Session 2:
Workshop Environment

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FUN3D
Fully Unstructured Navier–Stokes

Workshop Environment

- Most sessions will be lecture-style PowerPoint
- Interactive sessions at your terminal
  - Participants will not be building/installing FUN3D at this time
  - All computing will be done on provided cluster
  - Participants will use pre-built FUN3D v11.1 executables on the cluster
  - Results will be brought back to participants' terminals for analysis/visualization using Tecplot
- All raw training material will be available on the FUN3D website after the workshop
  - Captured audio/video, WebEx, etc hopefully also available at a later date

Connecting to the Computing Resource

- Log into your terminal with the login ID and password provided
- `ssh` to `cypher-work14.larc.nasa.gov` – your login ID is the same on both machines, and key pairs have already been set up to avoid passwords:

  `'ssh cypher-work14.larc.nasa.gov'`

- Once you are on `cypher-work14`, this serves as the front end to the cluster we will be using
- Links to the pre-built FUN3D executables are located in your path:
  - `nodet_mpi`   (flow solver)
  - `dual_mpi`   (adjoint solver)
  - `opt_driver`   (design optimization driver)

Executing a Job on the Cluster

- The cluster we will be using is called `i16`
  - Consists of 275 dual-core nodes (total of 533 available cores)
  - Controlled by a PBS queuing system
  - Each participant may submit jobs using up to 24 cores (12 nodes/fully dense)
  - Runs for interactive sessions are designed to take no more than ~5 minutes on 24 cores
  - Please do not attempt to submit jobs to other queues on the system
- To see the current cluster availability/status, type '`qstat -a`'
- To submit a job, type '`qsub qinput`', where `qinput` is a PBS script which the instructors will provide on a case-by-case basis along with grids, input decks, etc.
- To remove a job from the queue (running or not), type '`qdel jobID`', where `jobID` is the job ID shown by `qstat`

Bringing Results Back for Visualization

- Use `scp` on your terminal to connect to `cypher-work14` and grab the file(s) you want:

  `'scp cypher-work14:~/path/to/filename .'`

- You can now locally run Tecplot on this file if desired:

  `'tecplot filename'`

Questions?