Some Odds and Ends About Computational Infrastructure

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Computing Infrastructures

- Local Laptop/Desktop – Short jobs with small data

- Local Cluster – Larger jobs and larger data but subject to availability

- HPC – Prime performance with parallelized code

- HTC – Sustained computing over a long period for serialized workflows

- Cloud – Need deeper permission on an OS and/or have deeper pockets

- HTC
  - EGI (formally European Grid Initiative)
  - OSG (Open Science Grid)
  - ASGI (Asia Pacific Grid Initiative)
  - NorduGrid
  - Earth System Grid (ESG)
  - Many other regional and national infrastructures

Some Examples of Academic CIs Worldwide

- HPC
  - XSEDE (eXtreme Science and Engineering Discovery Environment)
  - PRACE (Partnership for Advanced Computing in Europe)
  - Compute Canada
  - Greek Research and Technology Network (GRNET)
  - Centre for HPC (South Africa)
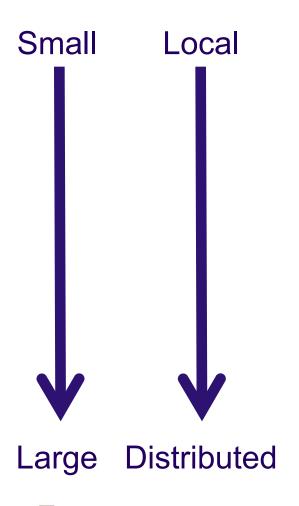 - Many other national infrastructures

- Cloud
  - EGI Federated Cloud
  - NeCTaR – National eResearch Collaboration Tools and Resources
  - Jetstream (Part of XSEDE)
  - SwissACC (Swiss Academic Computing Cloud)
  - Many other national cloud infrastructures

Let's take one step at a time

Small   Local

Large   Distributed

- Can you run one job on one computer?
- Can you run one job on another computer?
- Can you run 10 jobs on a set of computers?
- Can you run a multiple job workflow?
- How do we put this all together?

This is the path we'll take

What happens when you go home?

- DOSAR: Distributed Organization for Scientific and Academic Research http://www.dosar.org/

- You are welcome to join our bi--weekly video (Vidyo) meetings. Send request to be added to DOSAR email list to Prof. Greenwood: greenw@phys.latech.edu reference you attended the Data Science Summer School in Trieste

- If you want long--term grid access, you can request membership in the DOSAR VO

Questions?

- Questions? Comments?
  - Feel free to ask me questions now or later:

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    Exercises start here:

    https://twiki.grid.iu.edu/bin/view/Education/ASP2016/AfricaGridSchoolMaterials

    Presentations are also available from this URL.