XD Net Metrics Service (XMS)

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XSEDE Quarterly Meeting – March 2017
Outline

- XDMoD 6.5 Released Dec 2016
- Open XDMoD
- XDMoD Update
- XDMoD Users and Usage
- Associated Projects
- XMS Recommendations
XDMoD 6.5 Released

• Jobs Performance Realm
  – Added peak memory usage metric.
  – Improved application identification data.
  – Added support for machine learning-based classification of jobs.
  – Process improvements (Bluewaters EAGER)
  – Resource managers (Slurm, PBS, PBSpro, LSF)

• Job Viewer Updates
  – Ability to edit existing searches
  – Added export for time-series plots
  – Improvements to UI layout and organization.
XDMoD 6.5 Released

• XDMoD (XSEDE Version)
  – Resource allocation data automatically imported from XRAS
  – Updated RDR client to use new JSON API
  – OSG Jobs now reporting correctly
  – More flexible & scalable ETL process
  – Major code reorganization/cleanup
  – Many efforts underway to support community additions & scalability
Open XDMoD

• New project URL
  – http://open.xdmod.org/
• Now available on GitHub
  – https://github.com/ubccr/xdmod
• Community contributions welcome!
• Federated identity providers (beta)
  – OAuth, inCommon, Shibboleth, LDAP, Globus Auth
• 210+ downloads in 2017
• 74 confirmed installations/upgrades in 2017 (195 total)
  – Texas A&M, Georgia State, Yale
  – NCAR, NY Genome Center, NIH
  – Marvell Technology Group, Procter and Gamble (ASRC), Radix Trading LLC
  – England, Australia, Brazil, Germany, Spain
XDMoD 6.6 (April 2017)

- Prototype Scientific Impact Realm
- Prototype Federated XDMoD
  - View multiple resources/institutions through a single master
- Support for login via Globus Auth
- Optional XDMoD modules
  - Better support for community contributions
  - Compartmentalize development
  - Add metrics, realms, roles
- Continue to improve ETL process
  - Include Oracle query support
  - Ingestion speedups
XDMoD 6.6 (April 2017)

- Re-engineered data warehouse to support
  - Cloud jobs, Reservations, Intermediate reporting
  - Countable items (GPU/MIC, licenses, etc.)
- Eucalyptus log collection
- Define cloud data input format
  - Re-engaging with Jetstream team for cloud metrics
- Jobs Performance Realm
  - Incorporate additional process improvements from Blue Waters Workload Analysis EAGER
  - Support for indexing archive directory hierarchies
  - Support for per-node CPU and memory metrics
  - Support for load average metrics
XDMoD Plans

• July 2017 (XDMoD 7.0)
  – Migrate XDMoD to new DW structure
  – Automatic detection of bad jobs, user report card (SUPReMM)
  – Local site storage metrics prototype
  – XDMoD-VA beta (Grants, Financial data, ROI)
  – Cloud metrics prototype (Eucalyptus)
  – Define cloud metrics with Wrangler, Jetstream, Bridges teams

• November 2017 (XDMoD 7.5)
  – Cloud metrics prototype (XSEDE)
  – Federated XDMoD
  – Report Generator enhancements
    • Email delegates, additional report templates
  – XDMoD Value Analytics
  – Job Performance Data for Bridges?
XDMoD Usage

• 333 XDMoD Users (2017)
  – Unauthenticated
    • 924 charts loaded, 214 drilldowns
  – 2 Program Officers, 8 Center Directors/Staff, 2
    Campus Champions, 9 Users/Pis

• 2360 XDMoD Users (2016)
  – Unauthenticated
    • 6900 charts loaded, 993 drilldowns
  – 10 Program Officers, 14 Center Directors/Staff, 9
    Campus Champions, 36 Users/Pis
XDMoD Usage

- Popular Metrics
  - Total SU
  - Total CPU Hours
  - Job Count
  - Avg Processors
  - Wallduration

- Implementing detailed usage metrics late 2017
  - Metrics viewed/exported
  - Custom charts created/exported
  - Most popular metrics
  - Reports sent
Aristotle Cloud Federation

- Cornell (Lead), SUNY-Buffalo, UC Santa Barbara
- NSF ACI-1541215
- Goals
  - Federated cloud model
  - Share resources between institutions
  - Transparent instance movement between institutions
  - Cross-institution allocations
  - Burst to AWS during peak usage
- XDMoD
  - XDMoD will provide metrics collection and reporting
  - Developing log collectors for cloud data
  - Develop cloud accounting and performance metrics
  - Test federated XDMoD capability
XDMoD Roadmap

Located below is the XDMoD Development roadmap, organized by XDMoD release and powered by Trello.com. To view the full roadmap as well as vote and comment on features, click any one of the elements on the roadmap. This will take you to the full roadmap on the Trello.com site in a new browser window (or tab). All users will be able to view the roadmap, however if you wish to vote or comment on a feature you will need to create a (free) Trello account if you do not already have one.

Request new features

User community can vote

Comments welcome
**XMS Recommendations**

- Discuss inclusion of cloud data in XDCDB
  - What data should be stored?
  - Jetstream beta will help develop plan
- Implement Bridges Job Performance data
  - Have had initial discussions with Bridges team
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