Hyper-linked Communications: WebRTC enabled asynchronous collaboration

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Overview I

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Overview II

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Introduction

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Context

Written communication could never replace face to face communication.

> "No computer in our lifetimes will ever rival a human voice's capacity to conveying rich and complex social and emotional meaning"
>
> — Geddes, Martin

Today, we can achieve more.

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Problem Statement

Real-time communication applications can make a difference on business, education and health sectors.

An application that provides a way to remember our past communications would be a strong tool.

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Thesis Goals

Development of an application that applies the hypermedia concepts.

Use only standard technologies like JavaScript, WebRTC, HTML5 and CSS3.

Test the application with real users, unitary tests and benchmarks

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Related Work

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Early days of the Internet and its remaining flaws

- IPv4 Address Exhaustion
- Network Address Translation
- Client-Server model
- STUN + TURN = ICE

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Real-Time communications

Real-Time communications

WebRTC (Web Real-Time Communications)

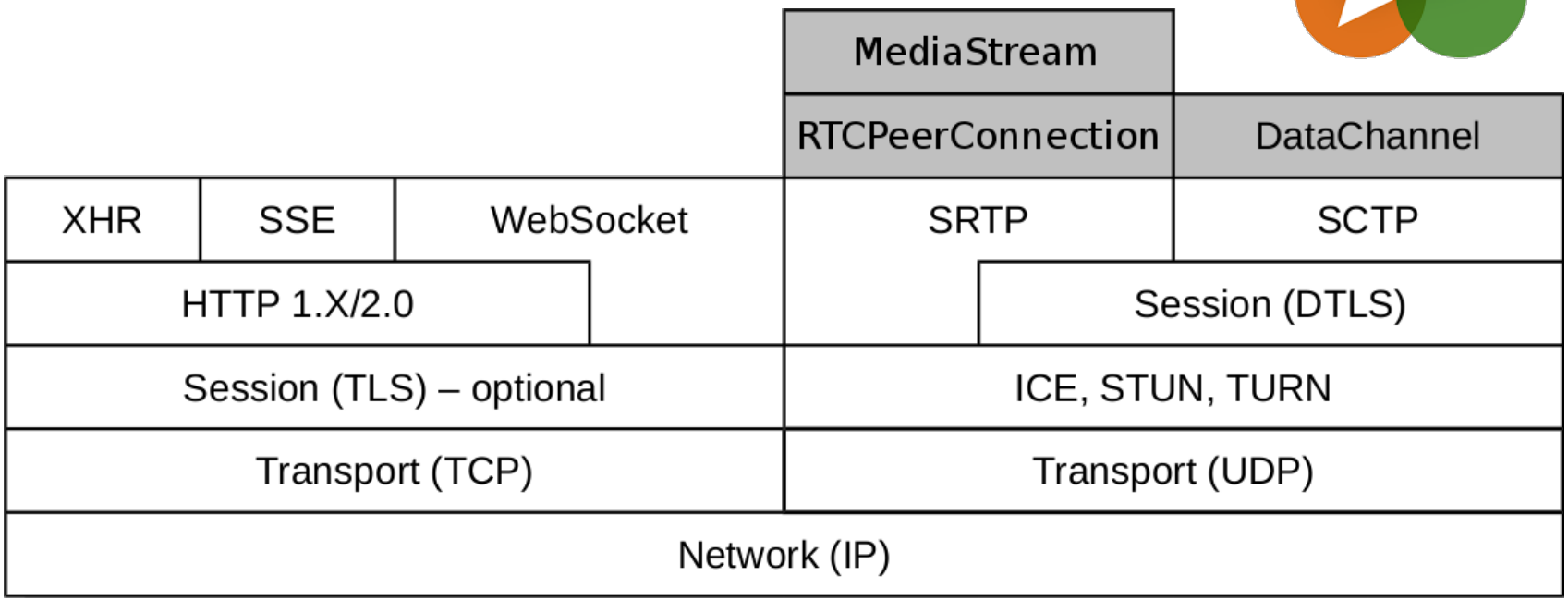

Figure: WebRTC protocol Stack

Signaling: meet and get to know

- Own Implementation
- SIP
- XMPP
- SigOFly

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Hypermedia: more than words, more than images

- **Concepts:** HyperText & HyperMedia & HyperCommunications
- **Implementations:** HyperCafe & HyperHitchcock
- **Languages:** HyVAL & SMIL
- **WebBrowser:** Ambulant & SmillingWeb & SVG

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Web-Browser plug-ins

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Extending collaboration tools with time manipulation

- Streaming and Recording
- Media Types
- Recording and Streaming Interactive Media
- Collaborative Environment

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Related Work

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Modules

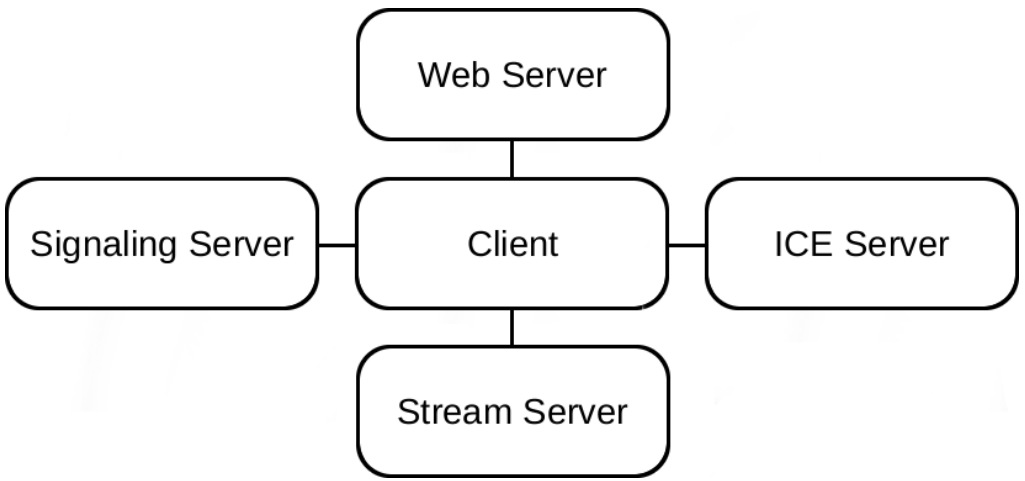


Figure: System Modules

Implementation Proposal

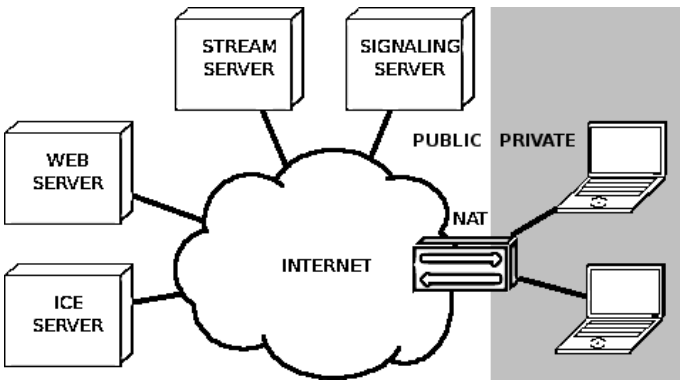


Figure: System Infrastructure

- **ICE Server**: restund
- **Signaling Server**: Prosody
- **Web Server**: Play Framework
- **Stream Server**: Jitsi VideoBridge

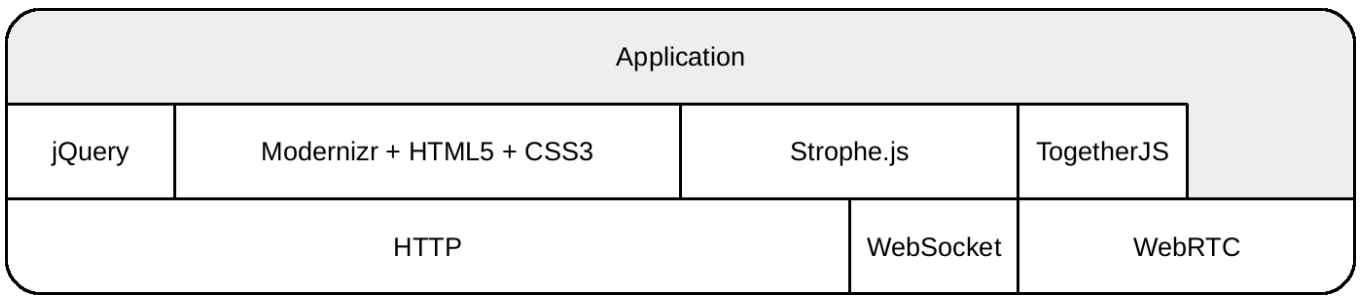


Figure: App Architecture

Wireframe

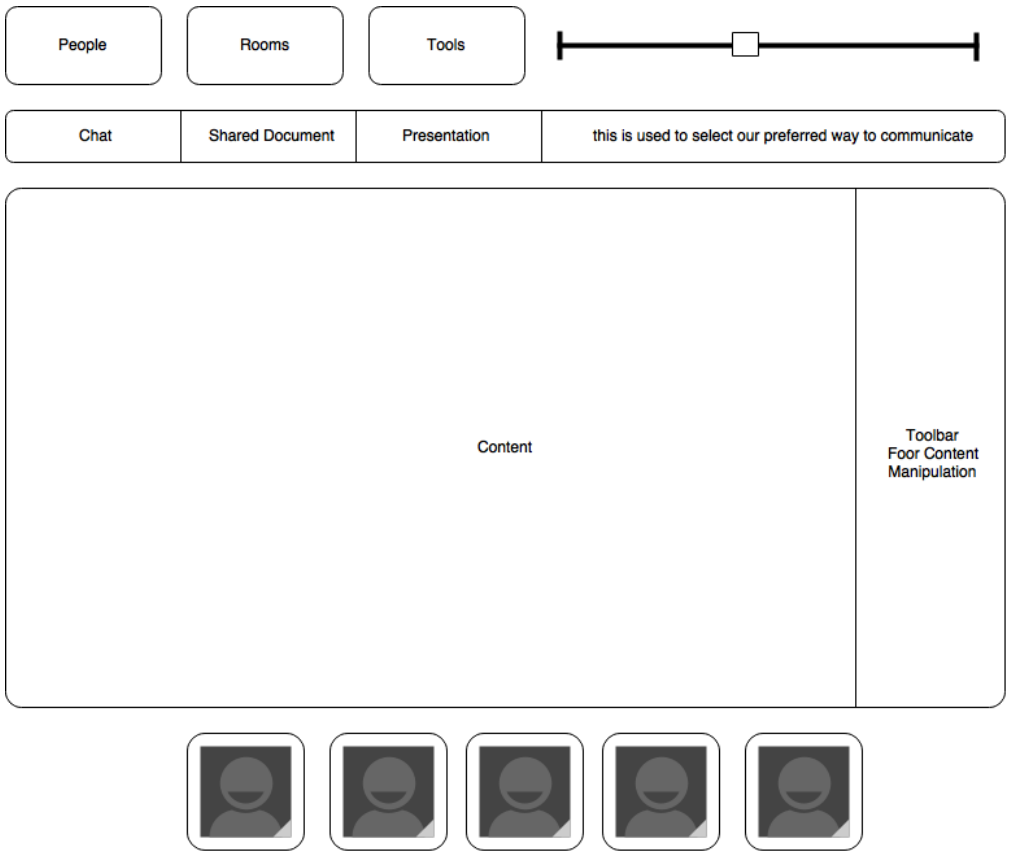


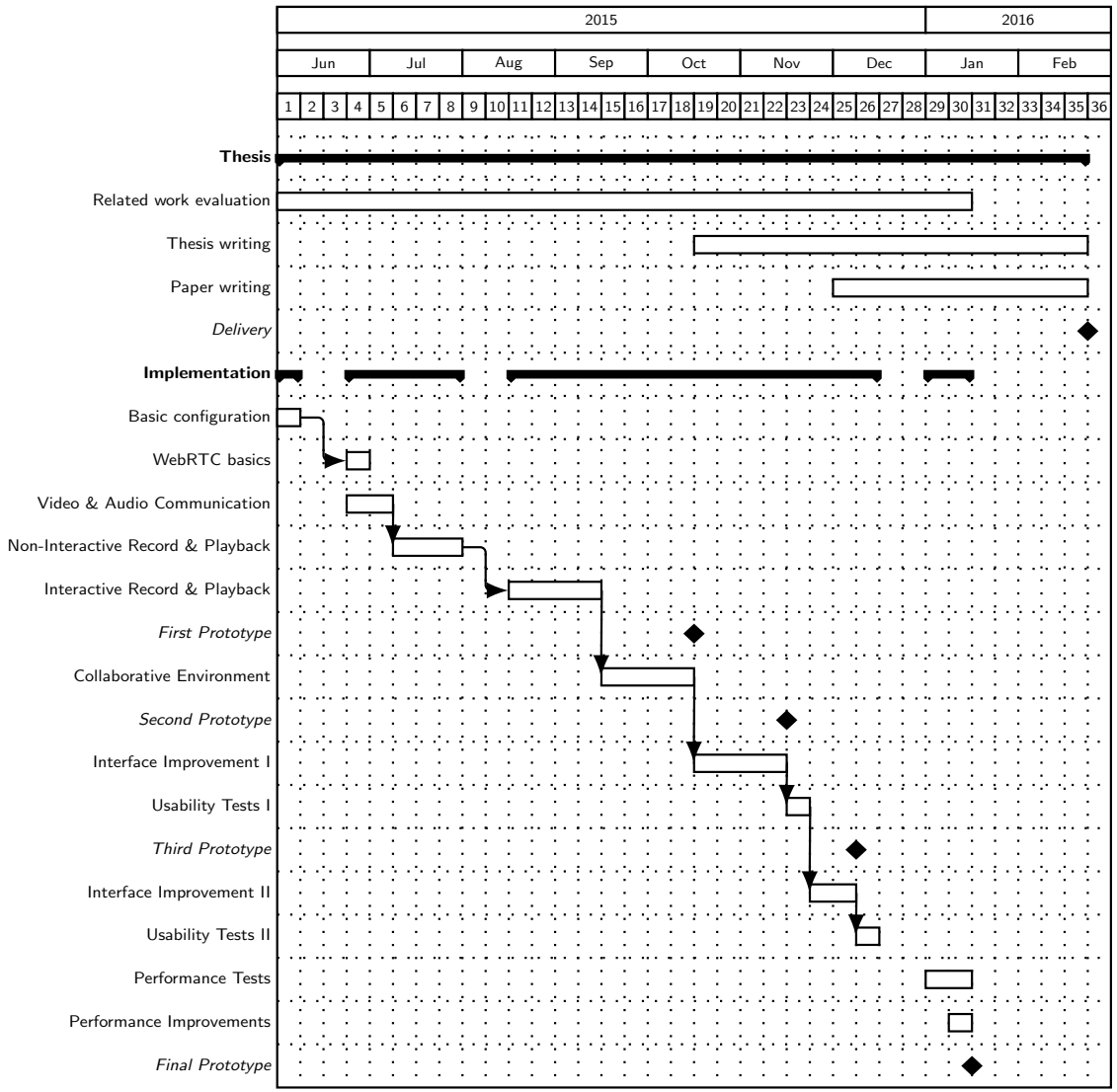
Figure: Application wireframe

Methodology

Qualitative and quantitative evaluation.

- Unit tests.
- Tests with users.
- Benchmarks.

Planned Schedule



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Conclusions

WebRTC is enabling new usage scenarios for communication and collaboration applications.

Theses communications will be enriched using hypermedia concepts.

A prototype will be implemented in order to validate these concepts.

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Questions?

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