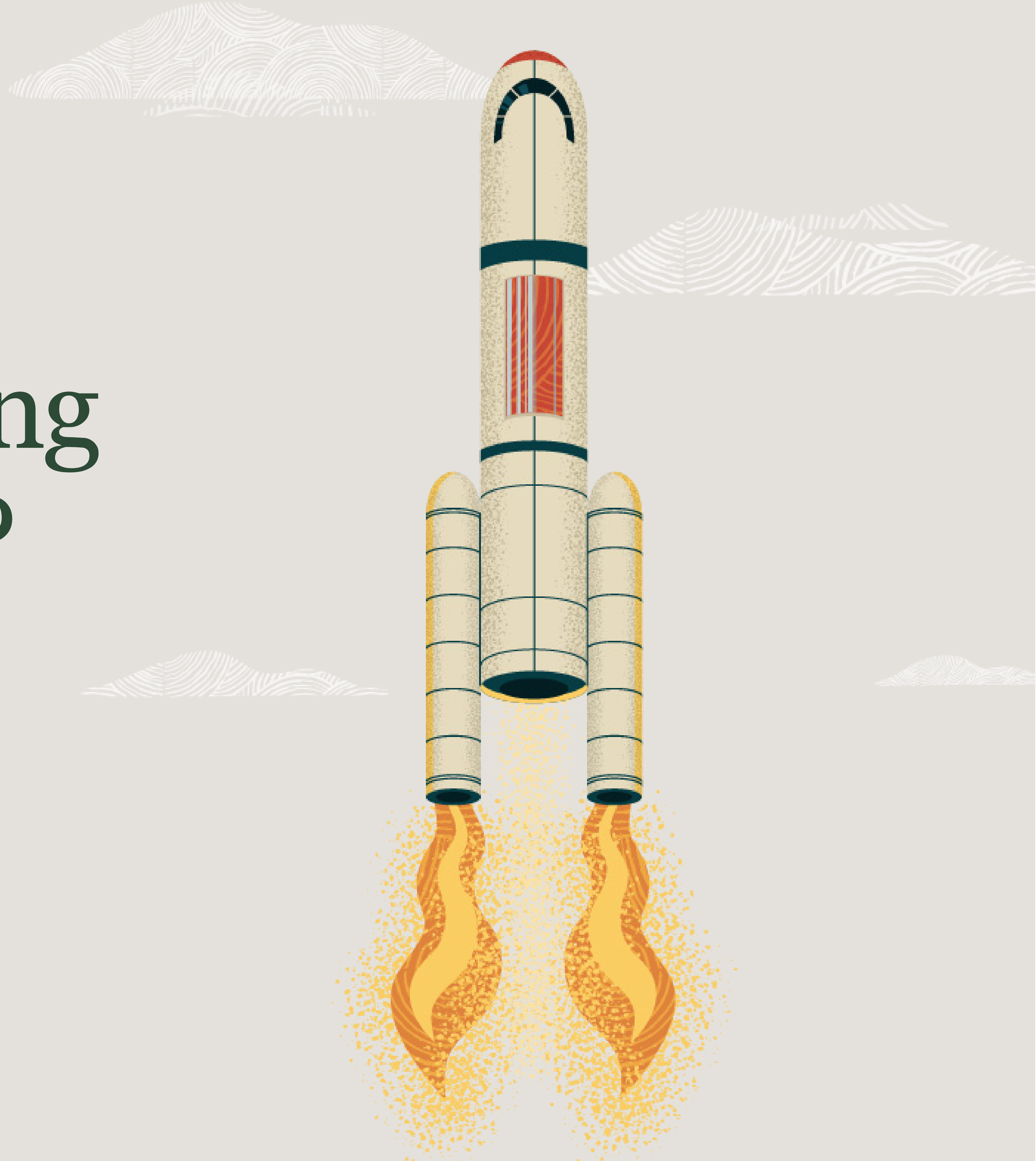
ORACLE

Why are businesses moving custom apps to the cloud?

Run your business applications with higher performance and lower costs

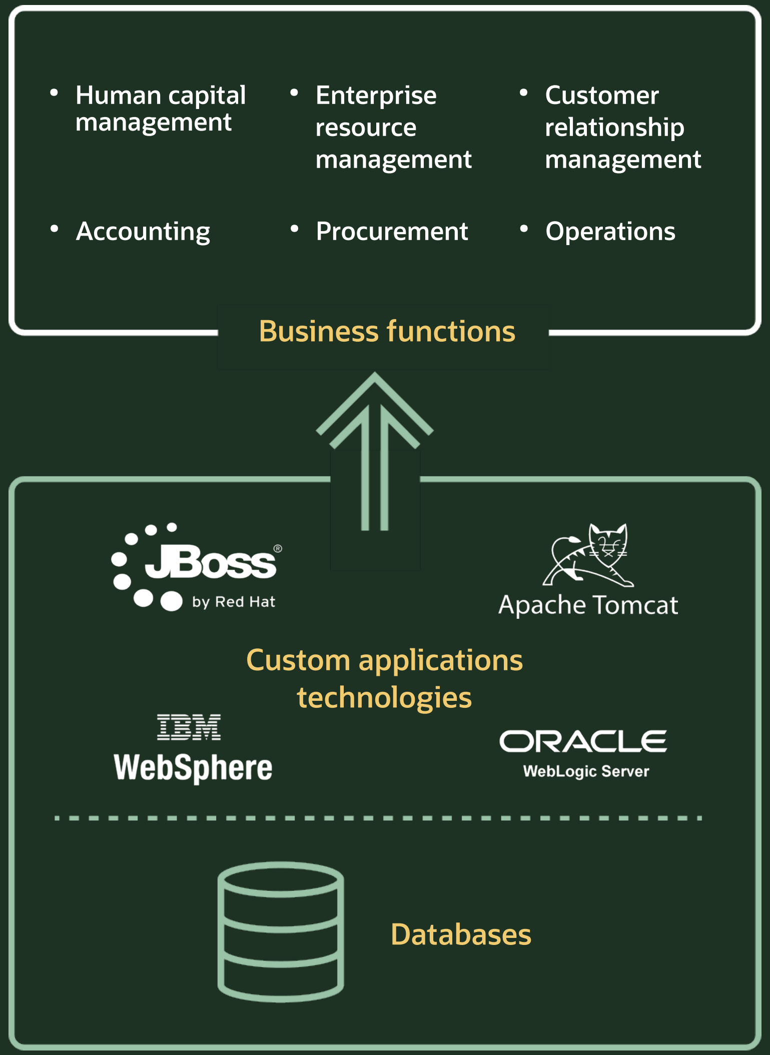


Custom apps are critical to business tasks

Within every organization, hundreds of custom software programs take care of critical tasks and workflows large and small. Adding mobile notifications, coordinating employee shifts, planning flight paths, requesting website changes, managing patient records, improving factory processes — there are an infinite variety of ways to accomplish business needs, so it's no surprise that packaged applications alone cannot anticipate them all. In fact, these programs become bonded to the very fabric of a company since they support such unique capabilities. Consequently, they often last long past their useful life, consuming network bandwidth and IT sanity while possibly exposing security flaws and preventing the adoption of newer, more user-friendly technologies such as containers, microservices, or IoT sensors.

The average enterprise has 464 custom applications, for everything from departmental use to enterprise-wide processes — and a large chunk of these are hosted in-house. In a recent report by Flexera, 48% of enterprise respondents have workloads in the public cloud, and 9% are planning to add workloads in the next year. That leaves 43% that are chugging along on their own dusty hardware and possibly holding their company back.

Custom apps, frequently built on application servers, such as Oracle WebLogic, Apache Tomcat®, JBoss®, and IBM WebSphere® are at the core of business today. These custom apps may be unique to your environment and bristling with integrations to other core business apps and databases.



Why move custom apps to the cloud

The “why” of app migration

Today, organizations are more dependent than ever on technology to forge connections, collaborate, keep raw materials and finished goods moving, and mine data. The world’s nimblest companies not only enjoy the unique advantages of cloud computing, but they also actively seek to migrate their custom apps out of their own costly data centers.

Primary motivations for Line of Business managers, IT managers, application development leaders, and DevOps teams to move their business applications to the cloud:

Modernizing
applications

Efficiency
with managing dev, test, and production environments

Addressing
performance requirements and latency

Lowering
operational costs

Every area of software and application development can now be moved to the cloud, including:

- Oracle packaged enterprise applications such as E-Business Suite, JD Edwards, Siebel, PeopleSoft, and others.
- ISV-developed apps, such as Manhattan Associates, JASCI, Sage, Viewpoint.
- Custom or 3rd party apps in Java, Node.js, Ruby, PHP, Python and more.
- Application servers like WebLogic Server, Tomcat, JBoss, or other middleware that can run in the cloud.

4 patterns for migrating custom applications to the cloud

Lift and shift of on-premises, packaged applications to the cloud will often include bolted-on or integrated custom applications.

Development teams see value in building brand new cloud native custom applications including the use of containers and microservices.

Custom applications running on legacy hardware and architecture may no longer be supported or may be costly to maintain.

A database consolidation or cloud migration initiative is already underway and there are critical business applications that populate and generate reports from these databases.

It’s easier to develop and maintain applications in the cloud

Moving custom and WebLogic apps to the cloud supports a global business strategy, speeds product releases, and enables innovation to fend off the competition. Organizations can reclaim efficiencies, eliminate over-provisioning and end budget battles over capital expenditures by migrating to the cloud. With a transparent, pay-as-you-go model in the cloud, you can scale up only when your business demands it, or you can spin down or make idle in minutes when you don’t, such as when you are creating development and test environments or prototyping.

IT departments are finding that the process of cloud migration is becoming less complex through new deployment techniques, such as defining infrastructure as code and adopting a Continuous Integration/Continuous Delivery (CI/CD) pipeline approach for faster software updates at lower, more predictable costs. These DevOps best practices can continue to be leveraged long after making the move to the cloud.

Risks of running your own data center

- Overhead costs for maintenance, updates, and expansion never go away
- On-premises architecture built for peak capacity means expensive servers mostly sit idle
- Bearing the risks of outages or malware

Methods to migrate, build, and manage custom apps in the cloud

Taking a critical look at a company's IT infrastructure often reveals systems that are running low on computing resources, legacy or outdated hardware, or an inability to meet business needs. IT, database, and app development managers need to collaborate to understand the best strategy to migrate or build an upgraded application architecture. In today's cloud, which fits a range of businesses from early stage companies to global enterprises, there exists a myriad of deployment options, from the infrastructure or database layer to containers and services.

3 primary approaches to moving enterprise apps to the cloud

1. Move

Reduce costs, maximize performance

Migrate from on-premises to an analogous cloud architecture by moving the application ecosystem with minimal changes. Moving "as is" targets cost reduction, improving end-user experience, and future proofing architectures.

Pain points adressed:

- Capacity constraints
- Outdated hardware
- Difficulty scaling
- Performance degradation

2. Improve

Address administration/ functionality challenges

Migrate to the cloud and improve the workload by updating application/database versions with potential additions to key features or capabilities. Common enhancements include strengthened security, improved high availability/disaster recovery, more automated administration and added mobile apps or digital assistants (chat bots).

Pain points adressed:

- High administration costs
- Lack of modern functionality
- Outdated software versions
- Weak Security

3. Modernize

Shift to new technology or add functionality

Rewrite or develop new applications in the cloud by taking advantage of cloud native development tools and a contemporary DevOps architecture. Modernizing may also involve the implementation of containers with Docker and Kubernetes, as well as coding for microservices.

Pain points adressed:

- Antiquated application code
- Missing or incompatible app dependencies
- Lacking code portability across systems
- Complex/slow dev/test to production process

Cloud native microservices and containers

Application development in the cloud has been enhanced significantly over the past six years through the development frameworks of microservices and containers. With the proliferation of open-source and proprietary software, these software development techniques have evolved, resulting in developers with advanced capabilities to more easily and cost effectively support changing business needs.

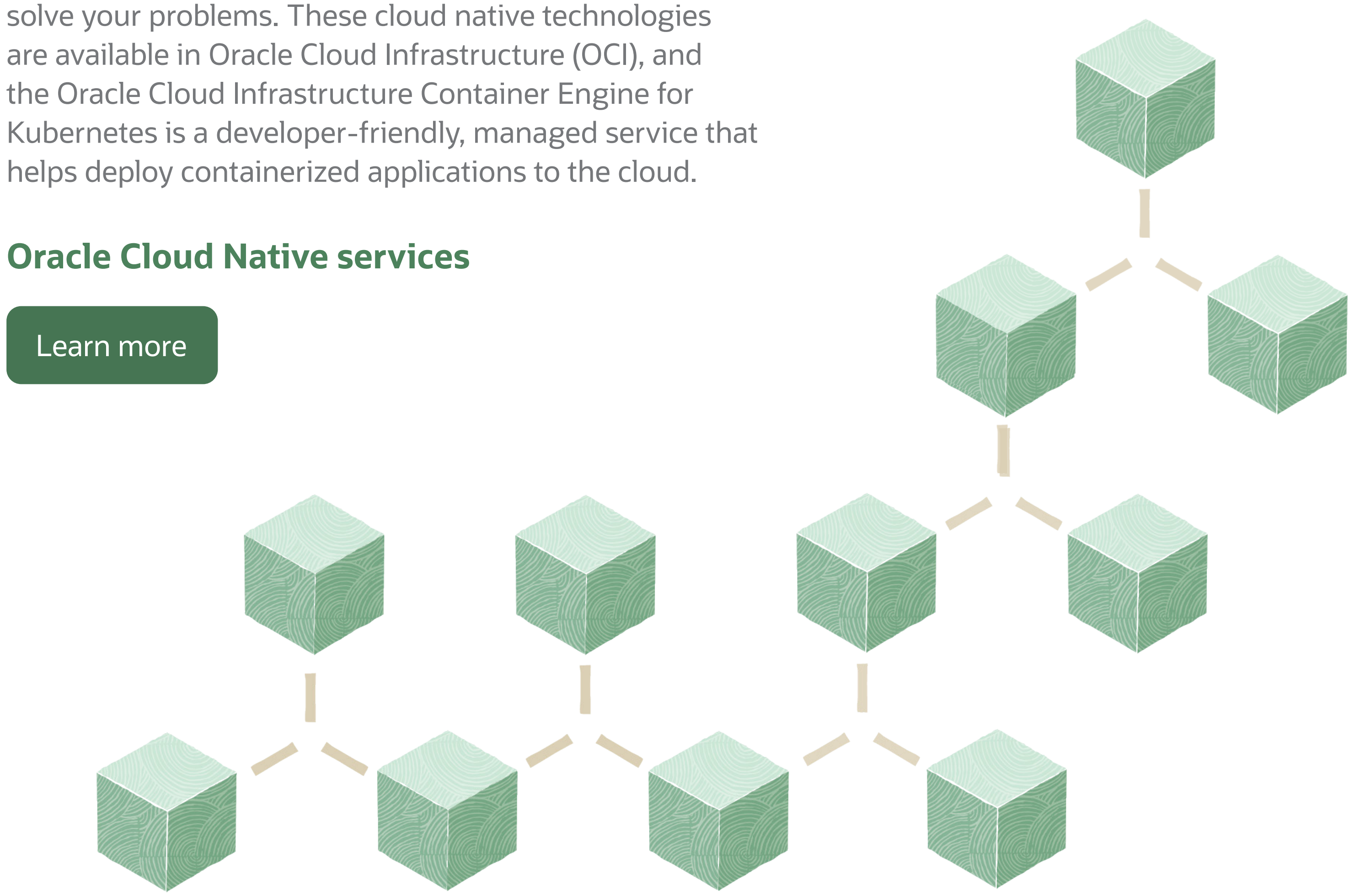
Microservices were designed to arrange applications into a set of loosely coupled services. When microservices are layered together, they support or execute a business capability. A key benefit for developers and application architectures is that individual microservices can be changed, updated or scaled out without affecting other services. Hence, microservices minimize resource constraints and lead to improvements in cost optimization.

Containers, like Docker, allow developers to isolate applications from their underlying infrastructure and include all the dependencies an application needs for optimal execution. The main benefit for deploying containers is to minimize the pressure of scaling up resources to address traffic spikes and for environment replication. This particularly lends itself to cloud implementations because containers allow development teams to support spikes in workloads, then turn them off, which minimizes computing costs. Kubernetes, often called the operating system of the cloud, helps manage clusters of thousands of containers.

Containers and microservices are just two examples; there are many other cloud native tools waiting to solve your problems. These cloud native technologies are available in Oracle Cloud Infrastructure (OCI), and the Oracle Cloud Infrastructure Container Engine for Kubernetes is a developer-friendly, managed service that helps deploy containerized applications to the cloud.

Oracle Cloud Native services

Learn more



Value and benefits of moving apps to the cloud

We've reviewed a variety of catalysts for why businesses around the globe are choosing to move their existing custom applications to the cloud as well as the interests in building cloud native applications.

Companies from Zoom to FedEx to CERN are choosing Oracle Cloud Infrastructure to run critical business workloads. They are motivated by the lower cost of ownership and flexibility, security, and speed, backed by the industry's only performance-based service level agreements (SLAs).

Maritz's business units leveraged over 27 applications on-premises, including Oracle E-Business Suite, Vertex, Kofax MarkView for AP, and custom applications running on Oracle WebLogic Server middleware and Oracle Database to manage enterprise resource planning functions such as finance, accounting, inventory, procurement and HR.

Challenge

- Maritz had on-premises applications that supported critical back-office operations, but were running on aging Sun Microsystems hardware
- Complicated infrastructure could not scale to keep up with ever-growing workloads
- Executing failovers for disaster recovery (DR) was overly cumbersome, often taking 72 hours to complete
- Enterprise Application Services team experienced ongoing planning and maintenance issues finding it difficult to do proper capacity planning for large projects or peak seasons which led to a limited ability to control infrastructure costs
- Limited staff was quickly losing the skillset and expertise to maintain the database and Solaris operating system that supported the legacy environment

Results from cloud migration

10X* **Improvement in performance**

DR window decreased from **72 Hours** to **4 Hours**

Enhanced Security
All data is now encrypted at rest by default

*Concurrent financial processes that would take 2 hours to complete now are finished in 10 minutes

Maritz

> *"The story with Oracle Cloud Infrastructure is that it's better, cheaper and faster than what we had on-premises."*

Ron Hunsaker
Vice President, Enterprise Application Services, Maritz

Gonzaga University upgrades to Oracle Cloud for better security

Gonzaga University had run many campus operations, including student registration, on a university-focused ERP system called Banner. Oracle Cloud Infrastructure provided a way for Gonzaga to accelerate its ERP upgrade, improve disaster recovery, and, most importantly, maintain high security standards.

Challenge

- Upgrading to Banner version 9 was the core objective of the IT staff but they wanted to maintain a strong security posture and add a disaster recovery capability along with a cloud-first strategy .
- Gonzaga's ERP ran in their own data center on 30 virtual machines and a 700 GB Oracle Database which is complicated by around 80 integrations and continuous sharing of resources across production, testing, and development.
- IT staff was concerned about no dedicated off-site disaster recovery capability which caused unacceptably long recovery times.

Results from cloud migration

Migration schedule was reduced from **9** to **7** months

75% less time than **on-premises** to deploy

Users migrated once they knew how effortless new systems were

University staffers worked on the Banner version upgrade **while it was tested in the cloud** during phase one

GONZAGA UNIVERSITY

> *"We were 95% moving to AWS. [But] at the end of the day, our Infrastructure team, our ERP team, our Project Management team voted—it was unanimous for OCI."*

Darren Owsley
CTO, Gonzaga University

Summarizing the value and reducing total cost of ownership (TCO)

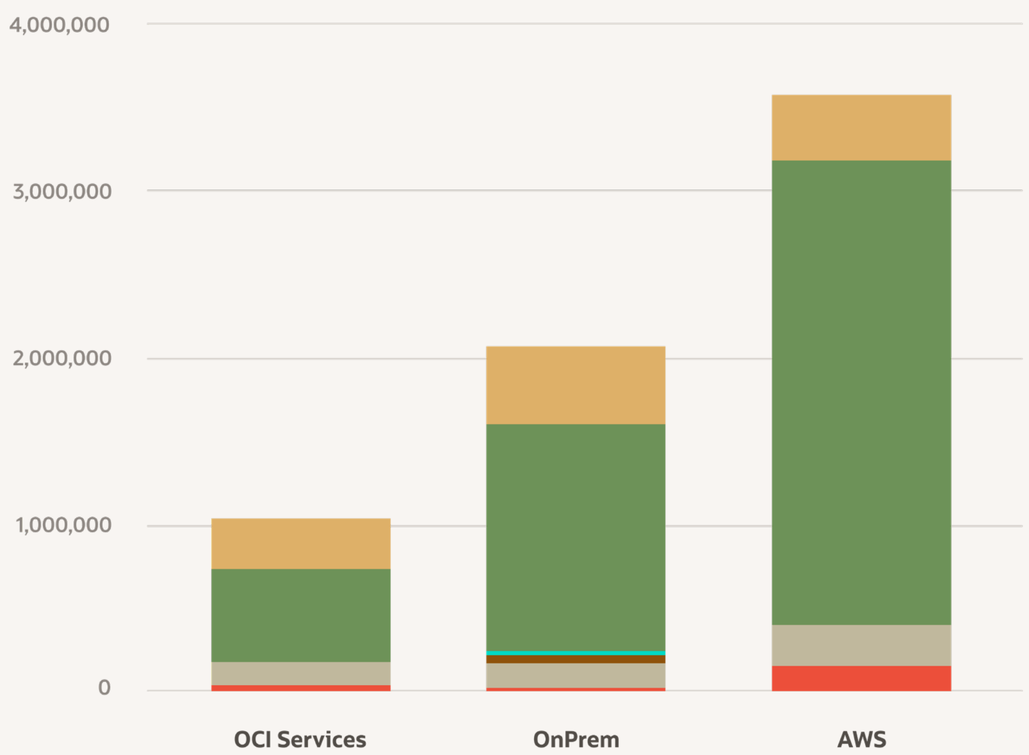
Similar to many businesses and IT departments, the financial benefits for both Maritz and Gonzaga University can be readily seen by developing a TCO model which justifies the investment of moving to the cloud. With respect to moving custom applications to the Oracle Cloud Infrastructure, evaluating the initial costs across acquisition (software and implementation services), operations (maintenance and support), and headcount (human resources), plus estimated costs for the next 3 to 5 years. By running custom applications in the cloud, less equipment to monitor, manage, and maintain is needed, recurring costs are dramatically lowered, and scaling is automated —up or down—as workloads fluctuate.

For a 5-year TCO evaluation,
OCI is more than

50% **less than** on-premises

70% **less than** other public cloud offerings

5 year Custom Apps + Database TCO



Assumptions

- 2 Environments
- OnPrem: App Server on 8 Cores
- OnPrem: Oracle DB EE + Options on 8 Cores
- OCI: App Server on 8 Cores
- OCI: Oracle DBCS VM EE PayGo on 8 Cores
- AWS: App Servers on 8 Cores
- AWS: Oracle DB EE + Options BYOL on 8 Cores
- 0.5TB App Storage
- 30TB DB Storage + Backup

The path forward

Key considerations for cloud migration and application development

Embarking on any cloud migration plan means evaluating a wide selection of both public and private cloud providers. The needs and requirements across different companies, entities, or departments will differ based on the workload, database, storage, integration, connectivity, networking, and security requirements. When evaluating options, consider the following areas:

Perform a workload assessment:

# of physical servers, virtual machines, CPU cores, chipsets, memory, storage, and utilization levels.

Comprehensive analysis of pricing and licensing:

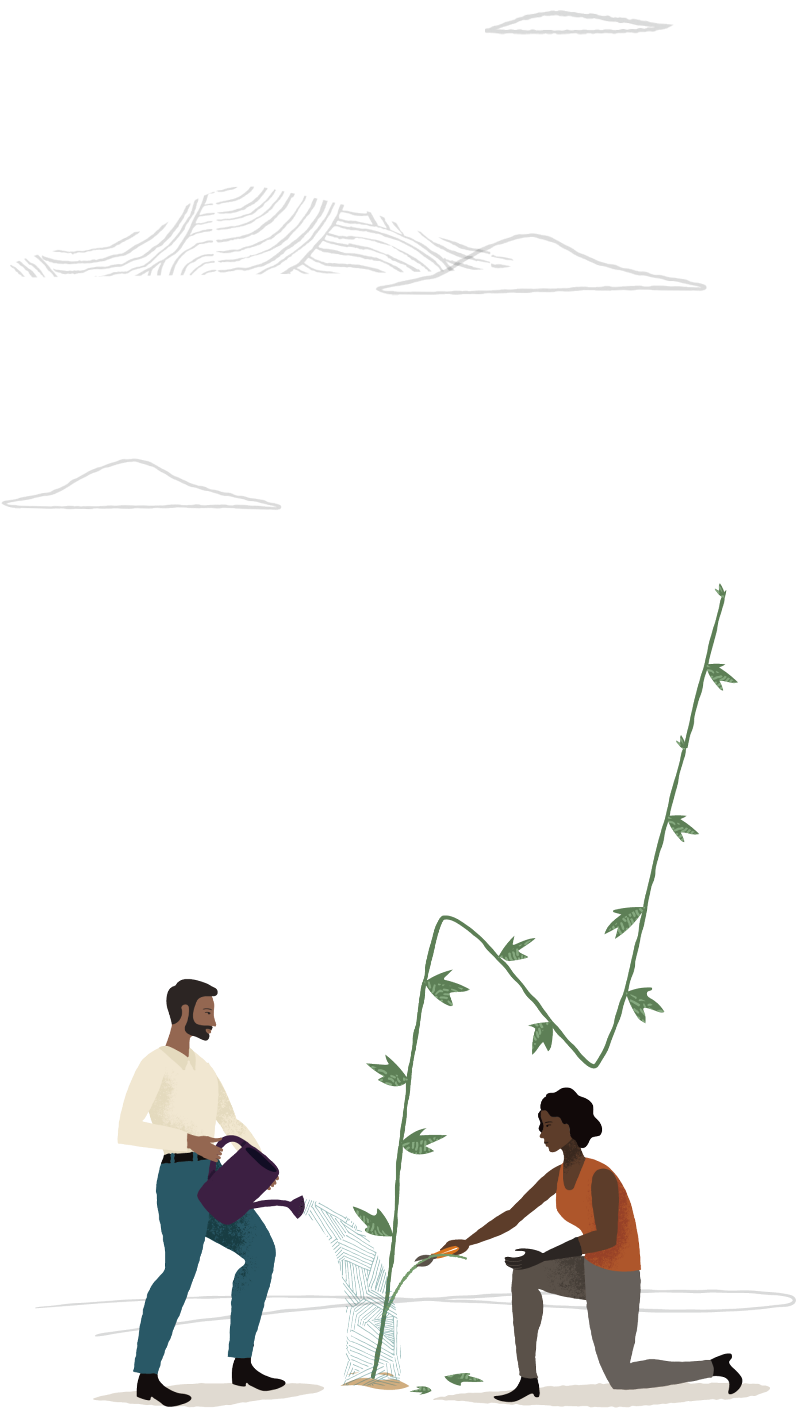
Considerations for bring your own license (BYOL), included implementation or migration services, and how to avoid hidden charges for egress rates, compute shape changes, overages, or price fluctuations across global data centers.

Conduct a comprehensive pricing and licensing analysis:

Investigate cloud services that help eliminate time-intensive manual tasks like automating repetitive tasks such as installation, integration, patching, provisioning, and scaling to reduce operational costs by up to 50%.

Ensure performance with a next-generation cloud architecture and service level agreements (SLAs):

Investigate whether or not the cloud offering is a non-blocking network, not oversubscribed, bare-metal type, and a database service. Additionally, demand that you will be provided with SLAs for availability, performance, and manageability.



Oracle Cloud Infrastructure advantages

- Bring your custom workloads
- Migrate in days, not months
- Run apps faster, cheaper
- Modernize with chatbots, IoT, machine learning, blockchain, or mobile
- Make use of cloud native tools
- Create a DevOps pipeline
- Containerize apps

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