Jonathan Metzger CS4513 – Hugh C. Lauer March 18, 2018

PROJECT 2: Distributed Shell

# Walk through

## Terminal 1: Server (Local and AWS)

### Port is optional, default is 4513

### $ ./server -p 1234

### 'user1' is accessing information with the 'ls' command!

### 'user1' entered password incorrectly.

## Terminal 2: Client

### Port is optional, default is 4513

### Password is optional, default asks you for password

### ﻿$ ./client -s localhost -p 1234 -u user1 -w pass1 -c "ls"

### Username: user1

### Password: pass1

### \*\* Password is correct. Accessing information. \*\*

### ﻿$ ./client -s localhost -p 1234 -u user1 -w pass2 -c "ls"

### Username: user1

### Password: pass2

### \*\* ERROR: Credentials don't match. Exiting... \*\*

# DESIGN

## Programs / Scripts

### Common.c

#### void useage();

#### void flagCheck(int argc, char\*\* argv);

#### char\* concat(char\* s1, char\* s2);

#### Int containToken(char\* recevieMessageFromClient, int size);

### ERROR Handlers

#### ERROR\_socket\_call();

#### ERROR\_connect\_call();

#### ERROR\_bind\_call();

#### ERROR\_listen\_call();

#### ERROR\_accept\_call();

#### ERROR\_waitpid\_call();

#### ERROR\_execvp\_call();

### Client.c

#### getHost();

#### checkServer();

#### sendMessageToServer(char\* message, int sock);

#### receiveMessageFromServer(int sock);

#### checkUsername();

#### checkPassword();

#### checkCredentials();

#### submitInput(int sock);

### Server.c

#### countInputs(char\* command);

#### void storeInputs(char\*\* command\_array, char\* command, int size\_array);

#### void setServer();

#### void openServer();

#### int sendMessageToClient(char\* msg, int sock);

#### char\* receiveMessageFromClient(int sock) ;

#### void getUsername() ;

#### char\* validUsername(char\* name) ;

#### void getPassword() ;

#### char\* validPassword(char\* name) ;

## How many runs performed

I performed 20 rounds each to test for Correct and Incorrect password connections. I did for both the local server and AWS. I averaged each test to get an accurate representation of how long it takes for a connection between client and server.

## Recorded Data

## System Conditions

## I did each test on the Ubuntu system provided by the professor.

## Other Information

# RESULTS

## Tables or Graphs

### Network per-byte Cost

|  |  |  |
| --- | --- | --- |
| Time (ms) | Local | AWS |
| Attempt 1 | 144 | 281 |
| Attempt 2 | 140 | 385 |
| Attempt 3 | 139 | 222 |
| Attempt 4 | 141 | 1217 |
| Attempt 5 | 142 | 61 |
| Attempt 6 | 143 | 130 |
| Attempt 7 | 141 | 91 |
| Attempt 8 | 138 | 111 |
| Attempt 9 | 138 | 63 |
| Attempt 10 | 141 | 92 |
| Attempt 11 | 140 | 138 |
| Attempt 12 | 138 | 79 |
| Attempt 13 | 140 | 100 |
| Attempt 14 | 141 | 119 |
| Attempt 15 | 144 | 160 |
| Attempt 16 | 145 | 233 |
| Attempt 17 | 139 | 231 |
| Attempt 18 | 140 | 169 |
| Attempt 19 | 138 | 168 |
| Attempt 20 | 138 | 1143 |
| Total | **2810** | **5193** |
| Average | **140.5** | **259.65** |

### Local vs. Remote Costs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Time (ms) | Local Correct | Local Incorrect | AWS Correct | AWS Incorrect |
| Attempt 1 | 141 | 57 | 376 | 236 |
| Attempt 2 | 141 | 53 | 415 | 255 |
| Attempt 3 | 138 | 53 | 546 | 335 |
| Attempt 4 | 140 | 50 | 491 | 248 |
| Attempt 5 | 136 | 54 | 369 | 235 |
| Attempt 6 | 140 | 54 | 409 | 272 |
| Attempt 7 | 141 | 48 | 379 | 287 |
| Attempt 8 | 139 | 50 | 406 | 324 |
| Attempt 9 | 139 | 50 | 371 | 343 |
| Attempt 10 | 142 | 56 | 379 | 244 |
| Attempt 11 | 140 | 49 | 379 | 241 |
| Attempt 12 | 142 | 50 | 378 | 240 |
| Attempt 13 | 141 | 60 | 579 | 236 |
| Attempt 14 | 140 | 52 | 679 | 239 |
| Attempt 15 | 143 | 60 | 629 | 248 |
| Attempt 16 | 140 | 53 | 439 | 246 |
| Attempt 17 | 138 | 53 | 373 | 344 |
| Attempt 18 | 141 | 49 | 371 | 360 |
| Attempt 19 | 137 | 55 | 373 | 298 |
| Attempt 20 | 143 | 50 | 375 | 249 |
| Total | **2802** | **1056** | **8716** | **5480** |
| Average | **140.1** | **52.8** | **435.8** | **274** |

## Statistical Analysis (Mean and STD)

# ANALYSIS

## Interpret Results

## Results Meaning

## Subjective Analysis