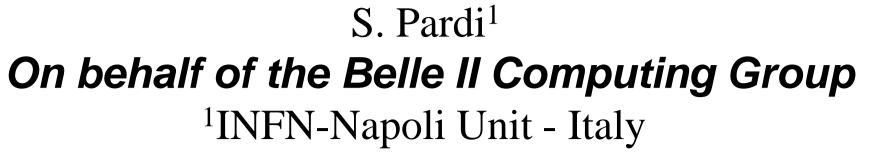




A lightweight federation of the Belle II storages through dynafed



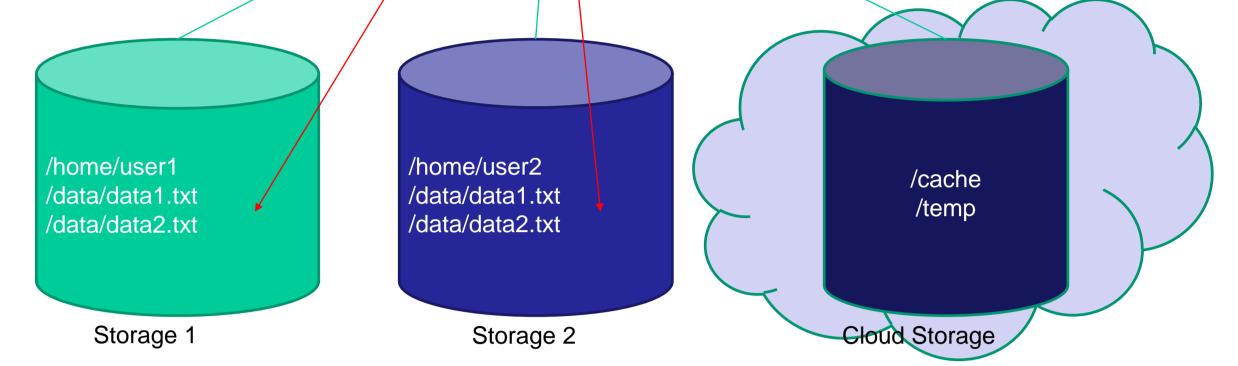
INTRODUCTION

Belle II experiment can take advantage from Data federation technologies to simplify access to distributed datasets and file replicas. The increasing adoption of http and webdav protocol by sites, enables to create lightweight solutions to give an aggregate view of the distributed storage.

/home/user1 /home/user2 /data/data1.txt /data/data2.txt /cache /temp

DYNAFED SERVER

In this work, we make a study on the possible usage of the software Dynafed developed by CERN for the creation of an on-the-fly data federation.



STORGE NAME HOSTNAME TYPE dcache-belle-webdav.desy.de DESY-DE DCACHE f01-075-140-e.gridka.de **GRIDKA-SE** DCACHE NTU-SE bgrid3.phys.ntu.edu.tw DCACHE SIGNET-SE dcache.ijs.si DCACHE UVic-SE charon01.westgrid.ca DCACHE Adelaide-SE coepp-dpm-01.ersa.edu.au DPM CESNET-SE DPM dpm1.egee.cesnet.cz CYFRONNET-SE dpm.cyf-kr.edu.pl DPM

THE DYNAFED TESTBED

We created a first dynafed server, hosted in the datacentre in Napoli, and connected with about the 50% of the production storages of Belle II. Then we aggregated the contents of all the storage systems under a unique http path. We implemented as well an additional view, in order to browse the contents of the individual storage systems.

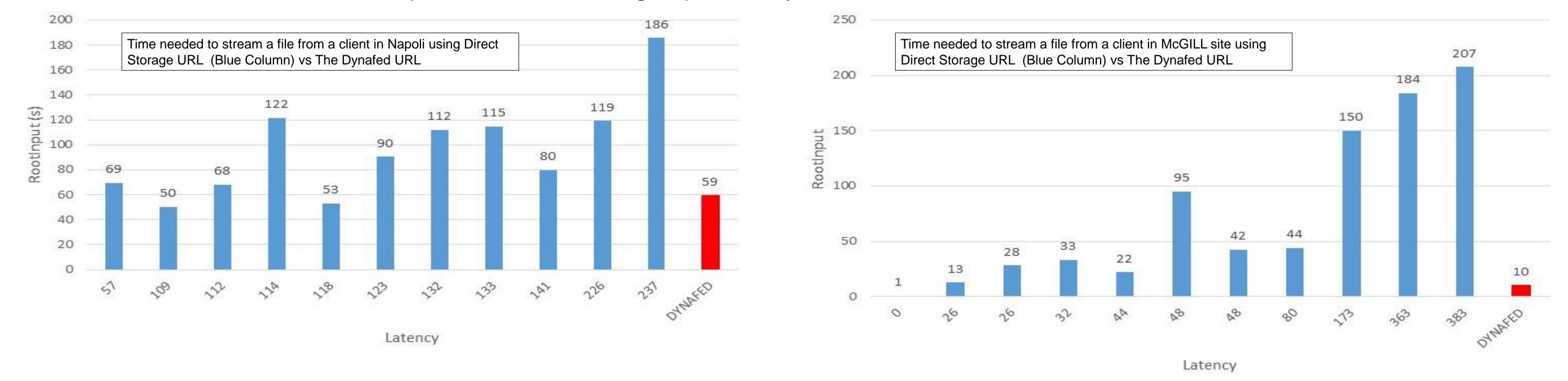
myfed/bell	e/	×	+				
(i) dynafed01.na.infn.it/myfed/belle/							C Q Cerca C I I I I I I I I I I I I I I I I I I I I I I I I
/myfed/bell							
Mode	Links	UID	GID	Size		Modified Name	🖕 myfed/PerSite/ X +
-rw-rw-r	0	0	0	1000.0M	Thu,	, 05 Mar 2015 15:31:21 GMT 🗞 🗋 <u>16</u>	🔆 🛈 🖨 https://dynafed01.na.infn.it/myfed/PerSite/
drwxrwxr-x	0	0	0	0	Mon,	, 16 May 2016 15:32:19 GMT 🛛 🛅 DATA	Più visitati 1 ShiftManual < Compu 1 DCOperationsExperts 🛞 404 Not Found ~ CWTBook2Go - Home 1 DCMeetingPage < Co 🔅 Dpm/Admin/Installati
drwxrwxrwx	0	0	0			, 15 Sep 2015 23:55:07 GMT 📋 🖸	
drwxrwxr-x	0	0	0			, 05 Mar 2015 02:00:06 GMT 📋 DC2014	/myfod/PorSito/
drwxrwxrwx	0	0	0			, 26 Apr 2015 22:04:28 GMT 🛅 DC2015	/ myreu/r ersne/
drwxrwxr-x	0	0	0			, 07 Aug 2015 15:20:46 GMT	Mode Links UID GID Size Modified Name
drwxrwxr-x	0	0	0			. 16 May 2016 15:32:59 GMT 📄 TMP	drwxrwxrwx 0 0 0 Thu, 01 Jan 1970 00:00:00 GMT 🛅 Adelaide-SE

Frascati-SE	atlasse.lnf.infn.it	DPM	drwxrwxrwx 0 0 0 0 Sun, 26 Apr 2015 22:04:28 GMT DC2015 drwxrwxr-x 0 0 0 Fri, 07 Aug 2015 15:20:46 GMT MC Mode Links UID GID Size Modified Name drwxrwxr-x 0 0 0 0 Mon, 16 May 2016 15:32:59 GMT Imp drwxrwxrwx 0 0 Thu, 01 Jan 1970 00:00:00 GMT Melaide-SE -rwxrwxrwx 0 0 0 0 Tue, 03 Mar 2015 08:32:15 GMT (Imp) aaa drwxrwxrwx 0 0 Thu, 01 Jan 1970 00:00:00 GMT Melaide-SE
HEPHY-SE	hephyse.oeaw.ac.at	DPM	drwxrwxr-x 0<
Melbourne-SE	b2se.mel.coepp.org.au	DPM	Inversion 0
Napoli-SE	belle-dpm-01.na.infn.it	DPM	-rwxrwxrwx 0 0 12.3M Wed, 22 Oct 2014 10:47:46 GMT % 1 test.pi -rwxrwxrwx 0 0 185 Mon, 12 Apr 2010 07:47:50 GMT % 1 test.pi -rw-rw-r 0 0 19 Mon, 16 May 2016 08:37:03 GMT % 1 test.fil -rwxrwxrwx 0 0 5 Fri, 03 Jul 2015 09:19:48 GMT % 1 test.sil -rwxrwxrwx 0 0 5 Fri, 03 Jul 2015 09:25:40 GMT % 1 test.sil
CNAF-SE	ds-202-11-01.cr.cnaf.infn.it	STORM	-rwxrwxrwx 0 0 5 Fri, 03 Jul 2015 14:09:05 GMT % 1 testsil -rwxrwxrwx 0 0 5 Fri, 03 Jul 2015 14:10:29 GMT % 1 testsil -rwxrwxrwx 0 0 5 Fri, 03 Jul 2015 09:11:35 GMT % 1 testsil -rwxrwxrwx 0 0 5 Fri, 03 Jul 2015 09:11:35 GMT % 1 testsil -rwxrwxrwx 0 0 5 Fri, 03 Jul 2015 09:15:40 GMT % 1 testsil
McGill-SE	gridftp02.clumeq.mcgill.ca	STORM	Request by nobody (nobody) Powered by LCGDM-DAV 0.17.0 (New UI) Image: the state of the s
			Request by nobody (nobody) Powered by LCGDM-DAV 0.17.0 (<u>New UI</u>) Ricerca in Windows e nel Web 🗆 🕞 🍋 <table-cell> 📽 🛱 🕎 🛷 🏟 <table-cell> <table-cell> 😵 🗊 🖓 🔹 🕞 🕸</table-cell></table-cell></table-cell>

Thanks to the aggregation feature provided by Dynafed, we can address a specific file and its replicas with a single url:

http://dynafed01.na.infn.it/myfed/belle/TMP/belle/user/spardi/testhttp/mixed_e0001r0009_s00_BGx1.mdst.root

For the testbed 50 files have been copied in the 14 storages part of Dynafed. It can be used also for future tests.



CONCLUSION

Comments

Dynafed thanks to the geoip-plugin is able to chose a convenient replica for the client, however it seems that not distinguish storages in the same country.

Dynafed is a very interesting solution for Belle II community to federate in a very light way multiple storages without complex configuration on the site side. Tests done have demonstrated the capability to manage Global Storage, and to redirect clients to a convenient copy.

October 10-14 - San Francisco - USA