

# NCOAUG

NORTH CENTRAL ORACLE APPS USER GROUP

## TRAINING DAY

### AUGUST 1, 2019



# The Journey to OCI

ERP Data Center Migration

# Executive Summary

HNI Corp has completed journey from a hosted data center to Oracle Cloud Infrastructure for our Oracle ERP solution. This presentation will cover the overall project timeline, overview, challenges, and final results.

The goal is to provide a high-level roadmap for other organizations considering the same relocation.

# Agenda

- Introduction
- Overall Considerations
- Project Team
- Time Line
- Migration Methodology
- Data Center Topology
- Security
- Network
- Test Cycles
- Cut-over
- Governance
- Patching / Maintenance
- CSM
- Successes
- Challenges

# Brett Barnhart Introduction

- Director Technical Application Management at HNI Corp since May 2014
- Generally responsible for the ERP Technical Environment
- Application Integration
  - Oracle SOA, BizTalk, Informatica
- Scheduling and Workflow Administration
- Release Execution
- Application and Database Administration
- 20 Yrs Experience with Oracle EBS Development/Management



# HNI Corporation Overview

HNI Corporation (NYSE: HNI) (<http://www.hnicorporation.com/>) is the second-largest office furniture manufacturer in North America, and the nation's leading manufacturer and marketer of gas- and wood-burning fireplaces.



# Overall Considerations

- Security
- Network
  - Bandwidth, Latency, Reliability
- Governance
- Performance
- Patching

# Project Team

Executive Sponsor

Project Manager

Linux System Administrators

Network Administrators

Security Administrators

DataBase Administrators

Application Administrators

Audit

Implementation Partner

# TimeLine

## ~6 Month Implementation

### Phase 1 (Sep 27 – Jan 3)

- Infrastructure Build-out
- Initial Applications to prove out environment (SOA + OBIEE initial applications)
- Build EBS/VCP
  - Spent months trying to get Container (pluggable) DB working with EBS.. Finally gave up.

### Phase 2 (Jan 3 – Mar 15)

- “Production” Regression Testing
- Build out remaining instances

### Phase 3 (Mar 15– Apr 6)

- Finish build-out
- Build/Test DR

# Migration Methodology

Initial EBS and VCP were built from back-ups transferred on a Data Transfer Appliance (DTA) from our existing production instance.

A “beachhead” was created and kept in sync with production EBS and VCP by transferring archive logs from production to OCI

All other applications were built from the ground up

- SOA (Latest version installed)
- OBIEE
- Sabrix
- GRC/MDM
- Trendz
- Informatica (upgraded)
- UC4 (upgraded)

# Data Center Topology

## Ashburn Data Center

- Production Compartment

## Phoenix Data Center

- Production 2 Compartment
- QA Compartment
- Dev Compartment

For Security Isolation, we implemented network isolation between Production, Production 2, QA and DEV Compartments

# Server Quantity

As a point of reference, this is the quantity of Production servers migrated to OCI

Application	# Application	# Database
EBS	6 (4 Internal, 2 DMZ)	6
VCP	2	4
SOA	2	2
UC4	4	2
Informatica	2	2
OBIEE	2	4
Sabrix	2	2
MDM/GRC	2	2
Trendz	1	
<b>Total</b>	<b>23</b>	<b>24</b>

## Security – OCI Access

We chose to leave security wide open at first with the goal of locking it down before we started any actual testing. While this facilitated an aggressive timeline, made locking things down “post cut-over” tricky as we didn’t want to impact support

## Security – Network

We built out the future Production stack early to shakedown and validate that we were ready. Due to the nature of this, it meant that OCI Production was connected to other non-production systems.

Keep track of any temporary connections you make so you can close them later

# Global Network Strategy

When moving from an on-prem data center to a cloud offering, do not under estimate the network requirements. HNI was already in the midst of a “Global Network Strategy” which laid the foundation and framework to make OCI possible.

*The importance of ensuring this is in place well in advance cannot be over-stated.*

# Test Cycles

## 1 Regression Test

- Overall test to ensure broad-range application functionality

## 3 Mock Cut-over Tests

- Cut-over and validation process

## 2 Load Tests

- Ensuring performance of OCI Data Center and Exadata

## 2 DR Tests

- Validate that we can switch Production from Ashburn DC to Phoenix DC

# Cut-over Timeline (24-hour Max window)

## Prep

- In the days leading up to the cut-over, everything was prepped and made ready at OCI.
- Shut down servers as much as we could ahead of cut-over window that did not impact the business

## Phase 1 – Shut down current Data Center (5 AM to 8 AM)

- Graceful shutdown of all servers
- Disable users, put CM jobs on hold
- Created data validation point
- Validated all archive logs transferred and applied to Beach head

# Cut-over Timeline

## **Phase 2 – Clone DB and Tech Activities (8 AM to 6 PM)**

- Cloned DB from “Beach Head”
- Applied Patches
- Ran Auto-config
- Ran system stats to reset DB for new hardware and table defrag

## **Phase 3 – Data Validation (No changes to the system) (6 PM to 7 PM)**

- Validated table data
- Before/After Reports

# Cut-over Timeline

## **Phase 4 – System Integrity (7 PM to 10 PM)**

- Scripted tests
- In case of fall-back, can be rerun in original environment

## **Go/No-Go Decision (10 PM)**

## **Phase 5 – Enable the business (10 PM to 1:30 AM)**

- Begin running scheduled jobs
- Open order queues
- Enable Users
- Release On-hold jobs

# Governance

With any cloud Data Center, governance is key. Spinning up additional services is as easy as clicking a button.

Ensure that you have a formal request process and watch the spending regularly.

*OCI does not yet have the best budgeting features. For example, I'd like daily alerts if I go over daily spend or a daily summary of expenses. You can build python scripts to get this data, but it is not built in.*

# Patching and Maintenance

I have found that communication regarding upcoming maintenance with OCI is pretty effective. Subscribe to alerts!

If you need to change planned maintenance dates, create an SR

*Very little control over Exadata patching.. Currently, they do one node, then the next, then the next with no pauses or communication*

# Cloud Success Manager (CSM)

Your CSM will become your best friend. Make sure that your CSM is one that works well with you.

They are your partner and will help coordinate activity inside of Oracle. Schedule regular calls as there are always new features at OCI that your CSM will help keep you abreast of.

## Success – Cut-over went smoothly

All of our Mock cut-overs really paid off. We completed the cut-over in less than 24 hours with minimal business disruption. Cut-over ran well ahead of schedule and all validations were successful.

**Business was fully up and running the next day.**

# Success – Performance

We saw significant performance gains from moving to Exadata and Network improvements.

- A number of key processes ran faster
- Shop Floor execution (Scanning) greatly improved
- Reports ran faster
  - “Complaints” that people no longer had time to go get coffee while a report was running
- Cases where some jobs wouldn’t even finish with desired parameters prior to migration and completed within expectations post migration.

## Success – Audit Review

Audit reviewed the entire cut-over and all of the processes that we built into the operation of the OCI Data Center. We had 2 follow-up meetings that were cancelled as they felt that we had everything covered.

## Challenge – Network for Backup Transfer and Data Sync

Implementing network with enough bandwidth to synchronize the Beachhead with Production EBS/VCP took longer than anticipated.

**Start Early! Don't wait until you need it. Have enough bandwidth for back-up transfers so you don't need the Data Transfer Appliance!**

## Challenge – Don't build out everything at once

To help compress timeline, we built out most of Dev, QA and Prod before we really started testing. Every time we found an issue, we had to resync all the environments at once.

**Build out one environment, thoroughly test before building out remaining.**

## Challenge – Identify Test Success Criteria up front

Before starting a test cycle, ensure that you have identified and agreed upon success criteria up front by all interested parties

## Challenge – Ensure everyone is on the same page

For complex projects like this, especially those driven largely by one group, don't take it for granted that everyone understands the project. Have a phase kick-offs with groups as appropriate to ensure everyone is on the same page

## Challenge – Identify Ownership

When working with an Implementation partner, ensure that ownership is clearly defined. Even though you may have spent months working through architecture with Oracle Sales, you'll be starting over with the actual implementation.

**Have a thorough and honest assessment of team skills and identify gaps early so that they can be compensated for.**

## Challenge – Keep it Simple, or at least call it out

We incorporated several upgrades and/or foundational changes (Windows to Linux) with our Data Center migration.

Ensure you understand the implications of making these changes. We had a lot of Windows scripts and shared drives that were “forgotten” about until we started testing and had to very quickly rearchitect them.

**Do your homework before making changes.**

## Challenge – Training

OCI and Exadata are different. Incorporate training into the plan.  
Having webinars to show how to do things is not as effective as hands-on training labs.

**Plan, build, and budget for a sandbox compartment!**