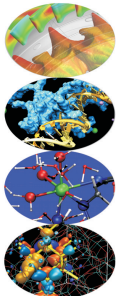# Programmazione Avanzata

Vittorio Ruggiero

(v.ruggiero@cineca.it)

Roma, Marzo 2017

GALILEO

▶ Access to login node of GALILEO cluster

```
ssh -X <user_name>@login.galileo.cineca.it
```

- ▶ Login nodes are reserved solely for the purpose of managing your files and submitting jobs to the batch system
- ▶ CPU time and memory usage are severely limited on the login nodes

```
Model: IBM NeXtScale
Architecture: Linux Infiniband Cluster
Processors Type: 2 8-cores Intel Haswell 2.40 GHz per node
Cores: 16 cores/node, 8256 cores in total
Accelerators: 2 Intel Phi 7120p per node on 384 nodes (768 in total);
              2 NVIDIA K80 per node on 40 nodes (80 in total)
RAM: 128 GB/node, 8 GB/core
OS: RedHat CentOS release 7.0
```

- ▶ The batch system allows users to submit jobs requesting the resources (nodes, processors, memory,etc ..) that they need.
- ▶ The jobs are queued and then run as resources become available
  - ▶ To access to compute node run the command

```
qsub -I -l select=1:ncpus=1:mem=2Gb,walltime=2:00:00 -A
<account_name> -q <queue_name> -W group_list= <group_name>
```

- ▸ A basic default environment is already set up by the system login configuration files, but it does not include the application environment.
- ▸ The applications need to be initialized for the current shell session by means of the module command
  - ▸ To show the available modules on the machine: `module av`
  - ▸ To show the modules currently loaded on the shell session: `module li`
  - ▸ To load a module, e.g: `module load gnu/4.9.2`
  - ▸ To unload a module, e.g: `module unload gnu/4.9.2`
  - ▸ To unload all the loaded modules, e.g: `module purge`

► How to copy a file from a local machine to a remote server?

▶ How to copy a file from a local machine to a remote server?

```
scp /file/to/send username@remote:/where/to/put
```

▶ How to copy a file from a a remote server to a local machine?

► How to copy a file from a local machine to a remote server?

```
scp /file/to/send username@remote:/where/to/put
```

► How to copy a file from a a remote server to a local machine?

```
scp username@remote:/file/to/send /where/to/put
```

► To get more ideas on this you can read

```
man scp
```