 1.12.0-1
LAL-SE – 1.12.0-1 QT
IPHC-SE - 1.10.0-1 (Upgrade July-August 2019)
ULAKBIM-SE - 1.10.0-1 (Upgrade by the end of 2019)
FRASCATI-SE 1.9.0 (Upgrade by the end of 2019)
ADELAIDE-SE
MELBOURNE-SE
HEPHY-SE
CYFRONET-SE
KISTI-SE
CINVESTAV-SE



DPM Major Upgrade in Napoli (April 2019)

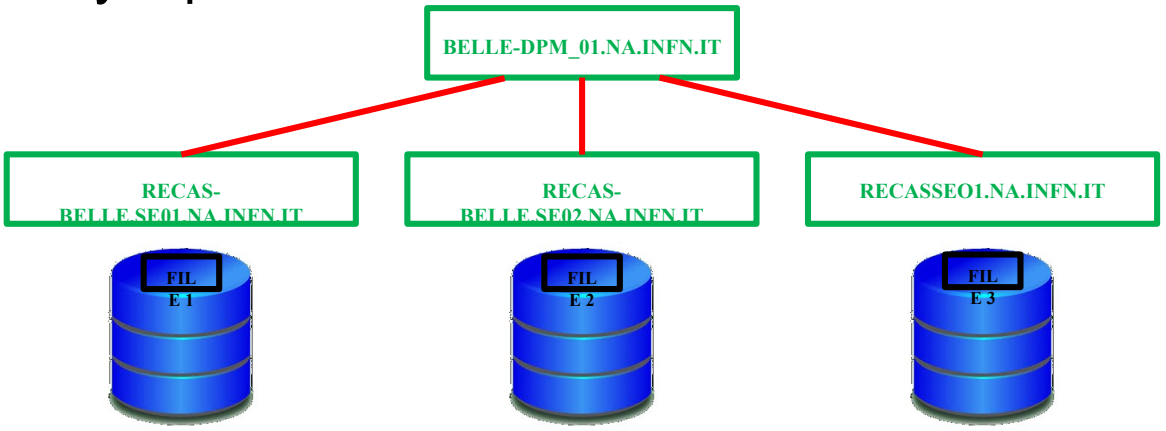
OS Upgrade to CentOS7

DPM Upgrade – v. 1.12 (from 1.8.11)

DOME Activation

Gridftp Redirection (possibility to use the DPM as an SRM-less endpoint)

QUOTA Token on the directory /dpm/na.infn.it/home/belle



LFC

In Belle II the catalogue is provided by LCG File Catalog (LFC).

BelleDIRAC accesses the LFC through the DIRAC API which calls a wrapper library written in Python.

Does the end of support for LCGDM packages affect the lifetime of LFC in the middleware distribution as well?

Access protocols

SRM

Belle II currently rely on SRM.

After the upgrade of DPM in Napoli (and in other sites) with gsiftp redirection, we should be able to test a SRM-less configuration.

HTTP

HTTP active on most part of storages.

GFAL2 supported in the current DIRAC environment

Some tests have been done in a protected environment (see next slides)

Accounting

Based on SPACETOKEN for sites which provide it, and on BDII information for others.

The usage the REST API and JSON storage summary not tested yet.

Tests recently done at Napoli

- DAVS protocol in DIRAC
- DAVS + Dynafed + DIRAC
- DAVS + Dynafed + DPM Volatile Pool (Cache) + DIRAC

- Those tests imply the usage of an non-SRM storage

Dynafed Server for Belle II

#	STORGE NAME	HOSTNAME	TYPE
1	DESY-DE	dcache-belle-webdav.desy.de	DCACHE
2	GRIDKA-SE	f01-075-140-e.gridka.de	DCACHE
3	NTU-SE	bgrid3.phys.ntu.edu.tw	DCACHE
4	SIGNET-SE	dcache.ijs.si	DCACHE
5	UVic-SE	charon01.westgrid.ca	DCACHE
6	BNL-SE	dcbldoor01.sdcc.bnl.gov	DCACHE
7	Adelaide-SE	coepp-dpm-01.ersa.edu.au	DPM
8	CESNET-SE	dpm1.egee.cesnet.cz	DPM
9	CYFRONNET-SE	dpm.cyf-kr.edu.pl	DPM
10	Frascati-SE	atlasse.lnf.infn.it	DPM
11	HEPHY-SE	hephyse.oeaw.ac.at	DPM
12	Melbourne-SE	b2se.mel.coepp.org.au	DPM
13	Napoli-SE	belle-dpm-01.na.infn.it	DPM
14	ULAKBIM-SE	torik1.ulakbim.gov.tr	DPM
15	IPHC-SE	sbgse1.in2p3.fr	DPM
16	LAL	grid05.lal.in2p3.fr	DPM
17	CNAF-SE	ds-202-11-01.cr.cnaf.infn.it	STORM
18	ROMA3-SE	storm-01.roma3.infn.it	STORM
19	KEK-SE	Kek-se03.cc.kek.jp	STORM

Testing Dynafed server in Napoli since Feb 2016

Dynafed on CENTOS-7

https://dynafed-prod01.na.infn.it/myfed

19 Storages

Proxy generated by a robot certificate

Testing
https://dynafed-belle.na.infn.it/myfed/

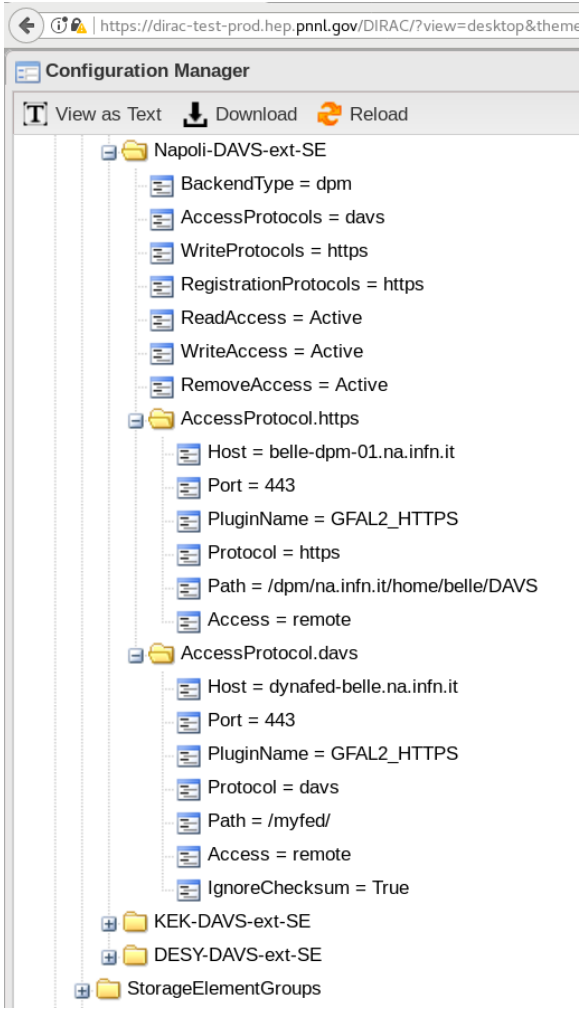
Usage of DYNAFED in Belle II

Our Framework DIRAC works against a file replica catalog:

Having files accessible via dynafed does not make the system able to use them via dynafed.

Possible options:

- file catalog entries corresponding to the accesses via Dynafed
- an “external” file access plug-in that does not look up the file catalog
- Use special SEs defined in the system with accesses to dynafed, in addition to the accesses to itself.



- BackendType = dpm
- AccessProtocols = **davs**
- WriteProticols = **https**
- RegistrationProtocols = **https**

Protocollo https:

- Host = belle-dpm-01.na.infn.it
- PluginName = GFAL2_HTTPS
- Protocol = https

Protocollo davs:

- Host = **dynafed-belle.na.infn.it**
- Protocol = **davs**
- Path = **/myfed/**
- IgnoreChecksum = **true**

Next Belle II General Meeting

Next Belle II general meeting (KEK 17-21 June 2019) we have a dedicate session on Dynafed (presentations and working session), and other sessions related storage. The following topics will be discussed:

- How to use Dynafed in our production environment
- Dynafed with DIRAC
- Dynafed with Rucio
- SRM-less SEs

BACKUP

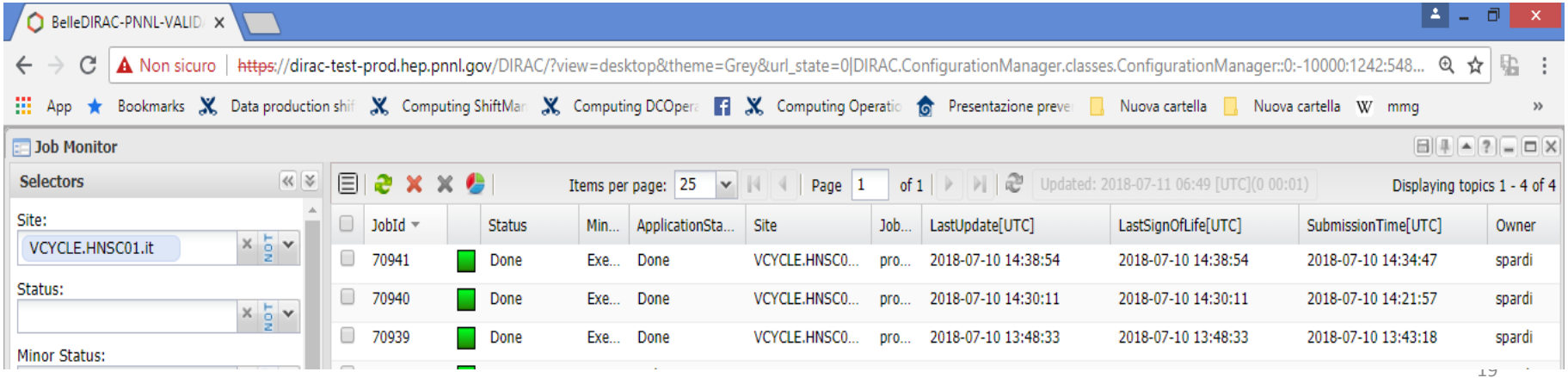
How to use this object?

The site VCYCLE.HNSC01.it in Validation DIRAC has been configured to use the testing http endpoint, included dynafed

We created a set of datasets locally with basf2 then we copied and registered it on KEK-DAVS-SE storage via **gb2_ds_put** command.

How to use this object?

Submit jobs to DIRAC via gbasf2 , taking advantage from the cache.

Early results:

In a protected environment, we replicated datasets to KEK-DAVS-SE and then we ran a set of simple analysis on HNSC resources, reading files from the http storage via Dynafed, using the volatile pool feature as well, experiencing the caching effect.