Systems Update
Components/Architecture/Practices
GHRC System Updates

• Components
  • Database
  • Tools

• Architecture
  • Service Oriented Architecture (SOA)

• Practices
  • Development and deployment
Database
Database update

• Oracle to PostgreSQL/PostGIS

• Schema enhancements
  • Old database structure designed based on legacy hardware constraints
    • memory, processor speed, browser
    • Support hazard event model

• Benefits
  • Cost
  • Spatial support
  • Simplification
  • Flexibility
Transition approach

- Consolidate database schemas
- Normalize and simplify database schema
- Index for better performance
- Isolate database with service layer

*Production version completion by December 2016*
Architecture
Legacy Processes

Drawbacks

• Tightly coupled
• Difficult to find clean integration points
• Rigid architecture makes even small changes complex
• Limited concept of API
Service Oriented Architecture

Benefits

• Database encapsulation
• APIs
• Loosely coupled
• Easy integration for future tools and ESB
• Flexibility for future changes
Tools
API-driven (re-engineered) tools

• HyDRO 2.0
• FCX
• Metadata Catalog Ingest
• Metadata Export to CMR
• Elasticsearch
• Dashboard
Example: FCX with service APIs
DevOps
DevOps

Practice that automates and closely monitors development and deployment

• Goals:
  • automation
  • rapid prototyping
  • support future improvements in developer collaboration
  • integration-testing
  • packaging and deployment

• Tools:
  • Amazon Web Services for computing
  • Gitlab – source code repository and automation
  • Jenkins – Continuous integration
  • Selenium – Automated web testing
  • Bamboo – Continuous integration
  • JIRA – Bug tracking and requirements