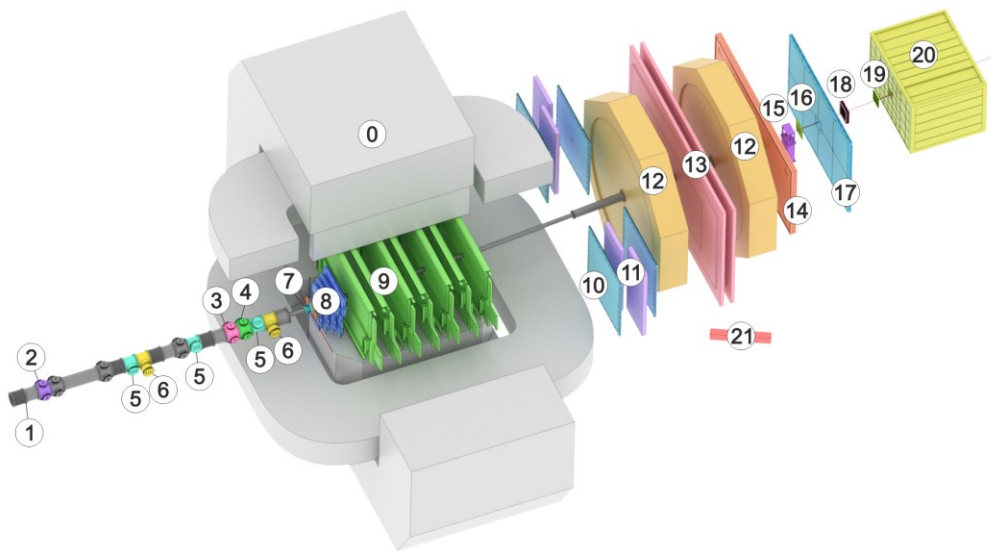


BM@N 11th collaboration meeting

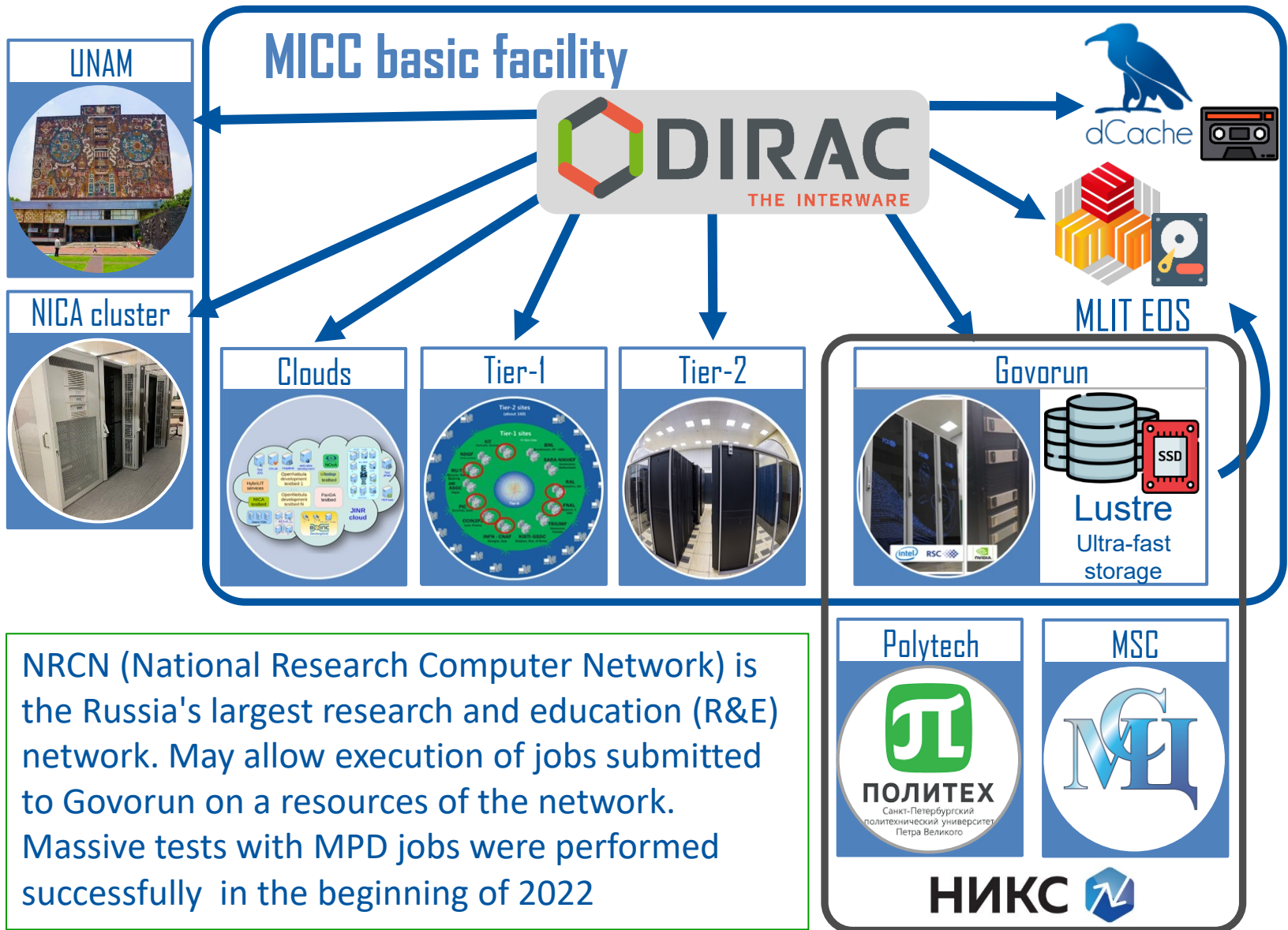
BM@N distributed computing status and analytics

Konstantin Gertsenberger, Igor Pelevanyuk
LHEP MLIT



Status report
30.11.2023

DIRAC in JINR



Summer EOS Failure[®]

- July-August 2023: Fail occurred due to the bug in the EOS source code. This bug activates only during high load, so it is not observable during initial functionality tests.
- All files larger than 500 MB were in risk.
- Around 3-7 % of files under DIRAC Data Management system were affected(subjectively). This had great effect on BM@N production process
- Partial BM@N data processing chain was performed for half of runs

From BM@N the last Software and Analysis meeting

Summer EOS Failure[®]



- **Files are not corrupting anymore!**

At least 30000 files with the size of 3 GB were 100% correct after 1 month after creation

- Real corruption ratio could be around 15%

But, in BM@N we just removed all data from EOS in LIT and reuploaded them from NICA cluster during a day.

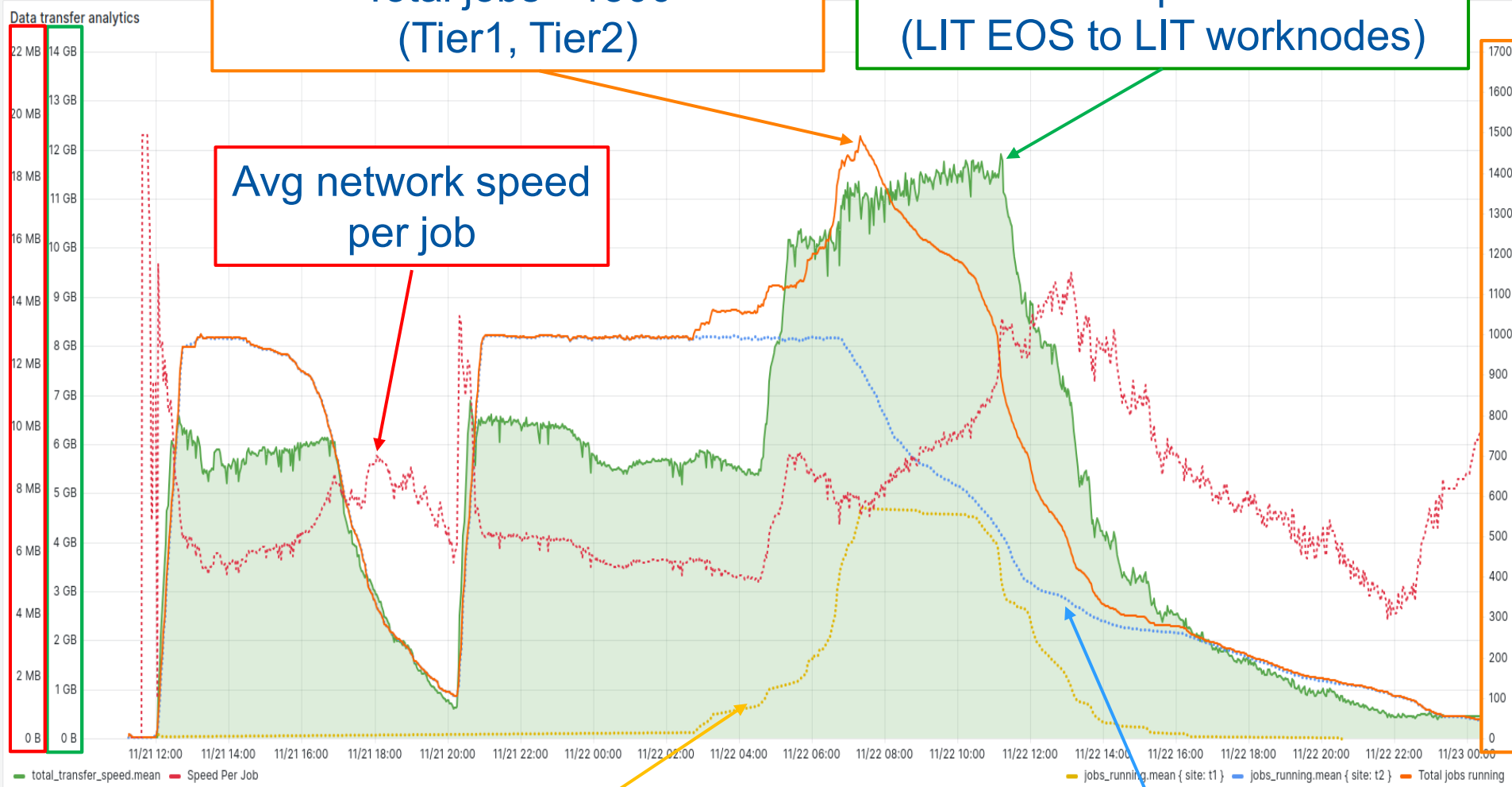
- Data integrity check approach was developed to speedup search and detection of any possible corruptions

Integrity check load

Total jobs - 1500
(Tier1, Tier2)

Total network speed – 12 GB/s
(LIT EOS to LIT worknodes)

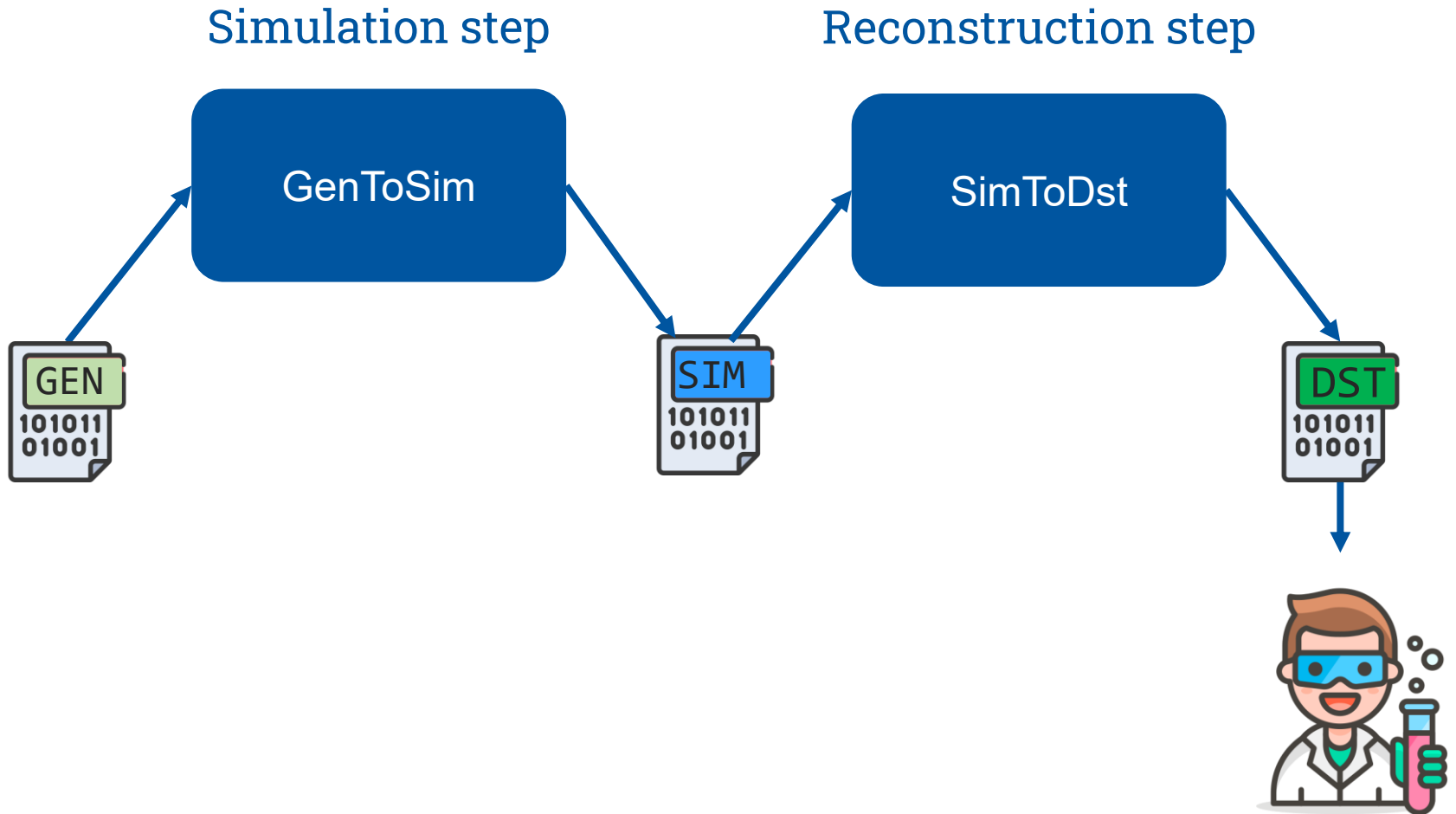
Avg network speed
per job



Tier1 jobs

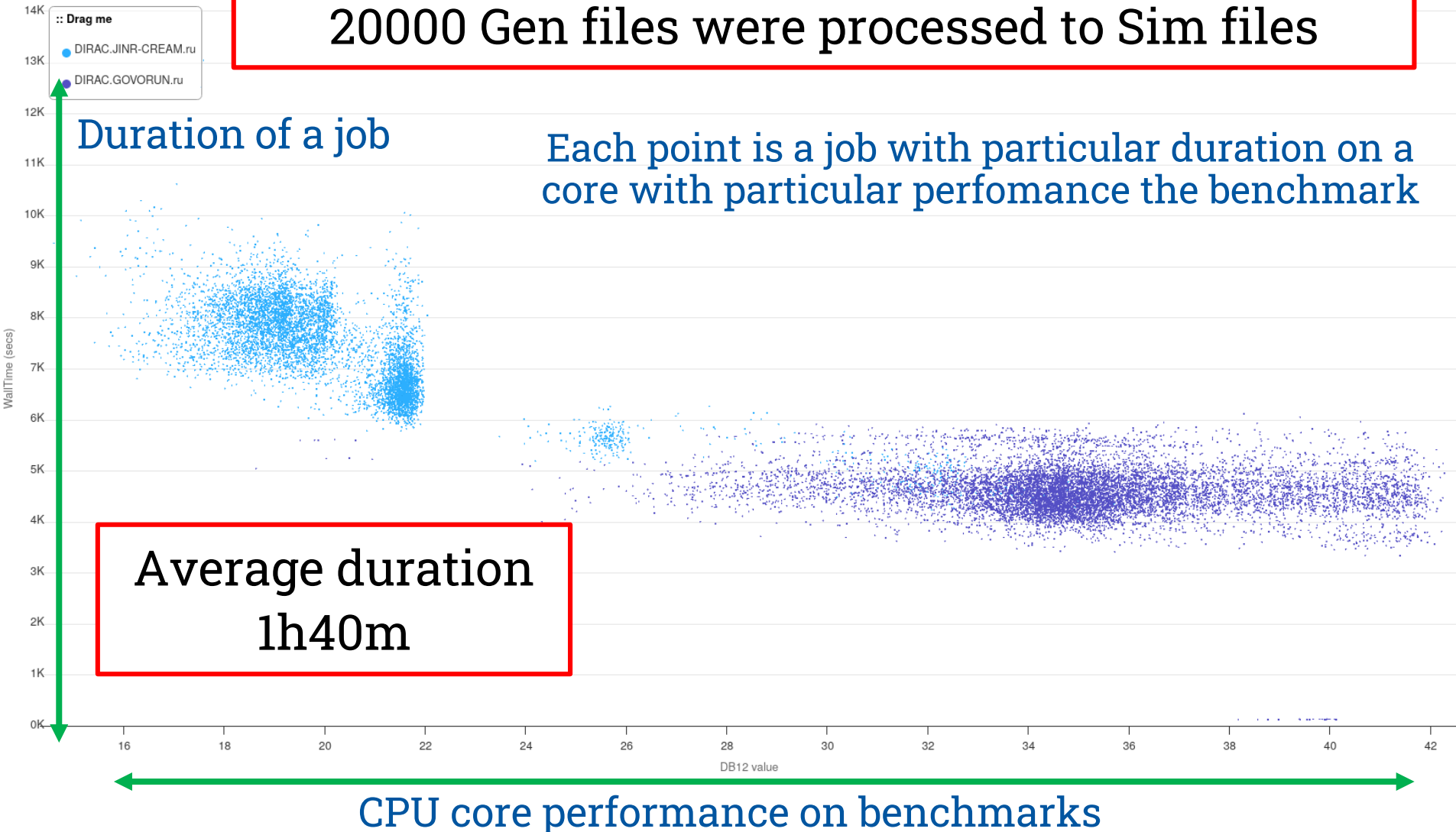
Tier2 jobs

Workflow of Monte-Carlo



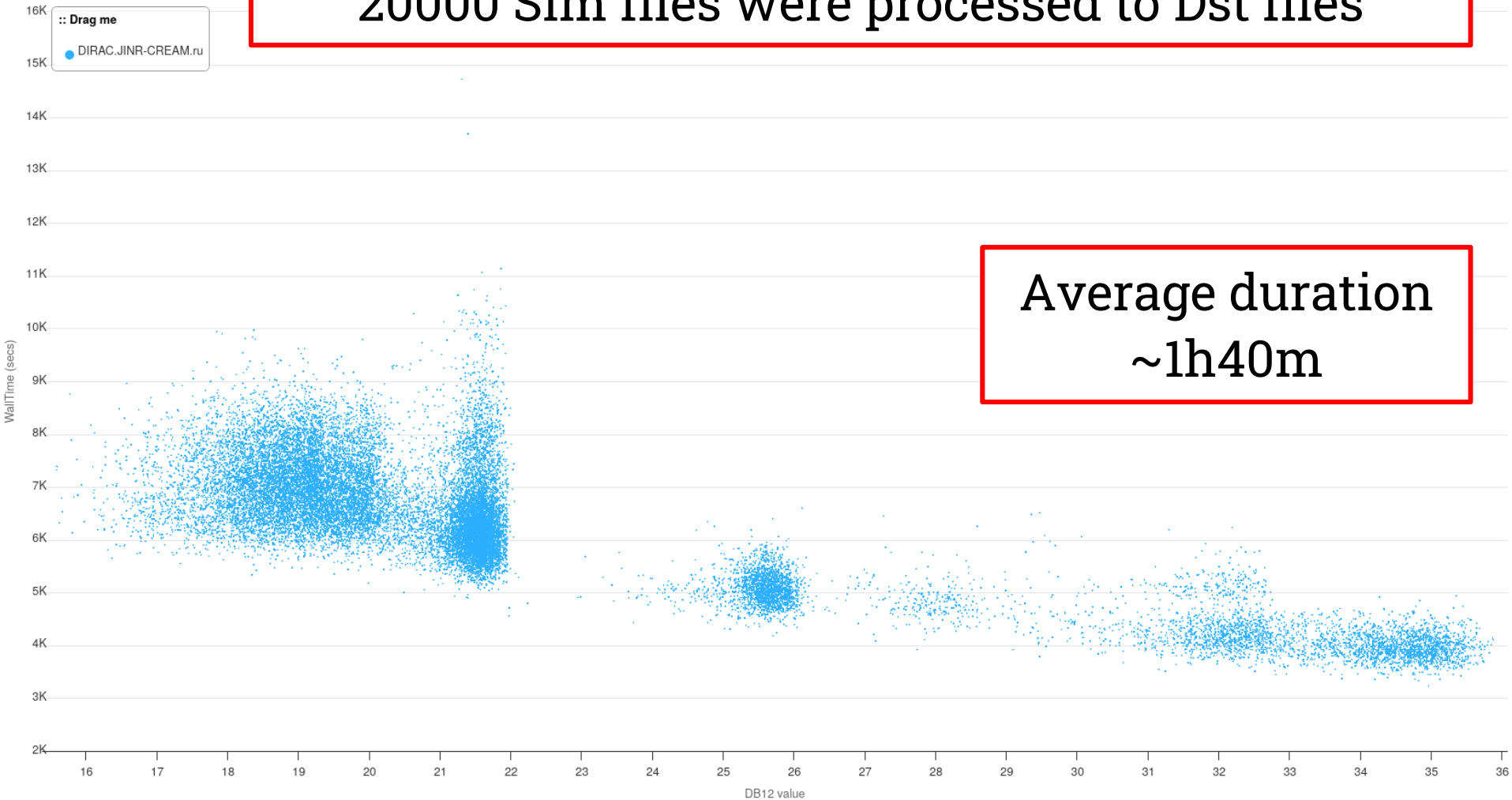
Step 1: Gen to Sim

20000 Gen files were processed to Sim files



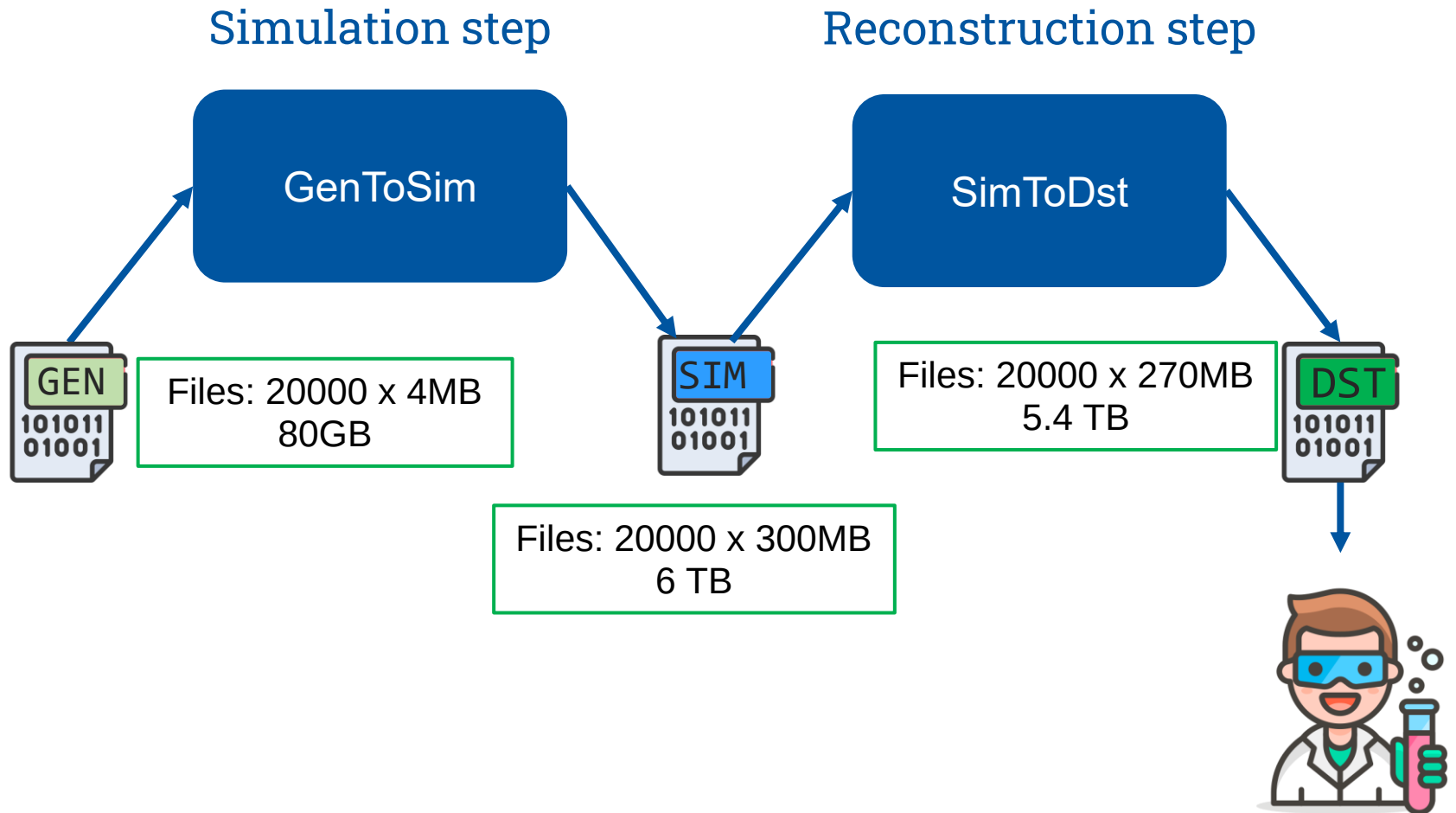
Step 2: Sim to Dst

20000 Sim files were processed to Dst files

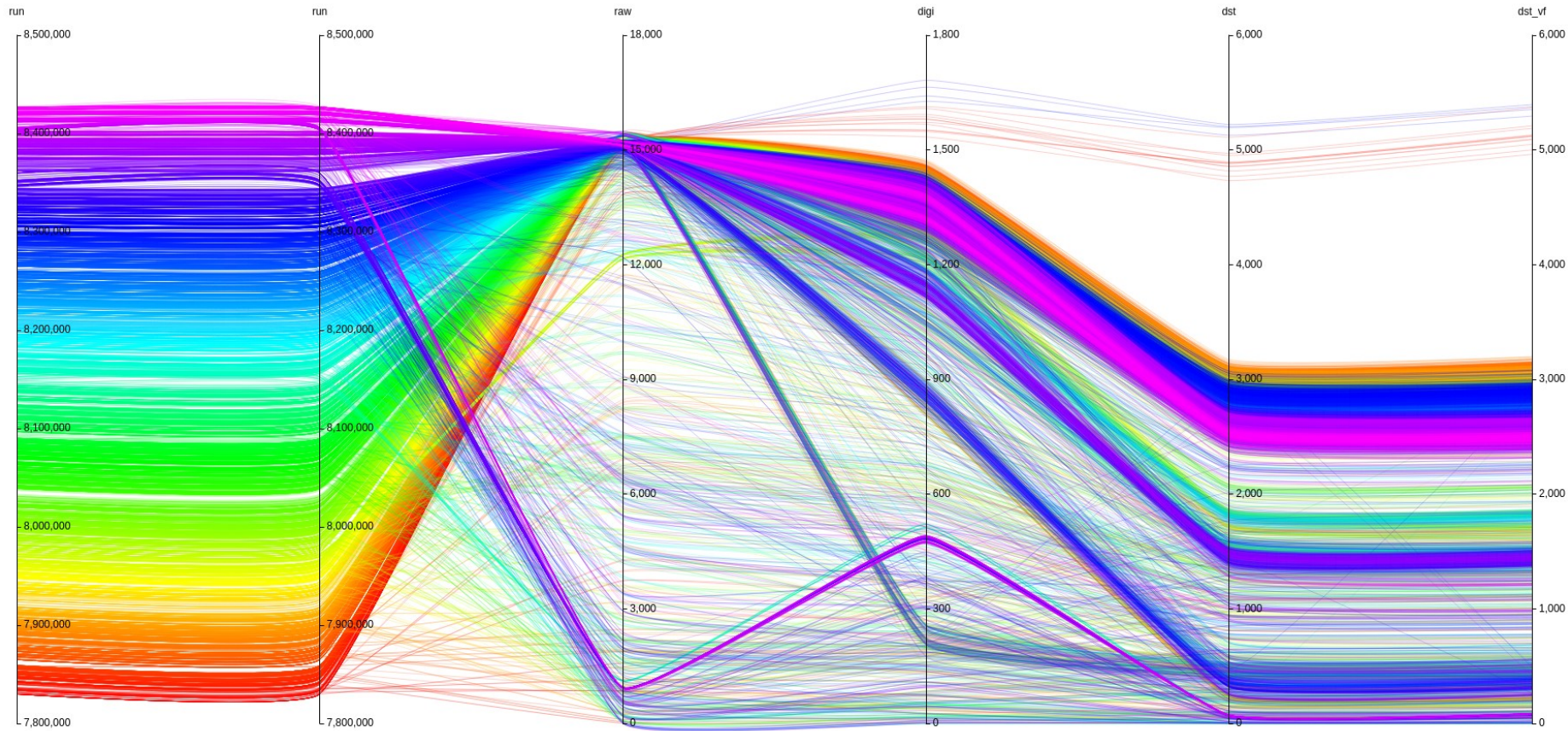


Average duration
~1h40m

Workflow of Monte-Carlo



Small summary on previous productions



List of participants

DIRAC: Igor Pelevanyk

BM@N: Konstantin Gertsenberger

Responsible for resources:

Tier-1, Tier-2, EOS: Valery Mitsyn

Govorun: Dmitry Podgainy, Dmitry Belyakov, Aleksandr Kokorev

NICA cluster: Ivan Slepov

Network: Andrey Dolbilov

Results

- Summer EOS Failure hit us hard, a lot of time and efforts invested in investigation and working with the issue.
- 7 minor productions and 5 major productions were performed since the last BM@N Collaboration meeting(14-17 May 2023)
- Requirements to the computing capabilities grows. Especially when BM@N and MPD prepare for collaboration meetings
- Monte-Carlo looks like relatively simple workload for the DIRAC infrastructure

