Improving VNC Performance with the Message Accelerator
Cynthia Taylor, Joe Pasquale
Center for Wireless Communications
Computer Science Department, University of California, San Diego

Introduction

• This project explores a new systems architecture and programming paradigm for Thin Client computing.
• In this architecture, a Message Accelerating Proxy is added to the standard client-server system.
• The proxy can be added to an unmodified client-server system, and can be used for either modification of updates or buffering/caching of updates.

Why Thin Clients?

• Machine Learning/Vision
  – Object recognition
  – Speech recognition
• Graphics
  – Rendering
• Data Storage
  – Video

The applications that fully exploit knowledge of our surroundings have high processing and storage needs.

Adding the Message Accelerator to VNC

The Message Accelerator continuously queries the VNC Server for updates, and pipelines sending these updates to the VNC Client, without waiting for a request from the client.

Experimental Results

With the Message Accelerator, the update rate remains constant across network latency. In the unmodified system, the update rate decreases rapidly. At 100 ms of network latency, the Message Accelerator is performing better by an order of magnitude.

Experimental Results

The Standard Deviation of Update Time quickly rises in the unmodified system, reflecting uneven update times. This can reflect the video being displayed in an uneven, jittery fashion.

Conclusion

• The proxy offers a way to perform computationally difficult tasks with quick update speeds, while requiring the user to carry only light-weight, low-power devices.
• Using this systems architecture lets users use devices they already carry with them for location/context-dependent, computationally-intensive applications.
• Experiments on with VNC show that the proxy system has the potential for performance advantages in existing client-server systems, without modifications to the existing code.

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