REPOSITORIES SUPPORT PROJECT

0845 257 6860

Pilot to Production

support@rsp.ac.uk

Overview

Many institutional repositories are initially established as pilot projects that are subsequently upgraded to full institutional production services. However, the operational requirements for a production service can be very different to those of a pilot project. This briefing paper introduces the main considerations related to moving from a pilot repository service to a full production service, and the ongoing issue of managing upgrades to the repository.

Pilot to Production Service

The requirements for a production service can be very different to those of a pilot project. Moving towards a full scale operational institutional service therefore requires planning and re-assessment of pilot-based processes. Ideally, a new plan will be developed to address the scalability of existing provisions and assess broader operational requirements. Operational aspects to consider include:

- **Server capacity**: As the repository and the demand for its resources grow, will the repository server be powerful enough to support the increased demand? Will there be sufficient storage capacity, for example in terms of complex object types such as multimedia files with large file sizes? If required, can additional storage be added to existing machines?

- **Reliability/Failover**: Does the repository server need to deliver a guaranteed service level? Is a second server required in case the primary server fails?

- **Backup**: Is the repository server part of an institutional backup system? Are backup and restore procedures in place? Have they been tested?

- **Operational Support:** Do technical staff have adequate knowledge to perform routine maintenance on the repository server? Who will be responsible for maintaining the machine and its operating system, for example ensuring security patches are applied? When is technical support available and is the repository automatically monitored?

- **Staffing**: Who will handle software issues, such as making changes to the web interface, or adding metadata fields? Who will offer technical support to users of the repository?

- **System Integration**: Within an institution, there are often existing information systems with which the repository service could share information. Often these integrations are overlooked in the pilot phase, but become more strategically important as the repository grows. If integration is an issue, what dependencies are created and how do their technical support terms match those of the repository?

It is likely that many of these operational issues are already being addressed for existing institutional systems besides the repository; for example, other systems, like the virtual learning environment or email system will have operational support procedures and replacement servers established in the event of system failure. Liaise with the information and computing services department to find out what happens with existing services and make use of these policies.

Upgrading Production Services

Software systems require updating as bugs are discovered and new functionality is released. Software vendors (including open source projects) often stop supporting older releases and keeping up

to date is important. In pilot projects it is often acceptable to take the system offline, perform the update and then restart it. With production services where there is guaranteed or expected availability the situation is more complicated. Upgrades are a balancing act between providing a stable service and staying up to date. Some things to consider are:

- **Scheduling**: Bugs are often discovered by early adopters as well as pre-release testers. Unless an immediate upgrade is required (e.g. to address security flaws) it may be beneficial to adopt a slightly delayed upgrade schedule.

- **Staffing:** Upgrading will require technical staff as well as additional administrative time and resources.

- **Planning**: Transparent changes to production services are difficult and have to be carefully planned. For major upgrades the process could take many months, including testing. Users may require training and support in order to adapt to the new service.

- **Customisation**: Local changes made to the repository's public, submission and administrative interfaces may need to be carried over to the new version. The upgrade software may provide a tool for doing this, but customised elements will require additional checking. Test and factor in more staff time if required.

- **Plug-ins**: Core parts of the software often change with upgrades. When this happens, plug-ins (even those created by the platform developers) can stop working and any essential plug-ins should be tested to ensure they work after the upgrade. Continued availability and integrity of content developed using such plug-ins should also be assessed.

- **Consistency and dependency**: Will the upgrade have knock-on effects on dependent services?
  - for example, will URLs change? Does the upgrade introduce changes to the structure of the repository and does this have any implication for search engines and harvesters?

Managed upgrades will already be scheduled for similar services within the institution and these can provide a model process for the repository to emulate.

Conclusion

This paper has outlined numerous technical matters associated with managing upgrades to repository hardware and software and moving from a pilot to production service. Awareness of these issues will help repository managers handle the shift from pilot project to production service and plan the move from one version to the next. With careful planning and full documentation any potential difficulties should be minimised, particularly if early risk assessments are carried out and the service evaluated after any alterations.

References & Further information:

Repositories Support Project
http://www.rsp.ac.uk/

The Repositories Support Project (RSP) aims to co-ordinate and deliver good practice and practical advice to HEIs to enable the implementation, management and development