

MASARYK UNIVERSITY  
FACULTY OF INFORMATICS



# **Realtime Communication between Web Browsers**

MASTER THESIS

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## **Declaration**

Hereby I declare, that this paper is my original authorial work, which I have worked out by my own. All sources, references and literature used or excerpted during elaboration of this work are properly cited and listed in complete reference to the due source.

**Advisor:** doc. RNDr. Tomáš Pitner, Ph.D.

## Acknowledgement

Thanks to everyone... TODO

## **Abstract**

TODO

## Keywords

XMPP, real-time communication, TODO

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## **Chapter 1**

### **Introduction**

Thesis introduction, motivation.

The thesis should embrace the topics of text chat in web browsers, interprocess communication and the possibilities of multimedia content transfer (audio/video) - including the current options of capturing multimedia directly from the web browser.

Describe the need for browser chat application in Celebrio, also the business cases.

## **Chapter 2**

### **XMPP**

At first, this chapter should describe the important parts of XMPP protocol (mostly just picking the appropriate references).

Later on, description of BOSH extension, including the advantages and limitations. Describe also the connection to HTTP protocol.

Jingle extension - multimedia. Does this deserve complete chapter???

Pub-sub extensions for inter-process communication.



## **Chapter 3**

### **Other approaches to RTC**

Describe other approaches to RTC in WB than XMPP. Tell why we didn't use them (or that we used - OpenTok).

Mention:

WebSockets

OpenTok

WebRTC (<http://www.webrtc.org/>)

Google hangouts API

## **Chapter 4**

### **XMPP client in Javascript**

Describe the tools that can be used to implement RTC in WB (and which were used to implement Celebrio Talker)

- Strophe (simple XMPP in Javascript)

- Strophe plugins

- Possible server-side implementations (JAXL, XMPPHP, ...)

## **Chapter 5**

### **Talker**

Describe the Talker application in Celebrio.

Mention what we expected from the app (value proposition)

Then, application analysis, design and implementation.

Describe the architecture and used tools&frameworks: JS + Ember.js, OpenTok, WebSockets in new OpenTok

## **Chapter 6**

### **Inter-process Communication Framework**

Implement and describe framework for inter-process communication in Celebrio.

First, the lightweight one (which we already have), then implement the "heavy" one, if there's enough time.

## **Chapter 7**

### **Conclusion**

conclusion

#### **7.1 Another part of the conclusion**

Another part of the conclusion... just to have subchapter here

## Bibliography

- [1] Saint-Andre, P. and Smith, K. and Tronçon, R.: *XMPP: The Definitive Guide*, Sebastopol: O'Reilly, 2009, 978-0-596-52126-4, 320.

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## **Appendix A**

### **Screenshots of the application**

Some screenshots from Celebrio Talker