Gene Sutay – Project Portfolio

Pensar Project (2021+)

Pensar is a large all-hands-on-deck project that I did not architect but I am playing a major role in DevOps, Infrastructure/Compute Management, Deployments and Automation. The main technologies include heavy use of Kubernetes and Elastic Search. I'm not at liberty to discuss this project in more detail.

OBoard Project (2019-2020+)

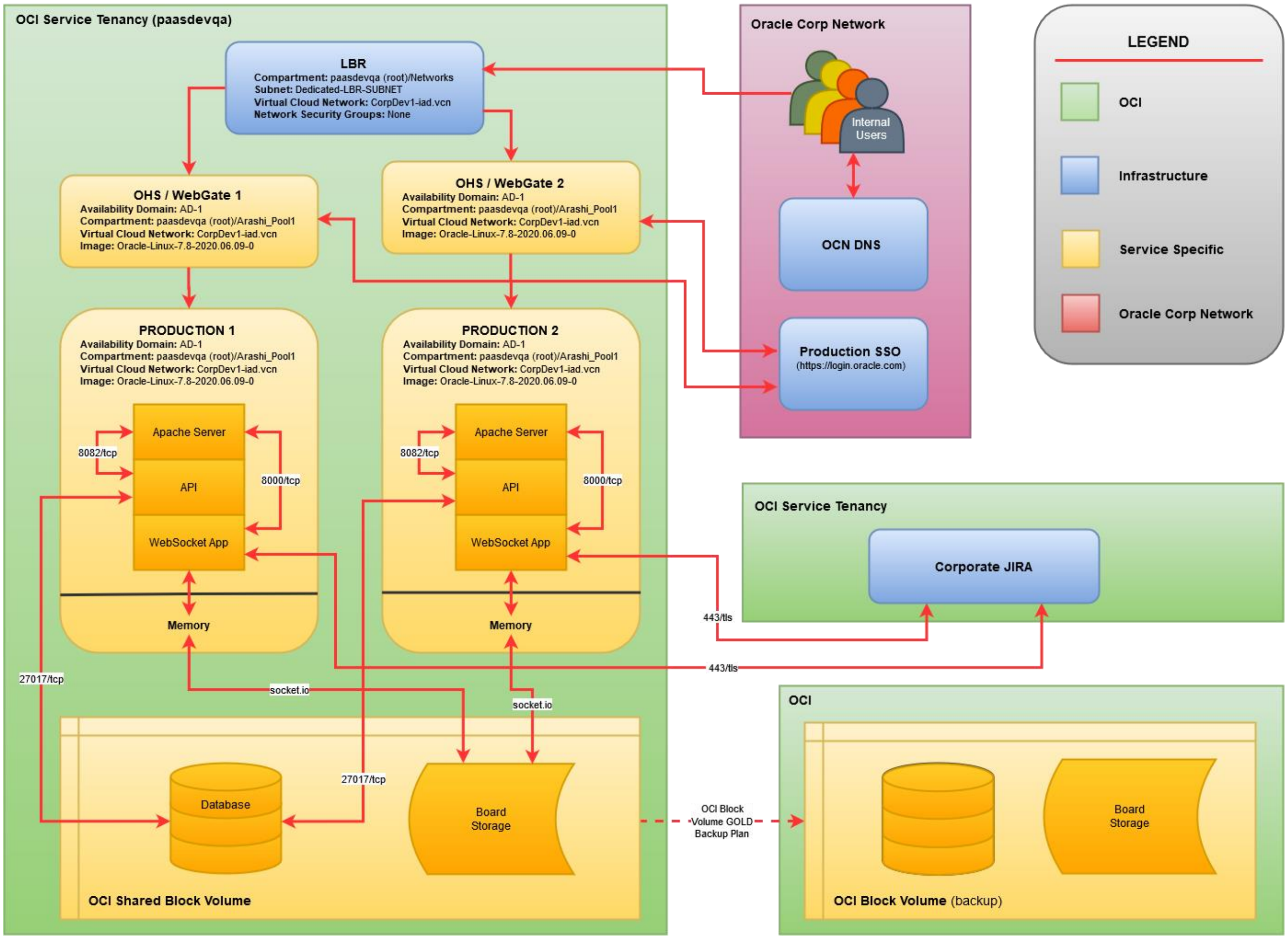
OBoard is a collaborative virtual whiteboard that allows multiple users at different locations to draw and see others drawing in real-time on a virtual canvas. This project started with upper management expressing the need for a collaborative whiteboard. Today, we have a 2,160 unique global user base that continues to grow daily with multiple teams across Oracle leveraging OBoard for a variety of use cases in an Infrastructure architected to support 40,000 users before entering the next phase of expansion. OBoard has provided a free internal solution replacing expensive 3rd-party licensed apps that teams were previously using and it continues to grow and expand 100% driven by end-user needs and demands discovered through continuous engagement with our customer base.

I have either taken full ownership of, or have been active in mentoring and contributing in every aspect of the project to date:

- **Technology Research & POC** – On a few words from my upper management, I quickly came back with a comparison of top options for the project, made and explained my recommendations, and setup an internal environment to demo as Proof of Concept. This effort quickly expanded to a 12 member team on a rapid development track providing new features and updates on weekly intervals.
- **License and CSSAP Reviews** – With the decision to leverage existing Open Source technology and 3rd-party applications as a foundation to build upon, it was my job to make sure that licensing across the board was compatible with our project's long term goals and participate in internal 3rd-party application reviews.
- **Security Reviews** – To prepare for internal security audits, I migrated our Pre-production and Production environments (Apache Server, API Server, Node.js Servers and Database) to HTTPS/SSL to achieve 100% encrypted communication between client and server.
- **Mentoring & Leadership Roles** – I have participated in this project as a Project Owner and SCRUM Master (Agile/SAFe concepts) leading the direction of feature development driven by customer requirements. Taking an active interest in each team member's skill set, progress and needs, I provide technical direction and solutions to team members as they reach hurtles to jump or walls to climb.
- **Developer Roles** – I contribute as an active Developer on this project taking ownership of several new features, usability enhancements, and bugs fixes; working comfortably in all areas (front-end UI, back-end Database and API). *Development* work is primarily JavaScript coding with heavy API and Socket.io tie-ins and some framing HTML and CSS.
- **Designer Roles** – I was responsible for the front-end UI and Support page design (which included a custom video player). I'm also a proficient graphic artist responsible for creating custom graphics on-demand for the UI and several canvas background templates.
- **Infrastructure Architect Roles** – In my role as Infrastructure Architect, I built the current Stress, Pre-production and Production infrastructure to handle about 5,000 users with a solid expansion and growth plan to handle 40,000 users down the road (our maximum projected internal user base).

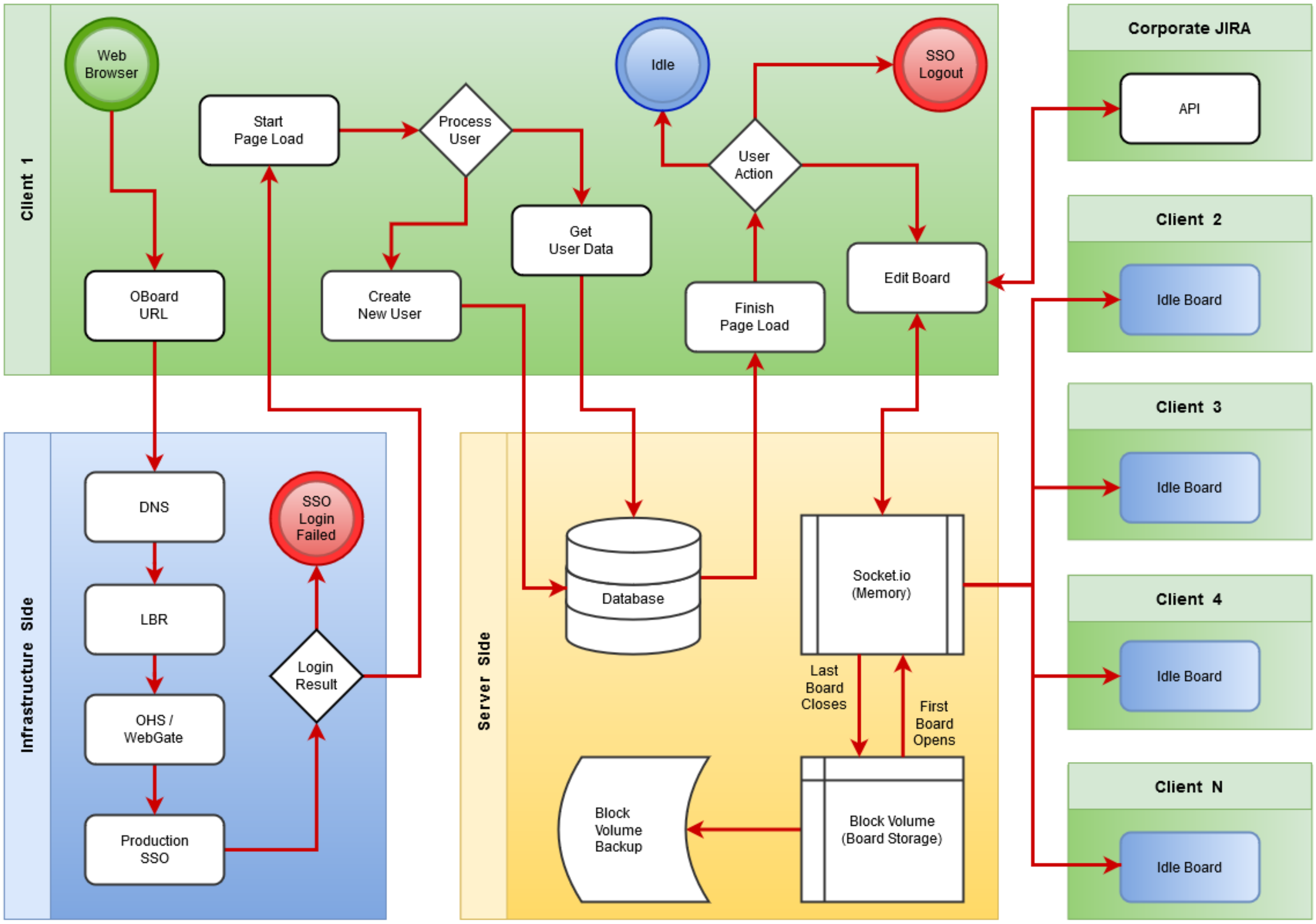
- **Compute Administration Roles** – I handled the Oracle HTML Server (OHS), WebGate, Production, Pre-production, Stage, Performance/Stress, CICD, and phase 2 expansion test server setup and configurations. These efforts also included various Oracle Cloud Infrastructure setup & config of LBaaS, Networking, Security Lists, Block Volumes, Compute Instances, Back-end Sets, Listeners, and more.
- **Source Control Management** – I'm responsible for the setup and management of OBoard's source control and code repositories as well as build/release work.
- **CI/CD Engineering Roles** – I am responsible for Jenkins setup, administration, and job creation to pull code from source control and push to STAGE/PREPROD, and then PREPROD-to-PROD. This also included several maintenance jobs automating various Node.js Server/API Server/DB Bounces across each environment.
- **Production Release Engineer Roles** – I manage every Production deployment; planning the feature releases based on functional test results and feature maturity, the maintenance windows, and sending the communications to our user base. I either directly handle or oversee updates to every Production environment component from feature code, to 3rd-party application updates (Docker, Node.js/NPM, MongoDB), to infrastructure expansion and other changes.
- **Database Administration Role** – For this project I have participated in Database setup (a MongoDB running in a Docker container), DB backups and Restore, running queries/scripts to massage data and fix data structures as the DB and API requirements have evolved.
- **Documentation Roles** – In addition to the Support UI page and Support and Feature Slack channel content, I'm responsible for the creation of numerous Architecture, Data Flow, E2E Production Setup, Administration, Support, Development, and Reference wikis.

OBoard Architecture Diagram that I have created:

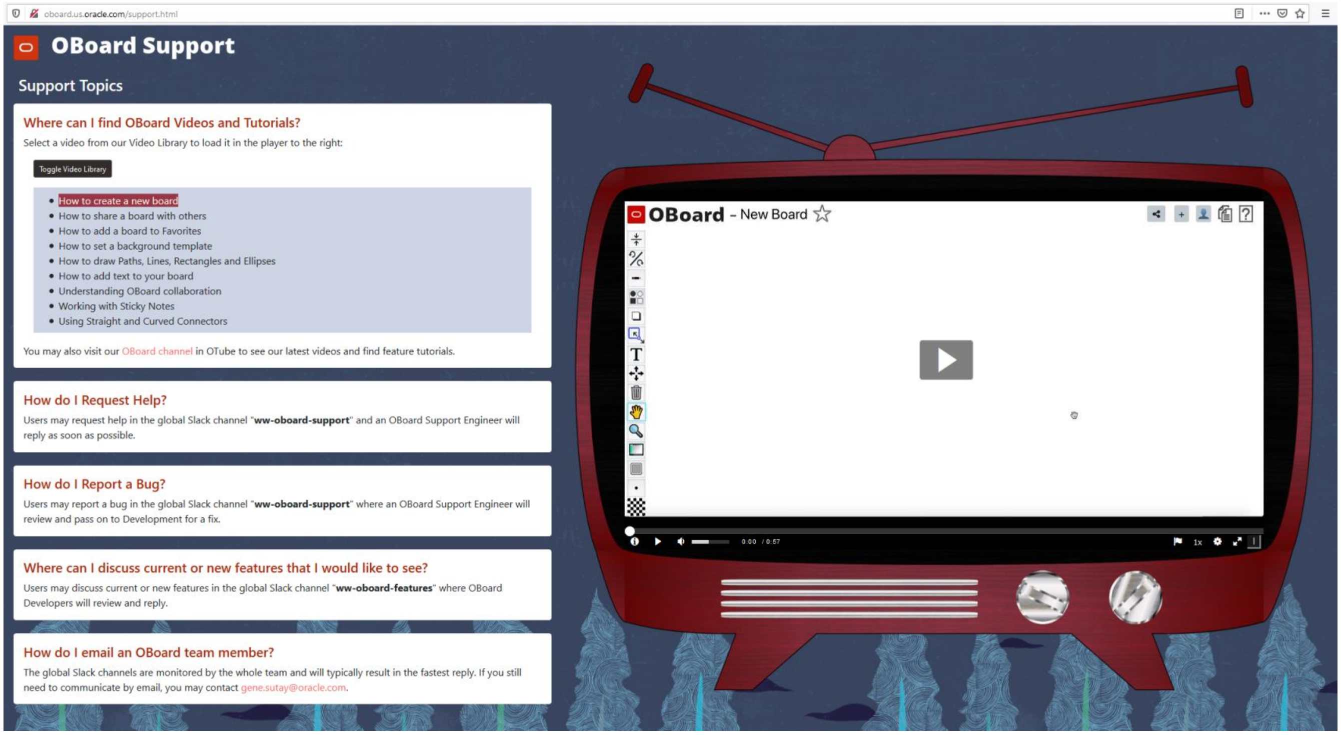


OCI Service Tenancy (paasdevqa)
LBR
Compartment: paasdevqa (root)/Networks
Subnet: Dedicated-LBR-SUBNET
Virtual Cloud Network: CorpDev1-iad.vcn
Network Security Groups: None
OHS / WebGate 1
Availability Domain: AD-1
Compartment: paasdevqa (root)/Arashi_Pool1
Virtual Cloud Network: CorpDev1-iad.vcn
Image: Oracle-Linux-7.8-2020.06.09-0
OHS / WebGate 2
Availability Domain: AD-1
Compartment: paasdevqa (root)/Arashi_Pool1
Virtual Cloud Network: CorpDev1-iad.vcn
Image: Oracle-Linux-7.8-2020.06.09-0
PRODUCTION 1
Availability Domain: AD-1
Compartment: paasdevqa (root)/Arashi_Pool1
Virtual Cloud Network: CorpDev1-iad.vcn
Image: Oracle-Linux-7.8-2020.06.09-0
PRODUCTION 2
Availability Domain: AD-1
Compartment: paasdevqa (root)/Arashi_Pool1
Virtual Cloud Network: CorpDev1-iad.vcn
Image: Oracle-Linux-7.8-2020.06.09-0
Apache Server
API
WebSocket App
8082/tcp
8000/tcp
Apache Server
API
WebSocket App
8082/tcp
8000/tcp
Memory
Memory
27017/tcp
socket.io
socket.io
27017/tcp
Database
Board Storage
OCI Shared Block Volume
Oracle Corp Network
Internal Users
OCN DNS
Production SSO
(https://login.oracle.com)
LEGEND
🟩 OCI
🟦 Infrastructure
🟨 Service Specific
🟥 Oracle Corp Network
OCI Service Tenancy
Corporate JIRA
443/tls
443/tls
OCI
OCI Block Volume GOLD Backup Plan
Database
Board Storage
OCI Block Volume (backup)

OBoard Data Flow Diagram that I have created:



OBoard Support Page with Custom Video Player that I have created:



OBoard Support

Support Topics

Where can I find OBoard Videos and Tutorials?

Select a video from our Video Library to load it in the player to the right:

Toggle Video Library

- How to create a new board
- How to share a board with others
- How to add a board to Favorites
- How to set a background template
- How to draw Paths, Lines, Rectangles and Ellipses
- How to add text to your board
- Understanding OBoard collaboration
- Working with Sticky Notes
- Using Straight and Curved Connectors

You may also visit our OBoard channel in OTube to see our latest videos and find feature tutorials.

How do I Request Help?

Users may request help in the global Slack channel "**ww-oboard-support**" and an OBoard Support Engineer will reply as soon as possible.

How do I Report a Bug?

Users may report a bug in the global Slack channel "**ww-oboard-support**" where an OBoard Support Engineer will review and pass on to Development for a fix.

Where can I discuss current or new features that I would like to see?

Users may discuss current or new features in the global Slack channel "**ww-oboard-features**" where OBoard Developers will review and reply.

How do I email an OBoard team member?

The global Slack channels are monitored by the whole team and will typically result in the fastest reply. If you still need to communicate by email, you may contact gene.sutay@oracle.com.

Guardians of Innovation (GOI) v2 Project (2019 - 2020)

I came into the Guardians of Innovation (GOI) project after the concept, architecture and development was already under way. My contributions here were to enhance the UI. After review of the requirements and research to determine the best UI framework for the task, I branched the GOI code-line to GOI version 2 and began work. My effort created a new v2 of the UI built in a CoreUI+Bootstrap 4 framework with heavy CSS and JavaScript. This, combined with custom graphics I designed, introduced a new display-rich v2 GOI UI based on our modern redwood theme. In this project, I was a heavy contributor in front-end framework uptake, custom graphical design, creating embedded support videos, CSS and JavaScript coding.

Graphic Design Collaboration Project (2019 – 2020)

After competing in and winning the GOI badge creation contest, I was asked to create custom graphics for several other projects. I created the Oracle Graphics Collaboration (OGC) wiki to showcase my skills and give others seeking custom graphic work an idea of what I can do. To date, I have created custom graphics for Guardians of Innovation (GOI), SR Analysis (SRA), Scaled Agile Training badges, Behavior-Driven Development (BDD), Security Testing as a Service (STaaS), and OBoard (OB) Teams.

Quota Guru Project (2019)

Quota Guru is a UI that I created as a lightweight tool for monitoring internal OCI resources with a strong focus on the needs of Service Team Provisioners and Pipeline Automation Engineers. This UI provides tenancy-specific information in near real-time for consumption by Pipeline Automation and Manual Provisioners.

Both Pipeline Automaton and Manual Provisioners have 2 basic questions before creating a POD in OCI:

1. Taking into account the exact resources my POD needs in OIC, does any AD have enough available resources to create my POD?
2. If more than 1 AD has sufficient resources to create my POD, which AD has the greatest chance to still create my POD if other users submit POD creation tasks to the same AD in parallel?

In this project I demonstrated mastery of wiring raw data from OCI APIs (that ran data collection every minute) to meaningful values in UI tables, charts and graphs and I provided resource intelligence in both UI visuals and in a source file that pipeline automation can reference in their automation script (grabbing the best AD to create a POD in or initiating a pause and retry loop if no AD has sufficient resources currently).

In this project I used heavy JavaScript, JQuery, CSS, HTML, and I coded a very complex algorithm to derive the answers to the 2 basic questions (Taking into account my exact POD's resource needs, is there a clear path to provision a new POD in OCI and which AD has the most free resources that my POD uses?).

Pipeline Automation (2018 - 2019)

In this effort, I was responsible for automating complex pipeline automation tasks such as wiring a PSM to IDCS, setting up a stand-a-lone PSM, and IDCS Primordial setup. These jobs were run hundreds of times by multiple service teams across 2 different Jenkins deployments saving invaluable amounts of Developer's time.

Photon Project (2016 - 2018)

Photon Project started back in 2016 where I demonstrate mastery over Oracle VirtualBox, Hudson, and UI development. In this project, I first mapped sets of complex hypervisor console command lines to Hudson jobs so that users could use Hudson jobs to control every aspect of VM management without logging into the hypervisor administrative console. Then in 2017 I took this to the next level and introduced a UI using HTML/CSS/JavaScript to present users with a single page for VM management and viewing hypervisor resources. My UI provided users with the following capabilities (without giving them access to the hypervisor's admin console):

- Hypervisor Resource monitoring (Free CPUs, Free Memory, Disk Usage)
- VM Online/Offline/Not in Use graphic indicators
- VM State Control (Gentle Shutdown, Start VM, Reboot VM, Hard Power Down)
- VM Snapshot Control (List/Create/Delete/Restore of VM Snapshots)
- VM Creation with the following features:
  - Allowing selection from pool of available hostnames
  - Inclusion of Owner/Purpose metadata (displayed on UI page)
  - Custom image selection (OEL6/7, pre-installed/configured software like Oracle DB 11/12, Jenkins Node, Docker PSM installed/configured/ready to register with Services, Selenium Node, and more)
- Selection of CPU/Memory for VM

This project had some major benefits in time saving for anyone who used it (I used it heavily myself as well):

- Complex test environments could be setup and then snapshotted allowing the Test Engineer to run the tests, save the test result environment in another snapshot, then jump back to the pristine clean setup state in less than 1 minute for another round of testing. This has saved QA Engineers countless hours in test environment setup/cleanup.
- Quick access to a VM – At this point in time, it took up to 5 days for a QA Engineer to get a VM for testing (longer if the shapes were maxed and you went to a waiting list). Opening my UI page and clicking the "Reserve VM" button gave that same QA Engineer a fresh VM with their selected custom image in less than 2 minutes.
- The custom images I created saved user hours of install/config time. For example, it typically took a half day of time to install and configure a stand-a-lone PSM to the point where it was ready to register a new service. A half day was cut to under 2 minutes with my custom Docker PSM image.

Photon Project: Phase 2

Work was started and leveraged Mesos/Marathon/Zookeeper (in place of a VirtualBox hypervisor) to pool together spare unused resources from a pool of other VMs and I got as far as a working proof of concept but then all of the hosts contributing to the Mesos resource pool were taken back, stalling my effort.