Thomas Marrinan

Data-Intensive Remote Collaboration using Scalable Visualizations in Heterogeneous Display Spaces
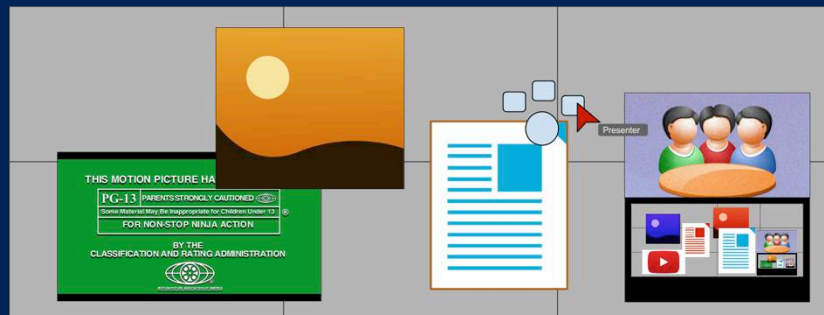

Research Presentation: 06/17/14

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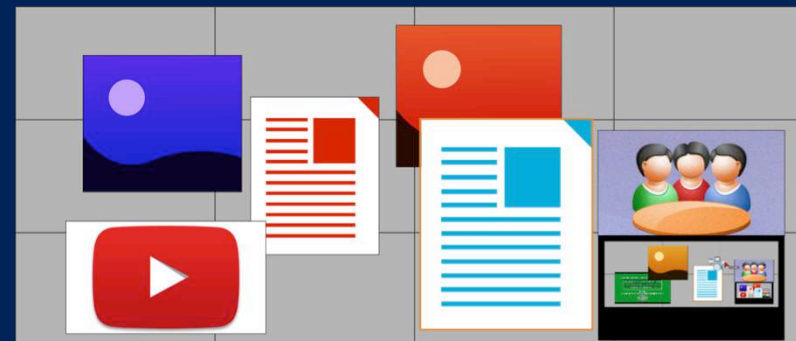
Research Focus

- Improve Collaboration with Partially Distributed Teams
  - Each team may have a unique configuration for their SRSD
  - A portion of the data is shared between sites, while other content can remain private to each participating group
  - Shared applications and synchronization of data (go beyond basic audio/video conferencing)

- Evaluate communication, conferencing, and coordination

Synchronization Methods

- Data-pushing
  - Send unsynchronized applications between locations
  - Multiple sites cannot simultaneously interact with a shared application
 - Serves as an interactive "snapshot"

Push document to remote site

Receive document from remote site

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# Synchronization Methods

- ## Data-duplication

  - ### Partition SRSD

    - Fully synchronized area with shared applications (including window control)
    - Unsynchronized area with local unshared applications

  - ### Interaction icons for input devices displayed at all locations
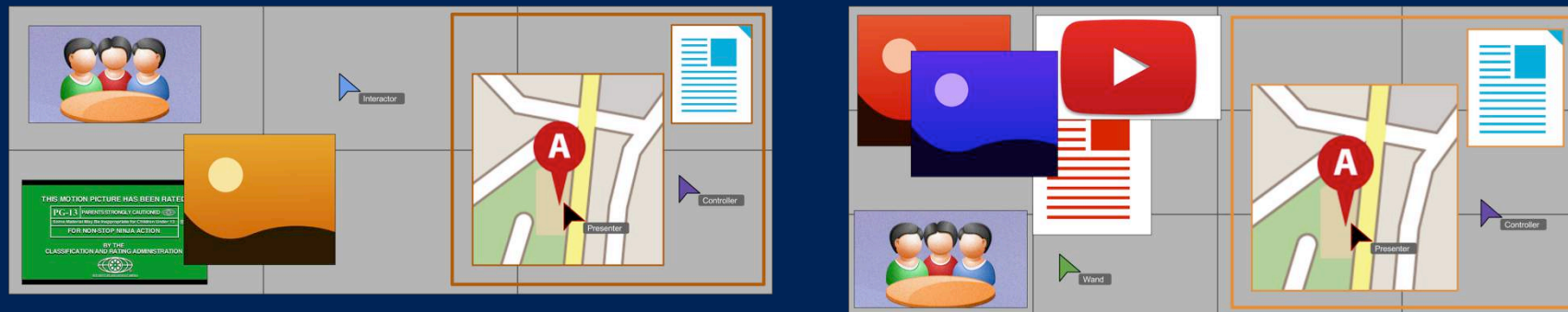
Synchronized shared applications with interaction icons shown in both SRSDs

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Synchronization Methods

- Advanced data-synchronization options
  - Content synchronized, but position and size independent
  - Choose which aspects of each shared application will be synchronized and which will be controlled independently
  - Hierarchical properties of each shared application's state
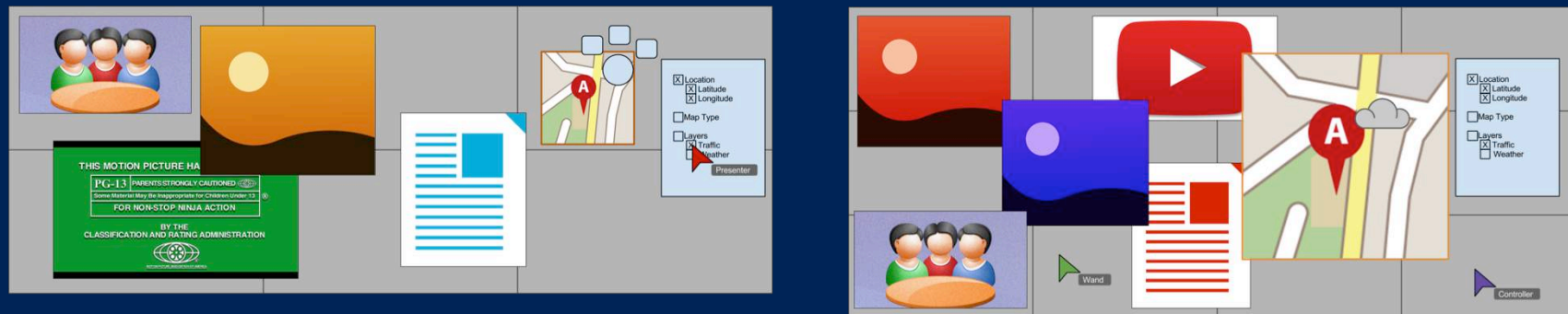
Semi-synchronized shared applications allowing teams at each site to share information while focusing on their expertise and audience

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Implementation

- Data-pushing
  - Application URL and current state sent to remote site
  - Remote site loads Application from URL with specified state
  - Further interactions at either site only modify the local copy
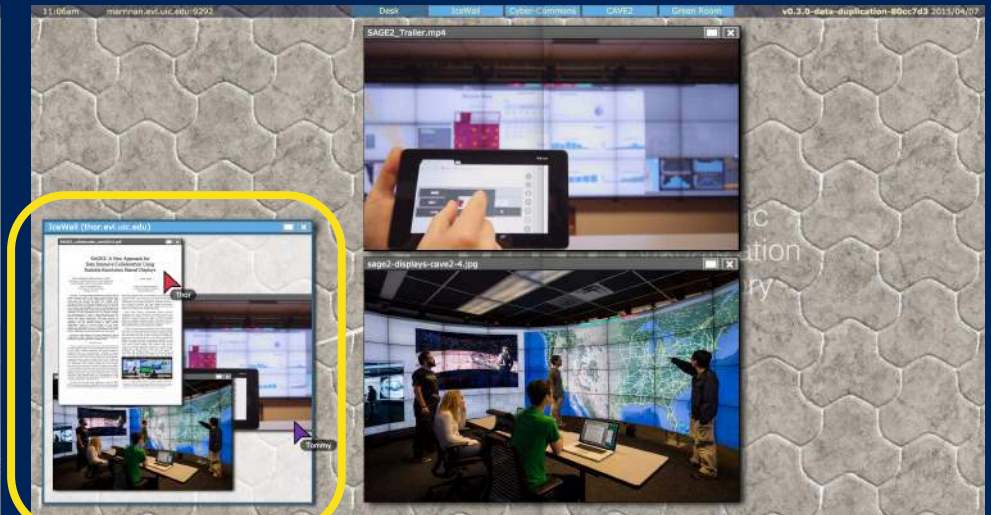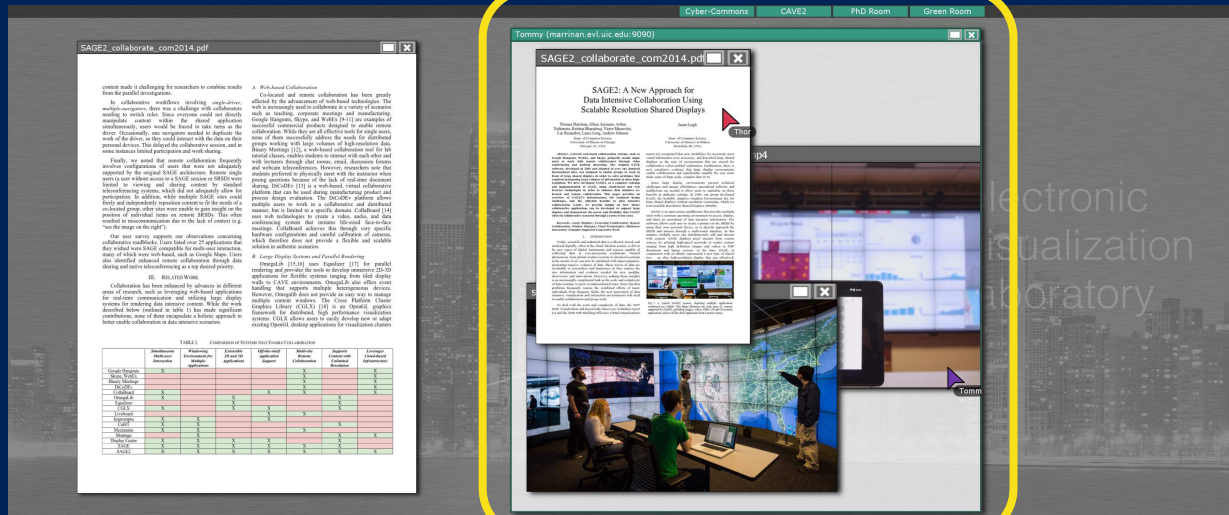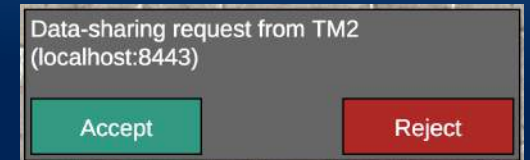

Site A changes page

Site B remains the same

Implementation

- ## Data-duplication
  - Negotiated physical size of portal (same for both sites)
  - Independent scaling at each site (matrix transform)
  - State of each app synced when updated

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Implementation

- Advanced data-synchronization options
  - Application shared in same way as *data-pushing*
  - State of each app synced when updated
  - Members of the application state can be toggled on/off

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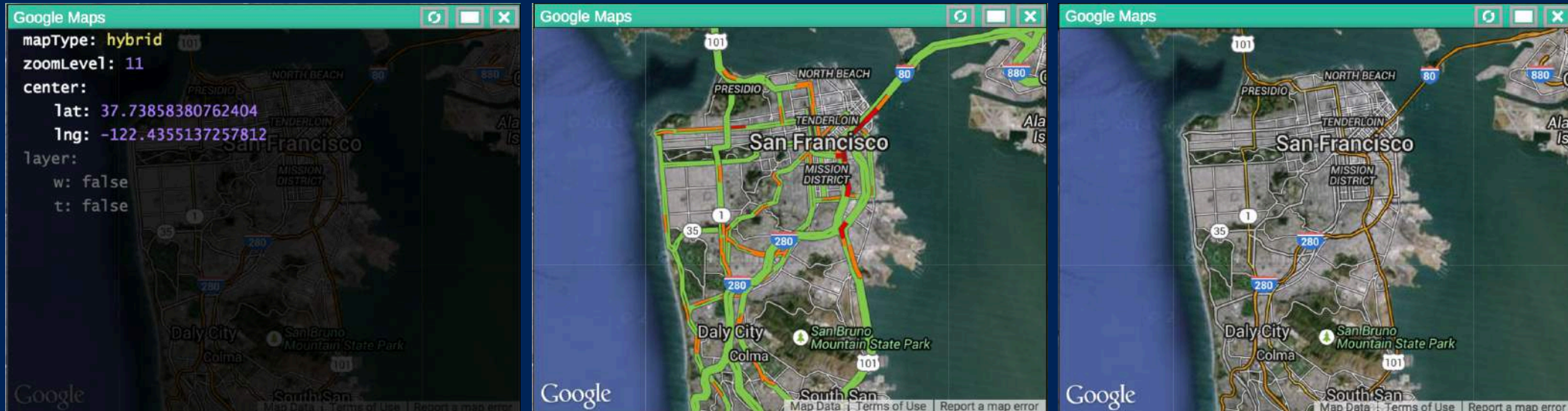
Evaluation

- ## Longitudinal User Study
  - 14 weeks between UIC and Hawaii
    - 4 weeks of each method, 2 weeks where all are available (users choice)
  - Ongoing status reports and coding meetings regarding SAGE2 development

- ## Focused User Study
  - 2 hour study where 4 people must collaboratively complete a task
  - 2 sites (2 people at each)
  - Knowledge is distributed

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Questions?

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