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ODYSSEY RELOCATION

System Design Document

Discovery Workshop

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Document Details

Document Information

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Revision History

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Table of Contents

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1. Overview

1.1. Executive Summary

The purpose of the document is to provide high-level understanding of the existing system along with its pain areas / issues in day to day activities & operation. The document would also provide details about proposed solutions with implementation methodologies, technical details of the new system with system architecture diagrams, application design, tech-stack for implementation & deployment. The document would also share the stakeholders contributed in this workshop to understand the current business & potential possible fixes in the new system.

1.1.1. Existing System

Odyssey is providing the Relocation Services to its customers within the United States, Canada and abroad. Odyssey deals with corporate clients only and provides the following list of services to their employees for traveling.

- Household Goods (HHG)
- Auto Shipment
- Storage
- Home Sale
- Home Purchase
- Destination Services
- Travel
- Language Training
- Cultural Training
- Temporary Living
- Spousal Assistance
- Mortgage
- Property Management
- Auto Lease

The corporate clients usually subscribe to any of the services offerings to build a policy document with Odyssey which would be used during Relocation. The Odyssey works with Partners (registered vendors) to find best possible service to provide to the relocating employee. The partners share the pricing structure with the Odyssey based upon services required by the relocating employee on the destination. The employee can remove the services available within the selected Policy, if required. The employee can also request to Add more services by creating an exception for him/her followed by approval from the company. The Odyssey would raise invoices to the corporate customer in different timely manners e.g. monthly or weekly etc.
This workshop is focused only to cover the Relocation & Home Sale service, as these are the business critical from execution point. Hope the rest of the Services would be easier to understand and develop later.

MoveTrack

Odyssey is using a desktop-based Software Application (MoveTrack) built in Legacy Technologies (VB 6.0) supported by vendor Ineo, to serve their business purposes. Odyssey is facing various issues in the MoveTrack Application including following.

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- The MoveTrack is not specifically built for Odyssey, rather it's a product of Ineo to serve multiple businesses so companies have to adjust their needs within the offerings of MoveTrack out-of-the-box.
- MoveTrack is a desktop-based software application, and being launched automatically from the Ineo's web-interface itself which doesn't work in any modern browser other than IE.
- The system has too much noise of extra controls / forms not even being used by the Odyssey staff.
- System has poor navigation causing consultants to spend more time closing a Job.
- The data entry becomes difficult sometimes where System is supposed to be populating the data as per business needs (e.g. auto calculate dates etc.) and consultant has to fill the same info on multiple places / times, ending up spending more time on a single job to close as well as can create data accuracy / inconsistency issues.
- Consultant has to perform manual work, especially while sending template-based event driven emails, by monitoring the files on shared network location etc.
- System does have overall performance issues causing it to wait for an operation to complete on the server side which can not be controlled by Odyssey.
- The Reporting is not comprehensive & flexible to depict the real statistics for the senior management for decision making.
- The System has the legacy backend having redundant data with no scalability & no way to extend via hooks for an external system to get plugged-in.

1.1.2. Proposed Solution

The proposed solution will be a web-based fix-focused comprehensive and cost-effective system which will be developed according to specific requirements of Odyssey, using state of the art technologies, modern software engineering practices, ensuring that the solution is efficient (both in terms of performance & functionality), scalable, robust and user friendly. The proposed solution will automate the day to day activities of different actors of the system to save their time for gain in the operational performance at a big scale. The system would also be focused on a lesser to zero manual work required model for the consultant for better data accuracy and consistency across the whole ecosystem through auto-populate forms / sending emails etc.

The new system would be built specifically for Odyssey with customized requirements feature-set so that it would not have noise of extra controls / forms and the best possible UX would make it smart, fast & user-friendly navigation to let it be self-explanatory for the new users even. The proposed system will also provide a comprehensive permission driven Dashboard / Reporting mechanism by providing a wide range of detailed / customized reports to both management and functional users for better tracking & monitoring.

The Proposed Solution would be developed & deployed using modern technology practices of architecture & design, front and backend technologies so that scaling up flexibility, plugging new modules or external system / mobile apps, accessing it seamlessly etc. would be super-efficient & easy.

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1.2. STAKEHOLDERS

Name	Designation	Company
Lisa Dunn	Sponsor	Odyssey
Jonathan Frick	Product Owner	Odyssey
Shannon Thielke	Business Domain Expert	Odyssey
Daniel Dufficy	Business Domain Expert	Odyssey
Dawne Doucette	End User – Consultant	Odyssey
Janna Sanders	End User – Consultant	Odyssey
Delia Ho	End User – Consultant	Odyssey
Heather Maurer	End User – Consultant	Odyssey
Raul Rubio	End User – Consultant	Odyssey
Umair Javed	CEO	tkxel
Shafqat Mahmood	VP Engineering	tkxel
Waqas Ahmad	Manager Engineering	tkxel
Safi Ullah Bhatti	Solution Architect	tkxel
Sahar Asif	UI/UX Consultant	tkxel
Saif Ullah Khan Suri	Business Analyst	tkxel
Farrukh Ali	UX Engineer	tkxel
Umar Naseer	QA Engineer	tkxel

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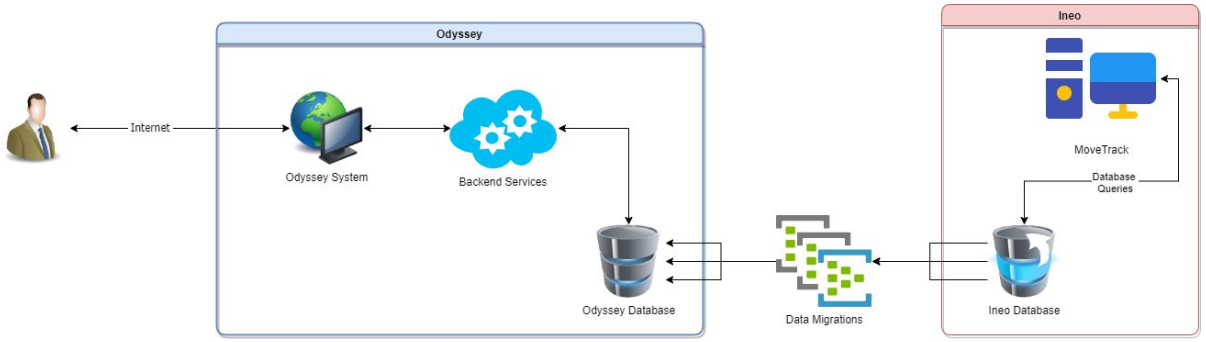
2. Solution Approaches

Following list of options could be the possible approaches to revamp the existing system with new one to meet the business goals.

2.1. Revamp – Full System

2.1.1. Flow Diagram



2.1.2. Details

- The existing System (MoveTrack) would be replaced with a new Web Based System.
- The New System would have its own Frontend UI along with own independent optimized Database on modern application architecture & design principles.
- The new System would have all existing features (of MoveTrack) along with new requirements & fixes of day to day issues of MoveTrack.
- All legacy data would be migrated to the new database from the existing system (MoveTrack) for keeping historical records.

2.1.3. Pros & Cons

- Best possible approach in the long run to fix the existing issues & enhance the business.
- Independent development from the existing system.
- Any potential change in the MoveTrack will not impact the development.
- Consistent and efficient development/execution of the system.
- Rapid user training and understanding.
- Need more time to wait for the new system available for users.
- Acceptance level of this change may be lesser to the users in early stages which can impact business processes.

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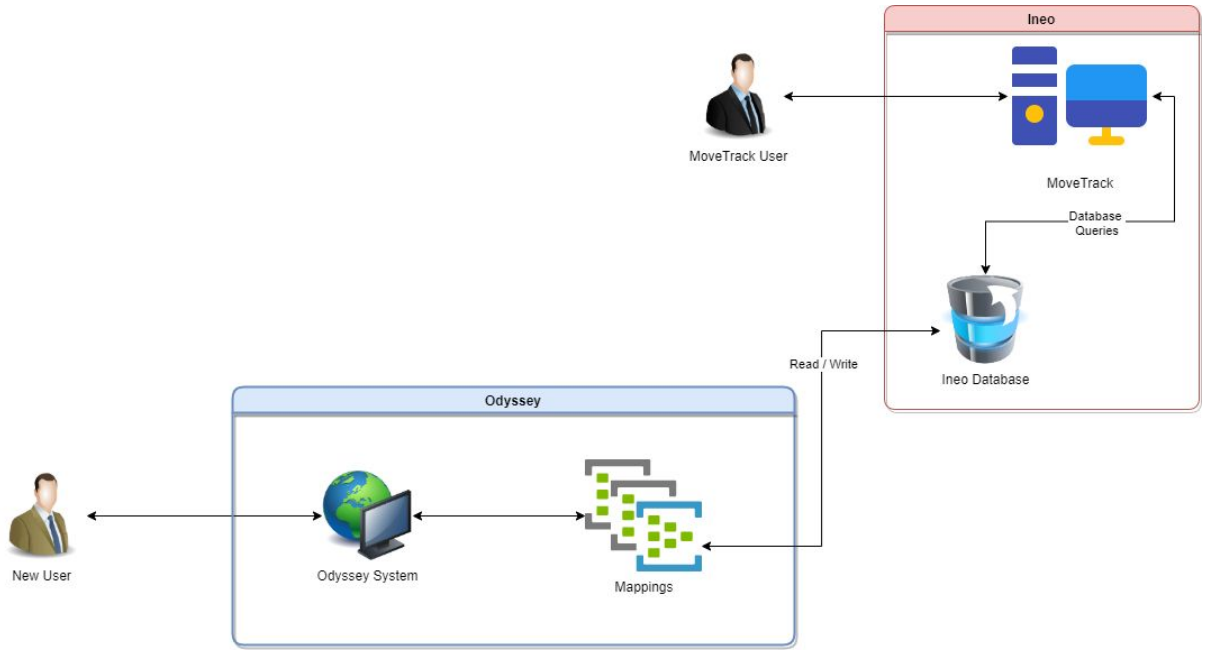
2.2. Revamp – Frontend Only

2.2.1. Flow Diagram



2.2.2. Details

- Only the front-end would be revamped in a way that it would still use the same existing Ineo database at the backend.
- The new system would have its own Frontend and a middleware layer would be created to interact with the MoveTrack database.
- The new UI may only improve the frontend navigation and may reduce the redundant controls/popups noise but storing & retrieving the data would still observe the same data access approach.

2.2.3. Pros & Cons

- It will solve the navigation problems in the existing system in stages.
- New system will be used with the existing one in parallel till the whole front is revamped.
- Acceptance level of the new System would be at medium level in the start.
- Users training will be quicker
- The performance issues in data storing & retrieving would still exist as the middleware layer / database is still the same.
- Development team would need to understand the workflow along with backend processing from technology perspective either through any diagrams / the source code of MoveTrack which may take considerable time.
- Development team needs to track the changes done by Inoe, since this system will be using Ineo's back-end. It will be a high risk.
- Development effort will be increased because of handling Ineo's database and middle layer in parallel.

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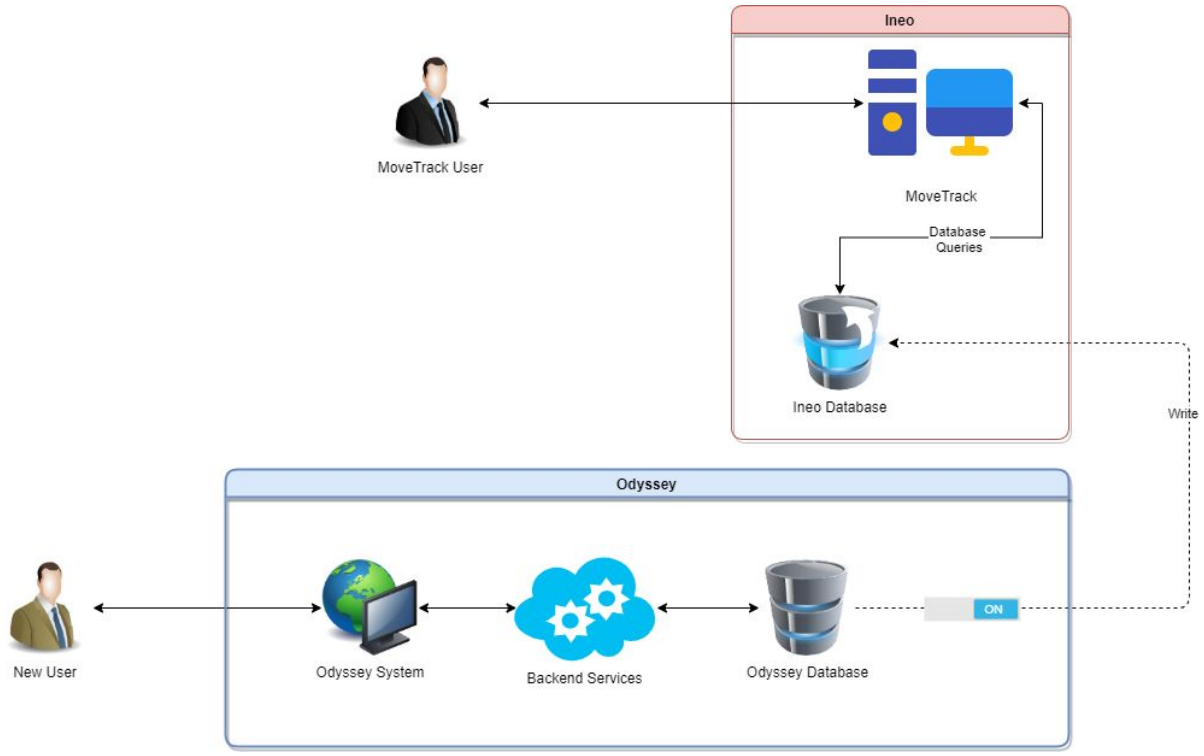
2.3. REVAMP – INCREMENTAL

2.3.1. Flow Diagram



2.3.2. Details

- A new System would be developed to replace MoveTrack as a whole.
- The modern UI / UX design would fix the user navigation and look and feel, and the database would also be optimized without any redundant information.
- Database migrations would be executed to load all legacy data into the new database for keeping historical records.
- The new System will sync the data with MoveTrack database to keep the users using MoveTrack along with the new System.
- Need to write a middle layer to map the front-end with Ineo's back-end that will be removed at the later stage.

2.3.3. Pros & Cons

- An intermediate approach to keep running both systems in parallel.
- At the end, we will have a final database in place to be used for the new System.
- The data duplication would be turned off whenever required.
- The mapping of new database vs old database must have to understand to update both databases at any given time to keep running both systems.
- Data entered through MoveTrack would not be visible in the new System during development.
- Development effort will be increased because of handling Ineo's database and middle layer in parallel.

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3. Solution Architecture

3.1. Server List

No.	Server Type	Description
1	Web Servers	App Frontend
2	Web Servers	App Backend
3	Auth Server	Authentication Services
4	File Server	Read / Write Files or Templates
5	Database Server	Application Database (Transactional) / NoSQL
6	Database Server	Reporting Database
7	Jobs Server	SQL Jobs for Periodic operations
8	Integration Server	ETL / SSIS / Data Sync
9	Reporting Server	Pulling Reports / Dashboards

3.2. Server Diagram

Following diagram shows the Solution Architecture at a high level with Logical Servers.

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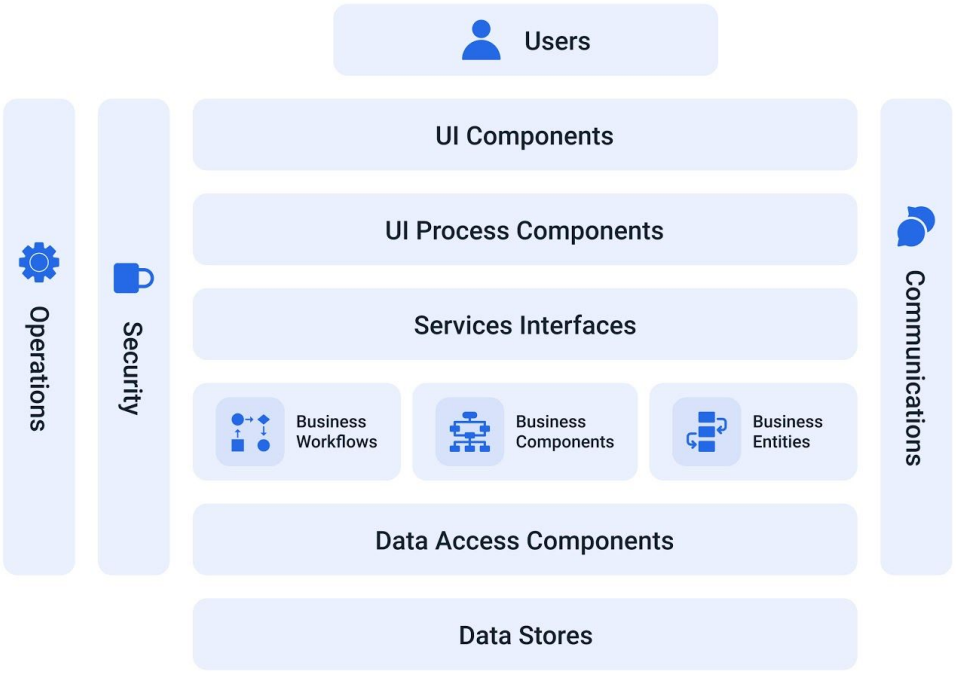
4. Application Components Design

The diagram below describes the Application Software Design and Components Design and the behaviour.



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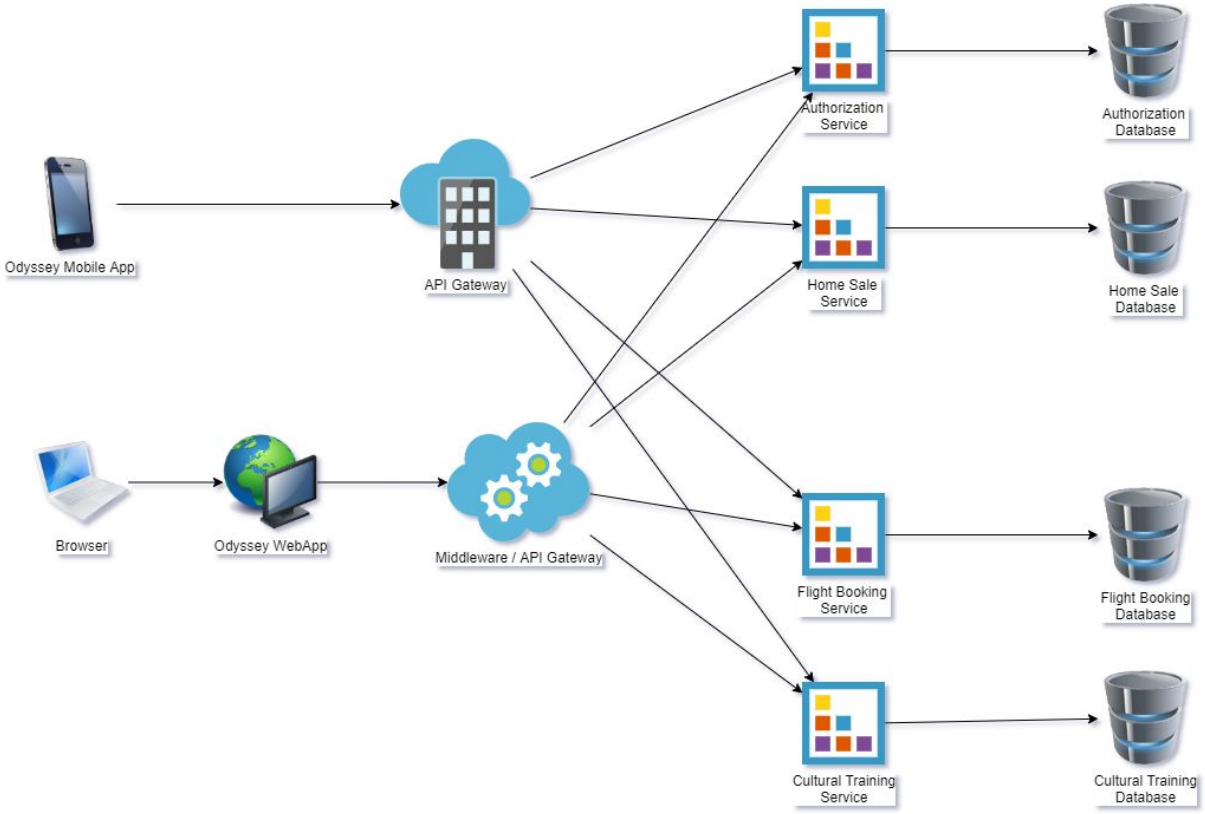
5. Application Architecture Design

The application would use Microservices Architecture with data access flow like below.



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6. Deployment Infrastructure

6.1. Deployment Environments

Name	Description
DEV	Sandbox / Development Environment
QA	Testing Environment
STG	Pre-Production Staging Environment
PROD	Production Environment

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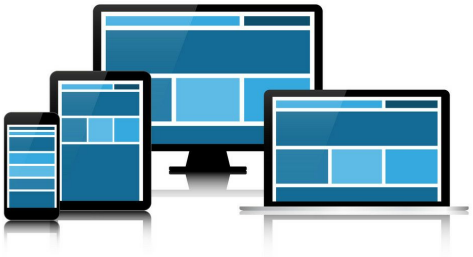
7. Technology Stack

Front End Technologies (Web)
 
Front End Technologies (Mobile)

Front End Design

Back End Technologies
     
Tools / IDEs
  
Deployment

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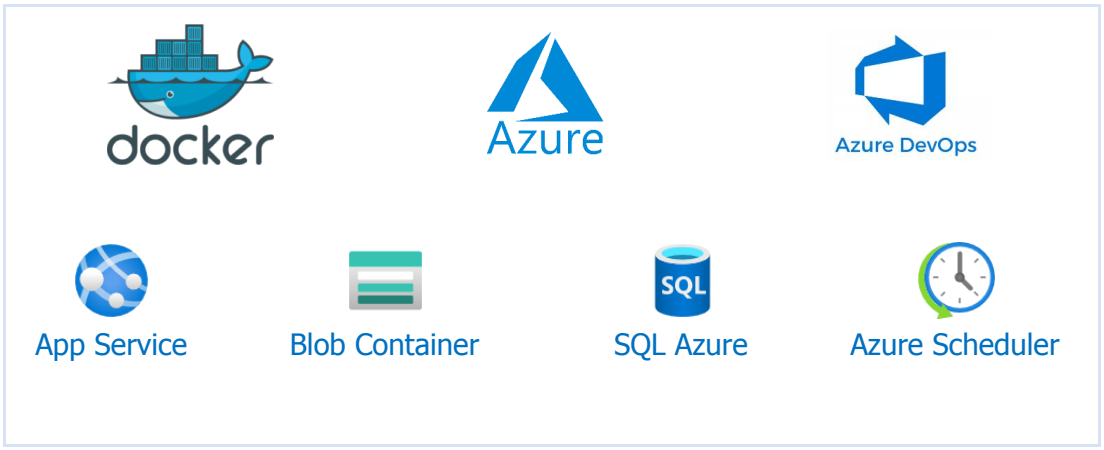

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