Ram Vakada

Prof. Alexey Nikolaev – Functional Programming in OCaml

Project Proposal

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Project Name: OCamlAlert

OCamlAlert is a TCP based alert system. The goal of OCamlAlert is to design an alert system like CUNY's alert system. CUNY's alert system works in such a way that all registered users are sent a text message informing them about emergencies like the school being closed down due to severe weather of if there is an active shooter and even fires. In the case of OCamlAlert, any user that is connected to the server will be able to receive an alert that an administrator sends out.

The OCamlAlert system will consist of three modules:

1. Server
2. User Client
3. Admin Client

The Server will use the Lwt library and plain TCP sockets. Lwt is an OCaml concurrent programming library that allows us to use the "future-promise" model to handle requests. The server on initialization will open a server socket on port 8484. Upon any connection request, the first communication between the server and the client will be a handshake. The handshake will be used to determine whether the client is a user or an admin. If it is a user, the client will be added to a list of connected users and the connection will be kept open until the server needs to

send out an alert. If the client is an administrator, a special Admin Client handler will be assigned to the connection. If the client successfully authenticates, the admin client handler receives the alert to be sent out and pushes it to all receiver clients.

The User Client is a simple OCaml program that connects to the server on port 8484, identifies itself as a user through the initial handshake, and just waits for alerts. Any alert received will simply be printed on screen and the client will continue listening until termination.

The Admin Client is similar to the User Client but instead of waiting for alerts, it will accept the password and alert through command-line. It will attempt to connect to the server and identify itself as an admin client through the handshake using the provided password, and then will send the alert message to the server which will push the alert to all connected clients.