

# Introduction of dynamic job matching optimization for Grid middleware using Site Sonar infrastructure monitoring



ALICE

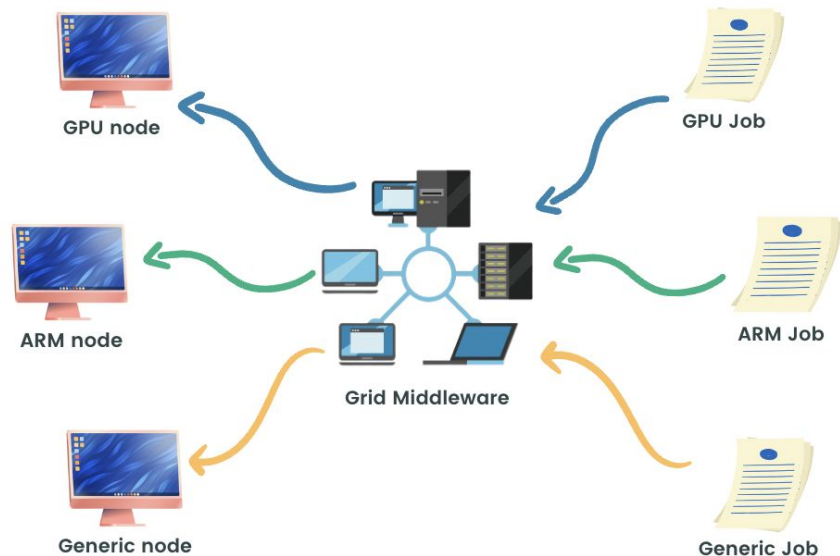
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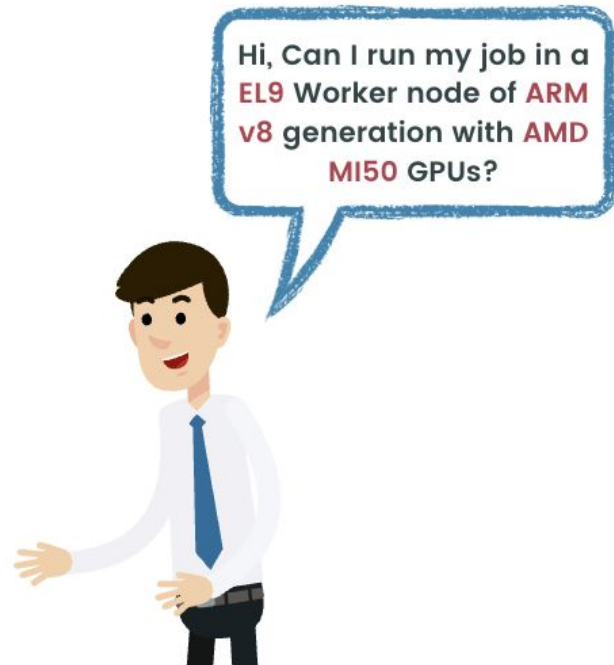
# What?

- Context : **Optimized job matching** in Grid middleware domain
- Currently, we can match jobs based on **few attributes** only
  - CPU Cores
  - Memory
  - Disk Space
- What if we need **more attributes**?
  - Specific GPU model
  - CPU Architecture
  - Software Versions
- We propose an enhanced approach to **match jobs** to the **most suitable worker** node



# Why?

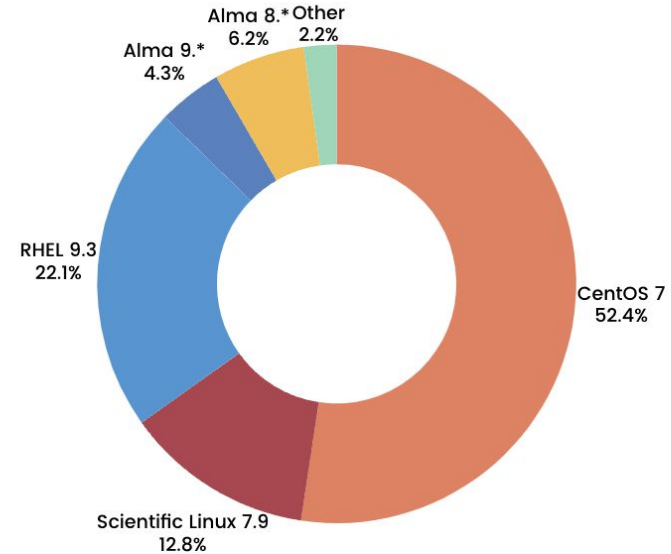
- User **requirements** are getting more **diverse**
  - Coprocessing on different nodes with GPUs - multiple talks on this
  - New workloads optimized for ARM (aarch64)
- Resources with **special infrastructures** are **limited**
  - Only a few Grid sites have GPUs (<10 in ALICE Grid)
  - Only few sites are ARM based etc. (only 1 in ALICE Grid)
- Available resources are **not optimally used**
  - Above sites **run all jobs** at the moment
  - Special infrastructure is **kept idle**



# How?

- Using **Site Sonar** - Infrastructure monitoring tool for ALICE Grid
- Can monitor **any infrastructure attribute** of any worker node in the Grid
- Provide **complete picture** of available infrastructure
  - Centrally stored and visualized with ELK

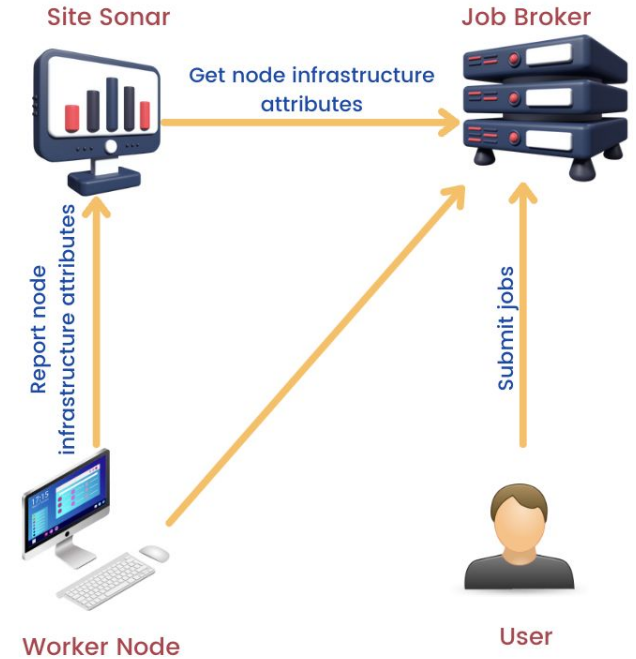
<b>220+</b> Parameters/node	<b>36</b> Probes	<b>11</b> Operating Systems	<b>118</b> CPU Models
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Operating system distribution of ALICE Computing Grid

# Result

- Site Sonar **integrated** into the ALICE Grid middleware JAliEn
- **Built-in monitoring** to node infrastructure
- Job matching possible based on **any infrastructure attribute** of the worker node
- **No code update** necessary for JAliEn for this





# Thank You

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