INCIDENT REPORT
INFORMATION TECHNOLOGY SERVICES

Incident Report – August 20, 2016
Incident #2016-160
WebPublish2 Production Database Outage

Summary

On Saturday, August 20th, 2016 between approximately 2:47 pm - 5:40 pm, the production WebPublish2 service was unavailable (including both live sites and the authoring environment).

This outage was due to an issue with the MySQL database backend for WebPublish, which ran out of disk space, and was unable to process requests. The database VM has had its configuration modified by limiting the duration that binary logs are retained on the server so that this issue cannot recur.

Impact

All live WebPublish sites, and the authoring environment were inaccessible for just under three hours, on the afternoon of Saturday, August 20th, 2016.

There are approximately 200 sites hosted on WebPublish. Any user trying to access the Queen's WebPublish websites would have been affected by this outage.

Root Cause

The MySQL database was not configured to automatically delete old binary log files (stored in "/data/mysql"), and as a result, they kept accumulating on disk until the "/data" partition was completely full.

As the MySQL temporary directory ("/data/tmp") is also located under "/data", this also prevented the service from restarting correctly, creating new connections or changing the contents of the database until some disk space was freed up**.**

ITS Systems recently setup a NAS mount for the "mysqldump" backup files to be stored in, to avoid backup files from filling the disk on the VM. However, write permissions were not granted on the folder, causing the "mysqldump" backup script to fail, including the portion that flushes old binary log files from disk once the dump is completed.

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Resolution

The main MySQL configuration file, "/etc/my.cnf", was modified to include "expire_logs_days=3", causing MySQL binary logs on the server to automatically be deleted after three days.

Approximately 200 of the oldest binary logs were deleted from the MySQL working directory on the server ("/data/mysql"), which freed up about 20 GB on disk.

The MySQL service was then restarted, and once the database came back online, the WebPublish service was restored.

Communications (Internal)

The weekend on-call person contacted the ITS Middleware Team via telephone to alert them that there was an issue with the WebPublish Database.

The team coordinated via text message until the issue was resolved.

ITSPP Communications (External)

An ITS Notification was created at 3 pm indicating that the service was unavailable. Another notification was created at 5:49 pm indicating that the service was restored.

Lessons Learned

When setting up new MySQL databases, automated cleanup of the binary log files and the "mysqldump" backups must be configured. Additionally, when network mounts are added to VMs, the system scripts and folder permissions relying on them must be tested, in order to verify functionality.

Action Items

All ITS Middleware-managed Linux MySQL databases will have their configuration examined, in order to verify that this issue (the disk reaching capacity due to binary log retention) cannot recur, or occur on any of our other databases.