Operational Concept Description (OCD)

Nuleep Chat System

Team #8

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October 23rd, 2020
## Version History

<table>
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<th>Author</th>
<th>Version</th>
<th>Changes made</th>
<th>Rationale</th>
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<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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<td>● Finish shared vision &amp; system transformation sections</td>
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<td>● Complete tables and figures after version 0.1</td>
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<td>10/23/20</td>
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<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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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 1.0. This is the version that will be delivered to the client. The scope of the Nuleep Chat System has been re-evaluated to exclude the web application and user creation, two components 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

| Assumptions                                                                 | Stakeholders                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Initiatives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Value Propositions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Beneficiaries                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ● Continuous growth and investment in Nuleep                                 | ● Client: Grace Park & Luis Reyes  
● Maintainer: Joy V  
● USC Development Team                                                                 | ● Develop a new chat system to deliver instant chat and instant notifications  
● Grow a large user base through marketing efforts and establish corporate partnerships.  
● Users actively engage in conversations that lead to more career opportunities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ● The chat system is the defining feature of Nuleep that provides instant access to recruiters through audio or video conferencing.  
● The chat system delivers critical functionalities that allow communications among job seekers and recruiters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ● Nuleep  
● Job Seekers and Recruiters (End Users)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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 and audio messaging system designed to allow seamless interactions between users. It provides defining features such as audio & video conferencing that helps Nuleep stand out among competitors such as Jumpstart by closing 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, Job seekers can send messages, audio chat, or file requests to Recruiters, who will have the option to accept or deny. Additionally, job seekers can send similar requests to colleagues on the iOS or Android app to engage in text or audio messaging. 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

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).
Access_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

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>Capability Goals</th>
<th>Priority Level</th>
</tr>
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<tbody>
<tr>
<td><strong>OC-1 Instant Chat:</strong> Users, including recruiters &amp; job seekers, must be able to send message(s) (requests), engage in audio conferencing, or send files to other users.</td>
<td>Must Have</td>
</tr>
<tr>
<td><strong>OC-2 Instant Notifications:</strong> Users must be notified of incoming messages &amp; calls through in-app or pop-up notifications.</td>
<td>Must Have</td>
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</table>
3.2.2 **Level of Service Goals**

<table>
<thead>
<tr>
<th>Level of Service Goals</th>
<th>Priority Level</th>
<th>Referred WinWin Agreements</th>
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<tbody>
<tr>
<td>Query Correctness</td>
<td>Must Have</td>
<td>25, 26, 28-30, 35, 36</td>
</tr>
<tr>
<td>Interoperability between</td>
<td>Must Have</td>
<td>25, 26, 28-30, 35, 36</td>
</tr>
<tr>
<td>Nuleep &amp; Twilio</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2.3 **Organizational Goals**

OG-1: Increase brand awareness via implementing audio & video conferencing
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>
<thead>
<tr>
<th>Capabilities</th>
<th>Current System</th>
<th>New System</th>
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<tbody>
<tr>
<td>Roles and Responsibilities</td>
<td>● User authentication and profile creation</td>
<td>● Establish channels of communications (text, audio, video)</td>
</tr>
<tr>
<td></td>
<td>● Manage job postings and applications</td>
<td></td>
</tr>
<tr>
<td>User Interactions</td>
<td>● User authentication and profile creation</td>
<td>● Initiation of user communications</td>
</tr>
<tr>
<td></td>
<td>● Job applications</td>
<td>● Process User-sent files &amp; data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Conversation History</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 text, audio, and video conferencing</td>
</tr>
<tr>
<td></td>
<td>● Accurate query of user &amp; job posting metadata</td>
<td>● Instant notifications and instant chat for all authenticated users</td>
</tr>
<tr>
<td>Future Capabilities</td>
<td>● Recruiter Webapplication that support the chat system</td>
<td></td>
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</table>
23.3 Proposed New Operational Concept

3.3.1 Element Relationship Diagram

Figure 5: 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 workflow for the proposed Nuleep Chat System is shown in the diagrams below. The diagram shows the business workflow for the process of communications between Job Seeker and Recruiter initiated by the job seeker.

Note*: The above workflow is identical to that of between Job Seeker - Job Seeker & Recruiter - Job Seeker

Figure 6: Business Workflow Diagram - Communications Between Users
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 communications will be of the following:

- Users will be able to initiate conversations by sending requests to enquired parties.
- Authenticated users will be able to instant chat and receive instant notifications through the app. Participants will be able to view conversation history with each other.