Research Results

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| **Team member** | Yue Li | **Date completed** | 21st March 2015 |
| **Research area** | Flash replacement in JQuery, Bootstrap, HTML 5 Canvas | | |
| **Problem Identification** | In the current UpStage implementation, the ActionScript (AS) code on the client side requires Flashplugin. The AS code provide all the functionalities for UpStage users. The main features include: real time chatting, drawing, moving avatar etc.  The idea is to replace the above functionalities from the current AS work into some other technologies with better compatibility. | | |
| **Suggested solution** | I then found HTML tags for holding the performing elements, Bootstrap for rendering stages, JQuery to handle events from clients, and NodeJS as a substitute for Twisted framework. I prefer NodeJS over Twisted as I can develop the whole software under my scope, and test my work instantly without any hassle in application build process. | | |
| **Development/Prototype** | A prototype with features: concurrent drawing, chat room function with Audience and name-specified players.  Both client and server side code are written in JavaScript. Use NodeJS as the server with with non-blocking I/O feature. (Consider Python Twisted also advocates non-blocking I/O for web applications)  Front-end technologes used:  *HTML, CSS, Bootstrap, JQuery,* and *Embedded JavaScript Template*  Back-end technologies used:  *NodeJS Express, Websocket – Socket.IO,* and *JSON*  Server: *NodeJS* | | |
| **Evaluation** | * The prototype achieves chat features from current Implementation. * The prototype achieves concurrent drawing on the canvas (in dots). * Node.JS platform has many TTS modules; however, most modules are under development and testing phase. * The Bootstrap features enable mobile/small devices support for the future * As a single-paged web application, the prototype struggles on fitting into different types of screens due to the lack of further documentation on application layout. | | |
| **Conclusion** | The HTML 5 stack shows good compatibility for front-end development. In order to develop better products in the future, AUT UpStage Team needs to work further on event-based programming, Cascading Sheets for page layout management, and possibly conduct a related research on defining how to adjust product delivery when the screen size changes on the UpStage user end. | | |