Trex Company, Inc.

Meticulous JDE Migration with SQL Workloads to AWS

Trex Company, Inc.

- ▷ Corporate HQ: Winchester, VA
- ▷ Industry: Building Products and Equipment

Technology Footprint

- ▷ Oracle JD Edwards E1 9.1 / Tools Release 9.2.2.7
- ▷ Windows Server 20xx & Microsoft SQL Server 20xx

Syntax Solutions

- ▷ Syntax Enterprise Cloud® Powered by AWS
- ▷ Syntax EnterpriseCare® Monitoring for JD Edwards

Facing Hardware Refresh, Trex Looks to Cloud for JDE|SQL Workloads

Formed in 1996, Trex defined the composite decking category and has perfected its proprietary technology to reinvent outdoor living worldwide. Today, Trex is a publicly traded company offering the industry's widest array of high-performance composite products, available in more than 40 countries around the world.

With continued growth and an expanding international footprint, Trex realized that it was time to redefine the IT infrastructure needed to support future success. Trex was running Oracle JD Edwards EnterpriseOne (JDE E1) 9.1 on Microsoft Windows and SQL Server via an on-site data center. Facing a hardware refresh, the Trex IT team began exploring cloud solutions that would move them out of the data center business of managing their own hardware.

About Trex Company, Inc.

Trex Company, Inc. (Trex) is the world's largest manufacturer of wood-alternative decking products. The first company to combine the durability of recycled plastic with the natural beauty of reclaimed wood, Trex applies its proprietary technology to a variety of outdoor applications for high performance, low-maintenance, and attractive outdoor living. The company's products are sold through a network of building products distributors and dealers worldwide. Formed in 1996 through the buyout of a division of Mobil Corporation, the company went public in 1999. Today, Trex continues to innovate in outdoor engineering on a global scale, with an uncompromising eye toward environmental responsibility, beautiful form, and powerful function. For more information, visit www.Trex.com.

High Availability through Modern Platform Compels Move to Cloud

Because this was the company's first foray into cloud computing, Trex was fundamentally seeking a Proof of Concept for the cloud as a viable replacement for its own data center. In the absence of a convincing case, the default would be to update with new hardware and continue to manage on site.

High availability was an important consideration in evaluating cloud computing. As a 24/7 operation, Trex was looking to improve the availability of its entire JDE landscape, including the SQL servers, to its users with minimal disruption.

Over the course of discussions, it became clear that Trex wanted to seize the opportunity to modernize its entire platform, upgrading both the Microsoft Windows operating system and SQL Servers to the latest compatible and supported versions, as well as updating the JD Edwards EnterpriseOne (JDE E1) Tools Release.

Selecting a Proven AWS Partner with Unmatched Expertise

Trex was open to exploring a variety of cloud solutions and approached Amazon to learn more about Amazon Web Services (AWS). AWS reached out to Syntax, an AWS Advanced Consulting Partner with the Oracle competency, to meet jointly with Trex and introduce the capabilities of Syntax Enterprise Cloud® powered by AWS. The AWS/Syntax partnership brought everything together, making a compelling case for cloud computing.

"In order to size the environment from on-premise to AWS, the Syntax team gathered information on Trex's current environment, from both a technical infrastructure and business perspective, explained Colin Dawes, the Syntax Chief Solution Architect on the project. Leveraging decades of experience with ERP and infrastructure, Syntax appropriately sized the environment using Syntax standards, as well as the confidential JD Edwards sizing information available to Syntax as an Oracle Platinum Partner.

Syntax carried itself as an extended team, helping to build trust and convey confidence. Among the factors most important to establishing Syntax's credibility were:

▷ **Syntax's demonstrated experience, with more than 30 successful cloud migrations to AWS**

▷ **The prominence of Syntax as the world's largest JDE on AWS provider**

▷ **Strong and relatable references from Syntax customers who made the move to cloud**

▷ **Unique intellectual property (IP) that Syntax brings for monitoring, billing, as well as for other tools that JDE utilizes and that only run on AWS**

Given the Syntax team's demonstrated expertise and proven track record of success, Trex had the assurance it needed to move from an on-premise solution to cloud.
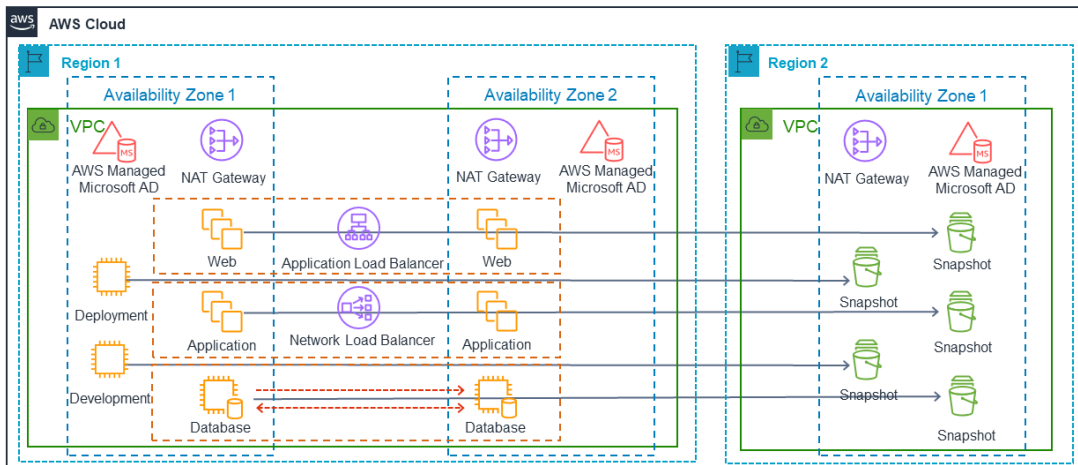
Migrating, Upgrading and Re-architecting a Smooth Transition

The relationship between Trex and Syntax was highly collaborative. One of the decisions that the team faced early on was to determine the best migration strategy for the various ERP ecosystem components, specifically whether to re-host or to re-platform. Working together, the team decided to re-platform, rather than move everything over the way it was in the on-site data center.

With the transition to cloud computing, Trex moved from a model with standard availability to one of high availability. Syntax used the AWS Well-Architected Framework as a guideline and created an ERP design spread across multiple availability zones to cost-effectively provide security, reliability, and flexibility.

Maximum Availability Architecture
In Region and Cross Region Recovery

Syntax migrated myriad servers using AWS Server Migration Service (AWS SMS) to facilitate the move of on-premise workloads to AWS:

▷ **Multiple JDE Production Servers were load balanced using Amazon Application Load Balancer (ALB), and split between 2 availability zones**

▷ **Multiple Enterprise Servers were load balanced using Amazon Network Load Balancer (NLB), and split between 2 availability zones**

▷ **Multiple SQL Servers were re-hosted as a SQL Server AlwaysOn Availability Group, and split between 2 availability zones**

▷ **Redundant Active Directory Servers across 2 availability zones**

▷ **Non-Production Servers were also migrated to AWS**

▷ **RPO of less than 5 minutes and RTO of 15 minutes into alternate Availability Zone**

▷ **Replication to an alternate region, providing catastrophic disaster recovery (DR)**

SQL Migration

The SQL Migration was a Homogeneous Migration from SQL 2008 to SQL 2016. SQL HA on EC2 (vs. RDS) was chosen because Trex wanted to "bring your own license" (BYOL) to maximize the existing SQL licensing investment. The SQL Server Cluster at the outset was running on older hardware in Trex's on-premise data center. Syntax was able to fully migrate the SQL environment into AWS on a slightly smaller instance size, achieving equal or better performance, specifically around the reporting and overall responsiveness of JDE. Overall, approximately 2.5TB of JDE data were moved as part of the migration to AWS.

Syntax implemented Active Directory by first creating two domain controllers in AWS; Trex then promoted them to Domain Controllers in its environment. To provide fully managed, highly reliable file storage in the new environment, Trex is running Amazon FSx for Windows File Server since AWS fully managed the file system, bringing additional peace of mind with scalability and availability. SQL FSx is also being used as a SQL Server witness, a mechanism to transfer exports.

In addition to upgrading the JDE Tools Release, the operating system, databases and middleware were upgraded to the latest supported versions that were ERP-compatible. All Windows servers for JDE were upgraded from Windows 2008/2012 to Windows 2016 to fully modernize the platform.

Syntax brought up JD Edwards as non-production first, so that Trex could begin to interact with JDE and test. Syntax then brought up the production environment for testing. Mock "go live" rehearsals allowed Syntax to fine-tune processes and procedures before cutting over to fully go live.

"Moving over to AWS, one of the challenges that Trex faced was how the system would be maintained without downtime, given the company's 24/7 operations," said Roberto Paul, Syntax Solution Architect for AWS on the project.

"Using the AWS Well-Architected design guidelines, Syntax built a solution so that Trex always has at least one SQL and application servers up," Roberto explained. When it comes time for maintenance or installs, this solution moves the environment from one server to the other automatically so that users always have their production data available.

> *Thanks for the blood, sweat, and tears put into months of design, configuration, preparation, and testing – as well as the extended effort to do the cutover after hours to minimize disruption to the business. Thank you to all involved.*

Bill Berson
CIO
Trex

Successful Partnership with Demonstrable Results

Syntax Enterprise Cloud® powered by AWS, together with Syntax EnterpriseCare® Monitoring for JD Edwards, gives Trex a dependable, high availability solution for its Microsoft Windows and SQL Server-Based JDE environment.

▷ **High Availability**
Multiple availability zones and load balancing architecture deliver improved availability and stability, eliminating the single point of failure concern associated with an on-premise shared disk storage component.

▷ **Flexibility | Responsiveness**
Capacity scales to meet changing computing needs over time, allowing Trex to scale up or down according to on-going demand in its JDE environment, including quick turn-around when an instance is needed for development or testing.

▷ **Focus on the Core Business**
Syntax maintains and manages the infrastructure, moving Trex out of the data center business to focus on more strategic initiatives.

"

I've received congratulations from our VP of Supply Chain Operations and a Production Manager for our efforts to minimize the impact on our 24x7 manufacturing operations during the cutover yesterday. Many thanks to you for your excellent project management skills along with the entire Syntax project team that made our move to AWS a success.

"

Andrew Reiber
Senior IT Manager for Enterprise Applications
Trex

Project Timeframe: October 2019-March 2020

ORACLE® **Platinum Partner**

aws **partner network**
Advanced
Consulting Partner

Oracle Competency

aws | △ SYNTAX

About Syntax

Syntax is a leading provider of cloud and managed IT services for Oracle and SAP customers. Syntax has been providing comprehensive technology solutions to businesses of all sizes since 1972. Syntax delivers the best combination of software, infrastructure, cloud, security, migration and application management services to meet the needs of its diverse range of customers in a wide variety of industries. Syntax partners include SAP, Oracle, Amazon, Microsoft, IBM and other world-class technology leaders.

marketing@syntax.com