Operational Concept Description (OCD)

Nuleep Chat System

Team #8

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Grace Park & Luis Reyes  Client

November 24th, 2020
## Version History

<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
<th>Version</th>
<th>Changes made</th>
<th>Rationale</th>
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<tr>
<td>10/03/20</td>
<td>JF</td>
<td>0.1</td>
<td>● Added Program Model, Benefits Chain, System Boundary and Environment</td>
<td>● To complete the document</td>
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<tr>
<td>10/07/20</td>
<td>JF</td>
<td>0.5</td>
<td>● Finish shared vision &amp; system transformation sections</td>
<td>● To complete the document</td>
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<td></td>
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<td>● Complete tables and figures after version 0.1</td>
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<tr>
<td>10/23/20</td>
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<td>1.0</td>
<td>● Update Version History, Table of contents, and heading &amp; footer</td>
<td>● To ensure the table of contents and other components reflect recent changes</td>
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<td>● To clean up formatting</td>
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<td>11/24/20</td>
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<td>2.0</td>
<td>● Update &amp; finalize entire OCD</td>
<td>● To ensure final changes in operational concepts are reflected</td>
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Introduction

21.1 Purpose of the OCD

This document provides, in detail, the shared visions and goals of the stakeholders of the chat system designed for Nuleep. The success-critical stakeholders of the project are Grace Park and Luis Reyes, as the client; the USC CSCI-577A Project team 8, as implementers; Joy V, as the maintainer.

21.2 Status of the OCD

The status of the OCD is currently at version 2.0. This is the final version that will be delivered to the client. The scope of the Nuleep Chat System has been re-evaluated to exclude the web application, user creation, and audio/video conferencing. Those features/components will be fulfilled by the Nuleep development team. Joy V has been assigned to be the maintainer of the chat system.
# 22. Shared Vision

## Table 1: The Program Model

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Stakeholders</th>
<th>Initiatives</th>
<th>Value Propositions</th>
<th>Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Continuous growth and investment in Nuleep</td>
<td>● Client: Grace Park &amp; Luis Reyes</td>
<td>● Develop a new chat system to deliver direct chat and instant chat.</td>
<td>● The chat system provides crucial communication features that allow users to communicate with each other via text.</td>
<td>● Nuleep</td>
</tr>
<tr>
<td>● Stable network, database &amp; maintenance</td>
<td>● Maintainer: Joy V</td>
<td>● Grow a large user base through marketing efforts and establish corporate partnerships.</td>
<td>● The chat system serves as an important foundation for additional features to be added in the future.</td>
<td>● Job Seekers and Recruiters (End Users)</td>
</tr>
<tr>
<td></td>
<td>● USC Development Team</td>
<td>● Users actively engage in conversations that lead to more career opportunities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Users: general users of the app</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
22.1 Benefits Chain

Figure 1: Benefits Chain Diagram of the Nuleep Chat System

22.2 System Capability Description

The Nuleep chat system is a text messaging system designed to allow seamless interactions between users. It provides crucial communication features such as user alias, create & delete channels, and other features that help Nuleep to close the gap between candidates and recruiters. The app targets job seekers and corporate recruiters as the main users of the app. Through the chat system, users can create & delete channels, send clickable links, and receive updated in-app notifications plus chat history in real-time. Additionally, users can view their own chat list of conversations and choose to set aliases on the iOS or Android app. Together, the proposed system will add these features to the existing mobile and web app by integrating Twilio, a COTS messaging service.
22.3 System Boundary and Environment

![System Boundary and Environment Diagram of the Nuleep Chat System]

Figure 2: System Boundary and Environment Diagram of the Nuleep Chat System
23. System Transformation

23.1 Information on Current System

3.1.1 Infrastructure

The infrastructure currently utilized at Nuleep consists of AWS Cognito, Mongo DB, and REST API with Javascript and React Native being the two languages used.

3.1.2 Artifacts

Here is a list of the major artifacts that the system utilizes for the current functionalities.

- **Profile**: user class that stores metadata about users (created for UI page testing)
- **Landing**: module dedicated for landing pages and corresponding functionalities (user login, job applications, etc).
- **Token**: used for user identification, Twilio access, and other functionalities.
- **GQLQueries**: used for querying user & job information from Mongo DB.
3.1.3 Current Business Workflow

![Business Workflows Diagram for setting up user account](Image)

Figure 3: Business Workflows Diagram for setting up user account
23.2 System Objectives, Constraints and Priorities

### 3.2.1 Capability Goals

<table>
<thead>
<tr>
<th>Table 2: Capability Goals</th>
<th>Capability Goals</th>
<th>Priority Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC-1 Direct Chat:</td>
<td>Users, including recruiters &amp; job seekers, must be able to send message(s), view</td>
<td>Must Have</td>
</tr>
<tr>
<td></td>
<td>their own chat list, set user aliases, and send links to other users.</td>
<td></td>
</tr>
<tr>
<td>OC-2 Instant Chat:</td>
<td>Users must be able to establish or delete chat channels in real-time and receive</td>
<td>Must Have</td>
</tr>
<tr>
<td></td>
<td>real-time updates of incoming messages &amp; corresponding chat history.</td>
<td></td>
</tr>
</tbody>
</table>

### 3.2.2 Level of Service Goals

<table>
<thead>
<tr>
<th>Table 3: Level of Service Goals</th>
<th>Level of Service Goals</th>
<th>Priority Level</th>
<th>Referred WinWin Agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Query Correctness</td>
<td>Must Have</td>
<td>18, 19, 24, 27, 29, 31</td>
</tr>
<tr>
<td></td>
<td>Interoperability between Nuleep &amp; Twilio</td>
<td>Must Have</td>
<td>19, 29</td>
</tr>
</tbody>
</table>

### 3.2.3 Organizational Goals

- **OG-1:** Increase app usability by implementing a fully functional chat system
- **OG-2:** Improve user experience via UI improvements and implementation of instant chat & notifications

### 3.2.4 Constraints

- **CO-1:** iOS & Android & Web App: The current app must be able to run on all of the systems listed.
- **CO-2:** Twilio: The chat system must be integrated with Twilio.
- **CO-3:** Javascript & React Native: These two languages must be used as the development languages.
### 3.2.5 Relation to Current System

#### Table 4: Relation to Current System

<table>
<thead>
<tr>
<th>Capabilities</th>
<th>Current System</th>
<th>New System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roles and Responsibilities</td>
<td>● User authentication and profile creation</td>
<td>● Main &amp; only system for inter-user communications</td>
</tr>
<tr>
<td></td>
<td>● Manage job postings and applications</td>
<td>● Available to all system users</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● The communication process as of now is fully automated.</td>
</tr>
<tr>
<td>User Interactions</td>
<td>● User authentication and profile creation</td>
<td>● Initiate chat requests &amp; terminate communications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Set user alias</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Use clickable links sent by others</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>● AWS, Rest API, Mongo DB</td>
<td>● Twilio</td>
</tr>
<tr>
<td>Stakeholder Essentials and Amenities</td>
<td>● Stable user login &amp; account creation</td>
<td>● Stable chat channel creation &amp; deletion</td>
</tr>
<tr>
<td></td>
<td>● Accurate query of user metadata</td>
<td>● Accurate relay of incoming &amp; outgoing messages, in-app notifications, user metadata (includes aliases), and system-generated links</td>
</tr>
<tr>
<td>Future Capabilities</td>
<td>● Recruiter Web application that supports the chat system</td>
<td></td>
</tr>
</tbody>
</table>
23.3 Proposed New Operational Concept

3.3.1 Element Relationship Diagram

![Element Relationship Diagram for Nuleep Chat System](image)

Figure 4: Element Relationship Diagram for Nuleep Chat System

Note*: The development team is only working (only has access to) with the client-side of the application.

3.3.2 Business Workflows

The new business workflows for the proposed Nuleep Chat System are shown in the diagrams below. The two diagrams show the business workflow for the process of creating chat channels + sending clickable links and setting user alias + deleting chat channels.
Figure 5: Business Workflow Diagram - Create chat channels & Send clickable links

Note*: The above workflow is identical for any one-to-one, one-to-many, and many-to-many interactions. Job Seeker & Recruiter have no functional differentiations within the Nuleep chat system.
Figure 6: Business Workflow Diagram - Set user alias & Delete chat channels

Note: Figure 5 Notes applies to all related components in figure 6
23.4 Organizational and Operational Implications

3.4.1 Organizational Transformations

The proposed system will require a maintainer to manage and monitor the chat system’s health. Joy V, a full-time developer at Nuleep, has been appointed to maintain the proposed system after it has been delivered and functioning at the organization.

3.4.2 Operational Transformations

There will be major additions to the existing, limited workflows. The specific changes to user interactions will be of the following:

- Users will be able to create & delete chat channels, set aliases to contacts, view chat lists, and interact with generated clickable links.
- Users will be able to instantly chat and receive real-time in-app notifications. Participants in conversations will also be able to view conversation history with each other.