

# Belle II Collaborative Services and Data Production

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The University of Mississippi

Belle II Summer Workshop, July 2021

Slides from N. Braun, O. Hartbrich, M. Ritter



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# Belle II collaborative services

- <https://questions.belle2.org>
- <https://stash.desy.de>
- <https://agira.desy.de>
- <https://confluence.desy.de>
- <https://chat.belle2.org>
- <https://elog.belle2.org/>
- <https://docs.belle2.org>
- <https://software.belle2.org>
- <https://indico.belle2.org>
- <https://shift.belle2.org>
- <https://lists.belle2.org>



# Any questions?

The screenshot shows the Belle II website's question-and-answer interface. The top navigation bar includes a search bar and an 'ASK YOUR QUESTION' button. The main content area displays a list of questions with their respective statistics (votes, answers, views) and tags. The top question is 'What is the best coffee in the dorm vending machines?' with 10 votes, 6 answers, and 330 views. Other questions include 'Could not find an 'End' in decay file', 'easy to read MCParticles list?', 'Jobs getting stuck when running on samples at KEKCC', 'Social post: Beverage swap at B2GM?', 'How to write a unit test?', and 'How do I make a pull request?'.

- self-curating knowledge base
- answers and questions are rated for credibility
  - most useful/relevant questions and answers shown first
- high-quality answers, very fast response times

The detailed view shows a question and its answers. The question is 'What is the best coffee in the dorm vending machines?' with 10 votes. The top answer is by user 'ferber' with 9 votes and 142 views. The answer text reads: 'In the dorm, the "Boss Special" is probably the best choice (not too sweet, not too much milk) for the "cold coffees". A preliminary blind test revealed "Wanda Gold" as winner of the "hot coffees".' Below the answer are two comments: 'out of which?' and 'Fire Blue/White (very sweet), UCC Black (tastes like CERN meeting coffee that sits in the heating for ~8h), Boss Gold, and Wanda Gold.'

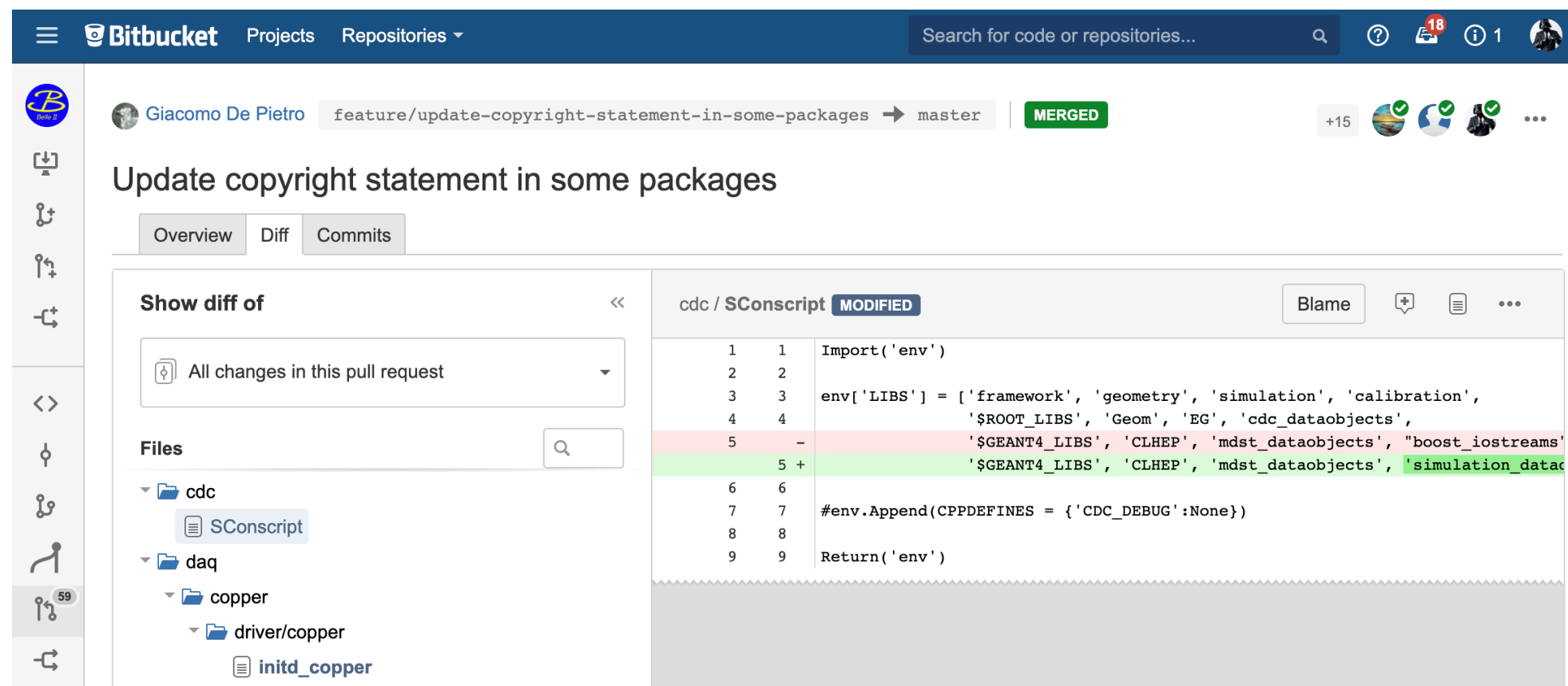
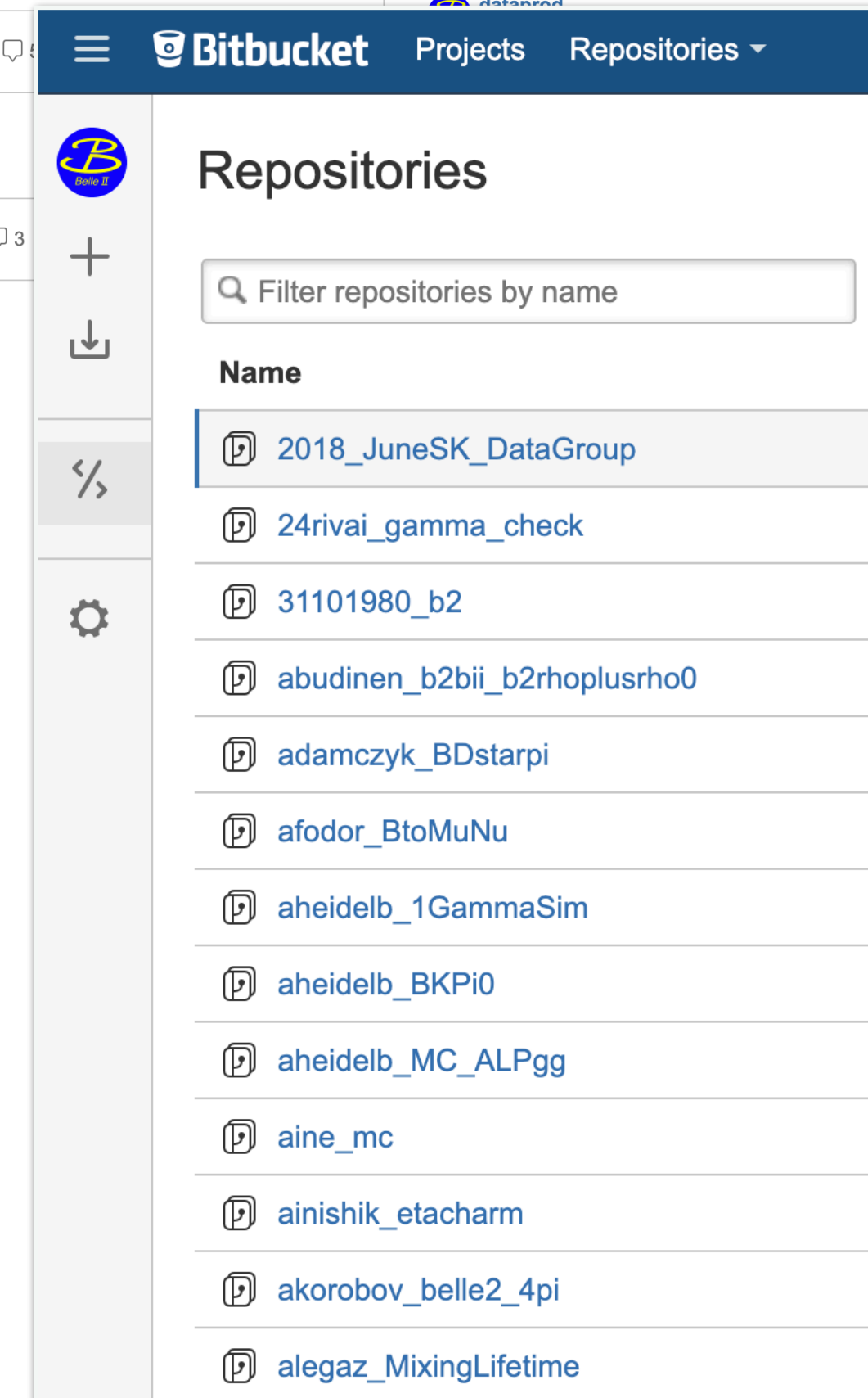
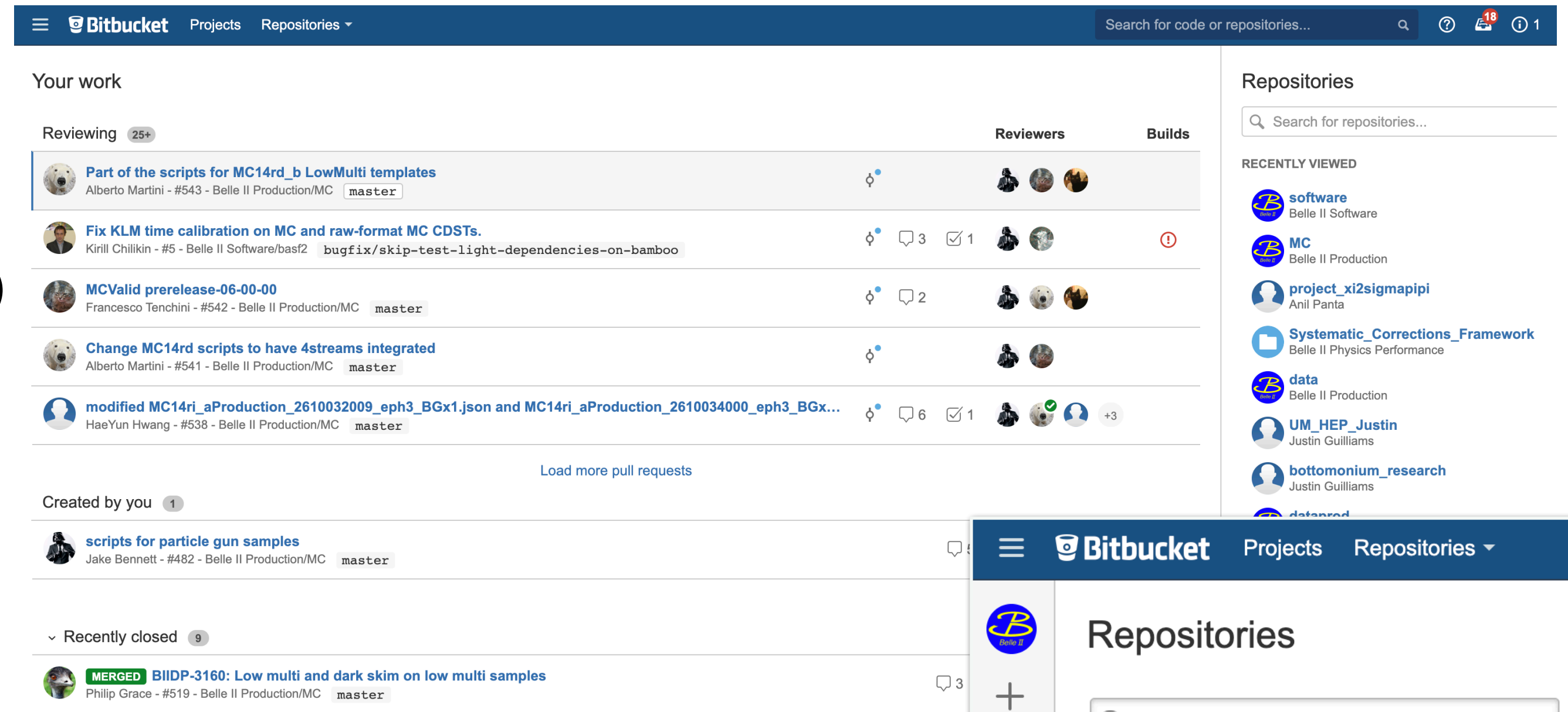
If the question is answered please click the gray check mark next to the answer to mark it as correct.

The bottom part of the question page shows a comment and a tag. The comment is 'These are the results of a blind tasting on a carefully randomized sample of coffee' with 8 votes. The tag is 'C:\fakepath\photo\_2018-02-11\_08-28-08.jpg' with 1 vote.

<https://questions.belle2.org/>

# stash.desy.de

- centrally hosted git repositories structured in projects (e.g. software, data production, computing)
- Personal repositories (e.g. talks, publications)  
→ you can create them on your own
- Group repositories (e.g. detector/firmware/common software projects)  
→ send a mail to [b2cs@belle2.org](mailto:b2cs@belle2.org)
- Wanna go big?  
→ We can create a new project for you!  
Just contact [b2cs@belle2.org](mailto:b2cs@belle2.org)
- Every repository includes all features you love: pull-requests, online review, branches/tags/etc.



- Ehm, what is this git anyways?  
Can I use it on multi-user systems?  
→ Very nice git introduction on last starterkit workshop: <https://indico.belle2.org/event/7/sessions/22/attachments/146/209/2019-01-07-eusk-git.pdf> or write to [b2cs@belle2.org](mailto:b2cs@belle2.org)

**Belle II Data Production**

**Activity Stream**

Today

Luka Santelj commented on BIIIDP-4456 - bucket23: ARICH channel masks Raw Data Calibration

Francis Pham I see now 😊 very nice, sorry for my stupid question...

3 hours ago Comment Watch

**Assigned to Me**

| T | Key          | Summary   | P ↓ |
|---|--------------|---|-----|
| ✓ | BIIIDP-3193  | Prepare the MC14a global tag                                  | 🚫   |
| ✓ | BII-8437     | Production checks for release 06-00                           | 🚫   |
| ⚡ | BIIIDP-1345  | Phase 3, experiment 7 feedback and processing                 | 🔴   |
| ⚡ | BIIIDP-1499  | Phase 3, experiment 8 feedback and processing                 | 🔴   |
| + | B2CHARM-28   | Lambda_c Lifetime   | 🔴   |
| ✓ | BIIIDP-3800  | Single charged tracks for PP studies (cDST DIGI+tracking)     | 🔴   |
| 🚫 | BII-7796     | missing PID summary   | 🔴   |
| 📄 | BIIIDCD-1362 | BIIIDCD-1358 / Job management                                 | 🔴   |
| ✓ | BII-8466     | Globaltag request for mc by taichiro at 20210618-163651       | 🔴   |
| 🚫 | BIIIDP-3803  | No persistent tree found in some of the MC13b mdst root files | 🔴   |

Belle II Data Production / BIIIDP-4439

**bucket23: (exp=18, run=1476) -> (exp=18, run=1990)**

Edit Comment Assign More Stop Progress Resolve Issue Workflow Export

**Details**

Type: Epic Status: **IN PROGRESS** (View Workflow)

Priority: Blocker Resolution: Unresolved

Labels: bucket23

Epic Name: bucket23

**People**

Assignee: Laura Zani (Assign to me)

Reporter: Belle II Bot

Votes: 0 (Vote for this issue)

Watchers: 0 (Start watching this issue)

**Dates**

Created: 4 days ago

Updated: 4 days ago

**Description**

Epic for **bucket23**

Rules & info:

- bucket23 includes the data from (exp=18, run=1476) to (exp=18, run=1990)
- Use the website <https://calibration.belle2.org> to interact with this processing request. Please do not modify the global tags manually unless asked.
- Payloads should be compatible with the basf2 release: **release-05-02-14**
- Assigned manager for this request is **Laura Zani**
- Admin for website help is **Francis Pham**
- Local Staging Tag: **AIRFLOW\_data\_staging\_localcalib\_prompt**
- Staging Tag: **AIRFLOW\_data\_staging\_calibration\_prompt**
- Final Merging Tag: **AIRFLOW\_final\_staging\_calibration\_prompt**
- Final Prompt Tag: **data\_reprocessing\_prompt**

**Attachments**

Drop files to attach, or browse.

**Issues in Epic**

| Issue Key   | Summary                         | Status      | Assignee   |
|-------------|---------------------------------|-------------|------------|
| BIIIDP-4440 | bucket23: Local Calibrations    | CLOSED      | Laura Zani |
| BIIIDP-4448 | bucket23: Raw Data Calibrations | IN PROGRESS | Laura Zani |
| BIIIDP-4458 | bucket23: cDST Production Tasks | OPEN        | Laura Zani |
| BIIIDP-4465 | bucket23: Data Calibrations     | OPEN        | Laura Zani |

- issue tracking system
- create/search/edit/close/assign issues
- group issues in epics or sprints
- view them in boards or reports
- not just for software!

# confluence.desy.de: Belle II Data Production

Contact details for DP leadership

**Who's who**

**Coordinator:** @Jake Bennett, @Umberto Tamponi (deputy)

Skim manager: @Racha Cheaib, @Philip Grace (deputy)

Calibration software manager: @Giulio Dujany (sw liaison)

Calibration manager: @Laura Zani, @Markus Prim (deputy)

HLT skim manager: @Gaetano de Marino

Validation manager: @Emma Oxford

Data processing manager: @Marco Milesi, @Stefano Lacaprara (deputy)

MC processing manager: @Francesco Tenchini, @Alberto Martini (deputy)

DP leadership responsibilities are listed here.

**Meetings and Mailing list**

**Mailing list:** [dataprod@belle2.org](mailto:dataprod@belle2.org)

**Meetings and minutes:** [meetings page](#).

**Data production liaisons**

(responsibilities of the data production liaisons can be found [here](#))

| Group                                  | Liaison                                  |
|--|--|
| Semileptonic and Missing Energy Decays | @Mario Merola                            |
| Radiative & Electroweak Penguin        | @Soumen Halder, @Filippo Dattola         |
| Time Dependent CP Violation            | @Yongqing Chen [was @Sviatoslav Bilokin] |
| Hadronic B to Charmless                | @Emilie Bertholet                        |
| Hadronic B to Charm                    | @Yi Zhang                                |
| Bottomonium                            | vacant                                   |
| Charmonium                             | @Yang Li, @Yubo Li                       |
| Charm                                  | @Emma Oxford                             |
| Tau                                    | @Swagato Banerjee                        |
| Dark-sector and low multiplicity       | @Giacomo De Pietro                       |

**Mandate**

The data production scheme for Belle II requires significant coordination of tasks within a well defined time frame. The role of the data production group is to develop an overall data production strategy that incorporates the physics analysis strategy, resource and software readiness, and other issues. The data production group is also tasked with facilitating communication between the other Belle II groups and ensure that all necessary steps will be taken in preparation for data production. All of this is in an effort to ensure smooth and timely production of data samples for physics analysis.

**Guide to the data formats**

Check [this page](#) for the description of the data formats (RAW, mDST, cDST, uDST) and their usage

**Navigation Menu:**

- Belle II Internal WebHome
  - Archive WebHome
  - Computing Steering Group
  - Computing WebHome
  - Data production WebHome
    - Data Production Status
    - Phase 3 data
      - Phase 3 luminosity monitoring
    - Phase 2 - Experiment 3
      - Experiment 5+6 - full dress rehearsal
    - Data Production Meetings
      - Data Production Leadership
      - Data Production Liaisons
      - Data Production Shifts
      - Data Production Calibration
        - Data Production Global Cosmics Run
        - Data Production Global Cosmics Run
        - Data Production Run Dependent MC
      - Data Production MC7
      - Data Production MC8
      - Data Production MC9
      - Data Production MC10
      - Data Production MC11
      - Data Production MC12
      - Data production MC13
      - Data production MC14 Run-Independent

Find details about the data

Links to DP meetings

Details about calibration work

Availability of official MC

and much more!

Physics working group liaisons (collect MC production requests, perform validation tasks, etc.)

# Data production status

Details about conference samples, systematics, etc

More details in JIRA links

Confluence Spaces People Create

Belle II Group Pages  
 Belle II Public WebHome  
 Belle II Internal WebHome  
 Archive WebHome  
 Computing Steering Group  
 Computing WebHome  
 Data production WebHome  
**Data Production Status**  
 Data production campaigns  
 MC Production scheme  
 Irregular LPNs  
 Phase 3 data  
 Phase 3 luminosity monitoring  
 Phase 2 - Experiment 3  
 Experiment 5+6 - full dress rehearse  
 Data Production Meetings  
 Data Production Leadership  
 Data Production Liaisons  
 Data Production Shifts  
 Data Production Calibration  
 Data Production Global Cosmics Rur  
 Data Production Global Cosmics Rur  
 Data Production Run Dependent MC  
 Data Production MC7  
 Data Production MC8  
 Data Production MC9  
 Data Production MC10  
 Data Production MC11  
 Data Production MC12

Dashboard / ... / Data production WebHome 20 Jira links

## Data Production Status

Jake Bennett posted on 27. Oct. 2019 02:39h - last edited by Trevor Shillington on 06. Jul. 2021 15:16h

- Suggested data and MC samples for analysis
- Overview of data production plans for proc12 and 2021a/b prompt
- Data
- MC
- Analysis skims:
  - Overview of requested analysis skims for MC14ri\_ax1 and Data 2020c, 2021a/b
- Luminosity details
- Resource Usage: past month (left) and week (right)

Suggested data and MC samples for analysis

See the chart on data readiness for conferences page.

Overview of data production plans for proc12 and 2021a/b prompt

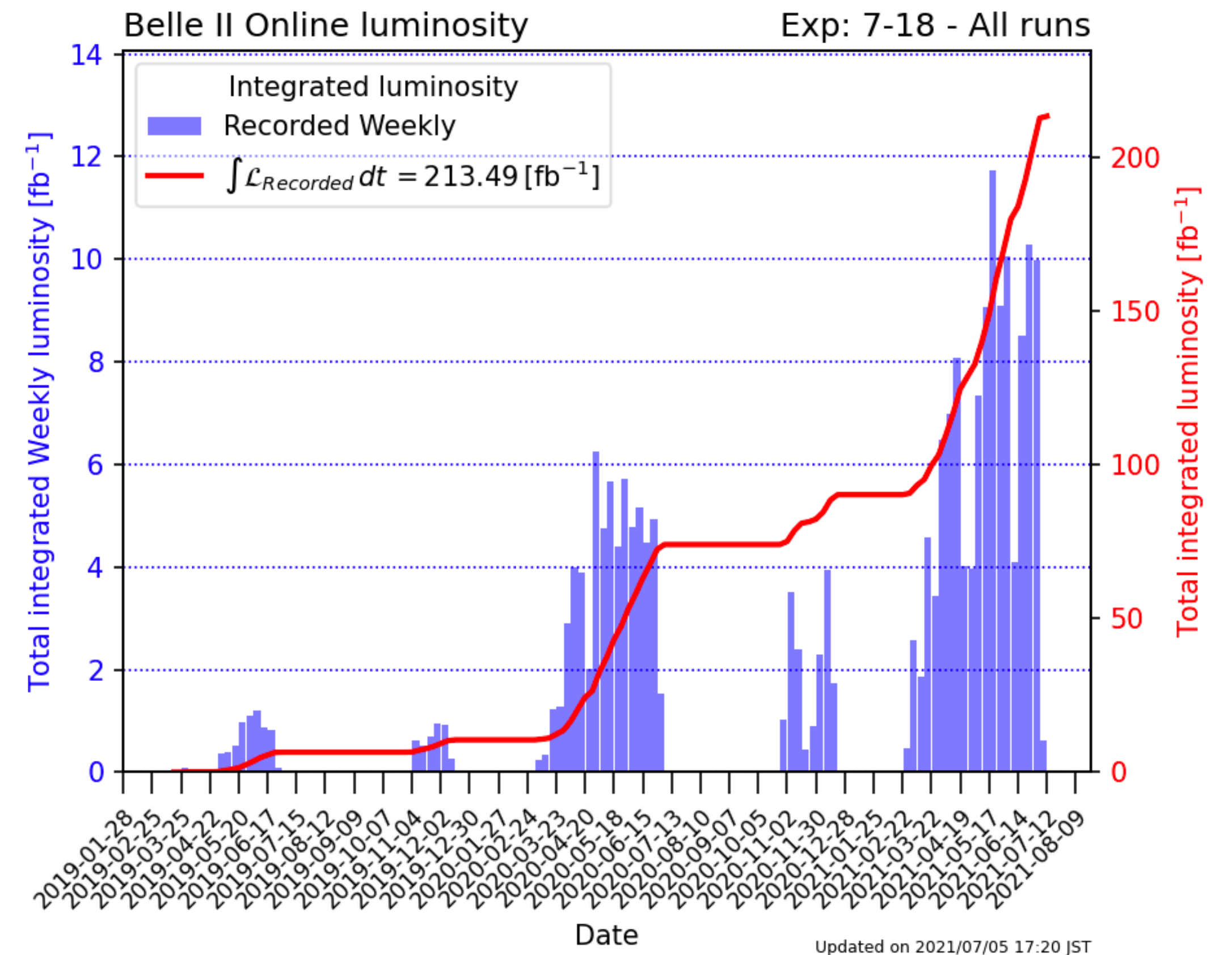
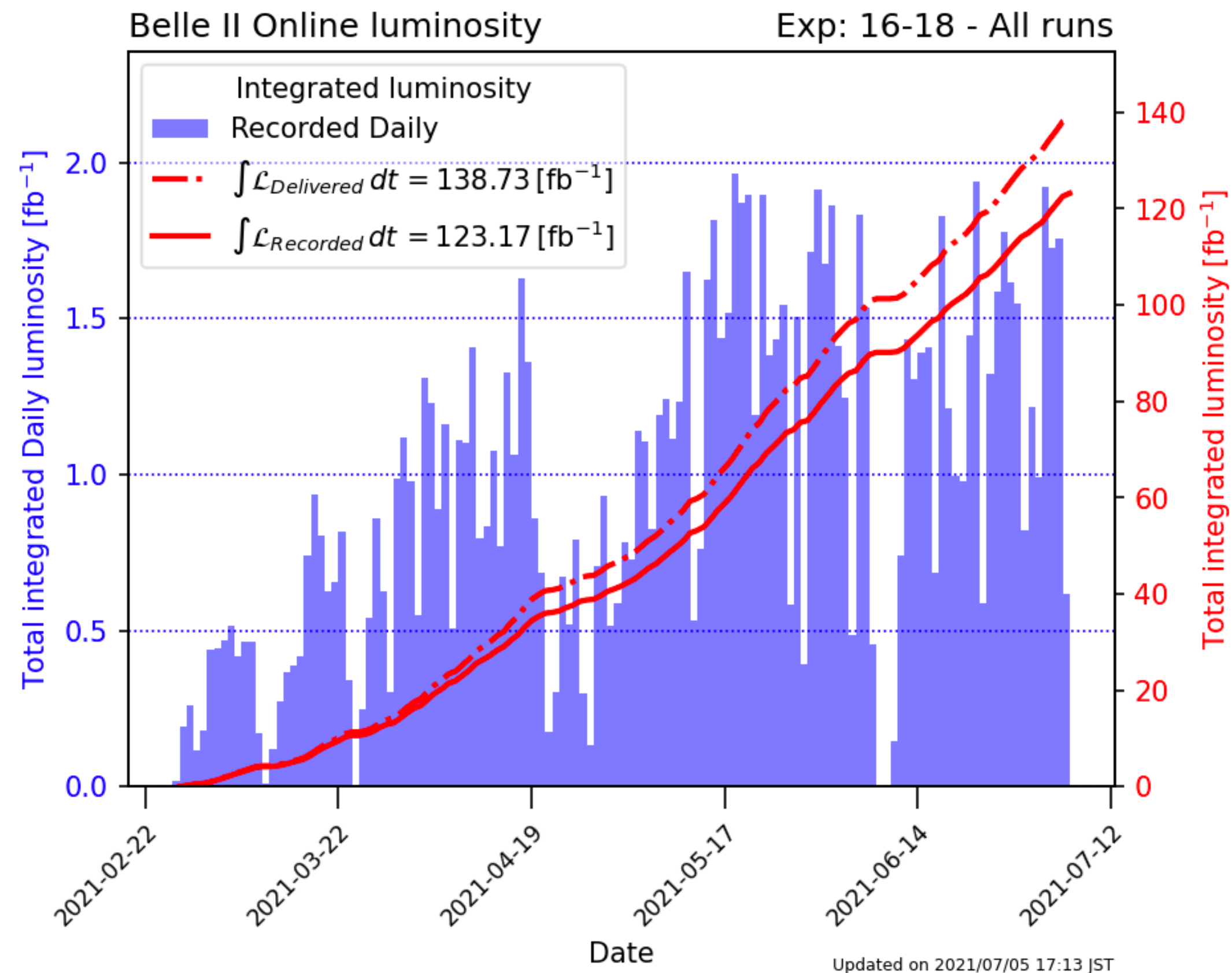
| Exp      | Dataset         | approx. Luminosity (/fb) | Calibration | Data (had) | Data (all) (*)      | MC rd (**)           | MC ri |
|----------|-----------------|--------------------------|-------------|------------|---------------------|----------------------|-------|
| 7, 8, 10 | proc12 - chunk1 | 8.8 (+0.9 off-res)       | Ready       | Ready      | Ready               | Running<br>June 25th | Ready |
| 12       | proc12 - chunk2 | 56.6 (+6.0 off-res)      | Ready       | Ready      | Running<br>July 7th |                      |       |
| 14       | bucket16        | 10.8                     | Ready       | Ready      | Ready               | June 25th            |       |
| 14       | bucket16b       | 5.7                      | Ready       | Ready      | Ready               | July 14th            |       |
| 16       | bucket17        | 10.7                     | Ready       | Ready      | Ready               | July 18th            |       |
| 17       | bucket18        | 11.3                     | Ready       | Ready      | Ready               | July 22nd            |       |
| 18       | bucket19        | 9.0                      | Ready       | Ready      | Ready               | July 26th            |       |
| 18       | bucket20        | 9.4 + 2.6 off-res        | Ready       | Ready      | Ready               | July 30th            |       |
| 18       | bucket21        | 9.0                      | Ready       | Ready      | Ready               | August 3             |       |
| 18       | bucket22        | 18.2                     | July 2      | July 7     | July 14             |                      |       |

### Data

- Official processing:
  - Luminosity:
    - Chunk1+chunk2 (exp7,8,10,12) offline luminosity: ~62.7/fb + 9.2/fb off-res
  - proc11 (2019 data - exp 7-10 ~8.8/fb + 0.9/fb off-res): details on [Processing 2019a-b-c](#)
    - HL Skims on KEKCC, all events on the grid → SUPERSEDED BY PROC12\_CHUNK1
  - proc12 (2019-2020 data - exp 7-14)
    - chunk1 (2019 data - exp 7-10, ~8.8/fb + 0.9/fb off-res) → SUPERSEDES proc11
      - mDST all, hlt\_hadron on the grid
      - mDST SystematicCombinedHadronic (proc12, 10601300), SystematicCombinedLowMulti (proc12, 10601400) on the grid
    - chunk2 (2020a/b data - exp 12, runs 0-6427, ~53.9/fb + 8.4/fb off-res) → SUPERSEDES buckets9-15
      - Calibration done
      - mDST hlt\_hadron events on the grid
      - mDST SystematicCombinedHadronic (10601300) on the grid
      - mDST all events on the grid (in progress)
      - mDST SystematicCombinedLowMulti (10601400) on the grid (in progress)
    - chunk3 (2020c data - exp 14, runs 694-2135, ~16.2/fb) → SUPERSEDES buckets16-16b
      - Calibration to begin after bucket16b calibration is finished
      - mDST all, hlt\_hadron events on the grid (in preparation)
      - mDST SystematicCombinedHadronic (10601300), SystematicCombinedLowMulti (10601400) on the grid (in preparation)
- Prompt processing:
  - bucket16 (2020c data - exp14, runs 694-1772, ~10.5/fb): details on [Processing 2020c](#) → WILL BE SUPERSEDED BY PROC12\_CHUNK3
    - mDST all, hlt\_hadron on the grid
    - cDST SystematicCombinedHadronic (bucket16, 10601300), SystematicCombinedLowMulti (bucket16, 10601400) skims on the grid
    - mDST SystematicCombinedHadronic (SkimB16x1, 10601300), SystematicCombinedLowMulti (SkimB16x1, 10601400) skims on the grid
  - bucket16b (2020c data - exp14, runs 1773-2135, ~5.5/fb): details on [Processing 2020c](#) → WILL BE SUPERSEDED BY PROC12\_CHUNK3
    - mDST all, hlt\_hadron on the grid
    - mDST SystematicCombinedHadronic (SkimB16x1, 10601300), SystematicCombinedLowMulti (SkimB16x1, 10601400) skims on the grid
  - bucket17 (2021a/b data - exp16, runs 0-1119, ~10.7/fb): details on [Processing 2021a-b](#)
    - mDST all, hlt\_hadron on the grid
    - mDST SystematicCombinedHadronic (bucket17, 10601300), SystematicCombinedLowMulti (bucket17, 10601400) skims on the grid
  - bucket18 (2021a/b data - exp17, runs 0-349, ~11.3/fb): details on [Processing 2021a-b](#)
    - mDST all, hlt\_hadron on the grid
    - cDST SystematicCombinedHadronic (bucket18, 10601300), SystematicCombinedLowMulti (bucket18, 10601400) skims on the grid
    - mDST SystematicCombinedHadronic (SkimB18x1, 10601300), SystematicCombinedLowMulti (SkimB18x1, 10601400) skims on the grid
  - bucket19 (2021a/b data - exp18, runs 0-300, ~9.0/fb): details on [Processing 2021a-b](#)
    - mDST all, hlt\_hadron on the grid
    - mDST SystematicCombinedHadronic (bucket19, 10601300), SystematicCombinedLowMulti (bucket19, 10601400) skims on the grid
  - bucket20 (2021a/b data - exp18, runs 301-880, ~9.4/fb + 2.6/fb off-res): details on [Processing 2021a-b](#)
    - mDST all, hlt\_hadron on the grid
    - mDST SystematicCombinedHadronic (bucket20, 10601300), SystematicCombinedLowMulti (bucket20, 10601400) skims on the grid
  - bucket21 (2021a/b data - exp18, runs 881-1043, ~9.0/fb): details on [Processing 2021a-b](#)
    - Calibration done
    - mDST all, hlt\_hadron on the grid
    - mDST SystematicCombinedHadronic (bucket20, 10601300), SystematicCombinedLowMulti (bucket20, 10601400) skims on the grid
  - bucket22 (2021a/b data - exp18, runs 1044-1475, ~18.2/fb): details on [Processing 2021a-b](#)
    - Local calibrations in progress

# Belle II data

- Data available for summer analyses:
  - Latest official reprocessing (proc12): 65.4/fb @ 4S + 6.9/fb off-resonance
  - Prompt 2021 data processed: 65.9/fb @ 4S + 2.6/fb off-resonance
 } 140/fb total
- Remaining 2021 data: 73.8/fb





# Belle II nomenclature: processing

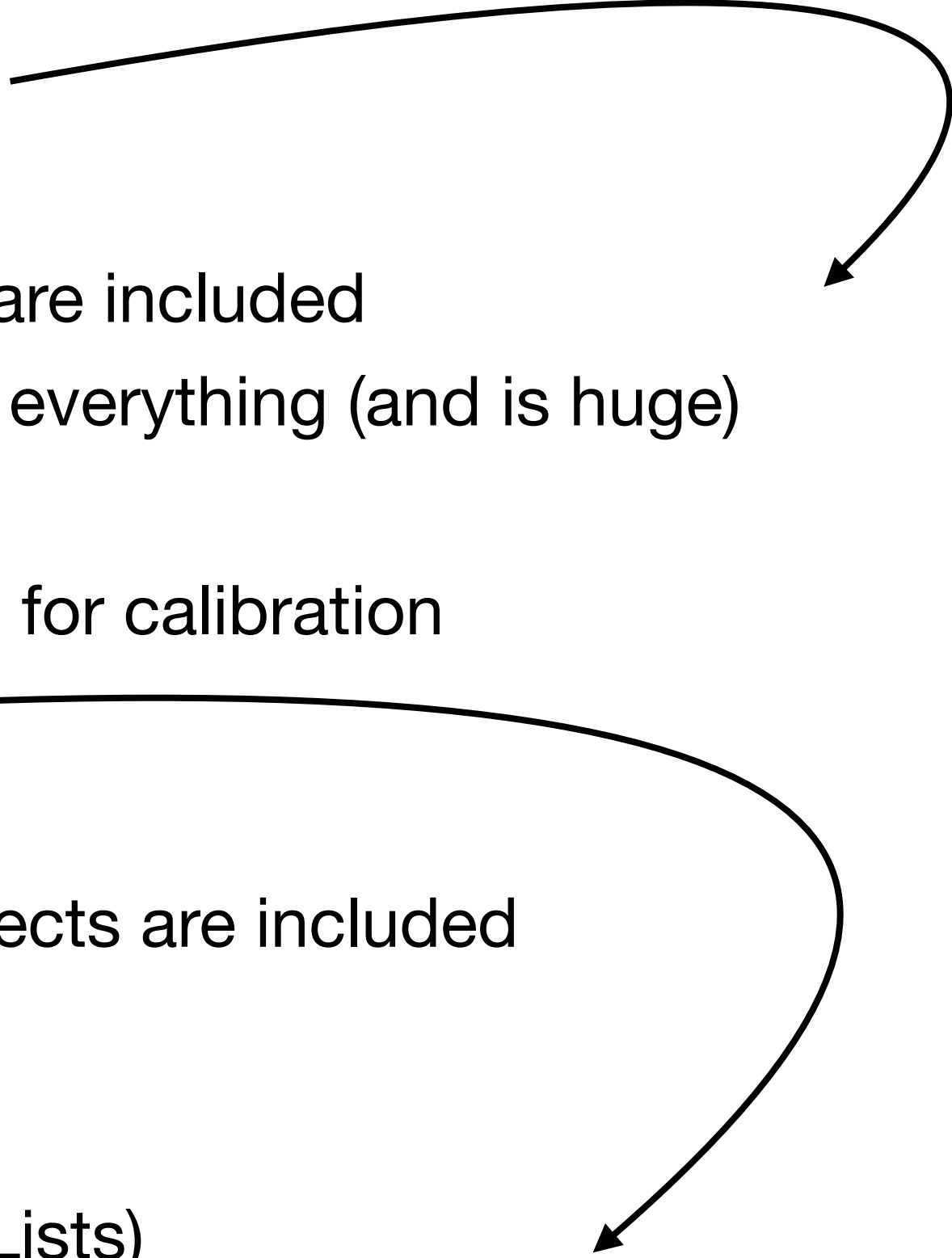
- **Data processing**
  - **Unofficial reprocessing:** fast reprocessing of data immediately after availability in the offline system
    - Not for physics publications, important for fast feedback on detector performance, no longer active
    - Special processings upon request, depending on resource availability
  - **Prompt reprocessing:** first processing with automated calibration (internal terminology - bucketXX)
    - Automated calibration with airflow runs at BNL, mDST production at raw data centers
    - Not yet intended for physics publications, ok for conference presentations
    - Once calibration algorithms and workflow are mature may be used to top-up official samples
  - **Official reprocessing:** careful calibration and validation of results for physics publications
    - Automated calibration with airflow runs at DESY, mDST production at raw data centers
    - Part of official reprocessing campaigns (procYY), subdivided by experiment (internal terminology - chunkZZ)
- **Official (internal) terminology: “procYY + prompt (AA/ab)”**
- **MC production**
  - Unique campaign names for different releases, global tags, conditions
  - Run-independent samples use simulated backgrounds and default conditions (MCXXri\_a, MCXXri\_b, etc.)
  - Run-dependent samples use random trigger events from data and real conditions (MCXXrd\_a, MCXXrd\_b, etc.)

# Belle II nomenclature: file types

- In general, Belle II output is stored in ROOT files containing various subsets of DataObjects, DBObjects, nTuples, etc
- **RAW**: raw data containing detector information
- **DST**: data summary table
  - all available DataObjects (from reprocessing) are included
  - not generally produced or used as it contains everything (and is huge)
- **cDST**: [calibration data summary table](#)
  - RAW data, plus additional DataObjects useful for calibration
- **mDST\***: [mini data summary table](#)
  - strictly controlled version of a DST file
  - only a subset of available processed DataObjects are included
  - sufficient information for analysis use
- **uDST**: user data summary table
  - mDST objects, plus analysis objects (ParticleLists)
  - produced from skims - reduce time needed to run analysis jobs
  - **these are the samples you should be using for analysis!**

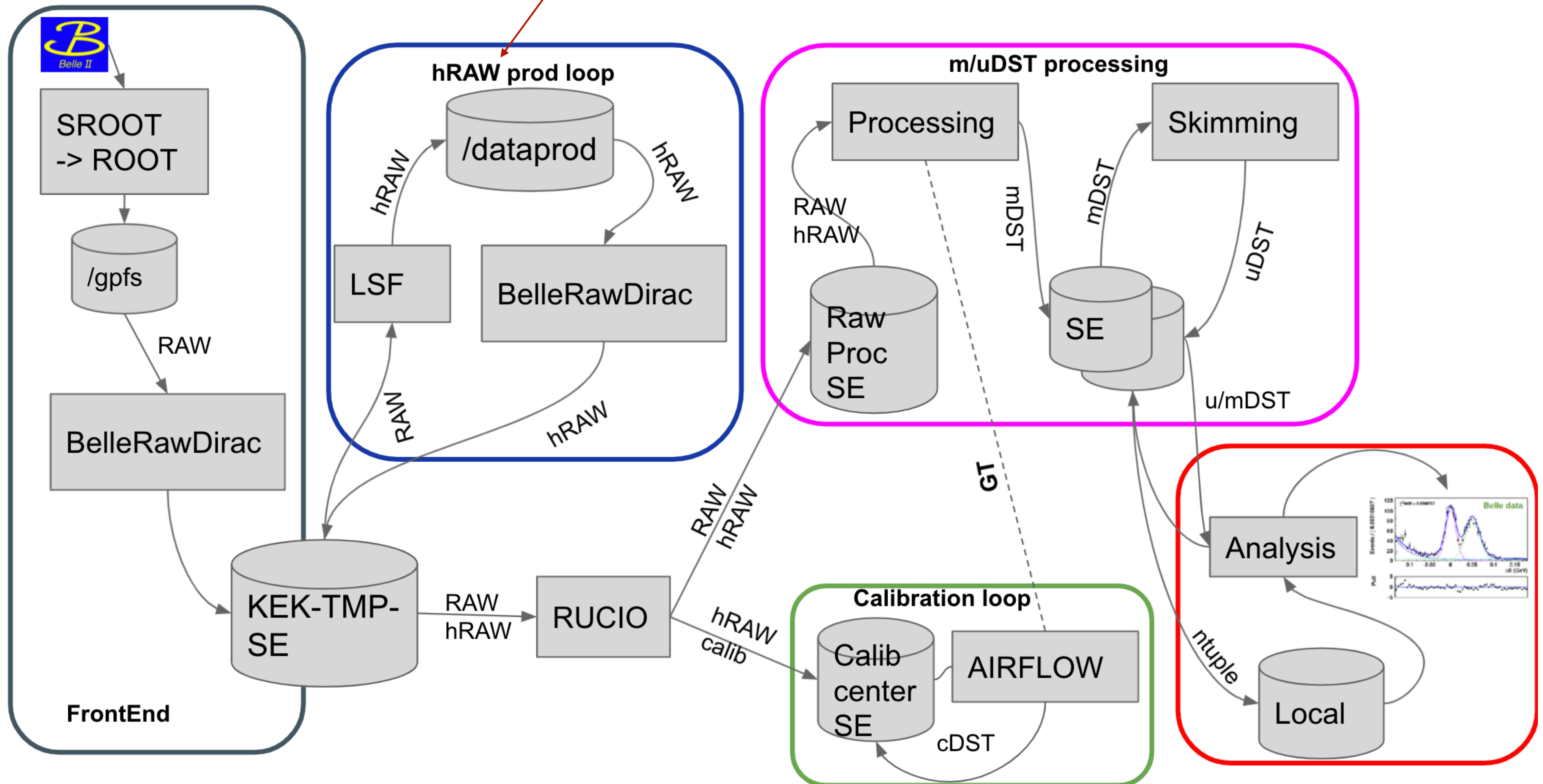


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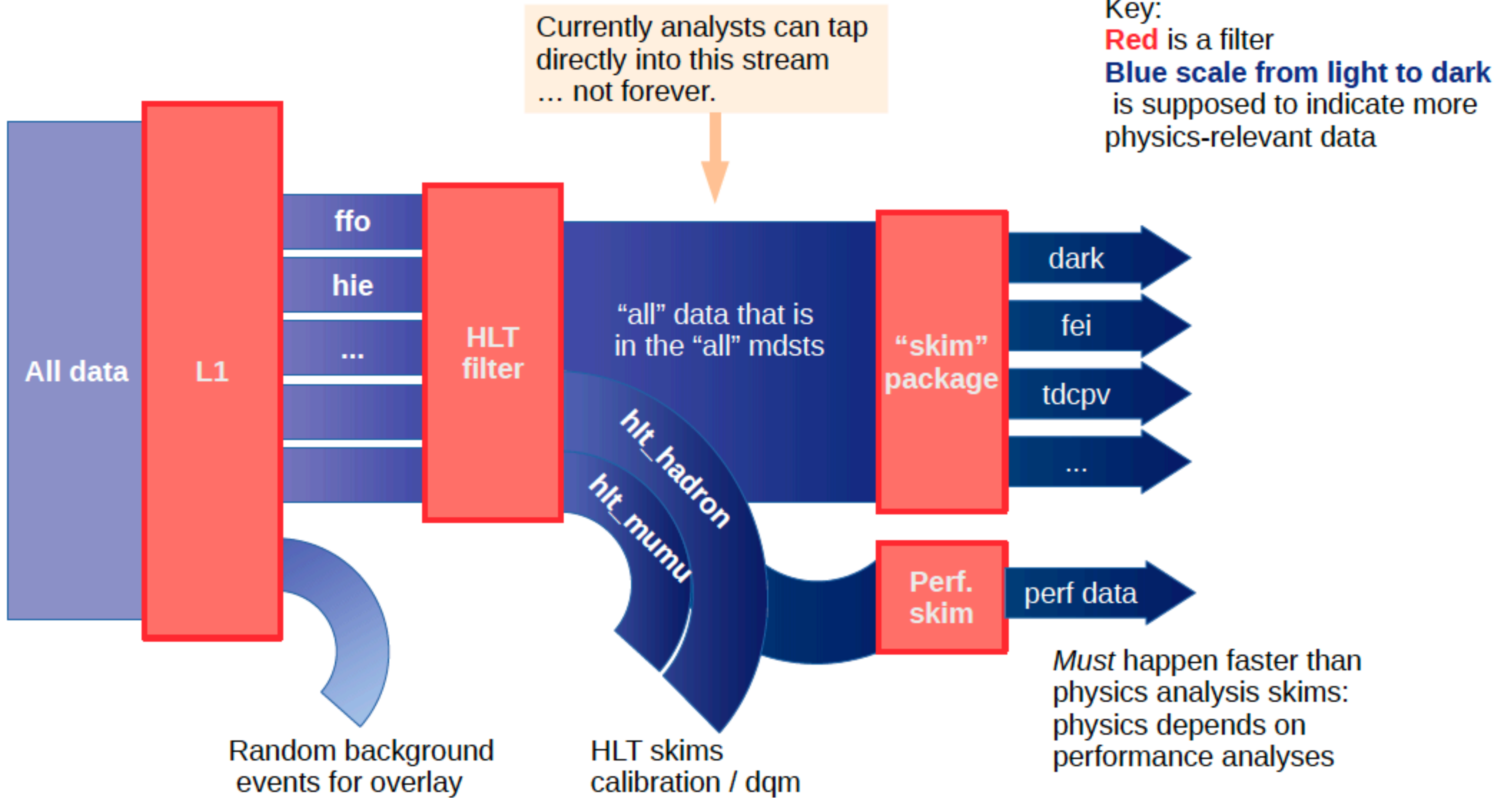
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  - **uDST**: user data summary table
    - mDST objects, plus analysis objects (ParticleLists)
    - produced from skims - reduce time needed to run analysis jobs
    - **these are the samples you should be using for analysis!**
- “Raw data processing”  
Use detector information to reconstruct tracks, showers, etc.
- “Analysis skimming”  
Use tracks, showers, etc to create Particles, ParticleLists used for analysis
- 

# Belle II data flow

hRAW = HLT skimmed raw data



# Belle II data flow



# Prompt processing scheme

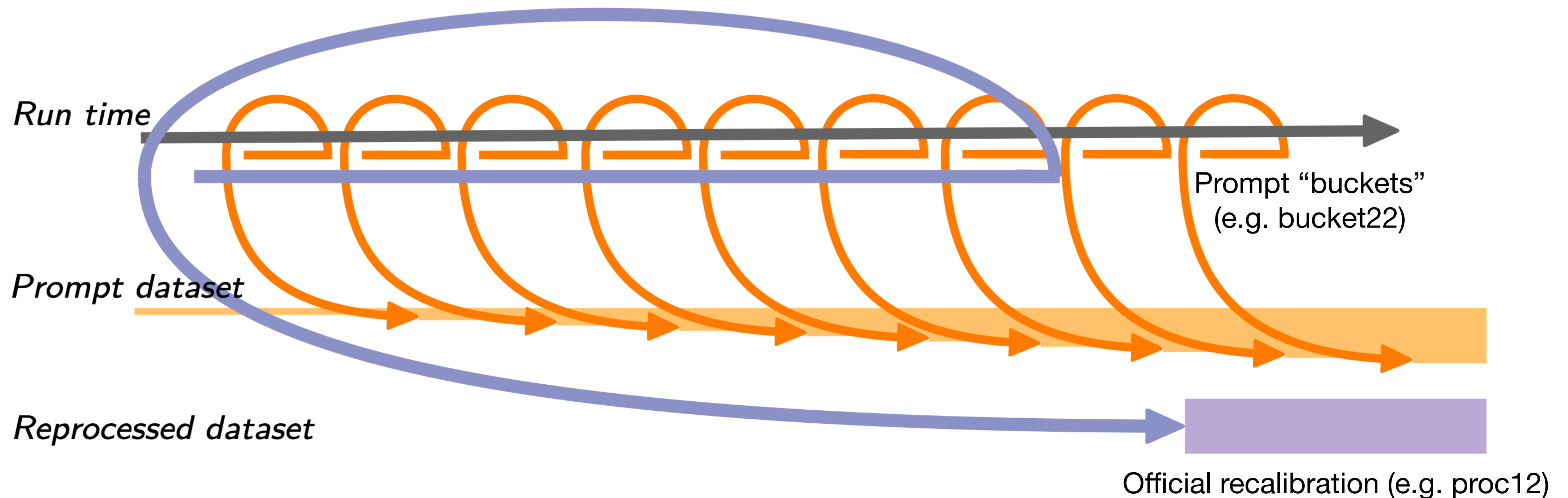
- Only a fraction of the full data is required for calibration
  - HLT skims to select samples of a given type (bhabha, dimuon, etc)
  - Pre-scales applied to randomly select only as much data as needed
- Calibration and processing happens twice:
  - **Prompt processing:** ~weekly calibration and processing during data taking
  - **Official reprocessing:** ~yearly to make final adjustments and incorporate “data-hungry” calibrations

# Prompt processing scheme

- Only a fraction of the full data is required for calibration
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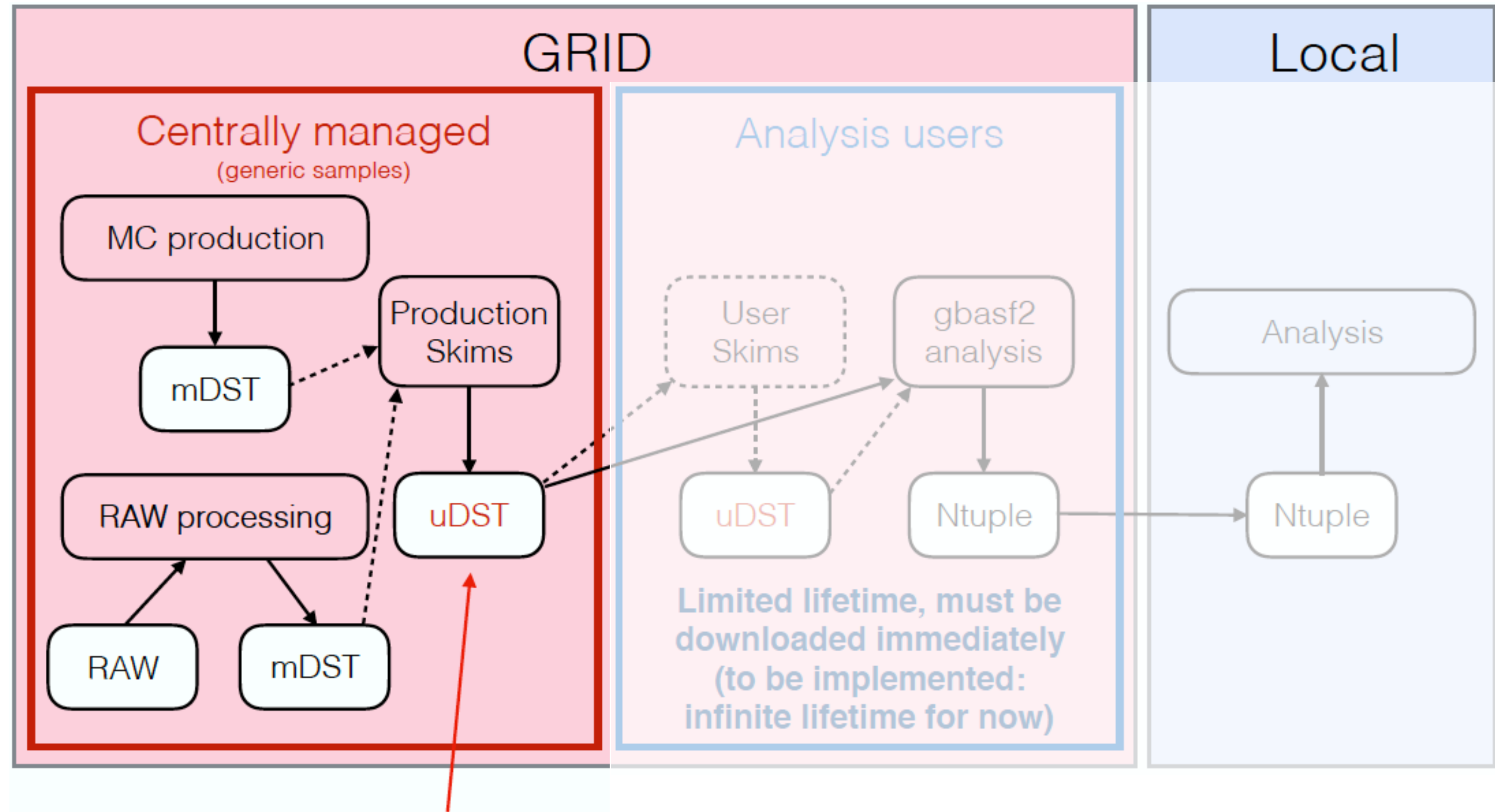


- Calibration and processing happens twice:
  - **Prompt processing:** ~weekly calibration and processing during data taking
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# Data production/analysis scheme

- Simulation and processing for official data and MC samples is performed centrally
  - This is the primary purpose of the data production group

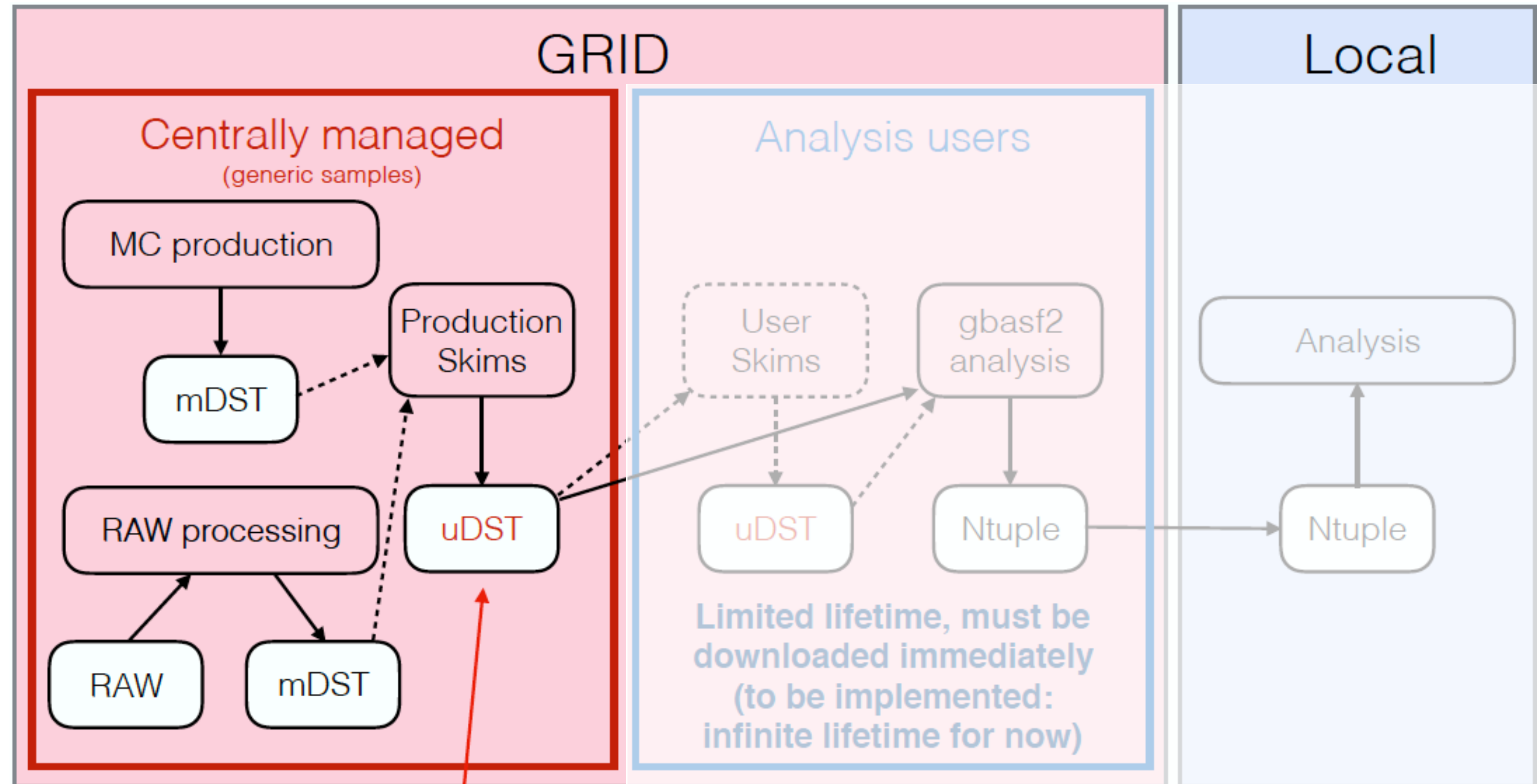


uDST = mDST plus analysis level information (ParticleLists)



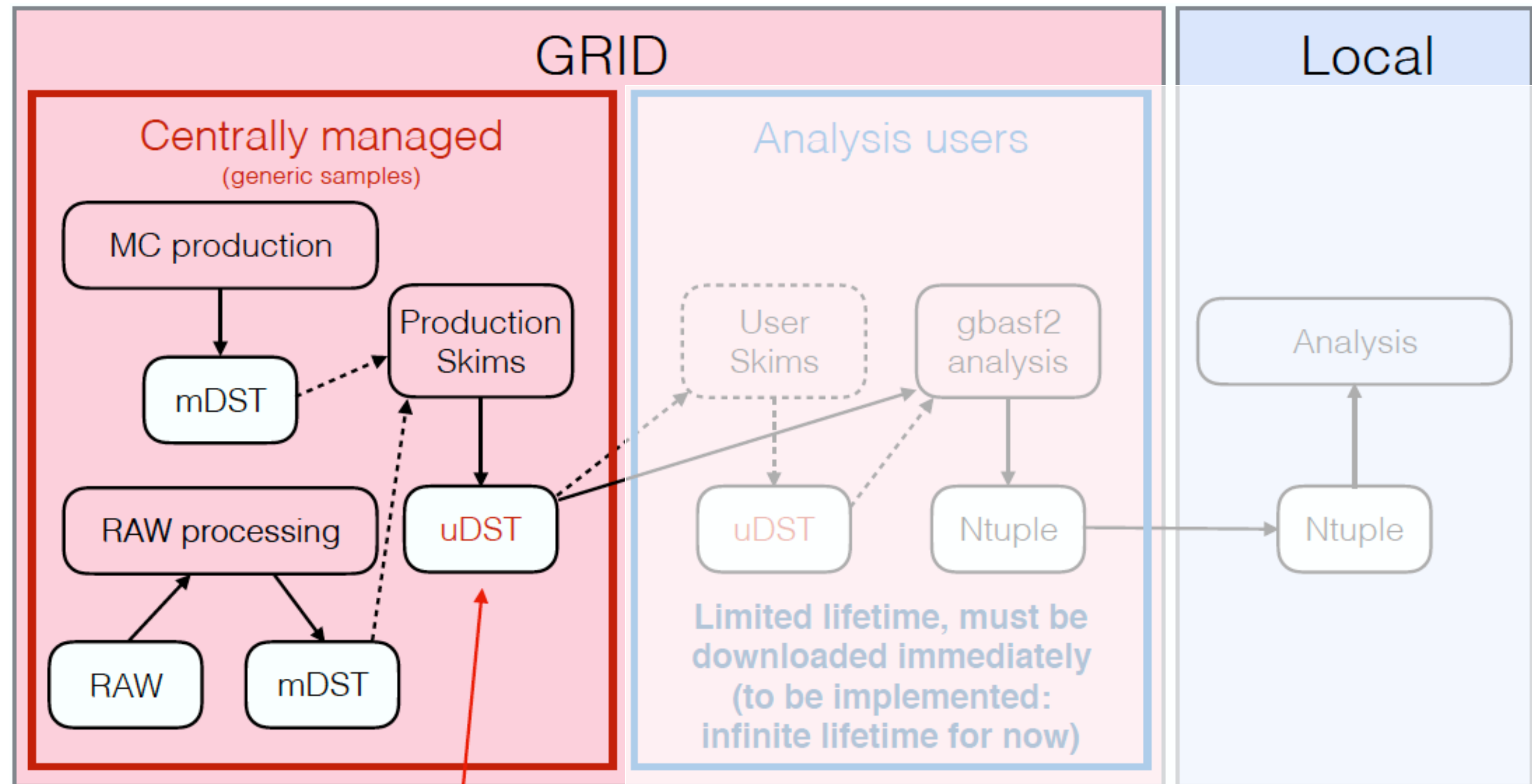
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- Though you are certainly free to produce test samples on your own
  - *don't use them for publishable physics analyses!*



# Data production/analysis scheme

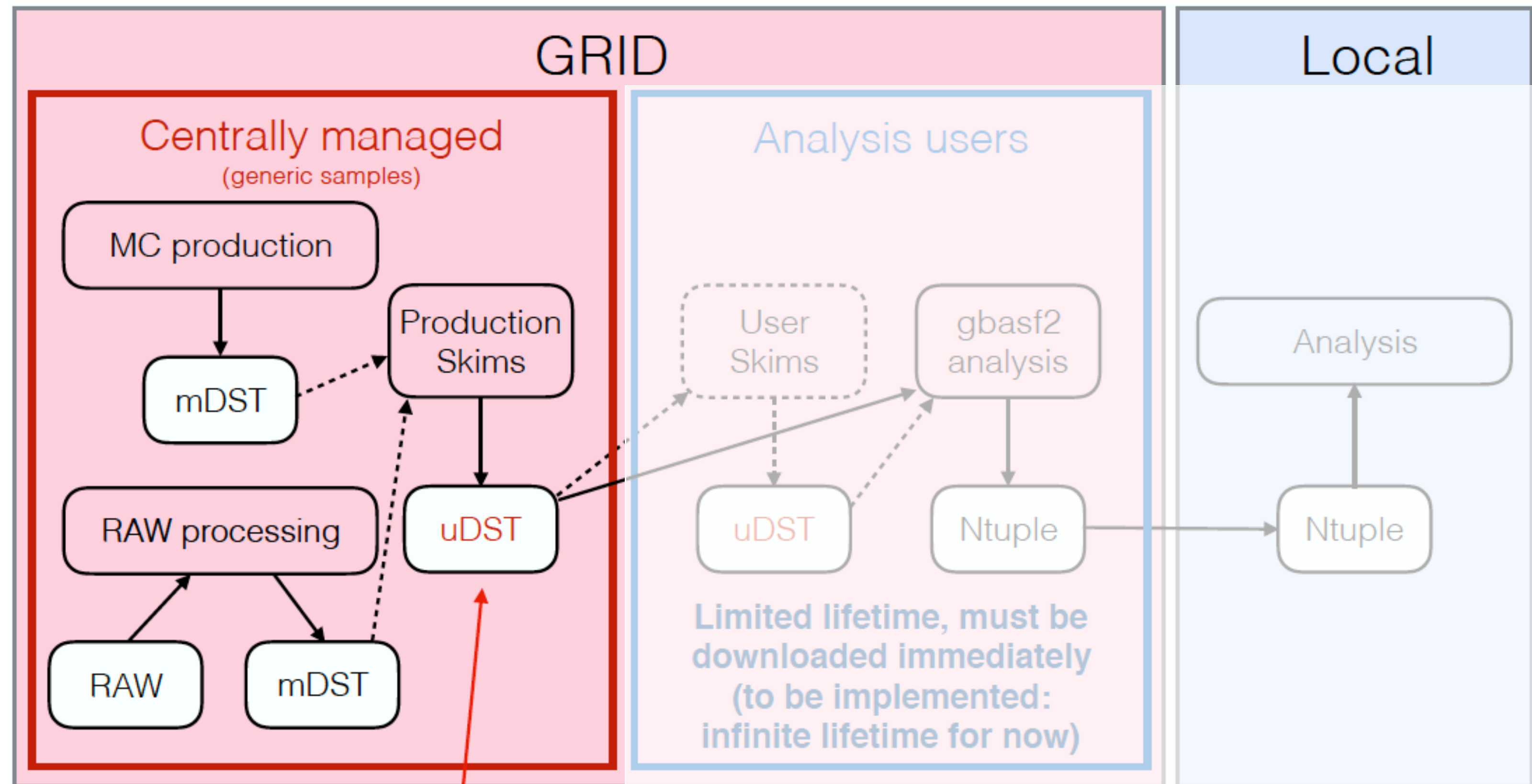
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- Requests for MC samples can be made to the DP liaison in your physics working group



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# Data production/analysis scheme

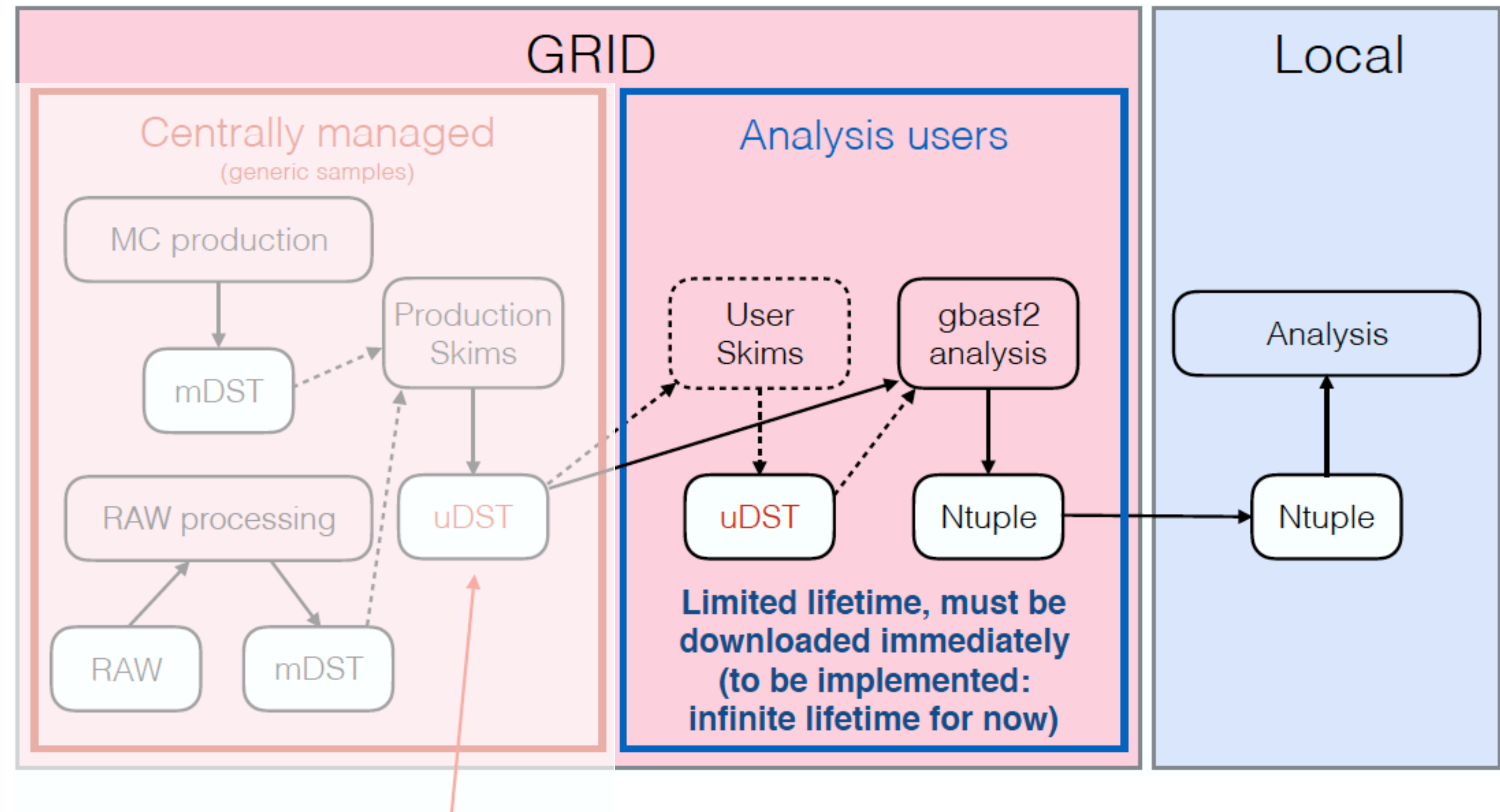
- Simulation and processing for official data and MC samples is performed centrally
  - This is the primary purpose of the data production group
- Though you are certainly free to produce test samples on your own - *don't use them for publishable physics analyses!*
- Requests for MC samples can be made to the DP liaison in your physics working group
- Skimming is also centrally performed - each physics working group has a skim liaison as well



uDST = mDST plus analysis level information (ParticleLists)

# Data production/analysis scheme

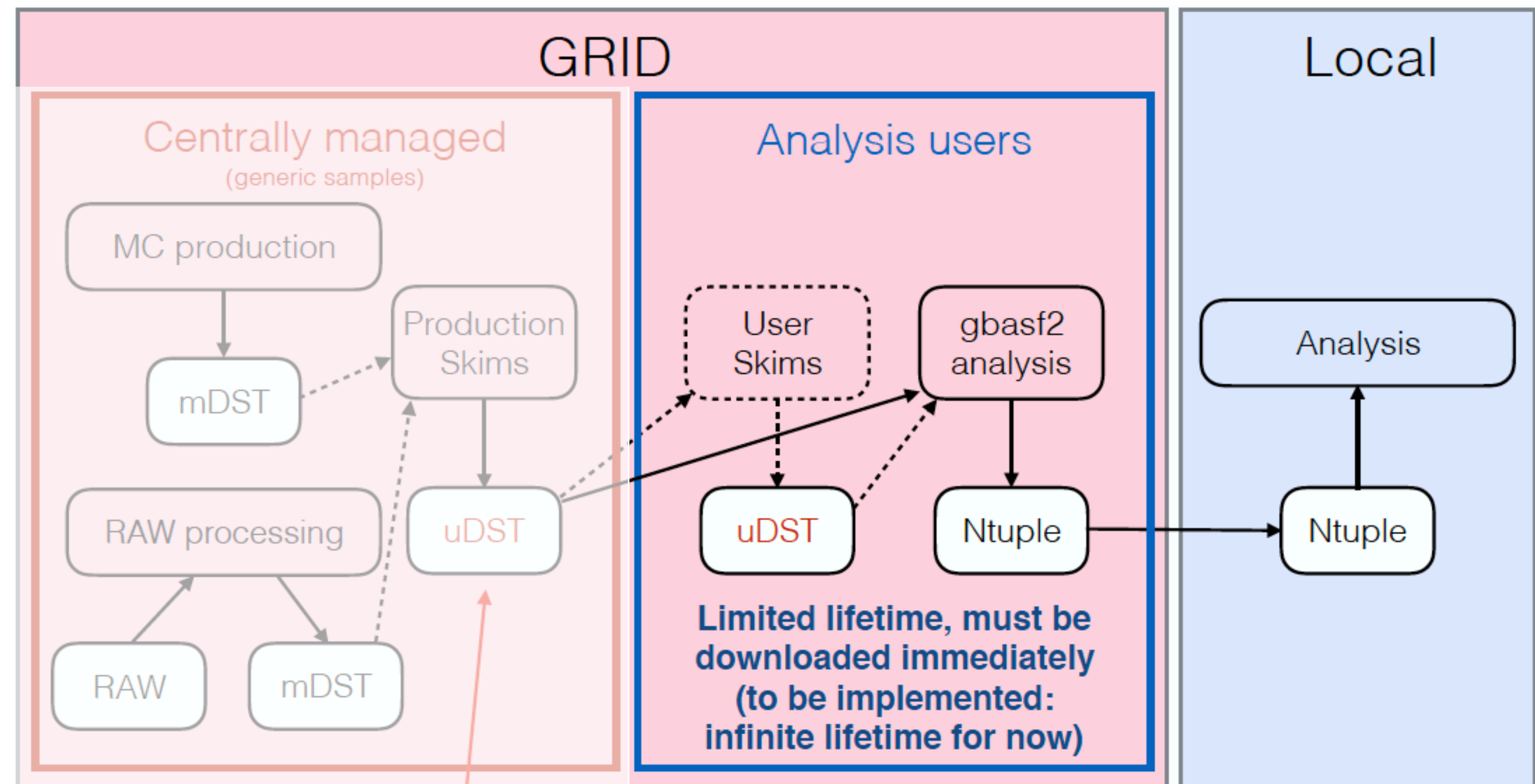
- The default place to run your analysis jobs is on the grid
  - After official skimming, uDST files are available for grid-based analysis
  - Users can either perform another skim on the official skim samples or run an analysis directly on the uDSTs



uDST = mDST plus analysis level information (ParticleLists)

# Data production/analysis scheme

- The default place to run your analysis jobs is on the grid
  - After official skimming, uDST files are available for grid-based analysis
  - Users can either perform another skim on the official skim samples or run an analysis directly on the uDSTs
- Transfer your ntuple files to local resources for the rest of your analysis
  - Fitting, plotting, etc.
  - **Files on the grid (will) have a limited lifetime, so ntuple files must be downloaded to local resources as quickly as possible!**



uDST = mDST plus analysis level information (ParticleLists)

# Dataset searcher to find samples on the grid

- Previously, MC samples were annotated on confluence pages
  - Very time consuming to update and maintain
  - Only alternative to tedious searching for datasets with gb2 tools

<https://questions.belle2.org/question/7244/what-is-the-dataset-searcher/>

- Dataset searcher

- Provides a list of LFNs to use with gbasf2 analysis
- Available now in DIRAC (DIRAC apps -> Dataset searcher)
- Invalidated “bad runs” will not be used in analysis
- Also available via command line

The screenshot shows the 'Dataset Searcher' web interface. It has two tabs: 'Metadata Searcher' and 'Tree Browser'. The 'Metadata Searcher' tab is active. The search criteria are as follows:

- Data Type:  MC  Data
- Background level:  BGx1  BGx0  Other
- Background level: [Dropdown menu]
- Beam Energies: 4S
- Data Levels: [Dropdown menu]
- Global Tags: [Dropdown menu]
- Experiment High: [Text input]
- Run High: [Text input]
- General Skim Names: [Dropdown menu]
- Campaigns: MC13a
- Skim Types: [Dropdown menu]
- Releases: [Dropdown menu]
- Experiment Low: [Text input]
- Run Low: [Text input]
- MC Event Types: ccbar

At the bottom of the search criteria, there are buttons for 'Clear', 'Search', and 'Help'. Below the search criteria, there is a table of LFNs:

| LPN   |
|---|
| /belle/MC/release-04-00-03/DB00000757/MC13a/prod00009437/s00/e1003/4S/r00000/ccbar/mdst |
| /belle/MC/release-04-00-03/DB00000757/MC13a/prod00009492/s00/e1003/4S/r00000/ccbar/mdst |
| /belle/MC/release-04-00-03/DB00000757/MC13a/prod00009493/s00/e1003/4S/r00000/ccbar/mdst |
| /belle/MC/release-04-00-03/DB00000757/MC13a/prod00009531/s00/e1003/4S/r00000/ccbar/mdst |
| /belle/MC/release-04-00-03/DB00000757/MC13a/prod00009532/s00/e1003/4S/r00000/ccbar/mdst |
| /belle/MC/release-04-00-03/DB00000757/MC13a/prod00009533/s00/e1003/4S/r00000/ccbar/mdst |
| /belle/MC/release-04-00-03/DB00000757/MC13a/prod00009534/s00/e1003/4S/r00000/ccbar/mdst |
| /belle/MC/release-04-00-03/DB00000757/MC13a/prod00009535/s00/e1003/4S/r00000/ccbar/mdst |

At the bottom of the interface, there are buttons for 'Dataset LFNs Metadata', 'Dataset Metadata', and 'Download .txt file'.

```
gb2_ds_search dataset --campaign proc12
--general_skim hadron --skim_decay
10601300 --exp_low 12 --exp_high 12
```

- More details during the hands-on session tomorrow

**EventType for signal MC**  
**Skimming naming convention**

# Data readiness for summer (actual)

| Exp      | Dataset | Calibration                   | Data (had)                    | Data (all)                            | MC rd (4 streams)                      | MC ri        |
|----------|---------|-------------------------------|-------------------------------|---------------------------------------|--|--------------|
| 7, 8, 10 | proc12  | <b>Ready</b>                  | <b>Ready</b> <sub>(+1)</sub>  | <b>Ready</b> <sub>(0)</sub>           | June 25 <sup>th</sup> <sub>(+30)</sub> | <b>Ready</b> |
| 12       | proc12  | <b>Ready</b> <sub>(+22)</sub> | <b>Ready</b> <sub>(+21)</sub> | July 7 <sup>th</sup> <sub>(+21)</sub> | July 9 <sup>th</sup> <sub>(+30)</sub>  | <b>Ready</b> |
| 14       | bkt16   | <b>Ready</b>                  | <b>Ready</b>                  | <b>Ready</b>                          | June 25 <sup>th</sup> <sub>(+30)</sub> | <b>Ready</b> |
| 14       | bkt16b  | <b>Ready</b> <sub>(+19)</sub> | <b>Ready</b> <sub>(+26)</sub> | <b>Ready</b> <sub>(+19)</sub>         | July 14 <sup>th</sup> <sub>(+29)</sub> | <b>Ready</b> |
| 16       | bkt17   | <b>Ready</b>                  | <b>Ready</b> <sub>(+1)</sub>  | <b>Ready</b> <sub>(-1)</sub>          | July 18 <sup>th</sup> <sub>(+33)</sub> | <b>Ready</b> |
| 17       | bkt18   | <b>Ready</b> <sub>(+0)</sub>  | <b>Ready</b> <sub>(-1)</sub>  | <b>Ready</b> <sub>(-4)</sub>          | July 22 <sup>th</sup> <sub>(+42)</sub> | <b>Ready</b> |
| 18       | bkt19   | <b>Ready</b> <sub>(-3)</sub>  | <b>Ready</b> <sub>(+14)</sub> | <b>Ready</b> <sub>(+9)</sub>          | July 26 <sup>th</sup> <sub>(+41)</sub> | <b>Ready</b> |
| 18       | bkt20   | <b>Ready</b>                  | <b>Ready</b>                  | <b>Ready</b>                          | July 30 <sup>th</sup>                  | <b>Ready</b> |