Ramping up and down cloud services to save money

For some chemists (mostly theoretical chemists), they benefit from systems which are up 24x7. For researcher who don't have such persistent needs, they may be able to save enormous amounts using the cloud by paying only for the resources you actually use.If there are acceptable down times, bring things down and don't pay for the resources. There are lots of configurations you can play with to make sure that you have the resources ready when you need them. This includes configuring your system to spawn additional resources when utilization is high and taking resources away when utilization is low or completely shutting down all resources when the service is not being used. CIT has been using Docker to containerize applications, you can read about it here:

- https://www.docker.com/

CIT's experience with this service, "The big win is this allows us to easily and quickly build applications from the OS all the way up the stack. It also allows us to easily move containers or images to different cloud providers if that is of interest."

Some staff in CIT are familiar with the services in Amazon and how to save money by utilizing automation and services.

Related resources

HPC Trends from the Trenches 2016 Edition - Chris Dagdigian (1 hour)

Above video referenced two sites:

- http://www.bioteam.net/
- http://agaveapi.co/

Sample extract from the second web site:

- http://agaveapi.co/reproducible-science-with-agave-and-docker/

  Computational science is hard. Computational research is even harder. Duplicating computational results is next to impossible. Why is it so hard?

  a. *Research software is not shrink wrapped*
  b. *Scientific code is often not portable*
  c. *The details of the discovery are...details*
  d. *Sharing is hard*
  e. *Your peers don't have spare time either*