RemotePoint Management Interface and RemotePointSVR

Tyron Harford

Nick Wallingford

Bay of Plenty Polytechnic
Tauranga, New Zealand
tyronh@bcs.net.nz

The poster describes a student's development of a system to allow all students in a computing lab to easily view the PowerPoint presentation used by the tutor.

Keywords: PowerPoint, presentations, programming, student projects

1 USER REQUIREMENTS

The programme's goal is to automate the Microsoft PowerPoint application on multiple computers. As an added extra, the ability to display video files on the computers would be beneficial.

2 PROGRAM SPECIFICATION

- Display PowerPoint presentations on up to 300 computers (inclusive).
- Program must not be visible (except on controller - server).
- Controller (server) can display presentation.
- Error messages and dialogs on servers are not displayed (but should be caught or logged).
- Use little network bandwidth.
- Slides on all computers are synchronized.
- Maintain database of PowerPoint presentations.
- Database must be portable as well as bypass the database engine.
- Ability for user to show a local or network presentation.
- Provide control to presentation.

The ability to broadcast synchronized video would be beneficial.

3 PRINCIPLES

The backbone of RemotePoint relies on the server/client relationship. An outside-of-the-square design, RemotePoint uses a client socket to manage communications, while the server socket is running on the computers that display the presentation.

4 COMMUNICATION BASICS

Apart from command codes, there is no communication between the servers and the client. The servers handle executing PowerPoint or video files. This greatly reduces network bandwidth requirements and eliminates many network lag or latency issues. Most command codes sent are less than 5 bytes long. No actual screen or video data is communicated between the computers. Port communication defaults to 12830. In this beta release, this cannot be modified without recompilation.

When communication takes place, the server iterates through the available servers and sends the desired command. Since the commands are small, communication is exceptionally fast.

Internet Protocol (IP) addresses for computers are specified in a text file that is input on program start-up. There is also a function to reload the file while the program is running.

IP addresses for individual computers are divided into "rooms". These rooms act as areas to broadcast into. Total customisation is possible through broadcast rooms rather than IP ranging. There is a maximum of 100 rooms allowed with a maximum of 300 IP's per room.

The client software initiates all communication.

5 HOW THE COMMUNICATION WORKS

The servers are always active and listening for requests on the specified port. When an incoming data packet is received from the client telling the server what to do, the servers then perform the specified job.

When a server gets a command to load a presentation called "I:\MyPowerPoint.ppt", the following data packet is received: "PP:I:\MyPowerPoint.ppt:T". The server then extracts the file name from the packet (spaces are acceptable), and then tries to load the presentation. Each server computer specified performs the same action. The PP code tells the server to load a presentation. If the code was NX the server would advance a presentation by one slide (or one advance to be exact).