Gemini Incident Overview

February 2008

Agenda

Focus this part of the presentation is on the system elements of last year's Gemini incident :-

- Briefly - What is Gemini?
- Why we upgraded Gemini's software
- Brief overview of project & testing
- The implementation and what happened
- Lessons Learnt - What we would do differently today

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What is Gemini?

- Gemini is the system that enables the operation of the commercial gas regime in Britain

- It is a real time system with users able to bid on-line as well as through file transfers

- The Gemini system supports

  - Energy Balancing
  - Entry Capacity
  - Exit Capacity
  - Gas Nominations

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Upgraded Gemini's software and stakeholder engagement

- Gemini runs on Oracle software

- The Oracle software was out of support from April 2007

- This risk was not acceptable over a winter period

- In November 2006 a project was started to deliver software upgrade

- The project followed xoserve's normal PRINCE 2 project management guidelines

- First upgrade date in August not achieved as further testing was required

- September date ruled out due to AQ and other operational requirements

- Only opportunity was two concurrent weekend were at end of October

- As heading into winter a go/no go decision with NG Transmission taken just before upgrade that specifically considered winter operational position

- Engagement with stakeholders including UK Link Committee and Gas Ops Forum
  - Informed of change of dates in the summer of 2007

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Gemini Upgrade Testing

- Testing approach based on best practice from previous releases
- Extensive testing programme
  - 2 months integration and system testing
  - 6 weeks OAT Performance Testing
    - Volume testing of 130% of current user load
  - 8 weeks UAT
  - 4 weeks shipper trials (voluntary)
    - 3 participants
  - 7 weeks dress rehearsal
    - Focus was on actions needed to complete the technical hardware upgrade across multiple servers and platforms
- Testing programme satisfied joint go live criteria
- Upgrade went in, deployment was successful, however …

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However …

- 21st Oct – upgraded system implemented –
  - API errors identified
- 22nd Oct – issue with Shipper views of other shippers' data
  - shipper access revoked
- 24th Oct – Code fix for data view implemented
  - Ongoing work to address data & systems issues
- 26th Oct – external on-line service restored
- 1st Nov – hardware changes implemented to external service
- 2nd Nov – API service restored
  - Further intermittent outage problem occurring to APIs
- 5th Nov – Last outage on API service recorded at 13:00

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Summary - Causes

- Two problems identified due to upgrade

  1. Application Code Construct – associated with high volume instantaneous concurrent usage of same transaction type. Fix deployed 24/10/07

  2. API error – associated with saturation usage displaying itself as "memory leakage", builds up over time and eventually results in loss of service. Indications are that this is an error with a 3rd party system software product.

Lessons Learnt

- Good working relationship between xoserve and National Grid during incident
  - Roles quickly set up as to who would manage what
  - xoserve helped to staff the contingency team set up in Warwick
  - Regular teleconferences between the two companies
- xoserve worked 24/7 with its service providers to resolve the problems
- Covered a huge amount of ground to get system back to end users in such a relatively short space of time

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What we would do differently today

Based on our internal review …

- Testing
    - Ensure testing includes multiple concurrent users
- Ensure scale of change and risks are understood by the industry and users well in advance of implementation
- Visibility to industry and users of the implementation plan, go/no go points, back out and roll forward plan
- Raise awareness amongst users of the contingency arrangements in the event that something goes wrong
- Stronger encouragement of shipper participation in testing

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