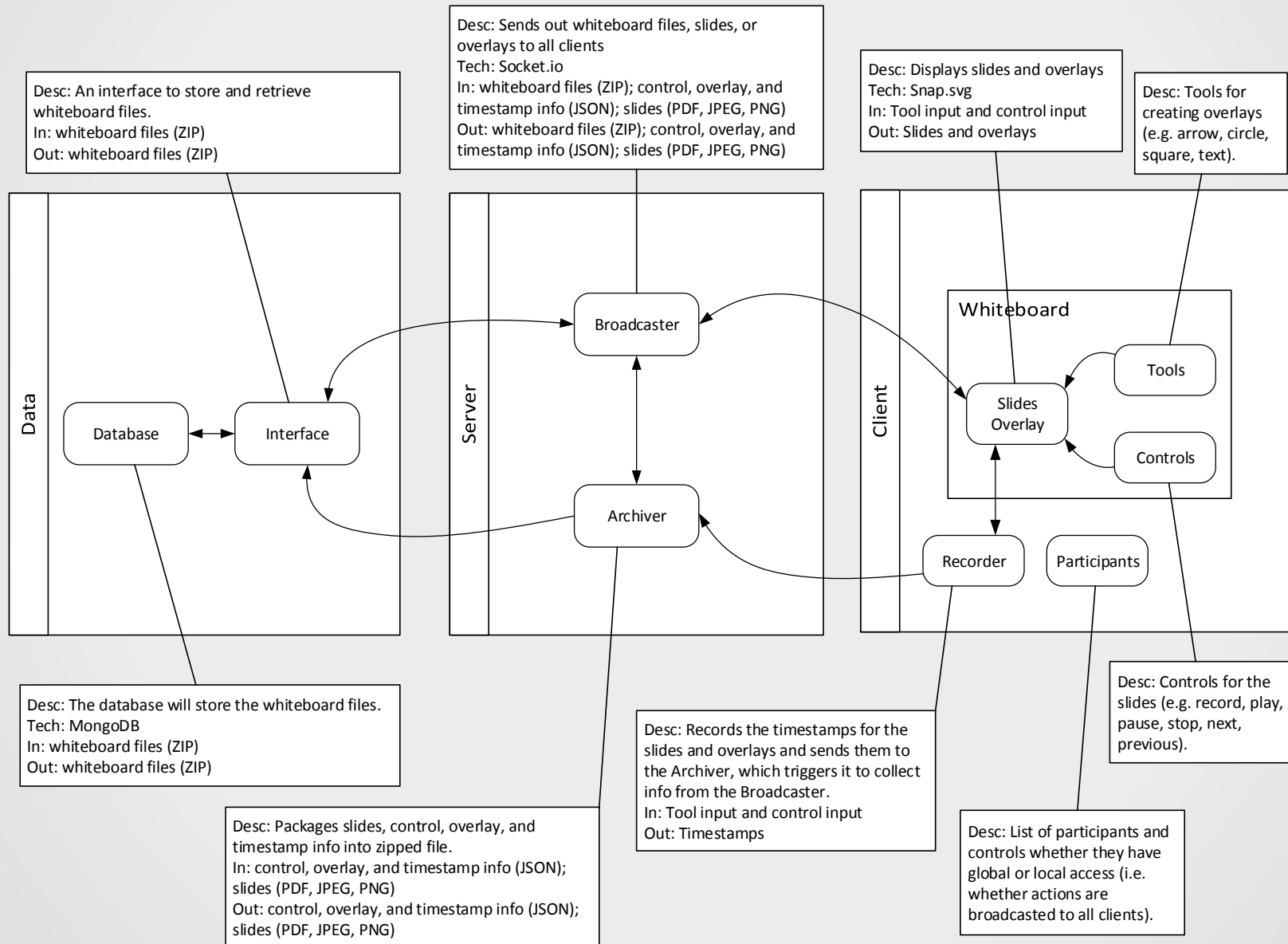# MIST/C Technologies

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Agenda

- Overview of the high-level architecture
- UI/UX enhancements
- User Interface Mockup
- Overview of the Node.js technologies
- Goals for next meeting

High-level Architecture

Desc: An interface to store and retrieve whiteboard files.
In: whiteboard files (ZIP)
Out: whiteboard files (ZIP)

Desc: Sends out whiteboard files, slides, or overlays to all clients
Tech: Socket.io
In: whiteboard files (ZIP); control, overlay, and timestamp info (JSON); slides (PDF, JPEG, PNG)
Out: whiteboard files (ZIP); control, overlay, and timestamp info (JSON); slides (PDF, JPEG, PNG)

Desc: Displays slides and overlays
Tech: Snap.svg
In: Tool input and control input
Out: Slides and overlays

Desc: Tools for creating overlays (e.g. arrow, circle, square, text).

Data

Server

Client

Whiteboard

Broadcaster

Tools

Slides Overlay

Database

Interface

Controls

Archiver

Recorder

Participants

Desc: The database will store the whiteboard files.
Tech: MongoDB
In: whiteboard files (ZIP)
Out: whiteboard files (ZIP)

Desc: Packages slides, control, overlay, and timestamp info into zipped file.
In: control, overlay, and timestamp info (JSON); slides (PDF, JPEG, PNG)
Out: control, overlay, and timestamp info (JSON); slides (PDF, JPEG, PNG)

Desc: Records the timestamps for the slides and overlays and sends them to the Archiver, which triggers it to collect info from the Broadcaster.
In: Tool input and control input
Out: Timestamps

Desc: Controls for the slides (e.g. record, play, pause, stop, next, previous).

Desc: List of participants and controls whether they have global or local access (i.e. whether actions are broadcasted to all clients).

UI/UX Enhancements

- Icon driven
- Context menu driven
- Access Control

Icon Driven

Examples

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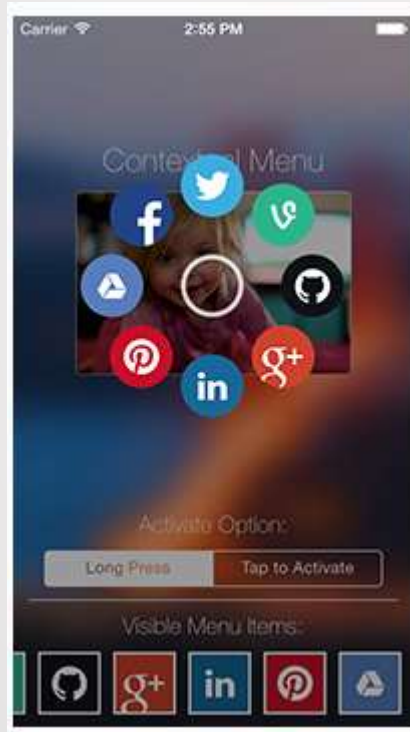⏪ ⏩ 🌐
▶ ⏭ 🔧
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Analysis

- Pro
  - faster navigation
  - compact
  - understandable by non-English speakers
- Con
  - time to learn
  - ambiguous

Context Menu Driven

Context Menu

Behavior

1. Hold down right button for menu
2. Move cursor to option
3. Release right button to select

- cursor changes to reflect choice
- scroll down to change color (5)
- scroll up to change size (3)
- backspace to undo last action

Context Menu Driven Resources

- http://ux.stackexchange.com/questions/1/are-radial-contextual-menus-better-than-vertical-list-menus

- http://raphaeljs.com/pie.html

- http://www.pushing-pixels.org/2012/07/25/the-usability-of-radial-menus.html

- http://stackoverflow.com/questions/1495219/how-can-i-prevent-the-backspace-key-from-navigating-back

- http://stackoverflow.com/questions/4235426/how-can-i-capture-the-right-click-event-in-javascript
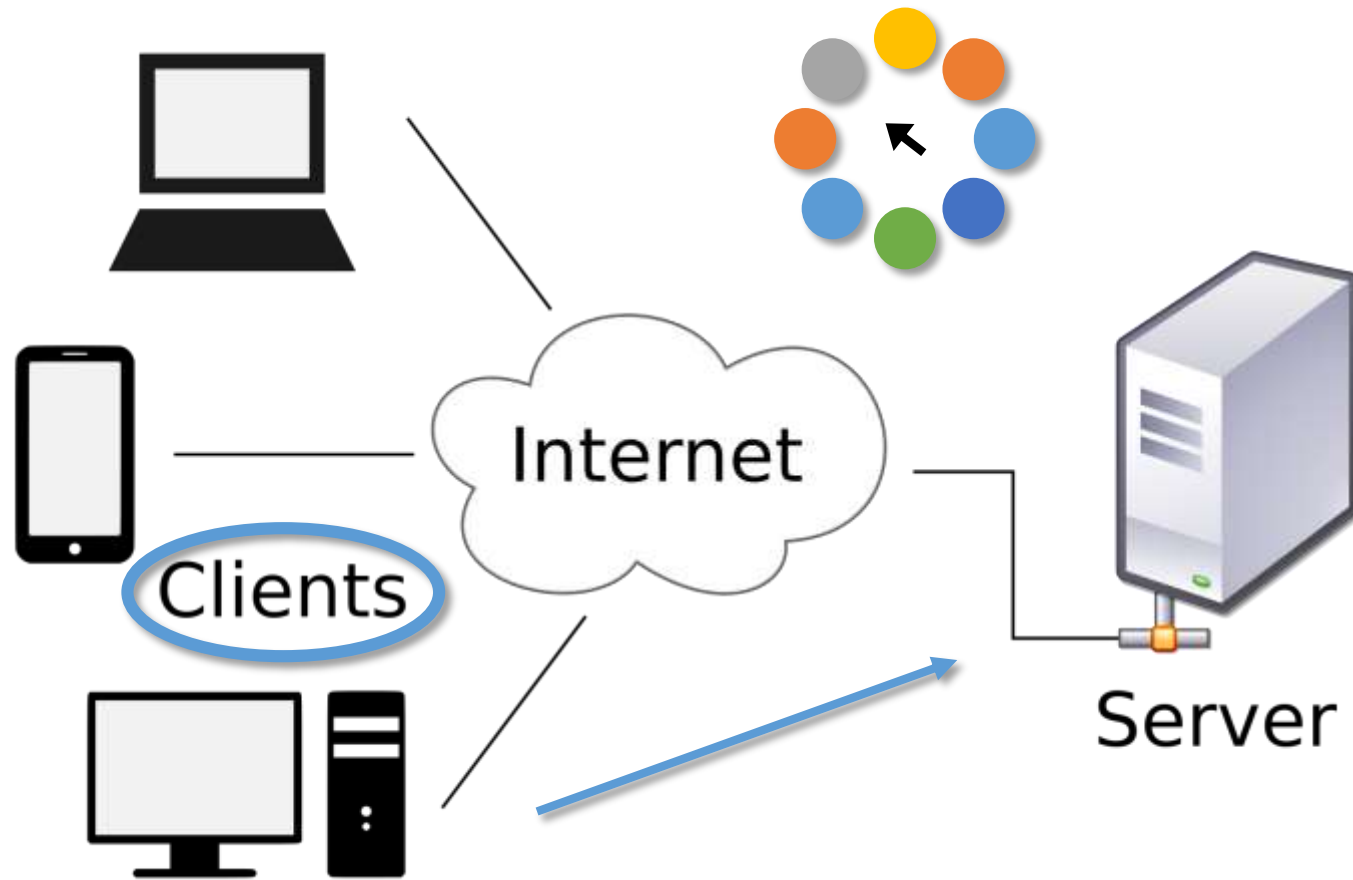
Access Control

Instructor

- Grants global or local control
- Global by default

Global and Local

- Global
  - Overlay and controls do not broadcast
  - Recorded
  - Make local-to-global conversion

- Local
  - Overlay and controls do not broadcast
  - Not Recorded

User Interface Mockup

Overview of the Technologies

Snap.svg—Hybrid SVG/Canvas renderer with built-in advanced interaction

Socket.io—WebSocket technology for Node.js; provides real-time interaction

Node.js—Server-side non-blocking I/O using the JavaScript callback pattern

jQuery—For advanced interaction and DOM manipulation

Semantic UI—Similar to Bootstrap

PDF.js—Embedd and render PDF files
http://mozilla.github.io/pdf.js/examples/learning/prevnext.html

MongoDB—Document-based storage for ZIP files with PDF, PNG, JPG, SVG, and/or Canvas

Goals for
the Next Meeting

- Demonstrate broadcasting pdf and overlays
- Demonstrate chatroom functionality