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Oracle Special Edition

by Lawrence C. Miller, CISSP

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Public PaaS For Dummies®, Oracle Special Edition

Published by
John Wiley & Sons, Inc.
111 River St.
Hoboken, NJ 07030-5774
www.wiley.com

ISBN: 978-1-119-18583-3 (pbk); ISBN: 978-1-119-18584-0 (ebk)

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

Publisher's Acknowledgments

Some of the people who helped bring this book to market include the following:

Project Editor: Carrie A. Johnson
Editorial Manager: Rev Mengle
Acquisitions Editor: Katie Mohr
Business Development Representative: Karen Hattan
Production Editor: Selvakumaran Rajendiran

Oracle Acknowledgments

Oracle would like to thank the following people:

Rimi Bewtra, Carlos Chang, Amritesh Chaudhuri, Gene Eun, Moe Fardoost, Ayalla Goldschmidt, Dain Hansen, Eric Jacobsen, Peter Jeffcock, Monica Kumar, Julie Miller, Ram Narayanan, Patricia Nishiyama, Doan Nguyen, Kim Olsen, Alina Pavel, Madhu Raviendran Nair, Ruma Sanyal, Tanu Sood, Bruce Tierney, Maxine Tingley, José Villacis, and Rex Wang

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Introduction

Cloud transformation has created massive change for businesses and changed the way people work. Millennials, for example, have different expectations of the workplace than previous generations. Digital innovation is making new business models possible, like Uber, Airbnb, and Spotify. This kind of change creates disruption in many markets.

Organizations can *lead* the transformation of their business and industry with digital technologies like social and mobile services, big data, and the Internet of Things (IoT). At the same time, organizations are under constant pressure to drive down costs through economies of scale and superior IT automation. Industry leaders are embracing Platform as a Service (PaaS) at an ever-increasing pace to drive cost efficiencies and create and exploit new business opportunities.

Key to enabling this transformation is empowering organizations with a modern PaaS that *accelerates* the creation of new products and services for customers, employees, and partners — and delivers capabilities never before imaginable.

Achieving industry leadership and accelerating innovation requires adopting flexible platform services that seamlessly *integrate* with existing enterprise solutions and optimize IT by allowing workloads to run where they run best (on-premises or in the cloud).

About This Book

Public PaaS For Dummies, Oracle Special Edition, explains how PaaS enables organizations to embrace the efficiency, speed of service, and information availability that cloud computing offers, and in a way that delivers to today's growing business demands. This book also explores key PaaS use cases, describes what to look for in a PaaS solution, examines some real world PaaS success stories, and reveals best practices to help you succeed with PaaS in your organization!

Foolish Assumptions

Every author assumes a few things about his readers. I'm no exception.

First, I assume that you have some familiarity with cloud technologies and that your organization is considering or is already using the cloud for developing or deploying enterprise applications, among other uses.

Next, I assume that one of the following describes you:

- An IT professional who wants a cloud platform to help you respond faster to business needs and lower costs
- A developer or development manager who wants a cloud platform to eliminate operational tasks and accelerate innovation
- A business professional who wants a cloud platform that can extend or integrate a SaaS application to better support end-to-end business processes, collaboration, and business insight.

If any of these assumptions describe you, keep reading. If not, keep reading anyway. I'll change your mind and make you a PaaS advocate in five short chapters!

Icons Used in This Book

Throughout this book, I occasionally use icons to call out important information. Here's what to expect.

This icon points out information you should retain in your nonvolatile memory.

This icon explains the jargon beneath the jargon!

This icon points out helpful suggestions and useful information.

These helpful alerts offer practical advice to help you avoid potentially costly mistakes.

Beyond the Book

Although this book is chock full of information, there's only so much I can cover in 64 short pages! So, if you find yourself at the end of this book thinking "Gosh, this was an amazing book; where can I learn more about PaaS?" just go to `www.oracle.com/paas`. There, you can learn more about PaaS and the Oracle Cloud Platform.

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Where to Go from Here

If you don't know where you're going, any chapter will get you there — but Chapter 1 might be a good place to start!

However, if you see a particular topic that piques your interest, feel free to jump ahead to that chapter. Each chapter is individually wrapped (but not packaged for individual sale) and written to stand on its own, so you can start reading anywhere and in any order that suits you (though I don't recommend upside down or backwards).

Chapter 1

Driving Innovation and Business Transformation with Platform as a Service

In This Chapter

- Defining PaaS
- Recognizing the business need for PaaS

Innovation, business agility, cost efficiencies, a better customer experience — these potential benefits of cloud computing have made it a key component in enterprise IT strategies. In this chapter, you learn all about Platform as a Service (PaaS) and how it delivers those benefits.

What Is PaaS?

PaaS is a category of cloud computing services that provides a platform to develop, deploy, and run applications without the cost and complexity of deploying and managing the required infrastructure. In cloud environments, PaaS is the layer that commonly exists

between Infrastructure as a Service (IaaS) and Software as a Service (SaaS).

IaaS provides cloud-based infrastructure services that provide compute, storage, and network capacity. The cloud subscriber is usually responsible for installing, configuring, and maintaining any software on the cloud-based infrastructure, such as database, middleware, and application software.

SaaS provides cloud-based business applications, like a human resources, sales, or financial application, running on platform software (such as database and middleware) and infrastructure that are hosted and fully managed by the SaaS provider. The SaaS subscriber typically has little to no visibility into or control of the underlying platform and infrastructure.

A complete PaaS solution provides integrated, cloud-based platform services that include preinstalled and configured database and middleware (such as application and web servers) software. It can also provide a platform for developing, testing, and deploying different kinds of enterprise applications, such as transactional and analytics applications.

PaaS includes self-service, web-based tools that enable businesses to select appropriate configurations for their database and middleware requirements. With PaaS, many software-development tools are often accessible via a web browser.

In case you're wondering, here's the difference between public PaaS and private PaaS: Public PaaS is shared by multiple organizations whereas private PaaS is used exclusively by a single organization.

Dispelling a few myths about PaaS

Though understanding and awareness about PaaS and its capabilities have increased, there are still lingering myths that can lead to decisions that result in a whole new set of problems. It's important to understand all your options and how each impacts your business.

Myth #1: Cloud will lock you in. Without question, some cloud service providers would like nothing better than to lock you into their proprietary cloud platform. But businesses have lots of options that will allow them to avoid lock-in — provided they know what to look for, such as

- Industry-based standards
- Deployment options across public clouds, private clouds, or hybrid clouds
- Capability to integrate data and business processes in and out of the cloud

Myth #2: All clouds provide the same cost-performance benefit. Using low-cost commodity servers is an approach many cloud providers favor. However, cloud environments run on servers and infrastructure of all kinds. Choosing the right

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cloud service provider with the right infrastructure for your business is critical. Here are two important questions to consider when choosing a cloud platform:

- Are you getting the best price/performance possible?
- How does your quality of service (scalability, performance, availability, reliability) compare against other clouds?

As you dig into these questions, you may discover that commodity hardware doesn't always provide the best value in terms of scalability, performance, availability, and reliability. Infrastructure that is optimized and specifically engineered for higher performance and efficiency often delivers the best value in the cloud.

Myth #3: Pay-per-use is the way to go for PaaS. Paying for the use of PaaS on a per-minute or hourly basis may sound economical, but the costs are variable and can add up very quickly. Pay-per-use makes a lot of sense for short-term usage or large fluctuations in capacity needs. But fixed monthly or annual costs are often the better choice for long-term application deployments. Prepaid subscriptions can also offer significant cost benefits. So consider what's most economical for your particular application and weigh your options.

Myth #4: PaaS isn't secure. Security has long been one of the top concerns among organizations considering a move to the cloud. The fact is that businesses often improve application and data security by leveraging enterprise-grade public clouds. Many corporate data centers have limited security resources and expertise, challenges meeting regulatory

requirements, outdated software and hardware, and don't perform regular security audits and assessments. On the other hand, air-tight security is a must for any public cloud provider, replete with the following:

- A dedicated team of cloud security experts
- Processes that ensure full compliance with regulatory and industry standards
- Cyber-security measures, including third-party security audits
- Automatic updates for managed hardware and software

Still, not all cloud security is equal and the best advice is to review your cloud provider's security technology and practices to understand any potential security risks.

Myth #5: The biggest benefit of PaaS is lower IT costs. Reducing operational and capital costs are certainly good reasons for adopting cloud computing. But these days, adopting cloud-based solutions is rarely just about saving money. Businesses are realizing that ease of use supported by a predefined service catalog, self-service provisioning, and auto-scaling drives speed of deployment, business innovation, and adaptability to changing business needs. Others view PaaS as a way to gain flexibility and agility. The biggest benefit of PaaS may differ from one business to the next and is usually directly tied to whatever issue is driving businesses to adopt PaaS in the first place.

What's Driving the Need for PaaS?

Businesses today are constantly challenged by quickly changing markets and business requirements. To stay competitive, businesses need greater agility and innovation, but they still need to keep their IT costs in check.

PaaS enables significant IT cost savings by offering a subscription pricing model and by enabling developers, for example, to focus on application development rather than procuring and managing infrastructure. PaaS also provides the option to use and pay for the environments only when needed. Businesses using PaaS have reported operational savings of up to 50 percent compared to individual development teams managing internal technology stacks.

PaaS provides speed and agility by offering simpler, instant access to application development and deployment environments in the cloud. PaaS also allows rapid scale up and scale down of these environments as needed, providing significant flexibility that would otherwise not be possible.

IT professionals and architects can use PaaS to move applications to the cloud, which can result in simplified IT, lower costs, and streamlined operations. This paradigm shift allows businesses to refocus their resources to innovate faster and take advantage of new markets and business opportunities.

Business professionals can use PaaS to help lead business transformation needed to stay competitive in their respective industries. PaaS can help businesses

increase productivity and data visibility through greater process automation, content and collaboration capabilities, and analytics that deliver real-time business insight.

PaaS provides a cloud platform that enables users to develop, deploy, and run applications without the complexity of deploying and managing the underlying infrastructure. Business drivers for PaaS adoption include the need for the following:

- Greater agility and innovation through automated processes, increased collaboration, higher productivity, and real-time business insights
- Accelerated application innovation and time to market
- Simplified IT, lower costs, and streamlined operations

Chapter 2

Exploring PaaS Use Cases

In This Chapter

- Developing and testing new apps
- Migrating from on-premises to the cloud
- Extending existing SaaS apps
- Using analytics to gain business insight
- Testing platform upgrades in a sandbox

In this chapter, you discover several common business uses cases for leveraging PaaS.

Developing and Testing New Applications

Developing and testing applications in the cloud is the most common use case for PaaS today. Businesses develop and test new applications or SaaS application extensions in the cloud or just move the deployment and testing of on-premises deployed applications to the cloud while deploying their production environment in their own data centers. This approach enables application developers to quickly and easily spin up

development and testing environments in the cloud, usually in minutes. Because there is no need to procure, deploy, and maintain additional infrastructure and software licenses, businesses can often create new innovative applications, including analytics applications, in the cloud significantly faster and at a fraction of the cost of an on-premises environment.

Key benefits include the following:

- Lowers development costs
- Accelerates application development with instant access to new Dev/Test environments
- Increases developer/IT productivity through eliminating the need to set up and manage infrastructure for Dev/Test

Check out the DX Marketing customer success story in Chapter 4 for a real-world example of this use case.

Moving Applications to the Cloud

This PaaS use case involves taking an existing on-premises application and moving it to the cloud. This generally means taking existing databases and applications and simply redeploying them onto a cloud-based platform (database and middleware cloud services) without changing any code. The key to making this possible is having the same technology across on-premises and cloud environments.

Key benefits include the following:

- Lowers total cost of ownership (TCO) by reducing data center footprint and need for in-house hardware for enterprise apps
- Enables businesses to leverage existing investments in platform, applications, and technical skills
- Delivers true application portability, not only from Development to Test to Production, but also between different prototyping and proof-of-concept (POC) environments
- Increases performance, scalability, availability, and reliability of existing enterprise applications

Read the Zamil Industrial customer success story in Chapter 4 to see this use case in action.

Extending SaaS Applications

Many businesses have particular business requirements that aren't addressed by standard functionality in the SaaS applications they've previously deployed, particularly as needs change in time. In such cases, businesses can leverage application development cloud services (database and middleware) to develop and deploy custom code, or complete application extensions that broaden and customize the functionality of their SaaS applications. Businesses can also extend SaaS applications with platform services that provide additional capabilities such as document sharing or analytics.

Businesses can also use integration cloud services to integrate their SaaS applications (data and businesses processes) with on-premises applications, as well as other cloud and mobile applications.

Key benefits include the following:

- Better support the business by addressing unique application requirements quickly and cost-effectively
- Extend and enhance embedded static reports in cloud applications (SaaS) with advanced, multi-period, cross-functional analytics, discovery, and data visualization
- Eliminate data silos and fragmented business processes

Head to Chapter 4 to find out how Avaya and Land O' Lakes have extended their SaaS applications with PaaS.

Analyzing Business Data from Any Source

Business analytics tools provide valuable consumer, product, and behavioral insights, among others, and are increasingly important to businesses today. With a cloud-based analytics platform, businesses can combine data from any source — cloud, mobile, on-premises, big data repositories, Hadoop, the Internet of Things (IoT), or local files — for a complete view of their business.

Key benefits include the following:

- Faster and greater insight across every area and dimension of the business to drill down and through from big picture summary to detail records
- Efficient discovery of hidden patterns and trends through end-user data visualization and exploration
- Complex data becomes more accessible, understandable, and usable when it's converted from static numbers into charts, timelines, and other visual formats.
- Leveraging PaaS compute resources for analysis of large datasets from multiple disparate sources
- Quickly and easily manage and analyze big data in the cloud

Learn more about this use case with actual an example from Skanska in Chapter 4.

Sandboxing for Testing Platform Upgrades

Every business with on-premises application deployments has to deal with upgrades. For most IT organizations, platform upgrades represent risk, uncertainty, and increased cost. Increasingly, businesses are turning to PaaS to provide low-cost, low-risk sandbox environments for testing application platform (database and middleware) upgrades.

Key benefits include the following:

- Reduces cost and risk of testing software upgrades
- Accelerates testing of software upgrades
- Increases frequency of uneventful, successful upgrades

Common PaaS use cases include the following:

- Developing and testing new applications
- Moving applications to the cloud
- Extending SaaS applications
- Analyzing business data from any source
- Testing platform upgrades in a sandbox environment

Chapter 3

Introducing Oracle Cloud Platform

In This Chapter

- Developing applications
- Managing data
- Integrating applications
- Analyzing business data
- Going mobile
- Collaborating in the digital workplace
- Managing IT operations

Oracle Cloud Platform can meet the needs of developers, IT professionals, and business users with a portfolio of platform services that enables them to drive innovation and business transformation. In this chapter, you get a flyover of the many service offerings in Oracle Cloud Platform.

Oracle Cloud Platform for Application Development

One of the true "killer" use cases for cloud computing is application development and testing. The payback from using a public cloud platform to build, test, and deploy applications is compelling with the capability to do the following:

- Self-provision development and testing environments (also known as DevOps), so you can start building applications without having to wait for IT to set up hardware and software.
- Quickly get applications into production and scale those applications as required.
- Collaborate with other developers and architects on the creation of the application.

Here's what to look for when evaluating a PaaS solution for developing and deploying business applications:

- The capability to develop and deploy nearly any type of application, including enterprise apps, lightweight container apps, web apps, mobile apps, and more.
- Support for polyglot (that is, multi-language) development environments.
- Support for Java standards, so DevOps teams can use familiar architectures, utilities, and products — including integrated development environments (IDEs).
- The same support for technology and standards across public and private clouds, resulting in

maximum flexibility. Full compatibility for applications and databases from on-premises to cloud to support a hybrid cloud strategy.

- The capability for business users to build simple apps without coding.
- Support for complete application life cycle development and management.

Products in the Oracle Cloud Platform for Application Development include the following:

- **Application Builder Cloud Service:** Rapidly create and host business applications with a visual development environment right from your browser. Allows business users to provide solutions quickly — without the need to pull in developers.
- **Developer Cloud Service:** Simplify team-based development with a turnkey development environment that provides tools to manage tasks, track issues, integrate builds, and collaborate with other developers.
- **Java Cloud Service:** Enables easy, rapid, and agile deployment of Java Enterprise Edition (EE) applications with full control and flexibility of your applications in the public cloud.
- **Mobile Cloud Service:** A Mobile Backend as a service (MBaaS) that simplifies mobile applications development and integration to on-premises or cloud-based business applications.
- **Node Cloud Service:** Deploy Node.js applications to the Oracle Cloud quickly and easily with high performance, availability, and scalability.

- **Java SE Cloud Service:** Develop and deploy lightweight scalable Java Standard Edition (SE) applications with desktop, web, and mobile interfaces.

Oracle Cloud Platform for Data Management

As both the volume and variety of data available to the enterprise grows, organizations need a broad range of capabilities to capture and manage all data. Oracle's Cloud Platform for Data Management can make data seamlessly available to analysts and applications.

Oracle Cloud Platform offers a complete environment to manage data for development or for production deployment to the cloud. With Oracle Cloud Platform, organizations can choose to store business-critical data on-premises, on the Oracle Cloud, or in a hybrid cloud environment. Businesses get exactly the same Oracle Database capabilities in the cloud as Oracle Databases deployed on-premises — the same software, architecture, and tools. So there's complete compatibility from development in the cloud to deployment on-premises, or vice versa — no training and no application code changes.

Oracle Application Express is a development environment included with Oracle Database Cloud service, which lets you rapidly build web and mobile applications using a standard web browser interface — taking you from prototype to production in minutes.

Products in the Oracle Cloud Platform for Data Management include the following:

- **Database Cloud Schema Service:** Provides a database schema that's up in minutes, fully managed by Oracle, and includes Oracle Application Express (APEX), a rich browser-based development environment that doesn't require extensive coding skills.
- **Database Cloud Database as a Service:** Provides a full Oracle Database instance that runs exactly the same as it does on-premises, and offers automated administration, a broad range of service level choices, and centralized hybrid cloud management.
- **Database Cloud Exadata Service:** Oracle Database Cloud Exadata Service provides customers with a complete Oracle Database environment, complete with all the options, hosted on an Oracle Exadata Database Machine. It's the same hardware and software used in mission-critical applications at thousands of customer sites worldwide.
- **Database Backup Cloud Service:** Provides a simple, cost-effective, and highly scalable solution that securely backs up on-premises or cloud databases, offering end-to-end encryption, triple mirroring, and fast point-in-time recovery.
- **Big Data Cloud Service:** Delivers Hadoop as a secure, automated, elastic service that can be fully integrated with existing enterprise data in Oracle Database. Discover relationships and connections among customers, organizations, and assets, and enrich your big data with location. Handle the most challenging graph, spatial, and raster processing workloads on Apache Hadoop and NoSQL database technologies.

- **Big Data Spatial and Graph Cloud Service:** Discover relationships and connections among customers, organizations, and assets, and enrich your big data with location. Handle the most challenging graph, spatial, and raster processing workloads on Apache Hadoop and NoSQL database technologies.
- **Oracle Advanced Analytics:** Extends the Oracle Database Cloud Service into a comprehensive advanced analytics platform through two major components: Oracle R Enterprise and Oracle Data Mining. With Oracle Advanced Analytics, organizations have a comprehensive platform for real-time analytics that delivers insight into key business subjects such as churn prediction, product recommendations, and fraud alerting.
- **Big Data Preparation Cloud Service:** Provides a highly intuitive and interactive way for analysts to prepare unstructured, semi-structured, and structured data for downstream processing.
- **Big Data SQL Cloud Service:** Extends Oracle SQL to query all data in big data Cloud Service. Existing applications using SQL can now easily access data in Hadoop, and Oracle Database security policies can be applied to Hadoop data.
- **NoSQL Database Cloud Service:** Provides a useful database service including support for JSON (JavaScript Object Notation) and Table data types with built-in high availability, transactions, parallel query, and more.

Oracle Cloud Platform for Integration

The rapid shift from on-premises applications to a hybrid mix of Software as a Service (SaaS) and on-premises applications has introduced significant challenges for companies attempting to simplify enterprise application integration.

One reason this challenge exists is the ease in which lines of business (LOBs, such as marketing, sales, customer support, and others) can subscribe to multiple disparate SaaS applications with little or no involvement from internal IT.

Once the LOB starts using the SaaS application, however, there is often a need to integrate with existing applications — and then the real challenges surface, including the following:

- Integration platforms historically too complex for LOB application development and collaboration
- Lack of awareness of installed SaaS application(s) from the PaaS layer
- Lack of expertise and best practices
- No pre-integration, forcing even common application integrations to be developed from scratch
- Deployment lock-in, preventing the capability to transition between public and private clouds based on changing business requirements

These challenges translate into quantifiable, negative business impacts, including abandoned cloud applications, missed deadlines, security issues, and ultimately outright failure to integrate cloud applications.

To simplify cloud integration, look for a simple and agile integration platform that enables you to do the following:

- Leverage prebuilt application integrations so you don't have to start all your integrations from scratch.
- Learn best practices based on successful integrations achieved by other customers and incorporate that crowdsourced insight and experience.
- Preconfigure connectivity between your SaaS applications and integration platform with a single cloud provider that offers both PaaS and SaaS.
- Redefine and simplify the user experience so all user personas, including LOB teams and IT application developers, can collaborate with integration developers and architects.
- Avoid deployment lock-in with public/private/hybrid cloud portability to support ever changing business and regulatory requirements.

With Database Cloud Exadata Service, organizations gain instant access to pre-configured extremely high performance and high availability infrastructure for the deployment of mission-critical applications in the cloud.

Products in the Oracle Cloud Platform for Integration include the following:

- **Integration Cloud Service:** Simplify integration between cloud and on-premises Oracle and third-party applications. Includes features such as pre-built integrations and embedded best-practice recommendations that provide an entirely new application integration experience.
- **Mobile Cloud Service:** Connect any mobile client to any backend systems via mobile-ready RESTful (Representational State Transfer) APIs (application programming interfaces) or native SDKs (software development kits) (iOS and Android) that have been optimized and shaped from new or existing web services from on-premises and cloud-based systems.
- **Internet of Things (IoT) Cloud Service:** Rapidly assimilate IoT into your digital strategy and create innovative services with intelligent real-time data analytics on large volumes of streamed IoT data and integration to enterprise applications and processes.
- **SOA (Service-oriented Architecture) Cloud Service:** Consolidate diverse integration requirements into a developer solution including API management, application integration, and process orchestration. Integration solutions ranging from service virtualization, high volume event processing, Managed File Transfer (MFT), business-to-business (B2B), and more are ready in Oracle Cloud without the need for installation. SOA Cloud Service is identical to Oracle SOA Suite, allowing for integration between cloud and on-premises to support rapidly changing business requirements.

Oracle Cloud Platform for Business Analytics

When it comes to analytics, every organization is looking to do more with less — using more data to drive deeper insights, more quickly, for more people, at lower costs.

To meet these goals, you need a robust platform that supports the entire analytic process with the security, flexibility, and reliability that you expect. Long gone are the days when "analytics" referred to static, embedded reports and charts. Today, an analytic platform must not only deliver traditional reporting and dashboarding, but also the complete set of capabilities for self-service data visualization, exploration, and discovery, whether from a browser or mobile application.

The platform must be quick to provision and easy to administer — yet, it has to offer managed self-service so you can empower your users to do their own analyses without sacrificing governance.

In today's big data world, rapid analytic application prototyping and switching are key for implementing the concepts of a "Data Lab" (for testing and prototyping new analytic and discovery applications), and a "Data Factory" (for operationalizing analytic applications).

But how can you gain the benefits of a proven enterprise-class system without enterprise-class costs and infrastructure? The cloud gives you the power of

the enterprise, without additional infrastructure or maintenance, for a predictable low cost.

Instead of spending your time worrying about upgrades or wondering if your analytics platform will perform at the end of the quarter, you can use your time better if you have a top-quality analytics solution.

When your analytics are in the cloud, you want the best — an end-to-end solution that can span across on-premises to applications in the cloud and is capable of generating analytics in seconds to enable faster and smarter business decisions.

You need a PaaS business analytics solution that empowers you to do the following:

- **Present the story.** Making the content visual should take just a few steps with rich data in a robust environment. The experience should be as simple as browsing a gallery of dynamic visualizations to select those that you want, or getting automatic recommendations when you aren't sure.
- **Govern and extend it.** After you establish a data pipeline, you need to manage and enhance it by using easy tools to review and adjust information, and to create advanced analytic functions that extend analysis.
- **Make it mobile.** Just as analytics have evolved to be fully dynamic, they have also moved beyond the desktop. Fully functional analysis on any device is the "new normal." This means that your business intelligence (BI) platform must include a seamless solution for mobile device access.

Products in the Oracle Cloud Platform for Business Analytics include the following:

- **Big Data Discovery Cloud Service:** Provides a single, easy-to-use product, built natively on Hadoop, to transform raw data into business insight in minutes, without the need to learn complex products or rely on highly skilled resources.
- **Data Visualization Cloud Service:** Provides a self-service environment for quickly and intuitively visualizing and analyzing any data.
- **Business Intelligence Cloud Service:** Delivers a proven platform for powerful business intelligence applications, empowering users from the workgroup to the enterprise.
- **Big Data Preparation Cloud Service:** See Oracle Cloud Platform for Data Management, earlier in this chapter.
- **Internet of Things (IoT) Cloud Service:** See Oracle Cloud Platform for Integration in the previous section.

Oracle Cloud Platform for Mobile

With a cloud-based platform, mobile client and back-end service developers can collaborate effortlessly in an environment that is tailored to their needs, while managers can fine-tune access and gain insight through mobile analytics.

Oracle Cloud Platform for Mobile capabilities include the following:

- **API first strategy:** Free mobile client developers from the complexity of connecting to unfamiliar backend systems by simplifying access with a cloud-based, mobile-ready API catalog.
- **Mobile-ready backend services:** Extend new and existing backend systems by shaping and publishing web services as mobile-ready RESTful APIs.
- **Mobile analytics:** Monitor, measure, and optimize the performance of mobile application deployments to improve future revisions.
- **Mobile security:** A top priority, mobile security must be addressed end-to-end, from the client application to the server — no exceptions.

Products in the Oracle Cloud Platform for Mobile include the following:

- **Oracle Mobile Cloud Service (MCS)** is a Mobile Backend as a Service (MBaaS) that provides built-in mobile services and an extensible API catalog that helps simplify connectivity between mobile clients and backend systems. MCS is based on Node.JS, with tools and services to consume web services and shape them into mobile-ready APIs that can be used by the mobile development team. MCS includes built-in mobile analytics and dashboards to measure and monitor mobile application use and performance.
- **Oracle Mobile Security Suite** provides an identity-centric platform that includes mobile device management, application management, content management, and mobile identity that can fully integrate and leverage your existing identity management platform.

The Oracle Cloud Platform for Mobile includes Mobile Cloud Service, which makes mobile app development and integration quick, secure, and easy to deploy.

Oracle Cloud Platform for Content and Collaboration

A digital workplace requires an integrated suite of content and collaboration solutions that enable business users to easily collaborate anywhere, simplify business automation, and communicate more effectively.

A holistic PaaS solution for content and collaboration enables the following:

- **Increased productivity:** Drive better decisions through frictionless yet secure information exchange, social collaboration, and mobility.
- **Increased efficiency:** Enable faster decision making, streamlined and simplified process automation, reduced cost of operations, and improved work effectiveness with contextual collaboration.
- **Rapid innovation:** Deliver new products and services to market faster and create compelling communications and engagement.

Look for a comprehensive cloud-based content and collaboration solution that

- **Optimizes existing investments:** Easily integrates with current on-premises and SaaS applications and extends current enterprise content management, business processes, and applications without creating new information and governance silos.

- **Empowers business users:** Drives content collaboration, business process automation, and effective communications without coding or IT customization.
- **Contains inherent security and compliance:** Provides granular security controls for information at rest, in transit, and at access points, even on mobile devices. Ensure presence of global, secure data centers for data residency and other regulatory compliance.

Products in the Oracle Cloud Platform for Content and Collaboration include

- **Documents Cloud Service:** Provides enterprise file synchronization and sharing in a next-generation cloud-based content collaboration solution with robust security, application integration, and mobile enablement capabilities.
- **Process Cloud Service:** Model business processes and decisions, design forms, and implement and deploy process applications in a collaborative cloud environment.

Oracle Cloud Platform for IT Operations Management

With the rapid adoption of PaaS technologies, many businesses are looking to the cloud to address complex IT operations challenges that traditional solutions have struggled with — including performance monitoring, anomaly detection, and capacity planning. Key shortfalls include complex software, massive computing

requirements, and a lack of or slow availability of advanced capabilities.

Oracle Cloud Platform for IT Operations Management incorporates several cloud services from the Oracle Management Cloud. These services provide advanced functionality combined with automatic collection, storage, aggregation, and analysis of vast volumes of IT data to help businesses address the IT challenges of a rapidly growing business.

Products in the Oracle Cloud Platform for IT Operations Management include

- **Application Performance Monitoring Cloud Service:** Eliminate application performance and availability issues with advanced techniques to find and resolve issues before customers are impacted. Break down barriers between development and operations to provide a single source of truth for better application delivery. Assure an exceptional user experience by understanding true application performance and correlated user delays or issues.
- **Log Analytics Cloud Service:** Gain real-time operational insight by aggregating and analyzing logs across on-premises IT and cloud. Harness the untapped value of machine data and troubleshoot problems faster with topology-aware exploration and out-of-the-box intrinsic knowledge of the Oracle ecosystem.
- **IT Analytics Cloud Service:** Optimize IT capacity by improving the use of current resources and plan accurately for future business growth. Maximize performance across the entire IT

infrastructure by eliminating common, systemic, and critical problems. Transform IT into a strategic business partner by providing proactive operations insight and delivering reliable service.

These services help businesses keep their users happy, resolve issues more quickly, and run IT like a business. Oracle's services in this category benefit from a unified big data platform for IT operations, providing customizable dashboarding for various lines of business and IT roles, offering a massively scalable platform for large environments, and complementing on-premises Oracle Enterprise Manager for existing users of the product.

Oracle Cloud Platform offers services for

- Application development
- Data management
- Integration
- Business analytics
- Mobile
- Content and collaboration
- IT operations management

Chapter 4

Oracle Cloud Platform Success Stories

In This Chapter

- Moving to the cloud effortlessly
- Making SaaS and PaaS work together seamlessly
- Developing new applications faster
- Integrating applications in a hybrid cloud
- Increasing agility for rapid growth
- Using analytics to drive better outcomes

In today's fast-paced, global economy, businesses are facing stiffer competition, rising IT costs, and constantly changing market conditions. Businesses that are able to adapt quickly and rise to the challenge thrive, while those that can't, often see their competitors pass them by. Businesses that embrace digital transformation through PaaS are better equipped as a modern enterprise to deal with challenging business conditions.

In this chapter, you examine a small sampling of Oracle Cloud Platform customer success stories and learn how PaaS is helping them accelerate innovation, lower IT costs, drive productivity, and increase business insight.

Zamil Industrial — Moving to the Cloud with Zero Code Changes

Zamil Industrial Investment Company is a premier Saudi Arabian business group engaged in developing innovative design and engineering solutions for the global building and construction industry, including products ranging from steel structures and communication transmission towers to climate control systems and construction materials. Zamil Industrial has more than 10,000 employees in 55 countries and sells its products and solutions in more than 90 countries.

Challenges

Zamil Industrial was looking to maximize staff productivity and enhance data security. Specifically, it needed to

- Reduce pressure on IT by automating the provisioning and maintenance of application servers and databases, enabling administrators and developers to focus on strategic tasks
- Avoid data inconsistencies by consolidating databases deployed in five countries and establishing a trusted version of corporate data to be shared throughout the enterprise

- Improve business agility and management of global projects by standardizing workflows for forms and reports
- Reduce TCO for licensing and maintaining databases and application servers to gain a competitive edge in the industry

Solutions

Zamil Industrial found that only Oracle's cloud technology freed the company entirely from licensing, configuring, and managing its business-critical database and application server environment, so it decided to move to the cloud with Oracle Database Cloud Service and Oracle Java Cloud Service. CIO Zaki Sabbagh describes the implementation process: "For each site, we migrated the Oracle Database to Oracle Database Cloud Service with the help of Oracle SQL Developer. We did not need to modify anything in our databases in order to migrate to the cloud. We then migrated our web services from Oracle WebLogic Server to Oracle Java Cloud Service, and had the same advantage here — no need to apply changes to the existing code of our forms and reports."

Sabbagh continues, "Now we are about to add more services such as Oracle Documents Cloud Service so that users can store their documents in the cloud. We will then have one global repository, with high data security and automated backups."

Results

With Oracle Database Cloud Service and Oracle Java Cloud Service, Zamil Industrial achieved the following results:

- Moved existing databases and apps to the cloud with zero code changes and increased developer and administrator productivity by leveraging fully automated administration and life cycle management tools, including one-click patching, backup, restore, and scaling, to easily build and deploy new apps
- Saved the equivalent of two full-time employee (FTE) resources per year for database and application server maintenance and backups and focused IT specialists on strategic objectives such as business process improvements and integrating applications
- Reduced the need to perform software upgrades at multiple sites by adopting single instances of Oracle Database Cloud Service and Oracle Java Cloud Service
- Boosted business productivity by maximizing critical application availability and performance and minimizing administrative effort
- Avoided vendor lock-in with a standards-based cloud platform for database operation and application deployment

Avaya — Extending and Integrating SaaS with PaaS

Avaya is a global provider of solutions for customer and team engagement. The company provides

technologies for unified communications and collaboration, contact center and customer experience management, and networking. It also offers related services to large enterprises, midmarket companies, small businesses, and government organizations around the world. Avaya has an intricate sales and service model in which the bulk of its sales depend on its channel of more than 20,000 worldwide partners.

Challenges

Avaya needed to address the needs of its midmarket segment while replacing an existing cloud-based customer relationship management (CRM) solution with the Oracle Sales Cloud. At the same time, its enterprise partner business required particular functionality that wasn't included in the Oracle Sales Cloud/PRM (Partner Relationship Management) solution. Avaya needed the capability to build custom application extensions to complement the functionality in the Oracle Sales Cloud. In addition, Avaya needed an easy, cost-effective way to integrate the Oracle Sales Cloud with other enterprise applications.

Solutions

Avaya chose to address the challenges with the following Oracle Cloud services:

- Oracle Java Cloud Service-SaaS Extension
- Oracle Cloud Integration Service
- Oracle Sales Cloud Service

Results

For its extension platform, Avaya selected Oracle Java Cloud-SaaS Extension as a way to build additional

functionality without making significant changes to the core Oracle PRM application. Avaya also chose Oracle Cloud Integration Service (ICS) as its cloud integration platform for integrating Oracle Sales Cloud with its other enterprise applications, including an on-premises SAP implementation.

"With the Oracle Cloud solution, integrated with our own engagement solutions, we expect to take our partner experience to the next level while reducing about 80 percent of customizations and 30 percent of ongoing costs," said Fari Ebrahimi, Senior Vice President and Global Chief Information Officer, Avaya.

DX Marketing — Accelerating New Application Development and Time to Market

DX Marketing is a data-driven marketing firm in the U.S., offering services ranging from research, analytics, and digital to creative. It also offers commercial printing services.

Challenges

Faced with the challenge of identifying valuable consumer data from hundreds of millions of records for customer acquisition programs, DX Marketing realized that its existing environment was straining resources and not providing the performance needed to meet or exceed customer demand. DX Marketing's IT department knew that in order to reduce risks and infrastructure costs, improve scalability, and accelerate time to market, it needed to replace its on-premises computing platform. It sought a cloud-based platform to rapidly

build a new environment for its direct marketing solutions while maximizing ROI for its customers. With expanding customer demand and a limited time frame to develop new solutions in the cloud, DX Marketing turned to the Oracle Cloud Platform.

Solutions

DX Marketing chose to address the challenges with the following Oracle Cloud services:

- Oracle Database Cloud Service
- Oracle Marketing Cloud Service

Results

By leveraging Oracle's cloud technology resources and onboarding support, DX Marketing's new direct marketing application was developed, deployed, and up and running on the Oracle Cloud Platform in less than three weeks — a process that DX Marketing expected would take four months. Oracle Database Cloud Service enabled the company to decrease time to market for customer campaigns by up to 70 percent through fast, wizard-driven database provisioning, automated administration, and pluggable database capabilities. The solution delivered greater performance, security, and scalability compared to its previous computing environment. The Oracle Cloud solution also enabled DX Marketing to customize the application environment, connect data across its clients' marketing ecosystems, analyze the performance of its efforts, and implement best practices security policies.

"With our Oracle Cloud solution, we have been astounded at how fast and effectively we can get to market and that is a huge differentiator that helps us

deliver ROI to our customers. Oracle's multitenant and advanced analytics capabilities are enabling us to provide breakthrough solutions, and allow us to capitalize on business opportunities that can create new revenue streams. This was not possible with our prior solution," said Ray Owens, CEO, DX Marketing.

Land O' Lakes — Integrating Cloud and On-Premises

Land O' Lakes, Inc., is the second-largest member-owned cooperative in the United States, offering local farming cooperatives and agricultural producers across the nation an extensive line of agricultural supplies, as well as state-of-the-art production and business services. The company is also a leading marketer of dairy-based food products for consumers, food-service professionals, and food manufacturers. It serves more than 300,000 agricultural producers and conducts business in more than 50 countries. Over the years, Land O' Lakes has expanded its operations into a variety of subsidiaries that provide farmers with crop seeds and crop protection products.

Challenges

Land O' Lakes long ago standardized application integration on Oracle BPM (Business Process Management) and SOA (Service-Oriented Architecture) suites and wanted to transition from an environment of on-premises applications to a hybrid environment of on-premises applications co-existing with new cloud-based applications. Land O' Lakes considers cloud integration as a complete rethinking of integration, requiring a "whole different mindset."

Solutions

The Oracle Cloud Platform services that Land O' Lakes chose to help address the challenges included

- Oracle Integration Cloud Service
- Oracle Process Cloud Service

Results

By leveraging Oracle Cloud Platform, Land O' Lakes aims to achieve the following business benefits:

- Faster time-to-market and return on investment (ROI) for integrations and process automation across on-premises and new cloud applications
- Capability to scale based on seasonal volume

Skanska — Growing the Business with Analytics

Skanska is a leading project development and construction group, with expertise in construction and development of commercial and residential projects, as well as public-private partnerships. In the last decade, Skanksa has been very successful with technological and process innovations, entering previously "closed" markets and winning some of the most demanding projects in the world.

Challenges

Skanska needed greater agility to support its expansion. It needed to fix and accelerate a slow, broken process for its monthly management reporting. It even included shipping data to a third party for augmenting/enhancing information.

Skanska also needed a central platform to share between all its different local needs and improve reporting methods.

Solutions

The Oracle Cloud Platform services that Skanska chose to address the challenges included

- Oracle Business Intelligence Cloud Service
- Oracle Database Cloud Service

Results

With an Oracle Cloud Platform solution consisting of Oracle Business Intelligence Cloud Service and Oracle Database Cloud Service, Skanska achieved the following results:

- Data is available for management to analyze in just seven minutes, after aggregating and consolidating it from multiple data sources.
- Data management and analysis is all done in-house in a centralized single analytic cloud environment that took only 17 days to implement.
- Oracle's solution satisfied the self-service needs of departmental users, while maintaining IT's strategic choice for Oracle Business Intelligence (BI).

Unisul — Driving Growth and Innovation in the Cloud

Over the last five decades, Brazil's Universidade do Sul de Santa Catarina (Unisul) has served more than 150,000 students. The university currently serves

20,000 traditional students and has opened nearly 100 smaller facilities to support long-distance learning across Brazil. Its "virtual university" enrolls an additional 10,000 students. Unisul plans to grow its enrollment by as much as 60 percent, from 30,000 to 50,000 students, in the coming years.

Challenges

To enable that kind of growth, Unisul knew it had to upgrade its PeopleSoft Campus Solutions, a solution for everything from enrollment and degree planning to learning management that it first deployed in 2005. Administrators quickly saw the upgrade as the catalyst for a much larger organizational transformation.

After evaluating eight campus software suites, Unisul decided to stay with PeopleSoft Campus Solutions. However, that selection process underscored the fact that its hardware was sorely in need of updating. The performance of Unisul's mainframe, adopted a few years before, was no longer acceptable — and wouldn't allow the university to consolidate all its applications, including those from third parties, onto a single system.

Solutions

Unisul chose the following Oracle solutions:

- Oracle Java Cloud Service
- Oracle Database Cloud Service
- Oracle Exadata
- Oracle Exalogic
- Oracle Business Process Management Suite

- Oracle PeopleSoft Campus Solution and Oracle CRM
- Oracle PeopleSoft Portal
- Oracle PeopleSoft CRM

Unisul deployed Oracle Exadata and Oracle Exalogic to run its production systems, Oracle Business Process Management Suite and PeopleSoft Portal (which powers its student, employee, partner, and public websites) at the middleware level, and the latest versions of PeopleSoft Campus Solutions and PeopleSoft CRM applications.

However, the university took another bold step: It adopted Oracle Cloud Platform to use Java Cloud Service and Database Cloud Service. According to Unisul CIO Tatiane Leal, they're cost-effective and easy to deploy and manage. But for Unisul Provost, Sebastião Salésio Herdt, the cloud services are having an even more profound impact, powering what he calls "innovation centers." "Wherever they may be in Brazil, talented students can access and work with these state-of-the-art technologies as part of the curriculum," he says.

"Currently we can serve 2,000 students, but by leveraging the cloud, that number can grow to more than 12,000," Leal says.

For Salésio Herdt, that expansion isn't just a matter of growing his institution. It is also a social good. "Now, talented students who once had no chance to access this kind of technology can do so from home, at work, or wherever they have access to the Internet," he says.

Results

Both the provost and the CIO say that a unified platform is helping them perform their jobs much more effectively. "Now we have a platform to drive innovation and move the university forward into the future," says Salésio Herdt. "We always refer to Oracle as our partner, not our supplier."

And by adopting a single set of deeply integrated technologies, the IT department has "all the scalability and reliability they need, even with a limited IT team. This means they can support Unisul's growth even as we reduce costs and optimize current resources," says Leal.

Oracle's Database Cloud Service and Java Cloud Service offerings are a key part of the equation. Currently, they're limited to educational functions. But Leal has plans to leverage them for internal development and testing, so that on an ongoing basis her team can innovate both more quickly and at significantly lower cost.

What's most important to Salésio Herdt is the ability to inspire students as they move forward with their professional endeavors. And ultimately it is about unleashing the kind of creative and entrepreneurial energies that spur social and economic development both in Santa Catarina and throughout Brazil.

"Oracle's cloud strategy fits perfectly with our needs. One of the biggest benefits with Oracle is that we get to use the same technology in the cloud, public and private, as we do on-premises without retraining our IT workforce. We are confident in the entire Oracle stack offering of hardware, software, applications and cloud," says Leal.

Chapter 5

Five Best Practices for PaaS Success

In This Chapter

- Leveraging investments in technology and skills
- Picking a comprehensive PaaS
- Requiring enterprise capabilities
- Making sure you have portability
- Getting started with application development and testing

This chapter gives you a few best practices to help you deploy a PaaS solution for your enterprise — and "pass" with flying colors!

Leverage Existing Investments in Technology and Skills

Adopting a cloud platform doesn't require you to reinvent the wheel. Consider a PaaS solution that utilizes many of the same technologies and operational skill

sets that your business currently uses on-premises. Doing so will help ease your transition to PaaS and drastically reduce (or eliminate) the learning curve for IT staff, developers, and business users alike.

Choose a Comprehensive and Integrated PaaS

PaaS should reduce the time and cost of deploying and managing applications — not add to them. Choosing a PaaS solution with a comprehensive set of fully integrated services will help avoid the complexity of dealing with siloed and disparate platforms from multiple cloud vendors. With built-in security and single sign-on capabilities, not only should the platform services work seamlessly with each other, but they should also be integrated vertically with the underlying IaaS and with any SaaS applications built to run on top.

Ensure the cloud vendor also has comprehensive integration offerings to quickly and easily integrate your public cloud with a private cloud, creating what's known as a hybrid cloud. Also, pay close attention to whether its PaaS offering has a strong road map that shows continued investment and a well-conceived product strategy that aligns with your organization's future needs.

Oracle Cloud Platform offers a full portfolio of integrated platform services in the following areas:

- Application Development
- Data Management
- Business Analytics

- Integration
- Content and Collaboration
- Mobile
- IT Operations Management

The services that make up Oracle Cloud Platform are designed and built to work together with built-in security and comprehensive analytics. The integration that Oracle Cloud Platform offers within its entire portfolio of services can deliver significant time and cost savings for operational staff and developers.

Demand Enterprise Capabilities

Cloud is simply a new service delivery model — your organization's core capabilities and service-level requirements for performance, scalability, availability, and security don't change.

According to a ComputerWorld Cloud Computing Survey, service-level guarantees are rated as important or very important by 82 percent of organizations choosing to run applications in the cloud. Don't simply assume that your cloud platform will provide the capabilities you require — demand these same capabilities.

Oracle Cloud Platform provides a powerful and flexible development and deployment platform powered by Oracle WebLogic Server and Oracle Database. It supports several Java platforms and runtime environments, including Java SE and Java EE, as well as Node.js. Oracle Database Cloud Exadata Service delivers the high performance of an engineered system, proven at

thousands of enterprises to run mission-critical workloads, on the Oracle Cloud. Also, the security framework built into the Oracle Cloud Platform ensures highly sensitive applications and data are kept secure across public, private, and hybrid clouds.

Oracle Cloud Platform is preinstalled and preconfigured — using Oracle best practices — for application deployment that maximizes performance, scalability, availability, reliability, and security. In addition, Oracle Management Cloud enables reliability, performance, and security comparable to a private data center.

Ensure Portability with Standards-Based PaaS

With many enterprises adopting hybrid cloud models, application and data portability and coexistence of cloud and on-premises IT have become essential requirements. These capabilities ensure a smooth path to PaaS adoption. Further, risk can be mitigated and flexibility maintained by ensuring the capability to move applications and data between public and private clouds, as well as traditional on-premises IT — easily and without changing any application code.

According to a ComputerWorld Cloud Computing Survey, 80 percent of organizations are prioritizing a unified, standards-based platform for PaaS, and 79 percent rate ease of integration with external data and apps as a high priority.

Oracle Cloud Platform enables easy deployment of new or existing applications and databases from on-premises to the cloud and back. Databases, for example, can be moved with a few clicks by using Enterprise Manager 12c or SQL Developer. Whether deployed in the Oracle Cloud or in a private cloud, Oracle's platform technology is based on industry standards such as Java, SQL, and HTML 5 and share the same architecture, products, and management tools (see Figure 5-1).

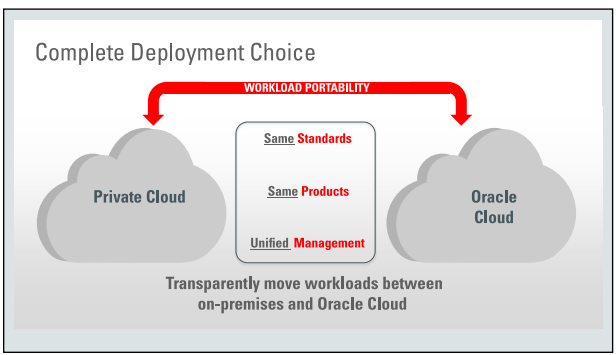

Figure 5-1: Oracle Cloud Platform provides workload portability.

Oracle provides comprehensive configuration and compliance management that works across cloud and on-premises IT. This ensures IT professionals are in full control of their assets regardless of where they're deployed. With Oracle's Hybrid Cloud Management solution, workloads can be easily migrated back and forth between different public and private clouds, while maintaining the same governance and compliance levels.

Move Application Development and Testing to PaaS First

Application development and testing workloads are ideal candidates for early migration to the cloud because they inherently carry lower risk and often only require temporary environments.

According to a ComputerWorld Cloud Computing Survey, in the next two years, application development and testing will become the most popular cloud use case, rising from 39 percent to 52 percent.

With Oracle Cloud Platform, developers can quickly spin up databases and focus on building and deploying applications with a click of a button rather than provisioning and managing the underlying infrastructure. Developers can quickly create development environments to simplify and accelerate the entire development life cycle, and then choose to deploy the applications on Oracle Java Cloud Service and Oracle Database Cloud Service, or even on a private cloud.

Oracle's integrated tools enable collaboration and management throughout the entire development process:

- **Oracle Database Cloud Service** enables database provisioning in minutes, for rapid development and deployment of various workloads ranging from departmental applications to business-critical online transaction processing (OLTP) and data warehousing workloads. Upgrades, patching, backup, and recovery are either completely managed or automated with a single click.

- **Oracle Java Cloud Service** enables developers to get a Java EE server provisioned in minutes. The resulting server is a user-defined cluster of Java infrastructure, with life cycle management cloud tools and built-in backups, recovery, patching, scale-in, and scale-out. Developers can plug directly into Oracle Database Cloud Service for persistence.
- **Oracle Developer Cloud Service** is integrated with popular IDEs such as NetBeans, Eclipse, and Oracle JDeveloper, and it features an integration platform with collaboration tools including a built-in wiki, issue tracking, and team management.
- **Oracle Enterprise Manager** migrates your test databases and Java apps quickly and securely. Clone your production data to the cloud, develop and test, and redeploy to your production system. For example, database administrators can easily copy databases and plug them into development and test container databases in the cloud.

The five best practices for PaaS success include

- Leveraging existing investments in technology and skills
- Picking a comprehensive PaaS solution
- Requiring enterprise capabilities
- Making sure you have portability
- Starting with application development and testing

Drive innovation and business transformation in the cloud

Oracle Cloud Platform meets the needs of developers, IT professionals, and business users with comprehensive, integrated platform services that enable you to innovate faster, increase productivity, and lower costs.

- ***Integrate* — your IT with next-generation cloud services and build a modern enterprise**
- ***Meet all of your modern app needs* — such as web and mobile apps, Java®, big data, analytics, and more**
- ***Lead* — the transformation of your business and your industry**

Open the book and find:

- **How to optimize your IT by running workloads in the cloud**
- **PaaS solutions to help you accelerate innovation and time to market**
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