Enabling Better Collaboration

- Platform objectives: empower non-programmers to build applications for real-time collaboration
- Research challenges: share information in a federated environment while providing accountability through HIPAA compliant access logging and data retention

Platform Capabilities

- Data privacy and auditability
  - Break-the-glass access control
  - Log appropriate checkpoints of application state
- Low latency to maintain interactive look and feel
  - Simultaneous updates from multiple workstations, while keeping views consistent enough for auditability
- Hosting medical applications in the cloud
  - Dedicated server to facilitate arbitrary applications
  - Move application logic dynamically between the workstations and the cloud
- Scale to large deployments

Architectural Overview

- Client/server (shown here) or peer-to-peer applications are possible
- Designated hosts can traverse firewalls within a federated organization
- Logging host maintains persistent record of a session’s activities for regulatory compliance through auditability

Example Use-cases

- Expert-assisted surgery
  - Can call a remote expert for advice if complications arise
- Micro-clinics
  - Nurses present on-site
  - Doctors write prescriptions remotely
  - Improved decision making before sending patient to a specialist

Sample Application

- Hierarchical document of patient chart (shown here: only one control)
  - XML schema to facilitate the extrusion process as a new workstation and share with other clients
  - Checkpointing with incremental updates
  - Contains subviews to manage data
  - Permissions for access control
  - Workstations may obtain a fine-grained lock on a branch of the document
  - Allows multiple systems to access content
  - Lock may be forcibly taken, leads to allow another workstation to access the same branch