

Group Members:

Grade: /100

OVERVIEW

In this assignment, you will be responsible for implementing a video/photo sharing application for the Google Android OS. Your Activity (...an Activity is an application on Android), will be invoked by the Camera Activity on an Android phone and passed a stream to share with a VShare server. The CS/CE members of each group will be responsible for implementing the code to send the picture or video over the network to the VShare server. The CS/CE members will also need to write the VShare server that will receive the media. The EE members of each group will be responsible for designing and conducting experiments to measure the performance of the group's VShare implementation. All team members will be responsible for designing the protocol that will be used to transfer the file.

COMBINED CS/CE/EE COMPONENTS

Your team must devise a custom protocol on top of TCP/IP to transfer the media from the Android phone to the server. The protocol must provide facilities for:

- 1. Specifying the name of the file that is going to be transferred.
- 2. Specifying the size of the file that is going to be transferred
- 3. Specifying the content type of the file that is going to be transferred.
- 4. Transferring the data from the file.

CS/CE COMPONENTS

1. VShare Android Activity - An initial framework for your VShare Android Activity has been created. You can download the source code, which is packaged in an Eclipse project, from

http://www.dre.vanderbilt.edu/~eece261/assignments/VShare.zip. Inside the VShare class, you will find a "sendData" method. You are responsible for implementing this method. How you implement this method is completely up to you. I recommend using Java sockets, but you are free to use another mechanism if you prefer. You are free to use any opensource libraries that you wish. Some socket programming tutorials that may be useful:

http://www.javaworld.com/jw-12-1996/jw-12-sockets.html

http://java.sun.com/docs/books/tutorial/networking/sockets/

2. **VShare Server -** You will need to create a server-side application that can receive data sent by the VShare Activity over the network.

EE COMPONENTS

EE group members will need to work with the CS/CE group members to instrument their code to measure the performance of the VShare implementation. The instrumentation should measure the overall throughput of the application in bytes per second. The measurements should be made on both the client and server sides of the application -- which must not be running on the same machine.

- 1. **Wired Benchmark The VShare client should be used to transmit a picture to the VShare server through a wired connection on campus.**
- 2. Wireless Benchmark The VShare client should be used to transmit a picture to the VShare server across a wireless network. This experiment must be performed from at least two different buildings on campus.

On all experiments, the VShare server should use a wired connection. Furthermore, the results for each scenario must be accompanied by statistics from Traceroute on the total hops, latency, etc. between the client and server. EE students should prepare and submit a writeup detailing how the code was instrumented, the experimental setup, and the results.

DEADLINES

Since the EE group members will require working implementations to complete their portion of the assignment, CS/CE students must complete their implementations by Tues, Sept. 22. Furthermore, each group will be required to demo their implementation and discuss the design in class. Each group should prepare a 5-10min presentation on their design, implementation, and experimentation plan (with power point slides) for Tues, Sept. 22. You will also need to show a quick 2min demo of the working implementation.

CS/CE final implementations with comments and a README file describing the design are due on Thurs, Sept. 24. The entire Eclipse project should be zipped and emailed to jules@dre.vanderbilt.edu with the EXACT subject line "eece261 asgn1 implementation".

EE students must complete the experimentation and write up by the following Tues. Submissions should be emailed to jules@dre.vanderbilt.edu with the EXACT subject line "eece261 asgn1 experiments".

GRADING

- 1. Implementation 33%
 - a. Execution correctness 75%
 - b. Design and documentation 25%
- 2. Experimentation 33%
 - a. Soundness of experimentation plan 40%
 - b. Report thoroughness and detail 40%
 - c. Writing style and clarity 20%
- 3. In class presentation 34%

ADVICE

Start tonight...

See me in office hours if you need help...