Securing the Open Softphone:

Education and Outreach

September 1, 2010
Outline

- Open Courseware & New Educational Technologies
  - Curricular Modules on Cutting Edge Research & New Course on Mobile Computing
  - Laboratory Assignments and Projects—physical and virtual labs
  - Hacking Contest

- Dissemination
  - Open Access: courseware and research results (project web site)
  - Faculty Research Spotlights
  - Public Seminar Series
  - Two Five Days Research Colloquia in Years 1 and 3 of the grant

- Outreach
  - Local high schools and colleges
  - Industry
  - Professional organizations
Curricular Modules on Cutting Edge Research

- Goal: develop classroom materials that present
  - selected technical problems and research results that are self-contained and include (or link to) the required background knowledge
  - novel softphone applications—social networking, entertainment, education, business—the new threads they pose and available defenses

- Formats
  - online materials in rich media format—graphics, simulations, visualizations, online laboratory assignments, discussions, video-collaborations and discussions.

- Integration in BU Curriculum
  - major undergraduate and graduate courses
  - BU's Honor College

Center for Reliable Information Systems and Cyber Security
Educational Technologies

- Video Collaboration & Lecture Capture
  (http://met-research.bu.edu/met-ert/Site%20Pages/VideoHome.aspx)
- Virtualization
  (http://met-research.bu.edu/met-ert/Site%20Pages/VirtualizationHome.aspx)
  - used widely in online & blended courses for OS, DB
  - specialized laboratory assignments in security courses
- Integrated Teaching and Learning Environment
  - online course notes with graphics, animation, audio and video content
  - discussion forums
  - whiteboards
  - interactive self-study problems
  - online evaluation tools: quizzes, exams, assignment submission
  - communication modules
  - Live classroom
Integrated Video-Collaboration

Please Click on a Room to Join

- MBT CS693HB Room
- MBT TC629HB Room
- MET TEST Room

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Video Collaboration Options

1-to-1 Tutoring

Broadcast with Listener Feedback

Team Discussion—Multi-Point, 2-way video
# Video-Collaboration—Systems and Best Use Scenarios

## Broadcast

### Technology Features

<table>
<thead>
<tr>
<th>Technology</th>
<th>Features</th>
<th>Client side req.</th>
<th>Capabilities</th>
<th>Cost</th>
<th>Best Use</th>
</tr>
</thead>
</table>
| **Met-Meet**     | Video Webinar                                 |                      | Audio/video; Slide present.; Chat/Discussions; Whiteboard | Open source, free but internal support needed | Broadcast or 1-to-1:  
• Video Webinars;  
• Live Video-Talk Show;  
• Whiteboard Tutoring (1:1 or 1:n) |
| **Video Webinar**| Few (2 optimal) presenters; Large number of listeners | >= 56 Kbs; No client software; Browser based | | | |
# Video-Collaboration—Systems and Best Use Scenarios

**Extended Classroom**

(https://met-research.bu.edu/met-ert/SitePages/VideoHome.aspx)

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<td><strong>ConfXP</strong> Video Bridging with or w/o Classroom Presenter</td>
<td>Few (2-5) rooms, possible multiple cameras, high quality video</td>
<td>1-2 Mbs/room Corporate sites high-speed broadband client software</td>
<td>Very high quality voice+video Annotated slide pres. Chat/Discussions Whiteboard Application/ Desktop sharing</td>
<td>Open source free but internal support needed</td>
<td><strong>Extended Classroom with up to Five Remote Audiences; Geographically Distributed Conferences</strong></td>
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Video-Collaboration—Systems and Best Use Scenarios:
Team Discussion—Multi-Point, 2-way video

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<td>IOCOM</td>
<td>Multiple participants Multi-directional</td>
<td>100 Kbs (DSL+) client software required</td>
<td>Voice &amp; video Slide present. Chat/Discussions Whiteboard Application/ Desktop sharing</td>
<td>Proprietary $100 per participant/ semester</td>
<td>Small group (5-15 optimal) discussions and project work</td>
</tr>
</tbody>
</table>
What students see while rewinding their lectures

- Video output
- Closed caption playback
- DVD-like controls
- Scene-based navigation
- Student-selected layouts
- Full-motion lecture visuals

Lecture Capture and Multimedia Tutorials — Echo360, Camtasia Relay
Laboratory Assignments, Projects, Contest

- **Offensive Wireless Security:**
  - developing penetration tools that simulate malicious attacks
  - dedicated instructional network lab
  - Contact: David Starobinski

- **Cell Phone Hacking Contest**
  - opposing teams complete a variety of tasks, e.g. one team disseminates updates while the other works to interfere.
  - Contact: Ari Trachtenberg

- **Virtual Laboratories**
  - Expanding existing virtual environment for online interactive learning with new modules
  - Contact: Tanya Zlateva
Virtualization Scenarios—Individual & Lab Setup

Complete preconfigured installations provided to students on a DVD, savings setup and troubleshooting efforts not related to course objectives

Multiple images on Lab computers for different courses can be quickly rolled out and switched between classes with no extra effort
Virtualization Scenarios—Virtual Lab Simulating Distributed Computing Environment

Example: “online banking” (simulation of a distributed environment in a Cryptography/PKI Lab, linking network protocols and security models on "real life application")

Easily replicated separate server-based environments

Systems Admin

Hacker

End User

Security Manager

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Related Work: The 2010 Science Price for Online Resources in Education (SPORE)

- Open Course Ware (MIT)
- Games, information, discussions with scientists
- Virtual labs
- Teacher Resources
- Online Forums for Exchanging of Teaching Experience
- Libraries of Computer Simulations
Dissemination

- Open Courseware
- Faculty Research Spotlights: live web presentations of faculty research with audience feedback; recording available on web and for download
- Public Seminar Series: four or five seminars per year by leading researchers
  - face-to-face and remote audience
  - recorded and made available for repeated viewing
- Two Five Days Research Colloquia in Years 1 and 3 of the grant
  - short course on selected topic
  - research lecture by leading researcher
  - paper sessions on promising work in progress
Outreach—Local High Schools & Colleges

- Seminars and Lectures:
  - face-to-face & videoconference
- Student Research Opportunities
- Current cooperation agreements include
  - Simmons College
  - Association of community colleges (Bunker Hill Community College, Middlesex Community College, Mass Bay Community College, Roxbury Community College, and Northern Essex Community College, and Quinsigamond Community College)
Outreach—Industry

**Goal:** bridging the gap academia—industry through continued joint initiatives such as
- **internships** for BU students
- complimentary faculty presentations,
- joint seminars and conferences.

**Working relationships with over sixty companies including**
Outreach—Educational & Professional Organizations

- National Centers of Excellence in Information Assurance Education and Research (DoD & DHS)
  - security professionals---partnership FBI and private sector
Questions?

Interested to participate?

email or phone

Tanya Zlateva

zlateva@bu.edu

617-353-2568