



XI SPD collaboration meeting

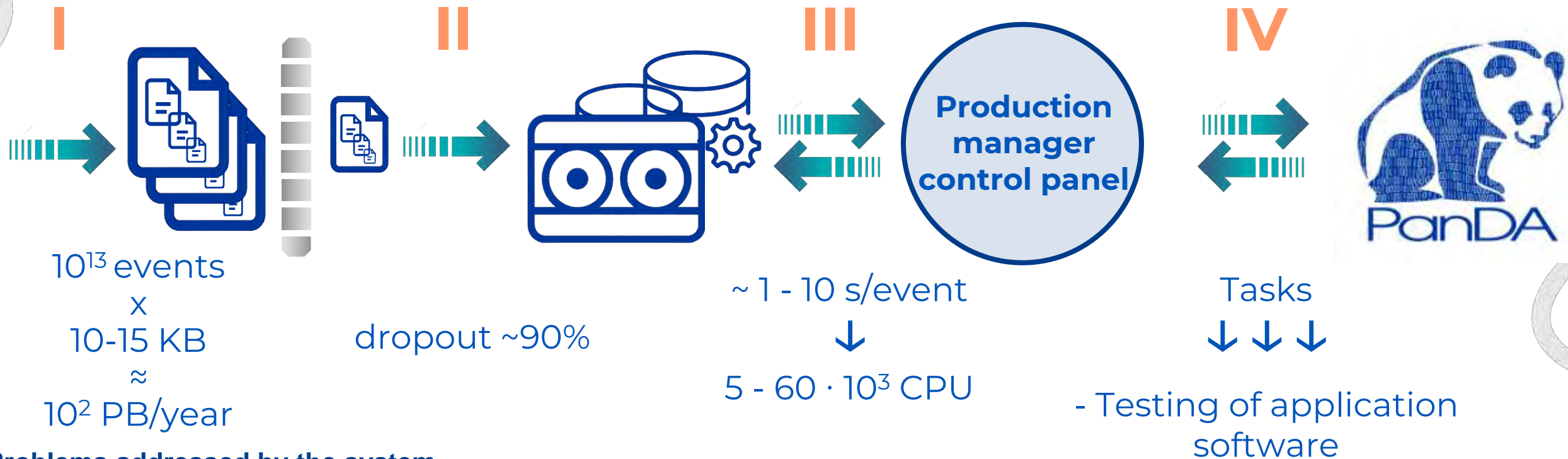
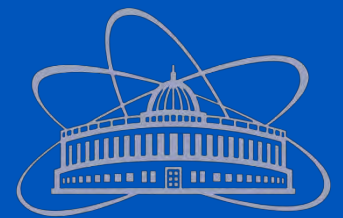
Production manager control panel for the SPD experiment

Speaker:

Monakov Nikita Glebovich
software engineer , MLIT JINR



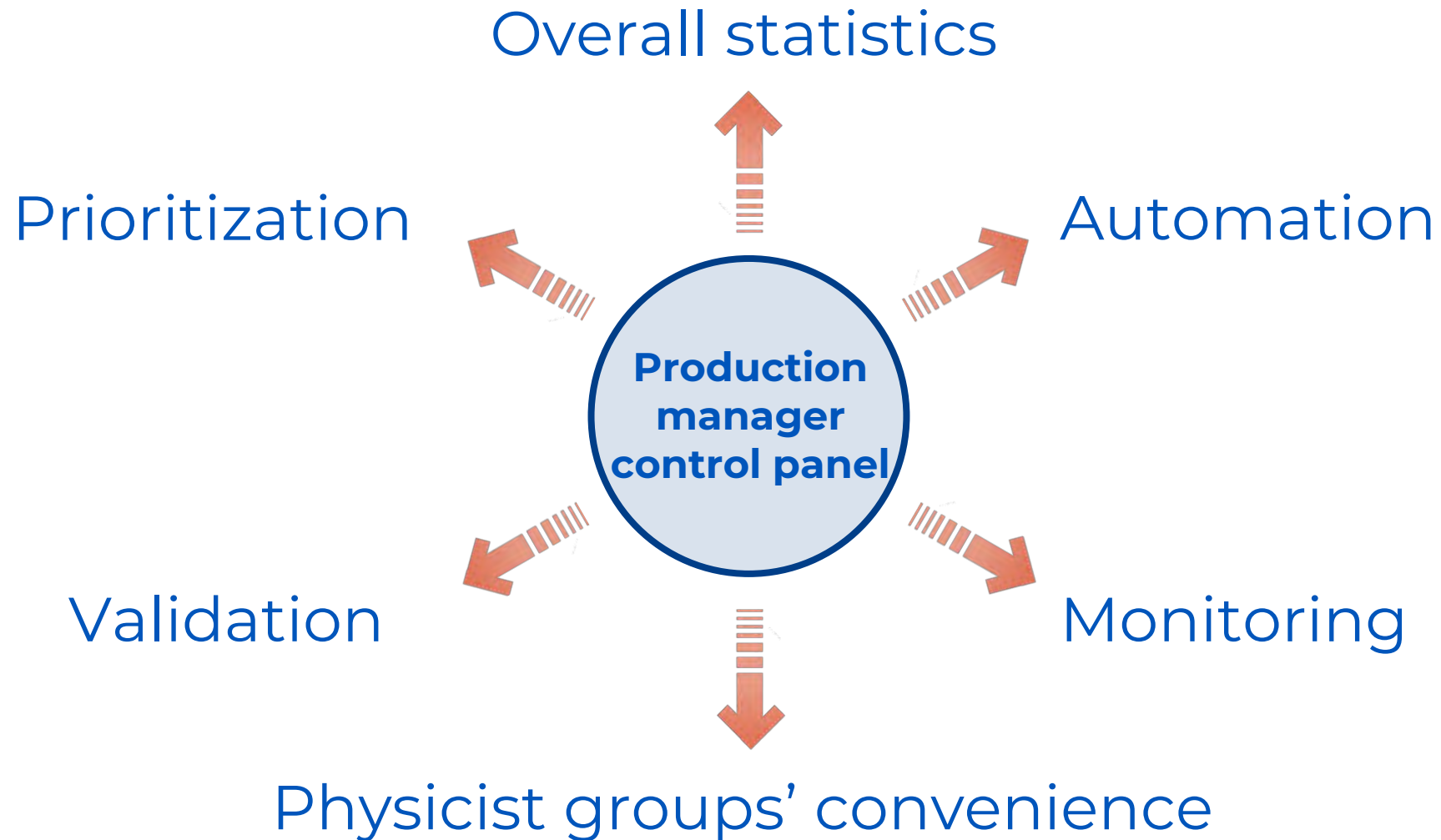
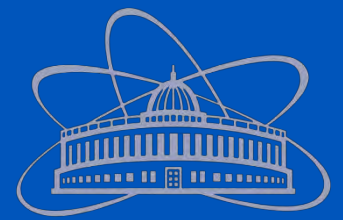
Motivation for developing the system



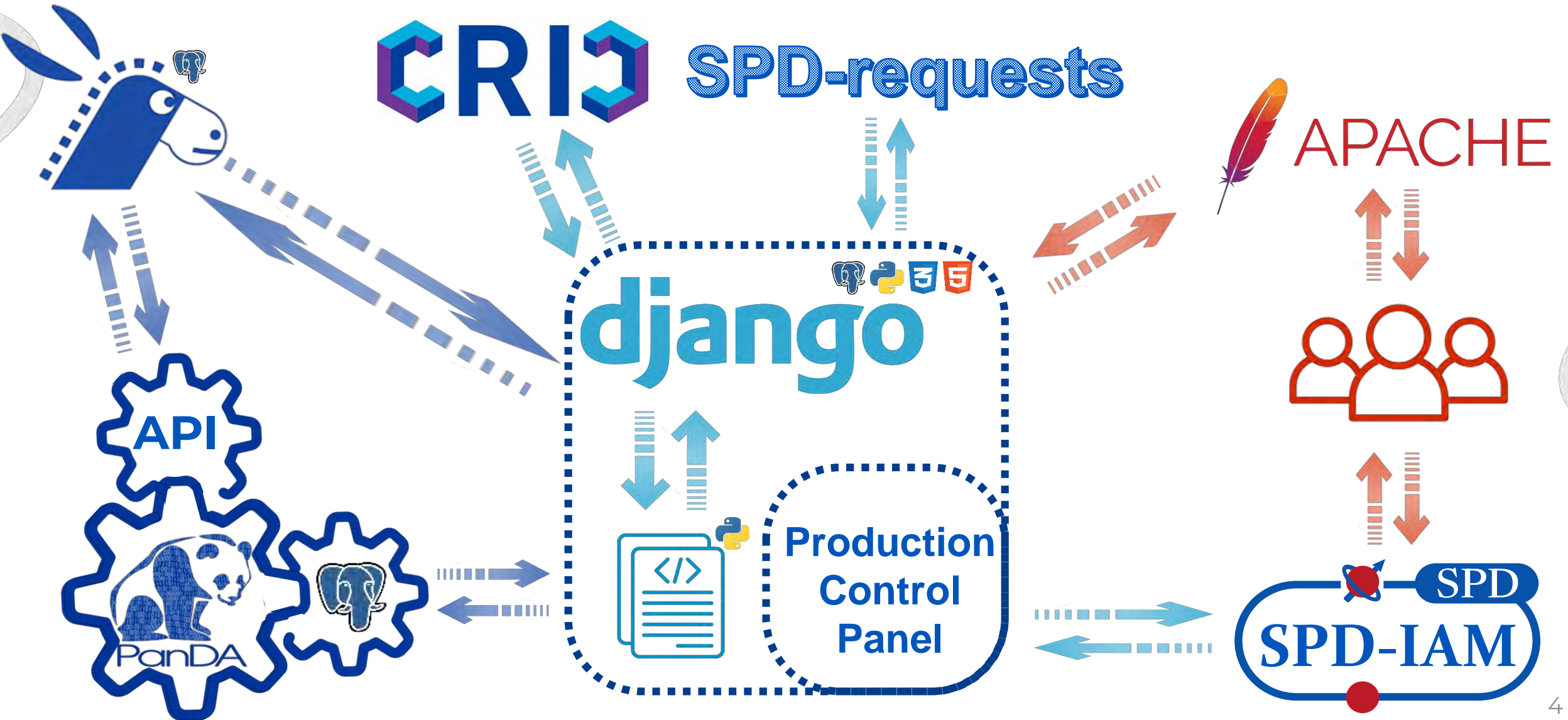
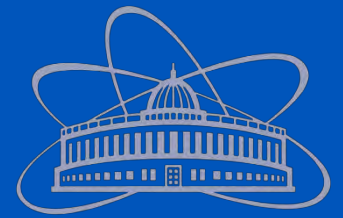
Problems addressed by the system

- Time-consuming and error-prone manual task configuration
- Fragmented management of individual tasks and task chains
- Operational overhead related to certificates and authentication tokens
- Lack of centralized workflow control for large-scale productions
- Difficulties tracking and reproducing production configurations
- Poor scalability of manual production management approaches

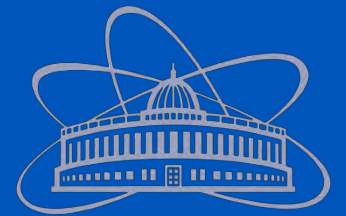
Current service concept



Technology stack

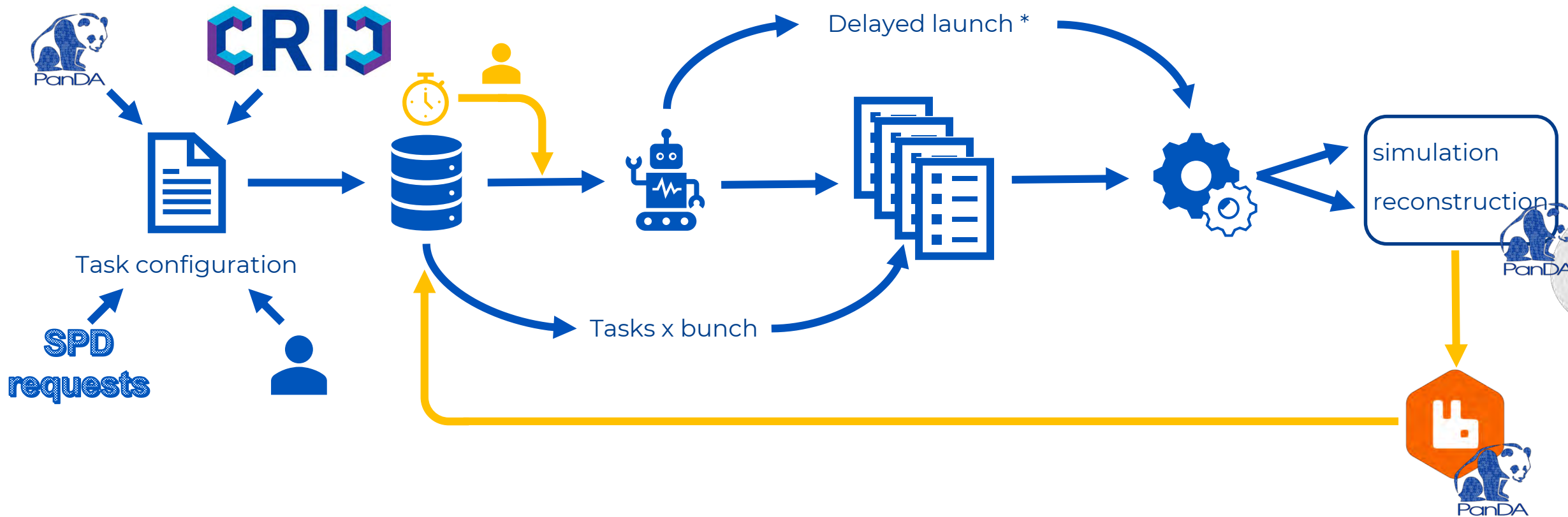


Work done



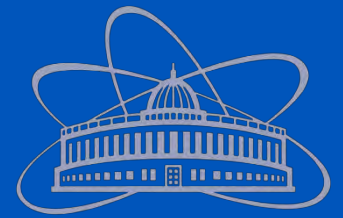
- Task submitting process was highly refactored
- Internal DB structure for task chains, task bunches and single tasks
- FE & BE for chain processing
- Second version of cloning mechanism
- Integration with spd-requests.jinr.ru

Task creation 1/2



* Available only for system

Task creation 2/2



Simulation

Task Creation

Task name:

Tasks to launch:

Output dataset name:
[Naming convention here](#)

Total events:

Events per job:

Cloud:

Data disk:

Request:

Skip scout:

Initial offset:

Path to execution files:
smth like -> /cvmfs/spd.jinr.ru/production/MC/minbias-P8-spdroot417-dev.10GeV.V01

Path to container:
smth like -> /cvmfs/spd.jinr.ru/images/spdroot-dev-4.1.7.sif

Create task

Chains

Create Chain

Processing Type:

Chain name:

Chain step #1

Step type:

Task name:

Tasks to launch:

Output dataset name:

Total events:

Events per job:

Cloud:

Data disk:

Request:

Skip scout:

Initial offset:

Path to execution files:

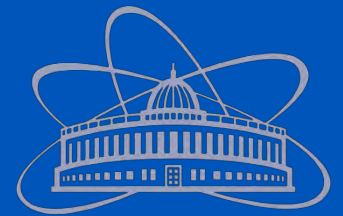
Path to container:

Remove

Add step

Create chain

Monitoring



Select field

Task ID	Task name ↑ ↓	Parent ID	Creator	Status	Done jobs	Default/Current priority	Total events	Submit time ↑ ↓	Start time ↑ ↓	End time ↑ ↓
343	PROD2025-008.RECO	343	Elena Zemlyanichkina	finished	9997	900/900	0	12:40, 06 Apr 2025	12:48, 06 Apr 2025	03:56, 07 Apr 2025
342	PROD2025-008.SIM	342	Elena Zemlyanichkina	done	10000	900/900	0	03:06, 05 Apr 2025	06:08, 05 Apr 2025	11:38, 06 Apr 2025
341	PROD2025-007.RECO	341	Elena Zemlyanichkina	finished	9993	900/900	0	03:40, 04 Apr 2025	06:46, 04 Apr 2025	01:41, 05 Apr 2025
340	PROD2025-006.RECO	340	Elena Zemlyanichkina	aborted	0	900/900	0	03:21, 04 Apr 2025	None	03:35, 04 Apr 2025
339	PROD2025-007.SIM	339	Elena Zemlyanichkina	done	10000	900/900	0	12:42, 03 Apr 2025	12:50, 03 Apr 2025	22:57, 03 Apr 2025
338	PROD2025-006-RECO	338	Elena Zemlyanichkina	done	1535	900/900	0	04:08, 03 Apr 2025	04:11, 03 Apr 2025	12:04, 03 Apr 2025
337	PROD2025-006-SIM	337	Elena Zemlyanichkina	running	1231	900/900	0	12:22, 01 Apr 2025	12:24, 01 Apr 2025	None
336	PROD2025-006	336	Elena Zemlyanichkina	aborted	0	900/900	0	11:27, 01 Apr 2025	None	12:10, 01 Apr 2025
335	PROD2025-005-RECO.1	335	Artem Petrosyan	finished	1221	900/900	0	12:15, 25 Mar 2025	12:18, 25 Mar 2025	16:35, 25 Mar 2025
334	PROD2025-005.1	334	Artem Petrosyan	done	1250	900/900	0	10:16, 25 Mar 2025	10:18, 25 Mar 2025	12:25, 25 Mar 2025

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← Current tasks

Successful tasks ↓

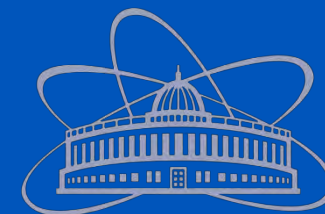
Select field

Task ID	Task name ↑ ↓	Status	Start date	End date	Walltime	Total events	Events per job	Total jobs	Out DS size, GB	Out Log size, GB
343	PROD2025-008.RECO	finished	06 Apr 2025	07 Apr 2025	30	None	None	9997	3390.70	3.94
342	PROD2025-008.SIM	done	05 Apr 2025	06 Apr 2025	0	40000000	4000	10000	3214.03	1.06
341	PROD2025-007.RECO	finished	04 Apr 2025	05 Apr 2025	38	None	None	9993	3389.51	3.97
339	PROD2025-007.SIM	done	03 Apr 2025	03 Apr 2025	0	40000000	4000	10000	3214.65	1.07
338	PROD2025-006-RECO	done	03 Apr 2025	03 Apr 2025	15	None	None	1535	1138.59	0.62
335	PROD2025-005-RECO.1	finished	25 Mar 2025	25 Mar 2025	26	None	None	1221	413.70	0.48
334	PROD2025-005.1	done	25 Mar 2025	25 Mar 2025	0	5000000	4000	1250	401.83	0.13
333	PROD2025-004-RECO.1	finished	24 Mar 2025	25 Mar 2025	17	None	None	9993	7869.24	4.04
331	PROD2025-004-1	done	20 Mar 2025	22 Mar 2025	10524	40000000	4000	10000	7674.93	1.59
329	TEST_S1-001-SIM.1	done	18 Mar 2025	18 Mar 2025	0	100	10	10	0.03	0.00

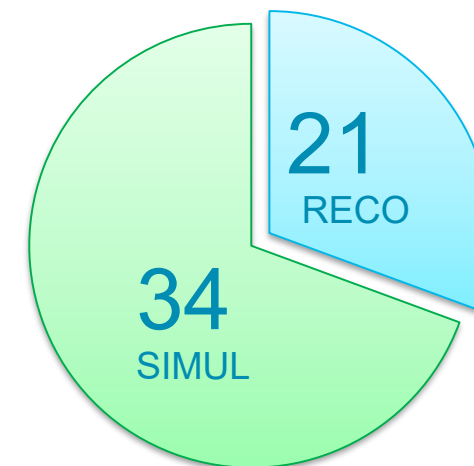
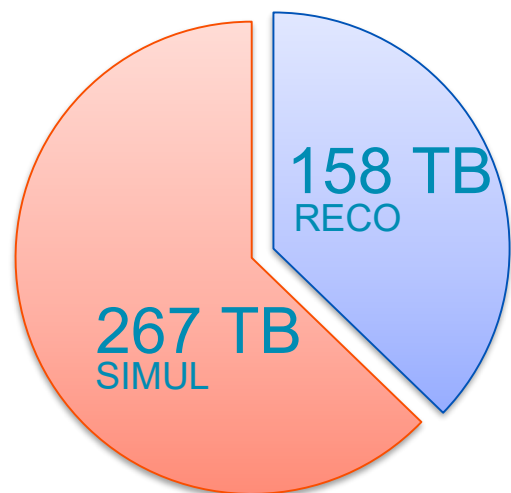
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*Filtering & sorting functionality available

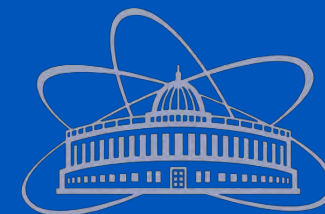
Statistics on IX meeting



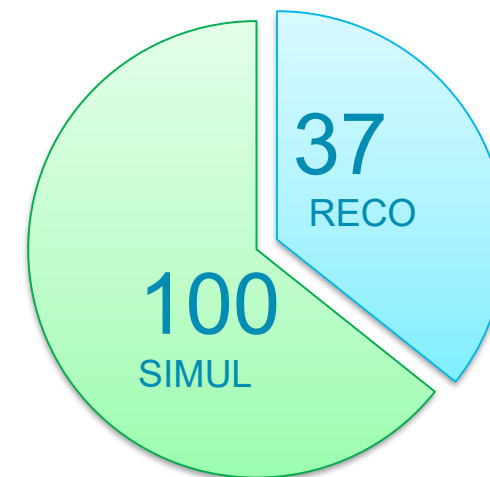
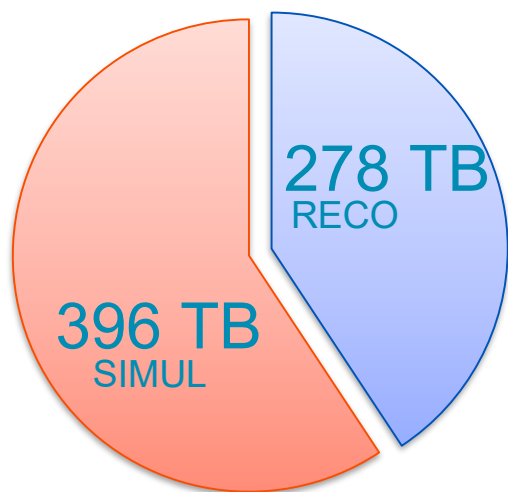
- Successfully processed about 300k jobs across 55 tasks



- Total output datasets volume – more than 425 TB

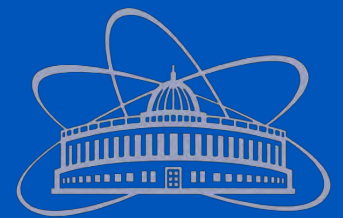


- Successfully processed about 440k jobs (+47%)
across 137 tasks (+149%)

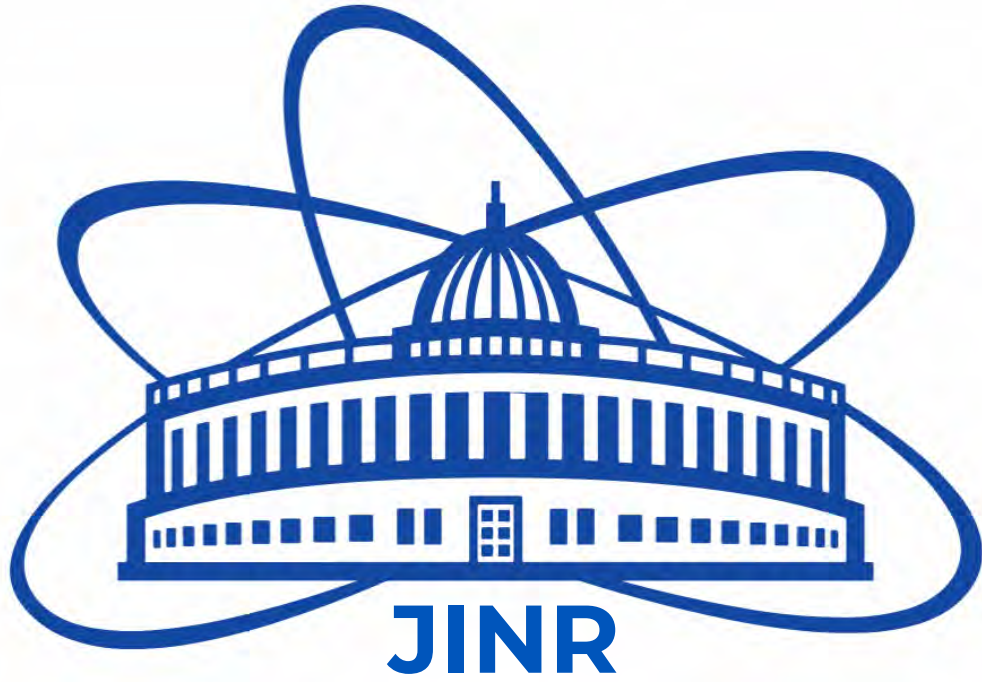


- Total output datasets volume – more than 680 TB (+60%)

Current tasks and upcoming plans



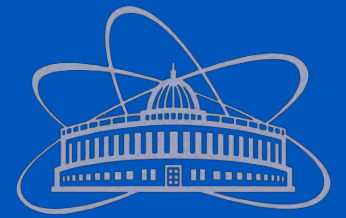
- Delayed launch for users
 - Token storage
 - Token refreshing
 - Task modifying
- Further automation of task creation and validation
 - Auto complete container and exe paths for exact request
 - Chain step constraints
- Integration with Panda task status queue



**Thanks for
attention**



Work done previous time



- A web application prototype has been developed
 - User authentication via SPD-IAM
 - Task creation following naming conventions
 - Job status tracking with filtering and sorting capabilities
 - Configured decorators and middleware
 - First version of cloning mechanism
- Implementation of automation scripts
- Integration with PanDA WMS using JWT
- Logging interactions with PanDA WMS