Find the Right Cloud Computing Solution

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• There are three main cloud computing deployment models: private, public, and hybrid

• The true value of the cloud is achieved when the services it delivers combine with the deployment models

• Before choosing a model and service combination, assess business drivers and technical feasibility
Make no mistake about it, cloud computing is here to stay. When cloud first emerged, many scoffed at the concept, believing it to be an overhyped fad. Now, in just a few short years, cloud adoption is accelerating, and cloud is a critical part of most enterprises’ IT plans.

While the applications of cloud are fairly new, the basic concept behind it isn’t. Cloud computing follows many of the principles of old-school mainframe computing, where users shared compute power with each other. The key differentiator, however, is that cloud computing usually relies on the Internet and open standards rather than proprietary systems. Cloud computing is the evolution and convergence of technology trends that have been driving enterprise data centers and service providers for more than a decade. These include grid computing, utility computing, clustering, virtualization, shared services and large-scale management automation.

Cloud Computing Options

As cloud adoption has grown, so too has the variety of cloud types and functionality available through the cloud. There are currently three main cloud deployment models.

- **Public Cloud**: Mention cloud computing, and typically public cloud is what comes to mind. In a public cloud model, a service provider supplies services – such as applications, platform and infrastructure — to consuming organizations over the Internet. Consumers use the service without having to set up, host, manage, back up or update the software, hardware and data center. Consumers typically give up a degree of control, flexibility and visibility over security, customization, service updates and planned outages.

- **Private Cloud**: While public cloud gets most of the notoriety, it is the private cloud that has gained greater enterprise acceptance. Private clouds are for the exclusive use of the organization, they operate within the corporate firewall, and they are managed by the IT department or a service provider. A private cloud offers many of the same features and benefits of public clouds, while allowing IT to keep control over data, avoid sharing, and comply with regulations and internal policies. More often than not, enterprises start out with a private cloud.

- **Hybrid Cloud**: Most organizations will end up using hybrid clouds – a combination of public and private clouds. A hybrid cloud enables applications to run across both public and private clouds, which implies the clouds must support standards for application portability and interoperability.

The advantages of cloud computing are many and significant. Often the initial driver for cloud adoption is lowered cost. Through consolidation and sharing computing resources, excess capacity is reduced, and with that hardware, power, cooling
and management costs. Even greater cost saving can be realized through standardizing on a shared database and application platform wherever possible.

An even more compelling benefit of cloud is speed and agility. Rapid provisioning and advanced self-service capabilities allow new services to be deployed much faster, enabling the business to respond to dynamic market conditions and be more competitive. With its elastic scalability, the cloud can provide just enough computing resources on demand.

In addition, because cloud providers take care of all the underlying technology in terms of provisioning, runtime operations, updating, patching and so on, cloud consumers can focus on innovation, differentiation, competitive advantage and core competencies on top of the cloud.

The true value of the cloud lies in the services delivered. The three main service types are SaaS (Software as a Service), PaaS (Platform as a Service) and IaaS (Infrastructure as a Service).

- **SaaS:** With Software-as-a-Service, business users are able to access new functionality much faster and at lower upfront costs than with traditional on-premise systems. SaaS-based applications are accessed via the Internet and may require integration with on-premise systems or other clouds.

- **PaaS:** Platform-as-a-Service provides an application development and deployment platform delivered as a cloud service. Developers use the platform to build, deploy and manage applications. PaaS typically includes database, middleware, development tools, languages and APIs. PaaS' value is found in its ability to accelerate application development through leveraging standardized, shared and re-usable platform services.

- **IaaS:** Infrastructure-as-a-Service is the lowest level of the cloud services spectrum. IaaS consists of computing servers, storage and networking, along with associated software (such as operating systems, virtualization and storage software) delivered as a service. IaaS is generally the most flexible of all the cloud layers because nearly any platform and application software can run on IaaS. However, this can be a double-edged sword, as it means the user is responsible for everything about the infrastructure layer — more work that can result in additional complexity.

Getting Started With Cloud — 5 Key Spots on the Continuum

Cloud is a very broad spectrum, spanning public, private and hybrid deployment models, and SaaS, PaaS and IaaS service types. There is no one-size-fits-all model, and different organizations have different starting points and approaches. Looking across Oracle’s customers, five common cloud adoption patterns emerge.

1. **Private Cloud**

A private cloud is for the exclusive use of one organization. It is most often on-premise in the data center and controlled and managed by IT. Private clouds often start as consolidation initiatives to move siloed heterogeneous applications onto shared infrastructure and shared
platforms. Driven by the goal of reducing costs, consolidation is often a multi-year, phased project. The best approach is to consolidate and standardize on an application platform and database platform wherever possible, and then consolidate on virtualized computing infrastructure and storage if applications cannot run on the standard platform. This approach maximizes cost efficiency as well as speed and agility.

Oracle offers the most complete private cloud platform and private cloud infrastructure to enable customers to build, deploy and manage private clouds. Oracle’s cloud platform includes not only the world’s most popular Java application server and database, but also complete cloud management, process and data integration, identity and access management, and user experience management. Oracle’s cloud infrastructure features SPARC and x86 servers; storage, including flash, disk and tape; networking fabric and software defined networking; virtualization; Oracle Solaris and Oracle Linux operating systems; and infrastructure cloud management software. Oracle Engineered Systems, such as Oracle Exadata Database Machine, Oracle Exalogic Elastic Cloud and SPARC SuperCluster, offer unmatched performance at the lowest cost for mixed workload consolidation and cloud. To enable private cloud deployments, Engineered Systems hardware is also available on-premise, with capacity on demand, for a monthly fee, via an offering called Oracle Infrastructure as a Service.

Oracle also offers Managed Cloud Services to provide initial setup and ongoing management, monitoring, upgrading and security of a private cloud, either on-premise in the customer’s data center or in Oracle’s data centers. Customers can simply consume private cloud services without having to manage it themselves, thereby gaining additional value, flexibility and confidence in the solution.

2. Public Cloud with SaaS

Organizations seeking to add new application functionality or replace aging legacy applications are adopting these applications in a SaaS model. Oracle provides a comprehensive portfolio of standards-based cloud applications that can be deployed in private or public clouds. Oracle’s cloud applications are modern and have embedded social, mobile and business insight capabilities.

The Oracle Cloud includes SaaS offerings for Sales and Marketing, Customer Service and Support, Human Capital Management, Talent Management, Enterprise Resource Planning, Planning and Budgeting, and Financial Reporting. Because these enterprise applications have a modular architecture, customers can adopt as many modules as they need
and integrate them with their current applications.

Oracle ERP Cloud Service, for example, is an integrated suite that can transform a back-office environment into a collaborative, efficient and intuitive hub. ERP Services include: financials, planning and budgeting, procurement and sourcing, inventory and cost management, product master data management, and project portfolio management. Another example is Oracle Sales and Marketing Cloud Service, which is an advanced and integrated CRM offering with a quick learning curve to enable employees to quickly generate more quality leads and achieve higher win rates with built-in data quality and customer data management. Oracle Sales and Marketing Cloud Service offers instant visibility through dashboards, analytics and real-time forecasting. Its integration with Outlook, mobile device support, and industry specific solutions are the icing on the cake in terms of the value it delivers.

### 3. Public Cloud with PaaS

Enterprises looking to accelerate application development may look to a PaaS solution. PaaS clouds provide rapid access to standard, shared services, thus minimizing re-inventing the wheel and allowing developers to use languages and tools with which they are already familiar. Oracle Cloud offers a number of popular platform services, including a database service based on Oracle Database, a Java service based on Oracle WebLogic Server, and a developer service to help manage the complete software development life cycle.

The Oracle Database Cloud Service provides rapid application development through Application Express, RESTful Web Services, SQL and PL/SQL support, and a collection of pre-packaged business productivity applications.

The Oracle Java Cloud Service enables developers to use their favorite integrated development environment (IDE), like JDeveloper, NetBeans and Eclipse, to build Java applications that are integrated with Oracle Database Cloud Service.

Oracle Developer Cloud Service allows developers to manage the development life cycle (e.g., bug tracking, continuous integration and source control, all of which are integrated with popular tools) in the cloud. It features source control management, issue tracking, Wiki Collaboration and continuous integration with Hudson, a Java-based tool that automates and integrates scalable build and testing environments.

### 4. Public Cloud with IaaS

For some customers, IaaS is a good starting point because it provides the most basic and most flexible services for computing, storage and networking. Oracle Cloud’s SaaS and PaaS services are built on common infrastructure services that provide a rock solid foundation. Oracle Cloud is built on Oracle’s Engineered Systems, Exadata and Exalogic, which are the fastest, most reliable and most secure machines for mission-critical enterprise use.

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5. Hybrid Cloud with Combinations of Cloud Services

For many enterprises, a singular approach will not work. For them, a hybrid cloud is needed because some applications require the security and control of a private cloud, while other applications are fine to run in a public cloud. These organizations believe that the flexibility to easily migrate data and applications from one cloud to another is critical. For them, adherence to industry standards is an absolute requirement, and it is beneficial to find vendors that provide the choice of public and private cloud solutions. Oracle is one such vendor.

Putting It All Together

Before deciding which services and cloud is right for your enterprise, you must first assess the business drivers and technical feasibility of moving all or part of your applications to the cloud. This is important for avoiding the siloing that all too often happens when focus is paid to a single area or two. Hence, it is critical to look for cloud solutions that are comprehensive and integrated to minimize data and process fragmentation from using multiple clouds. Learn more about how Oracle’s portfolio of cloud solutions can benefit your enterprise at oracle.com/cloud.