OD/ITAO
NIHRFC0058
Category: Standards

Helen Schmitz / Joe Klosky
OD
February 2010

Availability – Database Management Brick V2.0

Status of this Memo

This document proposes a refreshment of a technical standard for the National Institutes of Health (NIH) and requests discussion and suggestions for improvements. Distribution of this memo is unlimited.

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1 Introduction

This document initiates the refreshment of the NIH Technical Architecture Standards for Availability – Database Management Brick for the NIH community.

2 Description

Availability - Database Management is collecting and correlating performance, event and availability statistics to predict and, thus, avoid potential downtime for database management systems.

3 Availability – Availability Management Software

This brick provides baseline information of the as-is architecture and the future direction for using Availability – Database Management software to meet business needs at NIH.

It should be noted that all technologies that are new to the brick are emboldened, and all technologies removed from the brick upon its update are indicated with a strikethrough.

Table 1. Availability – Database Management Brick

Tactical Deployment (0-2 years)	Strategic Deployment (3-5 years)
■ Auto DBA (NBS) ■ Custom Shell Scripts ■ Oracle Enterprise Manager Database Control ■ Perfmon (Windows) ■ Quest Foglight	■ TBD
Retirement Targets (Technology to eliminate)	**Containment (No new deployments)**
■ None	■ CA Unicenter ■ Idera SQL diagnostic manager Microsoft System Center Operations Management (SCOM) ■ Nagios ■ Oracle Enterprise Manager Grid Control
Baseline Environment (Today)	**Emerging** (Technology to track)
■ Auto DBA (NBS) ■ CA Unicenter ■ Custom Shell Scripts ■ Idera SQL diagnostic manager ■ Microsoft System Center Operations Management (SCOM) ■ Nagios ■ Oracle Enterprise Manager Database Control ■ Oracle Enterprise Manager Grid Control ■ Perfmon (Windows) ■ Quest Foglight	■ None
Comments	
■ Tactical and Strategic products were selected to leverage NIH's investment in products that are a proven fit for NIH's known future needs. Leveraging baseline products in the future will minimize the operations, maintenance, support and training costs for new products. ■ Some baseline products have been designated as Containment. These products are either not as widely or successfully deployed at NIH, or they do not provide as much functionality, value, or Total Cost of Ownership as low as the selected Tactical and Strategic products. ■ Pefmon is native to Windows Operating systems. As such it is well adapted to collect and alert on MS SQL server events but better tools exist for large and or complex Ms-SQL server farms. ■ Quest now calls their database monitoring tool Foglight ■ Oracle environments use software like RAC or Grid control to monitor and enhance availability.	

4 Links

The following links are relevant to the standard at NIH.

- What is a Brick ?
  http://enterprisearchitecture.nih.gov/ArchLib/Guide/WhatIsBrick.htm
- How to Create and Publish a Technical Standard at NIH
  http://enterprisearchitecture.nih.gov/About/Approach/StandardsDevelopmentProcess.htm
- Availability – Database Management Brick
  http://enterprisearchitecture.nih.gov/ArchLib/AT/TA/AvailabilityDatabaseManagementBrick.htm
- Event Management - Manager of Managers (MOM) Brick
  http://enterprisearchitecture.nih.gov/ArchLib/AT/TA/EventManagementMOMBrick.htm
- Online Transaction Processing (OLTP) Database Server Brick
  http://enterprisearchitecture.nih.gov/ArchLib/AT/TA/OLTPDatabaseServerBrick.htm
- Data Warehouse Database Server Brick
  http://enterprisearchitecture.nih.gov/ArchLib/AT/TA/DataWarehouseDatabaseServerBrick.htm
- Microsoft SQL server 2008 Cluster setup
  http://msdn.microsoft.com/en-us/library/ms179530.aspx
- Oracle Real Application Clusters (RAC) Installation guide 11G
  http://download.oracle.com/docs/cd/B28359_01/install.111/b28264/toc.htm

5 Contact

To contact the NIHRFC Editor, send an email message to
EnterpriseArchitecture@mail.nih.gov

6 Changes

Version	Date	Change	Authority	Author of Change
1.1	1/6/2010	Initiation		Joe Klosky
1.2	3/2/2010	Minor formatting changes	NIHRFC0001	Kiley Ohlson
1.3	4/19/2010	Incorporated Comments	NIHRFC0001	Kiley Ohlson
2.0	5/25/2010	Approved by ARB	ARB	Kiley Ohlson

7 Author's Address

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8 Summary of Comments

Comment

Add to Baseline environment/Tactical Deployment: Idera SQL Diagnostics Manager (DM), Microsoft System Center Operations Management (SCOM).
We will update the comments to reflect your findings of perfmon for large implementations

Response

Add to Baseline/Contained

- Idera SQL Diagnostics Manager (DM)
- Microsoft System Center Operations Management (SCOM)

Comment

Background: It is noted in the third footnote that "PerfMon (sp.) is native to Windows Operating systems. As such it is well adapted to collect and alert on MS SQL server events." This statement may well apply to the case of an individual or small group of servers. We have found MS Performance Monitor (PerfMon) to not scale well to a large number of hosted SQL Server installations. The collectors and instrumentation that are installed for use by the MS Performance Monitor do serve as the core for other software tools, including the additions above; however, the analysis, diagnostic, and reporting/alerting mechanisms of PerfMon can leave something to be desired for operations with a large number of servers. As such we use a combination of Idera SQL Diagnostics Manager to provide more fine-grained diagnostics, analysis, and history for SQL Server installations. SCOM is also used for alerting on SQL Server installations not requiring the level of detail provided by DM.

Response

We will update the comments to reflect your findings of PerfMon for large implementations.

Comment

Oracle Enterprise Monitoring Database Control is mentioned in the Baseline Environment and Tactical Deployment. Is this referring to the Oracle Enterprise Manager (OEM) Database Console? Oracle provides the OEM DB Console facility for the management/monitoring of individual database instances. There is also the OEM Grid Control which provides additional functionality and historical repository facilities for multiple databases/instances. We suggest altering the wording if this is indeed what was intended. We recommend adding OEM Grid Control as a separate item, as Oracle distinguishes them.

Response

Good feedback – edited comments to clear up Oracle context

Comment

The fifth footnote states: "Other ways to enhance availability are to add additional hardware or software clustering to the system configurations. Clustering in Oracle avements (sp.) Environments are either RAC or Grid control"
Perhaps this footnote should be removed from the document? For the most part, the footnote is referring to availability methodology, not diagnostic and monitoring functions-we are going by what is stated in (2 Description) as the subject area for this particular standards brick. In the second sentence of the footnote, Grid Control could be mentioned as an availability monitoring tool, however, RAC is an Oracle availability implementation product. This is the first place Grid Control is mentioned though, and we would suggest updating Table 1 to include it, as also suggested in 2 above.

Response

Good feedback, fixed typo to change avements to Environments. The point was unclear in that the need for monitoring may be reduced by clustered or grid configurations. While possibly true, not likely in the 24/7 connected world of NIH. We will strike the comment.

Comment

The "Availability - Database Management Brick" is missing "Mercury Interactive Topaz Web Monitoring Suite" in the tactical and strategic sections. The alert system uses scripts to assess both application response and database connectivity.

Response

Mercury was acquired by HP and has merged all Mercury products into the Business Technology Optimization (BTO) group (an operating unit HP Software and Solutions with the HP Enterprise Business).

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