

Oracle Enterprise File Exchange Solutions

Oracle Managed File Transfer



Introduction

Ever since the introduction of computing networks, enterprises have created file-based interfacing to exchange files between systems. File-based interfaces are often created based upon a direct need and without an overall enterprise architecture overview. As the number of file-based interfaces grow over time and often become a vital part of a company's day-to-day operations, it is essential to ensure the functioning of the interfaces and the safety of the data which they transport.

It is not uncommon for file-based interfaces to be forgotten and unmanaged, resulting in a sudden disruption of processes that in turn hamper business.

Capgemini provides a solution that is part of its application rationalization programs to modernize and rationalize file-based interfacing for enterprises by making use of Oracle Managed File Transfer. This document provides a high-level overview of some of the options that Oracle Managed File Transfer provides to build a secure enterprise file exchange.

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1. Enterprise File Exchange

The concept of the enterprise file exchange revolves around an issue that has plagued architects and IT maintenance departments since the first computer systems were connected via networks: the need to move files from one system to another. In many cases this is an integrated part of the functioning of end-to-end business processes, but in other situations it is hidden from the overall process overview.

Systems can silently run batch jobs to extract data, put it into a file format and send it to another system to be picked up and used for another vital part of the end-to-end process flow. Those point-to-point interfaces are often developed when a new system is introduced, which means they are hidden from the overall process overview and are left out of an overall enterprise architecture.

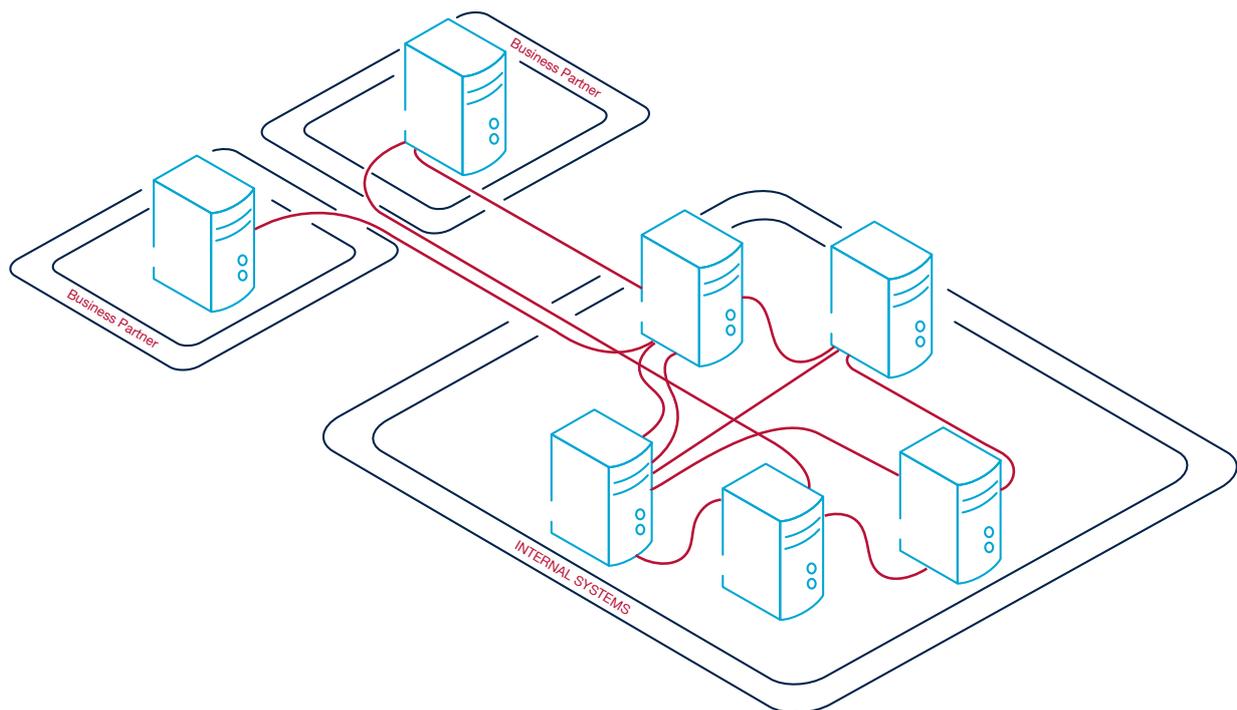
In many cases, batch processes are not monitored and it is up to the individual administrators to stay alert and monitor file construction, send files to the next party in the process chain, or monitor whether or not a file has arrived and has been processed into the system.

Due to the organic growth of point-to-point interfacing, these interfaces are often poorly implemented and not managed or monitored, which means they send data insecurely and are prone to disturbing the business process in a costly manner.

The intention of the enterprise file exchange concept is to tackle all of these problems and ensure the secure and reliable end-to-end exchange of files between business processes and business partners, thereby mitigating the risk of disturbances in day-to-day operations and revenue loss.

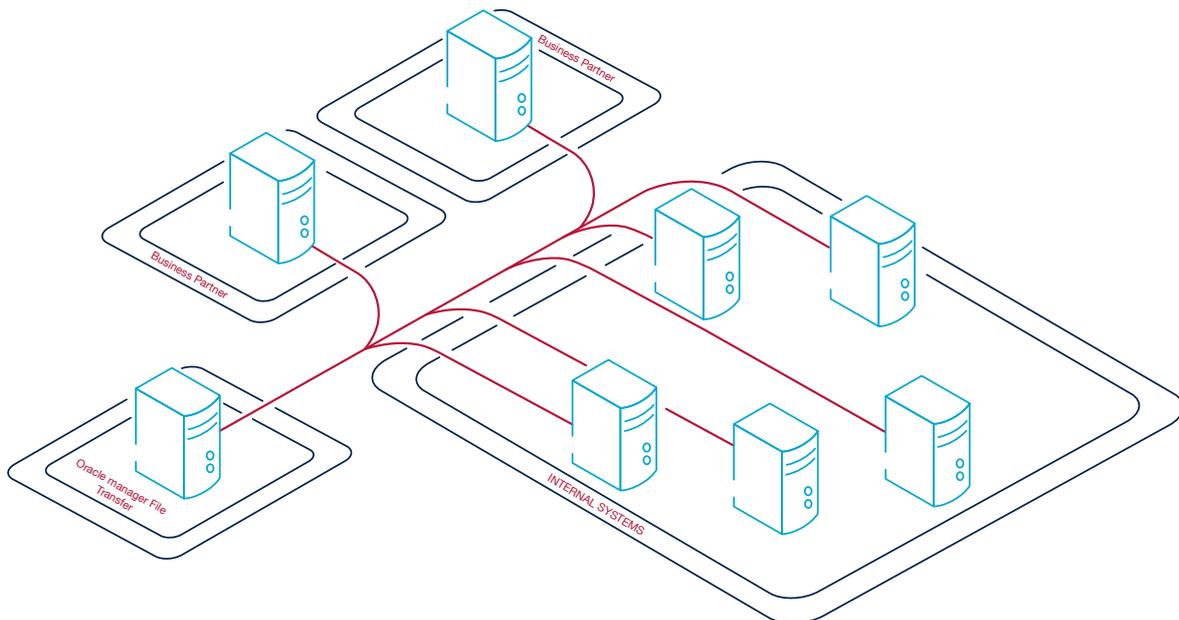
1.1 Point-to-point interfacing

When enterprises grow, systems are gradually added to the IT landscape, and all of them need to be connected to each other. While some may be old and some may be new, in general, all systems are capable of generating a file and transporting it to another system where it can be received and processed. With every system added, the need for connectivity and sharing of information grows. In general, generating files and moving them between systems is seen as a quick way of integrating systems and data stores. Before the era of service-oriented architecture (SOA), this was the most common way of connecting systems.



As enterprises grow, so do the number of business partners receiving or sending files, and it is typical to create file-based point-to-point interfaces. In many cases the same file is generated multiple times and sent to multiple parties, some of which perform the same transformation of the file. This method of moving files between systems is complex, insecure and often unmonitored. Chosen as a result of a lack of other options, this approach often becomes embedded for years and goes so deep into the roots of the system that the processes are forgotten and only come to the attention of the management when they fail.

In many cases, failure of the old file-based point-to-point interfaces directly hampers daily operations and leads to revenue loss. Due to the complexity of the existing interfaces, many companies have resigned themselves to the risk of knowledge loss and the high costs of rewriting interfaces to move to a more SOA-based model. Use of an enterprise file exchange can be a solution in that it allows a large part of the existing code to be reused and at the same time modernizes information flows within the company.



1.2 Modernizing point-to-point interfaces

Companies need to rationalize and transform the entire file interface structure to remove the burden of unmanaged, insecure, and organically grown solutions in which point-to-point interfaces connect all systems and leave the enterprise without any control.

Because some systems will not support modification to an SOA model due to their age or proprietary software implementations, rewriting all components is often not feasible.

Oracle Managed File Transfer solutions are part of the Oracle Fusion Middleware stack and enable enterprises to start rationalizing and transforming the entire file interface structure

without the need to rewrite the entire software stack in multiple systems. This results in a positive business case for companies to rapidly modernize the way the files are interchanged.

Oracle Managed File Transfer will become the central hub within the enterprise file exchange solution, and all systems will interact within a protocol that is native to the original system. Oracle Managed File Transfer will then take care of securing and managing the file transfer to one or multiple target systems and, when needed, will manage the transformation of the data before sending it. This will provide enterprises with a single dashboard and monitoring mechanism to manage the entire enterprise file exchange both internally and externally.

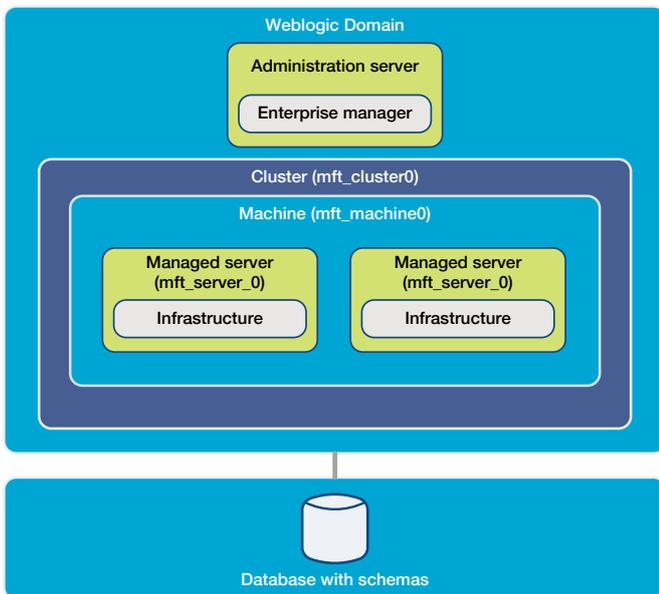
2. Oracle Managed File Transfer

Oracle Managed File Transfer provides enterprises with the option to centralize all file transfer interfaces into a single solution. This allows businesses to modernize, standardize and rationalize the entire decentralized structure of interfaces to decrease maintenance costs. Because of this centralized interface overview and management, the overall risk to the business and risk of revenue loss will decrease.

2.1 Installation topologies

When installing Oracle Managed File Transfer, there are a number of possible installation topologies. Understanding the installation topologies and selecting the best topology for a specific situation is key to providing the best possible solution to the business and achieving project success.

The most important and most simple installation topology available for an Oracle Managed File Transfer implementation is a standard standalone installation as shown in the diagram below.



The standard deployment as shown above includes the following: installation of an Oracle Managed File Transfer solution, the database, the associated database schemes and implementation of Oracle Enterprise Manager (to manage the full solution). As stated, this is the most straightforward implementation and provides a sufficient, quickly available solution. However, a more advanced and secure implementation model is often selected when deploying Oracle Managed File

Transfer in an enterprise-wide model where it will play a critical role as the standard enterprise file exchange solution.

2.2 Design patterns

The use cases and the technical implementation of solutions based on Oracle Managed File Transfer are virtually endless. However, Oracle promotes some basic design patterns as best practices. The best practice design patterns provided by Oracle also outline some of the key features of what Oracle Managed File Transfer is capable of.

A solution based on these design patterns can be created for virtually all business needs that exist within an enterprise for handling and transferring files in an enterprise file exchange solution.

2.2.1 Standalone design pattern

The standalone design pattern results in a number of sub-design patterns. In all cases the standalone design pattern only uses Oracle Managed File Transfer by means of its own internal FTP or sFTP services and no other products or services – for example, those used in the other design patterns.

Direct standalone design pattern

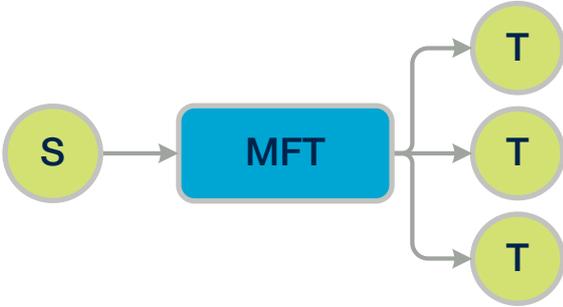
The direct standalone design pattern is the simplest and most direct way of implementing Oracle Managed File Transfer and takes care of transferring data via FTP or sFTP directly from source to destination.



Fan-out standalone design pattern

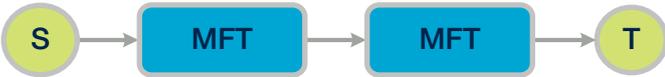
The fan-out standalone design pattern is used to implement a single source transfer to a multi-target end situation. In this case Oracle Managed File Transfer takes care of implementing data via FTP or sFTP from a single source to multiple target systems where it will be processed. An example would be a case where in the distribution of master data, the source itself is the master

data system and it targets the systems that depend on a refresh of the data stored in the master data system (source).

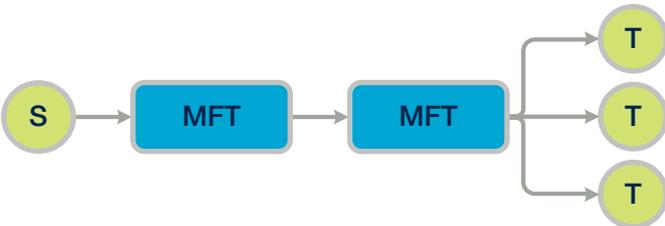


Chained standalone design patterns

The chained standalone design pattern is typically used in situations where two organizations or two departments both operate an Oracle Managed FileTransfer installation. A file is transferred from the source to an Oracle Managed File Transfer implementation which again transfers the file to the target.

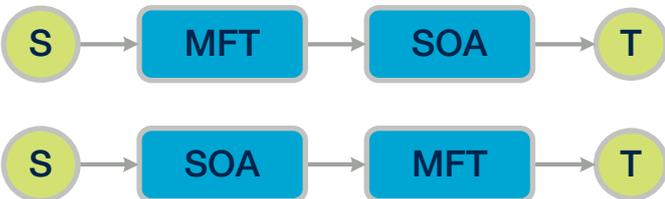


Due to the flexibility with which you can deploy Oracle Managed File Transfer, the second Oracle Managed File Transfer instance can also be implemented based upon any desirable design pattern. For example, the second Oracle Managed File Transfer can make use of fan-out without the first Managed File Transfer instance’s knowledge about the same. This would lead to an implementation like the one shown below.



2.2.2 SOA design pattern

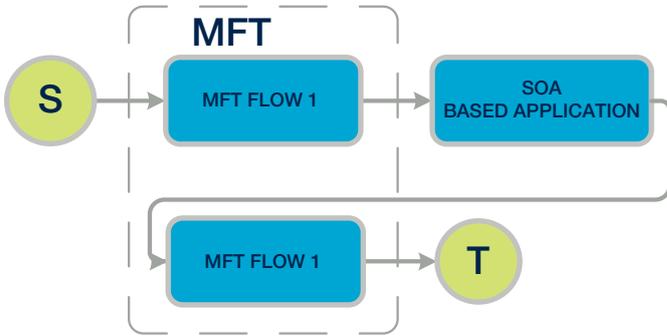
Oracle Managed File Transfer can also directly integrate with the web service interface of the Oracle SOA Suite. Thanks to integration via web services Oracle SOA Suite can be the start and the end of a SOA design pattern as shown below.



An SOA-based application can also be the target of an Oracle Managed File Transfer design pattern and also use Oracle Managed File Transfer again to forward the file to the true end target of the end-to-end flow.



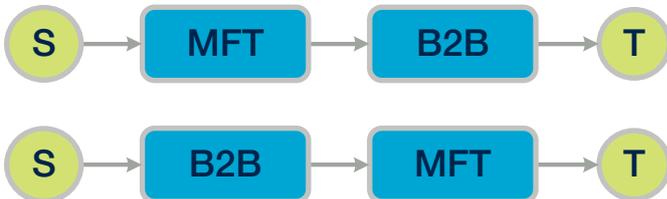
While it may seem from the above diagram that two Oracle Managed File Transfer implementations are necessary, only one implementation of Oracle Managed File Transfer is actually necessary. The diagram below shows what this design would look like in a physical deployment:



2.2.3 B2B design pattern

When referencing to B2B (business to business) in this context, we are referring to Oracle B2B, which is part of the Oracle Fusion Middleware stack. Oracle B2B ensures the secure and reliable exchange of documents between businesses e.g. retailer, supplier, and manufacturer. This type of eCommerce, B2B, requires mature business documents, classic business process and industry-specific messaging services in addition to architecture to manage its end-to-end business process. Oracle B2B comes with a large set of business messaging standards out of the box. Some of the standard supported message formats are: UN/EDIFACT, EDIFICE, EIDEL, EANCOM, EIDX, SIMPL-EDI, ASC X12, X12F, VICS EDI and more.

Because Oracle Enterprise File Exchange and Oracle B2B are integrated, it is possible to include Oracle B2B in all steps of the design pattern. As shown in the below diagram, Oracle B2B can be both the starting point of a transfer and the endpoint of a transfer in a directly connected model.



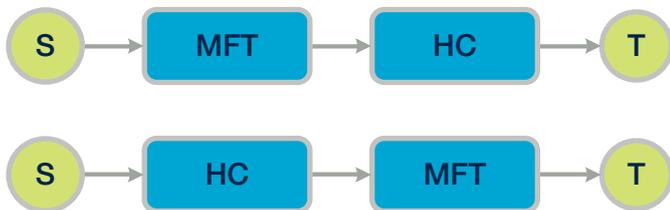
Oracle B2B can also sit between two Oracle Managed File Transfer instances or flows, as shown below.



2.2.4 Healthcare design pattern

When referring to healthcare in this context we are referring to Oracle Healthcare as part the Oracle SOA Suite for healthcare integration. Oracle SOA Suite for healthcare integration helps healthcare entities (both clients and providers) to securely exchange HL7- and HIPAA- standard documents. Oracle Healthcare utilizes several features of Oracle SOA Suite to design, create and manage applications that process healthcare standard documents.

Thanks to the integration between Oracle Enterprise file exchange and Oracle Healthcare, it is possible to include Oracle Healthcare in all steps of a direct connected model design pattern, where Oracle B2B can be both the starting and end points of a transfer, as shown below.



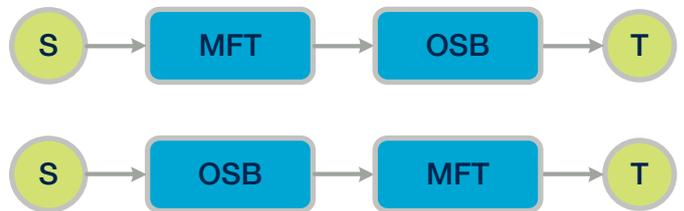
Oracle Healthcare can also sit between two Oracle Managed File Transfer instances or flows, as shown below.



2.2.5 Oracle Service Bus design pattern

Oracle Managed File Transfer can natively connect to the Oracle Service Bus, which allows enterprises to make use of the existing Oracle Service Bus implementations within the IT infrastructure.

Thanks to the integration between Oracle Enterprise File Exchange and the Oracle Service Bus, it is possible to include the Oracle Service Bus in all steps of a direct connected model design pattern, where the Oracle Service Bus can be both the starting and end point of a transfer, as shown below.



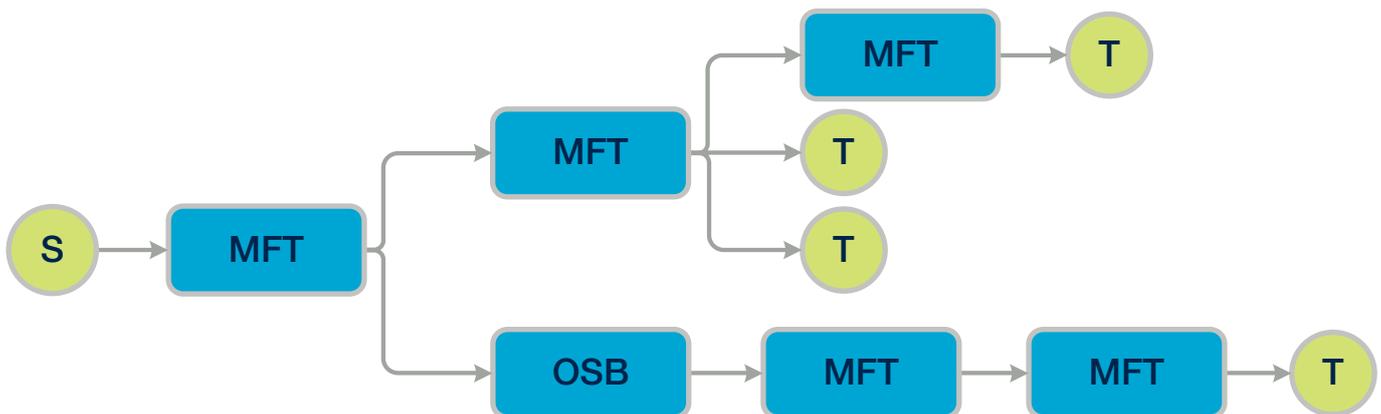
Oracle Service Bus can also sit between two Oracle Managed File Transfer instances or flows, as shown below.



2.2.6 Hybrid design patterns

It is vital to understand that Oracle Managed File Transfer supports hybrid design patterns and provides the flexibility to connect patterns together and chain them until you have a full end-to-end solution in place. An analogy can be made with LEGO bricks which can be connected and stacked together to form an end product.

An example of a hybrid design pattern is shown below.



Engineered System Deployments

When deployed, Oracle Managed File Transfer is critical to the business processes it supports. Stability, reliability and performance are key elements that need to be guaranteed to ensure that business processes are supported.

Oracle Managed File Transfer can be deployed on traditional hardware and/or in a cloud deployment model. For businesses that require Oracle Managed File Transfer to support extreme critical and demanding business processes, Capgemini suggests the use of Oracle engineered systems to deploy the Oracle Managed File Transfer.

Engineered Systems Deployment Models

Oracle Managed File Transfer makes use of both a database layer as well as an application layer. The application layer and the database layer can be installed on traditional hardware and on an Oracle engineered system.

When the database for Oracle Managed File Transfer is used in highly critical deployments, Capgemini recommends the deployment of the database in a RAC setup on an Oracle Exadata engineered system.

When the application server for Oracle Managed File Transfer is used in highly critical deployments, Capgemini advises the deployment of the application server in a clustered setup on a Oracle Exalogic engineered system.

In an ideal situation, both the database as well as the application server would be deployed on an Oracle engineered system. In cases where only Oracle Exadata is available, the database can be deployed on Oracle Exadata and the application server can be deployed on traditional hardware.

When both Oracle Exadata and Oracle Exalogic are available, deployment on both will provide the customer the benefits of both, including extreme performance and stability. Deployment on both will also allow the database and the application server to make use of the Infiniband connection between the two machines for extreme network performance. This removes any potential issues that could be caused due to network bandwidth limitations.

3. Capgemini-provided services

Capgemini provides a number of services around Oracle Managed File Transfer ranging from strategy and architecture services to implementation, management and hosting services.

3.1 Architecture services

A successful implementation of an enterprise file exchange solution requires a solid and well-supported architecture from technical, functional and business perspectives. Capgemini architects provide services to help enterprises create the business case for the implementation and operation of an Oracle Managed File Transfer-based enterprise file exchange solution and also create the full technical, functional and business mapping architectures to ensure a successful implementation and quick return on investment.

In addition to architecture services during the initial project and implementation phases, Capgemini also provides a recurring roadmap and change advisory board service as required.

3.2 Implementation services

Implementing an end-to-end Oracle Managed File Transfer solution requires functional and technical skills in a large number of areas. Capgemini has a large group of both functional and technical consultants who work together with you to ensure successful implementation without requiring you to invest in staff and skills that are only needed during the implementation phase.

Combining product and technical knowledge with the knowledge of the business has been a proven key differentiator in Capgemini implementation projects over the years.

3.3 Hosting and management services

Capgemini provides both hosting and maintenance services that are available within our secured datacenters, on-premise or in the public cloud. The models mentioned below include some of the offerings Capgemini can offer, but other models and constructions are possible and available. An ideal mix of hosting and maintenance solutions is determined based on specific IT and business requirements.

3.3.1 Functional and technical management

The management on both a functional and technical level can be a burden for some enterprises. For enterprises that want to outsource the functional and/or technical maintenance of an enterprise file exchange process based on the Oracle Managed File Transfer, Capgemini's outsourcing provides multiple support

models that can handle outsourced maintenance regardless of where the solution is deployed.

3.3.2 Capgemini cloud hosting

Capgemini has worked with Oracle to develop a private multi-tenant cloud solution specifically for Oracle products in line with the Oracle regulations for support and licensing.

Capgemini Oracle Run, Capgemini's cloud hosting solution, provides customers with a reliable- and multi- datacenter cloud platform for the hosting of Oracle products in an Infrastructure as a Service or Software as a Service manner. Capgemini Oracle Run provides the cloud-based infrastructure to build an enterprise file exchange based upon Oracle Managed File Transfer from within the secured Capgemini datacenters.

Thanks to the setup of the Capgemini Oracle Run solution Capgemini is able to provide enterprises with a technically and legally secured platform in addition to all of the benefits of cloud computing, like flexibility, scalability, and pay-per-use OPEX costing models. .

Within this model, Capgemini takes care of the hardware and virtual operating systems maintenance as well as security, storage and networking maintenance.

3.3.3 Capgemini dedicated hosting

For businesses that desire a dedicated single-tenant managed hosting solution, Capgemini offers the same services as within the Capgemini cloud hosting concept in a dedicated hardware setup. This is hosted in a dual data center and makes use of the Capgemini secured data center. With this solution, customers can make use of this hardware setup via a pay-per-use model.

As part of the dedicated hosting model, Capgemini also takes care of hardware and operating systems maintenance as well as security, storage and networking maintenance.

3.3.4 Public cloud hosting

We can also host the solution on a public cloud, providing architecture, implementation, and functional and technical maintenance.

About the author



Johan Louwers

Johan Louwers has worked as a developer, administrator, manager, project manager, managing consultant and senior architect within several IT companies and IT departments. He specializes in Oracle technology, infrastructure technology, and IT strategy and has been advising and actively working with a large range of customers and companies to help enterprises excel in their day-to-day operations and provide them with cutting-edge technology and solutions.

He is currently a managing consultant and lead architect at Capgemini. Specialized in Oracle technology, infrastructure solutions and cloud computing, Johan has been selected by Capgemini to be one of the global Capgemini Experts and thought leaders, providing active advice and support to enterprises around the globe.

He is one of Capgemini's leading global resources on Oracle Engineered Systems and converged infrastructure in combination with Big-Data and high availability database and application solutions.

He spearheads Capgemini cloud initiatives around Oracle public cloud and Oracle Run, a cloud-based hosting platform specifically designed within the Capgemini datacenters to provide an Oracle optimised cloud platform for customers using Oracle VM, Oracle Linux and Oracle Enterprise Manager.

Johan actively maintains a blog, johanlouwers.blogspot.com, and he is an active developer and researcher in the fields of big-data, map-reduce, hadoop, HDFS, Linux technology and datacenter optimization and has interest in security, database technology and open source technology.

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For more information, visit
www.capgemini.com/oracle-engineered-systems



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Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

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