Project Proposal
CompSci 597
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Virtual Whiteboard

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Problem: A team of people is accustomed to meeting in person and using a whiteboard. Now they are often geographically dispersed, but they still want to conduct their meetings in the same way. They're also used to drawing on the whiteboard and don't want to be limited to using text only.

Solution: We propose a Web-based virtual whiteboard that can be shared among multiple users. The basic idea is similar to what is available via Scribblar.com. The Web client will use either SVG or HTML5 Canvas to enable each user to make changes to their respective copies of the whiteboard. The client application will communicate with a central server via an API as well as socket connections for near real-time updates of everyone's whiteboard. We'll need to open some ports in order to facilitate the Web socket connections.

Architecture: Here is our infrastructure plan for this service.

- 1 HAProxy load balancer
- 3 back-end Tomcat servers (Java API)
- 3 NodeJS servers *
- 1 MySQL database server

* Tomcat servers will probably also handle NodeJS.

The JavaScript client application will run on each of our laptops. We'll communicate with our Java API in order to authenticate with the service, list active whiteboards, and add new ones. Once we have established a connection to a whiteboard, synchronization will be handled by our NodeJS servers via Web sockets. Any edit to a whiteboard in the client app will be transmitted to NodeJS and then out to all other clients connected to the same whiteboard.

Development: Here is our step-by-step plan for creating this application along with the team member(s) responsible for each step.

- Dev environment setup using Vagrant and Puppet (Patrick)
- Database design (Milson and Patrick)
- NodeJS server (Calvin)
- JavaScript client app (Justin)
- API design (Milson and Patrick)
- Coding of Java API (Milson and Patrick)
- Demo (all of us)