LCG-1 Regional Centres View

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Contributions

- Taiwan, Tokyo, Prague, Karlsrhue, BNL, Lyon, RAL
- Few Tier2's (Prague)
- Most of the comments are reported here.
- Some issues are summarized at the end.

General Considerations

- LCG-1 is the first release of LCG software and was based on VDT+EDG MW.
- A real previous experience on these packages was available only by a limited set of centres.
- Deployment and test of Packaging where the main activities with this first release.
- No real users yet.

Good News

- Every center reported successful installation of the LCG-1 package.
- The amount of time needed oscillated between a couple of days and a couple of weeks.
- Installations with LCFGng were performed in all the sites with success.
- Communication via the LCG rollout list was usually very effective, getting thorough answers quickly.
- Once installed, the reliability of the middleware seemed much improved from EDG.

RAL

- Our biggest issue was with the installation documentation. It was not complete or clear. It assumed that everything worked and didn't address problems enough.
- We also found the diagnostics poor. When things didn't work we couldn't always find out why. We don't know if this is a criticism of the middleware, configuration, or documentation. probably all three in different circumstances.
- Overall we would have found the installation very difficult without the prior knowledge we had gained from running EDG testbeds.
- The firewall issues were not well managed. We seemed to be always catching up, finding ports used and unblocking them rather than planning to open up ports in advance. The RB ports were an example where the (EDG) documentation was wrong. Since firewalls at big sites are usually not under the control of the LCG sysadmins, planning and notice of changes are essential.
- In theory, the central generation of site config files seemed a good idea as it allowed central verification of the input data. In practice, it caught only the most egregious errors. Typos still caused problems and there were still misunderstandings of the original questions. The outcome being that errors were propagated to all other sites too.
- As a site that takes security very seriously, RAL are concerned with the speed (or lack of it) that new releases including security patches are released in response to software security alerts. There is a trade-off to be made between the risk in not verifying a new release through the certification testbed etc, and the risk in leaving LCG sites exposed to known security problems.
- We have found it easier to upgrade to a new release than to reinstall. Our attempt to upgrade from LCG0 to LCG1 was an exception to this. On occasions we have been forced to reinstall to fix problems.
- Once installed, we find the reliability of the middleware much improved from EDG. This is welcome. One might guess that this is due to LCG's improved certification and testing, but we don't care - we are just glad to report it.

FZK

- For us, the hard part of the installation was setting up the LCFGng server. There seems to be more information on this part available now, so I guess it is easier now. In addition, our system setup is highly non-standard (WNs are only accessible on an internal network and head nodes have two ethernet cards, one for the external, one for the internal network). Therefore, the configuration had to be adjusted in many places and even new or enhanced LCFGng objects were required.
- After having figured out a working initial setup, adding or upgrading nodes was easy and went rather smooth. The supplied update instructions were correct and easy to follow. Furthermore, communication via the LCG rollout list was usually very effective, getting thorough answers quickly.
- A bit problematic is the (current) requirement to use LCFGng. For our production cluster, we are currently using a different tool.
  We would like to have the possibility of using that tool for at least the installation of WNs, hopefully even all nodes. Furthermore, a non-LCFG method for installing a UI node is necessary to have users install and use their own UIs. For this to work, it is necessary to know to what extent the installed software is dependent on a certain version of the operating system (and, in the ideal case, have a version-independent set of the software). Currently, no such information is available.
- An area where communication seems to be a bit lacking is on the administrative and overview side. One example are the short notices about upgrading. That's fine for smaller upgrades, but it would be nice to have more information about the plans for maybe the next half to a full year.
- Another point for enhancements are procedures for tier 2 centers (FZK currently supports the tier 2 center in Krakow). As far as I know there are no established procedures to follow when a tier 2 site is ready to join LCG. There should be minimal guidelines that provide a step-by-step recipe on what to do, including who to contact.

BNL

- Initial decision to deploy using LCFGng-lite Reason: Strong conviction that operating system and system software should be deployed and maintained by local site administrators.
  Experience: Months of slow progress and frustration. Reasons: a) LCFGng-lite was never intended to be a supported release. b) LCG-1 does not have clearly defined dependencies, so it was nearly impossible to configure an independent system that was compatible with LCG-1. c) LCFGng-lite based deployment was only tested at CERN on systems almost identical to those that are created with the full LCFGng deployment, so most of the dependency issues were not resolved prior to release. d) No other site persisted in attempting to deploy with LCFGng-lite, so the CERN LCG deployment team needed to focus on the full LCFGng based deployment.
  Conclusion: Lessons learned, move on to full LCFGng based deployment.
- Redeploy from scratch using full LCFGng
  Experiences: Some relatively minor snags, but nothing major. Ultimately successful. Minor problems:
  a) Site config files were out of date because they had been created three months earlier. LCG dteam updated the config files to be consistent with the latest release.
  b) The machine on which we chose to deploy the UI had some problems with the grub boot loader. This type of motherboard has known sensitivity to the version of the kernel and we could not get it to work with LCFGng deployment. Ultimately swapped in a different machine.
  Note: The "problem" machine was actually one of the newer machines used and is similar to the majority of our ATLAS Linux farm.
  c) Script that mirrors the rpm repository uses wget which does not work with directory indexes from ftp servers when being used behind a proxy server. Had to find http servers to mirror from.
  d) There was a little confusion and some minor problems getting the correct packages and versions of those packages installed on the LCFGng server. Also different people & documents mention two different scripts for doing this: lcfgng_server_update.pl & checkServerRPMS.pl.

Conclusion: LCFGng deployment ultimately successful. Hardware compatibility problems (see b above) clearly demonstrate that there is a long term need to move away from a deployment system that includes the operating system. The LCG deployment team can not be expected to support every variety of hardware and sites can not be expected to all purchase the same hardware. For this to be successful, the dependencies of the LCG packages must be clearly isolated and defined.

Installation & Documentation

- Documentation was not complete or clear. It assumed that everything worked and didn't address problems enough.
- Attempt of usage of LCFGng-lite made by BNL failed:
  - LCFGng-lite was never intended to be a supported release.
  - LCG-1 does not have clearly defined dependencies, so it was nearly impossible to configure an independent system that was compatible with LCG-1.
  - LCFGng-lite based deployment was only tested at CERN on systems almost identical to those that are created with the full LCFGng deployment, so most of the dependency issues were not resolved prior to release.
  - No other site persisted in attempting to deploy with LCFGng-lite, so the CERN LCG deployment team needed to focus on the full LCFGng based deployment.

Diagnostic

- The diagnostics was found poor. “When things didn't work we couldn't always find out why. We don't know if this is a criticism of the middleware, configuration, or documentation. probably all three in different circumstances.”
- Especially in those sites where there was not previous EDG experience many comments report difficult to understand what went wrong and why.
- EDG experienced sites in most of the cases had non problems and, obviously, didn’t report about diagnostic problems.

Security & Firewalls

- The firewall issues were not well managed. "We seemed to be always catching up, finding ports used and unblocking them rather than planning to open up ports in advance. The RB ports were an example where the (EDG) documentation was wrong. Since firewalls at big sites are usually not under the control of the LCG sysadmins, planning and notice of changes are essential."
- RAL is concerned with the speed (or lack of it) that new releases including security patches are released in response to software security alerts. There is a trade-off to be made between the risk in not verifying a new release through the certification testbed etc, and the risk in leaving LCG sites exposed to known security problems.

Configurations

- In theory, the central generation of site config files seemed a good idea as it allowed central verification of the input data. In practice, it caught only the most egregious errors. Typos still caused problems and there were still misunderstandings of the original questions. The outcome being that errors were propagated to all other sites too.
- Site config files were out of date because they had been created three months earlier. LCG dteam updated the config files to be consistent with the latest release.
- All the sites buy new hardware and substitute old platforms: configurations will change for shure every 6 months.

Issues (1)

- Who tried to avoid LCFGng went into troubles and after many unsuccessful attempts restarted from scratch with a complete LCFGng installation.
- It would be better in the future to separate the LCG package installation from the complete system deployment
- This means that the LCG package dependencies should be completely clarified and checked before the installation with appropriate warnings in case of mismatches.
- The installed software is dependent on a certain version of the operating system. In the ideal case, a version-independent software should be available.
- CERN can't test all the possible hardware combinations and configurations. New Hardware sometimes implies an updated OS or Kernel Version.

Issues (2)

- Communication to the sites should be more "broadcast" oriented: many of the problems or solutions found in the various installations could be of valuable importance for the others. A one-to-one communication is sometimes necessary but should not be the default nor the privileged one.
- Newcomers should profit of a well accessible knowledge database which can help them to solve their problems.
- A complete and easy to use diagnostic tool should be available to help solving the most common problems.

Issues (3)

- Tier2 deployment is presently not well defined and in particular:Tier1 should take care of that but the procedure is not clearly defined, unified and/or harmonized.
- Tier2 installation should be tested independently without compromising the entire LCG stability: a technical way of doing this should be carefully studied.
- Some Tier2's may not need to install all the services or, on the contrary, do want to install everything: no obvious uniformity.
- Tier2's not supported by a Regional Tier1 Centre should be taken into account: they will exist and can't all be served by CERN: EGEE infrastructure will help.

Conclusions

- LCG-1 despite of the many difficulties is working and the stability seems improved respect to EDG. We need a real production to test it fully.
- Previous experience of EDG sw helped a lot to start with the right choices and a quick problem solving, but….this should not be an implicit requisite.
- Independence of the installation system and operating system should be a must.
- LCFGng or something else is anyway needed by those centres which had not legacy systems already in production. (Is this the field for a collaboration work among several sites including CERN ?).