

GGF CGS-WG DAIS-WG Scenarios

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Plans

We anticipate having a first informal draft of this scenarios document for discussion at the DAIS F2F on 26 January 2004.

If you have comments on this document or would like to contribute please contact malaika@us.ibm.com.

Please send comments on this document by 2pm pacific on Tuesday 27 January 2004

Objectives and Motivation

The goal of this document is to define scenarios to drive the GGF CGS-WG effort to extend the CIM data model to take into account grid and DAIS-WG requirements. This document should support the next step - to map DAIS concepts and management related requirements to CIM:

- Where specific mappings exist, reuse the CIM classes
- Where mappings do not exist, extend the CIM models

In order to succeed in setting up and running a complete data or database system, administration and management scenarios have to be considered in addition to application access and integration of data that DAIS is focused on. Where possible, common constructs should be modeled in the same way, and similar (if not the same) terms should be used across management (which DMTF and CGS-WG are focused on) and DAIS-WG data access activities.

ASIDE: It is **not** an objective to incorporate the DMTF CIM model into DAIS, but to ensure consistency in DAIS with the CIM model where there is overlap.

Application Access Scenarios

1.1. Discovering a Database

Party 1: Publish database information in a registry (use information from CIM model)

Party 2: Search the registry

Party 2: Locate the database service with suitable characteristics

Party 2: Access the database service

1.1.1. CIM Considerations:

Instance of a CIM_DatabaseSystem (a subclass of CIM_ApplicationSystem) with supporting CIM_DatabaseServices

1.2. Immediate Query Execution

1.3. Deferred Query Execution Support

1.4. Direct Query Result Delivery Support

1.5. Asynchronous Query Result Delivery Support

1.6. Third Party Query Result Delivery Support

1.7. Third Party Asynchronous Result Delivery Support

Provisioning Scenarios

1.8. Provisioning a Complete System – Major System Set up

Party 3: Install the operating system

Party 3: Install the database management system (use information from CIM model to configure)

Party 3: Define the databases and tables

Party 3: Load the tables

Party 3: Install the applications

1.8.1. CIM Considerations:

Result of a “create database” -> An instance of CIM_CommonDatabase . Tables are not currently modeled but are a future activity of the Database WG

1.9. Provisioning a Database in an Existing Database System - – Major System Set up

- Party 4: Publish database management system information in a registry (use information from CIM model to configure)
- Party 5: Search the registry
- Party 5: Locate suitable database system with sufficient storage
- Party 6: Define the tables
- Party 6: Load the tables

1.9.1. CIM Considerations:

Locate database by checking associated CIM_CommonDatabaseStatistics

1.10. Creating a Replica in an Existing Database System - Major System Set up

Scenario 4a: Creating a Snapshot in an Existing Database System

- Party 4: Publish database management system information in a registry (use information from CIM model to configure)
- Party 5: Search the registry

- Party 5: Locate suitable database system with sufficient storage for a replica
- Party 6: Define the replica
- Party 6: Initialize the replica
- Party 7: Keep the replica in sync

1.10.1.CIM Considerations:

Locate database by checking associated CIM_CommonDatabaseStatistics

Execution Scenarios

1.11. Starting up a Complete System

- Start the computer
- Start the operating system
- Start the database system
- Run the applications

1.11.1.CIM Considerations:

Use the RequestStateChange method on CIM_EnabledLogicalElement that is inherited by all systems and services

1.12. Shutting down a Complete System - – Major system management

- Run the database backup utility
- Stop the applications
- Stop the database system
- Stop the computer

1.12.1.CIM Considerations:

Use the RequestStateChange method on CIM_EnabledLogicalElement that is inherited by all systems and services

DBA Scenarios

- 1.13. *Backup a Database***
- 1.14. *Recover a Database***
- 1.15. *Restore Database to a Point in Time***
- 1.16. *Create Database and Tables***
- 1.17. *Add Index to a Table***
- 1.18. *Alter Table***
- 1.19. *Drop Table***
- 1.20. *User and password administration***

Possible Future Work and Priorities

These are areas that may be of mutual interest to both DMTF and GGF data groups for further work in the management area, e.g., for modeling additional constructs and characteristics:

1. Relational Databases
2. Database Users
3. Data Provisioning

Relational databases are more mature than XML databases so they should be studied while taking into consideration the inclusion of XML support in relational databases, and the introduction of new types of XML databases.

The role of files is also of much interest to the community.

Security is very important but may be too big a chunk to pick up in the initial steps.

References and Useful Links

- CGS-WG <https://forge.gridforum.org/projects/cgs-wg>
- DMTF CIM <http://www.dmtf.org/standards/cim>
- DAIS-WG <https://forge.gridforum.org/projects/dais-wg>
- CIM Database Model White Paper Version 2.8 Preliminary
http://www.dmtf.org/standards/published_documents/DSP0133.pdf
- Andrea Westerinen GGF9 Charts
- GGF OGSA Data Services https://forge.gridforum.org/projects/dais-wg/document/OGSA_Data_Services/en/1
- GGF DAIS Grid Data Service Specification https://forge.gridforum.org/projects/dais-wg/document/Grid_Data_Service_Specification/en/1

- GGF DAIS XML Realization https://forge.gridforum.org/projects/dais-wg/document/Relational_Realisation/en/1
- GGF DAIS Relational Realization https://forge.gridforum.org/projects/dais-wg/document/XML_Realisation/en/4

Items to consider

- Is this a scenarios document or a use cases document?
- Consider separating out in the scenarios:
 - Provisioning
 - System Management
 - Database and Data Administration
 - Application access and integration
- Look at:
 - Product information in CIM_Product class
 - Software features in CIM_SoftwareFeature class
 - SoftwareFeatures related to Products
 - Capabilities as subclasses of the abstract CIM_Capabilities class
 - Concepts of state and status inherited from CIM_ManagedElement and CIM_EnabledLogicalElement
- Go through Andrea's charts in more detail
- On the scenarios:
 - Consider if we need to say anything about devices, application servers, and applications in the scenarios
 - Consider refining the scenarios
 - Consider introducing other scenarios
 - Consider dropping or reducing scope of scenarios
- Outline in more detail the relational database constructs required in DAIS
- Go through the CIM database paper in more detail
 - CIM Database use case
 - CIM_DatabaseSystem
 - CIM_CommonDatabase
 - CIM_CommonDatabaseStatistics
 - CIM_DatabaseService
 - CIM_DatabaseServiceStatistics
 - CIM_DatabaseParameter
 - CIM_DatabaseResourceStatistics
 - (ASIDE: Why isn't there a CIM_DatabaseResource)