IBM

IBM Customer

IBM Content Manager OnDemand Performance Optimization Service Description

January 1, 2013

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1. Description of Services

Enterprise Content Management (ECM) Software Services is pleased to submit this Service Description to IBM Customer (<IBM Cust>). <IBM Cust> has requested the following services from IBM:

> ➢ IBM Content Manager OnDemand (CMOD) Performance Optimization Package
> * **simple environment** (one Database Server, one Object Server, and one Web or Mid Tier Server implemented on Multiplatform or z/OS (no combined environments)) or
> * **complex environment** (up to two Database Servers [one active, one passive], up to three Object Servers, and up to three Web or Mid Tier Servers implemented on Multiplatforms, z/OS or combined)

The CMOD Performance Optimization Package provides systematic data gathering, in-depth analysis, and recommendations for system performance optimization. However, IBM recommends follow-on regular tune-ups to revitalize <IBM Cust>'s IBM system(s) as <IBM Cust> modifies their system profile (e.g. adding users, increasing capture volumes, changing content storage architectures).[1]

The scope of this package is limited to one Production CMOD Environment[2]:

This CMOD Performance Optimization Package will include the following activities:

1. Review of <IBM Cust>'s environment
2. Review current software versions
3. Review one CMOD environment consisting of:
   a. Simple
      1) One DB Server
      2) One Object Server
      3) One Web or Mid Tier Server (optional)
      4) Multiplatform or z/OS (no mixed environments)
   b. Complex
      1) Up to two DB Servers (one active, one passive)
      2) Up to three Object Servers
      3) Up to three Web or Mid Tier Servers (optional)
      4) Multiplatforms, z/OS, or mixed environments
4. Phase 1 Data Gathering
   a. CMOD & Components Configuration Analysis
   b. Database Monitoring & Configuration Analysis
   c. Storage Manager Review
   d. Network Settings & Performance Review
   e. Web Server(s) and Deployed Application Review
   f. Analyze Future Growth Potential
   g. Deliver Phase 1 Findings and Recommendations Document

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[1] IBM ECM also offers an Annual Performance Optimization Service and a Capacity Planning Service. Please contact your Software Services Sales Leader for details.
[2] One CMOD Environment consists of those services indicated for a "Simple" or "Complex" environment. Review of any additional services or servers other than those required as part of this Performance Optimization are considered additional options. Contact your Software Services Sales Leader for pricing for any additional services.

5. Phase 2 Data Gathering
   a. Repeat Data Gathering
   b. Deliver Phase 2 Findings and Recommendations Document.
6. Project management and coordination to facilitate a professional project delivery.

This package includes a set of tasks that <IBM Cust> must complete to facilitate a completion. The actual duration of each task varies from customer to customer, based upon their knowledge of the products and the complexity of the anticipated environment.

The resources required for this project will include both the IBM and <IBM Cust> personnel.

Any change in the scope of work defined in this Service Description requested by <IBM Cust> may result in additional costs and must be documented in a Project Change Request (PCR).

2.   Required Product Training

As part of the delivery, <IBM Cust> is required to have at least one person complete (or have previously completed) the following IBM training. The IBM education required for this installation is as follows:

- Course Code: IM170 – IBM DB2 Content Manager OnDemand System Administration

IBM may offer an equivalent Instructor Led Online (ILO) or Self Paced Virtual Course (SPVC).   Any of these courses will satisfy this installation package training requirement.

The cost for these training courses is not included in this CMOD Performance Optimization Package. Please refer to the IBM Learning Services web site for detailed information regarding class cost, schedules, course descriptions, ordering options, registration instructions and relevant IBM web site locations.

While the training defined in this service provides a good foundation for administering the system in a pre-production status, <IBM Cust> should not consider this the total set of training that their resources will need to manage their production system. The ECM Education Team can assist <IBM Cust> in obtaining a recommended training plan specific to <IBM Cust>'s requirements.

For individual training recommendations, please reference the ECM Training Paths.

For training recommendations for your entire organization, please request an Enterprise Training Plan or contact the ECM Education Team at ecmeduna@us.ibm.com or 800-455-7468.

IBM Learning Services web site:
   www.ibm.com/software/data/content-management/training.html

In the interests of quality education, IBM reserves the right to update training courses at any time.

3.   Resources

The <IBM Cust> Project Team will consist of the resources from the ECM Account Team, the <IBM Cust> technical staff and, when applicable, an IBM Business Partner. Examples of Project Team members are listed below.

3.1   ECM Team Resources

The ECM Project Lead coordinates the appropriate ECM resources as required. The ECM Team typically includes the following members:

- Project Manager (PM) –Project Lead
- IT Consulting Consultant (Delivery Consultant)
- Software Sales Representative(SSR)
- Sales IT Specialist (ITS)

3.2   <IBM Cust> Team Resources

<IBM Cust> will need to identify internal personnel to fill the roles of the <IBM Cust> Project Team. <IBM Cust> is responsible for selecting a Project Lead to share lead responsibilities with the ECM Project Lead.

Depending upon, the project the <IBM Cust> Project Team may include any of the following roles:

- Project Lead
- CMOD System Administrator
- Infrastructure Coordinator
- Storage Administrator
- Web Administrator
- LAN Administrator
- Database Administrator

4.   Role Definitions

<IBM Cust> will need to identify internal personnel to fill the roles as listed in Section 3, Resources. The following outlines the general roles for each of these individuals. Please note that additional resources may be required at various phases. Likewise, not all of the individuals may necessarily be involved in this Performance Optimization service.

Project Lead - This individual will represent <IBM Cust> resources and provide project coordination in conjunction with the ECM Project Lead.

CMOD System Administrator (1 to 3 people) - This individual will provide administrative access to the CMOD environment to allow the Delivery Consultant to gather configuration information for analysis.

Infrastructure Coordinator – This individual will identify & provide resources as needed to gather the necessary information for the Performance Optimization.

Storage Administrator - This individual will provide administrative access to the storage solution as Tivoli Storage Manager (TSM) or Object Access Method (OAM), if enabled, to allow the Delivery Consultant to gather storage device configuration information for analysis.

Web Administrator - This individual will provide administrative access to the web application solution in order to gather web application and configuration information for analysis.

LAN Administrator - This individual will be available as needed to assist with network topology information and configuration utilized in the CMOD environment. This resource will provide any input needed in order to allow the Delivery Consultant to gather configuration information for analysis.

Database Administrator - This individual will provide administrative access to the database in order to allow the Delivery Consultant to gather configuration information for analysis.

5. Responsibilities

5.1 <IBM Cust> Responsibilities

In order to facilitate a delivery, <IBM Cust> has the responsibility to provide the following:

a.) Project Prerequisites

1. All prerequisites must be met before IBM can begin the Performance Optimization.
2. Access and availability of resources in Section 3.2.
3. 'Administrator' or 'root' access to all servers and software applications that are part of the CM Performance Optimization Package
4. Access to any existing customer performance monitoring tools, scripts or output
5. Ability to utilize industry standard operating system or application specific scripts if needed to assist in data gathering or reporting
6. Completion of Performance Optimization Questionnaire

b.) <IBM Cust> acknowledge that:

1. Additional resources and time for the development of "custom applications" are not included in this service.
2. No custom application code review is included.
3. Maintenance Support is not included in the Performance Optimization Package.
4. An Active High Availability server configuration is outside the scope of this Performance Optimization Package.

c.) A Project Lead with sufficient authority to:

1. Represent <IBM Cust>'s interests
2. Serve as the focal point for all decisions and communications
3. Coordinate activities assigned to <IBM Cust> resources
4. Sign project-related documents

d.) Adequate facilities for each Delivery Consultant including:

1. cubicle, desk, telephone, and Internet access,
2. remote access (e.g., VPN access),
3. direct access to the keyboard.

e.) When performing remote work, <IBM Cust> will provide VPN access into <IBM Cust>'s network and remote access to a workstation in the network that:

1. can connect to all required servers and
2. is preloaded with all required connectivity tools appropriate to <IBM Cust>'s environment.

f.) Product Subscription and Support Agreement in place through IBM.

g.) <IBM Cust> will make available all <IBM Cust> personnel required for this project based on the agreed-upon project schedule. Any significant delays caused by <IBM Cust> personnel not being available or

project prerequisites not being met may result in schedule delays, which can impact the project sufficiently to require a chargeable PCR addressing additional or extended IBM personnel requirements and additional costs.

5.2   IBM Responsibilities

The IBM responsibilities for this package include:

   a.) Review Environment

      1. Review current software versions

      2. Review application logs for errors or recurrent issues

   b.) Review one CMOD Simple or Complex environment consisting of:

      1. Simple

         a. One DB Server

         b. One Object Server

         c. One Web or Mid Tier Server (optional)

         d. Multiplatforms or z/OS (no mixed environments)

      2. Complex

         a. Up to two DB Servers (one active, one passive)

         b. Up to three Object Servers

         c. Up to three Web or Mid Tier Servers (optional)

         d. Multiplatforms, z/OS, or mixed environments

   h.) Phase 1 Data Gathering

      1. CMOD & Components Configuration Analysis

      2. Database Monitoring & Configuration Analysis

      3. Storage Manager Review

      4. Network Settings & Performance Review

      5. Web Server(s) and Deployed Application Review

      6. Analyze Future Growth Potential

      7. Provide Phase 1 Recommendations Document

   i.) Phase 2 Data Gathering

      1. Repeat Phase 1 Data Gathering details

      2. Provide Phase 2 Recommendations Document

   j.) Provide <IBM Cust> a completed Performance Optimization Checklist

6.   Limitations

6.1   Service Limitations

The CMOD Performance Optimization Package does not include repairs, corrections or troubleshooting of performance degradation, data corruption, errors and faults that are discovered during the process due to hardware failures, or non-qualified hardware or operating systems. Repairs, corrections or troubleshooting of such errors and faults will be <IBM Cust>'s responsibility; any IBM involvement will be charged on a Time-and-Materials (T&M) basis.

ECM resources will be provided Monday through Friday from 8:00 a.m. to 5:00 p.m., excluding holidays and vacation time. Specific details regarding schedules will be mutually agreed-upon prior to the project start-date.

6.1.1 Travel & Living Expenses

This package does not include domestic travel and living expenses incurred by ECM resources traveling to <IBM Cust>'s site in order to fulfill IBM's tasks and responsibilities pertinent to delivering this service.

The Delivery Consultant may travel to <IBM Cust>'s site for up to **two** (2) visits for tasks associated with delivering this service. <IBM Cust> will be billed actual travel and living costs.

IBM will invoice <IBM Cust> for travel and living expenses and other reasonable expenses incurred in connection with the package delivery. Amounts are due upon receipt of invoice and payable within 30 days. <IBM Cust> agrees to pay accordingly, including any late payment fee. <IBM Cust> does not have to pay any amount disputed in good faith while it is being investigated, but <IBM Cust> remains obligated to pay any amount not in dispute.

Additional on-site assistance requested by <IBM Cust> beyond the number of visits indicated above will be billable subject to the execution of a PCR. IBM also reserves the right to bill <IBM Cust> for any additional trips that are the direct result of <IBM Cust>'s failure to meet or perform its obligations outlined herein.

7. Project Tasks & Deliverables

The Project Team will perform the following tasks. Deliverables for each task are detailed within the task descriptions.

7.1 Task 1: Kickoff Meeting

The purpose of this meeting is to prepare both the <IBM Cust> team and the ECM team for the CMOD Project. Topics of discussion will include <IBM Cust>'s requirements, expectations, prerequisites, and schedules. The Delivery Consultant will review the details of the package to confirm <IBM Cust>'s expectations and identify any external constraints relevant to the delivery of this package.

- Review the objectives of the Performance Optimization Package
- Review application logs for errors or recurrent issues
- Review outstanding PMR's
- Identify customer personnel, contact information and roles related to the engagement.

7.1.1 Review Project Services Description

The ECM Project Lead will review the Performance Optimization Service Description, the installation tasks, and roles and responsibilities with <IBM Cust>'s Project Team.

7.1.2 Define/Review Project Plan

Once selected, the joint <IBM Cust> and IBM Project Team customizes the sample project plan defining mutually agreed-upon dates for delivery (see Sample Project Plan). Each task is assigned a resource and a time window based on the effort required to complete the task. IBM strongly encourages the practice of joint task assignments as an excellent means of training and knowledge transfer for the team members.

7.1.3 Project Status

The PM will track all issues and document their resolution in an Issues Log. Any issue whose resolution requires a change will be documented in a PCR.

7.2   Task 2: Environment Review

The Delivery Consultant will review <IBM Cust>'s:

- server configuration (hardware, operating system and site specific software),
- ECM specific network configuration, and
- <IBM Cust>'s System Diagram.

This review will encompass the items indicated in the Performance Optimization *Questionnaire* that was delivered to <IBM Cust>. Upon completion of <IBM Cust>'s portion of this document, the Delivery Consultant will review one CMOD environment consisting of:

- Simple
  - One DB Server
  - One Object Server
  - One Web or Mid Tier Server (optional)
  - Multiplatform or z/OS (no mixed environments)
- Complex
  - Up to two DB Servers (one active, one passive)
  - Up to three Object Servers
  - Up to three Web or Mid Tier Servers (optional)
  - Multiplatforms, z/OS, or mixed environments

7.3   Task 3: Phase 1 Data Gathering

7.3.1 CMOD & Components Configuration Analysis

The Delivery Consultant will conduct a comprehensive review of <IBM Cust>'s CMOD configuration and components. The Delivery Consultant will document and present those findings relevant for consideration with this Performance Optimization.

- Review of CMOD components (versions, install and log locations):
  - o CMOD server, ODWEK, Report distribution, Exits
- Review CMOD dependencies (versions, install and log locations):
  - o O.S, WAS, Java, database, storage manager (TSM/OAM)
- Review operational schedule
  - o Load jobs submission scheduling
  - o Backups
  - o Data expiration

o   O.S. scheduling & prioritization (CMOD server, Load, expiration… DP)

- Review CMOD configuration settings

7.3.2   Database Monitoring & Configuration Analysis

The Delivery Consultant will conduct a comprehensive review of the <IBM Cust>'s Database configuration, monitoring practices, and backup methodologies in order to identify and document configuration and maintenance changes.   The Delivery Consultant, utilizing IBM Best Practices, will review the configuration to improve performance while identifying ongoing and potential bottlenecks.

- Review CMOD configuration for the Database (Application Group data table settings)
  - o   number of Application Group
  - o   number of Apps/AG
  - o   number of indexes (index usage)
  - o   max rows in database table
- Review database (DB2) settings
  - o   Review Instance settings
  - o   Review Database Configuration parameters
  - o   Review Tablespace Definitions and Disk configuration underlying the Tablespaces
  - o   Review Pagesize, Extentsize, Bufferpool settings
  - o   Review Database Managed Storage (DMS) vs System Managed Storage (SMS)
  - o   Review Table and Index definitions and Usage
  - o   Review Statistics, Table and Index Reorganization requirements

7.3.3   Storage Manager Review

The Delivery Consultant will conduct a review of the <IBM Cust>'s Tiered Storage to identify potential improvements to throughput, performance and data migration.

- Review storage configuration.
  - o   Review types of storage devices and space available
  - o   Review file system and logical volume usage
  - o   Validate effective disk I/O usage
  - o   Review Cache/Object storage settings and migration
  - o   Review TSM / OAM pools, device classes and storage volumes if applicable
- Review storage operations
  - o   Review TSM / OAM DB, activity log and schedules if applicable
  - o   Review Backup and maintenance (Runstats) schedules

7.3.4   Network Settings and Performance Review

The Delivery Consultant will conduct a review of the <IBM Cust>'s Network to identify potential improvements to throughput, performance and data migration.

- Review network settings

o Review Network Adapter devices and settings

o Review TCP/IP Settings

- Review network performance

  o Capture TCP/IP statistics and usage

  o Verify network saturation, timeout or idle conditions

7.3.5 Web Server(s) and Deployed Application Review

The Delivery Consultant will review the Web Server and application configuration identifying any potential CPU or Memory constraints from inadequately configured Java or connection settings. The Delivery Consultant will recommend ways to improve performance for system end users.

- Review WebSphere Application Server (WAS)

  o Review HTTP server configuration file and settings

  o Review and Analyze JVM and Web container settings

- Review CMOD Client Applications Deployed

  o Review overall design

  o Review connection pooling

  o Check Garbage collection setting

7.3.6 Monitor and Analyze Peak Performance Review

Reviewing peak performance periods will provide insight into <IBM Cust>'s CMOD environment and database. The Delivery Consultant will review <IBM Cust>'s performance periods to:

- Analyze available peak performance data

  ▪ Collect snapshot data

  ▪ Collect event monitor performance data on real time workloads

  ▪ Analyze post process snapshot and event monitor data to identify Top Impact Queries

- Analyze simulated peak performance data retrieval

  o Simulate current peak performance to aid in tuning

  o Create a simulation of the current retrieval workload

  o Create and collect peak performance data (on demand) for further analysis

7.3.7 Analyze future growth potential

Reviewing future peak performance will provide insight into <IBM Cust>'s CMOD growth potential. The Delivery Consultant will review <IBM Cust>'s performance periods to:

- Create a simulation of the current retrieval workload

- Increase the retrieval workload to projected future workloads

- Collect event monitor performance

- Analyze collected performance data

- Report findings (peak growth chart) and recommendations

7.3.8 Phase 1 Recommendations Document & Review

The Recommendations Document will outline specific action items by component to improve system performance for the items identified from the environment, configuration, database, and web server analysis. Lastly all recommendations will be summarized by suggested priority of action.

Following the delivery of the Recommendations Document, the Delivery Consultant will schedule a meeting to remotely review the report and recommendations.

7.4 Task 4: Second Data Collection

Following <IBM Cust>'s implementation of the recommendations provided in the Phase 1 Recommendations Document, the Performance Optimization specialist will now perform a second data collection and additional in-depth analysis of <IBM Cust>'s IBM ECM system summarized in a Phase 2 Recommendations Document.

7.4.1 Phase 2 Recommendations Document & Review

The Phase 2 Recommendations Document will outline any new action items by component to improve system performance for the items identified from the environment, configuration, database, and web server analysis. As before, all recommendations will be summarized by priority of action.

Following the delivery of the Phase 2 Recommendations Document, the Delivery Consultant will schedule a meeting to remotely review the report and recommendations.

7.5 Task 5: Project Completion Checklist

Upon demonstration of the product the Delivery Consultant will deliver to <IBM Cust> a completed Performance Optimization Checklist which constitutes completion of this project. Please refer to *IBM Content Manager OnDemand Performance Optimization Completion Checklist*.

If issues arise after delivery of the Project Completion Checklist, <IBM Cust> should contact IBM Customer Support by using the IBM toll free Customer Service telephone number 1-800-426-7378 or 1-800-IBM-SERV.