EMI Registry Pilot Service

EMI All Hands Meeting

EMI is partially funded by the European Commission under Grant Agreement RI-261611

Overview

- Introduction to EMIR
- The Pilot Service
- Lessons Learned
- The Next Steps

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Purpose

- EMI Service Registry
  - Directory, Index, Catalogue, etc.
- Provides References to Services (Endpoints)
  - Associated Metadata
    - Static attributes that can be indexed
      - e.g Service Type, Supported VO, Capability
- Automated Information Management
  - Services are the authoritative source
    - Information about themselves
- Federated Building Blocks
  - *Enable Autonomous Federations*
    - *And facility interoperability between them*

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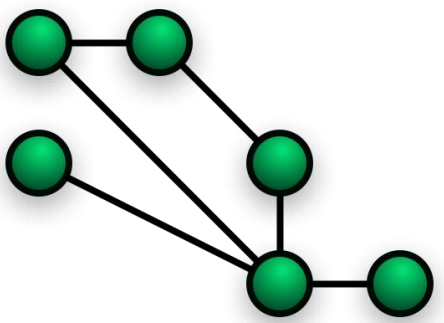
Topology

- Components
  - *Service Publisher (SP)*
  - *Domain Service Registry (DSR)*
  - *Global Service Registry (GSR)*
- *What is a Domain?*
  - *What ever you want it to be*
    - *Just represents a collection of service*
      - *That are autonomously managed*
  - *It may or may not contain sub domain*
- *Example Domains*
  - *Site, Country, Region (National or International)*



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EMI 2 Release

- *EMI 2 (Matterhorn) released May 2012*
  - *EMIR*
    - *emi-emir (DSR/GSR)*
    - *emird (SP)*
    - *emir-manual*

"Now this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning."
- Winston Churchill

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EMIR Pilot

- Small production-like rollout
  - *Virgin admins*
    - *Tests documentation, assumptions, complexity, quality*
  - *Stability*
    - *Service Stability*
    - *Infrastructure Stability*
  - *Hardening*
    - *Stupid Bugs*
    - *System Bugs*
  - *Controlled Environment*
    - *Direct contact with admins*

- Simple Topology
  - *Site DSR registering to a single GSR*

Tweaks

- Improved Documentation
  - How To Set Up a Domain Service Registry
    - Lightweight Guide
      - Reduced learning curve/effort for pilot admins
        - » Made it easy for them to help us
- Service Translation Tool (ginfo)
  - Extracts Information From Site BDII
    - Reduced integration, complexity, configuration, etc.
- Alternative Software Repository
  - Reduced overhead for updates
    - Prioritize fast iteration cycle over potential incidents

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ginfo

- Grid Info
  - Command Line Client Tool
  - GLUE 2.0 Service Records
  - Queries Information System
  - Queries EMI Registry
  - Output in different formats
    - EMI Registry format
- Available in EPEL

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DSR Locations

Feedback

- Positive
  - Well packaged (Software and Twiki Documentation)
    - Took on average 30 minutes to setup a DSR
  - Good quality implementation
    - Worked out of the box
    - No service maintenance required
- Negative
  - Could be made even more intuitive
    - Simplify configuration and released documentation
  - Improve system robustness
    - *Handling of bad input data*
      - *SERP error handling*

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Lessons Relearned

- The importance of Software Packaging
  - *This is what people "touch and feel"*
    - *And how quality will be initially judged*
  - *Good quality packages*
  - *File naming and locations*
  - *Simple and intuitive configuration*
  - *Informative log messages*
  - *Clear and targeted documentation*

- Software 1 bug per 100 lines
  - 50% chance for a configuration step!
    - *e.g. host name not specified in full*
  - *Software failure due to miss-configuration*

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Case Study

- How do you enable SSL?
  1. Make sure that the previously running server and emir-serp is stopped. ✓
  2. Open the emir.config file, change the url under emir.address from "http" to "https“. ✓
  3. Setup emir credentials and trust anchors ✗
  4. Open emir.acl file, put the acl entry: *DN/OF/EMIR-SERP :: serviceadmin, assumes emir-serp is already configured*. ✗
  5. Set the property, emir.mongodb.dbName=emiregistrysecure. ✓
  6. Restart the server and emir-serp. ✓

Lessons Relearned

- Rules are different for large-scale computing
  - *Service Availability = 99.9%*
  - *Availably of*
    - *2 services = 99.8%*
    - *10 services = 99.0%*
    - *100 services = 90.5%*
    - *1,000 services = 36.8%*
    - *10,000 services = 0.0%!*
  - *There is no such this as an exceptional circumstance*
    - *An exception for a single instance*
      - *Is a normal occurrence for a large-scale system*
  - *Pessimistic Programming*
    - *Assume everything is broken because it is*

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Lessons Relearned

- Bad Input Data
  - Due to previous two reasons
- All components must handle bad input data
- Address at source
  - Strict error checking
    - Component must reject
      - And not fail!
- Address in system
  - Source maybe the problem
    - Balance checking vs migration reliability
- Address at the client/query
  - It should not get this far!

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Future

- Improvements
  - Packaging
  - Robustness
    - SERP dies if it there is a *single* error
- Define Service Record
  - *Ensure that EMI services publish this to EMIR*
- Expand the pilot
  - *More in-depth evaluation*
  - *Invite others to participate/evaluate*

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Summary

- EMI Registry is available
- Evaluated in the pilot service
  - Feedback is positive
- A few areas for improvements
  - Will be addressed in a future update
- Will continue with the pilot
  - Evaluate Updates
- Push for rollout when ready

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