

An Oracle White Paper  
November 2011

# Creating value with the Oracle Database Cloud Service

## Executive Overview

The Oracle Database Cloud Service provides dramatic improvements in the value obtained from your IT environment. This added value can deliver on the promise of cloud computing, creating competitive advantage with a true paradigm shift.

The Oracle Database Cloud Service delivers this transformative value through a combination of features that enhance the use of your data, including business productivity applications, interactive reports, websheets, and the ability to use an iterative development methodology to facilitate creation of custom applications that match the needs and requirements of information consumers.

The technology that the Database Cloud Service is built with runs entirely within the Oracle Database, which means that you can run your cloud applications in the Oracle Public Cloud or your own cloud implementation in your data center or your laptop. The Oracle Cloud couples the extreme productivity and low maintenance of the cloud with the traditional enterprise strength of Oracle technology, producing a uniquely valuable solution for your cloud computing needs.

The Oracle Database Cloud Service consists of several different component areas –

- RESTful Web Service access to the data in your Database Cloud Service
- Oracle Application Express, which provides rapid application development and instant deployment of applications
- A set of tools for developers and administrators, such as SQL Developer, which provides an easy way to interact with your Database Cloud Service and
- A set of business productivity applications which are easily installed to run in your Database Cloud Service

All of these components provide value, and some of them give you the tools to create significant value you're your users and organization. This value is the driving force behind the paradigm shift of cloud computing. This paper will explore the nature of that paradigm shift and illustrate how the Oracle Database Cloud Service, and Oracle Application Express in particular, deliver that value.

## Is the Cloud a paradigm shift?

Cloud computing is one of the leading buzz terms in the world of IT today. Seemingly every possible solution has been enhanced with the mere addition of the word "cloud".

But what is the real benefit that can be derived from cloud computing? Are the advantages incremental, resulting in a similar environment as prior to the cloud but maybe a little less expensive? Or is cloud computing a true paradigm shift that will alter the course of information technology into the future? Is cloud computing a true paradigm shift?

In order to properly answer this question, we will have to clarify a few areas – the nature of paradigm shifts, the overall landscape of cloud computing offerings, and the way that some of these offerings can truly create extreme value for users.

### Paradigm shifts defined

In its own way, "paradigm shift" has lost much of its meaning over the past twenty years through overuse. Each year (or more frequently), changes in technology are heralded as paradigm shifts, changes that will alter the IT landscape.

There certainly have been some paradigm shifts in the history of computing, most notably the introduction of graphical user interfaces in the late 1980s and the arrival of the Internet a decade later. These innovations truly did

expand the scope and range of information technology, and added to the value produced by IT. This increase in value is the defining feature of a paradigm shift. A paradigm shift can be defined as *a change in technology that enables users and organizations to obtain significantly more value from their IT investment.*

There are two keys to this definition. The first is the recognition of value produced from an IT environment. Value is less clearly defined than a more concrete metric like cost or performance, but value multiplies throughout an environment and increases with the expansion of the scope and reach of systems. Reduced cost for the same eventual value is a plus, but mere lower cost does not create the dramatic value required in the definition of a paradigm shift.

The second key is the recognition that the value must be accrued by the eventual users in an organization. Once again, allowing IT departments to fulfill their mandates better or for less expense is certainly positive, but without the demand for value driven by consumers of IT services, you will not see the sort of changes required to classify an innovation as a paradigm shift.

True paradigm shifts are extremely important. Like a tidal wave, technology paradigm shifts rapidly change the ground rules for businesses, leaving those who do not adopt them stranded behind.

### The amorphous Cloud

Unfortunately, even a clear idea of the definition of a paradigm shift doesn't help much when it collides with the incredibly wide variety of products and services that claim to be part of cloud computing. Acronyms like IaaS, PaaS and SaaS can be applied to many aspects of information technology that can be accessed over a network, or is even related to computing resources that work with networks.

You could simply skip over all these claims with the thought that "It's all hype". Using "cloud" as part of a product name or description is simply advertising. However, the difficulty with this approach is that it throws out the value with the volume.

Cloud computing does, when properly implemented, deliver vastly more value to IT consumers – does, in fact, fit the definition of a paradigm shift. And cloud computing will, over the next 3-5 years, dramatically change the landscape of information technology. Because of this, an errant choice could not only waste money but, more importantly, lead you down a detour that will delay your adoption of cloud computing and leave you at a competitive disadvantage. The stakes are high.

### A cloud is a cloud is a cloud?

So how do you determine the 'real' cloud computing solutions? By focusing back onto the value produced by these solutions, and remembering that the best options will produce significant gains in value.

The core feature is value production. Any “cloud” solution that delivers essentially the same environment you have now, albeit cheaper to operate and deploy, is not really producing value. Cost reduction is incremental; value production is cumulative and significant.

This realization makes it much easier to discriminate between mere benefits and paradigm shifts. There is a broad swath of cloud offerings which can be described as hosting solutions - customers outsource their IT environments to third parties. These solutions only produce minor value for IT consumers, who are not really aware of the costs of their IT requests. They end up with the same IT situation – or even worse in some scenarios, since outsourcing environments means outsourcing support, which can be a critical factor in the production of value for users.

In the same way, management and monitoring software can be highly beneficial for IT departments, and cloud products in these areas can generate incremental advantages. But, once again, these products don’t deliver the full value possible from cloud computing.

### Pluses and minuses of paradigm shifts

A paradigm shift can produce a tidal wave of increased value from IT resources, but nothing comes for free. In order to get these great accumulations of new value, IT departments may have to modify the way they think about, design and implement systems. To understand this, you only need think back to the dawn of graphical user interfaces, where old applications were created with a “GUI” interface, but ended up as just a bit of makeup on an earlier generation of technology. The new look did not produce new value, and were fairly rapidly rejected by consumers.

In the same way, the great benefits of the cloud do not naturally accrue by simply shifting your IT stack to an outsourced provider. You may, for the sake of expediency or organizational necessity, choose to follow this route to get some advantages without extensive modifications to your existing solutions. The option of simply moving your environment to running in the cloud may be exactly what you need for your current requirements, but this move will not deliver all the value that truly embracing cloud computing could.

## The Oracle Cloud

The Oracle Cloud offers solutions that span the range of potential cloud solutions, so you will be able to address any of your current and future needs with the Oracle Cloud.

The Oracle Cloud offers application services, included Fusion CRM, Fusion HCM and the Oracle Social Network at this time. These applications are immediately available, highly scalable and elastic, and built with robust enterprise functionality, giving you the power of the Cloud without compromise.

The Oracle Cloud also offers platform services, including the Java Cloud Service, which gives you the ability to deploy your Java applications on Oracle’s Cloud platform. The Java Service Cloud includes the same benefits of

instant availability, elastic scalability and enterprise strength as described for the application services, with the added ability to use the most popular development platform in the world for your custom applications.

The rest of this paper will look specifically at the features in the Oracle Database Cloud Service which fulfill the true promise of the cloud – a paradigm shift that unlocks enormous value for your user community. In this way, the Oracle Database Cloud service can provide a competitive advantage for your organization – the primary goal of all IT operations.

## The Oracle Database Cloud Service

The Oracle Database Cloud Service provides value through a number of features. The Database Cloud Service gives you instant value with a set of productivity applications, better user enablement through interactive reports and websheets, and the ability to use an iterative development process to create better applications faster.

### Productivity applications

Every Oracle Database Cloud Service includes a set of business productivity applications, such as a project tracker, a shared calendar and a checklist manager. You can install these applications with just a few clicks. Your Database Cloud Service can provide value for users within minutes of your acquisition of a service.

All these applications share a common look and feel, greatly reducing learning curve, and can use the same pool of user identities, reducing management overhead. All these applications use the same levels of privileges, further simplifying management of the set of applications.

The Database Cloud Service also supports the instant deployment of third party applications, which can use the same quick installation process into your Service. The availability of third party applications should increase rapidly as the Oracle Database Cloud Service becomes more popular, increasing the value produced for your organization.

### Interactive reports

Interactive reports are a standard feature of Oracle Application Express, commonly known as APEX. Interactive reports give users the ability to manipulate their data in many ways, even though the creation of an interactive report takes less than a minute.

Users can choose and arrange the columns in their reports, modify formatting to include control breaks, filters and sorting, create charts and graphs from their data, use existing data to create new data values or aggregations, and even highlight rows in their reports based on logical conditions.

Users can save customized versions of their reports for future use, or even export the data from their reports to a number of different formats, if their developers allow this privilege. Since all APEX applications are built on the Oracle Database, interactive reports can even leverage sophisticated database features, such as the full power of

Oracle SQL which developers can use to access data for the report. Users can even see what their data looked like in the past with the Flashback feature of the Oracle Database.

Developers can provide or hide these privileges for any particular report. Since interactive reports put so much flexibility into the hands of users, users can combine their data explorations with their domain expertise to generate unique value from their information resources – the very definition of a paradigm shift. All this without any extra effort on the part of developers.

## Websheets

Interactive reports give users more control over how they view and use their data. Oracle Application Express also includes a feature known as websheets, which give users the ability to create their own solutions. You can think of websheets as more like a wiki page, which removes the complexity of application development, but a wiki page that can include data, both to store and to provide the basis for reports embedded in wiki pages.

Websheets and interactive reports give users the power to do a lot of their own development work. But what about those more complex applications that require IT resources to develop? Oracle Database Cloud Service makes it possible to use a different development methodology that produces better results and more value faster – a winning combination.

## Iterative development

Iterative development is a way to development that produces *better* applications faster – applications that users like more, and that produce more value for them. In this way, the iterative development process enabled by the features of the Oracle Database Cloud Service power the paradigm shift of cloud computing.

## The issue

The more things change, the more they stay the same. If you would have done a survey of user satisfaction with IT 25 years ago, one of the top issues raised would be that users felt that IT did not truly understand their problems, which resulted in less than optimal systems.

If you did the same survey today, this issue would still be near the top. Of course, not much has changed in the past 25 years – only the widespread adoption of not only PCs but mobile devices, the introduction and evolution of graphical user interfaces, the introduction of the Internet, and dozens of smaller changes.

Why is this problem so persistent?

## The requirements

The core reason for this problem is simple – you need expertise and depth to use IT resources to their fullest extent. In other words, IT professionals have domain expertise.

But their domain expertise is in IT and the tools used in that environment. Their user communities also have domain expertise, but not in IT. So users and IT are truly speaking two different languages, and there are never enough ‘translators’ around to insure the success of most development projects.

## The old process

Iterative development does not solve this problem as much as circumvent it. The typical IT development process begins with IT working with users to get a set of requirements for a system. The next step is for developers to go off for weeks (or months) to work on the initial version of the application.

When the developers return, users are, understandably, expecting a lot, based on the time elapsed, and are frequently disappointed. Users don’t see the system they were expecting, and feel that IT did not take their requirements seriously, while IT feels that they did deliver what the users asked for and the fault lies with users for not clear communicating their needs. After evaluation with the users again, IT goes off again for weeks, to return with an application which may be a little better, but is still frequently short of the mark for users. By now, project deadlines are limiting available resources, and overall systems frequently cannot be completed to the satisfaction of the users. Overall, the project is not seen as a success.

## The new process

Iterative development uses two powerful features of APEX to radically transform this process. Application Express gives developers the productivity that allows them to create initial versions of applications in a matter of days. In addition, changes made to APEX applications are instantly available, further shortening the development cycle.

Instead of the lengthy process described above, with APEX, developers and users can cover requirements quickly. There is less need for extensive interviews since developers will return with an initial version of the application rapidly. Users do not have to speak the language of IT to convey requirements – they can simply see the results and react to them. And once developers see how users want to change the applications, they can frequently implement these changes in a day or even on the spot, providing the ability for users to confirm the direction, or even the final product, quickly.

## The payoff

The payoff from iterative development is significant. Users stay involved and see progress more rapidly. Users buy off on changes through rapid development cycles, building support for the final product. All in all, users see the results as better – simply because they have been guiding the project through the development process.

Iterative development empowers users – similar to the way that a graphical user interface empowered users to interact with their computers much more confidently.

Of course, faster development, coupled with automatic infrastructure maintenance provided by the cloud, means your development and IT staff will be able to do more for your users. Your entire organization can extract more value from their data and IT operations, enabling the paradigm shift promised by cloud computing.

## A cloud is a cloud is a cloud

Earlier, this paper covered the wide span of products that claim to be “cloud”-like. The Oracle Database Cloud Service is a true cloud solution, delivering the maximum benefit produced by a paradigm shift in the use of information technology.

One distinction that was not drawn in this paper was the difference between a public cloud and a private cloud. The reason for this is simple – all the Oracle Cloud offerings run in the Oracle Public Cloud or in your data center.

This means that all the benefits described in this paper are available to you whether you use the Oracle Database Cloud Service or Oracle Application Express in your data center. In fact, APEX runs entirely in the Oracle Database, which means you can gain the advantages of interactive reports, websheets and the iterative development process anywhere an Oracle Database can run – even on your laptop.

Portability has been the key attribute of Oracle technology for the past 35 years, and the cloud is no exception. By supporting cloud computing wherever you need to deploy, you can get all the advantages provided by the Oracle Database Cloud Service wherever you need them, now and in the future.

## The Oracle advantages

Cloud computing truly can deliver significant value, through rapid provisioning, lower maintenance and, most importantly, delivering more value to users. You may be wondering why the Oracle Cloud solution is any different than existing technologies. After all, rapid development tools and powerful report writers have been around for a long time, and this is the source of the added value produced by a true cloud solution.

But earlier products that provided end user empowerment did not offer the accumulated power and robustness of Oracle technology. A rapid development tool like Microsoft Access could be used for iterative development, but did not provide appropriate levels of scalability, availability or performance – qualities which the Oracle technology stack delivers in an enterprise dose.

In addition, use of these types of tools typically resulted in a management nightmare, as propagation of separate applications led to an equal propagation of management tasks, rapidly leading to scenarios where crucial systems were not properly developed, vetted for security or maintained. The Oracle Cloud solution provides centralized management capabilities for many services, whether they are in the Public Cloud or running within an Oracle

Database in your data center. The Oracle Cloud gives you enterprise strength with the low operational overhead of a centralized system.

## Summary: The Oracle Cloud solution

The current cloud market is awash in a wide variety of solutions, from renamed management tools to rebranded hosting providers to true cloud solutions. There is value in many of these solutions, and different use cases and goals may fit best with different offerings.

The Oracle Cloud offers the best of all worlds, with a full spectrum of solutions to address virtually any customer requirement. The Oracle Cloud includes

- Full enterprise SaaS, for companies looking for robust packaged productivity with rapid deployment and pay-as-you-go pricing
- Platform services, for organizations looking to host their applications in the Cloud, with the subsequent benefits of rapid deployment, pay-as-you-go pricing and minimal maintenance and
- Shared service cloud implementations, with iterative development and user enablement tools, for customers looking to create customized applications to maximize the value of their IT resources

Most importantly, the Oracle Cloud delivers significant value to your users in your choice of environments – ours, in the Public Cloud, or yours, in your data center. In this way, you can choose how you want to use the Oracle Cloud now, and retain the benefits in the future if your requirements should shift or evolve.



Oracle Cloud Computing  
November 2011  
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