

Reap the Benefits of the Cloud Even for Custom Apps—With Oracle

With three interchangeable approaches, there's a way forward for almost every environment

August, 2021, Version 1.0
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Introduction

As organizations of all sizes embrace digital transformation efforts, IT groups are recognizing the value of the cloud and the benefit of migrating applications from on-premises data centers. Many are also finding the cloud can breathe new life into custom applications, giving them reliability and performance improvements.

The [IDG 2020 Cloud Computing Survey](#) of more than 550 IT decision-makers makes clear that applications are on their way to the cloud. While respondents said currently more than half of all their applications (52%) are on-premises, only 39% will be in 18 months. Similarly, 54% of all applications currently in the cloud were moved from on-premises.

The migration makes sense because companies stand to gain significant cost, performance, and disaster recovery benefits from migrating custom applications, while reducing the pain involved in managing an on-premises data center.

Successfully moving custom applications, however, requires working with a cloud provider that understands the needs and options involved with such migrations, and can help you make informed decisions.

Oracle is one such provider. Oracle Cloud Infrastructure (OCI) offers lower cost and better performance for custom applications of any type, not just Oracle applications. All types of businesses, from early stage digital-native companies to the world's largest enterprises rely on OCI to run critical workloads, including custom applications and non-Oracle, third party apps. OCI is also increasingly being used for cloud-native applications, which are, by definition, custom apps.

Custom apps defined

Custom applications are those a company built itself, or hired a contractor to build, to meet a specific need or tackle a market opportunity. They are often strategic in nature, designed to address unique business requirements, making them key to running the business. Custom apps are often integrated with other business applications, such as supply chain, accounting, and human resources. They can be written in all sorts of languages, including Java®, .NET, and Node.js®, and run on top of platforms like Apache Tomcat®, JBoss®, and Oracle WebLogic. Newer custom apps often use microservices and container technology. Indeed, nearly half of respondents to the 2020 IDG Cloud Survey said they are either experimenting with or already using containers, and more than half—55%—of enterprise-size companies are. The key point is custom apps are a different animal from commercial off-the-shelf applications.

Scope of custom apps

Worldwide, the market for custom application development services is expected to grow by [more than \\$26 billion](#) between 2020 and 2024, at a compound annual growth rate of 7%. Custom application development was among the top 3 areas of software development spending in 2019, cited by a third of respondents to the Society of Information Management's (SIM) [annual survey](#) of senior IT executives—and the only category to see a significant increase.

Interestingly, “maintenance or enhancement of legacy” software was second on the software spending list, cited by nearly half of SIM survey respondents. So, even while companies are spending large sums developing new custom apps, they're spending even more maintaining their older custom apps—which is an argument for moving those older apps to the cloud and, perhaps even better, modernizing them.



Drivers for moving to the cloud

Avoiding software—and hardware—maintenance costs is but one of many reasons for moving custom applications to the cloud.

Capacity constraints is another. On-premises applications must run on infrastructure that's sized for peak usage—even if that peak happens only a few hours per month or year. Cloud infrastructure provides the ability to burst above normal capacity as needed, so you can size the infrastructure for normal usage and save significant money on infrastructure costs.

Many custom applications are also running on outdated hardware. At some point, the organization faces a decision: upgrade the hardware or avoid those costs by migrating to the cloud. Keep in mind, you likely won't need to replicate your on-premises infrastructure 1:1 in the cloud, either – because of that ability to add capacity as needed to deal with peak demands and the fact that newer cloud infrastructure will likely deliver improved performance.

Indeed, migrating applications to modern cloud-based hardware like Oracle's provides a significant performance boost. [Frozen Mountain Software](#), for example, saw performance double when it moved to Oracle Cloud Infrastructure – and it was moving not from its own data center but from another major cloud provider.

It's likewise far more difficult to scale on-premises custom applications because, at some point, it means provisioning new hardware. In the cloud, you can provision new CPU shapes, database types, or storage capacity with just a few clicks.

That ability to scale is closely related to another driver, improved agility. With cloud services, there's no lag time waiting for the infrastructure required to roll out new applications.

Addressing disaster recovery and business continuity (DR/BC) objectives is another driver for moving to the cloud, given they are essentially built-in, at least with major cloud providers like Oracle.

As the number of custom applications grows over time, many organizations find themselves with multiple databases as well. Migrating the applications to the cloud presents an opportunity for database consolidation, which generally leads to cost-savings and improved manageability.

Finally, many organizations find moving to the cloud makes it easier to adopt a DevOps approach to application development, which many are interested in thanks to benefits like faster time to market, improved collaboration, and better user satisfaction. The IDG Cloud Survey found more than half of enterprises (55%) either already have Kubernetes, a key DevOps component, in production or are researching it. An underpinning of a DevOps approach is the ability to quickly stand up and tear down dev and test environments. That is much simpler and less expensive to do in a cloud environment than on-premises because of built-in cloud automation and pricing models where users pay only for what they use.

3 approaches to custom app migration

Should you decide to move some custom apps to the cloud, the next step is to decide which of three approaches to take.

The first is **“lift and shift”**, where you essentially move the application as-is to the cloud. With no changes to the app itself, this approach delivers numerous cloud benefits, including cost savings and improvements in performance and DR/BC. Additionally, you’ll be set up for further enhancements down the road and will have “future-proof” infrastructure.

“Move and improve” is the second migration option. This approach involves making some improvements to the application as you move it to the cloud. It could be something as simple as adding a chatbot feature or something meatier, like upgrading underlying technology. For example, you might upgrade to the latest version of an application server or add Oracle Autonomous Database or other database options.

“Lift and shift” and “move and improve” account for 75% of all custom application migrations to the cloud, according to Oracle.

The third approach, **“modernize”**, means re-writing or refactoring a custom application such that it can fully take advantage of a modern cloud platform. While more time-consuming versus the other approaches, it delivers the most benefit and results in a future-proof architecture, likely based on cloud technologies such as containers and microservices. Modernizing also offers better manageability and orchestration capabilities and is compatible with both DevOps and continuous integration/continuous delivery strategies. The modernize approach also provides increased flexibility, seamless portability, improved isolation, and independent service deployment.

Oracle Cloud Infrastructure is a fit with any of the three migration strategies. It should also be noted that the three are not mutually exclusive. You could, for example, lift and shift some apps, move and improve others, and modernize still others. You can also lift and shift apps to get immediate cloud benefits, then improve or modernize them down the road.

Challenges to migrating custom apps

Companies do face some challenges in the actual process of migrating custom applications to the cloud.

It starts with mapping their current on-premises architecture to the cloud in a way that ensures improved performance and functionality. Keeping in mind you no longer need to architect for peak demand periods, this job involves performing a capacity assessment to right-size and optimize the infrastructure for normal loads. The assessment needs to take into account the fact that the cloud environment will likely be based on newer, better technology, which may further reduce hardware requirements.

Companies also need to ensure the cloud environment supports enterprise-class capabilities in areas such as security, performance, latency, and avoiding contention with “noisy” network neighbors. A gating factor that has likely kept many custom applications on-premises is that many cloud providers offer service-level agreements only for uptime, not for performance and manageability. Customers need to ensure their cloud providers deliver capabilities that are standard fare in an enterprise data center, such as automated DR and security patches, and basic failover of data using a cluster environment.

Another migration challenge stems from the fact that custom applications are often integrated with various other platforms, including databases, middleware, and other applications. It can be challenging for companies to identify and account for all the integrations when moving apps to the cloud.

Oracle Cloud Infrastructure for custom apps

To overcome all of these challenges, organizations need to work with a cloud provider that offers both enterprise-grade performance and the expertise required for a successful migration.

That's what Oracle Cloud Infrastructure (OCI) offers. OCI is a gen-2 cloud platform, built specifically to support critical business applications. "Gen 1 clouds are not good enough for many uses," [Edward Screven, Oracle's chief corporate architect](#), told a group of customers at Oracle Cloud Day in 2020. "Your critical apps drove how we built our cloud."

OCI includes a combination of services including compute, networking, storage, and database. It puts a premium on security, using a no-trust architecture as a default. All customer code is isolated from the computers that control the cloud service, and a perimeter control computer filters incoming packets to prevent bad code from entering customer environments.

Workloads on OCI are distributed across multiple fault domains by default, thus creating a high-availability system with no single point of failure.

It also provides a flat, non-blocking networking architecture for improved performance and isolation technology to address the "noisy neighbor" issue. All OCI customers also have access to a pre-built WebLogic image that's ready to deploy, with no further customer configuration required, along with their choice of applications and services from the [Oracle Cloud Marketplace](#).

(See sidebar, "Oracle Cloud Infrastructure Integrated Services," for additional OCI features.)

Organizations of all sizes and types, from startups and small/medium businesses to global enterprises, rely on OCI for all kinds of critical workloads. Many use it for custom applications based on Java, .NET, Node.js and others, including native, cloud-first apps. And you don't need to be an existing Oracle customer or even use an Oracle database to reap the benefits of OCI.

Compared with Gen 1 cloud platforms, OCI offers superior performance, lower cost and better security. Oracle also offers the only performance-based Service Level Agreements (SLAs) in the industry, addressing elements including network, disk I/O and API access.

OCI on-boarding may include Oracle Cloud Lift Services, where Oracle cloud specialists provide guidance on planning, architecting, prototyping, and managing cloud migrations as well as assistance with migrating the actual workload. The service is critical in helping users address the myriad challenges in cloud migrations, and helps clients move critical workloads in weeks or days rather than months.

Oracle Cloud Infrastructure Integrated Services

As a Gen2 cloud platform, Oracle Cloud Infrastructure (OCI) comes with a number of integrated cloud services that make it enterprise-ready for custom applications, including:

- Disaster recovery and backups
- Database services, including the Oracle Autonomous Database, a multimodal converged database and machine learning environment that runs natively on OCI
- Integration services, including Oracle Integration and SOA Cloud Services, which provide pre-built adapters to help integrate various applications and services
- Cloud-native services for modern application development—including Oracle Kubernetes® Engine (OKE), Docker®, Kafka®, serverless functions, and application programming interface (API) management—to help development teams build apps faster
- Oracle Digital Assistant Platform, for building conversational interfaces into cloud applications
- Mobile Cloud Service, for simply and securely building mobile apps that take advantage of cloud infrastructure and services
- Oracle Blockchain Platform Cloud Service, to share trusted data with multiple parties using a tamper-evident blockchain



Customer success stories

Customers are achieving some impressive results with OCI.

[Gonzaga University](#) found OCI to be a good fit for its enterprise resource planning (ERP) system, Ellucian Banner, which ran on 30 virtual machines and a 700GB Oracle database in an on-premises data center. The system was complicated by some 80 integrations – including custom apps on an Apache Tomcat application server – and suffered from a lack of off-site DR, which had IT staff concerned about unacceptably long recovery times in the event of a failure.

Using OCI, the university found:

- OCI would deliver a 25% savings versus keeping the ERP system on-premises, along with improved performance.
- Gonzaga was also able to retain its investment in on-premises FortiGate Firewalls, which integrated seamlessly with OCI.
- The school used its 25% savings to invest in additional security measures along with DR and test/dev capabilities.

[Maritz](#), a sales and marketing services company, saw perhaps even greater success with OCI. It had some 27 custom applications, including Oracle E-Business Suite and WebLogic, running on 9-year-old Sun Microsystems servers that struggled to keep up with workloads. The infrastructure had also grown overly complex, such that DR failovers took 72 hours to complete.

Day-to-day management was becoming increasingly difficult, especially as key IT staff who supported the Solaris operating system began retiring. Capacity planning for peak seasons was likewise challenging, limiting the company's ability to control infrastructure costs.

After planning for nine months, Maritz cut over its environment to OCI in a single weekend.

The results:

- The company is experiencing a 10x performance improvement
- Financial processes that used to take 2 hours now complete in 10 minutes
- The disaster recovery window went from 72 hours to 4 hours

The company's security posture has also improved because, by default, all data is encrypted at rest. The move also alleviated the burden on Maritz IT staff.

"The story with Oracle Cloud Infrastructure is that it's better, cheaper, and faster than what we had on-premises," said Ron Hunsaker, vice president of the enterprise application services team at Maritz.

Delivering on digital transformation

It's clear that cloud services are fundamental to the digital transformation efforts most organizations are now going through—and custom applications can't be left behind.

Oracle Cloud Infrastructure brings the performance, agility, security, and cost benefits of the cloud to bear even on custom applications. With OCI, you can avoid costly hardware upgrades while reducing IT time spent on maintaining custom apps and associated infrastructure—as well as deal with the dwindling availability of IT experience with older platforms.

At the same time, OCI enables organizations to take advantage of best-in-class database, integration, and application development environments, fueling your modernization and DevOps efforts.

If you're ready to dive in, sign up for a [free trial](#).

Or check out [Oracle Live Labs](#), where you can run labs and workshops.

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