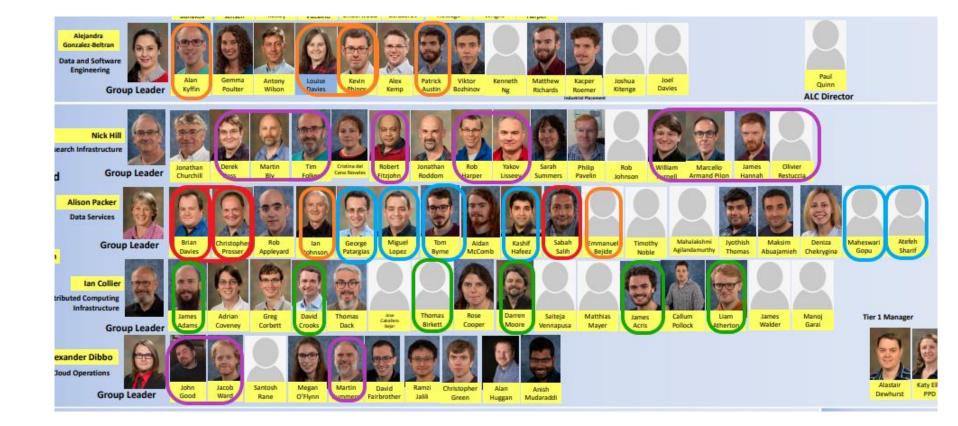
# Overview description of Facilities Archive and Recall for CEDA and DLS

SCD AHM May 2024

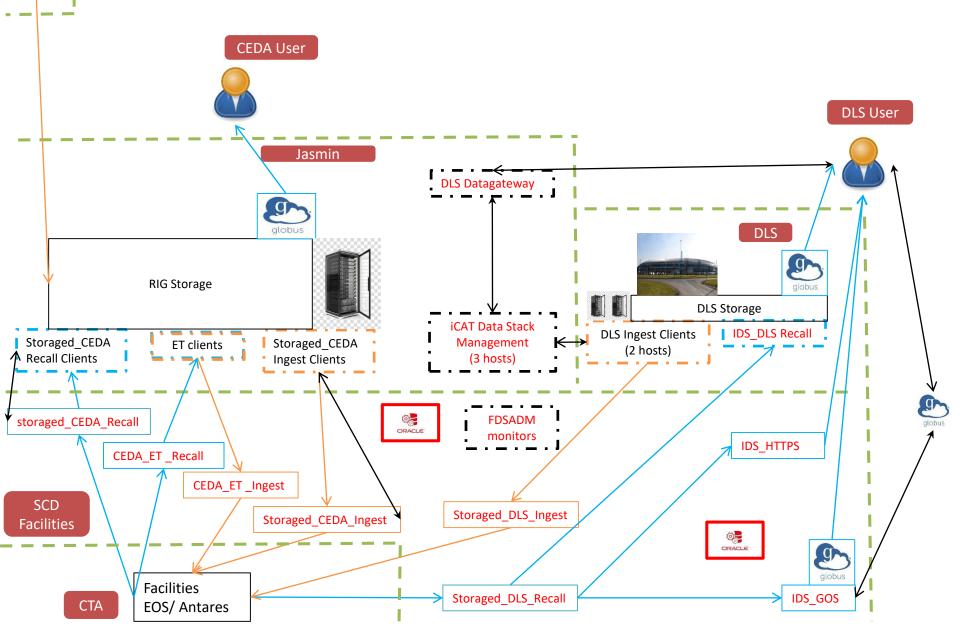
## Service offering

- Archive Storage For Both DLS and CEDA
  - (Akin to WLCG Tier-0)
  - Data Management
    - (ICAT/DATAGATEWAY)
  - Data movement
    - (StorageD/ET/IDS/Globus)
      - Aggregation via StorageD component
      - ET "ElasticTape"
- Ingest from both onsite and offsite
- Provide Recall of Data to offsite locations
  - Small and Large volumes
- Provide Recall of Data to Onsite Facilities
  - SCARF/Jasmin, Openstack Cloud, DLS work areas

## Many People Involved (plus DLS (~7) personnel and CEDA(RALSpace) (~5) personnel )



### Host Locations and Network Flows



**Diamond Ingest and Recall Example** 

#### DLS View Village -> Instrument-> Visit->Dataset-> Files

diamond.ac.uk/Instruments.html							G
😔 diamond	About Us For Users	Industry Public	Science Inst	truments <u>C</u> are	ers More •	Search	
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### **SCD** view

- Set of Files in a directory on a Filesystem-> 1 Aggregate uploaded into Antares
- Contents of a Visit goes into a single EOS directory
- Set of directories related to a Village goes into single TapePool
- Closed/Open Visits

### Examples of Ingest Monitoring Pages (DLS)



#### Summary of current state

StorageD current state summary							
Metric	Topic	Value					
Last state change at		2024-04-09 09:34:32					
Throughput: files in last 24 hrs	File count: 1544	Tb registered: 0.01					
Throughput: transfers to TAPE in last 24 hrs	Transfer count: 38	0.01Tb					
Transfer state = CACHED_SYNCED:130.246.184.122	total count: 396 transfers; 669426 files	3101.48Gb					
Transfer state = <u>DELETED:DEFAULT</u>	total count: 2 transfers; 2 files	1134.14Gb					
Transfer state = FLUSHING:130.246.184.122	total count: 1 transfers; 73 files	5.11Gb					
Transfer state = <u>SYNCED:DEFAULT</u>	total count: 10391928 transfers; 4776685496 files	64118096.88Gb					

#### Dropfile queue(s)

..and getting that info took 0 seconds

#### **Current Transfer Errors**

Complete history - errored transfer state changes Beamline Visit Transfer ID File count Transfer size Current state Last error report time Last error type

Data throughput in last 24 hours										
	orageD	StorageD		CAT	ICAT					
Data C	ollected (Gb)	File count	Data Col	lected (Gb)	File count					
10.76		1544	12.08		1545					
	Data registered in last 24hrs by beamline/visit									
Station	Visit	Stora		StorageD	Stora		ICAT	ICAT	ICAT	
		Data Colle	ctea (Gb)	File Count			Data Collected (Gb)			
B18	<u>cm37265-2</u>		0	2	2024-04-08	3 14:49:50	0	2	2024-04-08 15:32:43	
I05-1	<u>cm37239-2</u>		.02	12	2024-04-08	3 13:51:41	.02	12	2024-04-08 14:29:19	
106	<u>cm37240-2</u>		2.75	46	2024-04-08	3 17:05:32	2.62	46	2024-04-08 17:39:41	
I06-2	<u>mm34486-1</u>		4.71	122	2024-04-08	3 19:42:12	4.49	122	2024-04-08 20:28:56	
107	<u>cm37245-2</u>		0	6	2024-04-08	3 10:54:41	0	6	2024-04-08 11:40:02	
I10	<u>cm37251-2</u>		0	2	2024-04-08	3 14:10:12	0	2	2024-04-08 14:50:25	
I10-1	<u>cm37252-2</u>		0	1	2024-04-08	8 11:08:12	0	1	2024-04-08 11:40:04	
I13	<u>cm37258-2</u>		.14	2	2024-04-08	3 23:42:27	.14	2	2024-04-09 00:21:38	
I14	<u>cm37259-2</u>		0	5	2024-04-08	3 12:21:29	1.33	6	2024-04-08 13:04:41	
I15	<u>cm37260-2</u>		.41	17	2024-04-08	3 17:21:33	.39	17	2024-04-08 18:00:49	
I18	<u>cm37264-2</u>		.03	50	2024-04-08	8 16:21:38	.03	50	2024-04-08 16:57:20	
I19-1	<u>cm37266-2</u>		3.11	1250	2024-04-08	3 12:44:15	2.97	1250	2024-04-08 13:26:08	
I20	<u>cm37268-2</u>		.09	27	2024-04-08	8 16:20:47	.09	27	2024-04-08 16:57:23	
I21	<u>cm37269-2</u>		0	2	2024-04-08	3 15:13:22	0	2	2024-04-08 15:53:55	

### Examples of recall Monitoring Pages (DLS)

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osal												
Data	Maintenance	Admin Downl	bac									
cover		Full N			Username		Prepared ID	Access Method	Availability	Size	Requested Date 4	Delet
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cn				•						<u> </u>	To	
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	13796307						e5a15361-3672-43a4-96	https	Restoring from tape		2024-04-09 09:39:12	
	13796163						308b60b0-3113-4a3e-a7	https	Available	49.94 MB	2024-04-08 21:52:08	
	13789198						4ceb4136-b922-413b-bc		Available	69.24 GB	2024-04-08 20:17:06	
	13768780						c71d7526-be50-4de7-ab		Available	111.05 GB	2024-04-08 19:27:02	
							50368a3e a572-4925-80	https	Available		2024-04-08 18:28:25	
							1f6c3b26-5fcc-457e-8d1_	https	Available	1.97 MB	2024-04-08 18:22:38	
							2a11d97f-57a9-40c4-b17_		Available	188 MB		
	13755243						4e915129-0ef3-44f9-915	https	Available		2024-04-08 15:02:49	
	13755237						aa0e844e-3220-465e-91f	https	Available		2024-04-08 15:01:03	
							ca3d9e57-b299-41d5-af6	https	Available	62.66 MB	2024-04-08 14:47:38	
							ba09eee5-84dc-4bb0-a2	https	Available		2024-04-08 14:11:47	
	13754702						91292a57-002e-4d3c-b6		Available		2024-04-08 14:04:46	
	13754584						2a921e35-8e06-40f4-95a_	https	Restoring from tape	733.25 KB	2024-04-08 13:42:56	
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#### Current retrievals summary

RR ID	RR Start Time	RR State	R State	R State Count	File Count	File Size (GB
789754	20240408 02:20:25	BUILDING	COMPLETED	49	2614	16.29
			PROCESSABLE	312	17121	106.66
			SERVING	1	86	.54
789755	20240408 02:35:07	BUILDING	PROCESSABLE	6	680	.01
			SERVING	1	114	0
789773	20240408 05:36:08	BUILDING	PROCESSABLE	91	5170	32.21
			SERVING	1	86	.54
789774	20240408 07:18:52	BUILDING	PROCESSABLE	6	680	.01
			SERVING	1	114	0
789777	20240408 10:35:05	BUILDING	PROCESSABLE	6	680	.01
			SERVING	1	114	0
789782	20240408 12:11:22	BUILDING	PROCESSABLE	312	17121	106.66
			SERVING	1	86	.54
789784	20240408 13:20:39	BUILDING	COMPLETED	1615	2242	378.9
			PROCESSABLE	39	55	1.39
			SERVING	1	2	.23
			SYNCED	9	11	.29
789786	20240408 13:36:08	BUILDING	PROCESSABLE	91	5170	32.21
			SERVING	1	86	.54
789835	20240409 08:10:33	BUILDING	PROCESSABLE	60	87	2.38
			SERVING	1	2	.03
			SYNCED	9	11	.29
789836	20240409 08:12:40	BUILDING	COMPLETED	61	88	2.41
			SYNCED	9	11	.29
789837	20240409 08:21:04	BUILDING	COMPLETED	40	56	1.42
			SYNCED	9	11	.29

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Collection DLS GlobusS Collection			Q. (8)		bd-stfc-laptop		Q	$\otimes$
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DLS_2023-12-13_10-33-22	12/13/2021 10:38 AM		>	1,21	DLS_2022-12-12_9-48-52	12/12/2022, 02:34 PM		
DLS_2023-12-13_10-8-38	52/34/2023, 02:37 AM		>		DLS_2022-3-01_dimem_1	3/21/2022 30.31 AM		
DLS_2024-2-28_10-52-32	2/28/2024 12 02 AM		>	$\overline{X}$	DLS_2022-3-25_postreboot_1	5/25/2022, 02-12 PM		
DLS_2024-2-28_9-45-21	2/28/2024, 09:56 AM		>		DLS_2022-7-11_12-47-59	7/21/2022_02.14 PM		
DLS_example_download_1	12/34/2023.02.52 AM		>	4	DLS_2023-10-36_postcertchange_1	10/06/2023, 12:07 PH		
DLS_map_to_Atlantis	12/34/2023, 01:52 AM		>	ø	DLS_2023-12-13_10-33-22	12/17/2023 10:49 AM		
				0	DLS_2023-12-6_9-48-24	12/6/2022 03:13 PM		
				O	DLS_2023-7-18_11-57-13	7/28/2023, 02:13 PM		
					DLS_map_to_Aliantis	4/07/0024-04/00/04		
					Newcert2022_1	10/30/2023 02-12 PM		

# Scale (by numbers)

## INGEST

- DLS
  - 65.5PB , 4.8B files
- CEDA (13 years)
  - 27.9PB , 417M files
    - Daily record 77TB, 6.4M files
- ET (10 years)
  - 12.6PB , 256M files
    - Daily record 82TB, 1.9M files

## Recall

- DLS (7 years)
  - 3.1PB,
- CEDA (13 years)
  - 82.5PB , 403M files
    - Monthly record 788TB, 82M files
- ET (10 years)
  - 2.7PB , 7.5M files