Network Compression Detection

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Chapter 1

NCD

Network Compression Detection

A Project for Comp 429 @ CSUN, to detect compression along a network transmission path.

The project will proceed in phases, and incrementally build to be an application suitable to an uncoperative environment.

We will use low and high entropy data sent along the network to detect if compression occurs. If a node compresses the data, the low entropy transmission times will differ significantly from the high entropy data transmission times, and give us a reliable way to detect compression.

Chapter 2

Data Structure Index

2.1 Data Structures

Here are the data structures with brief descriptions:

Chapter 3

File Index

3.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 4

Data Structure Documentation

4.1 pseudo_header Struct Reference

```
#include <ncd.h>
```

Data Fields

- u_int32_t **source**
- u_int32_t **dest**
- u_int8_t **zero**
- u_int8_t **proto**
- uint16_t **len**

4.1.1 Detailed Description

struct for udp pseudo header

The documentation for this struct was generated from the following files:

- ncd.h
- tracert.c

Chapter 5

File Documentation

5.1 client.c File Reference

```
#include <ctype.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <netinet/udp.h>
#include <stdio.h>
#include <stdlib.h>
#include <arpa/inet.h>
#include <string.h>
#include <fcntl.h>
#include "icmp.h"
```

Functions

- int main (int argc, char ∗argv[])

5.1.1 Detailed Description

Author

: Paul Kirth

Comp 429 Project Phase I

5.1.2 Function Documentation

5.1.2.1 int main (int *argc,* char ∗ *argv[ ]*)

Detects compression by sending a stream of low entropy and high entropy packets, and comparing their transmission time to determine if compression occurs along the transmission path.

[1] Destination IP address [2] Number of data packets to send in each train [3] TIME_WAIT

5.2 server.c File Reference

```
#include <ctype.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <netinet/udp.h>
#include <stdio.h>
#include <stdlib.h>
#include <arpa/inet.h>
#include <string.h>
#include <time.h>
```

Functions

- clock_t procs_msg (size_t num_msg, int sockfd, struct sockaddr_in client)
- int main (int argc, char *argv[])

5.2.1 Detailed Description

Author

: Paul Kirth

Comp 429 Project Phase I

5.2.2 Function Documentation

5.2.2.1 int main (int *argc,* char ∗ *argv[]*)

sets up a server whos clients will send a series of data packages so that compression along the transmission path can be detected.

5.2.2.2 clock_t procs_msg (size_t *num_msg,* int *sockfd,* struct sockaddr_in *client*)

Parameters

num_msg	the number of messages to expect
sockfd	the socket file descriptor to expect communication from
client	a data structure to hold client information

Returns

the time spent gathering packets in the train

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