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# FDMEE vs. Cloud Data Management

Finding the Right Data Integration Toolset for Cloud and Hybrid EPM Deployments



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## Executive Summary

As more organizations begin to embrace the Oracle software as a service (SaaS) of Enterprise Performance Management (EPM) Cloud offerings, there is an often overlooked but important decision that needs to be made early in the adoption cycle - what toolset will be used to integrate data into the EPM Cloud Service products such as Planning and Budgeting Cloud Service (PBCS), Financial Close and Consolidation Cloud Service (FCCS), or Profitability and Cost Management Cloud Service (PCMCS).

This white paper explores the two primary data integration options that are available to customers and outlines the pros and cons of each. The conclusion provides a recommendation that can be applied to organizations of all industries and sizes as they plan their journey into the Cloud.

## The Challenge

Oracle continues to grow its Cloud service offerings both in terms of customer volume and functionality. The changing landscape of software and infrastructure has incited a number of organizations to adopt a cloud strategy for one or more business processes. The benefits of the Cloud are undeniable – the software is consistently enriched, the hardware is owned and maintained by Oracle, and application upgrades are touted as a thing of the past. While the shift to the Cloud is a broad topic with many considerations, the focus of this white paper is the data integration toolset, and more broadly, the integration strategy.

As customers transition to the Cloud, they are often informed that the Cloud service includes a component called Cloud Data Management (CDM) which can address all of the data integration needs for the Cloud service. Frankly, this is an overly optimistic view of the capabilities of Cloud Data Management. Data integration requirements can drive solutions that range from very simple to incredibly complex, and this large spectrum demands a more holistic assessment of the integration options.

While it is often unrealistic to evaluate the detailed solution (not just integration) requirements in a software sales cycle, the key question that every organization should have when considering their data integration strategy for EPM Cloud Services is – what are my options?

## Cloud Service Data Integration Options

As with any software offering, there are myriad potential solutions to a given need. When evaluating software options, choices are generally grouped into two categories – buy versus build. A “buy” decision is purchasing a packaged software offering. The Oracle EPM Cloud Services are an example of a buy decision. In addition to prebuilt functionality, a key benefit of a packaged offering is support for the solution including future version releases.

A “build” decision means creating a custom solution (utilizing the various available toolsets) that is specific to a single organization. The latter is generally unsupported by a software vendor, and functionality and upgradability are both subject to the skillset of the individual or team that developed the solution.

This white paper focuses on packaged (buy) solutions because they more closely align with the often-expressed goal of adopting a Cloud strategy – simplifying the solution and its ownership. While options such as Oracle Data Integrator (ODI), Groovy, or the REST API are all valid, these are considered build options in the build versus buy decision and thereby are excluded from this analysis.

In terms of packaged offerings for integration with Oracle EPM Cloud Services, the two primary options available to customers are Financial Data Quality Management, Enterprise Edition (FDMEE) and Cloud Data Management. FDMEE is a standalone on-premises solution while Cloud Data Management is an integrated component within each of the Oracle EPM Cloud Services. Before comparing these products, it is necessary to highlight the purpose and capabilities of each.

A final note about this white paper – there are a wide range of companies and system capabilities in each that need to be considered in this analysis. This paper is not intended to address every permutation but instead focus on decision points which apply most broadly.

## What is FDMEE?

Financial Data Quality Management, Enterprise Edition (FDMEE) is a purpose-built application for integrating data into the Oracle EPM suite of products. The application includes predefined logic for loading data to the on-premises EPM applications of Hyperion Financial Management (HFM), Account Reconciliation Manager (ARM), Hyperion Planning, and Essbase. Additionally, FDMEE (as of the 11.1.2.4.210 release) can integrate data directly to the EPM Cloud Services of FCCS, PBCS, PCMCS, and Enterprise Planning and Budgeting Cloud Service (EPBCS). Additional EPM Cloud Services will undoubtedly be added to the out-of-the-box integrations that FDMEE will support through additional Patch Set Updates (PSU).

FDMEE can loosely be defined as an ETL-like application. ETL is the integration process for extracting, transforming and loading data. FDMEE is not a true ETL tool because it is not intended to handle the extremely large volumes of data (millions of records in a single execution) for which a pure ETL tool such as Informatica or Oracle Data Integrator (ODI) would potentially be a better fit. That said, FDMEE provides much of the same core functionality as ETL tools with the ability to extract data from a variety of sources, transform the data to the EPM dimensionality, and load the resulting data to EPM applications.

FDMEE is different than pure ETL in that FDMEE was designed with the business user in mind. ETL solutions are generally owned and operated by the IT department. ETL executions are scheduled, and any deviation from the defined process or timeline often requires coordination between the business user requesting the off-cycle execution and the IT owner of the ETL solution.

FDMEE by contrast is often administered and maintained by business users. FDMEE users have the ability to update transformation logic through an easy-to-use web interface with little to no coding knowledge needed. Users can schedule FDMEE jobs or execute them in an ad hoc fashion as data is needed or becomes available. The end-to-end process is completely within the hands of the business users.

FDMEE provides robust and powerful extract capabilities including prebuilt adaptors to source data from Oracle E-Business Suite General Ledger, Fusion General Ledger, PeopleSoft General Ledger as well as Human Capital Management (HCM), J.D. Edwards EnterpriseOne General Ledger, SAP General Ledger, Business Warehouse (BW), and HANA. These adaptors provide the logic and coding needed to source data and eliminate the need for organizations to define and maintain custom extract queries. This is a significant value-add of FDMEE. Additionally, FDMEE can source data from any relational repository as well as any flat file format. These three methods – prebuilt adaptors, relational connection, and flat files – ensure that FDMEE is able to consume nearly any data source required to support the EPM systems to which it is intended to load data.

The transformation capabilities – also known as mapping - are another key differentiator for FDMEE. Often the transformation that occurs during a standard ETL process is accomplished through SQL queries that must be designed from scratch. While FDMEE uses SQL to perform transformation in the background, the mapping logic is input in a web interface that looks and feels very much like an Excel worksheet. Source system values are aligned to target system values in a columnar grid format. FDMEE maps support multiple mapping techniques including Explicit (One to One), Between (continuous range mapping to a single value), In (non-continuous range mapping to a single value), Like (wildcards), and even multi-dimensional maps where multiple source system segments are used to identify an EPM target dimension value.

FDMEE further differentiates itself from standard ETL solutions in its load processes. The load process is purpose-built for integration into the Oracle EPM product suite. Not only does this ensure a seamless load of data to the target EPM application, but more so it includes prebuilt logic that enriches the data load process. For example, without any additional build effort, FDMEE can execute calculations in the target EPM application to perform things such as data clearing, currency translation, or aggregation. While standard ETL tools can certainly achieve this, FDMEE offers this capability natively and requires no additional build effort outside of configuring the integration to execute these actions.

## FDMEE Value-Add Features

The above highlights how FDMEE is similar to traditional ETL with some features being more robust (e.g., preconfigured inbound and outbound integrations) and others being less so (e.g., data volumes). There are out-of-the-box features of FDMEE that offer additional differentiation relative to traditional ETL.

Because FDMEE stores its transformation logic within the application, users are able to investigate the data transformation that was applied to better understand how a source system data point was transformed to a target system intersection. Moreover, FDMEE has the ability to track changes to the transformation logic. It can track who the user was and when he or she changed the transformation logic. The application also tracks the transformation

logic before and after the change so the impact of the change is understood. Finally, FDMEE provides a tremendous amount of activity-based logging. The application captures each execution of the ETL (also referred to as Workflow) process and captures detailed information such as the user executing the process, start and end times, and in-depth technical actions that allow for not only debugging but also for performance and process tracking.

These features are a significant differentiator especially as it relates to audit controls. Often internal and/or external auditors ask for evidence to support that the data in a reporting application is up-to-date, accurate, and complete. Because data is often transformed (changed) during an ETL process, the preconfigured FDMEE reports and user interface capabilities can be used to easily validate the transformation effect. As well, a number of reports are available to audit the overall process execution – when it was run and by whom. These powerful tools can be used to prove the validity of data within the EPM application.

Finally, FDMEE offers functionality known as drill back and drill through. Drill can technically be defined as three processes – drill up/down, drill back, and drill through. Drill up/down is the process of navigating within the hierarchies or the EPM dimensions; for example, drilling down on the cost center parent named Finance to see the Accounting, FP&A, and Tax cost centers below it. Drill back is the action of moving from the EPM application to the FDMEE application to investigate the source records that make up the balance from which the drill back was initiated. Drill through is the process of moving from a source balance within FDMEE back to the source system from which the data was extracted to investigate the detailed (transactional) data that makes up the source value.

Drill back is native to any EPM system to which FDMEE loaded data. The primary caveat to this functionality is that the drill back (from EPM to FDMEE) must be initiated from an input level intersection to which data was loaded. This means that drill back cannot happen from aggregate (parent) levels within any of the hierarchies. While this is certainly an area where the community would like to see FDMEE drill back improved, proper training of the process of drill down and then drill back can often overcome this seeming limitation.

Drill through, by contrast to drill back, is not native to each source system from which FDMEE can extract data. With the preconfigured adaptors to the Oracle branded General Ledgers as well as SAP R3 and ECC, drill through is provided natively. For non-Oracle or non-SAP data sources, the drill through is contingent on the capabilities of the source system. FDMEE sends a drill through request in the form of a web (HTTP) request. The ability to drill through to the source system is thereby contingent on the source system having a handler for the web request. Any system that can accept the web request could in theory be configured to support drill through from FDMEE.

These additional value-add features highlight how FDMEE can enrich the ETL process for the Oracle EPM suite of products.

## What Is Cloud Data Management?

Cloud Data Management is intended to allow an organization to adopt a pure Cloud solution for Oracle EPM deployments. Cloud Data Management is a module within the Oracle EPM Cloud Services. It is built using the

same code line as on-premises FDMEE. Cloud Data Management can integrate flat files. It includes all the on-premises FDMEE transformation capabilities including SQL mapping which can accommodate complex transformations. It includes the prebuilt logic to natively load data to each of the Oracle EPM Cloud Service offerings. Cloud Data Management can integrate with other Oracle Cloud Service offerings including the ability to source data from and load data back to Fusion G/L Cloud. As well, it can source data from other Oracle EPM Cloud Services.

## How is Cloud Data Management Different than FDMEE?

While the core transformation and load capabilities of FDMEE are available within Data Management, some of the key features of an on-premises deployment of FDMEE have been disabled.

### Figure 1: Cloud Data Management Feature Comparison

The below table highlights the availability of FDMEE features in Cloud Data Management.

|  | On Premises (FDMEE) | Cloud (Data Management/Integrations) |
|--|---------------------|--------------------------------------|
| Flat file Processing                           | ✓                   | ✓                                    |
| Pre Built Connection to Oracle branded Ledgers | ✓                   | ✗                                    |
| Pre Built Connection to Oracle Fusion GL       | ✓                   | ✓                                    |
| Pre Built Connection to SAP ERP & DW           | ✓                   | ✗                                    |
| Direct Connection to relational data sources   | ✓                   | ✗                                    |
| Mapping  | ✓                   | ✓                                    |
| Multi-period Processing                        | ✓                   | ✓                                    |
| Data Synchronization (Hybrid Mode)             | ✓                   | ✗                                    |
| Data Synchronization (Full Cloud Mode)         | ✓                   | ✓                                    |
| Automation                                     | ✓                   | ✓                                    |
| Import, Custom & Event Scripting               | ✓                   | ✗                                    |
| Custom Reports                                 | ✓                   | ✗                                    |
| Drill Through                                  | ✓                   | ✓                                    |
| Textual "data"                                 | ✓                   | ✓                                    |

A key feature that is not available in Cloud Data Management is the ability to connect to on-premises systems. This applies to both the systems for which Oracle has created adaptors as well as those that require additional application configuration. For example, if an organization is utilizing Oracle E-Business Suite (EBS) or SAP General Ledger, Cloud Data Management is not able to connect to either of those systems. To integrate data from on-premises systems to the Oracle Cloud Service products such as EPBCS or FCCS using Cloud Data Management, a process

needs to be developed to transfer a flat file to the Cloud instance and then invoke a Cloud Data Management process. While this is certainly achievable using Oracle's EPM Automate command line utility, many organizations prefer to avoid flat file integrations when possible.

## The Role of EPM Automate

Cloud Data Management is most often used in conjunction with a light weight on-premises command line utility known as EPM Automate. At a minimum, EPM Automate is required to transfer data files to the Cloud Service instance in which Cloud Data Management is deployed; however, multiple EPM Automate commands can be strung together to create a lights-out end-to-end process for data integration. A data integration task flow may contain the following steps:

1. Login to the Oracle EPM Cloud Service instance
2. Upload a data file
3. Initialize a Cloud Data Management routine to process the data file
4. Execute calculations in the EPM Cloud Service product (e.g., EPBCS)
5. Execute a Financial Reports (FR) report in the EPM Cloud Service
6. Download the report output to an on-premises location
7. Log out of the Oracle EPM Cloud Service instance
8. Generate and send an email with the FR report attached

EPM Automate helps Cloud Data Management function as a somewhat more fully integrated solution for the Oracle EPM Cloud Services. The utility EPM Automate is not limited to Cloud Data Management; it can and often is used in on-premises FDMEE deployments as well.

## Additional Comparisons

Another feature of FDMEE that is not available in Cloud Data Management is the ability to use scripting. Scripting allows the FDMEE application to be extended beyond the standard out-of-the-box features. Scripting enables us to achieve common functions like connecting to a relational repository and extracting data or generating email status messages for lights out data processes. The scripting language that is used by FDMEE is either Visual Basic or Jython (Java on Python). Both of these languages have the ability to interact with the operating system – including that of the FDMEE application server. This creates a significant risk in a Cloud-based deployment. A malformed or malicious script could cripple an entire Cloud deployment. Because neither language has the ability to remove the specific functionality that is potentially harmful to the Cloud environment, Oracle has simply disabled all scripting ability for Cloud Data Management.

The inability to use scripting reduces the capabilities of Cloud Data Management. The criticality of data integration is an oft overlooked portion of an Oracle EPM project. Integrations can be complex as there are myriad systems from which data can be sourced in a variety of formats. While many systems can produce data files that can be

easily consumed by Cloud Data Management, others produce files that require additional processing in order to be consumed. This is generally achieved through scripting. Since Cloud Data Management does not support scripting, any additional manipulation of a source system extract would need to be accomplished either by another application/process or through manual intervention. This is suboptimal and generally avoided by most organizations due to the added complexity and/or data risk. The scripting capabilities of FDMEE help to eliminate this risk.

Finally, another feature of on-premises FDMEE that is not available in Cloud Data Management is the ability to create custom reports. FDMEE and Cloud Data Management are one of the few products in the Oracle EPM stack (on-premises at least) that come with a number of preconfigured reports. These reports provide not only access to the financial data processed through FDMEE/Data Management but also to critical process and audit information including map modifications. While Oracle has done a phenomenal job delivering reports with significant value-add, there are instances where the reports need refinement. In other cases, a new report is needed to address a specific requirement.

Unfortunately, Cloud Data Management does not provide the ability to change or author reports. Certainly, this is a much less critical difference than the aforementioned parity items but one that should at least be considered, especially in organizations that have multiple, complex integrations.

## Misconceptions

Unfortunately, there is some level of misunderstanding and/or misinformation in the marketplace about the capabilities of FDMEE and Cloud Data Management. One of the biggest misconceptions about FDMEE and Cloud Data Management is regarding the drill through to source system capability. The common belief is that drill through to the source system is only available for data that was loaded through on-premises FDMEE using one of the source system adaptors for E-Business Suite (EBS), PeopleSoft, J.D. Edwards, or SAP.

This is 100% incorrect on two fronts. First, the adaptors are used solely to extract data from the source system. The use of the adaptor is absolutely inconsequential to the ability to drill through to a source system. Drill through to source systems is available for any system which supports a web request for data – even those from which FDMEE or Cloud Data Management has not sourced data. For example, assume a data file contains a shipping tracking number on each revenue record. An FDMEE drill through path could be created that utilizes the tracking number and displays the shipping information from the external shipping website when the drill is initialized.

To further support the assertion that drill through is available for any data loaded through FDMEE or Cloud Data Management, Oracle has produced a white paper [Drill-through URL Details (Doc ID 1636621.1)] outlining steps for setting up drill through to various systems from FDMEE including those for which a source adaptor does not exist.

Second, and to some degree in concert with the first point, drill through is absolutely available from Cloud Data Management to on-premises systems even though Cloud Data Management does not support the use of source system adaptors to integrate data from on-premises systems. While there are certainly design and configuration requirements to support drill through from Cloud Data Management, it is available and supported by Oracle.

## Cloud Journey Considerations for Multi-Product EPM Organizations

Importantly, the inability of Cloud Data Management to connect to on-premises systems also applies to Oracle EPM applications such as Hyperion Financial Management (HFM) or Hyperion Planning. Many organizations are “walking” their EPM landscape to the Cloud. In other words, for those organizations that have multiple Oracle EPM products currently in use, the adoption of the Cloud is done in a measured or stepped fashion. For example, an organization may transition their Hyperion Planning deployment to EPBCS before transitioning their HFM application to FCCS. There are multiple reasons why an organization would take this approach. As of the initial writing of this white paper, FCCS was still a maturing product as it did not have full parity with on-premises HFM. PBCS and EPBCS by contrast had nearly full parity as well as additional features that were not available in on-premises Hyperion Planning. Many organizations have been comfortable adopting PBCS (or EPBCS) while choosing to wait for FCCS to continue maturing.

Another reason organizations take a stepped approach to the Cloud is that transitioning both financial close and planning processes at the same time creates risk. This risk can manifest itself in any of the three project levers – scope, timeline, and budget. The idea of scope risk is that migrating multiple processes at the same time can be a long, complex project. While the mantra that the Cloud is faster and easier is often espoused, the reality is that a project in the Cloud can have just as many complexities as an on-premises deployment. Moreover, the prebuilt value-add content of the Cloud services can often mean an adjustment to the existing business processes used in the Oracle EPM applications (not a simple “lift and shift”).

On the timeline front, moving multiple processes to the Cloud concurrently certainly adds timeline risk. Moving a single process like Financial Planning allows an organization’s resources to stay focused on a single project workstream. Often the key team members within an organization that are involved in an EPM project tend to overlap, at least in some fashion, even for processes as distinct as financial close and financial planning. Undertaking a project to move multiple processes to the Cloud concurrently requires these resources to spread their efforts across more than one workstream. This can lengthen the overall project timeline and add risk that project milestones are missed due to resource constraints.

Finally, transitioning multiple processes to the Cloud concurrently can be more expensive than a multi-phased transition. One might argue that the costs should at least be equivalent or even less with a project that migrates multiple streams concurrently. The argument for lower overall cost would be attributable to the idea that certain project tasks such as testing and migration would benefit from concurrency and only needing to be performed once as opposed to across multiple projects. However, as noted above in relation to timeline risk, projects that migrate multiple business processes to the Cloud generally leverage more external resources (consultants) due to the nature of internal resource constraints.

As a result of these risks, organizations often find it beneficial to separate the move to the Cloud into multiple projects

that do not run in parallel. This means that an organization will be operating in a hybrid mode – a mix of on-premises and Cloud applications – which introduces an important consideration. Often, there is a need to exchange data between the close solution and the financial planning solution. Cloud Data Management enables the exchange of data between Oracle EPM Cloud Services (e.g., FCCS → EPBCS); however, it does not provide native functionality to achieve this data exchange in a hybrid mode. By contrast, on-premises FDMEE natively provides the ability to exchange data between on-premises Oracle EPM systems and Oracle EPM Cloud Service products. While processes can certainly be created to allow the exchange of data between on-premises EPM systems and EPM Cloud Service applications, it requires custom development that often requires in-depth knowledge of the application programming interface (API). These solutions certainly can and have been developed, but to the earlier point, this is very much a build approach as opposed to a buy approach with on-premises FDMEE.

## Decision Factors

For an organization facing the choice between on-premises FDMEE and Cloud Data Management, there are a variety of factors that contribute to the final decision.

### Software Ownership

First, an organization needs to determine if additional software needs to be procured. For organizations that currently have the Oracle EPM stack deployed on-premises, especially HFM, there is a high likelihood that FDM Classic (prior generation of FDMEE) is already owned. Any organization that has licensed FDM Classic is entitled to FDMEE without any additional licensing expense.

FDMEE licensing is fairly straight forward. The software is licensed on a per user basis by specific functionality. Every organization that procures FDMEE needs to pay for the software itself. This portion of the licensing gets you the software but does not include any of the functionality to connect to source systems using the Oracle preconfigured adaptors or to the Oracle EPM products. Each of these things is licensed separately. In addition to the core software license, there are three licensing options in the FDMEE functionality tier:

1. **HFM Adaptor:** Provides the logic needed to natively integrate with HFM on-premises deployments
2. **Adaptor Suite:** Provides the logic for multiple integrations. First, includes all of the Oracle source system preconfigured adaptors (eBS, PeopleSoft, J.D. Edwards E1). Second, includes the ability to integrate with on-premises Hyperion Planning and Essbase applications. Finally, the adaptor suite provides the ability to integrate from an on-premises FDMEE deployment to the Oracle EPM Cloud Service products that leverage an Essbase data repository. As of the writing of this white paper, these are PBCS, EPBCS, FCCS, & PCMCS. TRCS is also on the roadmap. While ARCS does not leverage an Essbase data repository, on-premises FDMEE utilizing scripting can integrate with it. The adaptor suite must be licensed to integrate with the Oracle EPM Cloud Services.
3. **SAP Adaptor:** Provides the ability to source data from SAP General Ledger (ECC or R3) as well as SAP

Business Warehouse (BW). This source adaptor is licensed separately because Oracle needs to pay royalties to the partner (BristleCone) that developed and maintains the adaptor.

There are a number of different ways FDM Classic and FDMEE have been sold over the years. Even in an organization that is using FDM Classic or FDMEE to load to HFM, it is possible that the adaptor suite is licensed. A review of the annual maintenance agreement will generally outline which functionality is licensed for an organization.

The need to procure FDMEE can certainly be a deterrent especially for organizations that are attempting to adopt a pure Cloud model. That said, there are additional factors that should be weighed before abandoning the idea of procuring on-premises FDMEE.

### Number of Cloud Services

Another important decision point in the choice between on-premises FDMEE and Cloud Data Management is the number of Oracle EPM Cloud Services to which data needs to be integrated. This consideration is part of the overall EPM integration strategy for an organization. For organizations that have or anticipate having multiple Cloud services (e.g., PCMCS and PBCS), on-premises FDMEE is worth exploring.

Integrations in Cloud Data Management are specific to the instance to which Data Management will load data. For example, if Cloud Data Management within the PBCS instance is used to load data to PBCS, that Cloud Data Management application cannot be used to load data to the PCMCS instance. A completely separate Cloud Data Management application within the PCMCS instance would need to be created in order to load data to PCMCS.

An additional layer of complexity with Cloud Data Management is when data needs to move between instances; for example, loading actual consolidated results from FCCS to EPBCS. The Data Management application within the FCCS instance cannot push data to the EPBCS instance; data must be pulled from FCCS using the Cloud Data Management application within EPBCS. Conversely, if budget or forecast data needs to be loaded to FCCS, the pull of data from EPBCS would need to be initiated from the Cloud Data Management application within the FCCS instance.

The need to exchange data between applications highlights a current shortcoming of Cloud Data Management. The user initiating the action must always evaluate from which instance the integration needs to be performed and log in appropriately. While this is not a show stopper, it is definitely a training issue and one that could be viewed as a suboptimal end user experience.

Finally, it should be noted that the inability to share core metadata (including security) objects across Oracle EPM Cloud Service instances results in duplicative maintenance of those items across the multiple Cloud Data Management applications.

On-premises FDMEE by contrast has the ability to connect to multiple Cloud instances as well as on-premises EPM environments from a single FDMEE application. This allows data to be loaded to and exchanged between applications using a single, common application. Since on-premises FDMEE is a single application, core application

elements including security can be shared across different integrations.

## Complexity of Integrations

The anticipated level of complexity of the integrations and the features highlighted in the “How Data Management is Different than FDMEE” section of this white paper should be carefully considered. If direct connections to on-premises systems (EPM or non-EPM) are required, on-premises FDMEE is absolutely required. However, other features are harder to assess or anticipate.

Below are some questions that need to be considered when deciding between on-premises FDMEE and Cloud Data Management:

- Will my integrations need to be fully automated including email status alerts? If so, then on-premises FDMEE will be preferred.
- Are my data files in a consistent format? This means that I can import the raw data file into Excel and each field is populated consistently in each data row? If so, Cloud Data Management will very likely be able to process the file. If not, FDMEE scripting may be required to properly process the data.
- Does the organization anticipate the need for custom reports? This is hard to know with a high level of certainty. For large organizations that have robust audit requirements and/or users with highly specific reporting requests across other EPM products, it is likely that the ability to generate custom reports will be necessary, and on-premises FDMEE would be required. The majority (80%+) of organizations find the out-of-the-box FDMEE/Data Management reports to sufficiently address their needs.

## Total Cost of Ownership (TCO)

To properly calculate the true cost of ownership of FDMEE or Cloud Data Management, we need to consider not only the financial expenditures but also the human capital expense associated with owning and maintaining a solution. Often Cloud Data Management is presented as having a lower total cost of ownership. From a financial expenditure perspective, this is very likely true.

First and foremost, Cloud Data Management does not introduce any incremental software cost. The Data Management module is included in the subscription price for the Oracle EPM Cloud Service instance. While the Cloud subscription is a recurring cost similar to annual maintenance, this cost will be paid regardless of the integration approach used, and as such, the initial software cost and on-going annual maintenance cost of on-premises FDMEE must be considered.

Second, an on-premises FDMEE deployment requires additional hardware. This hardware can be physical or virtual. It can be within the data center of the organization, or it can be installed on hardware owned by an Infrastructure as a Service (IaaS) provider such as Oracle or Amazon (AWS).

Depending on the hardware deployment method (physical/virtual), there is capital expense and depreciation expense or operating expense that must be incurred.

Finally, the TCO analysis often includes a discussion of the cost of future upgrades which can be a somewhat flawed analysis. While the prior two components are certainly valid and factor into the upgrade discussion, the upgrade point is somewhat skewed. First, Oracle has stated that there will be one more major release to the on-premises software (version 11.2) that will be supported through December 2030. Any version of on-premises FDMEE that would integrate with the Oracle EPM Cloud Services would require the most current version which is 11.1.2.4. This means that there would only be one significant version upgrade of an on-premises FDMEE deployment. While patch set updates will be released at certain intervals, organizations can defer an upgrade or patch set update until a time that aligns with their needs and business processes.

Conversely, the Cloud is patched every month with new functionality being introduced. These updates do not always apply to the Data Management module, but when they do, a certain level of regression testing behooves an organization to ensure the patch did not impact any functionality currently in use. Moreover, a full version upgrade of the Cloud has yet to occur. When such a major upgrade does occur in the EPM Cloud Services, an organization will certainly need to perform the same level of testing to the system as one would with an on-premises deployment.

The core rationale for challenging the cost of Cloud upgrades being lower is that the Cloud needs to be tested more frequently. Each time the Cloud is patched/updated, there is time required to evaluate if testing is needed and if so, to actually execute the test. An organization cannot defer the Cloud updates for more than one or two cycles and as such will consistently need to test. In contrast, an on-premises FDMEE application can be upgraded on a cycle defined by the organization. If no new functionality or bug fix is required, an upgrade can be deferred indefinitely. As a result of the more frequent and mandatory testing cycles, the true cost of upgrades in the Cloud is, in my opinion, higher because the administrators are more frequently undertaking testing activities.

Software and hardware costs are an important part of the TCO analysis; however, the analysis should also include the human cost. As previously noted, Cloud Data Management lacks certain features – direct connections to on-premises systems, automation email alerts, and the bi-directional hybrid or Oracle EPM Cloud Service data movement. The lack of these features often means more manual maintenance and workflow executions for administrators and/or end users. This erodes productivity and certainly has a cost associated with it.

Moreover, the confusion of which Cloud Data Management application to use for data movement between the EPM Cloud Services can frustrate end users and administrators. This suboptimal experience can impact the perception and perceived value of the EPM Cloud Services and therefore should also be considered in the TCO analysis.

## Organizational ETL Standards

Some organizations have a defined ETL standard – usually a tool such as Informatica or Oracle Data Integrator (ODI). Prior to the advent of the Cloud, these standards would sometimes not be applied to the Oracle EPM suite of products and, in particular, Hyperion Financial Management (HFM) since FDM Classic and later FDMEE were purpose-built to allow end users to integrate data to these systems. The on-demand need for data throughout a financial close cycle

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was often better served by FDM/FDMEE.

With the introduction of the Oracle EPM Cloud Services, this decision must again be evaluated especially as it relates to maintaining on-premises software. The requirements that drove the use of FDM Classic or FDMEE – drill back, on-demand execution, end user maintenance of transformation logic (mapping) - are certainly still valid; however, the features that Cloud Data Management lacks may be augmented by an existing ETL tool.

Consider this example: an organization needs to integrate data from an on-premises Oracle PeopleSoft general ledger to PBCS. One option would be to utilize on-premises FDMEE and its native connections to PeopleSoft to source and load the data to PBCS. Utilizing batch automation and scripting, an email status report would be generated. The process would be able to be initiated on-demand or scheduled to run at set intervals.

But if the organization has not procured on-premises FDMEE licenses or is looking to eliminate the licensing, then the ETL tool on which the organization is standardized may be used in concert with EPM Automate and Cloud Data Management to achieve an FDMEE-like integration. A solution using the latter may look something like the following:

1. ETL tool executes a procedure to query data from PeopleSoft and generate a flat file
2. ETL tool uploads the output to the Cloud Service instance using EPM Automate
3. ETL tool initializes a Cloud Data Management workflow process using EPM Automate
4. ETL tool executes a Cloud Data Management report to determine workflow status using EPM Automate
5. ETL tool downloads the report output using EPM Automate
6. ETL tool emails status report to required recipients

The latter option is nearly on par with an on-premises deployment of FDMEE with a couple of caveats. First, the sourcing of data from PeopleSoft is provided as an out-of-the-box solution with FDMEE whereas in an ETL/Cloud Data Management approach, the extract query would need to be defined and maintained by the organization. Second, the level of detail that could be included in the email status generated by an ETL tool would not be as detailed or robust as an on-premises FDMEE solution. There are multiple reasons for this.

First, EPM Automate has limited return/exit codes. The execution of a Cloud Data Management workflow process returns a success or a failure like most command line executions. However, success in this instance does not indicate that the workflow process completed without error; it simply means that the initialization of the workflow process was successful. As such, in order to determine the status of the workflow execution, a Cloud Data Management report needs to be run.

Second, the workflow status report will provide workflow status, but it will not include detailed error information in the event of a failure in the workflow process. This information is housed in the Cloud Data Management relational repository, but reports to provide that information are not currently available, and as previously noted, custom reports cannot be created for Cloud Data Management. In contrast, an on-premises FDMEE deployment provides not only the ability to create custom reports but also access to the relational repository in which the detailed error information is contained. FDMEE scripting or custom reports can be used to provide this more detailed and actionable information to the appropriate users.

The above comparison of integration techniques is representative of the analysis that needs to be done when considering an integration strategy for an organization with a defined ETL standard. The requirements that need to be met for the business process should be carefully vetted. Once they are fully understood, the technical capabilities of both solutions must be evaluated to determine feasibility.

### Analysis Exclusions

As previously stated, the intent of this white paper has been to address evaluation criteria that could be most broadly applied. The use of a master data management tool such as Oracle DRM and its role in the data integration cycle was specifically excluded. This decision was made because organizations that have made an investment in a master data management solution will often operate in a hybrid on-premises/Cloud deployment model. As such, the use of on-premises FDMEE would more than likely be preferred given the additional features and integration capabilities. In addition, the forthcoming Oracle Cloud service for master data management (EDMCS fka, DMCS) introduces a yet unknown variable in the capability of using a master data management tool as part of the integration cycle. To speculate as to near and intermediate term capabilities would be a disservice and against the educational intent of this white paper.

Secondly, this white paper is intentionally absent of a discussion regarding performance. There exist myriad factors that impact application performance including hardware, network, and application design. The application design variable is not generally impacted by an on-premises or Cloud- based decision. In an era of ever-declining hardware costs including Infrastructure as a Service (IaaS) as well as virtualization technology, the hardware variable of performance can be significantly minimized or completely eliminated.

The remaining major variable in performance - network - is more difficult to address. For organizations with robust networks, the impact to the decision of on-premises versus Cloud is negligible. For organizations with users in locations with poor network performance, the decision tree may vary slightly. Some key questions to consider if network performance is a concern are:

- Where are users geographically located relative to the data center where my solution will be located? Oracle EPM Cloud Services including Cloud Data Management can be deployed in one of the Oracle data centers around the world, but a single application cannot span multiple Oracle data centers. The internet connection must be considered in these instances. This concern is not limited to Oracle Cloud Services as connection to the data center where an on-premises deployment of FDMEE is hosted must also be considered.
- Does the organization employ desktop virtualization technology such as Citrix? For organizations that have deployed these solutions, network latency can be reduced significantly.

Network performance is a multifaceted problem that requires a more tailored analysis that is beyond the scope of this white paper.

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## Conclusion

Data integration within the Oracle EPM Cloud Services is an incredibly important topic. This paper has explored the on-premises and Cloud-based options, including the features and functionality of both as well as important considerations such as the total cost of ownership. The last remaining question to answer is: which tool should my organization use? Unfortunately, there is not a singular answer to that question.

On-premises FDMEE functions as a data hub within the EPM ecosystem. Data can flow to and from on-premises applications (ERPs, Data Warehouses, on-premises EPM systems) seamlessly to and from the Oracle EPM Cloud Services. Integrations can be fully automated and centralized to a single touch point. This functionality; however, comes at an additional cost to an organization. Conversely, Cloud Data Management has no additional software licensing costs or infrastructure overhead. That said, there is a human capital cost of ownership associated with the reduced features and functionality of Cloud Data Management.

Organizations with straight forward integration requirements - no automation alerting, consistent file formats, no integration to on-premises systems - into a single Cloud service may find the “built-in” nature of Cloud Data Management to be compelling. Organizations that have a multitude of integrations with varying degrees of complexity, a need to integrate from on-premises systems including Oracle EPM products, a need to streamline integrations through advanced automation, a need to integrate data into multiple Oracle EPM Cloud Services, or any combination of these factors, will certainly favor an on-premises deployment of FDMEE.

Any organization facing the decision of which integration toolset best addresses their needs should consider each of the factors highlighted in this white paper and weigh them against the financial and human costs of each potential solution.

## Personal Opinion

I am a strong advocate for on-premises FDMEE given the additional features and functionality that the product provides. That said, I recognize that there are organizations for which these features are not needed or simply too expensive to justify. A trusted partner should always be able to help an organization evaluate its options and formulate a recommendation that addresses not only the needs of today but the anticipated needs of the future. Trust your partner and have an open and frank dialogue about the data integration options for your organization to better determine the right data integration toolset for your Oracle EPM Cloud Service journey.

## About the Author

### **Tony Scalese**

#### **Practice Director, Oracle ACE**

Tony Scalese is a solution architect in the truest sense of the term. He has a unique blend of deep technical skill complimented and enhanced by his business acumen. Tony began his Oracle EPM (fka Hyperion) career as an administrator supporting both the close and financial planning applications for a \$4 billion multinational Fortune 500 medical device manufacturer. The complex and ever-changing reporting requirements in this matrixed organization cultivated a deep understanding of how financial systems can be used to effectively and efficiently respond to an ever-changing environment.

After six years growing his business and technical skillsets, Tony joined the consulting ranks where he immediately focused on data integration, primarily FDM (now known as FDM Classic). During the early years of his consulting journey, Tony continued to expand and deepen his technical expertise but always drew on his functional experience to deliver rich solutions that were mindful of the customer experience.

Tony's career continued to progress. Over the past several years, he has been responsible for creating one of the largest EPM data integration focused teams in North America. Even while growing into this leadership role, Tony has stayed incredibly close to the technology by still actively implementing.

Today, Tony spends much of his time as a trusted advisor to Oracle EPM customers, sharing his more than 16 years of EPM experience. Tony brings a unique and holistic perspective to solution architecture by leveraging his unique blend of functional experience and deep knowledge across the EPM products and the processes they are built to support. This has ensured that solutions that he architects meet the needs of customers today but more importantly can grow to meet the needs of tomorrow.

Tony's passion for FDMEE and more broadly data integration is undeniable. He has authored two FDMEE books. His first book, *The Definitive Guide to Oracle FDMEE*, is a unique exploration of the product. This book diverges from the standard formula often seen in technology volumes. Instead of focusing purely on the technology and its usage, Tony shares key technical information that empowers one to more fully utilize the product features but more importantly provides the functional perspective on how and why the technology can be leveraged. In his second book, *Oracle FDMEE Scripting: Essential Elements*, Tony offers a high-value reference guide for creating elegant and effective FDMEE scripts.

This white paper is a further extension of his authorship and addresses a topic relevant to any organization embracing or considering embracing a Cloud strategy.



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