Decommissioning Plan

Jenni Evans
Background

- Power Issues in the Computer Building/Data Center
  - New Data Center Power Usage Effectiveness ~1.17
  - National average for data centers =1.7

- EC Recommendation on Power

- Provost’s Response to EC

Excerpt from Provost’s Response

“I want to make sure that you are aware that the new ICS-ACI business model – and the new rates for Penn State researchers – incorporated considerable cost savings realized from the new ACI/Tower Road Data Center infrastructure compared to existing HPC systems. The savings were based on the modern ACI architectures adopted being more power-efficient as well as efficiencies in staffing while expanding ACI and associated services. These savings, however, can only be fully realized through phase out of existing compute resources to take maximum advantage of power savings and staff effort optimization.

Given the timeline for carrying out any expansions in the Tower Road Data Center beyond the 1.4 MW for research currently in process, it is imperative that in the interim all power, space and staff efficiencies be realized. I am aware that a number of existing HPC systems remain in the Computer Building, and until these legacy systems are removed from the Computer Building, no other timely option for power expansion for HPC is available. Furthermore, the new rates we have stretched to provide may not be sustainable without the infrastructure savings this decommissioning provides. As a result, I look forward to hearing that the older legacy systems have been appropriately disposed of (i.e., not at Penn State) and that the remaining viable systems have been ported over to ACI in the Tower Road Data Center. At that time, we can refurbish the Computer Building white space to allow for an additional 0.6MW of research HPC power to help us through this transition.”

- Provost Jones memo to RCCI EC – July 28, 2016
Process

✓ ICS CC Input
✓ RCCI HPC WG and Legacy Partner Input
✓ RCCI EC Recommendation
✓ Provost Response

- Implementation
  - Start Goal – October 2016
  - Completion – April 2017
Decommissioning Implementation Goals

- Lessen the impact to PI’s
  - Due to a variety of factors (age, purchase date), all legacy equipment is university property and must follow PSU guidelines for disposal (PSU Legal/Prop)
  - Ensure security compliance of all resources
  - Use decommissioned resources for public good (outside of Penn State per provost guidelines)
Lessening Impact on PIs

- Provide technical/consultative support to PI groups for transition to ICS-ACI – *(ACI Liaison)*
- Provide ~6 month notice on System Decommissioning
- Transition partners into an extended *Try-ACI* Service Level Agreement (SLA) with an equivalent amount of cores and storage for a defined period*

*Period is dependent upon the decommissioned system and PI’s agreement*
ACI Liaison

An ACI liaison will be assigned to each PI group for the purposes of:

- Onboarding
- Ease transition
- Help get group research active on new systems
ACI Liaison – Onboarding*

- Discuss PI group needs (SW stack, jobs submissions, usage) – understand differences in current workflow and ACI workflow
- Assist in the transition of codes to the new ACI
- Support group-specific software stack creation for software not centrally supported

*ICS will work with RCCI and HPC WG to bring on ACI Liaison’s to support the transition
ACI Liaison - Ongoing

- Review PI usage from the PI portal - Be proactive by understanding jobs and engage on issues and solutions

- Be a point-of-contact to the PI “when they have an issue that they just can’t get resolved through i-ASK center/others”

- Review the PI group’s tickets to understand the issues and QA resolutions - Be proactive in preventing future tickets through user development and better communications
Transition Strategy

- Decommission Legacy Infrastructure - as mandated by Provost Jones
  - Space, Power
  - Technical Support and Systems Administration
  - Software, Security

- Includes storage/network systems/aging HPC clusters
  - Not ALL HPC clusters
  - Repurposing of some system components that can be easily utilized in ICS-ACI (eg. network switches)
Transition Strategy (cont.)

- CyberSTAR, Lion-XF, -GA, -LSP, -xHershey, Anvil (HPC)
  - End-of-life Strategy - Decommission

- CyberSTAR, Group1, Group 2, BioSTAR (Storage)
  - End-of-life Strategy - Decommission

- Hammer, Lion-XG, Lion-XV (HPC)
  - Near End-of-life Strategy – Repurpose within ICS-ACI

- BioSTAR (HPC)
  - Near End-of-life Strategy – Working with Huck
HPC Transition Plan
(CyberSTAR, Lion-XF, -GA, -LSP, -xHershey, Anvil)

- Planned decommissioning in April 2017
  - Notification to be sent in late September / early October 2016

- Users may begin transitioning to the ICS-ACI OPEN queue in January 2017

- PI partner groups* may begin transitioning to an extended Try-ACI SLA** in January 2017

* Lion-XF partner groups are defined as those who paid into the systems. CyberSTAR partners groups are either NSF co-PI’s or PI’s with documented partnership status.

** Try-ACI SLA’s will provide equivalent ACI cores equal to existing allocation in Lion-XF/CyberSTAR for up to 4 months, but must end by August 2017. NOTE: As part of decommissioning, any documented agreement or commitment to a PI on any legacy infrastructure, will be accommodated as best as possible (e.g. start-up packages).
Storage Transition Plan
(CyberSTAR, Group 1, Group 2, BioSTAR)

- Planned decommissioning in April 2017
  - Notification sent in late September / early October 2016

- Non-storage-partner* and Storage partner** PI groups may begin transitioning to an extended Try-ACI SLA* in January 2017

- Files on the Legacy file systems to be migrated over by ICS staff ***

*Non-storage-partner will get Try-ACI SLA’s for equivalent TBs of ICS-ACI Active Storage equal to existing allocation for up to 12 months, but must end by April 2018.

** Storage-partner will get Try-ACI SLA’s for equivalent TBs of ICS-ACI Active Storage equal to existing allocation for the remainder of their agreement (up to 5 years from agreement start)

*** Scratch spaces will not be migrated over
HPC Transition Plan
(Hammer)

- Hammer HPC systems* will be placed into converged ICS-ACI architecture in March/April 2017 and become part of ACI-i
  - Notification sent in late September / early October 2016

- Users may begin transitioning to ACI-i in January 2017

- Credit Courses that rely on Hammer for teaching will be transitioned to ACI-i for Spring ‘17

*NOTE: Purchased as part of ACI
HPC Transition Plan
(Lion-XG, Lion-XV)

- HPC systems will be placed into converged ICS-ACI architecture in March/April 2017 and become part of ACI-b
  - Notification sent in late September / early October 2016

- Users may begin transitioning to the ICS-ACI OPEN queue in January 2017

- PI partner groups* will transition to a no-cost GReaT SLA** issued in April/May 2017

*Lion-XG,-XV partner groups are defined as those who paid into the systems

**GReaT SLA’s will provide equivalent ACI cores equal to existing allocation in Lion-XG,-XV for the remainder of their SLA (up to 5 years from agreement start)
HPC Transition Plan
(BioSTAR)

- BioSTAR HPC systems* will be placed into converged ICS-ACI architecture in March/April 2017 and become part of ACI-b
  - Notification sent in late September / early October 2016

- Details regarding transitioning and future decommissioning are being worked out with Huck leadership

*NOTE: Purchased by Huck
Plan for Reuse

Student Outreach Project

- Student teams will evaluate equipment/plan/repurpose
  - Engineering graduate design class, undergrad capstone class and independent study (cross-discipline, cross-degree level) project
  - Focus on unserved/underserved education and non-profit

- Student teams will develop implementation plan in Fall16
  - Repurposing advisors will be engaged

- Lion Surplus and student teams deploy in Spring17
Process

✓ ICS CC Input
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✓ RCCI EC Recommendation
✓ Provost Response

- Implementation
  - Start Goal – October 2016
  - Completion – April 2017
Information Available:

- **GReaT Model**: https://ics.psu.edu/advanced-cyberinfrastructure/access-models/great/
- **Try ACI**: https://ics.psu.edu/advanced-cyberinfrastructure/access-models/try-ics-aci/
- **Systems**: https://ics.psu.edu/advanced-cyberinfrastructure/ics-aci-infrastructure/lionx-systems/
- **Software List**: https://ics.psu.edu/advanced-cyberinfrastructure/support/software/
- **Software Policy**: https://ics.psu.edu/advanced-cyberinfrastructure/policies/user-policies-data/