

IOWA STATE UNIVERSITY

EE/CPRE/SE 492 Spring 2021, Team sdmay21-02

# Application for Sharing Interesting Zoo & Aquarium Videos to Social Media

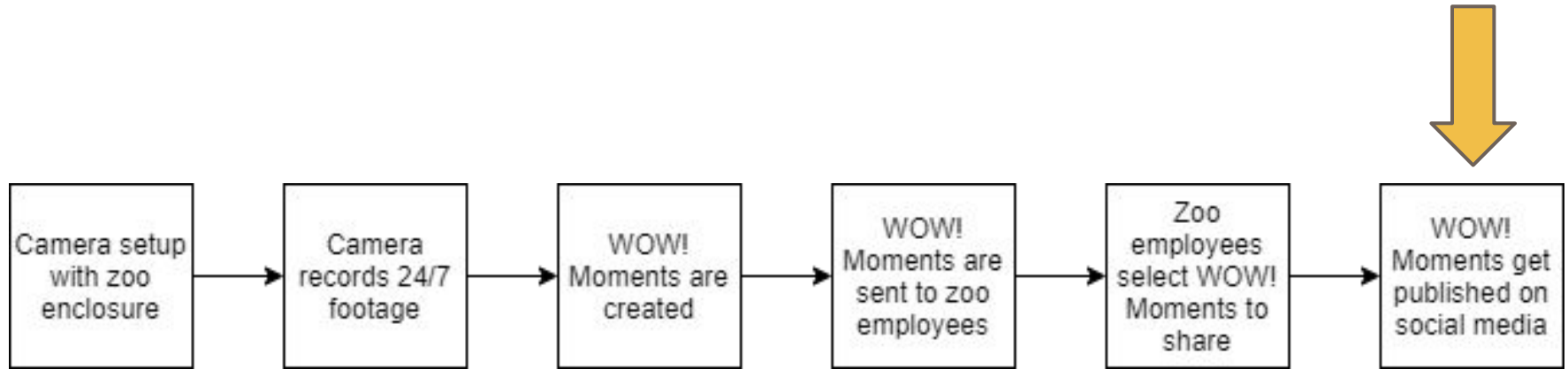
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# Introduction

- True360 WOW! Moment Publisher
- 360 Video Uploads to Social Media Platforms



# WOW! Moment Example



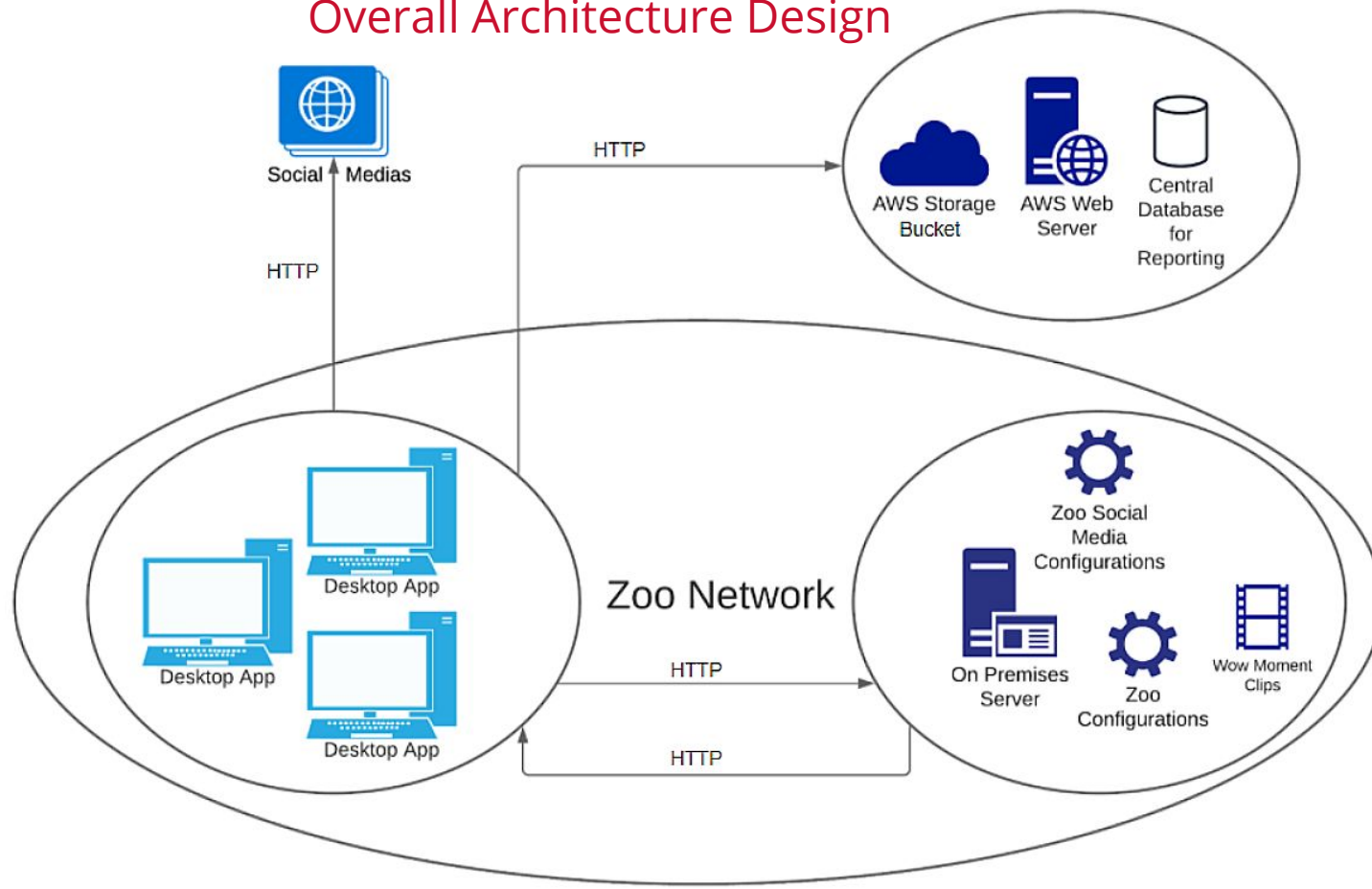
# Functional Requirements

- Cross-platform application that allows for publishing of videos to selected social media platforms (Youtube, Facebook, Vimeo)
- Centralized web server and database that contains publication analytics
- The app must contain the following features:
  - Allow users to login and save credentials
  - Authenticate user information for each platform
  - Format videos based on platform
  - Request video editing from True360
  - Display Video analytics data
  - Publish 360 degree videos and description data to social media platforms

# Non-Functional Requirements

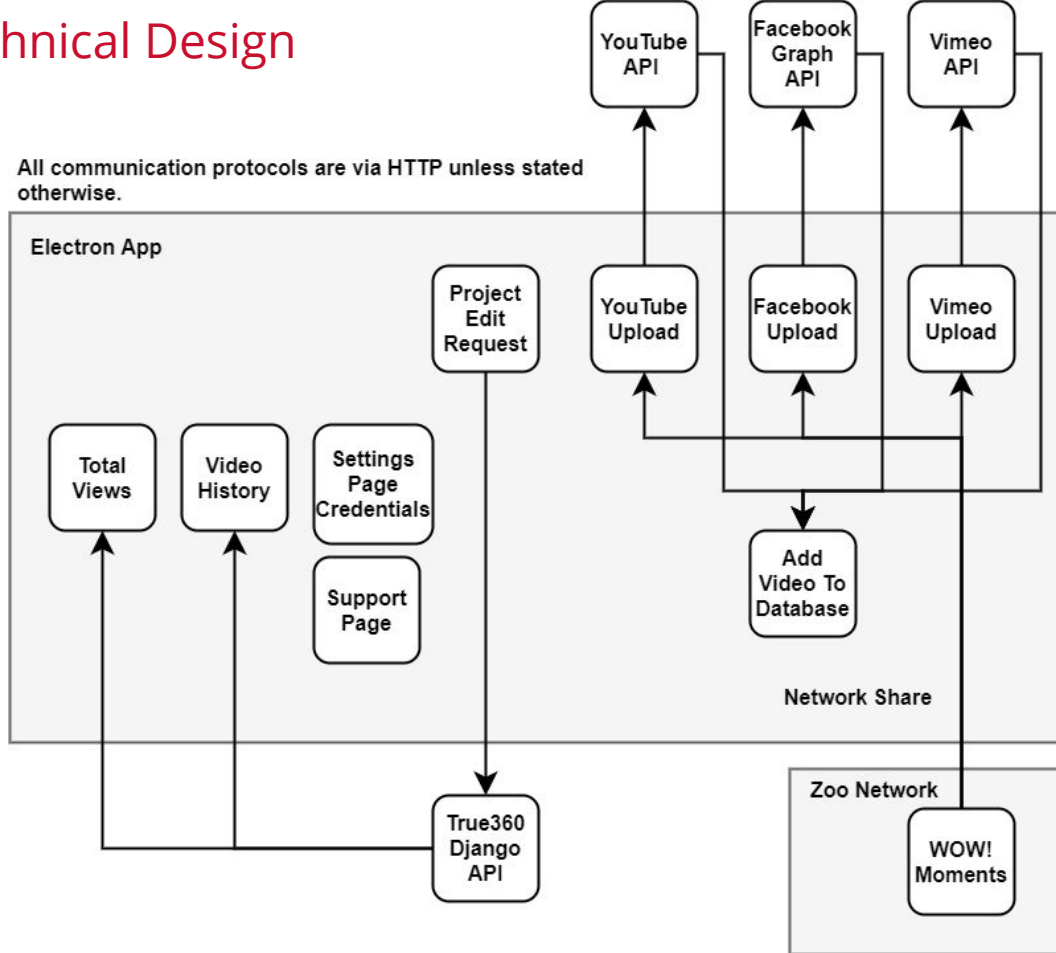
- The product shall appear easy and simple to use
- The product shall perform swiftly for the user
- The product shall be usable by users with limited computer experience
- The product shall comply with each social media platform terms of service
- The product shall be built to last

# Overall Architecture Design

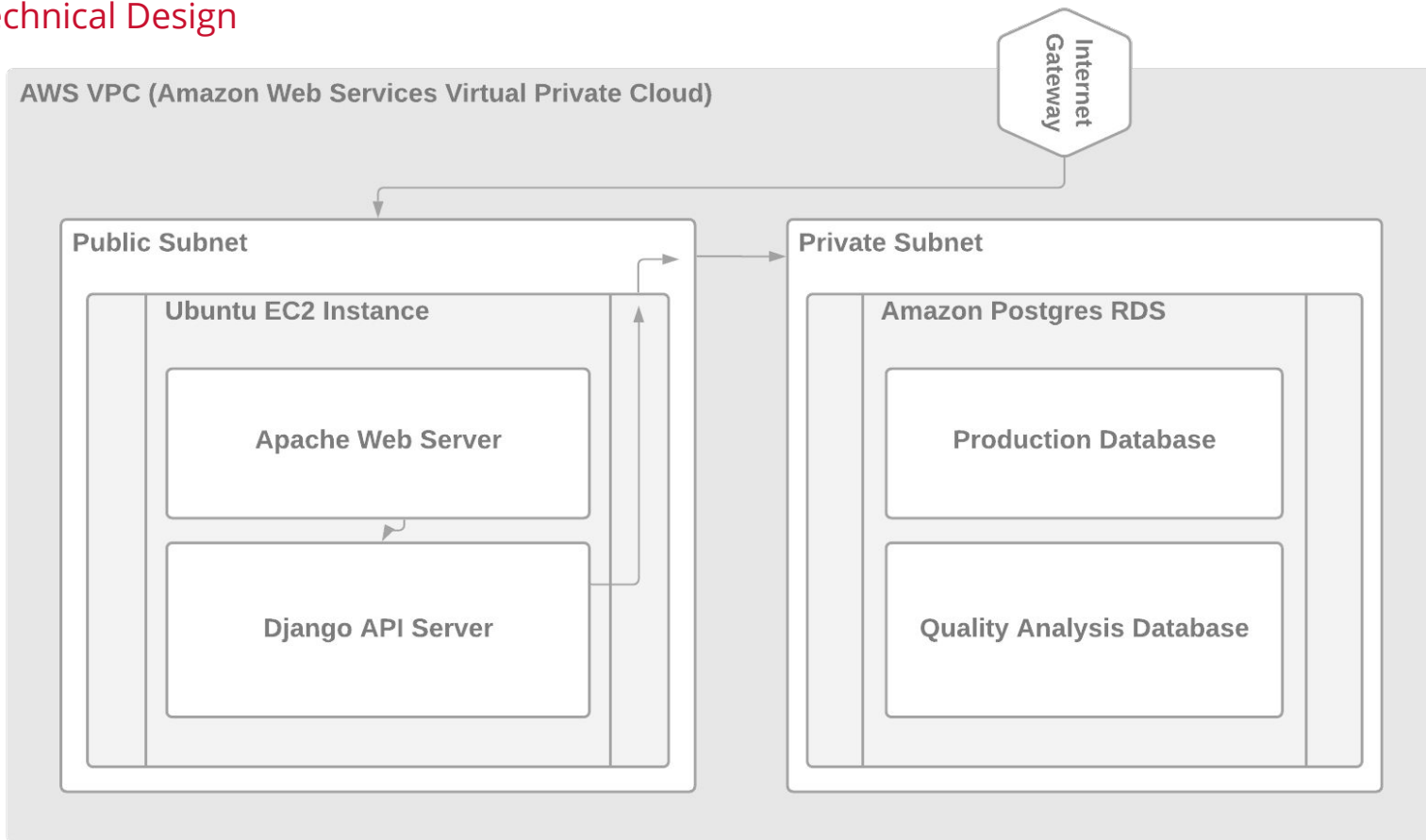


# Electron App Technical Design

All communication protocols are via HTTP unless stated otherwise.



# Django API Technical Design





# Design Considerations

- Electron for Cross-Platform Compatibility
  - Access to Node.js ecosystem
  - Similar to Web Development
- React
  - Strong Component System
  - Specific Documentation for React+Electron
- Unique API Keys for Each Institution
  - Don't want Institutions hitting quotas for other institutions
- Django
  - Follows True360 company programming & design standards.

# The Development Process

# Engineering Constraints

- Must be developed within one semester
- Time-gated by API providers (e.g. YouTube, Vimeo, Facebook)
- Must use Electron and Python (Django)
- No budget, so no premium API features
- API Quotas (Speed vs Scalability)

# Engineering Standards

- IEEE/ISO/IEC 24748-5-2017 - ISO/IEC/IEEE International Standard - Systems and Software Engineering--Life Cycle Management--Part 5: Software Development Planning
- IEEE/ISO/IEC 23026-2015 - ISO/IEC/IEEE International Standard - Systems and software engineering - Engineering and management of websites for systems, software, and services information
- IEEE 1016-2009 - IEEE Standard for Information Technology--Systems Design--Software Design Descriptions

# Amazon Web Services Best Practices

- Resources live within a Virtual Private Cloud
- The Virtual Private Cloud has one Internet Gateway
- Virtual Private Cloud has public and private subnets
- The RDS Postgres Database lives in the private subnet
- Only the VM on the public subnet has access to the RDS
- There is one security group that regulates access to VPC

# Technical Challenges

- Meeting UI design specifications
- Learning the Django framework
- Learning how to use Electron
- Front End Framework (React)
- Using various APIs

# Software Development Model

- Agile Development Model
  - Fast Feedback with Client (Weekly Sprint Meetings)
- Constant Prioritizing of Features
- Iterative Planning







# Conclusion

# Client Feedback

- Very cool to see the development
- Very well polished
- Enjoyable time working with the team
- Predicted scope of project development time

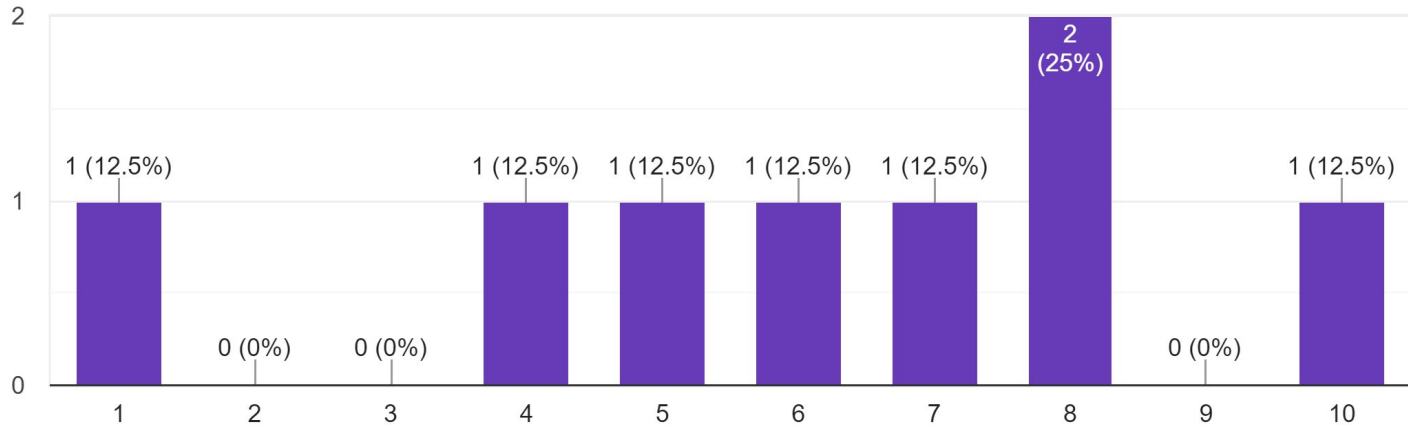
# User Testing

- 8 Participants
- Goals
  - Determine Usability
  - Identify Pain Points
  - Improvement Feedback

# User Testing Graphs

How confident did you feel completing the tasks?

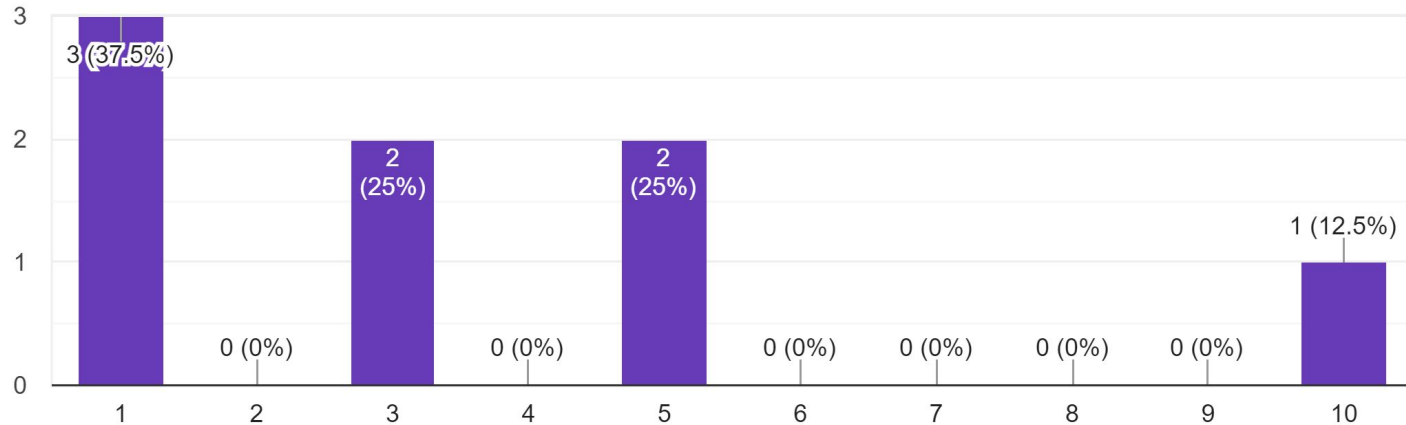
8 responses



# User Testing Graphs

How frustrated did you feel completing the tasks?

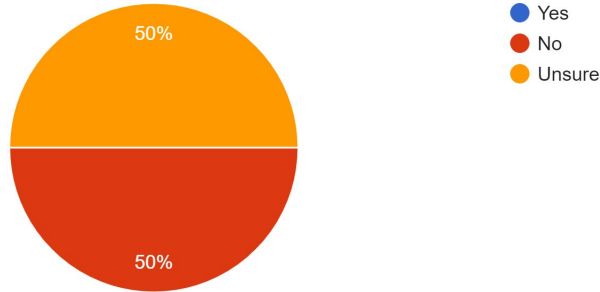
8 responses



# Pre-Survey

Do you think you would use a social media publisher in the future?

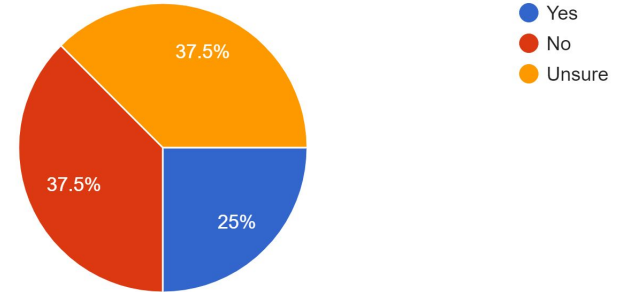
8 responses



# Post-Survey

Do you think you would use a social media publisher in the future?

8 responses



# Overall Lessons Learned

- Time estimations are hard
- Working with 3rd parties is hard(Account Approval for Facebook, YouTube, Vimeo)
- Electron and React were more challenging to develop with than anticipated
- Custom UIs are a lot harder to polish



# Future Development Plans

- Additional User Testing
  - More User Testing (Institution Employees)
- Django API
  - Implement Support for HTTPS Protocol on Endpoints
- Maintenance & Upkeep
  - We have a team member working for True360

# Questions?