**Final presentation – WebRTC**

**Opening**

„Will WebRTC change the world of communications?“ asked Jason Unrein of the large American telecommunication company AT&T a couple of years ago. But before I go into more detail, what is WebRTC?

WebRTC stands for Web Real-Time Communication. It enables you to communicate with others via voice calling, video chat or even file sharing.

Now, you might be asking yourself: „That sounds great, but I already have Skype for that. Why would I need anything else?“ Well, then you’re absolutely right, because Skype and many other applications already do excactly that.

But as you will see, WebRTC offers a few really amazing unique features.

**WebRTC call setup**

Let’s take a look at what happens when you communicate with someone over a traditional chat application. We have two people, and one person calls the other. When they are connected together, all data traffic goes over a server on the internet.

And this is where WebRTC really stands out. With WebRTC, you only need a web server to set a connection up. Afterwards, all data goes directly from one user to another, without a server involved. This is called peer-to-peer.

**WebRTC + / -**

This already brings us to the many advantages of WebRTC: There is significantly less network latency, because peers are connected directly, over the shortest available network path. But what I think the most amazing feature of WebRTC is that it can be used directly in a web browser, without any additional software or plugins. What this means is that with a simple web server and some JavaScript knowledge, all of you could start developing your own video chat application today, without knowing anything about telecommunication technology.

Of course, WebRTC is not perfect, it also has some downsides: It is still in development, which means that some API functions might change in the future. And the probably biggest disadvantage right now is that you cannot use it in every browser. WebRTC works great in Google Chrome and Firefox, pretty ok in Opera, a little bit, surprisingly, in Microsoft Edge but not at all in Safari. Unfortunately, the folks at Apple are currently not interested in WebRTC at all.

**Prototype**

Let’s turn now to what you can really do with WebRTC. I want to show you that it can be used for really helpful applications and that’s why I built a remote support application. For those of you who are not familiar with this concept, I’m going to briefly show how it works.

A common problem in large factories is that machines are eventually going to fail. Remote support applications offer a very convenient and quick method to fix such problems. The factory worker can call an expert directly over, say, his tablet and share his camera feed with him. The expert, who can be located thousands of miles away, can assist the worker as if he were standing right next to him. He can guide him towards the solution by talking to him over a headset and drawing helping indicators on the worker’s screen. This means that the workers do not have to flip through manuals with several hundred pages themselves and there is no need that somebody physically visits the factory to fix the problem.

**Demo time**

But enough with talking, I’m going to show you myself now. What you can see here is the web page of the application I developed. It’s running on a simple node.js server that handles http rquests and WebSocket connections. It offers a really simple user interface. You simply provide your name and then see a list of all available users.

As we can see right now, we have an incoming call. When we answer it, a peer-to-peer connection is set up. We are now connected together. Let’s just imagine for a second that we are trying to solve a problem here. We can switch to support mode, and now the expert can see what we can see. To help us, he can guide us towards the solution by highlighting important parts, where we can possibly fix the solution.

**Closing**

To come back to the question from the beginning, will WebRTC change the world of communications? Personally, I think it will. Probably not immediately, but it offers so many great features that more and more companies will decide to use it in the future. I think it offers fantastic opportunities not only in terms of remote collaboration, but also for many other fields, like the e-commerce industry. Suddenly, companies have the possibility to talk to potential customers face to face directly on their web page in the browser, which was not possible before.

This already brings me to the end of this short presentation. I want to thank you for your attention, if you are interested in this topic, all the source code of this application is publicly available on Github and feel free to talk to me about it anytime you want. Now, of course, and I’m more thaxn happy to answer all your questions. Thank you.