

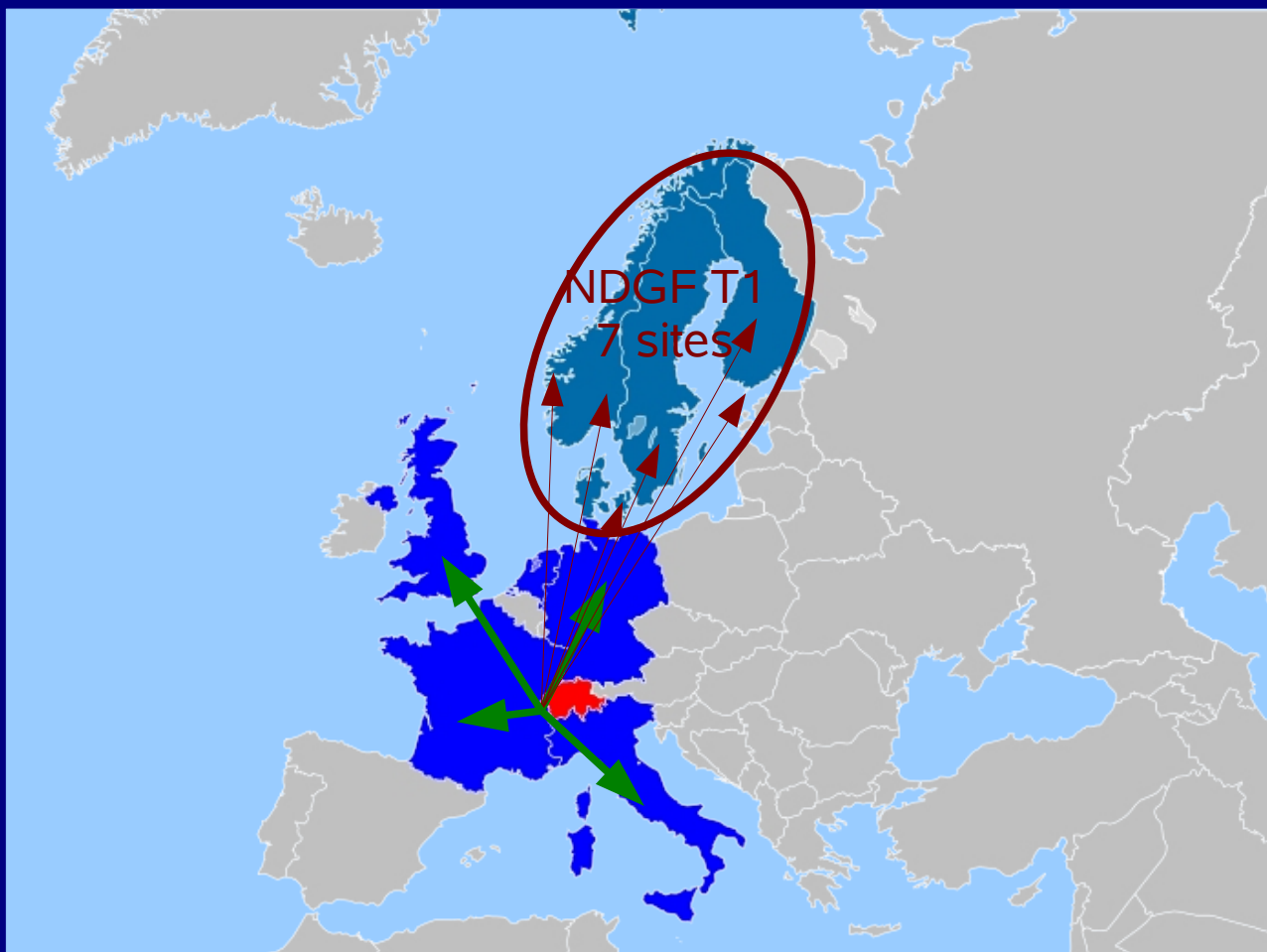


# Study for an AliEn-ARC interface

- Principle, Why the interface
- ARC and AliEn mechanism
- Current situation
- Ideas and Plans
- Conclusion

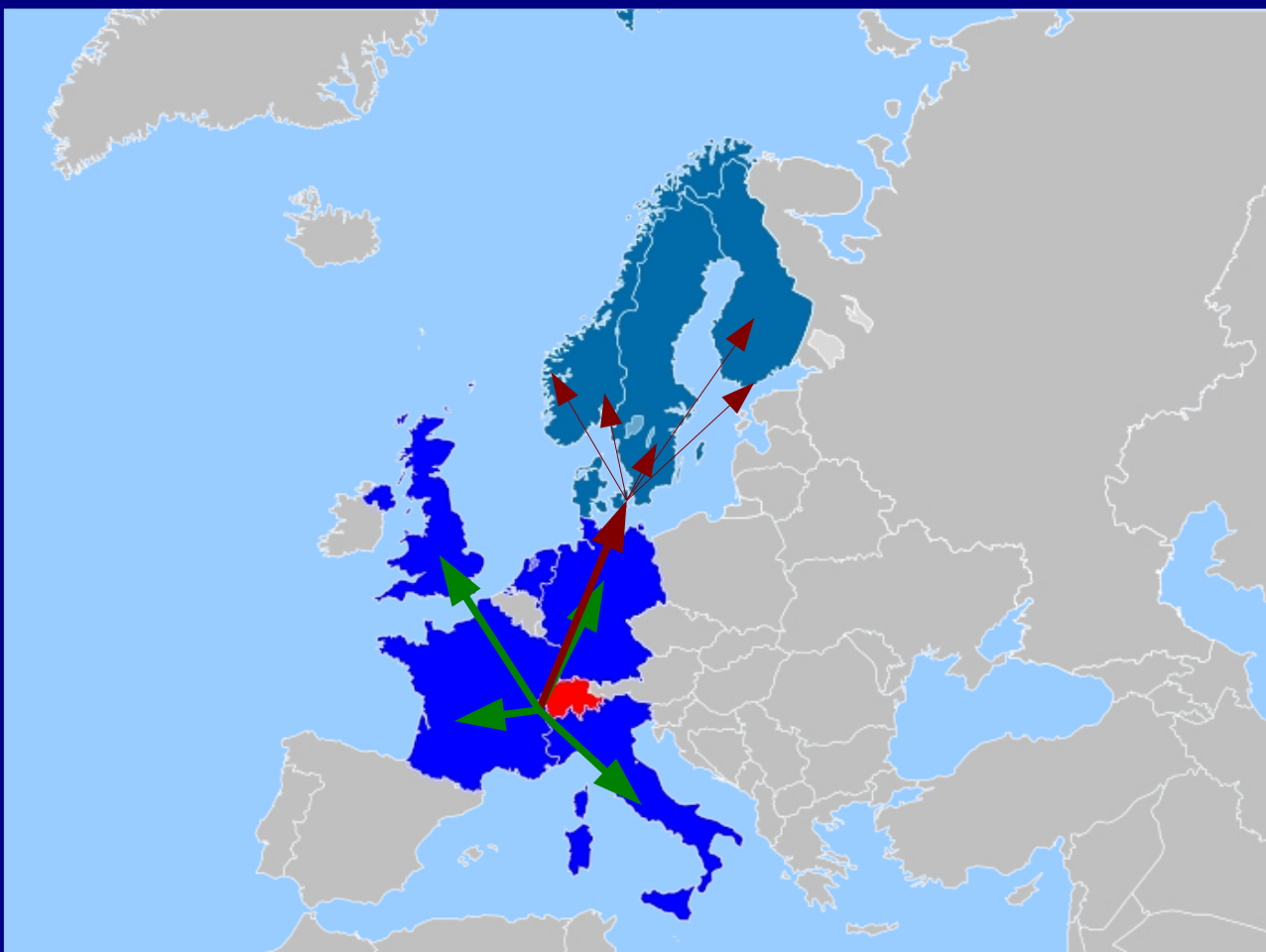


# Principle





# Principle





# + and – of an AliEn-ARC interface

- Advantages:
  - site administration (1 middleware: ARC)
  - site management from CERN (1 site to care about)
  - accounting for NDGF (all from ARC)
  - Flexibility for Nordic resources
  - looks nice...
- Downsides:
  - single point of failure
  - less control of the environment
  - coordination between projects

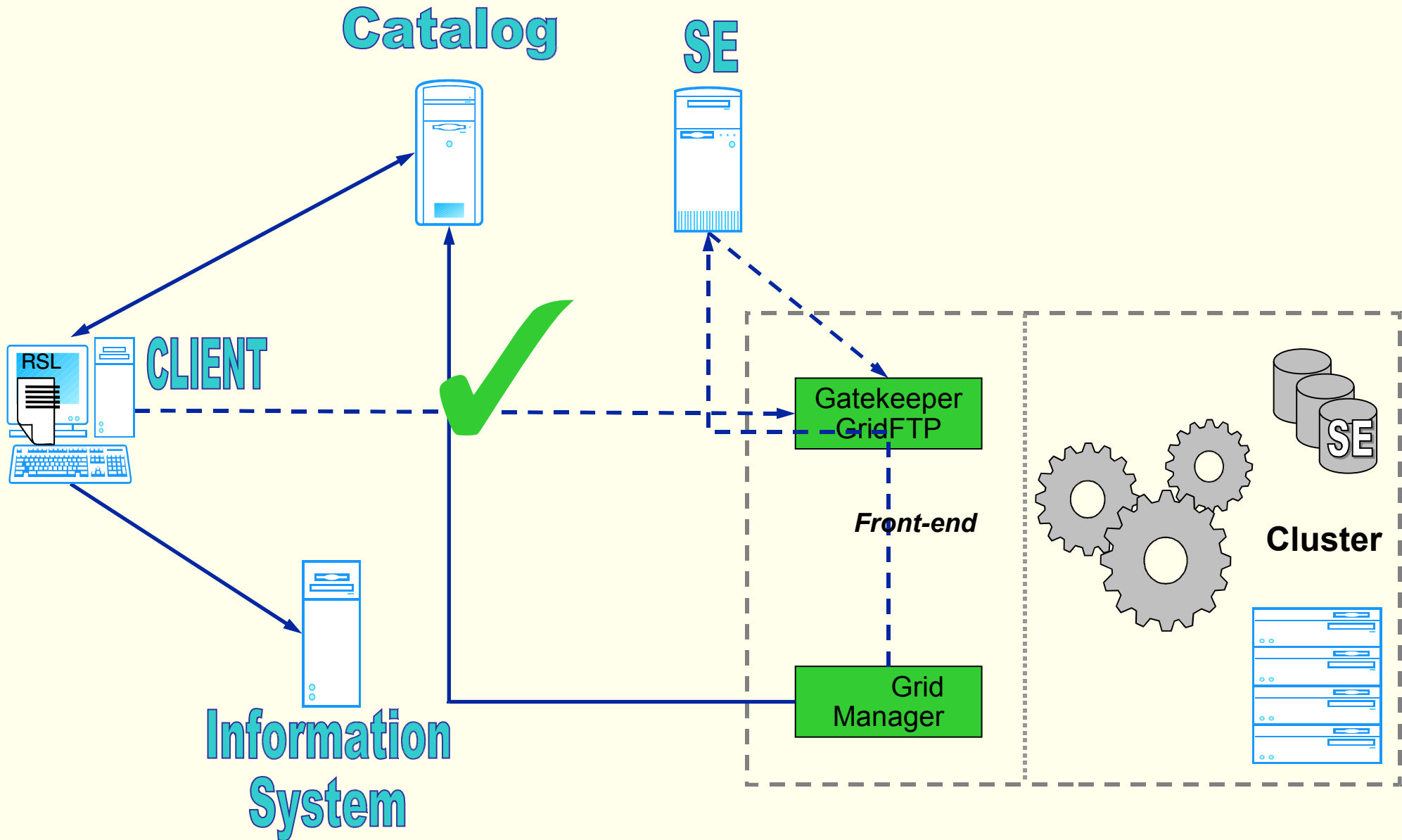


# Requirements of an AliEn-ARC interface

- From AliEn
  - Works like a normal site
  - Simple module in the code
- From NorduGrid
  - Minimum configuration on sites  
(No knowledge of AliEn for site admin)
  - Not to much security exception (firewall...)



# ARC middleware





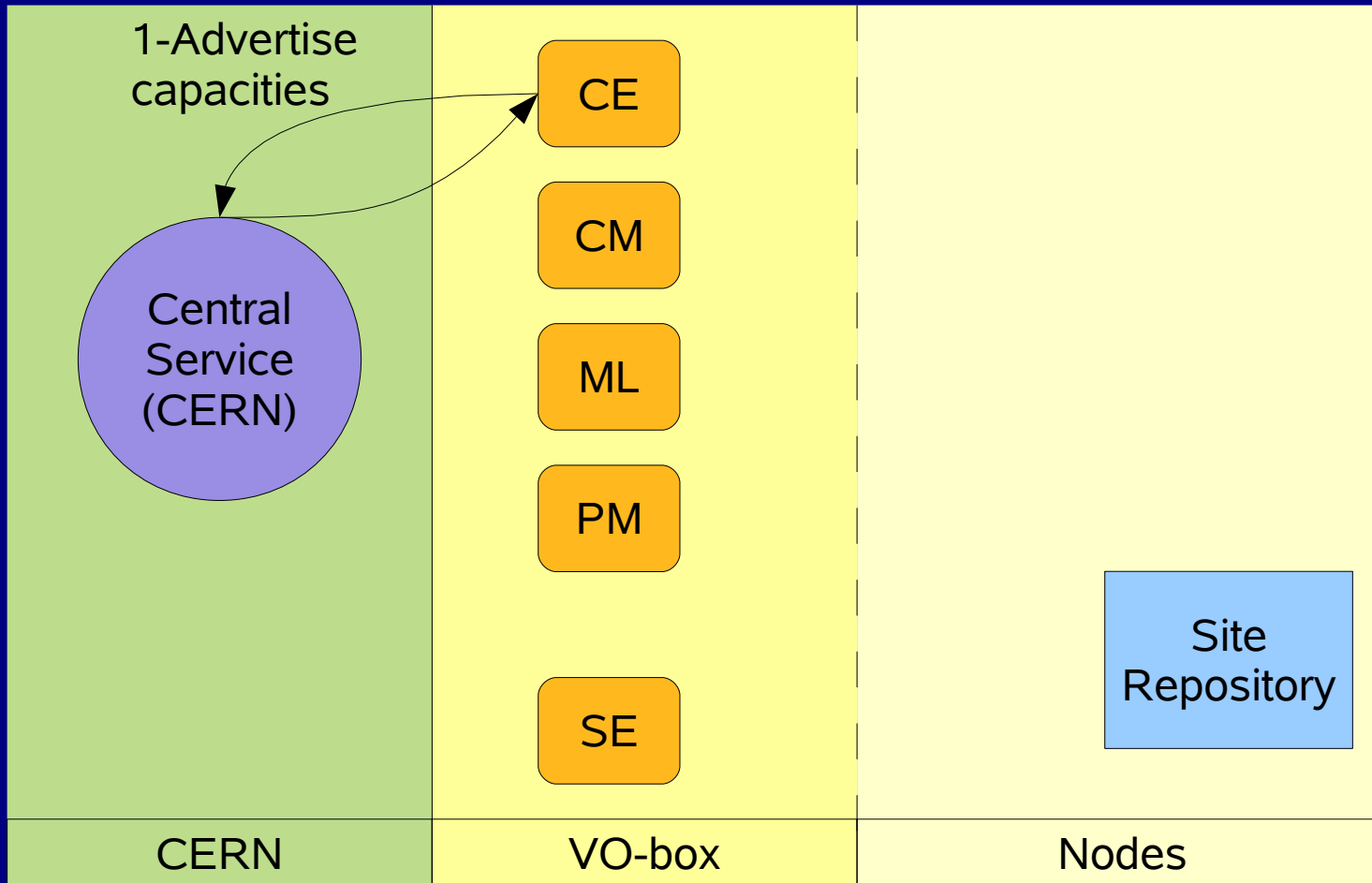
# ARC middleware

- No Package Management
  - Packages installed by hand
  - Advertised in Information System with RunTime Environment



# AliEn Structure

1 – The Computing Element advertises its capacities (number of available nodes, packages...) to the Central Services.  
The Central Services gives the number of matching jobs

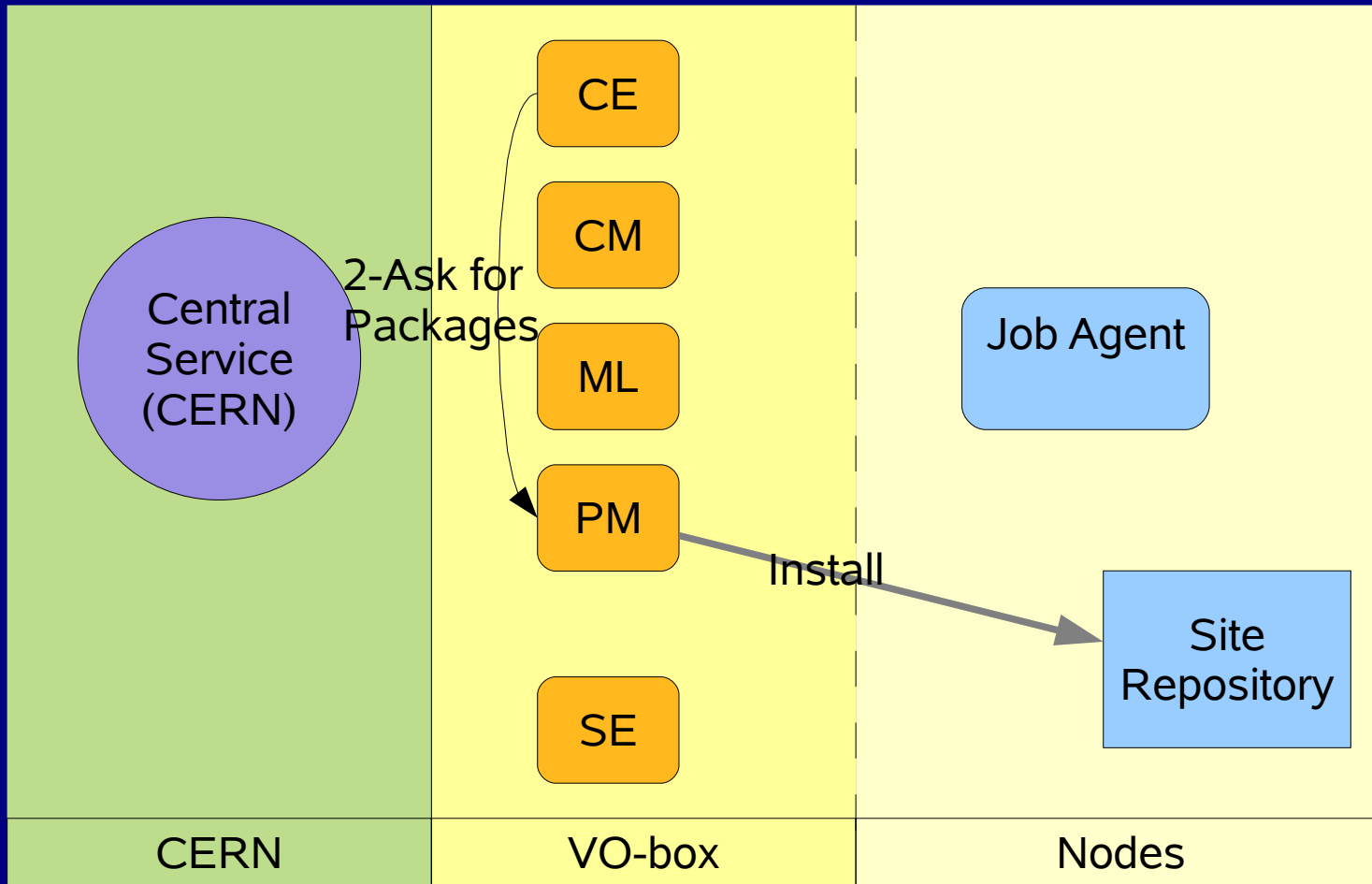






# AliEn Structure

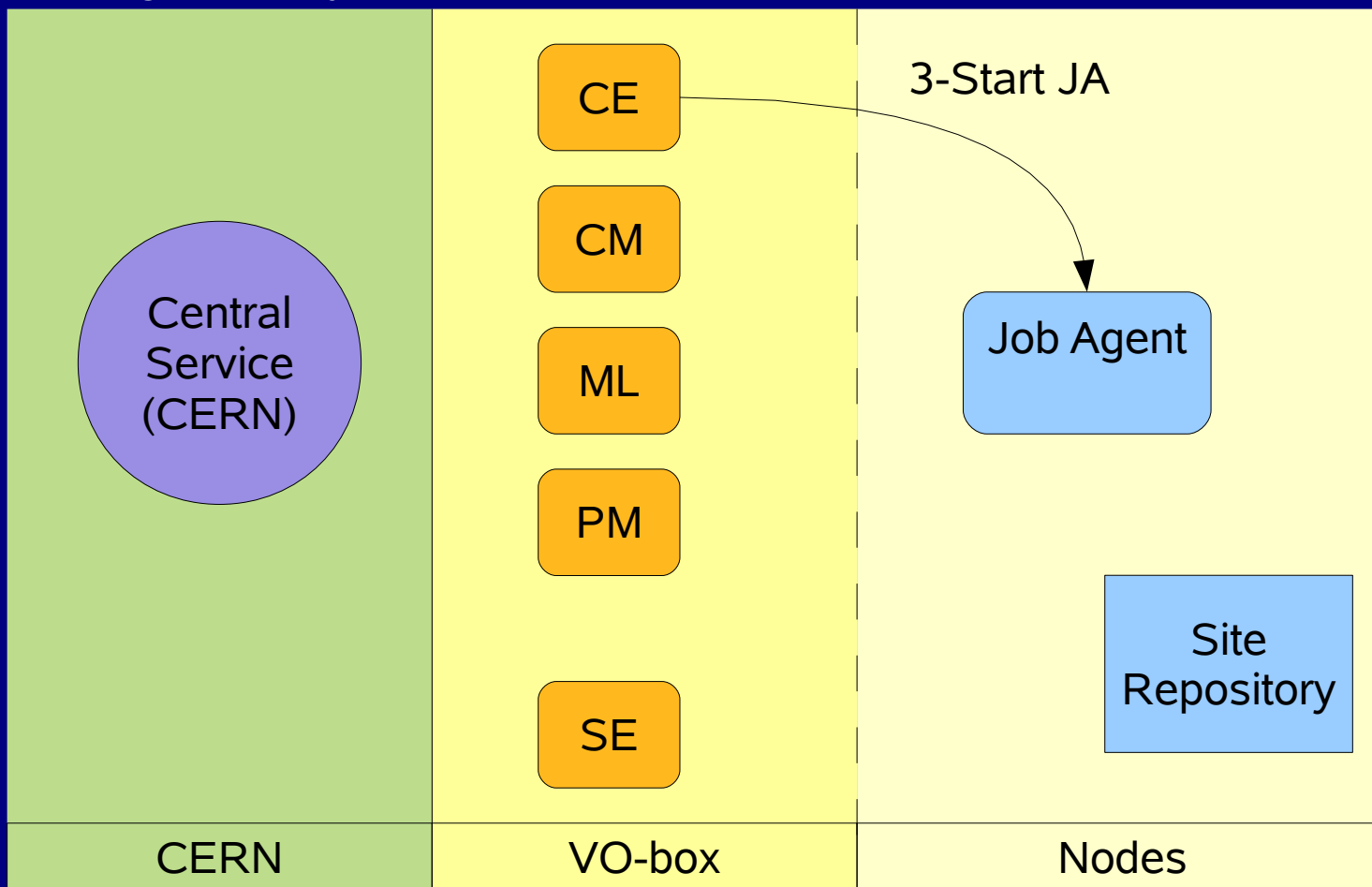
2 – If packages are required, the CE asks the PackMan if they are available, and installs them if needed





# AliEn Structure

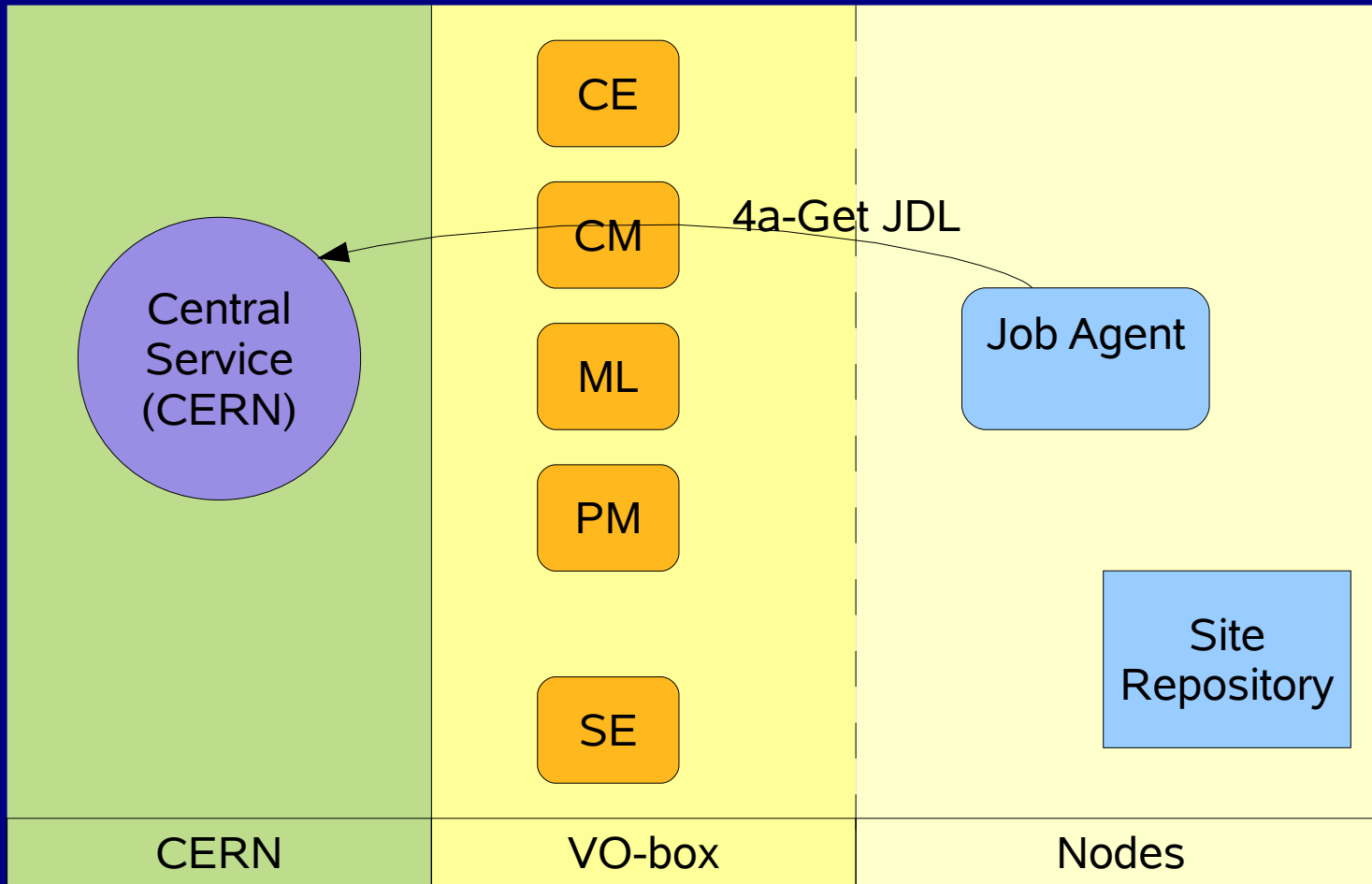
3 – If some jobs match the capacities, the Computing Element sends a Job Agent in the queue, using the Local Resource Management System (LRMS)

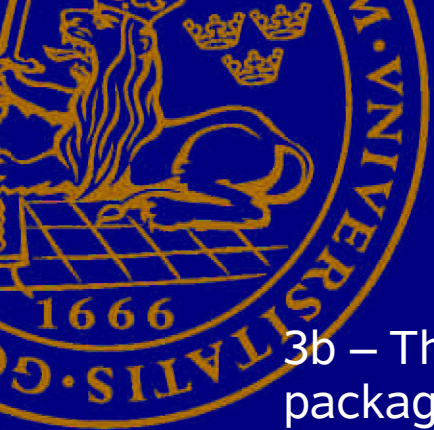




# AliEn Structure

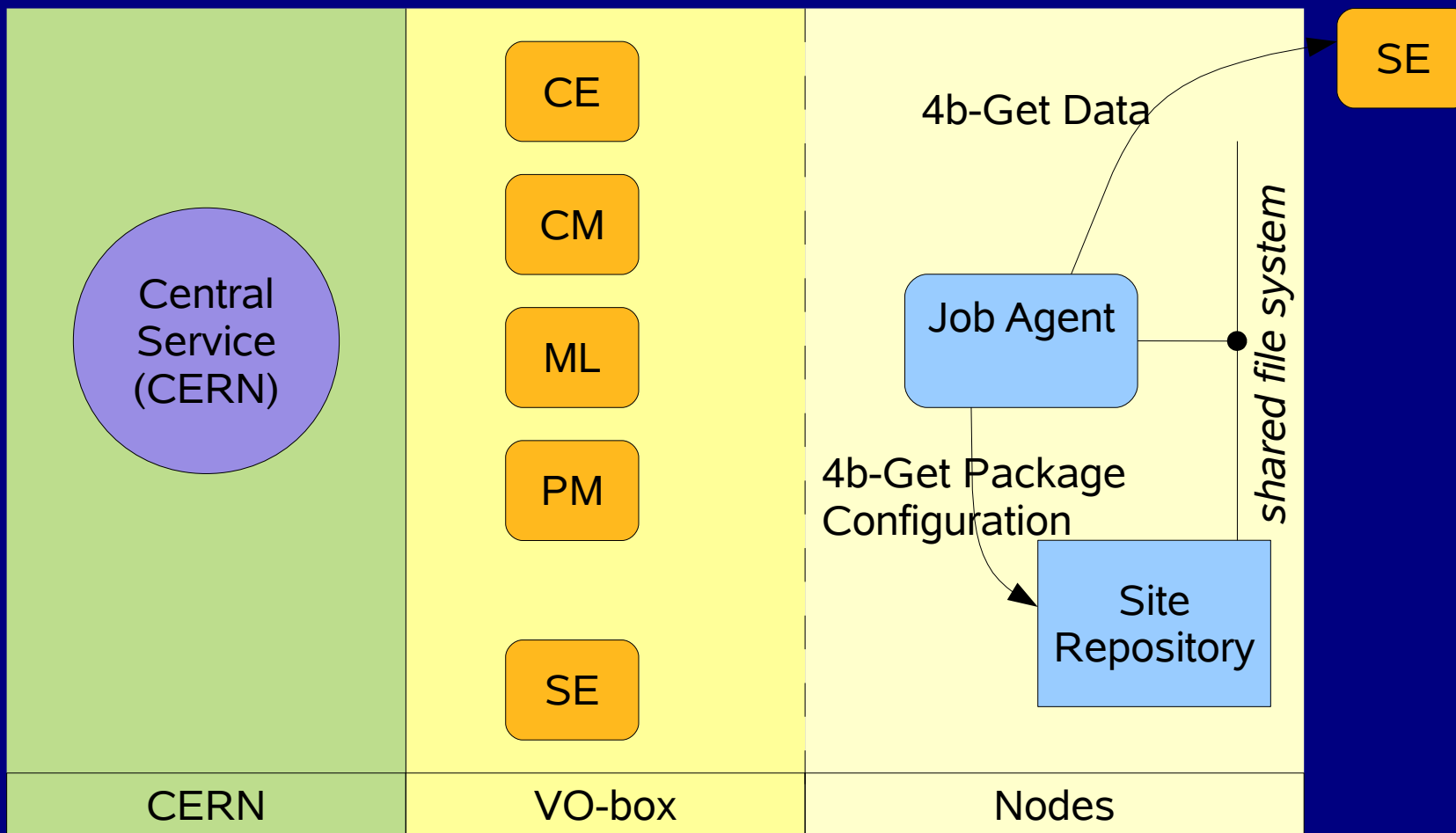
4a – The Job Agent gets the JDL from the Central Services





# AliEn Structure

3b – The Job Agent uses PackMan to get the configuration for packages. If they are not installed on the site, it can install them (if allowed).

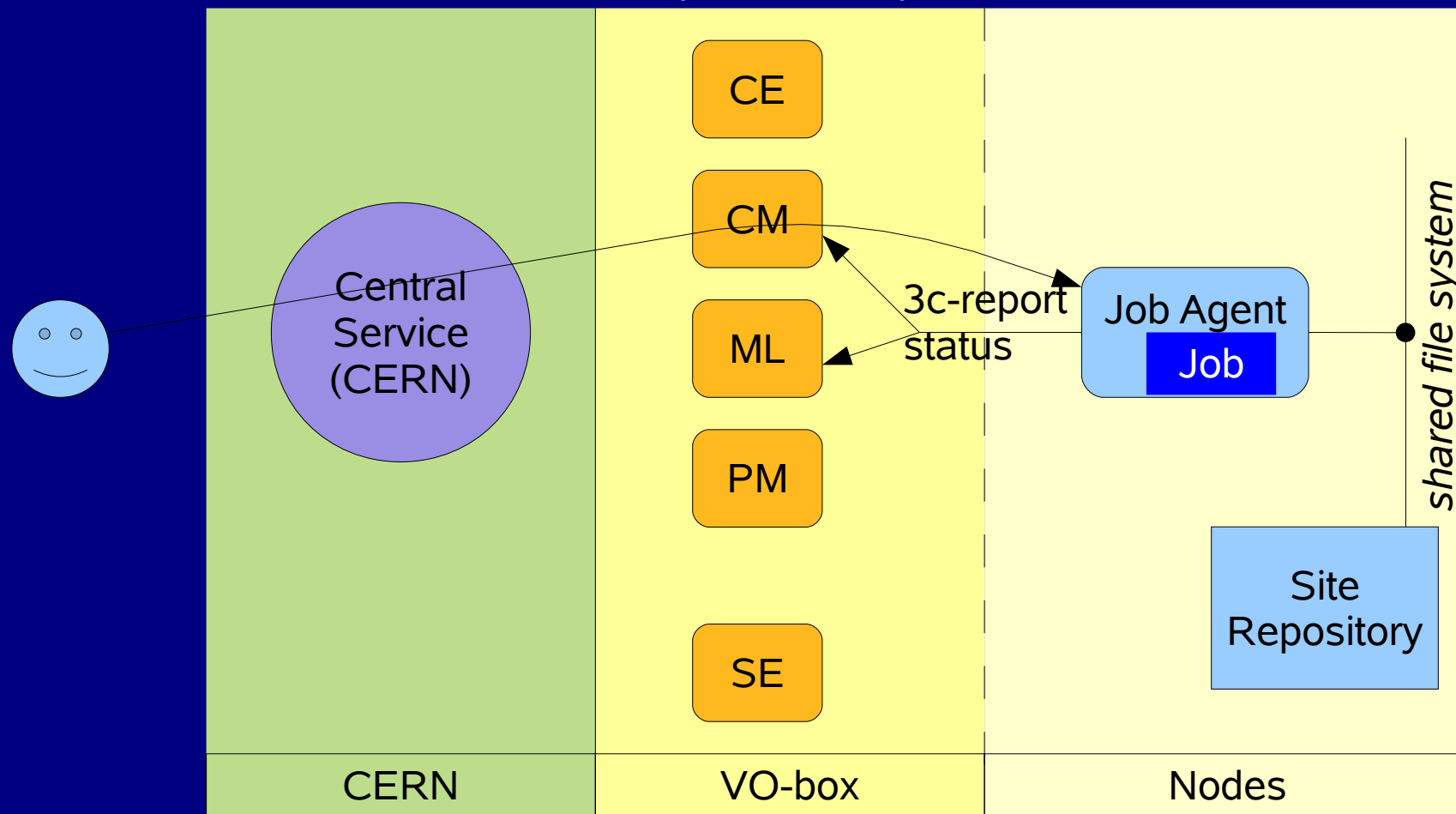




# AliEn Structure

3c – The Job runs. The Job Agent reports periodically the status to the different monitors.

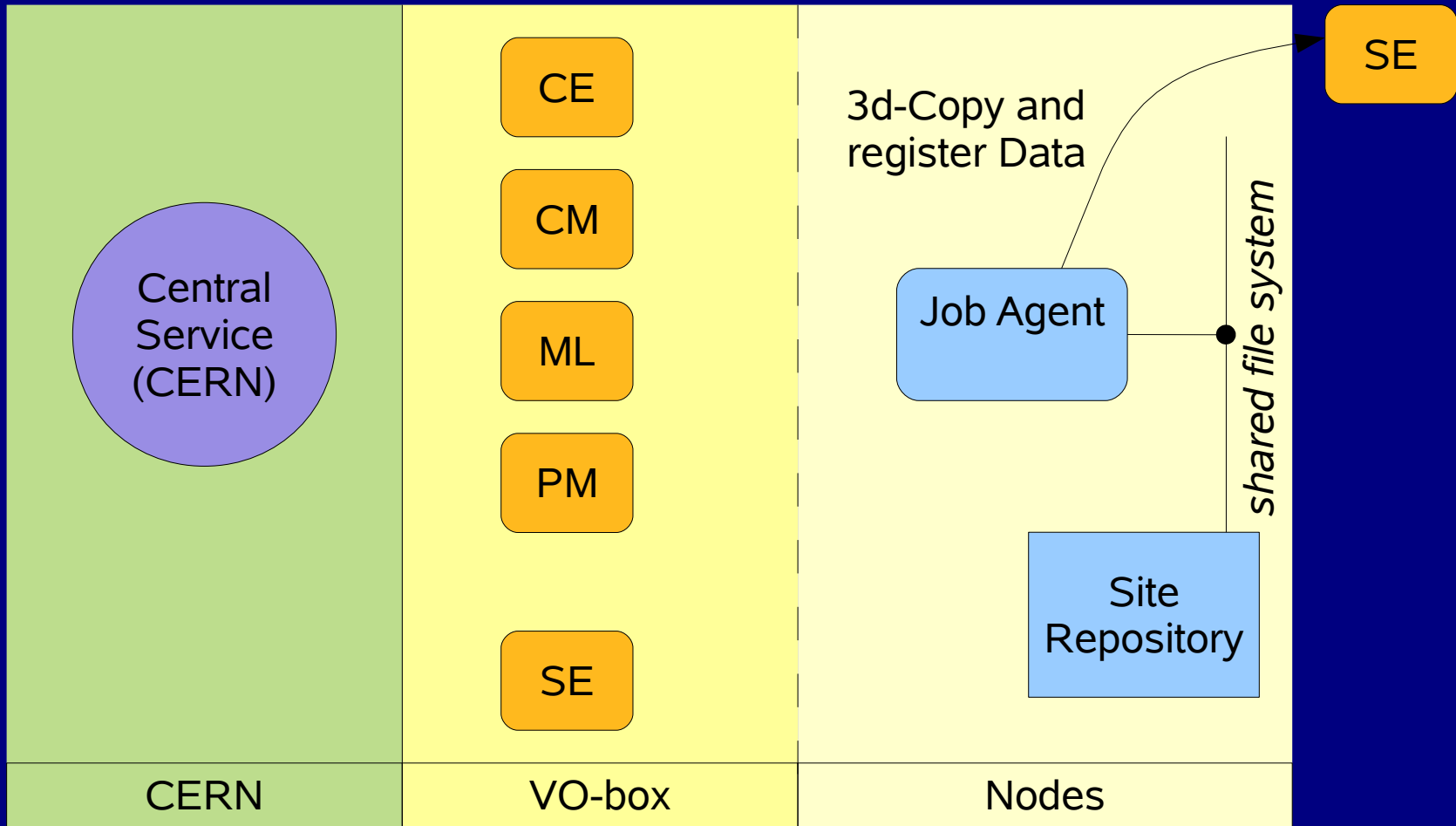
The user can monitor (spy) or kill the job





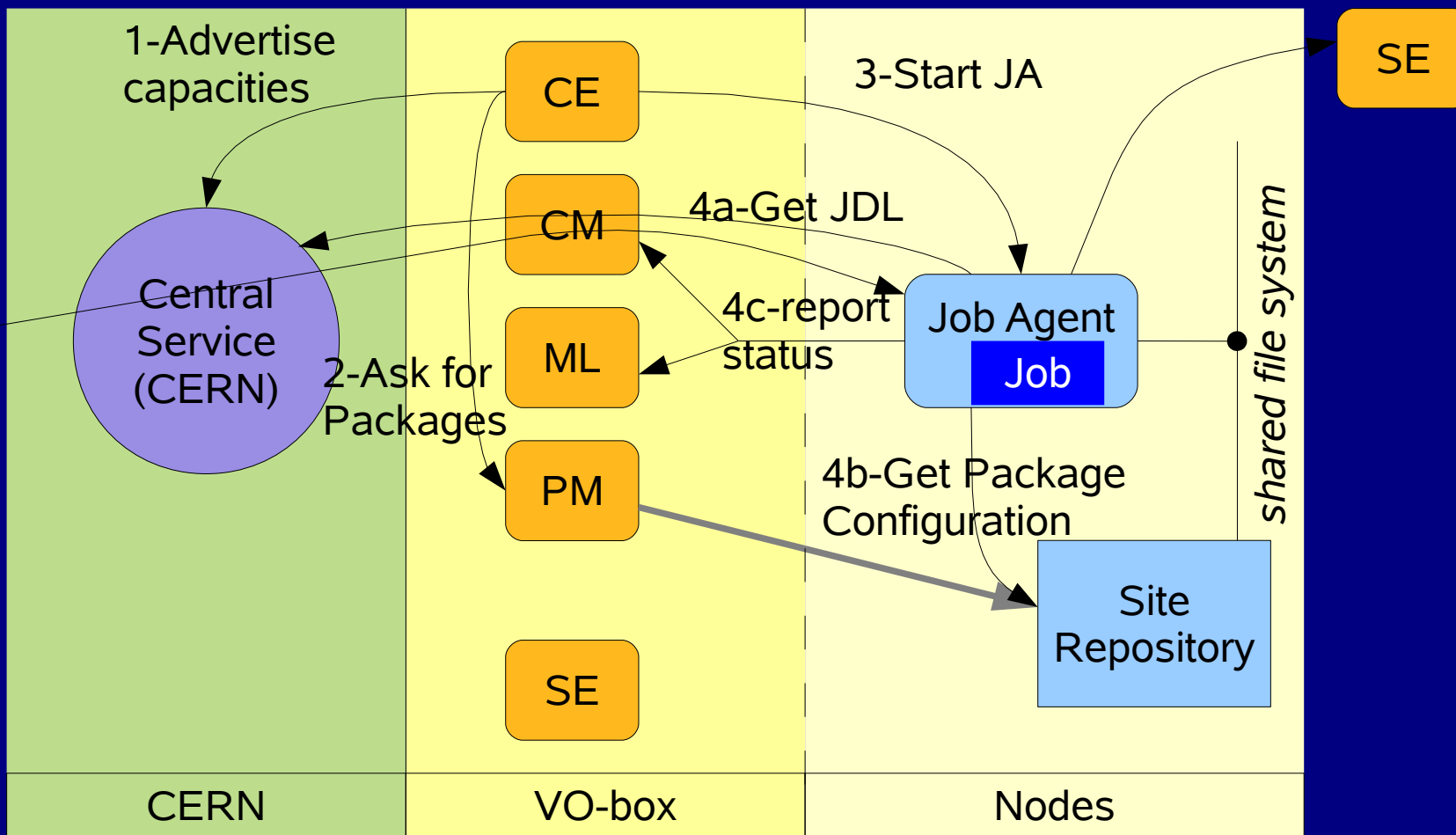
# AliEn Structure

3d – The Job is finished, the output is saved on the SE



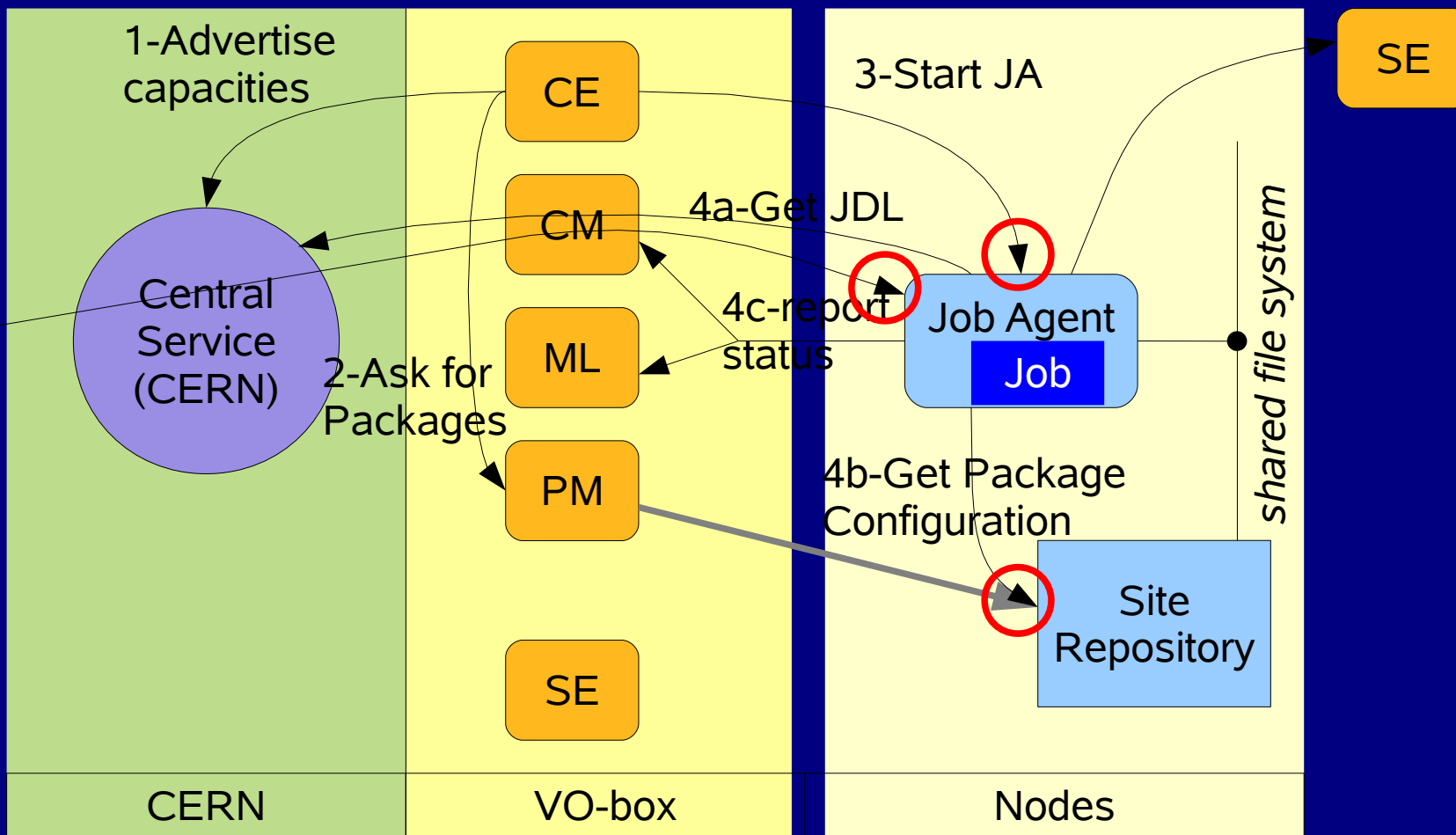


# AliEn Structure





# AliEn Structure







# Current Situation

- Test Bed in Lund
  - Minimum Central Services, VO-box + 2 ARC sites (SE to be improved)
- Submitting Job Agents with ARC:
  - Successful jobs, with output (no package)
  - Monitoring (read output files) via ARC
- Package Management
  - Work in progress...
  - Can Install Package with ARC job



# Job Submission and Monitoring

- Works like any other submission system
- Had to be solved: communication to the JA (through firewalls)
  - Job monitoring (spy): can be done with ARC (ngcat, ngcp)
  - Kill job => kill corresponding JA



# Package Management (Ideas)

- Install a package
  - Triggered by CE
  - Send an ARC job with special privileges
  - Run 'alien packman' locally on the WN
- Get a list of installed packages
  - Installation job creates an ARC runtime environment
  - VO-box can query the ARC information system



# Package Management: Potential issues

- Job Agent should never call PackMan
  - Risk of infinite loop
- What if one installation job fails?
  - Put RTE requirement in JA submission
  - Keep table of sites => missing package  
Retry to install next time there is an installation
- What if the installation fails
  - How do we make sure the installation is done properly? (How do we correct?)



# Conclusion

- Using ARC to create a distributed AliEn site seems doable
- Only issue: Package Management
  - A good error check is needed
  - Maybe solved by the “(b)right future of software installation”