Deploying OGC web services

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Introduction

- **GeoScience Victoria (GSV)**
  - Victorian state geological survey
  - Custodian of state’s geology and mineral exploration data

- **Many and diverse stakeholders**
  - Mining and exploration companies
  - Government agencies
  - Academic institutions
  - General public

- **Cross-jurisdiction data requirements**
Why?

• Why use web services and community schema?
  • Maintain a number of systems which change over time
  • Need a stable standard interface to data
  • Need a context in which to improve data quality
Sandstone, slate: moderately to well sorted, variably rounded quartz with minor feldspar and lithic grains in quartz silt or clay matrix; minor quartz granule conglomerate; thin to very thick bedded; black fossiliferous...
Data trouble

- GIS layers fit for one purpose: maps
- No use to stakeholders requiring
  - Repeatable
  - Comparable
  - Validate-able
  - High resolution (data, not labels)
  - Multi-purpose

access to data
<?xml version="1.0" encoding="UTF-8"?>
<gsml:GeologicUnit gml:id="gsml.geologicunit.16777549126932931">
  <gml:name codeSpace="http://www.ietf.org/rfc/rfc2616">
  <gml:composition>
    <gsml:CompositionPart>
    </gsml:CompositionPart>
  </gml:composition>
</gsml:GeologicUnit>
Method

• Standardised, science-based approach
• Small organisation, limited resources  
  • Almost no budget except individual’s time
• Leverage community involvement  
  • Government Geologist Information Committee  
  • Joined CGI interoperability working group in 2004  
  • Joined EarthResourceML working group in 2007  
  • Close collaboration with AuScope/ASRDC since 2008
Team

• Domain expert
  • Former geophysicist

• Ontologist – vocabulary development
  • Former geologist

• Spatial information specialist
  • Failed geologist

• System administrator

• Java developer
Services Deployed

- **GeoSciML**
  - Detailed geological interpretations
  - Standardised Web Map Service layers

- **Observations and Measurements**
  - Drilling data (as GeoSciML boreholes)

- **EarthResourceML**
  - Mines, mineral occurrences and ore deposits
  - Key AuScope portal data-set
Future work

- **Observation and Measurement Services**
- **Web Processing Services**
  - Data transformation and conversion
  - e.g. GeoSciML to ESRI Geodatabase XML
- **Linked data**
  - Converting GML to HTML representations
- **3D and 4D integration**
  - Feed observation and ‘accurate’ interpretation data into 3D and 4D geological models
Lessons Learnt

• Honour the specifications
  • Community schema and profiles
  • Web service specifications
  • Either 100% compliant or not at all
Lessons Learnt

• Know your database
  • Must be well designed and configured
  • For example … don’t neglect spatial and a-spatial indexes

• Know your servers
  • WFSs are like any other web app – deploy accordingly
  • A good system administrator is vital
Lessons Learnt

• The hard work is mapping data models
  – Majority of the deployment time is taken up here
    • Local data models to the community schema
    • Local vocabularies to community vocabularies
  – But …

• Not without reward
  – Significant improvement in data quality
Lessons Learnt

• The hardest work is social
  • technology is no longer an impediment
  • corporate IT service providers can be

• Corporate IT support is crucial
  • and by no means certain
  • work with corporate right from the start
Summary

• Likely to already have the technical expertise to implement this
• Ensure you have the strategic and tactical support of your IT overlords
• Find a community and join it
Getting involved

• Active participant
  • Develop information models and architectures
  • Deploy test services
  • Influence – more likely to get what you want
  • Requires travel and an investment of time

• Observer/implementer
  • Deploy standards compliant services
  • Use support of community
  • As important, if not more so
  • Critical mass of participants → success
Summary

• Was it worth it? Yes!
• Achieved a lot with community support
• *Despite* our small size and limited resources
Thank you