Maryland Advanced Research Computing Center

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Director
Big Data is like... Alchemy

- High Res. telescopes
- Satellites
- Social Networks
- Financial Markets
- Brain Science
- Predictive Computational Science
- Smart Networks
- Virtual Libraries
- Human genomics
- Large Scale Experiments
Opportunities

Innovation, Competition and Productivity
What’s being done

- WH 2012 200M R&D for big data
- NSF & NIH
- Gordon and Betty Moore Foundation
- States, e.g.: Mass
- Xsede (9/2/14)

- Many schools VIDA, DI²,
What’s Maryland doing?

Investment

HPC Ecosystem that supports computationally-intensive and data centric computing
Data center and big data
Science DMZ @ JHU

HoRNET
Model

- Approx 18,000 cores and 20 Petabytes storage
Hardware

- **648** regular compute nodes (128GB RAM, 2.5GHz Haswell, 24 cores)
- **50** Large RAM nodes (1 TB, 48 cores, 3.0GHz Ivy Bridge)
- **24** GPU nodes (48 Nvidia K40 GPUs, 24 cores, 2.5 GHz Haswell, —could be twice as many)
- **2 PB** Lustre storage (usable)
- **~14 PB** under zFS (usable)
- FDR-14 Infiniband 2:1 blocking
- \( R_{\text{peak}} = 771 \text{ TFLOPS}, \ R_{\text{max}} = \sim 617 \text{ TFLOPS} \)
Governance

• Governance Board (3 members JHU, 3 members UMCP)

• Scientific Management Committee (4 faculty members from JHU and UMCP).
  – Policies
  – Allocation models
  – Utilization
Timeline

• Data center: End of November
• Network install “mid December”
• Hardware deployment Dec 1 - Jan 2015
• Production system: March 1, 2015
Co-Location

- Priority
- Early Spring we will have better guidelines and policies
- Cluster/server hosting and management
- Cluster/server hosting
- Virtual servers
TODO

• Website
  • FAQs
  • Instruction on how to connect
  • Request accounts
  • Queueing system and queues

• Software & Application support

• Add Condos

• Documentation
Information

• combariza@jhu.edu

• Web site (soon) marcc.jhu.edu