

Mark Claypool's MQP Projects



Network Games



Streaming Media

<http://www.cs.wpi.edu/~claypool>



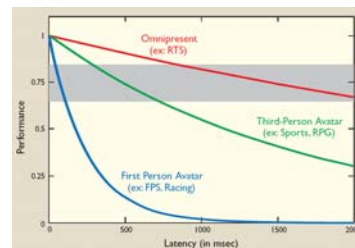
March 2008

MQP Topics

Slide 1

Latency and Games

- Latency determines how players experience online gameplay
- *Latency compensation* techniques to mitigate latency → how effective?
- **Goal:** Test effects of latency on gameplay
- **Methodology:**
 - build/mod game
 - design game maps
 - run user studies
 - analyze data
- **Students:**
 - 2-3 tech
 - 0-1 art



March 2008

MQP Topics

Slide 2



Effects of Display Settings on Games

- Computer games have many display options
 - Size, Resolution, Frame rate, Shadows, Textures ...
- Better quality displays may look better, but do they make you *play better*?
 - Established *Frame rate* matters lots, *Resolution* not so much
- **Goal:** Effect of Frame Rate/Resolution on lower gamplay
 - Ex: fundamental user interactions
- **Methodology:**
 - build/mod game based on low-level actions
 - design game maps
 - run user studies
 - analyze data
- **Students:**
 - 2-3 tech
 - 0-1 art

March 2008

MQP Topics

Slide 3



Better Game Server Selection

- Choosing a "**good**" server is critical for multiplayer games, but how do you define "**good**"?
 - Lowest **ping**? Should use 1 ping or 10 or ...?
- How to pick the best server for you, your friend in California, *and* your friend in Florida?
 - Lowest average **ping**? Fairest **ping**? Use **ping** to handicap?
- **Goal:** Better game server selection
- **Methodology:**
 - Build/Modify custom software to gather ping data
 - Run experiments on real/emulated Internet
 - Incorporate into server browser
- **Students:**
 - 2-3 tech

March 2008

MQP Topics

Slide 4





Games on Thin Clients

- Have beefy server send game to lesser client
 - Mobile phone, PDA, Sony PSP (remote play)
- Best way to use bandwidth *with low latency?*
- **Goal:** Measure thin client performance for games, propose improvements, implement and evaluate
- **Methodology:**
 - Determine "streaming" game environment
 - Performance evaluation of thin clients (Sony, RDP, X, VNC ...)
 - Run experiments
 - Feedback to drive innovation
- **Students:**
 - 2-3 tech

March 2008

MQP Topics

Slide 5



Streaming Media in the Home

- Many options to stream media in the home
 - PCs (Orb)
 - Game consoles (Sony PS3, Xbox 360)
 - Slingbox, LocationFree, Apple T.V.
- Much of it now wireless (802.11), which affects performance
 - Loss rate, signal strength, other clients...
 - Determines "best" streaming rate for video
- **Goal:** characterize performance (network and application) for home streaming devices
- **Methodology:**
 - Setup laboratory (hardware, software)
 - Design experimental parameters
 - Measure and analyze data
 - Propose and build better streaming devices

March 2008

MQP Topics

Slide 6





Questions?

<http://www.cs.wpi.edu/~claypool>

claypool@cs.wpi.edu

March 2008

MQP Topics

Slide 7

