# **Developer Meetings**

- o April 2019
  - April 12th 2019
  - o March 2019
    - March 29th 2019
    - March 1st 2019
  - o February 2019
    - February 22nd 2019
    - February 1st 2019
  - o January 2019
    - January 25th 2019
    - January 18th 2019
  - O December 2018
    - December 13rd, 2018
  - O November 2018
    - Nov 29th, 2018
    - Nov 1st, 2018
  - October 2018
    - Oct 12th, 2018
    - Oct 5th, 2018
  - o September 2018
    - September 28th, 2018
    - September 21st, 2018
  - O August 2018
    - August 24th, 2018
    - August 17th, 2018
    - August 3, 2018
  - o July 2018
    - July 27th, 2018
  - o June 2018
    - June 29th, 2018
    - June 22nd, 2018
    - June 8th, 2018
  - o May 2018
    - May 4th, 2018
  - April 2018
    - April 6th, 2018
  - o March 2018
    - March 30th, 2018
    - March 16th, 2018
  - o February 2018
    - February 23th, 2018
    - February 9th, 2018
  - o January 2018
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    - March 3rd, 2016
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      - February 10th, 2016
    - February 3rd, 2016
  - O January 2017
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- O September 2016
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# **April** 2019

## April 12th 2019

- Site Catalog Conversion to YAML
  - mukund is mainly done
  - pushed out his changes
  - trying to make the tests green
- Checkpointing changes to accomodate LIGO use of vanilla universe
  - Karan and Mats will explore and see if it is possible
  - cumulative stdout|stderr
    - what about time and duration values
    - since there is no DAG Node retry and job just goes on HELD state
- o Composite Events
  - Kibana dashboard needs to be updated
  - dropping \_\_ in the event names
  - George wants the AMQP library updated
    - Will create a JIRA item
- o Office Hours video
  - Karan will work Jasmine to upload the video
- Papers
  - RACE Paper submitted last week
  - PEARC Paper this week
- Proposals
  - o Army Research
    - enabling in-situ supports for ExaScale
    - linked with what Tu is doing
  - o SCEC Proposal Submitted
    - have a good chance
  - Exascale one with Michigan
    - ascale one with Michigan
    - the call will come out soon
  - o Ewa, Rafael and Deborah
    - NSF GCR Proposal
    - Modelling wild fires
    - Has PRICE school input and also Deborah Post DOC
- EScience
  - o Pegasus Tutorial Proposal
  - May 6, 2019: Tutorial Proposal Deadline
  - Also trying for the workflow comparison paper
  - Dynamo paper by George
- Pegasus connect discussion
  - tabled it for later when Mats is around
- HTCondor Week
  - $^{\circ}\;$  Karan will be doing a Pegasus talk and Pegasus workshop
- Pegasus OLCF Poster
  - o combine the panda poster
  - can also submit to EScience
- Ryan's work
- Loic is moving pachyderm setup to AWS
- Loic Rafael and Tu are working on a paper for Cluster
- Software X

## March 2019

#### March 29th 2019

- 4.9.1 Release
  - done and working on 4.9.2
- Site Catalog Conversion to YAML
  - o mukund working on it
  - o i still need to look at the bamboo tests
    - bamboo faling on mount scratch thing that condor thing
    - we have to fix in pegasus also, to fail on credentials in /tmp
    - we have to fix in pegasus also, to fail on cledentials in /tmp
       check and do condor\_config\_val on the key and check if /tmp is in there
    - mainly affects all the users that use x509
    - LIGO has also tripped over it . Both with Pegasus and without Pegasus
- Condor vanilla checkpointing
  - karan asked him about what he is trying to do
- composite events
  - o check for keys with same values
  - o also do we need to pad extra keys for all events?
- Extensions to Jupyter Integration
- Pegasus Connect
  - o will discuss on whiteboard on April 12th

- 4.9.1 Release
  - o moving it to early next week
  - Pending Issues
    - https://jira.isi.edu/projects/PM/versions/11891
    - Execution environment for titan
    - service dependencies
      - PyOpen SSL
        - Rajiv Mayani please look at that and the flask dependencies
  - HPSS transfer client incorporation
    - Set the transfers to do remotely
- Office Hours
  - On Friday March 22nd on real time monitoring
- transformation catalog for 5.0
  - Mukund will work on it next
- EScience?
  - Paper
- pegasus-exitcode test
  - success message not parsed correctly
- Programmer
  - o will interview the

## February 2019

## February 22nd 2019

- 4.9.1 Release
  - o Pending Issues
    - https://jira.isi.edu/projects/PM/versions/11891
      - This raises the larger issue of how long we want to support externals packages

there are some packages we need to ship because of worker packages dependencies.

Consensus:

We remove mysql python externals package for 4.9.1 and 5.0.0

And also remove the dependencies from our deb and RPM builds.

- Transfers within containers
  - We are only going to transfer from within the container till people complain
  - George Papadimitriou will add to the documentation.
- non ascii encoding in the stdout
- Support HPSS storage
  - The tools we use are htar and hsi

https://docs.nersc.gov/filesystems/archive/

- Office Hours
  - $^{\circ}\,$  George on real time monitoring.
    - Date?
- EScience?
  - Paper
  - Tutorial submission

## February 1st 2019

- 4.9.1 Release
  - o ascii encoding breaks while parsing for monitoring events. monitors should have the population working and have log a warning error.
    - but we should ensure that stdout in database still gets populated
    - Karan will fix this
- New TC Format
- Shifter Support in Pegasus
  - o is in 4.9 branch
- · Pegasus Annual Report
  - o will be working on it in coming weeks
  - o will ask for input
  - $^{\circ}\;$  next year report will be tricky . in terms of effort allocation.

## January 2019

## January 25th 2019

- 4.9.1 Release
  - o ascii encoding breaks while parsing for monitoring events. monitors should have the population working and have log a warning error.
    - but we should ensure that stdout in database still gets populated

- · YAML format for the TC
  - o the line numbers should be mentioned in the errors
- GitHub commits don't trigger bamboo builds right now
  - o move to webhooks?
  - o slack token in bamboo.yml .
    - mats will look into it further
- SCEC for HPC Transfer certificate issue
  - Globus online certificates messed up hpc-transfer issue.
- Data Storage at NERSC
  - o almost full
- · Singularity container with the entry point.
  - o docker singularity container conversion does not add the entry point.

## January 18th 2019

- 4.9.1
- o container execution
  - data transfers happen within the container
  - python3 issue
  - vague rules to discover what python to use
- Singularity HUb URL's updated
  - Documentation and tutorials need to be updated
  - montage examples
  - python stuff: create JIRA item
- LIGO pull requests
  - Build pull request
  - PAM module
  - subprocess package thing
  - also related to Python3 movement
- Transformation Catalog Implementation
- Astro Py
- Shifter support at NERSC
- Panda Integration
- CENON NT
  - o Rusio data pull in
  - o fetching data might be easier
- Journal Paper
  - o need to write something about containers

## December 2018

## December 13rd, 2018

- Pegasus 4.9.1 release
  - local site catalog entry creation
    - based on the pegasus version on the submit host
  - $^{\circ}$   $\,$  encoding issue in the stdout.
- Pegasus 5.0 Release
  - o TC yaml implementation
    - mukund will create a yaml schema compatible with the TC
  - o backwards compatibly
    - case by case basis
    - definitely for
      - catalogs
      - dax
      - pegasus-transfer
- SWIP Paper
  - we are in good shape
- Titan
- under the PBS batch gahp.ZTF
  - the pipeline is based on docker-compose
     peter will visit ISI with postdoc Danny in January
- Tutorial at TACC
  - karan has updated pegasus-init to work on wrangler
  - will update the tutorial notes accordingly
- OLCF accounts
  - o make sure they work
  - o get karan and mats can login

## November 2018

#### Nov 29th, 2018

- Ryan
  - $^{\circ}$   $\,$  working on comparison paper with george on workflow systems
  - o mats, karan shared neon meeting notes with Ryan
- Pegasus 4.9.1 release
  - O Due for december end
  - o potential issue in monitord in reference to hierarchal organization of submit directories
  - o pegasus-submitdir
- ADASS Paper
  - due tomorrow
  - o need to add information about sample run
- SWIP paper
  - mats and karan will work on it tomorrow afternoon.
  - o cull out sections
  - o add information about updated monitoring in 4.9
- OLCF Kubernetes
  - o Condor is installed and configured as root
  - George tried condor log directory to lustre as condor in container has to run as user not as root
  - LOG\_DIR should be /tmp
  - o volumes can be attached to container to contain workflows etc
- Dynamo
  - Do dynamic scheduling
  - George thinking of using flocking
  - similar to what is done in OSG
  - o non-sharedfs deployments should work

#### Nov 1st, 2018

- Pegasus 4.9.0 and 4.8.5 Released
  - O We released it this week.
- Pegasus Business Card
  - Advocate for job postings.
    - Postdoc options
    - Programmers
    - pegasus.isi.edu/jobs
  - O We should take to conferences with us
- Pegasus JAVA 8 dependence in RPM
  - o there is a disconnect between RPM and common.sh ADASS
- - o Karan working on a wlpipe demo example
- New Student
  - Mukund
- Duncan started using 4.9.0 and has updated pyCBC to use singularity
  - o changed our container execution model
  - o all transfers done within the container now.

## October 2018

### Oct 12th, 2018

- · Rescheduling meetings
  - New time is Thursdays 2PM starting from last week of October
- DAX APi reporting
  - o Perl DAX API Rajiv
- Atlas visit
  - O Wednesday we have Scientific Computing Seminar
    - Will involve writing a Pegasus code generator
    - Panda is second biggest after Condor on OSG
  - Thursday
    - Karan and George will be there.
    - Mats might be available remotely
- 4.9.0 Release
  - Mats preference is to skip the beta tag
  - Aim for the full release
  - Documentation freeze on Oct 26th
  - Try and do the builds over the weekend
- · Duncan container usecase
  - o cvmfs hosted container images
- Demo repository
  - o panorama data and some runs from exogeni / nersc
  - Mats has two new elastic search VM's and are part of Elastic Search cluster
  - o these vm's data is backed up also

#### Oct 5th, 2018

- · Rescheduling meetings
  - Either Tuesday or Thursdays
    - Karan will circulate a doodle poll

## September 2018

#### September 28th, 2018

- · Rescheduling meetings
  - Either Tuesday or Thursdays
    - Karan will circulate a doodle poll
- Pegasus 4.9.0 Release
  - o transformation selection issue
    - karan has not been able to recreate it yet.
    - will look into it more today
  - o docker singularity pulls
  - o container symlink
  - o deprecate api's
    - modify DAX generators to indicate version/ DAX API used.
    - will look into ways on how to do it
      - one way is workflow metadata attributes
      - second is attribute to ADAG object.
    - rajiv will check how it gets stored in the metrics server
- ADASS
  - $^{\circ}$  will try and do a poster with Mike at ADASS
  - o deadline is Oct 8th

## September 21st, 2018

- Rescheduling meetings
  - Either Tuesday or Thursdays
- Pegasus 4.9 release
  - o integrity error reporting
    - pegasus-statistics reporting information about integrity errors
    - the unicorn dashboard for internal swip purposes
      - errors are appearing in the stream
      - more brainstorming required, the data is there
      - not clear whether to use grafana or kibana
         does not have drill down functionalit
        - does not have drill down functionality
           mix of production and test workflows
        - o create different queues in AMQP exchanges
  - o container mount point support
    - karan is close to have that being implemented
  - o transferring outputs to multiple location
    - lets say one for portal and the other for
    - list of output sites
    - good feature to add for 4.9.1
    - update --output-site option to pegasus-plan
  - o pull docker images for singularity runs
    - we should do for 4.9.0
    - planner needs to tell pegasus-transfer an extra attribute.
      - add a type attribute
  - Papers
    - Github private papers repo
  - o Deprecate stuff
    - perl api
    - old catalog formats
      - pegasus-plots
  - o Hiring
    - https://docs.google.com/document/d/183dkYBZ6Cpp6aYDB5MGW8Dj1DbzR11UnLPYdW7IuZlA/edit

## August 2018

## August 24th, 2018

- Pegasus 4.8.4 Release
  - o when are we releasing?
    - next week before mats go on vacation
- · error tagging

- o update stampede schema to add a table called tags
- o will allow us to capture number of integrity errors

### August 17th, 2018

- Pegasus 4.8.4 Release
  - ° RPM fix ?
  - o mats will manually verify
  - Karan should follow up with Stuart
- AMQP filtering
  - o we are working on having filtering in built into monitord
  - o nepomunk already has 33 errors identified
  - we need to db connection, pegasus-db-admin and other tools to pass properties with pegasus property prefix stripped off
- SWIP Paper
  - one reject seems to be harsh
  - we can try for HPDC also

## August 3, 2018

- Pegasus 4.8.3 Release
  - o singularity fix
    - https://pegasus.isi.edu/tutorial/isi/index.php
  - o mats talked to adam at nebraska about containers.
  - the main doc book will not be updated for 4.9
- SLURM
  - $^{\circ}~$  Design Safe / TACC on Wrangler headnode
  - Nextflow has integration with SLURM and everything can be installed in user space
- PMC unit tests are broken
  - o lets fix the tests
- · Pegasus 4.9 release
  - o more real life runs
  - o nepomunk against ceph-s3 from one of uchicago machines
  - we need to get stats reported for integrity errors
    - larger issue of error classification
- ADASS Tutorial
  - o we got into second round
    - add on exercise to run montage in the end.
- LIGO
  - Bruce group at AEI Hannover has left LSC
- Infrastructure
  - HipChat mess
    - should we move to ISI Slack
  - o Public Chat feature
    - Some clients for Hipchat
  - Get a free channel from Slack
    - for all Hipchat rooms
    - what about ISI slack??
      Sithub removal of old integrations
  - Github removal of old integrations
    - moving email notifications . Rafael Ferreira Da Silva will take care of it
  - we need to explore
- MINT Meeting
  - went well overall
  - o issue of scoping .

## July 2018

### July 27th, 2018

- Pegasus 4.8.3 Release
  - VM Tutorial
    - will update pegasus-init requirements to get it working
    - main tutorial chapter will be updated for 4.9
      - because then tutorial based container may not work
  - $\,^{\circ}\,\,$  change how docker scripts set environment
  - SCEC database loading error
- Failing Tests
  - Issue in updates to the dashboard database
- Panorama Paper
  - o agreed on a re-organization

### June 29th, 2018

- Pegasus
  - 4.8.3 needs to be released because of singularity launching options
    - will wait till tutorial is updated.
    - karan will update pegasus-init with population modeling or povray option
  - 0 4.9
- pegasus-statistics updated with integrity metrics
- how to flag job errors because of integrity
  - need to figure out logic
  - value add proposition
  - maybe we should value type in the pegasus lite
- need to implement the integrity dial
- O Start creating default local site entries to execute without local site
- ADASS Tutorial
  - Will submit today
  - Google doc shared

#### June 22nd, 2018

- Pegasus
  - SWIP paper submitted to escience
  - 4.8 montage tests failing
  - o changes for integrity metrics in pegasus-transfer
  - o updated monitord to parse events from various sources like pegasus lite output
  - mats pointed out to a bug in monitord
- LIGO
- o pip for python source package
  - update dependencies for latest packages, like pyopen ssl
  - install in the pip repository
- o pegasus-analyzer
- interested in swip and containers.
- SCEC CSEP
  - o will use containers
  - o run on Comet
- · 1000 genome workflow or use chimerica workflow
- ADASS Tutorial
  - o montage?
  - o probably pycbc is also submitting a proposal

#### June 8th, 2018

- Scott Replica Catalog issue
  - Replica Catalog deletes take a long time
- Bamboo
  - bamboo emails are no longer received. so we dont come to know about workflow plan failures
- SWIP
  - $^{\circ}$  monitord integrity changes. population of data from ks records working now.
  - $^{\circ}\,$  we still need to populate data from pegasus lite records and pegasus-transfer
  - o pegasus-statisites need to be updated
  - 0.1% overhead on production osg gem workflow
- Pegasus deployment at ORNL
  - o we should be doing it similar to hpc-pegasus
- Pegasus Office Hours
  - o next one in August
  - travels in July

# May 2018

### May 4th, 2018

- Pegasus 4.8.2 Release done on May 3rd
- we should consider separate user data to a separate file on pegasus-wms
- si2 meeting updates
  - o some potential new users
  - ewa slides were a good overview summary
  - o integrity data schema changes.
  - monitord changes need thinking

#### April 6th, 2018

- Pegasus 4.8.2 Release
  - o PMC bugs
  - o tutorial for usc hpc
  - $^{\circ}$  no longer allow + or . in the names
- Pegasus Report
  - Submitted for Ewa' review
- SWIP test run
  - o discovered integrity errors in the wild
  - o at colorado and university of nebraska
    - we would have not caught it before
  - o e-science paper

## March 2018

#### March 30th, 2018

- SWIP
  - o pegasus-run issue, with wf restarting from scratch
    - because dagman rescue file is not there.
    - so should we update pegasus-run to look at the dagman.out file
      - so far we think it should be kept consistent with normal dagman behavior
      - to de discussed at condor week
  - o mats created a Jira item for swip related statistics
    - https://jira.isi.edu/browse/PM-1260
    - will involve a database schema.
  - o Things remaining
    - Dials to be implemented
    - stampede changes
    - pegasus-transfer changes???
- SC Tutorial Submission (April 16th)
  - https://sc18.supercomputing.org/submit/tutorials-submissions/
  - We should try and add exercises for containers
  - We will try for half day
    - 45 minute introduction
  - Feedback from Arizona Container Camp
    - There is interest.
  - o coming up with an existing application that people understand or can relate to
    - montage complex dax generator
    - rosetta
    - only works in nonsharedfs stuff
      - with
    - machine learning example?
      - with tensor flow?
      - requires container
    - NVIDIA has a lot of examples about machine learning
      - has to be multistep
      - and at least bag of tasks
    - Ashwin is doing some tensor flow stuff
      - on workflow.isi.edu
      - is working out of jupyter notebook
    - Genome sequencing workflows??
      - use Broad GATK sequencing workflow to use
      - SOYKB and IRRI use GATK
      - and are huge communities
      - http://biocontainers.pro/docs/101/running-example/
- Pegasus Report
  - o we should be resolve Jira items as we fix them
  - $^{\circ}$   $\,$  will be also doing cumulative statistics
- Pegasus Office Hours
  - Jupyter Notebooks
  - o will update the example to use namd example used for Oakridge
- Panorama Stuff
  - our multiplexing part in monitord done so far
    - however we are relying on amqp queues and routing keys for filtering
  - o darshan data population
    - we need to invoke a script (pegasus-darshan) that will be invoked in the namd wrapper script, to pull the data from darshan logs on the file system and generate an ASCII output
  - Panorama.isi.edu VM
    - AMQP
    - Logstash
    - Kibana
    - Elastic Search
      - Make it do a backup every so often.

- Warns against doing it as a permanent datastore
- Rajiv will verify
- Influx
- o Backups
  - CRASH PLAN backup for the /srv and /opt in the panorama VM
- LIGO Database locked issues
  - o we need to look into the locking issues by tinkering with monitord flush intervals

#### March 16th, 2018

- SWIP
  - o Most of the SWIP stuff is done as far as planner changes and getting the workflows running
  - o we are in a position to share something
  - $\circ$  To do
- sharedfs
- Dial implementation
- Update monitoring
- Paper submission for EScience
- Pegasus Reports
  - o new applications to attribute to pegasus grants
  - o all the mike wangs work will go here
  - o SCEC
  - o LIGO need to ping Duncan
- Panorama/ Pegasus workflow endpoints
  - We seems to be going towards AMQP
    - How is AMQP going to be configured
    - So far we have
      - amqp://[USERNAME:PASSWORD@]amqp.isi.edu[:port]/<exchange\_name> Online monitoring in kickstart
        - o amqp://[USERNAME:PASSWORD@]amqp.isi.edu[:port]/<virtualhost>/<exchange\_name>
    - Virtual Hosts
      - right now virtual host is hardcoded in monitord code. we set it to pegasus
      - global across workflows
    - Exchanges
      - should be global across workflows
      - type direct in panorama
      - we want them to be type -> topic instead
    - Queue
       in panorama different queues for each workflows
    - Routing Keys
      - the routing key should be based on stampede event names
    - Events populated
      - https://pegasus.isi.edu/documentation/stampede\_wf\_events.php
      - We should add periodic events about states of workflows
      - SWIP integrity error events will be populated by clients

## February 2018

#### February 23th, 2018

Eliminate support for Py2.6?

Python Dependencies

All - future

pegasus-service-Flask, SQLAlchemy, Flask-SQLAlchemy, Flask-Cache, pam, plex, pyOpenSSL, ordereddict

pegasus-monitord - SQLAlchemy

pegasus-analyzer - SQLAlchemy

pegasus-s3 - boto

pegasus-globus-\* - globus-sdk

pegasus-init - jinja2

pegasus-metadata - argparse

pegasus-em - requests

PostgreSQL - psycopg2

MySQL - MySQL-Python OR mysqlclient

Note: Packages in green are available from yum.

#### February 9th, 2018

- SWIP
  - o checksum computation will be implemented in pegasus-transfer.
    - allows us to handle the case where the input files don't have checksums in the RC
  - o integrity checks are disabled now for files that dont have checksums in the RC
  - dial knob
- Tests
  - o seem to be slow
  - o bamboo could be moved to the new server
  - o storage constraint test
- Lizard FS
  - Mats will give an update next time around
- Servers
  - Trying to do two server
  - IF we buy one server
    - Buy a storage server. That is Mats preference.
    - SoyKB workflow has
  - o Compute
    - we will get a compute server first.
  - We should figure out the server and put in the request soon, and done by Feb end
- LSST
  - o Tom Glanzman?
  - We will touch base on Monday with Tom and Nersc folks
- Office Hours today
  - o have a presentation on containers
  - o will upload on the website

## January 2018

### January 12nd, 2018

- AWS Batch
  - seems to be running in karan's account.
  - o update documentation about aws batch
- Pegasus 4.8.1 Release
  - o upto Mats whether we should tag or not.
- Pegasus Office Hours
  - o Rafael will look up a new name
  - Container Presentation
    - Talk about containers
    - Blue Jeans
  - o Advertising avenues
    - XSEDE workflows list
    - OSG List

## December 2017

#### December 1st, 2017

- AWS Batch
  - O Client done. still have to figure out about stdout and stderr
  - $^{\circ}\,\,$  maybe we should have batch push the files and control where the jobs go in
  - also maybe each file should go to it's own stdout stderr
- Metrics for SWIP
  - o Stampede
  - Metrics Server
  - Elastic Search
- Rajiv working on changing the salt configuration
- Model Integration with Wings

## November 2017

#### November 10th, 2017

- Pegasus
  - o AWS Batch
    - checked in stuff
    - jars checked in aws sub directory in the jars folder. pegasus-config classpath is updated accordingly
  - o Bamboo builds
    - change in how users are handled
    - rajiv and mats worked on changing the salt configuration for the various machines
      - the major part changed was how the users are handled
      - the bamboo user got messed up and uid's were mismatching on the filesystem
      - main group for people unix accounts should be pegasus for everybody
      - only project users will have access to VM's for a particular project
  - o Stewie Rebuild
    - move off stewie. the main OS needs to be updated
    - parnorama
      - Rafael and Geroge will create a VM for panorama
        - CENTOS 7
          - mats will help George create VM
        - Ashwin consumers from Influx DB
    - mysql server
    - Pegasus metrics server
  - o JSON vs YAML
    - initial impressions seem to favor yaml
      - YAML does have benefit of including comments
      - · also YAML, JSON will result in additional lines
  - o templates for site catalogs
  - o LSST
    - mats will update documentation for pyglidein
    - to work with condor pool passwords thing
    - also will take mike site catalog to update NERSC entries
  - o tests
  - rosetta and montage appear working again. not clear what triggered errors in first place
- SC Next week
  - Rafael and Karan are away
- · AWS workshop for LIGO
- George Panorama work
  - O Dakota ends up launching multiple Pegasus workflows based on it's gradient functions
  - o using ensemble manager to do multiple runs
  - George will check in dakota test case and example
    - pick one approach and update documentation
  - o SWIP Demo
  - $^{\circ}\;$  think about merging stuff from panorama back to production branch
- work with ian foster and raj kettimutt on globus online
  - do multi site run
- Tudo
  - o working on insitu
  - o data spaces approach to have staging area
  - tudo wrote sample applications
  - evaluating on CORI using shared memory
  - o burst buffers cannot be used
- Ashwin
  - o analyzes influx db data
  - using statistical learning
  - o python panda library

## November 3rd, 2017

- Pegasus 4.8.1 release
  - 3 bugs in worker package staging.
  - pegasus-transfer PYTHONHOME unset does not work
  - hierarchal workflow handling.
    - to be discussed tomorrow
- AWS Batch
  - o need to check in changes.
  - o need to add options for the client and do error checking.
  - o still need to figure out how to integrate in pegasus

## September 2017

## September 15th, 2017

- · Pegasus development
  - Dashboard

- LSST might want it running out of a directory other than \$HOME/.pegasus
- No plans to tackle it right now. requirements are vague. and catch 22 situtation
- Python problem with Pegasus install
  - DAX3 problem does not work. Could not be recreated
- o PyPy account should be disabled
  - pypy has a 4.3 pegasus package
  - we should remove it
- o The jobname with dagman not allowing . is fixed
- LIGO
  - O Heard from Duncan. Tried out metadata stuff
- Another person at NERSC that is interested in running Condor
- **AWS Batch** 
  - o done initial development.
  - o how to retrieve logs etc.

### September 8th, 2017

- Pegasus 4.8.0 Release
  - o went out this week
  - o documentation
  - o pyglidein
    - out of icecube
    - mats added a section in the documentation
      - · pretty neat once it is setup
      - and works really well on machines with two factor
      - · not tuned for MPI things.
      - · on the submit machine a web based python thing.
      - pegasus resource profiles will work out of the box with pyglidein
- Releases
  - o Post 4.8 Releases
    - changes in the debain build
      - source package has been renamed. mats removed the source part
      - changed the versioninig of RPM and debian. The dev series will have the timestamp in it.
        - o pegasus-version -f also has timestamp
    - Will create a separate YUM and DEB developer repositories · repositories will not be signed.
    - Mats is still playing setup
    - Worked a lot on Debian packaging.
- HipChat will be upgraded to Stride
- Mats updated JIRA today
- Sim Center Workflows
  - Using Condor IO thing
  - o for 4.8.1 we should look at the remap thing
- SWIP Poster
  - o the first review is really good
- Docker and Singularity
  - have stuff about engineering challenges
  - But not enough usage
  - Practical Aspect
- Von's Group SWAMP thing.
  - o pegasus is part of trusthworthy software thing?
- AWS Batch
  - o AWS batch thing works
- Investigate how Dakota and Pegasus can work together
  - 1. Run Dakota as a job
  - 2. Run Dakota on submission machine
    - a. dakota calls a script that does a pegasus workflow
  - 3. Mix of 1 and 2.

## August 2017

## August 25th, 2017

- Pegasus 4.8.0 Release
  - o beta3 tagged
  - o monitord replay issue for rc tables against mysql server
  - Jupyter thing
    - VM updated with Jupyter
  - O Docker example application
  - R builds with pegasus
    - for time being only brew builds have that disabled.
    - Condor update to the brew installation.
- Pegasus 4.9 Roadmap
  - o SWIP

- lay out the changes
  - prioritize stuff for production readiness
  - the knob for integrity.
  - · get into transfers.
  - signing stuff on the backburner.
- chaos monkey tests
- metadata things
- o aws batch support
- · Pegasus Tutorial
  - George felt that Pegasus tutorial was a bit too easy.
  - o it should be maybe more interactive. get the user to develop a new workflow
- Tudo will pick up Decaf work
- Dataspaces
  - o do data management
- Ashwin will work on deep learning on panorama
  - o use tensor flow
- Dakota
  - o ini file . runs simulation and converges simulation points
  - O George will be working on it
  - has a checkpoiniting facility

#### August 18th, 2017

- · mats found a new hydrology user in boulder
  - based at Boulder
  - o there was a magpie presentation there.
  - mats did a hosted ce tutorial
- 4.8.0beta2 release
  - o tagged and sent it out.
- monitord workflow and read permissions creation
  - should only when the database is created.
  - ~/.pegasus directory should be 755
- dashboard errors
  - o rajiv should traverse the directory in the dashboard.
- LSST
  - o cleanup issue
    - mats and karan agree on it, that it is bad application
    - we should reply to it.
  - the wrapper should copy the file and launch the job
- source a setup a script for jobs
  - o has to be generically done
- registration jobs shell expansion
  - we should not do getEnv=True
- testing repo
  - stuart from LIGO asked for it.
- BOSCO
  - we have the examples updated
- Karan will remind Eliu about LIGO and Bluewaters
- Slick Jupyter Demos
  - Started up VM's
- Jupyter tutorial
  - o should be integrated into the VM

## August 11th, 2017

- Bamboo is finally green
- we will do a Pegasus RC1. actually a beta since we still want to address some issues.
- Rajiv fixed the build with python crypto issues
  - o pyopen-ssl was updated during 4.7.x series
  - we should package only things that we are not sensitive to the versions
  - o so right now pyopenssl is removed from binary builds, and all associated dependencies were removed.
- New throttling things.
  - number of jobs scale with the size of the workflows.
- SCEC all hands meeting.
- Documentation
  - Took a stab at the containers.
  - Rafael has to add a separate jupyter chapter
  - Karan will update the throttling docs
- LSST
  - ° Mats and Karan had a call with Tom about designing a workflow for one of the production pipelines
  - Mats and Rafael had a call with the French cluster folks (Fredrique Sutter). Fredrique works for simgrid
- Paper
  - o rvGAHP paper ready for submissions
- Suraj Poster
  - Mings pass really helped

## July 2017

### July 21st, 2017

- VMs are down, so tests are slow, and cannot test the new features yet
  - o Mats will send an email (or call) Derek to check with the VMs issue
- Try to run the Montage container test on OSG
  - o TODO: Reconfigure our poll (it is not flocked yet)
- Pegasus 4.8.0
  - O Bugs on the container (transformation catalog) is fixed
  - Stage in/out nodes based on the number of computing jobs on the workflow
  - TODO: add warning for errors (size of jobs)
  - Warning for category is done
  - TODO: reference implementation of a workflow using docker (1000 Genome workflow Rafael)
  - O Jupyter: add container keyword for API

### June 2017

### June 23rd, 2017

- Pegasus 4.8.0
  - Decaf
    - local universe jobs does not honor request\_cpus, and jobs remain idle if they ask for multiple cpu's
  - karan will update pegasus to remove the request\_ parameters from the local universe jobs
  - Steven Clark
    - Pegasus build issue is related to python 3 compatibility in the DAX API
- LIGO
  - o Eliu plans to run on Bluewaters
  - o we should confirm that he only wants to run on bluewaters.
  - they have sucky performance of getting data to the compute nodes in bluewaters.
  - o set the schedd start date
- NERSC
  - Karan will do a test setup there.
- · Pegasus Builds
  - o failed because of detain version upgrades to build tools
  - o setup tools in python complains to pegasus 4.8.0-dev

#### June 9th, 2017

- Pegasus 4.7.5
  - o pegasus-rc-client bug fix is done
  - 4.7.5 and 4.8.0 together
- Pegasus 4.8 release
  - o docker stuff is complete
    - docker tests added are green
  - o karan will work on singularity next week.
  - · LIGO reports pegasus lite jobs filling up /tmp . karan will check with LIGO on whether there is any environment set?
  - o rafael will update his api to make it consistent with the container format
  - o also will add a bamboo example.
- DECAF integration
  - karan has an idea about it.

#### June 2nd, 2017

- Pegasus 4.7.5
  - o pegasus-rc-client bug fix to be done
- Jupyter
  - o rafael will be working on it during June
- For 4.8.0
  - o container
    - docker works in nonsharedfs right now.
    - work on **singularity** support.
    - clustering . clustered jobs can only refer to one container
    - symlinks for 4.8.0 they are disabled.
  - o container sharedfs example
    - we have pegasus-lite with sharedfs. automatic translation of file URL's
  - o transfer refiner
  - o notification email updates
    - mats updated default notification scripts. will generate svg files

- at end of workflow generate notifications that have statistics
  - · monitord needs to run the remaining notifications after the workflow is done.
- makeflow integration
  - o limitations for pegasus generating make flow integration
    - makeflow model
      - · all files have to be on the submit host
      - how do we translate auxiliary jobs to make flow description
        - o tyson at arizona.
        - o add new transfer jobs
        - o add new credentials
        - o no postscripts there
      - monitoring
        - won't work with monitoring
        - o write a new monitord.
    - maybe do an oppposite translation???
    - what will be useful is to integrate with using work queue with our own dagman manager.

## May 2017

#### May 12th, 2017

- · auto scaling of stage out and stage in jobs
  - 4.8 transfer refiner will be Cluster by default.
  - o auto-computation of number of stage in, stage out and cleanup jobs
    - defaults should be computed based on number of jobs at a level.
    - use a ratio or step function .
    - come up ratio ranges for auto determination
      - 1:5 for numbers of jobs < 10K ( 20%)
      - 1:20 for number of jobs > 20k ( 5%)
    - will create a JIRA item for this
- container stuff
  - o close to having one example running
  - o have not figured clustering jobs out yet.
  - o mats agrees with the approach now, pegasus lite invokes the docker run commands.
- integrity stuff
  - o will make slides
  - o be specific about we have done .
  - o we give them an option of running synthetic stuff
  - o For
  - o also define best effort part.
    - strict, off, minimal, best effort
  - $^{\circ}\,\,$  how do we handle case where SHA exists.
- o workflow definition language
  - WDL is JSON based
  - has a template approach with variable substitution
- AWS Cleanup
  - o need to delete snapshots and cleanup VM's

## March 2017

#### March 17th, 2016

- · monitord stdout and stderr missing
- the VARS one. just expose the variable.
- SCEC issue
  - o job managers per resource
  - o got fixed by one job manager per job
  - BOSCO works partly.
- · containers call from yesterday
  - o dsa
- metadata
  - o metadata population in postscripts
  - o move metadata population to the postscripts.

#### March 10th, 2016

SCEC cleanup issue

- o related to Jglobus not updating and enforcing the compliance for RFC 2818 compliance
  - https://github.com/jglobus/JGlobus/issues/159
- LSST visit update

#### March 3rd, 2016

- Pegasus 4.7.4 Release
  - o sent out the release
  - o we did a ligo fix yesterday to pegasus transfer
- mats osg gem
  - o workflow did not finish
    - pegasus-exitcode has a shortcut for a regex
      - · make it more strict. whether to trigger failure in pegasus-exitcode
      - · revisit how metadata population
      - · trigger failure for missing records.
- · SCEC RC client issue
  - o Rafael will look into it for pegasus-rc-client
- containers support
  - o containers on a pause right now.
- Webinar
  - o lets try and schedule one for april end
  - o bluejeans will be an option
  - o topic will be covered new features for 4.8.0

## February 2017

### February 24th, 2016

- Pegasus 4.7.4 Release
  - o we will tag today.
  - o there is a potential monitord bug that happens on sub workflow retires only in the live mode, that Karan is unable to trace
- containers support
  - o pegasus lite launches docker wrap
    - or the other way around. because worker package has to be installed in the container in some cases so double install
  - Clustered jobs
    - we want at max one container to use the clustered job.
- · monitord performance
  - on OSG connect there is a difference between 4.6 and 4.7 performance replay
- · monitord.log has errors indicating unable to read .out .err files.
  - o we think it is a race between DAGMan and the filesystem

## February 17th, 2016

- Pegasus 4.7.4 Release
  - o targeted for next week.
  - LIGO ran into a prescript issue
    - pegasus lite deleted the worker package in the workflow submit directory
      - · only triggered when there was a subsequent compute job.
- new transformation catalog format
  - o https://jira.isi.edu/browse/PM-1165
- containers
  - o pen issue whether docker wrapper launches pegasus lite
  - or the other way around

## February 10th, 2016

- Pegasus 4.7.3 Release
  - o SCEC has issue with pegasus-db-admin
    - mysqldump timesout when updating their replica catalog
  - o Database TC
    - remove support for Database TC
- Stewie and fisheye upgrades
  - fisheye upgrade
    - Mats agreed to do the upgrade
  - o stewie runs debian 7
    - we need to upgrade it one day or later.runs GridFTP and mysql

    - RabbitMQ is running there
    - MongoDB is running there
    - Catalog dependencies on stewie

- o 5K limit for a new server
- OSG All Hands Meeting
  - o no tutorial looks like
  - o lots of pegasus users coming there
- Containers Support
  - o pegasus lite invokes the docker wrap.
  - singularity support will be required.
  - o container modes
    - should we support docker definition file
      - do we build on the worker nodes?
    - pull in an existing docker image from the hub
      - on the staging site
    - whether we should unload an image or not
    - we should try and cleanup
    - credential renaming has to be worked out
  - o Transformation Catalog
    - how to represent container dependency in the transformation catalog

### February 3rd, 2016

- Pegasus 4.7.3 Release
  - we tag later today or first thing monday
  - waiting for scott to reply
- Jupiter Notebook
  - o in general jupyter the interactive interface closes if you close the tab
  - o in our case it does not affect us, since we invoke pegasus-plan at the server end
  - Vicky has a workflow out of panorama that she has in jupyter as a set of the instructions
- Containers
  - o karan did some exploration of docker containers via HTCondor
  - o by default docker in the container runs as root.
    - means output files are written out as root
  - o also the containers need to be shipped around.

## January 2017

## January 27th, 2016

- Pegasus 4.7.3 Release
  - 4.7.3 release.
    - condor stable release has been released.
    - we will tag next friday one way or other
    - fix monitord replay mode
    - crosscheck with rajiv on dashboard
    - centralized mysql server for master workflow dashboard
      - LIGO wants to host a mysql server for master workflow databases
      - Mats will like to see something similar
      - also look at some publish subscribe options
- · Rafael give an update on the container
  - o docker universe
  - htcondor support i think is mainly geared towards startds
  - o preinstall software in user containers
  - o another model is to let pegasus figure out data and executables
  - o rafael did stuff in pegasus lite stuff
    - will have to rewrite proxy and credential environment variables
    - also how is the environment is rewritten
  - o good to have a generic concept of multi-level wrappers
  - o need to have a pegasus-docker-wrapper or pegasus-container-wrapper to do launch docker or singularity
    - another container technology called shifter
      - http://www.nersc.gov/users/software/using-shifter-and-docker/using-shifter-at-nersc/
    - OSG uses singularity because it is more friendly to launch in user space.
    - OSG is launching user jobs using singularity. the image is determined by the VO.
  - lets target pegasus lite mode first
  - little bit of data passing.
- · Rafael will have a student to take forward the docker swarm stuff
  - 8 hours every week

## January 13th, 2016

- Pegasus 4.7.3 Release
  - o sub workflows
  - o better error message for pegasus-transfer when source files don't exist
  - o pegasus-kickstart
    - improve error message
  - dashboard to better separate kickstart and pegasus lite messages

- O Potential SCEC issued with RV-GAHP
- · results of qualtrics user survey
- Pegasus 4.8
  - swip stuff for 4.8
  - o have sent emails for their use cases

#### October 2016

#### October 7th, 2016

- Pegasus 4.7 Release
  - o release notes and documentation is done
  - o need to follow up with Action for our build VM's
  - LIGO is not going to test 4.7 release as they are in midst of a cluster upgrade.
  - Rafael will write a blogpost about R API after the 4.7 release
- Dashboard requests 4.7.1
  - o rafael and rajiv will work on getting dashboard to display the database schema version and the pegasus version
  - o useful, when a new version of pegasus is deployed and .
  - Unable to read the sqlite database
    - related to users permissions on the database
- from braindump in replay mode should be able to pick up relative paths.
- brew error on macos sierra
  - o brew releases are built manually
  - o after the release we have to update the formula to reflect latest stable version.
- · ACME workflow on MIRA
  - o GitHub page to be updated with list of dependent software
  - ACME team needs to help with installation of one of the software.

## September 2016

### September 16th, 2016

- Builds
  - o disabling RHEL5, Debian 6, Ubuntu precise. Karan will make sure in the code it works
- Pegasus 4.7.0 Release
  - o reached out to LIGO. hopefully they will start testing
  - o rajiv checked in dashboard changes
  - o karan to write documentation for directory layout
  - o rafael will update pegasus-exitcode next week.
- Pegasus 4.8.0 release
  - one of the first things will be to update the SUBDAG keyword.
- LLNL account approved for Karan
- OLCF account waiting for notarized documents to be received
- SCEC
  - concurrency limits for transfer jobs
  - prime candidate for priority stuff that will allow good interleaving of transfer jobs with the compute jobs
  - ask Scott to see if 8.5.6 condor can be released.
- ACME workflow
  - HSI client for HPSS storage.
  - Karan will reply to Jamie.
- Bluewaters HTCondor install
  - O Bluewaters renewed till 2019
- Pegasus HPCC workshop on September 30th
  - o karan will be there.

## September 9th, 2016

- Builds
  - disabling RHEL5, Debian 6, Ubuntu precise
- Pegasus Development
  - o 4.6.2 released . LIGO has updated it.
    - LIGO tripped over changes to planner submit directory behavior
    - held job reasons are recorded in the database
  - o 4.7.0 release
    - went through pending items
    - targeting end of the month for the release
- proposal
  - o data aware workflow management
  - o no BPEL only a reference for it.

#### September 2nd, 2016

- Pegasus Development
  - o 4.6.2 released . LIGO has updated it.
    - pegasus.dir.storage.deep true throws an error right now.
  - o 4.7.0 release
    - karan looked into the HELD job
    - rajiv thinks no dashboard change required.
    - pegasus-exitcode changes will be done by rafael
    - LIGO should install 4.7.0 on dev machine.
  - o SCEC production run
    - Reverse GAHP OLCF
    - once tokens are reactivated, karan will check up on rhea rvgahp and get it running
  - HTCondor on bluewaters
    - Karan opened a ticket.
  - ° LLNL
    - security training to be done by Karan
  - o panorama
    - rafael is working on panorama demo
      - two different pegasus workflows running on 2 exogeni slices
      - and data staging server in between. shadow q has to propagate transfer priorities
      - · currently it is workflow level priority. will be manually assigned.
      - 1000 genome workflow -

## August 2016

### August 12th, 2016

- Pegasus Development
  - 4.6.2 release
    - release notes are checked
    - tutorial documentation will be updated to include the docker tutorial
    - pegasus service init script
      - we will not include it and enable by default in the builds
      - · mats will update the item accordingly
  - o 4.7.0 release
    - submit directory structure
      - · we need to get the depth thing fixed . Karan need to make sure if the DAGMan knob can be set automatically.
      - we should have a way to have it set for deeper
    - documentation to be set
    - pegasus-exitcode to have wait lock thing to setup it's logs
      - · one option is to log only exceptions initially.
- · pegasus-keg to mimic IO pattern
  - o read files over and over again.
    - this way we can increase IO without increasing file size (that results in higher data transfer costs)
- DECAF WMS
- [10:30 AM] Rafael Ferreira da Silva: https://bytebucket.org/tpeterka1/decaf/wiki/public-docs/peterka-decaf-handout.pdf? token=c693fc8bb177...

 $[10:31\ AM]\ Rafael\ Ferreira\ da\ Silva:\ https://cfwebprod.sandia.gov/cfdocs/CompResearch/templates/insert/project.cfm?proj=134$ 

## August 5th, 2016

- · Pegasus development
  - waiting for LIGO to check the support for changes for OSG, where pegasuslite URLs are converted to file URL if the staging site and compute site are same
    - Karan has a call with Duncan next week planned.
  - o staging sites deep directory structure
    - mats has it working for one of the workflow.
  - o https://jira.isi.edu/browse/PM-1049
    - automatic delayed job retries
    - the real fix should be in DAGMan. Karan will follow up with Kent. Will address for 4.8
  - o postscript output redirects
    - one file per job is what we had considered earlier
    - maybe we should do it per workflow log file.
- DIPA workflow development
  - good progress there.
- Titan Setup
  - o we should consider setting up it the same way as bluewaters
- Next Pegasus proposal
  - next week meeting we should iterate on items.

- Samrat issue
  - o get pegasus-exitcode to look for final output files
  - checked in workflows to the pegasus repository
    - bioconductor repository
    - would be good to setup PAGE cloud VM with the workflow.
- Deter Krans Mueller
  - o director of supercomputing in germany
  - o supermute supercomputing cluster
  - o will send a student for 3 months to ISI end of the month.
- Rafael plans to practical comparison paper
  - Gui's docker stuff.
  - o do a blogpost of montage with above docker stuff.

## July 2016

## July 15th, 2016

- · Pegasus development
  - waiting for LIGO to check the support for changes for OSG, where pegasuslite URLs are converted to file URL if the staging site and compute site are same
  - o staging sites deep directory structure
  - o dashboard changes for nested submit directory structure
    - fixed the on demand loading for the dashboard.
  - o identify workflows that will benefit
    - LIGO
    - Splinter
    - OSG Kink
  - o put in the test cases for testing it out.
    - use the new montage dax generator
      - pull the montage dax generator via squid cache.
- · Release schedule
  - o Get 4.6.2 out first.
  - o 4.7 probably early august.
- · ALCF Mira running.
  - cobalt workflow
  - ACME workflow compilation. Waiting on Ben for the source code.
- Panorama use case
  - SNS is not enough in terms of data sizes.
  - o anirban will start working on it next week.
- R Examples
  - o samrat working on a bioconductor example
    - has an example workflow
    - code should be checked into github
  - o samrat is working on a more advanced workflow that will be put in the examples directory also
- Gui docker nodes work on amazon ec2
  - o uses docker swarm and docker machine to do setup etc
  - workflows run in condor IO mode.
- DIPA Workflows
  - o waisman folks will start working on it.
- · free surfer workflow
  - o mats does not think there is enough uptake.
  - o suchandra is working on a second version that will add more capabilities
- seismology workflow
  - o rafael will check in to the repo.

### July 8th, 2016

- Pegasus development
  - waiting for LIGO to check the support for changes for OSG, where pegasuslite URLs are converted to file URL if the staging site and compute site are same
  - o pegasuslite signal handling
    - mats updated it. LIGO reported cases, where jobs got killed before the outputs were staged back. But the jobs themselves were not marked as failures.
    - duncan's third issue could also be related to the signal handler
  - o modify kickstart to compute md5 checksums.
    - we could potentially get kickstart to validate md5 checksums
    - have an architectural idea about it.
      - gridftp currently does not expose checksumming
      - irods client has checksumming in built.
  - o pegasus-init R example
    - R example will not run on OSG because of module load issues
  - all R examples will have a wrapper for the scripts
  - 4.6.2 after changes are verified.
- DIPA Workflow
  - o with Waisman brain imaging pipeline that runs on Waisman cluster

- · Rafael is working on a seismology workflow
- · tophat workflow paper got accepted in a bio journal
- Pegasus Virtual Summer School
  - o would be similar to the XSEDE ones
  - o will be 1.5 hours long.

#### July 1st, 2016

- · Mats has moved bamboo to a new RHEL7 VM
  - o migrated all the tests to it.
  - o there were issues with CondorC tests that are resolved now, because of path issues
- pegasus-init R
  - o Rafael will integrate Samrat's R example workflow
  - Samrat is also working on a bioconductor example workflow
- · rajiv made minor dashboard query changes

## May 2016

## May 13th, 2016

- Pegasus development
  - kickstart wrappers
    - process explosion.
    - eventually we would want it to be in the workflow.
      - handle these wrappers as credentials in the workflow.
      - what are class of files that are always required.
    - KICKSTART\_WRAPPER in kickstart
      - · was done for the PAPI stuff originally.
  - o pegasus-init for OSG
    - pegasus-init
  - o R examples?
    - rafael will do it in june.
  - o job held scenarios
    - open with htcondor admin .. a job should never goto the held state
    - maybe pegasus should do quick retry for small workflows
    - for large workflows retries should happen at a longer delay
    - for workflows less than 100 nodes held duration should be small, and failures maybe should be triggered earlier
    - not for large workflows
  - o revisit whether clustered jobs should be based on size of the cluster or the number of jobs
    - mats no longer likes the idea of having fixed number of transfers
  - o deep directory structure for the workflows
    - can splinter move to using them?
      - · right now they are condor io
      - on the data side it deep directory structure will only work
  - o BOSCO SSH
    - Mats tried with condor 8.5.4 on comet.

## May 6th, 2016

- · Pegasus development
  - o moved the submit directory creation stuff to the mapper interface
    - reorganized the code for it.
  - $\circ$  on the execution site for nonsharedfs case we will enable for the dashboard
  - o dashboard works mostly
    - only improvement is on the file browser side. will open a JIRA item for it
  - database changes
    - for 4.7 we will add extra columns to workflow state and job state tables.
- the dashboard needs to show the better the task metadata better for 4.7
- pegasus tutorial for virtual summer school.
  - $^{\circ}$   $\,$  will be based on the XSEDE tutorial
  - o bluewaters will setup a VM for the tutorial.
  - Scott will do an introduction and an overview.

## April 2016

## April 22nd, 2016

- Pegasus development
  - 4.6.1 released today
    - had to fix bugs for symlinking not being triggered for SCEC

- dashboard for the home page should work without trailing slash
  - all other pages should work the same way . For 4.7 we should do that
- o Pegasus R example
  - rafael will work on it
- OSG and XSEDE site catalog examples
- Submit Directory organization
- Relative DAGMan paths
- HTCondor week
  - Lauren said training week
- Bluewaters training
  - 2 day training might be too long
  - we will work on pegasus training module.

#### April 15th, 2016

- · Pegasus development
  - o 4.6.1 release next week
    - pegasus-status change for new Condor changes
      - cartoon will be upgraded to 8.5.x
    - pegasus-analyzer
      - will report correctly submit failures
    - better errors for mismatch in cores/ppn requirements
    - Tag and build on Thursday.
    - pegasus-s3
      - batched uploads and downloads
    - output directory options fails if local scratch not specified
- LIGO transfer issue
  - O NFS reported write as successful for a transfer job.
    - wget reported data was transferred and wget succeededgood use case for checksumming of data
    - where do checksums come from
      - for data files good placeholder in the transformation catalog.

SCEC had similar issues where SGT's had gotten corrupted

- that is why SCEC put a specific job in the workflow and uses ABORT DAG on feature
- · Call with Kent for adding nodes to a running DAG
- group jobs with similar errors
  - might be a python library in there
- HTCondor Week
  - proposed a hands on tutorial
- pegasus 4.7
  - o ignore integrity constraints in monitord
    - only for duplicate keys

## April 1st, 2016

- Pegasus development
- Submitted tutorial for XSEDE 16
  - o will include RADICAL
  - o might update tutorial with BOSCO. Mats already have BOSCO to run on Comet
- Derrick Lazaro wants to build a bigger filesystem ( 400 TB )
  - o will be backed up
  - o has a commercial storage vendor in mind
  - o has backed up capabilities in built (block level backup)
  - let Mats know about storage needs
  - Mats estimated our storage needs to 25-50TB
- Graduate student coming to the group mid may to july. brazilian student. currently in Florida
- Ahmad group got a EPSCoR grant
- CRAFT Meeting update

## March 2016

## March 25th, 2016

- Pegasus development
  - o Gideon has been working on kickstart online monitoring for panorama.
    - the lib interpose monitoring requires app code to be dynamically linked to use LD\_PRELOAD
    - now kickstart has a new mode, where monitoring thread will scan the proc filesystem for all processes in resource group.
      - this approach disables the PAPI counters as they need to be retrieved from app itself
    - also is working on aggregation logic
      - complicated accounting information
    - added another process called pegasus-monitor . so it is usually pegasus-kickstart-> pegasus-monitor -> application
    - can deploy without any external dependencies.

- o 4.6.1 release
  - in april when karan comes back from PAGE meeting
- Condor bug on schedd evicting dagman jobs
  - LIGO noticed on other submit nodes
- o mats worked with Derrick to make sure glideins work with BOSCO on comet
  - CyVerse Talk Mats will do a hands on thing with them. Mats may do an existing tutorial.
  - raphael used the new slides.
- · Pegasus workshop
  - o erin will get back to us with other feedback.
  - o make the intro slides more simpler.

#### March 18th, 2016

- · Pegasus development
  - deep submit directory structure working for submit directory on PM-833 branch. however need to move to relative directory paths in the .
     dag file , before merging back to master
  - o gideon is reworking how kickstart online monitoring work
    - working on kickstart monitor that goes through the /proc/ filesystem with the assumption all apps installed via kickstart have the same process group as pegasus-kickstart
  - o pegasus workshop on campus on tuesday. it is setup https://pegasus.isi.edu/tutorial/usc/
    - the tutorial is setup using pegasus-init
    - will ask mats to move the XSEDE tutorial to pegasus-init
- raphael working on energy paper again
- stephan paper to HPDC got accepted

#### March 11th, 2016

- · Pegasus development
  - o R DAX API is done
    - will be proposing for CGSMD
  - O Deep hierarchy structure
- LIGO meeting
  - o do a local file copy against the staging site
    - having a separate staging site bogs down inter site transfers
  - o metadata
    - they are interested. want monitord to transfer the stampede database to another location from the scratch submit directories
    - cannot really do it in monitord
    - can also potentially do it in pegasus-dagman
  - argument passing for sub workflows
    - will be done 4.6.1
  - $^{\circ}\;$  jobs that work on output site directory.
  - o credentials issue
  - o variable substitution
    - will make use of it
  - o submit directory and other directory organizations
    - are interested in using it
- Rosa
- $^{\circ}\,\,$  wants to do something with pegasus
- Monitord

#### March 4th, 2016

- Rosa
- $^{\circ}\;$  dispel4py Stream based workflow mapped to MPI, Storm
- MPI 3 Failure Recovery from Node Failures
- Monitord
  - o Triggered by Condor failures. Workflow killed, condor recovery did not spit out all event on recovery.
  - Need better way to test.
- DB Admin
  - Merge issues
  - o rafael with confirm with gideon if there is an issue

- Bamboo
  - Rebooted for DROWN Attack
- R API
  - · Unit tests done.
  - Packaging Ship, host?

## February 2016

### February 19th, 2016

Pegasus development

- support for GO mats is working on it
- dashboard shows multiple workflows with same uuid. fixed in monitord
- pegasus transfer was prepending path because of globus location
  - o mats has changed the logic
- SCEC wanted to disable the stat of files that was happening automatically because of registration turned on.
  - o we now have the property that can explicitly turn it off
- SCEC tripped over replica catalog insert performance.
  - rafael working on it. identified the bottleneck
- Catalog files in submit directories
  - will create a catalogs directory
  - o what about file based replica catalogs and cache files etc? some of them can be large.
- Pegasus Blogs
  - ∘ SCEC
  - o RVGahp?
- Website
  - highlight applications better.
- workq has a catalog server running
  - o how do jobs report real time monitoring information back to monitor without rabbitmq
  - have a condor submit wrapper
    - will help us increase memory requirements in case of failures.
- · PegasusLite to have pegasus-transfer invocations as kickstart records
  - kickstar

## February 12th, 2016

Pegasus development

- support for GO
  - $^{\circ}~$  mats found a python REST API is decent.
  - o will only work on a small subset of workflows
    - only third party transfers
    - how to handle file URL's on the submit host
    - and how do we activate the end points.
    - lifetime of credentials
    - cannot work on non shared fs mode, as what end point to use when staging to the worker nodes.
    - maybe we should look at how condor does it.
- · held jobs
  - $^{\circ}\,$  dagman added support in 8.3 where the held job reason appears in dagman.out
  - will need schema change
  - o failing workflows
  - o held jobs.
  - o have a held job tab.
- · pegasus-submitdir archive
- PMC job statistics in pegasus-statistics
  - o mats and rajiv
  - 0

Annual Report

## February 5th, 2016

- 4.6.1 release
  - o pegasus-glite-configure
  - $^{\circ}\,$  change of how retries are done for transfer jobs, using requirements and dagnode retries
    - https://jira.isi.edu/browse/PM-1049
    - there are just 2 retries implemented for transfer jobs

- one more option is for pegasus-transfer to do better retries
- and let the dagman retry set to 1.
- use DAGMan influence to do in retry.
- do more testing at our end.
- lets change default retries for transfer jobs
  - and do this only for transfer cleanups in condor environments
- o LIGO runs
  - symlinking
- R API
  - will target 4.6.1 and keep it similar to the python API
- 4.7.0 release
  - filesystem organization
- Keck workshop on Pegasus on Feb 26th
- Pegasus Annual Report
- · Pegasus GUI email
  - o we will send user a direct link
- Pegasus Announce SLES email
  - o we have done on SLES 11 not on SLES 12

## January 2016

## January 28th, 2016

Pegasus development

- 4.6.0 release
  - o Released this week
- Pegasus Website
  - o new website there
  - o karan will put in the old release notes.
  - o Links for old documentation on the new website
    - https://pegasus.isi.edu/docs/
  - Rajiv has updated the docker tutorial
  - Tutorials will be moved to Pegasus website
  - Have a research link to point to Scitech website
- Gideon confirmed MoabGlite helper scripts work with stock condor
- will also check in a tool to put in the scripts to the right locations.
- Pegasus Lite pulls in a worker package
  - o should we download even by default from the worker package
  - o warnings for worker package not being found.

## January 22nd, 2016

#### Pegasus development

- 4.6.0 release
  - open items
    - https://jira.isi.edu/issues/?filter=10952
  - o constraints algo implemented and checked in . tests worked .
  - documentation
    - karan added chapters on metadata and variable expansion
    - gideon updated execution environments
    - updated the BOSCO section about SSH
  - o pegasus-analyzer exits gracefully when nothing in the stampede database
    - check if analyzer and statistics check for the version.
  - o pegasus-init
  - pegasus-db-admin
    - better error message for that case.
  - o karan will update tutorial to take account of default options
  - o for glite style condor arguments quoting is automatically turned off
- new website.

## January 15th, 2016

- 4.6.0 release
  - o open items
    - https://jira.isi.edu/issues/?filter=10952
    - Rafael almost done with Constraints cleanup algo. tests run fine on the branch
    - pegasus-bootstrap

- gideon was doing it as Jinja templates
- will set it up a shell script, will be easier for people to update
- documentation needs to be updated
- map the globe
- o for resource requirements add pegasus queue keyword, update documentation to have one table, remove the documentation for priorities.
- MOAB stuff documentation. Will be considered for next major release.
- · DAGMan wants to remove the functionality of running postscript in case of prescript failure
  - does not affect pegasus
- DAGMan wants to remove DAG NOOP keyword
  - o was introduced for LIGO

### January 8th, 2016

#### Pegasus development

- 4.6.0 release
  - open items
    - https://jira.isi.edu/issues/?filter=10952
- Condor DAGMan log messages contain HTCondor in 8.5 series
  - o broke monitord
  - o fixed both 4.5.4 and 4.6.0.
- 8.5.2 has DAGMan logging timestamp from condor job log also.
  - monitord has been updated for that.
- metrics reported were updated
- Globus strict checking mode.
  - o gridftp + ssh version.
- · Scott is working on getting the reverse GAHP stuff
- How to configure the batch\_gahp

#### December 2015

#### December 18th, 2015

#### Pegasus development

- 4.6.0 release
  - o open items
    - https://jira.isi.edu/issues/?filter=10952
- Reverse GAHP for Oakridge Titan
  - https://github.com/juve/rvgahp
  - o done because cannot do incoming connections on titan
  - o and also they don't want to use pilot jobs, as it is not easy to yank a job from a HTCondor queue
- Harvard Pegasus installation
  - o with SLURM support.. Karan will work on this.
- We should explore remote batch GAHP stuff
  - o for remote batch do
    - batch gahp --rgahp-key /give/key user@host
    - look at the remote\_gahp script.
  - documentation for the batch gahp thing.

#### December 11th, 2015

- 4.6.0 release
  - open items
    - https://jira.isi.edu/issues/?filter=10952
  - o pegasus-db-admin
  - o cleanup algorithm
    - raphael will work on it.
- pegasus-s3 cert issue
  - o updated boto library to account for cacert change
  - $^{\circ}\,\,$  on mac, had to disable the automatic failover
- - o replica selectors can now order replicas. Default and regex ones updated
- monitord
- o combination of missing job terminated and exception on casting job duration as int, triggered a bug that LIGO reported.
- · default behavior of planner
  - pick up pegasus.properties from cwd as a replacement for conf option
     --sites option for \* behavior , remove local from candidate sites
- pegasus-bootstrap commands
  - o sets up pegasus with site catalog, and dax generators

### December 4th, 2015

#### Pegasus development

- JDBCRC
  - $^{\circ}$   $\,$  should work for 4.5.3 . will work for the release
  - o need to make the changes for 4.6.0
    - should consider batch inserts
    - rafael has implemented the batch inserts also
    - the database locked errors are fixed.
- · Rafael is looking into how the timeouts are implemented in sql alchemy
- Mac OSX El Capitan Builds
  - O Gideon fixed those. El Capitan does not allow root to modify files in /usr
  - O Gideon changed the installer to install to /local
  - O Upgrading the mac mini build host.
- LIGO proxy issue
  - o change in how proxies are generated.
  - LIGO en-common proxies were not supported by J-Globus
  - Gideon has the patch for making the updated jar.
- · Gideon has added instructions on building globus for El Capitan
- Jobmanager-condor for obelix was updated to support both shared fs and non shared fs cases.
- metadata registration
  - o information for output files is tracked.
- pegasus-metadata client . Rajiv.
- Cleanup algorithm Rafael ?
- LIGO use case for fallback PFN for PegasusLite cases
  - they want to use existing input data for frame files, on different locations across sites
  - o but have a single site catalog entry for the computation, as glideinwms provisions it
  - Karan and Mats are working on it
  - o pegasus-transfer changes?
    - sd
- · LIGO running workflows across LIGO and OSG .
- Database locked errors for monitord.
- Call the 4.6 release as 5.0 release.
- Gideon working on MOAB Blahp support.

## October 2015

#### October 23rd, 2015

#### Pegasus development

- Tutorial VM
  - orajiv will update dashboard screenshots and go through the Virtual machine based tutorial
- JDBCRC
  - $^{\circ}$   $\,$  should work for 4.5.3 . will work for the release
  - $^{\circ}$   $\,$  need to make the changes for 4.6.0  $\,$ 
    - should consider batch inserts
    - sqlite supports unlimited connections
      - for write locks, 25 jobs running for write locks. after 25 and it ignores timeout settings.
      - 67 registration jobs.
      - raphael is implementing a back off
        - category for the registration jobs
    - eventually do the dagman category stuff
  - o metadata registration
    - information for output files is tracked.
    - pegasus-metadata client
- concurrency limits
  - $^{\circ}$  in partitionable slots this has an affect on performance
  - for 4.5.3 we will have a knob and set it to false by default.
- · Dashboard and PAM problem.
  - o mats will create JIRA item.
- salon working on data from MYRA
  - o trying to find contention of data

#### October 16th, 2015

- does stime include io wait time. does not appear so. the cp of 1GB file indicates that
  - o so then is there a way to capture the IO wait time
  - pegasus-db-admin
    - o version migration for panorama works
    - o metadata schema finalized

- failing jdbc RC test
- metadata population
  - o metadata population from DAX working
  - o metadata attributes from transformation catalog and site catalog are now incorporated, as metadata events are generated at end of site
  - output file sizes will be populated for files with register flag set to true.
- · pegasus dashboard
  - o metadata display done other than the file information that needs to be populated
- cleanup algorithm

  o will be done before raphael leaves for vacation
- website changes
- panorama changes
  - o monitord change to make sure events don't get dropped
  - online monitoring spawns a thread where there is a queue that is responsible for inserting the online monitoring events into the db
  - the thread checks the database to make sure the job instance is populated.
  - O CURRENTLY, it is not done for the anomaly populations.
- SNS and Acme workflow
  - o maybe we can hire a student to do it
  - o maybe scalarm can be used for SNS workflows
  - O Ben said there is a meeting about Pegasus on Titan.
- · Mats has installed wordpress on one of the machines.

#### October 9th, 2015

#### Pegasus development

- · pegasus-db-admin
  - o db version has been moved to string, a new column was added.
- metadata population
  - o files are populated if a user specifically associates metadata with a file in the DAX or if an output file is marked for registration
  - o make sure that for tasks metadata attributes are inherited from the transformation catalog.
- pegasus-metadata client
  - output format?
  - o is the client for end users
  - o list files for a workflow
  - o list workflow metadata
- pegasus dashboard
  - o workflow level
  - o task level level
  - o file level metadata

### October 2nd, 2015

#### Pegasus development

- pegasus-db-admin
  - o changes discussed last week?
  - o also change to string for the database version for allowing merges with panorama
    - panorama db versions should be N.x and not whole integers
- jdbrc sqlite test failures
- pegasus-transfer
  - o better job with grouping for ssh transfers.
- metadata population
  - o planner generates the events now for associating metadata with wf, job and files
  - o use case should be for a file what workflow and job created that file.
- · Pegasus workshop
  - $^{\circ}~$  we will be using workflow.isi.edu
  - o mats has created 30 training accounts on workflow.isi.edu
  - o suggestions on workflow example?
    - blender rendering example...
- o pegasus-dashboard should be installed
- Sipht portal
  - o back up and running

## September 2015

### September 25th, 2015

- · Pegasus development
  - o pegasus-kickstart to return record on condor\_rm ( SIGINT)
  - o changes to data reuse algo for Chris Edlund
    - delete jobs when inplace cleanup is used for intermediate files that are not transferred to the output site.
  - o use of DAGMan NOOP keyword
    - workflow test failures

- change monitor to not complain for noop jobs.
- o comma separated directories for input dir
  - automatically delete the input directory? we all agree not a general use case.
- o pegasus-transfer grouping should be done for all protocols?
  - problem is some renames for output files
  - avi has been running workflows on OSG with pegasus lite.
  - 2 million connections over two days on SSH server
- o pegasus-db-admin error handling.
  - if it fails with error, it should not report that database has been updated. This is a bug
  - other is what to do , when 4.5 is run against
  - downgrade option
  - warn if db-admin detects database version is higher than what it is currently running, and exit with 0 exitcode.
- Pegasus IEEE article accepted
- montage workflows
  - o dax generator is not maintained
  - o have it as a student project to convert the DAX generator to python API.
    - they also check an overlap check
  - o montage jobs have varying memory requirements
  - o we should not showcase it.
- · Pegasus Workshop in October
  - o fallback from USC HPCC cluster required
  - o whole day will be rough.
  - Mats will not be around! Going for the duke workshop.
- panorama
  - o monitoring thread segfaults
  - why was the segfault happening initially
     happening in fork system calls

    - related to starting and stopping monitoring threads
    - and how PAPI counters were updated.

#### September 18th, 2015

- Pegasus development
  - o pegasus-db-admin updated
  - o for spec added registration of flat Ifn's when deep LFN are used
  - workflow tests now running.
- pegasus paper
  - o will add info about galactic plane and gtfar
  - o cloud challenges
    - talk about virtual clusters . precipe / wranglar
      - tie more closely to setup stuff and talk about chef/puppet and precise and wrangler.
  - add them in acknowledgements
  - o not much to add about cloud challenges other than image managements
- hubub conference
  - o latech user who wants to run on bleaters
  - o tom bishop
  - o pegasus submit tutorial.
  - o to do with steven...
- panorama
  - o segfaults happening randomly
    - happen when the monitoring thread is started.
- craft
- jarek
- hubzero
  - chip design
    - instead of hubzero use open science framework a non profit funded thing

## September 11th, 2015

- · Pegasus development
  - o worker package tests in pegasus lite
    - pegasus lite will complain if the system architecture
  - o panorama tests now work
    - maybe some problems might be masked!
  - o jdbcrc
    - updated jdbcrc . for mysql and postgres deletes work differently.
    - raphael will abstract it out
  - $^{\circ}~$  gideon changed the way the papi counters are used in kickstart
    - earlier signals were being used for threads to report counters
    - PAPI now allows to guery for counter values
- · Pegasus cloud article
  - o ewa is doing the final edits
- HubBub presentation
- panorama
  - o darek working on getting papi counters to monitord
  - o changed the job metrics table in the stampede database.

#### September 4th, 2015

- · Pegasus development
  - o worker package creation on the submit host.
    - should we include python externals directory.
    - we will put that back in. we only need boto.
    - also need to make sure it works for a RPM or deb install.
    - implement the compatibility check in PegasusLite
  - panorama tests
  - o better error for input file replica selection failures
  - Scalr for openstack tests
    - action has a new openstack deployment.
    - have our two QNAPS setup on the build VM's to run workflow tests.
    - run on vmware pool.
  - o SCEC shallow LFN's
    - for registration in the replica catalog.
    - put the test in 4.5.
  - Database schema changes
    - pegasus-db-admin changes to database schema.
    - downgrades work
- The short paper
  - o working on the google doc.
  - we are not actively working on ec2.
- panorama
  - o adding papi counters to online monitoring.
  - o pegasus-transfer explodes when signal is sent
  - online monitoring dashboard.

## August 2015

## August 28th, 2015

- pegasus 4.5.2 released
- worker package staging
  - o planner will use a worker package from the submit side installation and use it.
- pegasus s3 tests
  - o currently no s3 tests
- tests are running against 8.3.8
- cleanup algorithm update (Rafael)
  - estimate that it will be done in two weeks
  - o has to work for multiple sites
- cloud computing short paper
- hub bub
- panorama and dv/dt poster and presentations . in mid september
- metadata discussion
  - o google doc updated
  - o leaning towards monitor populating the database
  - remove the estimated size and md5 checksum

## August 21st, 2015

- pegasus 4.5.2 release
  - o release notes checked in
  - o db-admin changes?
    - update man pages
  - python source package
  - tests are we moving to dev branch?
  - o docker problem
    - how to get around it?
    - an issue inside docker, that is being exposed
    - we will put in a wrapper around it.
  - o panorama branch is disabled
    - but tests should be fixed.
    - dark will be fixing it
    - rajiv pushed out his dashboard changes for darek. for demo at supercomputing.
- · cleanup algorithm
  - Rafael will start next week
  - $^{\circ}$   $\,$  how will the limits be passed
- · kickstart changes
- metadata schema discussion
  - o next week.
  - o postscript
  - dagman has plugin's

- o schema
- o use case
- o stampede is sqlite
- o pegasus-exitcode write locks.
- separate sqlite database for metadata.

## August 14th, 2015

- Pegasus 4.5.1 release
  - O Release notes online https://pegasus.isi.edu/news/4.5.1 is done
- · Bamboo machine troubles
  - o panorama tests hung because of bamboo
  - o do experiment for the case where we do condor off and see what happens to pegasus-dagman.
- Panorama tests
  - look at build #73
- · pegasus-kickstart stuff
  - o for interpose stuff
  - gideon investigating how to cover all cases for threads
  - o wants to make sure that descriptor table is accessed in a thread safe way, in worse case
  - also is doing thread tracking, thread counters and thread lists
- · directory structure organization for submit directories.
- nonsharedfs mode problem for auxillary jobs
- sudharshan cleanup algorithm
- stefan update
  - o working on user models on how to submit jobs to HPC
  - what user characteristics are of submission process
- to be able to show the IO part for SoyKB
  - o metrics of success
    - makespan is reduced.
    - number of service units is reduced
- · what makes an application IO intensive

### August 7th, 2015

- Pegasus 4.5.1 release
  - Release notes online https://pegasus.isi.edu/news/4.5.1
  - PEGASUS\_SCRATCH\_DIR is populated for all jobs in shared fs case.
- 4.6 common resource requirements
  - we are now exposing three pegasus profiles cores, nodes and ppn.
  - added logic to do specific translations for PBS and SGE
- cleanup bug fixed related to DAX transfer flag for input files
  - larger question and agreement. transfer flags for input files usually don't have any meaning.
  - o transfer flag should be renamed or in the API
    - change in schema
      - at minimum we should change the DAX API's
      - transfer attribute renamed to final output?
- spaces in Pegasus URL
  - o gideon feels it should be mod 20 instead
  - o somewhere in documentation .
    - the planner should have more specific error message in case of spaces.
- kickstart enhancements gideon
  - fixing edge cases in kickstart for the extended reporting
  - what can we do with the papi performance counters and see what will be used in panorama.
  - o will be updated for counters.
  - o gideon and darek will try and merge

# July 2015

#### July 31st, 2015

- Pegasus 4.5.1 release
  - o will release it next week
  - o update the mapper documentation
    - have a link to the replica catalog
  - o steven clarke cleanup issue
- resource requirements
  - update the resource requirements section for 4.6
- acme integration
  - rajiv will work with bibi to integrate it with the REST monitoring api
- kickstart changes to get papi counters
  - Only triggered if -Z option is passed
  - the paper on xsede mentioned about them reporting per threads
  - o also we make better track of threads launched by the executable
    - some edge cases for the thread case

- double execve of process does not work currently
  - example: /usr/bin/env date
- o also record command line options for all sub process launched
  - in the proc record , the cmd tag
  - grabs only first 1K of arguments
- monitord ampp population
  - revert back to use the event name as the routing key for AMQP population.
- · pegasus cleanup with peak storage requirements
- Panorama
  - O Data analysis done..
  - o ideas about writing a paper about workflow profiles
- · Anomalies Detection
  - o showing anomalies in dashboard and population in stampede schema

#### July 24th, 2015

- XSEDE Tutorial
  - 2 Posters and one tutorial
  - o news item online
- Pegasus Development
  - o common resource requirements PM-962
    - documentation needs to be updated
    - we have cores , hostcount
    - karan should make sure cores is translated correctly to ncpus for PBS
  - o Pegasus REST API for integrating with Pegasus
  - o pegasus transfer
    - checkpoint files
  - LIGO developer notion of site attribute
    - maybe we should be more clearer in the documentation
  - o automatically changing parameters for memory on job retries
    - check point file for the job is a partial solution
  - o monitord ampp population
    - works.. we will document it on JIRA
- Panorama
  - O Darek implemented sending messages in batches from kickstart to rabbitmq
  - o socket based communication between kickstart and lib interpose . was done to take of the file interleaving issue.
  - o tests on obelix and exogeni indicate socket writes are atomic for panorama message

### July 17th, 2015

- PMC Cpu affinity
- LIGO pegasus analyzer bug
  - o has been passed to LIGO . awaiting to hear from them
- · Cleanup algo
- Resource Requirements
   common pegasus profiles
- SGE
- $^{\circ}\,\,$  change.dir should be set automatically for shared filesystem stuff
- documented already.
- · kickstart path variable to prepend.
- REST interface for monitoring for pegasus is done. Rajiv completed this week.
- extensions to the cleanup algorithm. rafael will start working .
- Pegasus 4.5.1 release
  - o will be done after XSEDE.
- Pegasus XSEDE tutorial
- XSEDE Pegasus Poster
  - show a LIGO workflow for the XSEDE poster.
- Salt configuration needs to be updated
  - Student machines on salt
- panorama
  - o rabbit mq installed on exogeni site.
  - o darek will do message batching working.
  - gideon recommends doing it with the AMQP C API library
  - message interleaving in kickstart.
  - o lot of unacknowledged messages in rabbit mq
- kickstart polling loop
- all kickstart memory values are in MB

#### July 10th, 2015

- PMC jobs automatic summing of maxwalltime. Should be disabled
  - In PMC case we will do a division.
- PMC CPU affinity for jobs PM-953
  - o there might be a fragmentation approach.
- Pegasus REST interface
  - short cut URL end points.

- o karan will send email to Lavanya.
- · running on SGE cluster using GLite interface.
- harmonized pegasus profiles
- Metadata
  - o will need the file implementation .
- Dashboard Panorama stuff
  - O September 16th. Time series and anomaly detection.
  - Application level anomalies
  - Infrastructure level anomalies.
  - o no plans for integration in production Pegasus.
- monitord profiling of monitord population.
- we want to see how long 1000 events take to be populated in case of LIGO .
- Panorama
  - o anomaly detection
    - implemented a working prototype of threshold based anomaly detection
    - kickstart sends events to rabbit mq, then monitord populates to influx db.
    - darek tool queries influx db and takes in the metadata file generated by pegasus and determines the anomaly and sends it back to rabbit mg
    - monitord then again picks up anomaly and populates it to stampede db for dashboard to display.

### June 2015

#### June 12th, 2015

- · Pegasus profiles for job/resource requirements
  - o postponed till next week when mats is here
  - karan to create a list of relevant profiles
- pegasus dashboard
  - o locking issue?
  - o can this be related to new connection stuff or the failing tab?
  - o look at connection pooling .. or maybe transactions are not being closed properly?
  - o also see if there is an option for dashboard to set a read only lock when opening a connection to the databases
- panorama workflow tests
  - o failing.. but merge from master was done.
  - o karan to investigate
- panorama workflow dashboard
  - $^{\circ}$   $\,$  updated the job metrics tab for doing the polling
  - o for mpi jobs the job name appears as aprun, since that is the process running on rank 0
- Job Survery paper
  - Darek sent a final version
  - o will be submitting next week
- Pegasus Release timeline
  - o maybe we should put on our website somewhere?
- Rafael Energy paper
  - o information about building energy profile.

#### June 5th, 2015

- panorama usecase and metadata passing through
  - o not done yet for the metadata associated with files with replica catalog
  - o DONT rebase commits that have been pushed out
- job.runtime, cluster.maxruntime, maxwalltime parameters
  - o how to associate profiles. have a different namespace
  - o how is it expose in the DAX API
- python dependency
  - $^{\circ}$   $\,$  stopped support for 2.5 and 2.6  $\,$
  - only affects redhead 5 systems.
  - o will have to install redhat 2.6 python package on 2.5
  - o setup tools for python 2.6 has to be at build time
- pegasus-dashboard updates for LIGO
- cleanup bug for intercept runs with InPlace cleanup.
- S3 storage
  - about 9TB and rising for pegasus system services backup
  - o right now no backups are going to go to Glacier
  - o we only keep 2 weeks of data
  - o glacier is good if we want to keep 6 months of data
  - 3VM' for pegasus website , CROWD etc
  - o database on stewy and obelix
  - o qnaps /nfs/ccg3 and /nfs/ccg4
  - $^{\circ}~$  Big ticket items of 9TB backup bucket in S3  $\,$
  - o need to keep 2 backups in S3
- HubBub talk.
  - o abstract

· talk by Jack Donagara.

# May 2015

# May 29th, 2015

- · Bamboo test failures
  - o condor-c tests working now. changed the site catalog for those
  - o rhel5 json module
  - o pegasus-transfer will do a proper check and complain for missing json module
  - o mats will update documentation accordingly
- Python Dependencies
  - New python dependency 2.6 from 2.4
  - o newer versions of Fedora uses Python 3
  - Fedora will keep python 2.x support till 2020.
  - o maybe have a dynamic bash wrapper across python code to pick the right python version
  - o have a tool called pegasus-python??
- · concurrency limits
  - o apply to bamboo machine and our other workflow hosts.
  - o throttle number of grid jobs per categories of jobs. that is what SCEC wants and cannot be done.
    - unless negotiation can be employed for grid universe jobs.
    - define own throttles in compute jobs
- pegasus-dashboard
  - $^{\circ}\,\,$  LIGO has an issue with no authentication URL rendering.
- · quoting for environment
  - o implemented, changed both for environment and +remote\_environment
- docker universe support
  - should work out of the box with condorio
- new dagman default values
- pegasus-statistiscs
  - o show bad put?
- LIGO OSG
- Documentation
  - o 10 minutes using pegasus-docbook
  - o using new pipeline it uses 3 minutes
  - the hyperlinks don't work
  - o include that into pegasus website template
  - o In PHP we tell Google not to index old version
- panorama

# May 8th, 2015

#### Bamboo test failures

- · montage tests are failing because of the remote service being down
- · documentation tilte is messed up. gideon will look at it

### pegasus-transfer new format

- · mats has come up with a new JSon format.
- backward compatibility with the old format
- create dir and cleanup jobs will be different

#### Metatdata

- google doc shared with people
- next steps are panorama use case for calling out
- · ssh cleanup . JGlobus library does not implement ftp

### LIGO on XSEDE

- have started using PMC
- data management

### Python builds

- · always check the python version.
- if we ship our own python modules, then we may have to

#### Bamboo build machine

- build and test plan ( running concurrently )
- also we can run docker stuff
- automate the salt setup of bamboo agents
- maintain one OS. Can action give us a beefier VM?
- · we have too many documentation builds running?
- · VW with bamboo agent and use docker

- · workflow tests are a separate issue
  - o they don't load the bamboo machine
  - o that is more related to a big condor pool.
  - o workflows tests will run always out of bamboo.
- · mats and rajiv will work on it for the VM stuff.

#### Getting new SSL certificates

· \*.isi.edu is screwed up in firefox

#### Metrics Server fixes

- google maps update broke the web UI.
- · somehow all the colors were used in the trends?

## May 1st 2015

- Pegasus 4.5 release
  - o not heard back from SCEC and LIGO
  - o mats checked in the example
  - will add release slider
- · Variable Expansion
  - o pretty much done
    - right now we have \$()
    - we will change with \${env-variable}
    - have more helpful error message
- · pegasus-kickstart
  - o file does not exist. now gives a proper error
- XSEDE poster due next week
- Monitoring Service API
- donald is almost done.
- PMC with PegasusLite
  - PMC job by default runs on the shared filesystem
  - o tasks in PMC are pegasus lite tasks
  - o if a task does randomio, then on shared fs might be tricky
- brazilian student contacted about pegasus application for real workflows.
- mats will be doing the transfer events for panorama next week

# April 2015

# **April 24th 2015**

- Pegasus 4.5 release
  - o release candidate today rc2
  - o updates to pending items
  - o job throttling added to optimization guide.
  - o release notes are online https://pegasus.isi.edu/news/4.5.0
  - waiting for db-admin unit tests to be checked in.
  - o pegasus-cleanup checking
  - o pegasus-lite-local.sh add some path before starting.
- rest monitoring API
  - o we have not heard back from lavanya yet
  - PNNL acme stuff
- pegasus 4.6 release
  - o common pegasus-transfer, pegasus-cleanup and pegasus-createdir
  - APP\_PATH\_PREPEND addon
  - o pegasus worker package staging
    - planner calls out to common script to determine the worker package
    - if it does not exist , we build a default worker package on the fly
    - add extra logic to the untar job in the
  - o pegasus-gridftp modification for ssh ftp.
  - software eggs
- panorama
- metadata for 4.6

#### **April 17th 2015**

- Pegasus 4.5.0 Release
  - o rc1 working for hub
  - ° LIGO trying it out.. wanted to change checkpoint files. need to hear back on the dashboard changes.
  - SCEC ? waiting to hear from Scott

- https://jira.isi.edu/issues/?filter=10851
- o pegasus-db-admin sqlalchemy issues? for updating tables?
- pass through implemented for Glite to PBS
- verification of update to pegasus version on running workflows
  - mats thinks his testing should do the trick.
- Pegasus Dashboard for bamboo user
  - O URL https://cartman.isi.edu:5000

Authentication - Uses PAM Authentication

Admin Users - mayani, vahi, rynge, juve, rafsilva, darek, deelman

- Cedars visit
  - SGE cluster
  - o we have 3 potential SGI cluster users Cedars, Vision group at ISI and maybe Rutgers (that will be replaced with SLURM)
- Lavanya REST API
  - http://pegasus.isi.edu/wms/docs/4.6.0cvs/rest-api-monitoring.php
- · Pegasus 4.6 release
  - o variable expansion thing figured out
    - argument strings in dax, profile values in the dax
    - site catalog.
    - replica catalog file based one.
    - need to now make changes in various parsers
    - predefined environment variable
  - o metadata
    - LIGO Dibbs .. ability to do data reuse based on metadata attributes
    - panorama pegasus aspen interface
    - iplant
      - they want in the IRODs
      - S3 tags.
    - mats wants a better idea of what it looks like in the ideal world.
  - o file management on scratch directory, submit directory also?
  - o implementation of the REST API
  - o implementation for held job tracking
  - Panorama requirements
    - influx db monitoring , into pegasus-transfer.
    - pegasus-transfer sends messages to rabbit mq about file size transferred
    - pegasus aspen interface ( modelling tool ) . apsen is a C++ library.. pegasus planner querying the aspen models for each node.
      - command line tool pegasus-aspen

      - planner needs to send application parameters, and all the metadata for the node.
        gets back a list of attributes, memory and usage, and convert them internally into pegasus profiles
      - this can be a generator of metadata.
      - application model which is a file and a machine model
    - timeseries data . monitoring data about the dashboard, anomalies
    - there is a CEP thing that anirban is developing and will determine anomalies.
  - o dv/dt requirements
    - prediction service
    - pegasus will query the prediction service

#### **April 10th 2015**

pegasus cleanup

- · gideon removed a bunch of stuff
- will be completing the cleanup
- pegasus-plots will be deprecated in the release notes for 4.5 release and removed for 4.6

#### pegasus RC1

- built now.
- should have created a 4.5 branch and then done a tag
- pegasus-halt ( is it prototype )
- pegasus-run on already running workflow
- · pegasus-db-admin missing import
- mats will delete the rc1 branch

#### pegasus 4.5.0 release

· karan will add options for pass through text for Glite options.

#### pegasus-db-admin

should be done soon

# HPCC tutorial

- · send link to Fan fli from CHLA
- · vision group at ISI . former BBN people.

### XSEDE paper

submitted to xsede

· for journal paper, expand to pilot workflow systems. panda, swift coasters, big job

#### **REST API**

- · rajiv will add to the docbook
- largely agree
- uuid for the top level workflow

## **April 3rd, 2015**

- Pegasus 4.5 release
  - o pegasus-db-admin
    - ds
  - o planner will set auto update on pegasus-db-admin . and include
  - o extra python modules being shipped mysql config and postgres config
    - right now on our build hosts we are building mysql and postgres.
    - RPM packaging adds dependencies automatically
    - openssl dependency
    - best option is database dependencies optional
  - o targets 4.5.0 pre release candidate for thursday
  - o pegasus-dashboard updates
  - o pegasus-monitord failed for 4.4 runs
  - documentation
    - fix missing references
- REST API for monitoring workflows and jobs
  - o work on it for next week.
- questionnaire
  - 15 responses in all.
- xsede paper
  - deadline on monday . 8 pages.
  - have number of cores
    - o no reliable way for specifying cores on OSG
- web interface for influx db
- permanent influx db install

# March 2015

# March 27th, 2014

- metrics server
  - o final change pushed out by donald
- REST API
  - o job monitoring API for workflow and jobs
  - o will work with Rajiv
  - o next week friday we will have a spec out for the API
- Pegasus 4.5 release
  - o resolving pegasus-db-admin issue
  - o work on the documentation
  - o should reach may first deadline
  - o next week we will do a pre release for SCEC.
- · Job submission paper
  - for xsede some sections you will remove.
  - o need some major modifications regarding introduction.
  - o new deadline for xsede is april 6th.
- · pegasus transfer issue in google cloud vs amazon cloud
  - o gsutil causes a 1 second overhead for a zero byte file. probably an authentication protocol
  - directly with wget works faster.
  - o when you downloading larger files
    - huge overhead compared to 3 times in amazon.

## March 20th, 2015

pegasus 4.4.2 release done

• will be deployed by LIGO

tagged release for SCEC production runs .. we will do a pre-release candidate

metrics server

- follow up on histogram page?
- gideon will deploy the changes on the production machine

#### pegasus-db-admin

- updates
- dashboard and stampede expunge functions.
- sql alchemy init and duplicate code. will enable foreign keys.
- SQLAlchemy init interface takes a URI.

#### pegasus-submit-dir

- till we come up with a better name
- · can archive, move and delete

#### pegasus-dashboard archive option

• gideon will make changes to the dashboard schema.

#### transfer grouping in Pegasus

• PM-829

#### PM-851 kickstart invoke option for auxiliary jobs

#### pegasus dashboard updates

• LIGO uses for apache to use uncommon for single sign on and authentication

#### job submission survey short paper

• march 30 deadline

#### Panorama Updates

- wants to have a separate panorama branch
- mpi-exec has been merged back to master.
- similar to the adamant branch
- rabbit mq
  - has a rest interface
  - o so easy to post http messages to it
  - o uses small amount of memory
- long term we will have pegasus-service receive the messages instead of rabbit mq.
- we are collecting data and share with other people in collaboration
  - http location on obelix ( the way we did for stampede)
- real time monitoring in kickstart
  - o runtime metadata and file descriptor 3 ( did for hubzero)

### User Questionnaire

- still at same place as earlier
- gideon will send out a reminder

### March 13th, 2015

- Metrics Server
  - o deployed on the production server.
  - o want to do anything on basis of distribution of files
  - donald will create a new histogram page ,
- Pegasus NSF Report
  - o sent to Ewa
- Pegasus 4.4.2 release
  - o karan will check in release notes today
- Pegasus Tutorial as part of HPC Workshop Series in April
- Gideon will be going to the summer school.
- Pegasus 4.5.0 release
  - o Targeting May 1st release
  - o local-scratch is picked up.
  - o ensemble manager submission
    - will support both modes
    - bundle mode
       public ensemble manager, there are security issues, user credentials.
    - the person who starts the service will setup the credentials
  - o pegasus-analyzer fix for case where jobs eventually succeed after failures
  - o pegasus-db-admin update
    - ds
  - transfer grouping of staging jobs
  - Pending items
    - https://jira.isi.edu/issues/?filter=10851
- User Questionnaire
  - o 12 responses for

- o a lot of people are interested in a workshop
- better support for loops and branches
- o better provenance support .
- Workflows on Google and Amazon
  - o google takes much longer to do data transfers.
  - o non shared fs and shared fs
- metadata
- Panorama
  - o Demo in September of Panorama functionality
  - o getting data transfer metrics out of pegasus-transfer in structured way
  - what data we need to collect
  - o for third party transfers we can do timings but not rates

  - darek is working on adding real time monitoring to pegasus-kickstart
     pegasus transfer will communicate to pegasus-kickstart to report to a central server
    - can be a http server similar to metrics server
    - panorama is considering influx DB for real time monitoring.

### March 6th, 2015

- metrics server update
  - o plans to deploy the changes today, fixing last issue
  - o still has to make the database schema changes required for planner file counts
    - will be done next week
- planner reports file breakdowns
- pegasus 4.4.2 release
  - o it has fixes LIGO is interested.
  - o most probably next week.
- pegasus-db-admin
  - $\,^{\circ}\,$  reorganization of the code and the schema.
- pegasus-archive /pegasus-delete
  - o rafael does not have time to work on these because of proposal work
  - o will move to either gideon or mats
- pegasus-dashboard updates
  - o has more LIGO requests for pegasus 4.5.0 release
  - o wsgi script for root mode
- LIGO visit
  - o post 4.5 we will do better organization of files on the file structure
  - Pegasus poster for LIGO meeting
- ensemble manager
  - o scec folks will try it
  - monitord netlogger bugfix
- pegasus-transfer enhancements for panorama
- job submission paper in github
  - o pegasus and job management systems.
- online monitoring for pegasus-kickstart
  - o application sends signal to pegasus-kickstart via libinterpose
- pegasus-keg extensions
  - o the pegasus-mpi-keg is a separate executable
  - o extensions to the io stuff
  - o will incorporate in 4.5.0
- NSF report
  - o still waiting to hear from mats and scott
  - o karan is still updating the metrics page.

# February 2015

#### Feb 20th, 2015

- · metrics server update
  - donald still has to deploy the changes.
- pegasus user questionnaire
  - o gideon will send new links and will update
- SCEC update
  - o scott has debugged his memory
- Pegasus Report
  - o soykb and other iplant workflows ... part of ECSS
  - o galactic plane
  - o ahmeds work
- pegasus dashboard updates
  - o pegasus-dashboard is started whenever bamboo is built up
  - o dashboard show all states for a job now.
- pegasus-db-admin tool
  - o test cases in bamboo
  - documentation
  - o migration notes
  - o some python errors that need to be fixed.
- 4.5 release

- o still remaining
  - held jobs tracking in monitord
- o job retry set to 1 and disable retries for DAX jobs
- o decrease the held period from one hour when job is removed.
- o improved documentation for output mappers
- o ensemble manager todo's
  - we won't have ensemble manger in multiuser mode
  - support both modes ( upload a tar file and finer grained control where he specifies the DAX files and the submit directory )
  - only the dashboard will run in multiuser mode
  - how do we start ensemble manager process
    - run as per user .
- o copying of catalog files to submit directory.
- input directory copies based on recursive transfers as part of directory
  - o it won't work in condorio mode because it flattens out
  - o add type directory in the DAX schema.
- pegasus tutorial
- environment variable file substitution in site catalog, replica catalog and transformation catalog
- XSEDE Tutorial proposal and Posters

# January 2015

### Jan 14th, 2015

- · metrics server update
  - o no update from Donald still away from vacation
- Pegasus development
  - o data configuration for different sites
    - working for steven
  - o held jobs
  - o pegasus-dashboard
    - root mode for dashboard and ensemble manager
      - · gideon needs to confirm for ensemble manger
      - done for dashboard
  - o pegasus-analyzer bug fix
  - o pegasus-db-admin tool update
    - unit tests
    - bamboo pool will break.
  - o upgrade to newer version of Pegasus
    - what happens to running workflows
  - o pegasus-statistics with PMC Mats and Rajiv
    - mats and rajiv will work on it.
  - o docker based tutorial launcher
    - how to integrate in the build process
    - form
    - candidate machine
      - obelix
    - vmware colo vm
    - obelix.
- Pegasus Poster for Si2
  - $^{\circ}\;$  will base on the previous years.
  - o any particular thing we want to focus on ? or general?
- Pegasus Annual Report
  - O User questionnaire need to send out.
    - list of people to send it out to . Gideon has one.?

#### Jan 7th, 2015

- · metrics server update
  - o no update from Donald still away from vacation
- 4.4.1
- o installed on workflow
- OSG and XSEDE submit hosts will be upgraded in 3 weeks
- o need to follow up with LIGO
- database upgrade tool integration
  - documentation and manage left
  - o import error for properties
  - o python test case
- support for per site data configuration
  - o mostly done/ still need to figure out worker package staging for that.
- pegasus-dashboard
  - o should we show all job instances for a job.

- · held jobs logged by pegasus-monitord
- user questionnaire

#### December 2014

### Dec 8th, 2014

- · metrics server update
  - o minor bugs in the UI... still need to be fixed, especially how the session states are handled
  - o things remaining to do
    - database/server side pagination
    - figure out the scroll issue for the trend charts
    - move the trends charts from the home page to under planner and download tabs
    - rename run metrics to dagman metrics, and instead of showing the most number of times a workflow was run, we want to see the top applications for which dagman workflows were run
    - for the time bar on the top, have drop down menu for years and months
    - can the maps pin show the actual number, for example in the top downloads map thing
- monitord fixes
  - o for the race issue with postscript handling PM-798
    - had to change the way stdout and stderr is populated for job\_instance. It is now populated with the POST\_SCRIPT\_TERMINATED event happens
- pegasus-analyzer fixes
  - show the planner log when prescript for sub dax fails. PM-808
- we want to release 4.4.1 before the break.
  - has monitord fixes that LIGO requires
- tracking held jobs
  - o decided to add a column in the jobstate table to capture why a job was held
- changes to pegasus-keg
  - o to simulate reading in input and writing out of output files
  - o will also simulate cputime and walltime
  - o initially pegasus-keg will read in and write out the outputs and then do the sleep for the cpu time duration
  - o removing the system information that it prints out
  - o in the mpi version, the IO is solely done by the master.

# December 3rd, 2014

- · Update from Duncan on LIGO dashboard requirements
  - o run a flask module from apache
  - o let apache handle authentication
  - o read only dashboard view
  - o have a separate flask frontend.
  - o they are ok with a command line tool to remove workflow entries
  - o port collisions .. so they prefer apache to do the handling.
- failed jdbrc unit test case
- glite quoting for the environment
- pegasus-dashboard delete workflows capability
- · failing workflow reporting in the dashboard
- monitord to follow condor job log
- db admin tool updates

#### November 2014

### November 12th, 2014

- DAGMan metrics reporting
  - working and completed for 4.5.0cvs
  - o planned metrics
    - exclude the metrics that never ran.
    - have a drop down menu planned , planned and run
- RPM/ and DEB tracking for downloads
  - o mats has a script that goes through the download logs to populate the server.
  - So we are tracking those now.
- · Failed data reuse regex test
  - o make it a planning only test case
- hierarchal workflows options forwarding
  - have a value of null/none
  - o --inherit option with a comma separated list of long opts.
- · higher level DAX API for sub workflows?
  - hack to figure out the command line arguments for the planner
- Pegasus Distribute Wrapper
  - waiting to hear further from Steven

- o a /bin/bash test case
- Metrics Server Updates by Donald
  - o has the geo location running
- DB Upgrade tool Rafael ??
  - version upgrades
  - o specific table version
  - o https://jira.isi.edu/browse/PM-776

### November 5th, 2014

- · DAGMan metrics reporting
  - o already in recent DAGMan versions, can be enabled.
  - o pegasus-run having the duplicate logic.
- Pegasus Distribute Wrapper
  - o Initial implementation done and there is an example for Steven to try out
- Metrics Server Updates by Donald
- DB Upgrade tool Rafael ??

#### October 2014

## **October 29th, 2014**

- · Upcoming Proposals
  - NEESGrid call
    - Robert Flashgun with Nirav..ASU stuff. Do some earthquake stuff
    - frank mckenna for nees type stuff
      - · SCEC is part of the proposal
    - December 3rd due date
- Pegasus Development
  - monitord postscript handling
  - o dynamic hierarchy stuff
  - o Condor C with LIGO
  - O Steven Clarke Distribute Stuff
  - o pegasus-hpc-cluster ( PHC )
  - DAGMan metrics
- Kenichi Workflow
  - o SNS workflow
  - o Training material.
- Metrics UI updates
  - Trends over times
  - Geo overlay
- Darek from Poland A postdoc 1206
  - o panorama project
- Adaptive Workflows
  - o adapting workflows... they are not converging.
  - o templating workflows
  - Hopper Site Catalog
  - Sample Site Catalogs

# September 2014

## September 17th, 2014

- Checkpointing feature
  - o tested and implemented into pegasus
  - o communicated with LIGO and John Veitch will test it next week.
  - o will be run from a binary install
  - o kickstart won't enforce non zero exit code for application exit code . we will require application codes to exit with non zero status.
- · Profile and Properties documentation integration
- database schema upgrade tool
  - o rafael starts working on it
- support for google storage
  - hassan writes a paper for google storage

  - compare S3 with google storage
     parallel uploads of chunks not supported with gsutils.. relies on a very specific python module
  - ~/.botoconfig
  - o uses oath token for authentication
- works paper revisions due oct 1st.
- dv/dt paper has been submitted as a CS dept tech report.
- DOE Oakridge meeting

- o interface with ASPEN ( analytical modeling ) domain specific language for defining code.
- o combine aspen model with machine model and come up with estimates of runtimes.
- o christopher riggers from RPI models parallel storage systems.
- Explore visualization stuff for pegasus-plots and dashboard?

# August 2014

### August 25th, 2014

- Ensemble Manager User Authentication
  - o initially gideon is working on a PAM based approach
- refactored netlogger dead code
- Workflow Checkpointing support ongoing
- Google Compute Engine
  - o related to google genomics
  - o put in support for GCE transfer tool to interact with Google Storage (their S3 equivalent)
  - o put in credential handling in the planner.
  - fits well with long term planning for pegasus.
- · Replica Catalog Service

# August 18th, 2014

- Data Reuse Partial Mode
- Service integration
- Profiles and Properties Documentation
  - Scope Column in the properties documentation (transformation, job and global)
  - in profiles documentation corresponding property key
- pegasus-service integration
  - need to integrate the documentation
- redhat 5 builds
  - partially... because of 2.4 installed version pegasus-s3 fail
- authentication mechanism
- pegasus-service-admin migrate option
- new tool pegasus-db-admin
- get a new 32 bit VM with cents 6.5
- also centos 7 VM
- add a setup task that cleans \$HOME/.pegasus in bamboo infrastructure.
- Docker Kernel Problem
  - if a docker build running and you stop the build, then the whole thing crashes
  - one solution is to upgrade the kernel version.
  - cartman OS can be changed or move the docker builds to a VM.

### August 11, 2014

#### August 4th, 2014

- how to handle a single job wrapping around PMC
  - o will add a property to turn the wrapping off.
- · checkpointing for LIGO . synonym for checkpointing. user level state files.
  - o create a JIRA item that explains that.
  - $^{\circ}\,$  list the various cases that will be handled
    - a lot of times in case of eviction kill -9 is sent.
- pegasus dashboard changes
  - o multi tenancy for users.

### June 2014

### June 30th, 2014

- pegasus-remove and pegasus-dagman. pegasus-dagman has a wait of 100 seconds before monitord is killed, when pegasus-remove is called.
- rafael will add a workflow test case for JDBCRC
- Still have to make a slider.
- Karan will work on XSEDE poster for Pegasus
- IPlant and metadata requirements.
- pegasus-dagman / monitord /condor-dagman
  - o hierarchal
  - ° PMC
  - GRAM

## June 9th, 2014

- 4.4 release
  - next week

- o documentation items remaining
- JDBRC test cases and handover to SCEC
- · Dashboard improvements
  - o dashboard improvements
- Post Release Activites
  - o integrate pegasus service back into the main codebase

# May 2014

### May 12th, 2014

- PM-747
  - o will be used for soykb
  - o test case
- · Development releases
  - 0 4.4
- plan for June 20th
- automatic data dependencies
- wrap up existing stuff
- documentation
- JDBCRC change
- documentation of FAQ's
- 0 4.5
- pegasus-service
  - · some form of multi tenancy
  - · python dependencies especially for external stuff is tricky
  - rename of dashboard database tables
- pegasus-dashboard enhancements
- separate the planning job from the prescript
- checkpointing
- software cleanup
- transfers with hierarchies
- leverage condor asynch transfers in pegasus lite
- try for before christmas
- 5 minute youtube video
- o 4.6
- metadata
- dax annotation
- enhanced notifications
  - monitord
- PMC data locality
- globus online support ??
  - get credentials . at least do more research.
- skipping symbolic links

### May 5th, 2014

#### Condor week

- Lauren
  - Karan needs to provide more documentation for her
- Kent Wenger
  - dagman reporting
    - dagman metrics files is created by newer versions of DAGMan in the submit directory.
  - o retry immediate parent
    - CMS has a requirement for this also. The most important thing on Kent's plate
- dynamic workflows
  - $\circ \hspace{0.1in}$  node expansion . may not be that worthwhile
- pegasus lite asynch transfers
  - o using condor chirp in the pegasus lite shell script once the main computations are done, that way we can pipeline
  - does not work with partitionable slots
  - $^{\circ}$  does not work with condor file io

### Bamboo Test Cases

• Job got hung for a long time??

User Survey

· Developer Meeting will be moved to 1PM for

# **April 2014**

# April 21st, 2014

- Pegasus Metrics
  - · ewa sent out the report for metrics to Dan. we need to get her final version.
  - JIRA metrics
    - o work log feature of JIRA everybody does not find it useful.
    - o all developers need to be diligent of putting tasks into JIRA
    - o sub tasks in JIRA ???
    - $^{\circ}$  how to track user feature requests
  - performance improvement
    - o get the data structures upto speed.
    - o timing the cleanup is also important and canceling it if it goes too long
  - SI2 Tasks
    - · Support Data as first class objects
      - o file movement open JIRA item
      - o data flow dependencies
    - · Support annotations for runtime and files sizes
    - software review of streamlined
      - o remove pegasus-plots
      - o remove libexec
      - o remove unused example
      - o archive sub directory
      - https://jira.isi.edu/browse/PM-672
    - tutorial VM's
    - refine and document metrics
      - o we have the confluence page that captures
    - · metadata registration in catalogs
    - · triggers for enhanced notifications for long runtimes
      - we personally feel
    - pegasus service
      - have a release and multi tenancy
        - o sort out all the python stuff.
      - o reconsider moving pegasus-service back into pegasus git repo
    - documentation for integrating pegasus
    - enhance feature coverage and testing framework.
      - unit test coverage
    - adopt a model on how others can contribute to pegasus
      - document the process how people can contribute.
  - Customer Survey
    - identify questions to ask.

# April 14th, 2014

- JIRA Policy Document or page
- Pegasus Metrics
- Pegasus Survey
  - Develop a list of questions.
  - o Forward to Duncan CBC Group
- New Default Transfer Refiner BalancedCluster

### March 2014

### March 31st, 2014

- Gideon changed the tutorial VM.
- Put in backward support for old credential handling.
- Mats started on an outline for the optimizations chapter.
- next week's developer meeting is cancelled.
- general Pegasus dependencies
  - python > 2.4 and less 3.0
  - in general, easier to build from source rather than from source RPMs
- update Pegasus README
- change the build.xml to say default build without docs. remove the dist-nodoc target. instead we will have ant dist-release as the default target
- also we should start having documentation per minor release and not per major release as we do now.

## March 24th, 2014

- Pegasus 4.3.2 release done last week
- storage constraints paper gideon, rafael and karan worked on it.

- karan worked on the hpc-pegasus setup.. has workflows running through PMC
- karan and mats have a XSEDE tutorial proposal that will be submitted today
- dv/dt paper rejected for HPDC. Will try for a middleware conference due mid may
- 4.4 release
  - o checkpointing solution
  - o leaf cleanup for hierarchal workflows
  - o md5checksum option for guc transfers
    - we won't follow up on kickstart generating the checksums, but tracking checksums in replica catalog.

#### March 17th, 2014

#### Agenda

- · XSEDE poster and tutorial proposal
  - o will get it done this week. mats and karan will work on it.
- · idafen will work on a workshop paper for xsede on reproducibility
  - o 4 page limit
  - deadline is april 5th.
- energy simulation for SC 2014
  - measure energy when running workflows
  - o try to check if energy usage changes whether data is transferred to a site, or everything is executed at one site.
- sane defaults for 4.4 for transfer jobs, pre scripts etc
  - o transfer jobs
    - how many stage in jobs 2 jobs and each job with 2 threads.
    - how many threads each transfer jobs pegasus-transfer has a default to 2
    - pegasuslite job
      - change sls name ? property name change
      - control the number of threads
    - add a chapter called tuning workflows
      - mats will add about a section on tuning transfers.
        - setting clustering parameters.
    - changing back the default refiner to bundle???
  - o cleanup job
  - o change hold release time to one hour.
- new transfer refiner
  - maybe can use k means clustering?
- leaf cleanup for hierarchal workflows
  - --cleanup leaf,inplace,none
  - o tell the planner to throw a warning when
- sudharshan's paper
  - emphasize that the goal is not improving the makespan.
- 4.3.2 release
  - o release notes checked in on friday
  - o mats will tag after the release.
  - the service should be installed in the tutorial VM image.
- Condor Categories
  - o similar to dagman categories.
  - will condor accounting groups work??

### March 10th, 2014

### Agenda

- Should we stage sub-workflow output files to parent workflow scratch? (related to leaf cleanup)
- · Should we enable DAX jobs to have input and output uses, and distinguish between planner inputs and sub-workflow inputs?
- SUB DAG keyword to make pegasus generated subdag submit files match with dagman version alway
  - o From Kent, Wenger

Hey, I just wanted to touch base and find out whether you guys have made any progress towards making Pegasus-generated sub-DAG submit files match

the "normal" DAGMan format.

(See https://htcondor-wiki.cs.wisc.edu/index.cgi/tktview?tn=3891,4.)

- data reuse edge case
  - have fix for it and have added unit test cases
- altassian licenses expiring?
- plan for a pegasus workshop / meeting for 2nd week of January 2015

# March 3rd, 2014

- monitord fix for LIGO
  - pegasus plan prescripts were not logged in the database.
- checkpointing files
  - karan will create a JIRA item and send it to ligo folks for comment.
- transfer fix
- held jobs ?
- separate pegasus plan planning jobs

- o throttle jobs via category.
- real full ahead planning
  - o plan full ahead -
  - will help in debugging workflows
- hierarchal workflows planner arguments in the prescript wrapper shell scripts.
- final cleanup job for the workflow
- · fix for iplant workflows cleanup, previously generated files whose locations are determined in the replica catalog should not be cleaned up

#### Workflow reproducability (idafen)

- here for 3 months march/april and may
- document the infrastructure that was used to generate the workflows
- created ontologies to describe infrastructure.
- precip API
  - o expressed an interest in it.
  - o he focuses not on how to deploy, but instead to describe the infrastructure
  - o then do experiments that take in his description and deploy it using precept
- target two conferences
  - one systems
  - o other semantic

#### Pegasus Submit Node on HPCC

· waiting on glite recommendations from condor-admin

#### Feb 2014

## February 24th, 2014

### SCEC Transfer Issues

- hpc login crashed for scec workflows because of too many stageout jobs
- there were too many connections open at xinetd level
- · also the stageout jobs were starving all the other local universe jobs in the workflows
- so the workflows were getting bunched at the stageout level
  - we solved it by moving only the transfers to the vanilla universe on shock
  - o ran into credential handling backward compatibility we put in 4.4 after new credential handling.

#### Transfer Configuration for 4.4

- by default the number of threads will be 2
- we will expose a way via properties to increase the number if users want to have better bandwidth
- in case of any failures, pegasus-transfer will revert back on a single thread

# February 10th, 2014

Postscript handling		

- We have implemented a solution in PM-737 to get around condor quoting rules.
- MPI code are not kickstart wrapped
- Pegasus should indicate whether a clustered job or a kickstart job.
- DAGMan exitcode

#### checkpoint jobs

- 10% of runtimes
- pegasus-transfer will have to be changed
- link is set to type checkpoint
- transaction support for checkpoint

- timeout is job runtime process
- pegasus-kickstart timeout method
- also has dv/dt implications for monitoring.

pegasus-exitcode assumes success and checks for failure

- refactored the script for unit tests as a library
- pegasus-statistics
- pegasus-analyzer ( maybe some commonality)
- pegasus python library has to be included in worker package

#### pegasus-transfer

- threads are handled similar to pegasus-s3
- default threading

- expose options end to end
- initial threads to irods
- what options to set

pegasus-config will now work with a source checkout

# December 2013

### December 16th, 2013

• TODO: Talk about ADAMANT design

#### December 3rd, 2013

- 4.3.1 release

  - just need to send the announcement.
     gideon has updated the build infrastructure in bamboo to build the release
- do a drupal snippet, to update the downloads page automatically.
  - dynamically render the page using the shared directory in drupal.
- o pegasus-analyzer will have a recurse option. · identity management for pegasus service
  - o portal use case
  - user authentications
  - o website
    - put a token in a cookie.
  - o draw bigger pictures on the identity stuff.
- Unicore Testing

### November 2013

# November 11th, 2013

- 4.4 Planning
  - o according to proposal, we need pegasus as a service, metadata registration, enhanced notifications on long runtimes etc.
  - o ligo realtime analysis?
    - scott and kent mentioned that real time analysis is a priority.
    - gstreamer interface.

- investigate streaming workflows
- o unicore testing support
- Pegasus Tutorial on (Mats VM on oregon region)
- Pegasus as a service
- Ensemble Manager
  - o an ensemble has no end state currently.
  - $^{\circ}\;$  update documentation on the website
  - o gideon plans to remove the upload catalog options. instead the clients will read in the properties and automatically upload.
- NSF Cloud Proposal
  - o Experiment management.... maybe does not align itself with NSF Cloud.
- Adamant Demo
  - o workflows are setup and done.

### November 4th, 2013

- Tutorial format finalized for November 14th meeting, similar to software carpentry layout
- 4.4 release things
  - pegasus metadata support
    - dax schema changes
    - irods support for metadata attributes
    - s3 objects they can have tags associated with it.
  - transient replica catalog.
  - unicore support
  - for JIRA items move to the next one.
  - moteur support.
  - dv/dt wrapper support ( probably in a separate dv/dt branch)
- move to VMWare for hosting websites
  pegasus.isi.edu will be as a VM in a VMWARE ESX pool.
  - initially 4 VM's for Bamboo BNT
  - retire the machine for PAGE QC
  - long term we are moving to ESX

### October 2013

### October 1st, 2013

Pegasus 4.3 release

- · dashboard is separate
- prepare rpm for ligo
- ssh submission for 4.3
- tutorial vm almost done
  - o the clock issue remains, probably an issue with how virtualbox does the time.
- · need to hear back from scott
- sepiddeh working on make flow compatible code generator.

# September 2013

#### September 23rd, 2013

Software Carpentry followup

- Create a pegasus youtube channel.
- See if that can be linked from the ISI webcast page.

# ISI Pegasus Workshop

- · Submit host setup at HPCC
- specs are similar to workflow.isi.edu
- gideon will mail to HPCC admins today about this

#### **Tutorial VM**

- networking issue
  - persistent rules file /etc/udev/rules/70-persistent-networking.rules
     instead of deleting it lets just disable it in our VM's
- X with virtual box guest additions for enabling copy paste
- · turn on ntp
- · larger virtual disk will increase the size to 8GB
- · X should just add couple of hundred MB's

#### Pegasus Release

- JDBC RC
- Tutorial VM

- · pegasus-statistics
- pick up a release date
- tentatively next friday i.e the 4th.

# September 9th, 2013

#### Software Carpentry

- Karan will prepare introductory slides for Pegasus.
- Talk to John about providing a Pegasus submit node.
- Rajiv will be working on the Pegasus RNASeg VM.
- John Mehringer will go first in the second day.
- · Parking is in Levy structure in southwest corner.
- Inquire about shuttle from Health Science Campus.
- Still do RNASeq module.
- · Put Information about parking and HSC Shuttle.
  - Parking Center.

#### Pegasus Release

· waiting for Scott to do release testing.

#### Pegasus Lite Paper

• Karan will send the camera ready version today.

### Precip

- · using netlogger for logging.
- replace python logging framework
- · incorporating events from the remote site
- AMQP ?
  - Getting events into a common file.
- Run montage using precip

#### Condo of Condos Workshop

- Laurent and Gideon have 10 minutes each.
- · Bosco new name is MyHTC.

#### **August 26th, 2013**

#### Pegasus 4.3 release

- dagman metrics not implemented yet by kent. still in design phase.
- testing stuff
- unit tests running in bamboo.
- add missing data dependencies
  - o still checks and produces errors

## Precip Logging

· getting the metrics back

# Pegasus Hold

- how to get dagman stop submitting jobs
- idle jobs need to go on hold.
- we can send sigusr1 to dagman.
- · need to handle hierarchal workflows.
- JDBC RC stuff

### JDBC RC

- we will just update the existing version one.
- · have a python based RC for Replica Catalog.

## Ensemble Manager Paper

· Gideon will be working on it.

# DAGMan replacement??

· Software engg stuff.

## August 19th, 2013

- Pegasus 4.3 release
  - o output mapper stuff implemented.
  - o pegasus-statistics changes checked in by Rajiv
  - o app metrics associated with the metrics report
    - pegasus.metrics.app
    - can be used for RNASeg tracking and other applications
    - the metrics UI will be able to filter on the name.
- Globus Online Support move to 4.4 release
  - o can only do certain parts of transfers.
  - o for transfers from local submit host, we need to use globus connect
    - credentials issue
    - for submit host, there needs a local endpoint.
- · LIGO testing?
  - o prepare a pre release RPM for LIGO

## August 12th, 2013

- · Pegasus Lite Paper
  - Wait for the Big Data and Science Workshop
- 4.3 Release
- Output Mapper Submission
  - error if output site and a output mapper replica catalog specified
- Globus Online Support in pegasus-transfer
  - OAuth tokens issue.. when to get the token
  - support for multi end point with different credentials
  - probably need to do a pegasus-globus-online
     the client needs to be blocking .
- SSH Submission
  - Will use RNASeq for that.
- Boto downgrade worked.
  - did not build on RHEL 5
- Test Suite
  - · Suite of integration tests
    - checksum the files
- Ensemble Manager
  - Almost done with the first version
  - O Will work on the Galactic Plane version
- General JUnit Tests for Pegasus
- Galactic Plane Paper

# July 2013

### July 29th, 2013

#### Software Carpentry

- Workflows Tutorial
  - 1 hours overview of HPCC if HPCC folks are interested.
  - Pegasus Tutorial ( 2 hours )
  - An info part on where to run jobs
    - OSG
    - HPCC
    - XSEDE
- Pegasus Development
  - Rajiv will complete the pegasus-statistics part
  - error messages ( give more hints on what went wrong on site selection )
- Monitoring API
  - wants a jar with a simple API to monitor workflows
  - wrap it up in a jar
  - provide interface
  - portal integration
    - rest interface for the pegasus service

### July 8th, 2013

- gideon has changes checked in dax2dot based on the closures and reductions
- karan has checked in the LCA approach. But does not scale for our performance test case.
- Also changed the way edges added for the create dir nodes. that will go in for 4.3.
- Precip Paper
  - deadline extended to the 19th of July.
- Posters to be made for XSEDE
- Sudharshan will make a poster on his cleanup work on Monday.
  - Sudharshan will be going on Monday to campus to present the poster around 1-3PM

- Will give a talk to CCG group Tuesday July 16th at 11:00AM
- Currently, sudharshan's algo takes 15 seconds on a 1000 node montage workflow.

### July 1st, 2013

- · monitord bug fix checked in
- algorithm to remove extra graph dependencies
- backups
  - o we need to update the pegasus machine
    - jira, svn , website ( website and svn need to move at the same time ) , crowd updates
    - confluence was moved to another . also coordinate with action to do the move.
    - mats already updated crowd today
      - there is secret number of conf files... apache on top of tomcat
    - update to debian machines
      - obelix, cartman and stewie, and the ccg worker nodes.
- mats has updated the bamboo tests to use new filesystem paths
- ADAS abstract
  - $^{\circ}\;$  for galactic plane on Amazon. if accepted due in september.
- 4.3 release
  - $^{\circ}\,\,$  fix error messages. see what can be done to improve them .
  - o output replica catalog
  - o pegasus-transfer tests.
  - o updates to cleanup algorithm based on sudharshan's work ??
  - o release notes will be updated to indicate the dashboards move to pegasus-services thing.
- Precip Paper
  - mats will do the zotero work.
  - o submitting to cloud com in bristol uk.
  - o seppideh has some data on openstack, could not get all instances started up.
  - o seppideh will release the token to gideon to do an edit pass
- Cleanup Algorithm

### June 2013

#### June 24th, 2013

- Pegasus Development
  - Monitord issue https://jira.isi.edu/browse/PM-712
  - $^{\circ}\,$  karan has a fix that works for him.
  - o needs to test the replay mode.
- · Update on SCEC visit
  - o pegasus-archive tool
    - archive everything other than the stampede db and braindump file
  - $^{\circ}\,$  scott will try to cluster rupture variations for the same rupture in one task based on runtime estimates
  - the SGT will become 16 times bigger and post processing 8 times bigger on move to 1HZ. clustering rupture variations in scec code will help in reducing the number of jobs in the DAX
  - o Scott tried to generate a single DAX for the post processing worklfow. Was unable to do so. Has generated two dax'es
- Galactic Plane
  - $^{\circ}\,$  Cut out service. Slow times on retrieving the image from S3. Small bandwith between S3 and EC2
  - O Will need to have monitoring etc... Not fast enough for a webpage to be responsive.. will need some queuing up
  - Backups
    - Mats working on Kepler data.
    - mats tried backup with S3. does not like symlinks. will change the way backups are managed. the transfer times can be long.
- Update from Sudharshan
  - $^{\circ}\,$  Good progress. showed some simulations
- Adamant Update
  - o we are on hook for providing the interfaces in pegasus-transfer that will talk to the exo planner service
  - o also provide shadow queue service, that gives estimates on jobs that will be in the queue.
  - o supercomputing demo?
- Precip Paper
  - majeick si doing some experiments

## June 17th, 2013

- Pegasus Development
  - the dax job handling is completed.
  - o update on ligo front.
  - o condor priorities for local universe jobs
    - not handled right now.
    - gideon has a ticket open for them.
  - gideon observation of s3
    - scalable but not good latency or
- Pegasus Lite Paper
  - o mats is almost done with the runs. to grep through the runs to get the intermediate files in and out of S3

- o not done the S3 caching for rosetta as yet, still not sure, too much work for the time remaining.
- o mats did do the runs with task clustering, he got better numbers and saw a difference in case of rosetta.
- o interleaving of compute jobs and transfers. may help montage.. but won't help rosetta
- o whether we should include the new pegasus 4.2 features.
- Cleanup Algorithm
- Glacier Backups for NFS?
  - o instead of using two qnaps, just have one and use other for duplicates
  - we need a place for backups
  - currently the QNAPS are 18TB each with raid 6. Raid 10 is a better configuration on the QNAP according to the forums. This means though we will have half the space.
    - have one qnap for scratch
    - have other qnap for storage the storage will be backed upto glacier. right now QNAP only support S3. Support for glacier is coming.
  - ewa and richard think glacier backups are a good option.
    - there might be a purge policy required on glacier.
- Precip Paper
  - o change tracking on
  - use dropbox
  - o broadcast when you making a new version.

### June 10th, 2013

- Pegasus Development
- change to dax handling
- fix of stdout
- regex based replica catalog.
- changes to pegasus-statistics for aggregate statistics

#### Pegasus Lite Paper

- compute data between s3 and local disk.
- compute costs for the runs ?
- have data outside
- local cache for the S3 client ?? could affect the rosette cache.
- change the rosetta workflow.
- if there are a lot of small files.
- reading parts of files.
- Ewa will send her version of the changes.

#### Sudharshan Algorithm for Cleanup

- · Greedy appraoch planned
- will try implementing a version and show the different executable workflows created

#### June 3rd, 2013

#### Pegasus Lite Paper

- Breakdown of the runtimes , experiments
  - $^{\circ}\,$  In case of sharedfs, the kickstart runtimes in the breakdown file will be longer
  - o for the S3 case we can calculate the S3 transfer time by calculating the difference between the cumulative runtimes
  - o doing two experiments rosetta(cpu intensive) and montage( io intensive)

#### Pegasus Development

- Java DAX API issues
  - o might be some bugs in there.

### Precip Paper

- Ewa wants a link to pegasus website in the paper.
- · have more logical thinking in the paper, like reliability and repeatability

- · Sepideh adding some new figures to the paper.
- Maciek will provide an experiment use-case for the paper.

#### Stampede and Corral Annual Reports

· Karan and Mats will be working on these

#### Sudarshan's Project

- Going to look into providing a cleanup algorithm that meets a given storage constraint
- · Will look at the static problem of inserting dependencies into the workflow to achieve a solution

#### PMC Paper

- on amazon
- with clustering and pmc

#### Shirts

• Should get the logo sample this week, once we approve then we can order shirts

#### dV/dT

- Rafael is working on a draft of the data collection and modeling paper
- We are planning on publishing data, will start drafting a format this week

# May 2013

### May 20th, 2013

Confluence is going slow. Mats is going to look.

Analytics are set up on Confluence now.

#### Pegasus Transfer

• Mats committed a new version that has support for 2-stage transfers

#### Pegasus S3 Client

• Gideon changed .s3cfg to .pegasus/s3cfg

#### Pegasus Lite Paper

- · Mats is working on the experiments
- We have two weeks to the deadline

### PMC Paper

• Experiments on Amazon comparing Pegasus, Pegasus w/ Clustering, PMC alone

#### Pegasus Service

- · Finished setting up users and test suite
- Next is a quick-and-dirty ensemble manager implementation
- Gideon is going to commit a change to Pegasus that removes the dashboard components. They will live in the pegasus-service repository from now on.

### Summer Student

- · Need to think up a project. Needs to be research-oriented and relatively small.
- Cleanup? Precip?

#### Contacting users

· Find out if they need anything.

### Examples

- · Simple examples in Perl, Python and Java
- · Gideon will add them to the examples in the pegasus Git repo

# April 2013

#### April 22nd, 2013

Pegasus 4.2.1 Release

- · monitord prescript handling fixed
  - o pegasus-analyzer should detect prescript failures, and the prescript exitstatus should be logged in the database
  - o pegasus-statistics was updated for the job instance report
- pegasus planner
  - o need to confirm all checkin's are complete
- do we want to get LIGO to do a test or just release?

Pegasus statistics across workflows - Rajiv

#### Pegasus Lite Paper

- Mats will do the runs on Amazon
- · Karan will work on paper when he comes back

#### pegasus-hold and pegasus-release

- · any difference between doing a hold on the dagman directly or pegasus-dagman
- · we need to do more investigations on monitord

#### **BOSCO**

- Mats is trying to run on HPCC
- a single job is running fine.

### **April 8th, 2013**

Pegasus 4.2.1 Release

- · Work on it towards this week
- · monitord prescript issue to fix

#### Pegasus 4.3

- · pegasus statistics extensions
  - o across root workflows
  - https://jira.isi.edu/browse/PM-507
  - o condor temp file

#### Pegasus Posters

- One at XSEDE
- joint one with BOSCO team

### Pegasus Lite Paper

• Submission to IEEE Big Data

#### New Programmer Hire

- expanded posting on confluence
- New Programmer Hire
- will send out to HPC Wire , RENCI and USC SC Connect

### **April 1st, 2013**

# Pegasus Lite Paper

- Waiting on Ewa
- Not much we can do about the IEEE conference. The page limit is 8, the current size of the paper.

#### XSEDE Poster

- · Pegasus Poster. Karan will send update
- Also a joint Pegasus BOSCO poster
- Also as part of that we will get the MPI workflows up and running through Pegasus and BOSCO

#### Pegasus Development

- Bypass of staging input files for Pegasus Lite Case
- Inplace cleanup bug fixes done.
- pegasus-s3
  - o gideon checked in changes of copy from one file to another
  - o mats adds a pegasus transfer
- workflow cleanup nodes
  - separate cleanup node in the workflow
  - o for hierarchal workflows we only delete the outermost workflow
  - o what happens if no output-site specified
    - the ligo case!
- backward compatiblity for LIGO

- · Pegasus Dashboard
  - general javascript updates
- Generic Pegasus Slides
  - o 2-3 slides.

#### March 2013

### March 25th, 2013

- Pegasus Lite Paper Submission
  - We will try for https://sites.google.com/site/sweetworkshop2013/
  - Karan will move the paper to the ACM format
- Pegasus-statisitcs
  - Waiting on Scott to get back with the list of metrics
  - Rajiv will be working on it
- pegasus-s3 changes
  - o we want to be able to copy output files from one s3 bucket to another
  - o requires changes to pegasus-transfer and pegasus-s3
- final node for cleaning up remote directories
  - o also related is getting the cleanup algorithm working when we bypass first level staging.

### March 18th, 2013

- Mats has an RPM almost sorted out for LIGO that does not require us to have PYTHONPATH set. Instead the libraries go into standard locations
- Karan is testing this RPM at on spice-dev1 and has setup a page with instructions on how to submit a test workflow to VIRGO
  - https://www.lsc-group.phys.uwm.edu/ligovirgo/cbcnote/aLIGOaVirgo/130307121559GeneralInstructions%20For%20Submitting% 20Workflows%20on%20VIRGO
- Statistics across root workflows
  - o earlier gaurang had generated statistics for scec runs by hand... executiing queries on the msql command line
  - he does not have the queries documented anywhere
  - o this is something we have talked about in context of 4.3 with Rajiv
  - o will follow up with scott on wednesday's call
- 4.2.1 release
  - $^{\circ}\;$  backward compatibility for LIGO . still to be done
  - o probably next week after the pegasus annual report
  - RPM to handle native python installation
- · Pegasus Annual Report
  - Karan will work on it this week
  - $^{\circ}$   $\,$  Try to follow the same template as earlier.

### March 4th, 2013

- Sent link on DAGMan metrics to DAGMan Metrics Reporting to Ewa
- · Metrics for Rob Quick's workflow
- · Gideon pushed out kickstart changes
- Rajiv has pushed changes to the queries for the dashboard.
- Setup meeting with Jaime and Derrick at OSG AHM to discuss
  - o remote initialdir
  - o extra attributes for glite/bosco submissions
  - o mpi workflows.
- OSG Poster to be made this week. And 4.2 Release slides.

# February 2013

# February 11th, 2013

Direct submission of workflows to PBS

- Glite submission in Condor. We setup a VM that hosts a PBS scheduler and using that too test
- · Karan prepared an example for 4.2 that can be used to submit directly to local PBS using the glite interfaces in Condor
  - the remote\_initialdir / +remote\_iwd does not work
    - problem for MPI codes
    - for the time being, the example prepared relies on kickstart to change the directory before launching a job
  - o there is also a ssh style that allows us to use BOSCO to do remote submissions using SSH to a PBS cluster
    - that one also has the issue of remote initialdir
- jobstate.log refactoring.
- data transfer ( support for globus online)

- lightweight tracing
- task stats. net link socket pegasus-kickstart . how much memory the task used and io used.
- add task stats to kickstart
- ptrace
- trace linux equivalent is system tap
- dashboard improvements
- single api for clients
- last week drop down
- performance run on large workflows.

# February 4th, 2013

- CCGrid / Pegasus Lite Paper
  - Performance section
  - o remove the experiments section?
  - o OR
  - o extra experiments section
  - o have the squid proxy cache
  - o find a workshop to submit the paper
- Cloud Paper
  - Ewa is working on it.
- Git HUB Migration
  - o couple of branches like monitord , pmc and dang are branches
  - $^{\circ}~$  svn will be made read only .
  - - update the website with all the development information
  - bamboo scripts
  - documentation ( long term ) nightly builds
- SSH Submission

  - gsissh submission for blue waters
     ssh to blue waters is required for OTP
  - $^{\circ}$   $\,$  passing of parameters to PBS  $\,$
  - - SSH key
  - o ssh agent.
  - o queue keyword
  - Batch session
  - submit jobs to HPCC
     Gideon will do that.
- monitord memory explosion
  - o long term for monitord
  - o pegasus-dagman replacement
- minor release 4.2.1

  - potential monitord bug issue
     long term dagman replacement
- Response time for metrics page
  - o occasionally it is slow