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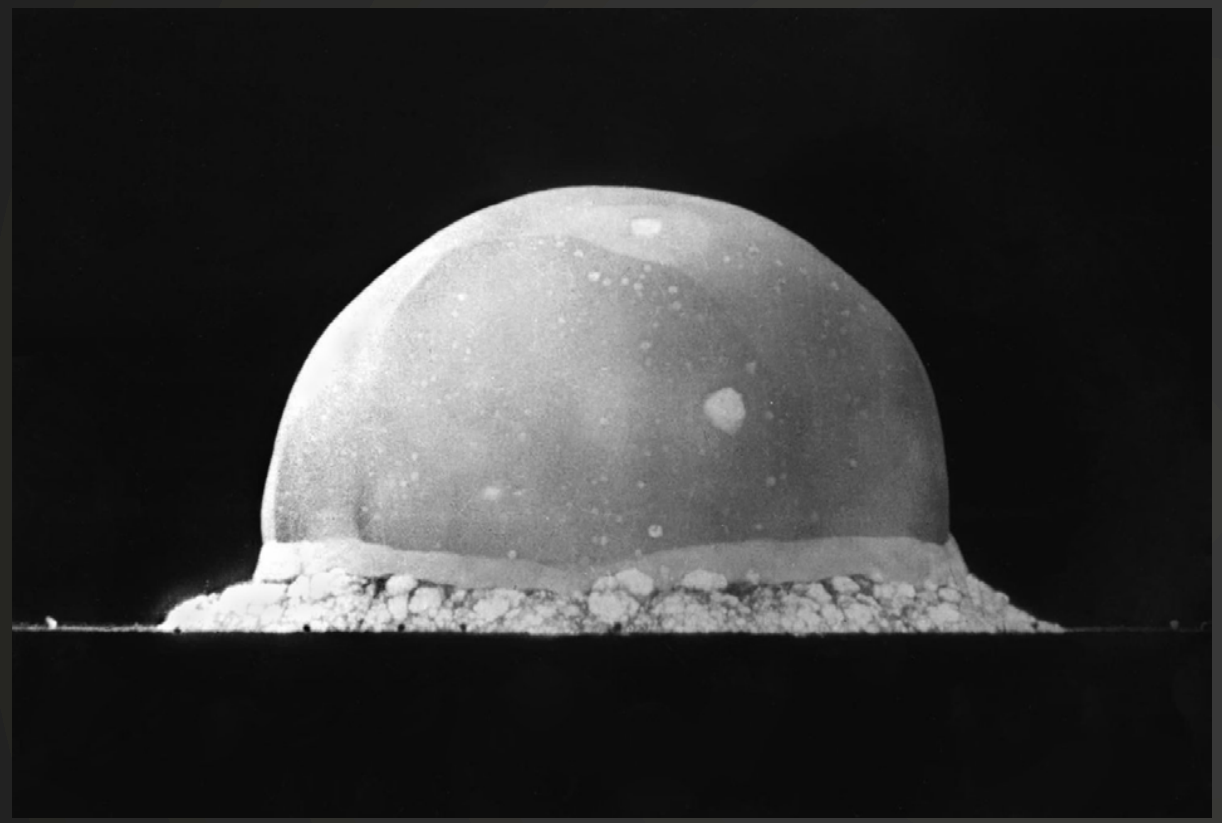

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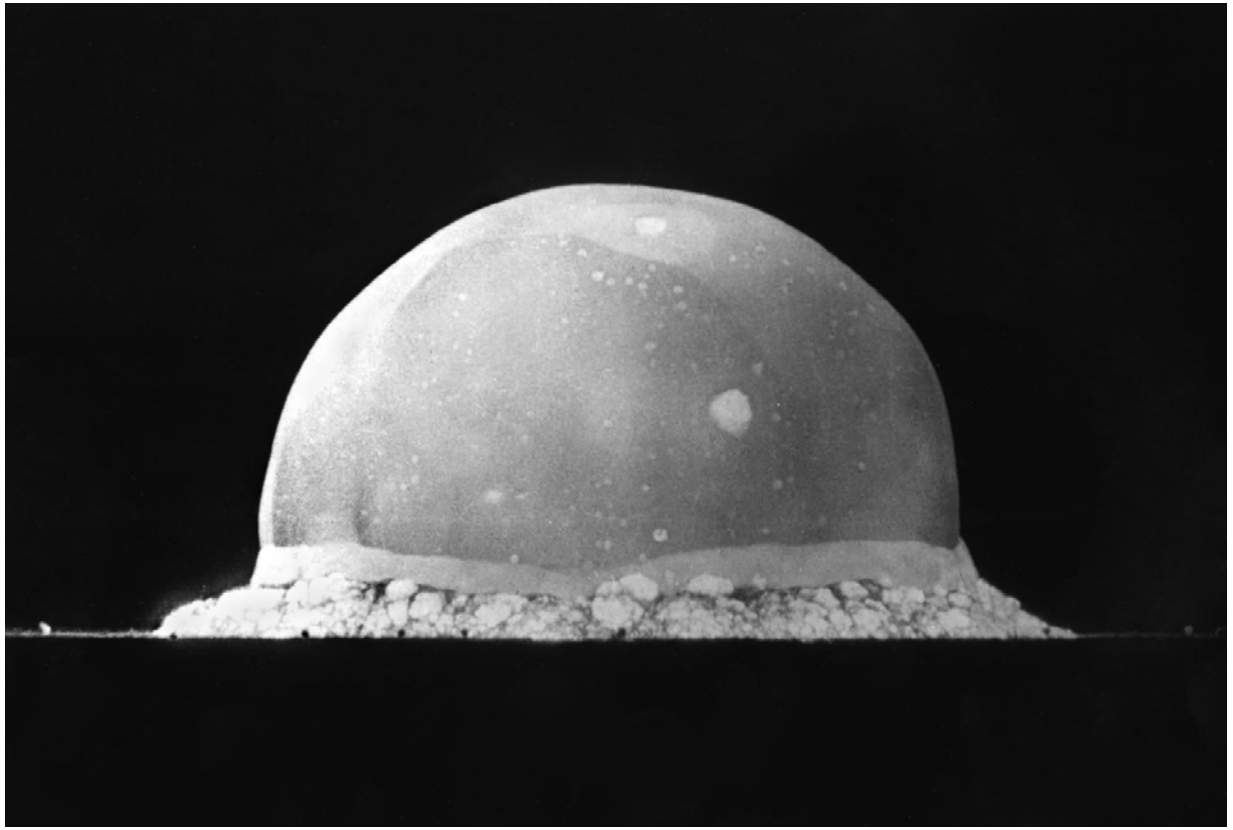
Delivering science and technology
to protect our nation
and promote world stability

HPC Tools

Presented by CSCNSI



The Steps

1. Working with pdsh
2. Powerman & Conman
3. Setting up Infiniband
4. Deploying Slurm
5. Program Environments with lmod

Goals

- Leverage HPC tools to achieve a more complete and usable cluster
- Gain access to *all* of our BMCs
  - And use some helpful tools to make them easier to use
- Get our Infiniband fully functional
- Deploy a Work Load Manager (WLM): Slurm
- See how we can keep our installed development environments organized with lmod

Step 1: Working with pdsh

- See how pdsh can simply the management of many machines
- Setup pdsh with libgenders to get even more functionality
- Use pdsh and ipmitool to grab the rest of our BMC MAC addresses
- Configure “dhcp-template.conf” to have all of our BMCs

Step 2: Powerman & Conman

- ipmitool is great, but it can be cumbersome to use
  - …especially with lots of nodes.
- Use Powerman to simplify power control through IPMI
- Use Conman to simplify serial-over-lan access to through IPMI

Step 3: Setting up Infiniband

- Install the Mellanox Infiniband OFED packages to enable Infiniband
- Start Infiniband services
  - Especially the Subnet Manager (opensm)
- Add Infiniband support to our node images
- Restart our nodes with the new Infiniband images
- Learn Infiniband diagnostic tools
- Learn a common workflow for updating node images

Step 4: Deploying Slurm

- Setup slurmctld on the master node
- Add slurmd to the node images
- Setup Slurm configuration
- Deploy Slurm across our cluster
- Learn how to interact with Slurm

Step 5: Program Environments with lmod

- Learn how we can organize our ”Program Environments” (PEs)
  - Compilers
  - Libraries
  - Tools
- Provide user-friendly support for different environments to our users
  - *and* ourselves.
- Get some helpful development tools installed on our cluster

Questions?