Project Management Plan

1.0

November 24th, 2023

DevOpsDynasty

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Document Change Control

Revision Number	Date of Issue	Author(s)	Brief Description of Change
1.0	*2023-11-24*	DevOpsDynasty	Initial revision

1 Project Overview

1.1 Purpose, Scope, and Objectives

This document serves as a comprehensive guide outlining the purpose, scope, and objectives of the OnlineCaller project. The primary purpose is to provide a roadmap for the development team, ensuring that all project requirements are met, and the system aligns with the client's specifications. The Software Project Management Plan (SPMP) for the OnlineCaller system will encompass critical aspects such as major activities, resource allocation, schedules, and key milestones throughout the development lifecycle.

Objective of the Project: The overarching objective of the project is to design and implement the OnlineCaller virtual phone system, a cutting-edge communication platform that operates seamlessly through the internet and the cloud. The system aims to revolutionize conventional telecommunication methods by enabling users to make and receive calls using many devices under a unified business phone number.

Scope of the Project and Formal Requirements: The scope and formal requirements of the OnlineCaller project is thoroughly defined in the [OnlineCaller Software Requirement Specification](#).

Key Components:

1. **Integration of Advanced Security Measures:**

   - Security is paramount in the realm of virtual phone systems. This component involves the integration of advanced security features to safeguard user data, ensuring encrypted communication channels, and protecting against potential cyber threats.

   - Implementation of strong authentication protocols, secure data storage, and real-time monitoring will be prioritized to create a secure environment for users.

2. **Enhanced User Experience and Accessibility:**

- Focusing on user-centric design, this component aims to enhance the overall user experience by implementing features that promote ease of use and accessibility.

- Special attention will be given to developing an intuitive user interface, seamless navigation across devices, and features that cater to users with varying levels of technological expertise.

By successfully executing these components, the OnlineCaller project aims to deliver a state-of-the-art communication solution that prioritizes security, user experience, and accessibility, aligning with client expectations.

1.2 Assumptions, Constraints and Risks

Assumptions:

1. Implementation of Advanced Security Measures:

   - The OnlineCaller system assumes that the integration of strong security features will effectively protect user data. This involves deploying advanced encryption protocols, ensuring secure data storage, and implementing real-time monitoring for a secure communication environment.

2. Enhancement of User Experience and Accessibility:

   - The project anticipates that prioritizing user-centric design will significantly improve the overall user experience. It is assumed that features emphasizing ease of use, such as an intuitive user interface and seamless navigation across devices, will contribute positively to user satisfaction.

3. Timely Client Interaction:

   - The successful execution of the project relies on the assumption that the client will respond quickly to inquiries from the project team. Timely client interactions are crucial for effective communication, issue resolution, and ensuring alignment with client expectations.

4. Potential for Additional Human Resources:

   - The OnlineCaller project acknowledges the potential availability of supplementary human resources. While the core team is well-prepared, the assumption is that additional resources may be accessible to contribute to specific phases or challenges.

Constraints*:*

1. Budgetary Limitations:

- The project is constrained by budget limitations. Financial resources are carefully managed, with no provision for additional funding beyond the initial allocation. This constraint necessitates prudent financial planning throughout the project's lifecycle. The project has an overall budget of $500,000.

2. Realistic Development Timeline:

    - The project acknowledges the realistic constraint on development speed. Recognizing the intricate nature of developing a state-of-the-art communication platform, the project adheres to a timeline that balances innovation with thorough development and testing.

3. Dependence on Existing Solutions:

    - Due to the inherent complexity of the development process, the OnlineCaller system is constrained by its reliance on third-party software and existing solutions. Integration with established technologies is necessary, limiting the project's independence in certain technical aspects.

1.3 Project Deliverables

Software Deliverables

Our central software delivery revolves around implementing a fully functional OnlineCaller system. This all-encompassing solution is crafted to provide call functionality via the internet and cloud, facilitate a unified business phone number, and enable seamless communication across various devices, such as desktop apps and mobile phones.

Beyond the core system, our software bundle incorporates vital elements specifically tailored to the OnlineCaller system. This encompasses the executable system and source code, ensuring the seamless integration and operation of the system's diverse features. Alongside this, comprehensive user documentation serves as a guide, covering essential aspects of system architecture, user instructions, and operational insights.

Additionally, our software deliverables underscore the incorporation of advanced security features. Thorough documentation is included to expound on the implementation of encrypted communication channels, robust authentication protocols, secure data storage, and real-time monitoring. This dedicated focus on security guarantees user data protection and resilience against potential cyber threats, instilling confidence in the system's reliability and integrity.

A Minimum Viable Prototype (MVP) of the project will be delivered on 03/05/2024. The completed software project will be delivered on 03/05/2025. These software artifacts are to be delivered virtually.

Document Deliverables

The OnlineCaller project will generate a collection of purpose-tailored documents, both internally for team guidance and externally for client comprehension. Internally, our team will produce a Project Management Plan, ensuring a well-organized and strategic development approach. A Quality Assurance Plan will be devised to uphold rigorous standards, and a Configuration Management Plan will be implemented to systematically control project configurations.

Client-focused documents will encapsulate crucial aspects of the OnlineCaller system. These include a Statement of Work (SOW) outlining project scope and objectives, a Software Requirement Specification (SRS) elucidating system requirements, and in-depth user and developer documentation. The latter will provide comprehensive insights into system usage and guide future development. These project-specific documents are crafted to facilitate effective internal collaboration, ensuring transparent communication with the client, and supporting a seamless project execution process.

All document deliverables are to be handed off virtually.

Team Documents

The documents listed below are required by the OnlineCaller program and will be used by the team.

1. Online Virtual Phone System Strategic Project Guide (SPG): A detailed document outlining the strategic approach, key project activities, and milestones essential for the successful development of the OnlineCaller system. This serves as a guiding framework for the entire team. Delivery date: 10/07/2023.

2. Online Virtual Phone System Quality Assurance Framework (QAF): A comprehensive plan setting forth rigorous quality standards and testing protocols specific to the OnlineCaller system. This ensures the delivery of a reliable and high-performance communication platform. Delivery date: 10/15/2023.

3. Online Virtual Phone System Design Blueprint Document (DBD): Detailed documentation elucidating the specific design specifications for the OnlineCaller system, covering crucial aspects such as system architecture and user interface design. Delivery date: 10/29/2023.

3. Online Virtual Phone System Configuration Management Protocol (CMP): Documentation articulating systematic controls and methodologies for managing configurations within the OnlineCaller project. This ensures adherence to predefined specifications. Delivery date: 10/15/2023.

4. Online Virtual Phone System Testing and Validation Strategy (TVS): Documentation specifying the testing and validation methodologies to be implemented throughout the development life cycle of the OnlineCaller system. This ensures the reliability and functionality of the system. Delivery date: 10/29/2023.

5. Online Virtual Phone System Risk Management Blueprint (RMB): Project-tailored documentation identifying potential risks, assessing their impact, and establishing proactive strategies for effective risk mitigation or response. This addresses the dynamic landscape of software development for the OnlineCaller system. Delivery date: 10/08/2023.

6. Online Virtual Phone System Project Design and Development Guidelines (DDG): Comprehensive guidelines providing insights into the design and development phases of the OnlineCaller project, offering a structured approach for seamless execution. Delivery date: 10/15/2023.

Client Documents

1. Online Virtual Phone System Project Charter: A comprehensive document outlining the project proposal for the OnlineCaller system, detailing the objectives, scope, and anticipated outcomes. This serves as the foundational agreement between the development team and the client. Delivery date: 09/29/2023.

2. Online Virtual Phone System Software Requirements Specification (SRS): Detailed documentation specifying the functional requirements of the OnlineCaller system. This document provides an in-depth overview of the system's features and functionalities required to meet the client's communication needs. Delivery date: 10/13/2023.

3. Online Virtual Phone System Architecture Guide (SAG): A document elucidating the system architecture of the OnlineCaller system, offering insights into the technical aspects of the solution. This guide aids the client in understanding the underlying infrastructure and design principles. Delivery date: 11/1/2023.

4. Online Virtual Phone System User Documentation (UD): Client-centric documentation providing user guidelines and instructions for optimal utilization of the OnlineCaller software. This document ensures that end-users can effectively navigate and leverage the system's capabilities. Delivery date: 03/01/2025.

1.4 Schedule and Budget Summary

Milestone	Estimated Completion Date
Project Charter Approved	09/29/2023
Permissions and Account Management Implemented	12/29/2023
Initiating and Receiving Calls Implemented	02/29/2024

Project MVP Completed	03/05/2024 (Six months after the start of the project)
Call Logs and Billing Implemented	08/05/2024
Payments Implemented	11/05/2024
Admin Controls Implemented	01/05/2025
Full System Development Completed	03/05/2025 (Eighteen months after the start of the project)

The initial budget for this project will be $120,000. After the delivery of the MVP (approximately 03/05/24), an additional $380,000 in project funding will be released. The overall budget for this project is $500,000.

1.5 References

OnlineCaller Project Charter:
https://github.com/Tosvng/DevOpsDynasty/blob/main/Project%20Charter.pdf

OnlineCaller SRS:
https://github.com/Tosvng/DevOpsDynasty/blob/main/OnlineCaller%20SRS.pdf

OnlineCaller WBS:
https://miro.com/app/board/uXjVNVt1i9A=/?moveToWidget=3458764568211159505&cot=14

OnlineCaller Gantt Chart:
https://miro.com/app/board/uXjVNVt1i9A=/?moveToWidget=3458764568215678023&cot=14

OnlineCaller Network Diagram:
https://miro.com/app/board/uXjVNVt1i9A=/?moveToWidget=3458764568211384724&cot=14

OnlineCaller Pert Diagram:
https://miro.com/app/board/uXjVNVt1i9A=/?moveToWidget=3458764568211423084&cot=14

IEEE Std 1058-1998, IEEE Standard for Software Project Management Plans, IEEE 1998

1.6 Definitions and Acronyms

- CI/CD: Continuous Integration / Continuous Development

- MVP: Minimum Viable Prototype

- WBS: Work Breakdown Structure

2 Project Organization

2.1 Organizational structure

2.1.1 Internal Structure

The team responsible for this project are members of a small software development company, DevOpsDynasty. The members of this team make up the entire staff of this company. That is, all employees of this company are working on this project.

The team has 5 members: four junior software developers and one project manager. The software developers are Alex Senden, Jakob McKenna, Yash Vyas, and Raheem Tiamiyu. The project manager is Isabelle Anderson-Gregoire.

2.1.1 External Structure

DevOpsDynasty has been contracted to create the OnlineCaller project. All interaction between DevOpsDynasty and the client company is facilitated by the Project Sponsor, Pengfei. This includes communication related to requirements gathering and progress updates.

2.2 Roles and Responsibilities

Major Work Activity	Description	Supporting Process	Responsible Organizational Units
Create Project Charter	Draft the project charter and update it with any requested revisions.	Project Initiation	Project Manager
Create Non-Technical Planning Documents	Draft non-technical planning documents and present to project stakeholders.	Project Planning	Project Manager
Create Technical Planning Documents	Draft technical planning documents and present to the project team.	Project Planning	Project Manager, Development Team
Implement the "Billing" feature	Implement feature 1.1 of the WBS.	Project Execution	Development Team
Implement the "Account Management" feature	Implement feature 1.2 of the WBS.	Project Execution	Development Team
Implement the "Calling" feature	Implement feature 1.3 of the WBS.	Project Execution	Development Team
Implement the	Implement feature	Project Execution	Development Team

"Administration" feature	1.4 of the WBS.		
Handoff MVP	Deliver the MVP to the client company.	Project Monitoring and Control	Project Manager
Handoff Finished Software	Deliver the completed version of the OnlineCaller software to the client company.	Project Monitoring and Control	Project Manager
Create Final Project Report	Ensure that all deliverables have been handed off and validated and create a report documenting these processes.	Project Closing	Project Manager

3 Managerial Process Plans

This section of the Project Management Plan specifies the project management processes for the project. This section defines the plans for project startup, project work, project tracking and project closeout.

3.1 Startup Plan

3.1.1 Estimates

The total budget for this project is $500,000. The estimated cost for this project is $450,000, leaving $50,000 as a buffer for any unexpected additional costs, or costs that are created as a result risks taken.

The project has been divided into 7 phases (see section 4.1), and the cost schedule is based on these project phases.

Phase	Timeline	Cost	Confidence
Project Startup	09/29/2023 - 10/29/2023	$20,000	0.9
Phase 1	10/29/2023 - 12/29/2023	$50,000	0.85
Phase 2	12/29/2023 - 03/05/2024	$55,000	0.85
Phase 3	03/05/2024 - 08/05/2024	$120,000	0.8

Phase 4	08/05/2024 - 11/05/2024	$80,000	0.9
Phase 5	11/05/2024 - 01/05/2025	$70,000	0.9
Phase 6	01/05/2025 - 03/05/2025	$55,000	0.95

Each phase will have the same staff resources. That is, each phase will have four software developers and one project manager working solely on this project for the entirety of the phase.

These figures were calculated by starting with the base salary of the staff members working on this project. This value is $19,500 per month for the entire team and is specified by the contract each staff member signed when joining the company.

The additional amount added each month was calculated using the analogy technique. One of the team members has experience developing phone system software from the ground up, and therefore we used that previous project as a base for estimating the cost of the OnlineCaller software system. Notably, the extra cost beyond the employee salary increases as the project continues. This is due to the web hosting costs scaling up as the project grows, and the cost associated with hosting different environments, among other costs such as additional subscriptions for required software.

The confidence level is based on the amount of risk that the team is projected to take on during that phase of the project.

This cost schedule is to be re-evaluated at the end of each project phase. It is at this point that the team will determine what steps, if any, must be taken to ensure that the project stays on budget. It is the responsibility of the project manager to lead this re-evaluation, although the team must be aware of, and involved in, this budget schedule re-evaluation process.

3.1.2 Staffing

There will be five staff members working on this project. There will be one project manager, Isabelle Anderson-Gregoire. The remaining four staff members will be junior software developers Alex Senden, Jakob McKenna, Yash Vyas, and Raheem Tiamiyu. These staff members are already present at the company, and therefor can be considered internal transfers to this project. The staff members working on this project will remain constant throughout the duration of the project, including the project close phase.

If the OnlineCaller project begins to fall behind schedule due to a lack of staff, one contracted senior software developer will be hired to work on the project until the final version of the software has been handed off.

3.1.3 Resource Acquisition

This project will have $120,000 of initial funds to create the MVP. This funding will come from the client company. Upon the successful handoff of the MVP, $380,000 in funding will be released for the completion of the project. These funds will be held in a bank account that the project manager can withdraw from. Additional funding may be released by the client company upon request. The project manager is responsible for the handling of these funds, and for ensuring the correct amounts are deposited by the client company. No additional funds can be allocated by the client company. The project manager is also responsible for reporting the project's budget status to stakeholders, including the software developers.

The personnel required for this project are already working at the company. They can be considered internal transfers for this project. If additional members are found to be required for this project to be completed on-schedule, then postings for senior software developer contractors will be posted on major job boards, such as Indeed. The project manager is responsible for the creation of these postings, and the project manager, along with two developers, is responsible for the hiring process.

All staff members already have company laptops that are sufficient for the development of this project. Additionally, staff members make use of free development tools where possible, such as Visual Studio Code for a text editor, and DBeaver for a relational database interface.

The development team will scrutinize the project requirements and will determine which web hosting provider most affordably and reliably suits the needs of the project. This will be done during the project startup phase (the first three weeks of the project).

All members of the development team have software engineering experience and are familiar with the technologies being used in this project. As a result, no additional training is expected to be required. Regardless, some of the project funds have been set aside to fund developer training. If some of the staff requires external training, they will receive it via online classes. The project manager is responsible for arranging any training, and the software developer are responsible for determining if additional training is required.

All staff members will work remotely, and therefore there are no additional expenses due to the work facilities. The project manager will have a Zoom Business subscription, and the rest of the staff will have Basic Zoom subscriptions. The project manager is responsible for handling these subscriptions.

3.2 Work Plan

3.2.1 Work Breakdown Structure

Our Work Breakdown Structure (WBS) serves as the blueprint for organizing and visualizing project work activities. It breaks down tasks, helping with effective project management by revealing relationships, potential risks, and dependencies. Each task is meticulously detailed, specifying resources, duration, deliverables, acceptance criteria, and relationships with other tasks. This detailed breakdown ensures clarity in resource allocation, project timelines, and

expected outcomes. Stakeholders can refer to the WBS, found here, for a visual representation, facilitating effective communication and alignment among project contributors.

3.2.2 Schedule Allocation

In this section, we clarify the scheduling relationships among the project activities, outlining the time sequencing constraints and opportunities for concurrent work activities. This is crucial for ensuring a streamlined and efficient project execution.

To assess project scope and quality, we've identified key milestones serving as checkpoints. These milestones, outlined in the network diagram available here, allow for progress evaluation and aligning outcomes with expectations.

The critical path in the schedule has been identified through a comprehensive analysis. It represents the sequence of activities that must be completed on time for the project to meet its deadlines. Find this path in the provided PERT chart for a clear understanding of key activities driving the project timeline.

The Gantt chart, available here, serves as a visual timeline. It succinctly maps out project activities against time. This user-friendly tool enhances our ability to track progress, anticipate potential challenges, and maintain overall project schedule coherence.

3.2.3 Resource Allocation

Project-Wide Resources:

Software Tools:
- Zoom Business Subscription

1.1 Billing:

Personnel:
- 4 Junior Software Developers
- 1 Project Manager

Computing Resources:
- Server infrastructure for sending bills
- Database servers for payment records
- Network resources for communication

Software Tools:
- Payment processing software (Stripe)
- Notification system (Firebase Cloud Messaging)

1.2 Account Management:

Personnel:
- 4 Junior Software Developers
- 1 Project Manager

1.3 Calling:

> *Personnel:*
> - 4 Junior Software Developers
> - 1 Project Manager
>
> *Computing Resources:*
> - Database servers for call records

1.4 Administration:

> *Personnel:*
> - 4 Junior Software Developers
> - 1 Project Manager

3.2.4 Budget Allocation

Project-Wide Resources:
> *Software Tools:*
> - Zoom Business Subscription: $300

1.1 Billing:

> *Personnel:* $40,000dar
> *Computing Resources:*
> - Server infrastructure for sending bills: $12,000
> - Database servers for payment records: $18,000
> - Network resources for communication: $9,000
>
> *Software Tools:*
> - Payment processing software (Stripe): $0 (no upfront costs)
> - Notification system (Firebase Cloud Messaging): $0 (no upfront costs)

1.2 Account Management:

> *Personnel:* $90,000

1.3 Calling:

> *Personnel:* $200,000
> *Computing Resources:*
> - Database servers for call records: $12,000

1.4 Administration:

> *Personnel:* $20,000

3.2.5 Visualization Techniques

Various visualization techniques have been employed to depict schedule relationships and project timelines. These include:

- Work Breakdown Structure: The WBS identifies key task groups and breaks them down into their components to refer to throughout the project. The WBS can be found at https://miro.com/app/board/uXjVNVt1i9A=/?moveToWidget=3458764568211159505&cot=14.

- Network Diagram: The network diagram provides a visual representation of the project's activities and their relationships. You can view the network diagram at https://miro.com/app/board/uXjVNVt1i9A=/?moveToWidget=3458764568211384724&cot=14.

- Gantt Chart: The Gantt chart illustrates the project schedule by mapping activities against time. You can access the Gantt chart at https://miro.com/app/board/uXjVNVt1i9A=/?moveToWidget=3458764568215678023&cot=14.

- PERT Chart: The PERT chart is a valuable tool for project scheduling that helps in visualizing the relationships between different project tasks. You can find the PERT chart at https://miro.com/app/board/uXjVNVt1i9A=/?moveToWidget=3458764568211423084&cot=14.

These visualization tools offer a comprehensive project schedule overview, enhancing communication and management of timelines and dependencies.

3.3 Project Tracking Plan

3.3.1 Requirements Control

We will measure our success based on how many tasks (user stories) are completed every sprint. Every sprint will last 2-4 weeks and will depend on timing and planning done ahead of time. At the end of every sprint, the team will meet and discuss the progress so far. This will include who worked on what tasks, which tasks were not completed and need to be pushed to the next sprint, and which tasks are fully complete.

Any minor changes to requirements can be approved by the manager. This includes small things like coding conventions, or file structure. For any larger changes, the team must go through a change of requirements process. For example, adding any new features or removing any old features would require approval. This ensures that the team is sticking to the original plan and is not deviating without a review. This insures there is justification and buy in from everybody involved before any major changes take place.

For requirements management we will be using a variety of techniques to both plan and make sure we are staying on track. We will be using prototyping and modeling techniques to ensure

we have a good vision for our project that is reasonable and realistic. By creating an initial model of our product, we will better be able to understand the tasks/user stories involved and will be able to create better estimates.

We will also be using impact analysis and reviews to ensure that the project is progressing properly once it is started. We plan to conduct impact analysis every 2 weeks to ensure that we are taking everything into account when continuing the development of our system. We also plan to conduct individual reviews every month to ensure that everybody is on track, as well as reviews on the whole project, using traceability methods to ensure everything is going as planned.

3.3.2 Schedule Control

We will meet every 2-4 weeks and reevaluate the project schedule during those meetings. We will keep track of what tasks have been completed, and what tasks need to be completed in the future. We will also keep a project velocity chart updated throughout the project. This will allow us to be able to create bester estimates throughout the project and measure how much time every task will take.

We will use the number of completed tasks to measure the scope of our work throughout the project. To go with this, we will also be occasionally meeting with stakeholders to ensure that the project is up to the quality that they are expecting. This way we can insure we are completing their project with an appropriate quality, and not just measuring success by the number of tasks completed.

If the project is falling behind its original planned schedule, we will do our best to implement corrective measures to get back on track. This may include doing things such as hiring an addition team member, reevaluating our schedule to make it more realistic, or performing a formal review to see why things are falling behind.

3.3.3 Communication plan

Our communications will be done though meetings at the end of every sprint, and through a group Slack channel. Any minor questions or concerts can be voiced in the Slack channel, where anybody can ready and respond to messages.

We will be meeting every 2-4 weeks and discussing any major parts of the project. Meetings can be arranged outside of this schedule if something urgent comes up that needs to be addressed, by emailing the project manager. Major decisions will be discussed by the group, but the project manager will have the final say in group decisions.

3.3.4 Project Closeout Plan

Before closing our project, we will go through a few procedures to make sure that everything is wrapped up. Firstly, we will ensure that all tasks/user stories are completed. We do not want to close the project without having all the features we set out to complete. Next, we will meet with

our stakeholders. They will let us know if we have successfully completed the project and are able to close it. Once we get stakeholder approval, we will complete any outstanding documentation. This will ensure that if the project does every need to be reopened, the new developers will be able to understand our code. Once this documentation is complete, we will be able to archive our project materials for storage.

After the project is properly finished and stored, we will commence a staff reassignment plan. This will allow the staff from our project to work on new projects. We will host postmortem debriefs with the staff and analyse our project. After this is complete, the project manager will produce a final report, with the lessons learned, and overall analysis of our project.

4 Technical Process Plans

4.1 Process Model

The Online Caller project will follow an incremental and iterative process for its development. The development process will constitute of multiple phases wherein specific functionalities of the system will be delivered at the end of each phase. This phased approach offers flexibility in the project deliverables, providing opportunities for the team to reassess efforts, and allowing both the development team and the client to modify the content of each phase as needed. Embracing this agile development approach, the team will be able to continually adapt to changes, ensuring a responsive and dynamic process.

Phase	Estimated Completion Date	Goals
Project Startup	09/29/2023 - 10/29/2023	- Strategy planning - Learn about the existing technologies
Phase 1	10/29/2023 - 12/29/2023	- Authentication and authorization. - Establish unique user profiles - Segregation of user access levels
Phase 2	12/29/2023 - 03/05/2024	- Ensure high-quality transmission during calls - Integrate call notifications

		- Provide accept/decline ability - Contact list integration - Call initiation feature
Phase 3	03/05/2024 - 08/05/2024	- Call logging system - Billing system - Data privacy and security
Phase 4	08/05/2024 - 11/05/2024	- Payment system integration - Security measures
Phase 5	11/05/2024 - 01/05/2025	- Administrator access control
Phase 6	01/05/2025 - 03/05/2025	- Cross platform compatibility

4.2 Methods, Tools, and Techniques

The Online Caller team is also considering using an object-oriented methodology further encouraging the use of software design patterns to enhance the efficiency and maintainability of the system.

Git will serve as our version control system. Our development pipeline will implement Continuous Integration / Continuous Development (CI/CD) in our development process to ensure a streamlined and automated workflow. Using GitHub actions and Jenkins, we will be able to automate building, testing, and deployment.

To ensure proper functionality of Online Caller under various conditions, we will employ the use of artillery for load testing.

To maintain consistency and comply with industry best practices, the Online Caller team will adhere to an enforced coding standard, and testing procedures.

The combination of object-oriented methodology, software design patterns, CI/CD and Test-Driven Development ensures that the Online Caller development process is efficient and maintainable.

4.3 Infrastructure

We aim to provide all the possible tools a developer will need in their development environment, including hardware, operating systems, network, and software. To start off, we will provide computers powerful enough for the development capabilities needed. Also, we will Ensure that the operating system we choose works well for developing the system. We will also provide a strong internet connection so that the developers do not face any distractions. The developers will all be given an individual workstation to work with, along with their own desktop computer with all necessary software installed.

We will also implement set standards across the board to make sure all processes are clean and consistent. We will use Google's style standards to ensure that all our coding is consistent between team members, as well as emphasizing the important of documentation so that any new team members will be able to understand old work as easily as possible. We will use Git versioning control to distribute our project and work on it as a team, while also being able to work interpedently.

Lastly, we will provide software needed for development and testing of the software. This includes a code editor, a security scanner for the code, load testing software for the project, and we have also budgeted for any additional software that can prove its usefulness. Because of the nature of our project, being flexible with software's we use will allow us to fit to both develop and test our program is crucial. By budgeting extra for any software's that are needed, we will be able to pivot easily without getting trapped on set software's.

4.4 Product Acceptance

The customer acceptance plan is designed to ensure alignment with the client's expectations at each project milestone. A formal acceptance document will be signed by the client representative after the completion of each phase.

The objective for determining acceptability include the following:

- Functional requirements: The deliverable must accomplish the specific functional requirements outlined for that milestone. The client will assess the implemented features and confirm that the intended objectives are meet.

- Non-functional requirements: The user interface and overall user experience must align with the expectations. The acceptability will be determined based on user feedback and user satisfaction. Furthermore, performance benchmarks will be established, and the deliverables must meet or exceed those metrics.

At the end of each phase, the client will be given access to the product and an acceptance test will be conducted. Consequently, a formal agreement outlining the acceptance criteria will be established through a documented agreement signed by both the client and the ICT organization.

5 Supporting Process Plans

5.1 Documentation

There are several documents that will be produced during the lifetime of the project. All documents are responsibility of the project team members. The list of documents that will be created and maintained under version control include:

- Requirement Specification: This document defines the functionality required by the client. The lead developer is responsible for preparing this document and the project manager is responsible for its review. This document will be prepared before the commencement of the development of the project, and it will follow IEEE standards.

- Design Specifications: This document defines the structure of the system. It is documented in accordance with IEEE standards, and it will be prepared and reviewed by the development team.

- Test Scripts and test results: This document records executed test scripts and their results. It is prepared by the development team and reviewed by the project manager. The test scripts are updated at the start of each phase and the test results are updated at the end of each phase.

- Risk analysis reports: This document contains risk handling issues. It is prepared by the project manager and reviewed by the stakeholders. The initial version of this document will be completed before the commencement of development, and it will be updated at the end of each phase.

- Change log: This document contains all requested changes. It is prepared and managed by the project manager.

- Reviews: This document contains the review document of all project phases. It is prepared by the development team and reviewed by the project manager. This document is updated at the end of each development phase.

5.2 Quality Assurance

The Quality Assurance Plan for Online Caller is designed to ensure that the project's objectives are met with the highest precision. This plan integrates key components, establishing a strong Quality Assurance framework that aligns seamlessly with verification and validation processes, aiming to guarantee that deliverables meet the specified requirements.

This process involves the use of modern software inspection and reviews to ensure that bugs are found and cultivate an environment that promotes knowledge sharing and collaboration. Also, regular reviews and audits will be conducted to assess the effectiveness and efficiency of the project. This process will involve the examination of project documents, code, and deliverables to identify issues or areas of improvement. Furthermore, periodic assessments

will be conducted to evaluate the overall quality assurance efforts. This includes analyzing the Quality Assurance procedure and their impact on the quality of the project.

To ensure changes made to the project do not introduce bugs we will employ the use of regression testing. This will ensure that the application continues to function as intended after modifications are made. Recognizing the importance of performance and security, this project will include dedicated performance testing and security testing. Performance testing will evaluate the system's responsiveness under different conditions, ensuring it meets performance expectations. Simultaneously, security testing will scrutinize the system for vulnerabilities, aiming to fortify the application against potential threats and breaches.

User-centric design and usability tests will also be conducted. These tests will focus on evaluating the application's user interface, user experience, and overall usability. This ensures that the Online Caller project not only meets technical requirements but is also intuitive and user-friendly. In addition, we will perform a dedicated Customer Acceptance Test at the end of each development phase. This test will ensure that the project aligns with the expectations and requirements of the client and shareholders, fostering a collaborative approach between the development team and the client.

The Quality Assurance Plan for the Online Caller project will be updated as needed to adapt to the evolving nature of the project, ensuring that quality remains a central focus throughout the project's execution.

6 Additional Plans

A series of additional planning documents are to be created to ensure the OnlineCaller project satisfies product and contractual requirements.

User training is crucial for the success of this project. If users do not understand how to operate the software, they will become frustrated and less likely to use it. As a result, the team will create a specific User Documentation deliverable, as noted in section 1.3. This documentation will be hosted online and will be linked to from the software itself to ensure that users can easily find up-to-date material regarding the regular operation of the software. This documentation will cover all functions of the system, including the software installation.

The online caller system requires a few specific hardware components that may not be present on all devices. Specifically, these components are a microphone and a speaker. To ensure that users are not confused about whether their hardware is sufficient to use OnlineCaller, the system will provide the capability to determine whether compatible hardware is connected to the device.

User privacy and security are serious concerns due to the amount of user data that must be collected for the OnlineCaller system. These are serious risks. As a result, these risks will be

documented, and specific action plans will be described in the Risk Management Blueprint, as defined in section 1.3.

Ensuring the customer requirements have been achieved is a high priority for OnlineCaller, as are product quality and performance. As a result, a formal Testing and Validation Strategy will be created, as described in section 1.3. This testing plan will outline all the testing and validation that will be implemented alongside the development of the system, including unit, integration, regression, performance, and acceptance testing. These test types will ensure that the product quality and performance are up to a measurable standard, and the acceptance tests will certify that all functional requirements have been satisfied.

This system is intended to be used as a ground-up solution to online calling, and as a result, does not feature specific system transition plans to help users migrate from another platform. This choice was made to unify the transition experience across users, allowing for the team to focus on developing one seamless transition process, as opposed to many individual processes from a variety of different origin systems. As a result, the OnlineCaller system will also not require any data conversion plans, since all data will be proprietary.