



Optimize JD Edwards EnterpriseOne in the Public Cloud

Blueprint of essential decisions to move JD Edwards EnterpriseOne to the public cloud

JD Edwards EnterpriseOne customers considering a move to the public cloud face a wide range of options. The extensive decision tree can be overwhelming and confusing, putting businesses at risk of understating the costs and effort involved. To inform the process, businesses can benefit from a primer and checklist to examine the business case for the public cloud, including essential decisions involved in moving to any of the major hyperscalers, including Amazon Web Services (AWS), Microsoft Azure (Azure), and Oracle Cloud Infrastructure (OCI).

This whitepaper outlines a blueprint of essential components and related decisions that JD Edwards EnterpriseOne customers should consider with a move to the public cloud, including:

- [Five drivers to developing a cloud strategy](#)
- [ERP and cloud architecture considerations](#)
- [Key decision factors with any hyperscaler](#)
- [Determining ERP project scope and strategy](#)



Cloud computing orientation

With a move to the public cloud, the deployment model, service model, and consumption model all change - think about it. From a deployment standpoint, you are taking something that was on-premises or in a private cloud and moving it to the public cloud. If a managed services provider (MSP) manages the instance, the service model changes from infrastructure as a service (IaaS) to platform as a service (PaaS). The consumption model changes from you owning all licenses and you (or a partner) operating everything to some operations and licenses provided through another party.

In the midst of change, one fundamental is constant: you continue to leverage your existing JD Edwards licenses, because JD Edwards is not multi-tenant and not a software as a service (SaaS) product.

5 Drivers to developing a cloud strategy

1. Why the public cloud?

Starting with the most basic question, why are you considering a move to the public cloud? Are you driven by the overall business direction of the company—a directive? Is it more so to align IT with Finance? Are you motivated by some of the values of cloud computing, such as cost savings, agility, reliability, scalability, and flexibility? Are you seeking to reduce current and future technical debt? Perhaps your motivation is focusing the organization on its core competencies. Or are you seeking to digitally transform, modernize, and drive innovation by enabling DevOps, Internet of Things (IoT), artificial intelligence (AI), or machine learning (ML)?

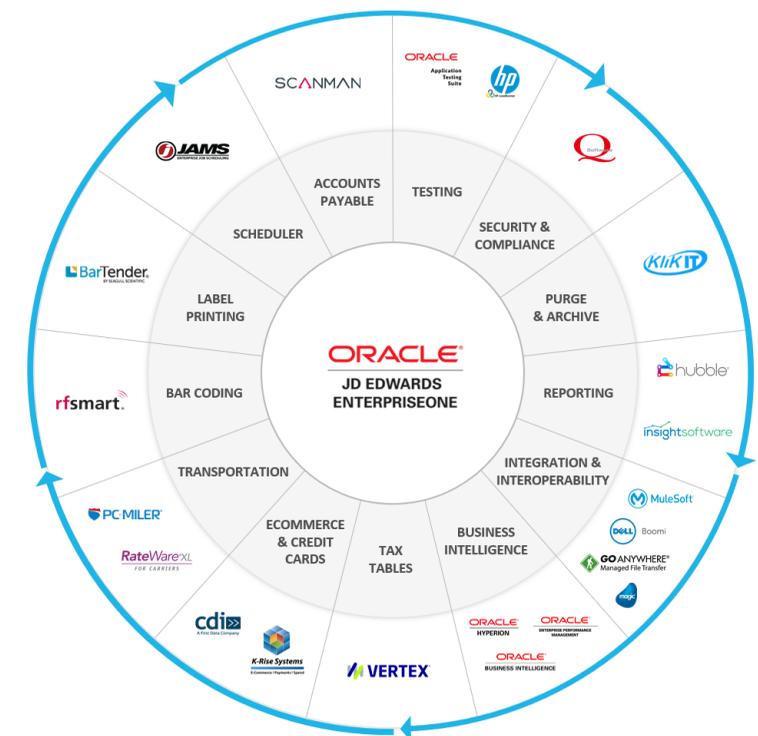
Establishing and prioritizing the key motivating factors will help to solidify expectations, align key stakeholders, and shape subsequent decisions on cloud strategy and scope.

2. What is moving?

Consider what you are moving to the public cloud. Your ERP is part of a larger ecosystem. JD Edwards customers typically extend and enhance the ERP with third-party applications, such as analytics and reporting, for example. There will be natural fault lines where you can split things apart, while other

applications such as scanning, security, or barcoding solutions may be very tightly coupled with JD Edwards and will have to move at the same time as your ERP.

Identify other items in the ecosystem—email, identity management, authentication, file sharing – all of which will need to be supported in the public cloud.



3. When to move?

Timing is everything. Interdependencies in your JD Edwards ecosystem will no doubt shape sequencing. Timing the move of various systems can also impact the risk profile. Taking an opportunistic approach can shape the timeline and sequence, moving low-risk or easier-to-migrate items first as you make your way towards higher risk or custom applications.

Business reasons or priorities can also dictate the sequencing of workloads. Applications with a load that goes high and low might be a great candidate for cloud bursting capabilities in the public cloud, or you may prioritize an application that is seeing rapid growth because you are challenged to buy the infrastructure and configure it fast enough to keep pace. If you seek to modernize or digitally transform certain applications as part of the move, those efforts will impact timing and sequencing as well.

4. How to move?

There are three ways to move JD Edwards and its ecosystem to the public cloud: rehost, replatform, or refactor. The recommended approach can vary for JD Edwards vs. each third-party application.

- **Rehosting** (5% of migrations) refers to lifting an application as is – with no change to the application or tools—and shifting it to the public cloud, also called a “lift and shift”
- **Replatforming** (15% of migrations) is more of a “lift and reshape” whereby some changes are

made to the application, such as an operating system change or upgrade, database change or upgrade and/or a JD Edwards Tools release upgrade which helps to take advantage of the cloud platform

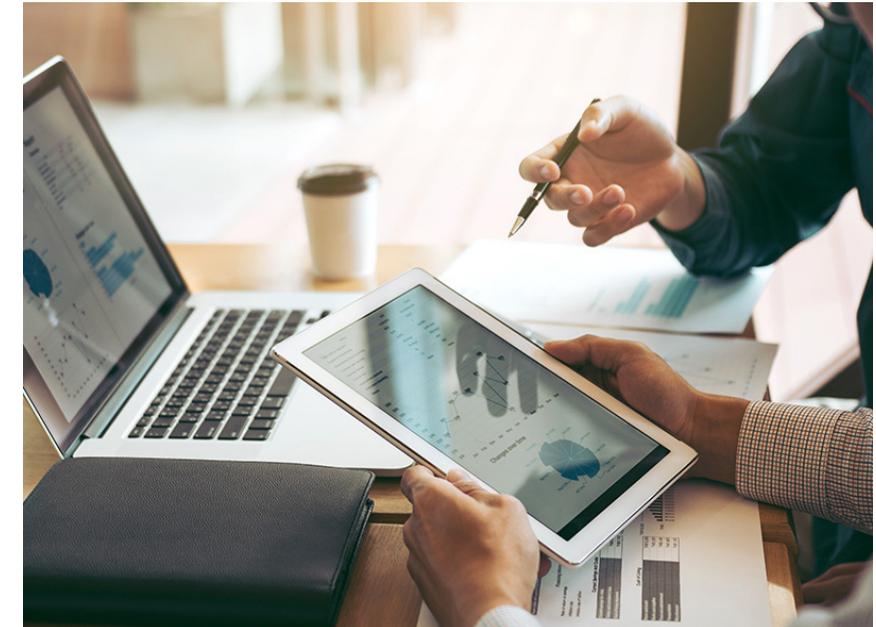
- **Refactoring** (80% of migrations) refers to altering the application more extensively, rewriting or decoupling the application to better suit the public cloud environment, also called a “reimplementation” or “upgrade”

Most cloud migrations of JD Edwards require software updates, and an active Oracle Software support agreement is recommended. At the bare minimum, update to the latest JD Edwards Tools Release as part of your cloud migration while you have a completely redundant environment.

5. Who is moving you?

When choosing a partner for cloud migration and management, consider the organization's cloud expertise, competency, and commitment to relevant hyperscalers:

- Ask how many Technology Certifications they have in Oracle, AWS, and Microsoft
- Look for specific Cloud Competencies awarded for demonstrated depth and breadth of cloud experience
- Identify Cloud Partnership Levels, such as Premier Partner, which are validated on an annual basis and demonstrate a level of commitment to the relevant hyperscaler



Assess qualifications in relevant technologies, including cloud-native and cloud-aware security and compliance tools, and process validation/certifications such as SOC 1, SOC 2, ITIL, and other industry-specific or geography-specific certifications that may apply. Look for a track record in cloud advisory, successful migration methodology, and recognized expertise in Oracle JD Edwards, as the success of your JD Edwards migration to the public cloud will draw from all of these capabilities. Finally, insist on a separate account—with resources separately identified—rather than being grouped with other customers under one account. Having a shared account can create friction if there is a breakdown in the relationship over time.

ERP and cloud architecture considerations

Corporate profile

By defining the details—from the specific JD Edwards EnterpriseOne modules you use, to the time zones in which your business operates—you will shape cloud architecture decisions.

For example:

- EnterpriseOne Modules vary in terms of the resources consumed and can dictate requirements for high-availability or enhanced disaster recovery
- Number of Total and Concurrent Users is the essential factor for architecting the environment and determining the type, size, and number of servers
- Languages | Localizations | Time Zones influence both the server topology, availability and the number and type of servers
- Days and Hours of Operation can indicate requirements for disaster recovery and high availability
- Regulatory Compliance requirements and whether your business is public or private can indicate required separation of production and non-production and additional environments such as testing/quality assurance (QA)

Database and middleware

Customers should examine the compatibility of their database and middleware within the public cloud. For the middleware, both WebLogic and WebSphere are public cloud options for your JD Edwards EnterpriseOne J2EE Server. The Oracle Database and Microsoft SQL Server are both certified database options. If you are on an IBM i (AS400) and do not want to replatform, the Syntax Enterprise Cloud offers the appropriate cloud option. Within the supported public cloud options for JD Edwards EnterpriseOne, the supported operating systems include Linux (RedHat or Oracle) and Microsoft Windows.



“Moving to a well-architected cloud environment takes the right plan, the right people, and the right technology.”

Colin Dawes

Global Director, Product Portfolio Management, Syntax

J2EE Server		
Database		
Operating System		
Cloud / Infrastructure		
Public Cloud Options		



Logical architecture design

Logical architecture identifies the functional elements of a system. Your EnterpriseOne topology should be designed to consider capacity, flexibility, scalability, and availability needs. First, look at your core servers—application servers, enterprise servers, database servers, deployment servers – and your development clients. The larger the footprint, the higher the costs, as horizontal scaling tends to be more expensive than vertical scaling in the cloud. Are you adding JD Edwards EnterpriseOne UX One as you move to the public cloud? Are you modernizing as part of your move? Consider the user experience (UX) servers, integration servers, and identity management servers needed to support your initiatives.

System availability design

Regardless of your desired level of data replication for mission-critical systems, there is no default. The size and nature of your business operations will influence the required level of availability. If you are a smaller 9-5 business, it may be acceptable and more cost-effective for you to manually restart an application or reboot a box during the day if needed. By contrast, a large 24x7 operation that is running constantly with no downtime may require full application resilience, automatic application restarts, and ideally transparent application failover. Regardless of where you fall on the continuum, always consider local storage replication between zones within a hyperscaler region (locally redundant storage) and geographic replication between hyperscaler regions (geographically redundant storage).

Disaster recovery strategy

Disaster recovery (DR) metrics and strategy are extremely important and defined by the nature of your business. Establishing your recovery point objective (RPO) is based on what data loss is acceptable or tolerable in a disaster situation for your landscape and is based on regulatory compliance and business requirements. Your recovery time objective (RTO) refers to how long it takes to be back online in the event of a disaster. The tighter the timeframes, the more costly the solution. That said, moving to the public cloud makes a DR strategy significantly more affordable. But DR strategies can vary by application. At a minimum, include geographic replication between hyperscaler regions (geographically redundant storage).

Availability/Disaster recovery deployment architecture

If you think of your required availability options as standard availability vs. high availability (HA), and your DR options as periodic replication to an alternate region vs. real-time replication to an alternate region, you can envision four options for deployment architecture:

- Standard availability of in-region backups, with periodic replication to an alternate region
- Standard availability of in-region backups, with real-time replication to an alternate region
- High availability with backups and periodic replication to an alternate region
- High availability with real-time replication to an alternate region

Typically, companies will have one strategy and deployment architecture for JD Edwards and the third-party applications most tightly integrated with the ERP, and another architecture for everything else.



Database deployment options

Moving to an infrastructure as a service (IaaS) model, some responsibilities begin to shift to the hyperscaler, who is now responsible for server maintenance, hardware lifecycle, and power/HVAC/network. In comparison to the on-premises model, an IaaS model is far more scalable, giving you greater flexibility. With respect to your ERP's database and middleware licensing, you can typically reuse most of these licenses without buying new ones.

With a platform as a service (PaaS) model, the hyperscaler manages the bulk of the database operations including upgrades, patching, and backups, which makes administration easier and allows for quicker start-up and lower maintenance. High availability is also simpler with a PaaS model versus IaaS. While you may still be able to use most of your existing licenses, there is a greater potential to require additional licenses, especially if high availability is a priority.

Key decision factors in selecting a hyperscaler

Public cloud options for JD Edwards EnterpriseOne include Amazon Web Services (AWS), Microsoft Azure (Azure), Oracle Cloud Infrastructure (OCI), and others. Regardless of your hyperscaler of choice, you will face critical decisions when it comes to compute, storage, migration tools, security, and cost/funding.

Compute

The wide selection of instance types in the public cloud are optimized to fit different use cases. Those relevant to ERP are general purpose instances (4:1 RAM/CPU)—for both production servers and non-production servers—and memory optimized instances (8:1 RAM/CPU or 16:1 RAM/CPU) for databases. Using the memory optimized instance type for non-production web servers as well allows you to abut more memory and crowd on more environments.

JD Edwards requires optimized input/output (I/O) and can benefit from temporary storage like SSD storage. Because JD Edwards workloads are not compute or high performance, you can ignore very high memory and high-performance instances. All instances have I/O limitations, so do not buy a huge amount of very fast storage if the instance cannot use that data access path.

Typically, an on-demand pricing model is preferred during implementation, whereas reserved instances (commitment to a specific computing capacity) or savings plans (commitment to a certain monthly spend) are a better choice for steady state. You can lower monthly costs further with full or partial

payments up front. After go live, you also want to right size the instances—because the cost of having something oversized is magnified on the cloud.

Storage

Align storage classes (object, block, file, backup) with your performance needs, access frequency, and retention requirements. Specify your backup rotation scheme (FIFO, GFS, Tower of Hanoi) at the outset, as backups can increase cloud costs by 20-35%. The rotation scheme dictates the overall recoverability that you want. Because block storage backups are often omitted from estimates, understand what your estimate does and does not include. While locally redundant storage (LRS) and geographically redundant storage (GRS) can increase storage costs, they improve recoverability.

Storage pricing is impacted by the number of volumes, volume size, storage type, IOPs per volume, and throughput per volume. Storage costs (especially for IOPs) can escalate quickly. While you need the IOPs for databases, everything else in the JD Edwards environment can use general storage. For databases, multiple volumes can be combined as an alternative to higher performance/high-cost storage, unless you



are using a PaaS for the database which may limit this. Drives should always be encrypted and checked automatically. And realize that databases and file servers require more frequent backups, typically every 15 minutes, which impacts storage.

Migration tools

All hyperscalers typically provide migration tools. When establishing migration parameters, start by identifying your go live window. Is it 24 hours? 4 days? Then identify how many mock go-lives you will need (2-3, or more), especially if you are running payroll, for example.

Determine how files, objects, VMs, and data are moving, and which tools are available to move them. There are three key servers that you may want to move data across: the deployment server, the enterprise server, and the database server. All other servers can typically just be reinstalled. There are tools that should be available for online data transfer of the files and objects, which may differ from the tools for the database. These can move through a manual transfer or continuous replication. If you plan multiple mock go lives, continuous replication may be more appropriate and has both timing and cost implications.

Security

Your move to the public cloud will require new security tools. Taking a layered approach, you will need solutions that address business continuity, network protection, system protection and application protection, including:

- **Business continuity** – a security operations center or equivalent that monitors security 24X7, together with security information event management looking at the logs to understand the nature of an event
- **Network protection** – perimeter security (preferably zero trust connectivity), intrusion detection and prevention systems (IDS/IPS) and firewall, access control and logging, privileged access management (PAM)—so that no one is writing down passwords—connection filtering, and inspection of threats
- **System protection** – a “defense in depth” approach using multiple layers—including endpoint protection (not anti-virus), common vulnerability engine (CVE), vulnerability assessment and management (making sure that the patches for Microsoft or Linux were installed properly), and



end-user protection—recognizing that detection is good, but response is critical

- **Application protection** – identity and authentication (SSO, MFA) along with compliance, security, and reporting on overall security

Cost and funding

In most cases, you can maximize total cost of ownership with standard editions of databases and middleware for use with JD Edwards, without moving to enterprise editions. The hyperscaler will provide the operating system (O/S) licenses for a shared infrastructure environment.

Database and middleware licensing can be a significant cost factor. Acquiring database and middleware licenses through the hyperscaler gives you the advantage of scaling up and down, adjusting that license accordingly, whereas bringing your own

database and middleware licenses can be complicated. Hyperscalers will always offer incentives to host their products in their cloud and offer discounts to do so. Having the Oracle Technology Foundation for JD Edwards EnterpriseOne levels the playing field across public cloud platforms, as it provides you with both Oracle Database and Oracle WebLogic. Also, remember that your disaster recovery (DR) architecture will impact cost, as active workloads require licensing.

Hyperscalers offer credits and incentives to drive the adoption of their platform from assessment through implementation. They may also offer a one-time discount on the overall ongoing cloud consumption for a specific term, such as three years. These programs are typically tied to a specific type of implementation partner, which is why the status of that qualified partner (i.e., technology certifications, cloud competencies, cloud partnership level) is so critical.

Determining the ERP project scope and strategy

Project scoping

Moving to the public cloud presents an opportunity to upgrade and modernize, which has implications on your ERP and cloud architecture:

- As you look to upgrade or update, what does your support roadmap look like? What are the design considerations for continuous application of software updates? Are you adding modules or functional enhancements? Certain functional modules and features impact architecture relative to business criticality (ex. Payroll, services management). Are you taking anything out of JD Edwards and moving it to SaaS? If your company requires separation between production and non-production and a separate QA, think about security and compliance considerations.
- To modernize, are you incorporating UX One dashboards? Design considerations come into play for UX One, OVR, and Citizen Developer, for example. Digital transformation has design implications for AIS usage, mobile, process automation, AI, MI, and IoT. Are you focused on more integrations and interoperability? As you add more interfaces that are SaaS-based or using AIS, consider separating workloads on web servers and expanding horizontally, tying user interfaces to specific HTML servers, and tying interfaces that use AIS to different servers to avoid negative impact on end-user performance.



“Optimizing JD Edwards EnterpriseOne in the public cloud allows you to automate faster while ultimately lowering your total cost of ownership. Every company is looking to reduce your TCO.”

Nolan Little
Senior Solution Architect, Syntax

Examining integration and interoperability approach

As you look at your interoperability landscape and all potential integrations, denote whether each interface is batch or real-time, cloud-based or on-premises, the specific approach used (ETL, API, EBS, MFT), and whether you plan to reuse the existing interfaces you have or plan to create new ones as you move to the public cloud.

Selecting ERP professional services

Professional services can be a significant part of the ERP cloud migration. From security to cloud infrastructure, technology to development, and functional support to advisory services, selecting a

partner that offers a full range of capabilities gives you flexibility and peace of mind as you move JD Edwards and the larger ecosystem to the public cloud.

Selecting cloud and ERP managed services

Consider the level of managed service that is right for your organization, beginning with managed cloud tenancy (IaaS model). Your managed services provider can also take on technology management including the database, middleware, operating system, and cloud native platform, shifting to a PaaS model. Technical Application Managed Services (AMS) would add the CNC aspects of JD Edwards, and Functional AMS would simplify the end-to-end maintenance and management of your JD Edwards environment on the public cloud.

Conclusion

Optimizing JD Edwards EnterpriseOne in the public cloud enables business agility, creates operational efficiencies, and allows organizations to innovate and automate faster while lowering total cost of ownership (TCO). The path you take to get there and the decisions you make along the way will determine how well and how quickly you deliver on the promise.

While hyperscalers offer myriad individual services, it takes time and experience to choreograph those into something useful. Understanding the complexity at the outset brings clarity to the significant task at hand. With more than 30 years supporting Oracle and 25 years in cloud managed services, Syntax is an invested growth partner helping companies turn complexity into their competitive edge.



Why Syntax

Syntax provides comprehensive technology solutions as a globally trusted advisor, and application-management services to power businesses' mission-critical applications in the cloud.

With 50+ years of experience, 700+ customers, and more than 2,000 employees around the world, Syntax has deep expertise in implementing and managing ERP and other applications deployments in secure private, public, and hybrid environments.

Syntax partners with SAP, Oracle, AWS, Microsoft, and other global technology leaders to ensure customers' applications are seamless, secure, and at the forefront of enterprise technology innovation.

	Service Partner		Sell Partner
<i>Expertise in JD Edwards Applications to Oracle Cloud in North America</i>		<i>Expertise in JD Edwards EnterpriseOne in North America</i>	

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