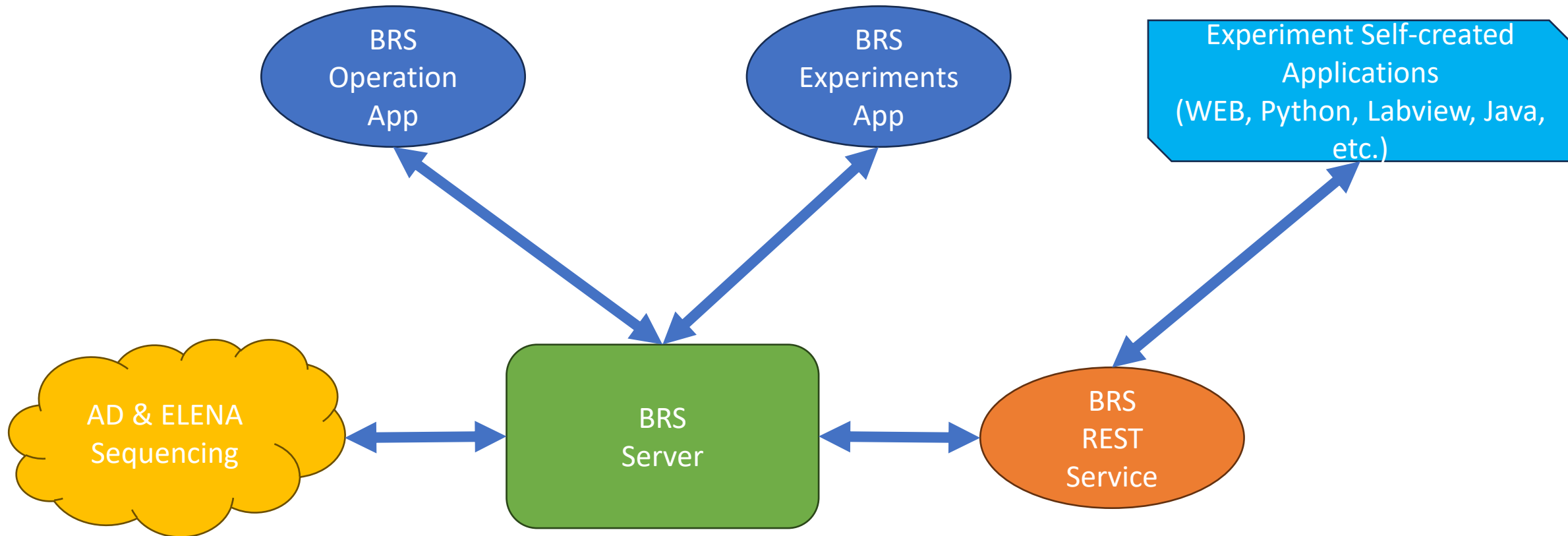


# ELENA Beam Request Server (BRS)



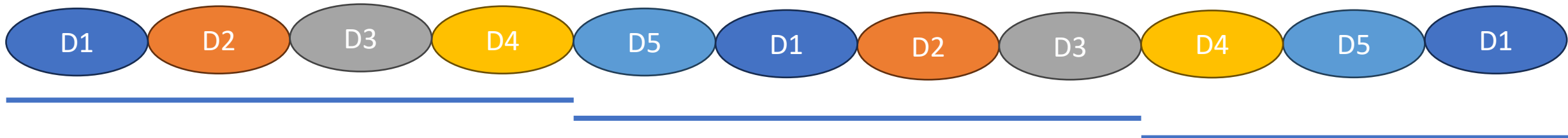
# REST Constraints & Functionalities (1/2)

- Constraints (to be adjusted)
  - changes must be sent ~10 s before the Pbar ELENA cycle.
  - changes must be sent ~4 s before the Hminus ELENA cycle.
- Beam Request (managed by Experiments)
  - True/False
  - If **True**:
    - Experiment want to receive beam.
    - Round-robin bunch distribution ([https://en.wikipedia.org/wiki/Round-robin\\_scheduling](https://en.wikipedia.org/wiki/Round-robin_scheduling))
  - If **False**:
    - Experiment don't want beam

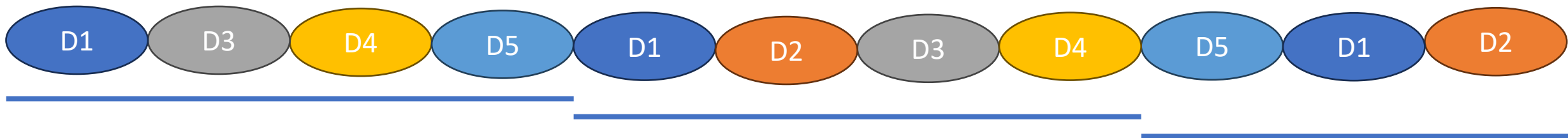
# REST Constraints & Functionalities (2/2)

- Inhibit (managed by Experiments)
  - True/False
  - If **True**:
    - Next foreseen bunch in the round-robin distribution will not be sent to experiment.
  - If **False**:
    - Round-robin distribution
- Priority (managed by Operation Team)
  - High/Normal
  - If **High**:
    - experiment will be not in the round-robin distribution, it will receive the beam at each ELENA cycle.
  - If **Normal**:
    - experiment will be in the round-robin distribution.

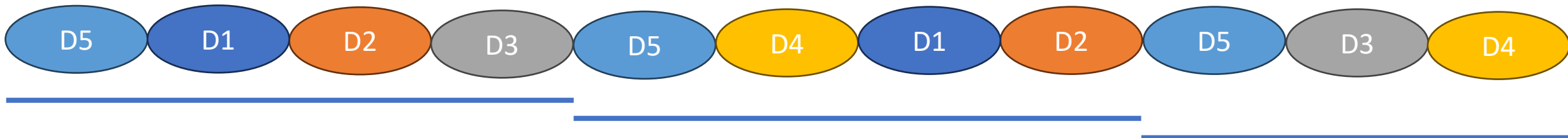
5 Exp. request beam, Round-Robin



5 Exp. request beam, Round-Robin + 1xInhibit D2



5 Exp. request beam, D5 Priority High, Round-Robin D1..D4 Priority Normal



# REST API (examples)

- Each experiments will access it with {exp/password}
- Alpha request ALL (Pbars & Hminus)
  - [https://cs-ccr-logdev.cern.ch:7443/Brs\\_Final\\_Server/elena/brs/v1/alpha/request/ALL](https://cs-ccr-logdev.cern.ch:7443/Brs_Final_Server/elena/brs/v1/alpha/request/ALL)
- Alpha request PBAR
  - [https://cs-ccr-logdev.cern.ch:7443/Brs\\_Final\\_Server/elena/brs/v1/alpha/request/PBAR](https://cs-ccr-logdev.cern.ch:7443/Brs_Final_Server/elena/brs/v1/alpha/request/PBAR)
- Alpha request no beam
  - [https://cs-ccr-logdev.cern.ch:7443/Brs\\_Final\\_Server/elena/brs/v1/alpha/request/NONE](https://cs-ccr-logdev.cern.ch:7443/Brs_Final_Server/elena/brs/v1/alpha/request/NONE)
- Alpha gets general experiments requests status
  - [https://cs-ccr-logdev.cern.ch:7443/Brs\\_Final\\_Server/elena/brs/v1/status](https://cs-ccr-logdev.cern.ch:7443/Brs_Final_Server/elena/brs/v1/status)
- Alpha get his request status
  - [https://cs-ccr-logdev.cern.ch:7443/Brs\\_Final\\_Server/elena/brs/v1/alpha/request](https://cs-ccr-logdev.cern.ch:7443/Brs_Final_Server/elena/brs/v1/alpha/request)

# Beam Request Patterns for ASACUSA

A: all cycles requested

B: 1 cycle for ASACUSA-2 x cycles for ASACUSA-1

C: 1 cycle for ASACUSA-2 x cycles of no request

Based on last year, x is a number between 1 and 10

Pattern B can give (unfair) priority to ASACUSA, if skipped cycles are rewarded

Pattern C could benefit (fairly) ASACUSA-2, if skipped cycles are rewarded