News on savannah and our certification process

Joachim Flammer
The idea of this presentation is to bring you up to date on some savannah related work that I have been doing in the last months and start the discussion about our certification process...
1

Savannah database dump
We have started to use information from Savannah in several places:

- gLite release notes are created out of Savannah XML export
- Patch pages are created by trying to parse Savannah HTML pages
- Statistics deducted from Savannah search

Problem:

- Not perfect parsing
- Hand work needed
- Not full information available
Now after a long time ...
...the Savannah DB has been enabled by SPI

Features:

- The entire gLite Savannah database is dumped as a copy into a separate MySQL database.
- Update is done on an hourly base.
- Database is hosted on our repository server lxb0982.
Available from now on
on lxb0982

- To access the machine
  - Ask Louis

- To access the database
  - Ask me

So what can we do with that?

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2

How are we doing?
In order to improve our certification process ...

- ... we need to understand and monitor how we are doing
- ... we need to identify the areas for improvement and speed up

Questions:
- How is our bug status developing ...
- How long does certification take ...
- How much time do we spend in each area ...
- Where can we speed up the process ....
- ....

- I have started to
  - provide some tools
  - compile some metrics and graphs ...

... this is to start the discussion!

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Let’s look at the different areas ...

- Bugs
- Releases
- Patches
BUGS
Bug history

Graph 1: Number of bugs and open bugs over time from April 2004 to January 2008.

Graph 2: Trend of open bugs from April 2004 to January 2008.
Open bug status distribution ...

None, 474

Ready for Review, 204

Ready for Test, 624

Fixed, 15

Accepted, 2

In progress, 85

Remind, 66

Integration Candidate, 2

Integrated, 4

5 Ready for Integration, 1

Snapshot from January 2008

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Bug summary / observations

- The total number of open bugs is quite constant
- The distribution of bug status is quite worrying
- Definitely some clean up needed
Releases
Patches
Patches per release series

- glite 3.0: 350
- glite 3.1: 200
- glite 3.0 WMS: 50

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Patches per software area

Snapshot from January 2008
Opened patches (per month)

- The chart shows the number of opened patches per month from January 2006 to February 2008.
- Two versions of gLite are compared: gLite 3.0 and gLite 3.1.
- gLite 3.0 had the highest number of opened patches in January 2006, November 2006, and November 2007.
- gLite 3.1 had a peak in February 2007.
- The number of opened patches fluctuates throughout the months, with some peaks and valleys.
Patch state distribution

- Incomplete: 6%
- None: 1%
- In configuration: 29%
- Configured: 4%
- Ready for certification: 5%
- In certification: 8%
- Certified: 16%
- PPS predeployment: 6%
- PPS: 25%
Watch lifetime of a single patch

Example 1: Patch 1595

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Patch 1595 (gLite 3.1): R3.1/SLC4/i386: 2GB file fix for DPM gridftp

Example 2: Patch 1537

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Patch 1537 (gLite 3.1): gLite UNU for gLite 3.1 / 9.4

• Links to Savannah entry
• Can be accessed live on the web via:

http://lxb0982.cern.ch/gLite/APT/Savannah/patchHistorySingle.php?patch=XXXX&submit=Submit+Query

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... or watch all our patches presently in the certification process

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- Can be filtered by patch certification area (e.g. show only patches in PPS)
- Highlights High priority patches
- Links to Savannah patch information
Certification awards
our nominees

Nuno  Gergo  Juha  Andreas  Oliver

Laurence  Joe  Louis  Maria  Di Qing
(... of rock’n roll)

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Who has certified the highest numbers of patches?

- Joachim Flammer
- Savannah & our certification process
- 01. March 2008
Who has rejected the highest numbers of patches?

- Joachim Flammer
- Savannah & our certification process
- 01. March 2008
Category 'Fastest certifier'

Who is certifying our patches fastest in average?

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Certification times

Now let’s have a look at the different times spend in the certification process
Patch preparation

Total time spend in preparation

Patch in state 'None'

Patch in state 'Incomplete'

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Patch certification

Total time spend in Certification

Average: 25

Patch in state 'Ready for certification'

Average: 15

Patch in state 'In certification'

Average: 11

Patch in state 'Certified'

Average: 5
Patch in PPS

Total time spent in PPS

Average: 12

Patch in state "PPS predeployment"

Average: 5

Patch in state "PPS"

Average: 18
Total time for release process

Total time spend for Release

Average: 58
A lot of work has been done: > 500 patches!
New tools to better control of patch flow
The total release time is quite long: 58 days!!!
  Time is lost in many areas
    Preparation
    Passing on to PPS
    ...
  Process is not always followed ...
Available from now on at www.glite.org

- Bug statistics:

- Patch statistics:
3
Savannah watchdog
How to better watch savannah ...

Common savannah problems:

- Incorrect information ...
  - Incorrect item states
  - Incorrect information
  - Missing information

- Item in waiting state
  - Lost time while item is in ‘waiting state’
Introducing watchdog to regularly check savannah for:

- Incorrect states
  - Certified patch contains bugs in status ‘Ready for Test’
- Incorrect information
  - Patch contains RPMS that are not build
- Missing information
  - ‘Ready for Test’ bug does not contain proper tag
  - ..... 
- Inactivity
  - Patch stays for a long time in “None” or “Ready for Certification”
The technique behind it ...

- Information based on Savannah MySQL DB
- Batch job running php scripts once a day
- Emails warning to affected people/information
- Add further checks simply via adding a script to CVS org.glite.integration.savannah/watchdog-daily from where it will be picked up automatically
- Script executed on lxb0982
Which warnings ...?

- First enabled example:
  - Patch certification check
    - Certified patch
    - Bug not in ‘Ready for Review’ or ‘Fixed’
    - Warning mail is send to certifier

- Other possible checks:
  - Patch information
  - Tags available in fixed bugs
  - Patches changing while in certification
  - .... <your ideas> ...

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Define “default times” for different certification steps

- Example:
  - Repo creation: 2 days
  - Configuration: 5 days
  - Certification: 7 days
  - Maximum time to wait for PPS: 5 days
  - ....

- Send warning if time limit has reached
- Closely watch patch with priority ‘High’
  - Tight timing control
- Better control our external partners

Goal: Reduce lost time in waiting state
Available from now on in your mailbox.
The Patch state machine
Automate parts of patch certification

• The idea:
  • Patch is created by developer
    • Watchdog checks
      • if patch contains all necessary information
      • if RPMS have been build
    • Watchdog creates
      • ETICS build if RPMs are not yet there
      • repository using integration scripts
      • Runs installation tests (ETICS?)
      • Starts virtual machine with patch installed
    • if succesful:
      • watchdog changes the Savannah state to “Ready for certification” and informs certification coordinator
    • otherwise:
      • Watchdog changes the Savannah state to “Incomplete” and informs the submitter
What is missing for this?

- Most parts are there and just need to be linked
  - Savannah DB
  - Watchdog
  - ETICS
  - Integration scripts
  - Virtual nodes

- Missing bits
  - Savannah interface for scripts to update information in savannah
    - for this we need support from our management
      (like for the DB dump)
    - Another possibility might be to use perl www:mechanize module

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Coming soon.
Question and discussion time

IF TRAIN A LEAVES BOSTON AT 9:27 PM
HEADING WEST AT 173 MPH AND TRAIN B
LEAVES MILWAUKEE AT 10:38 AM HEADING
EAST AT 123 MPH WITH A STEADY
NORTH WIND BLOWING AT 17 MPH,
HOW LONG WILL IT TAKE YOU
TO FIND ANOTHER JOB?

Another layoff at the textbook publishing company.