

Intelligent Proxy Server in TANET/TWAREN

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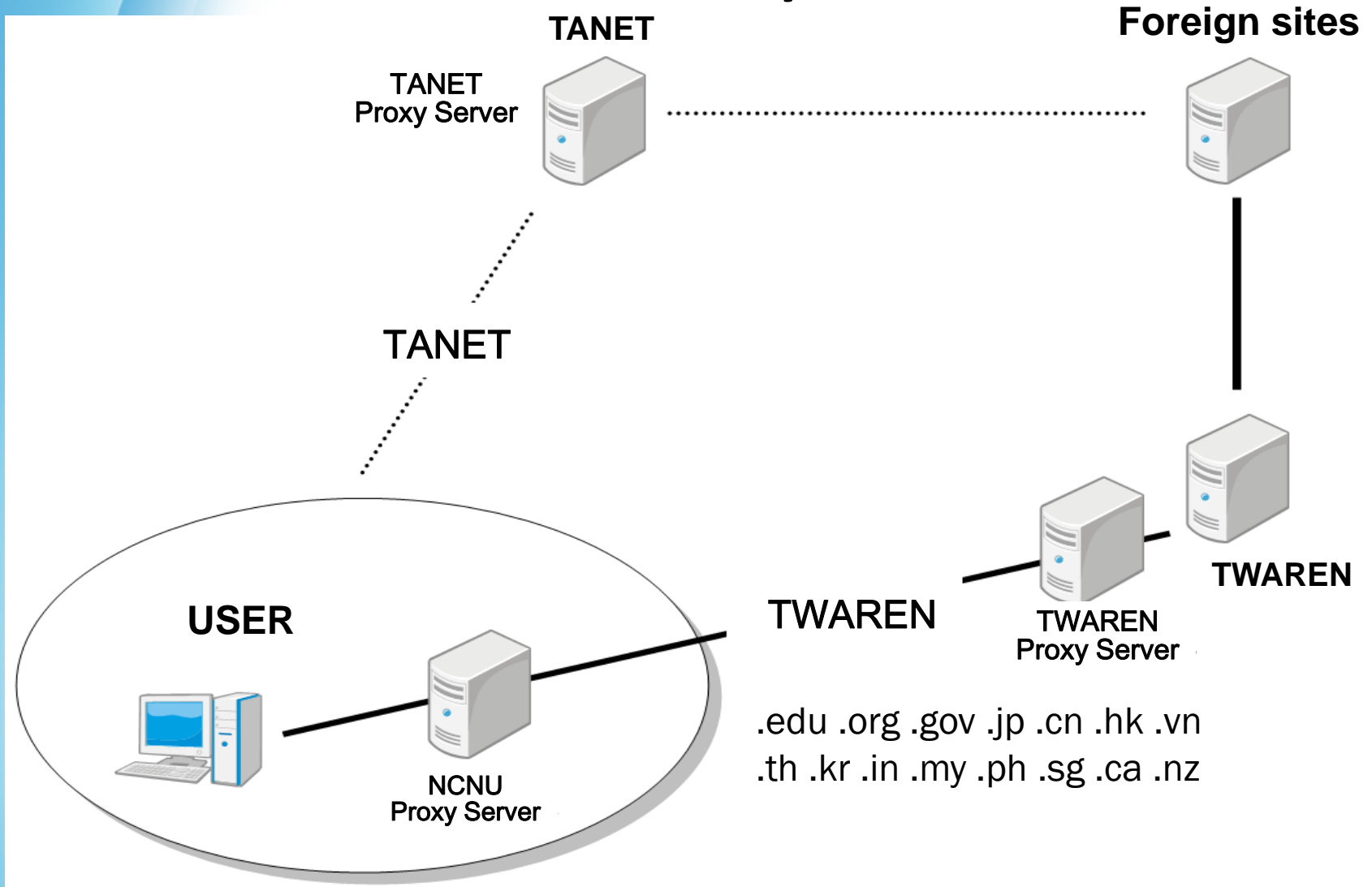
Ya-Ling Wang,
Ying-Chieh Chang,
Quincy Wu

Chinese paper published in ITIA 2010.

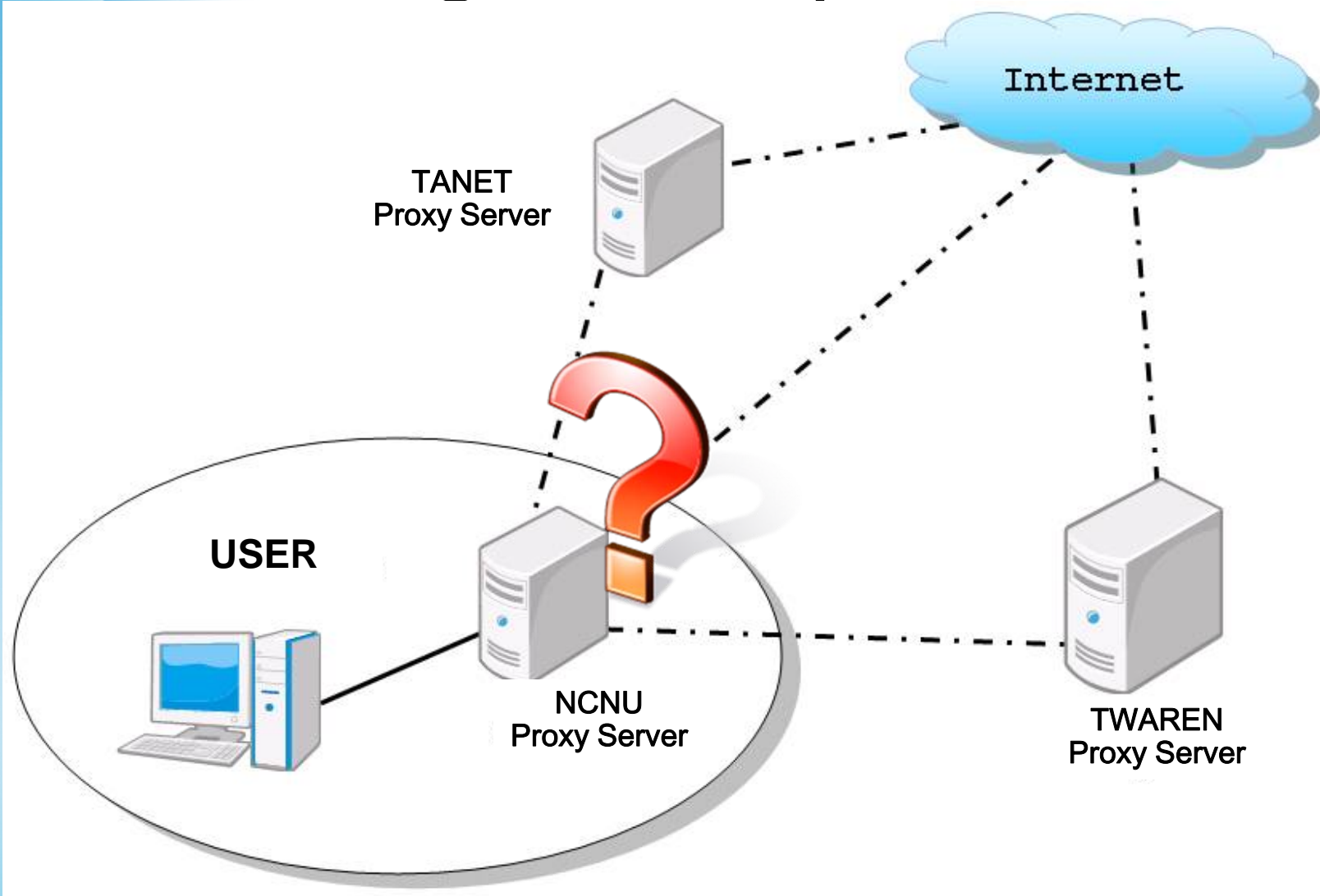
Introduction

- The choice of web proxy servers
- The best proxy server?
- Priori speed tests
- The fastest proxy server
- Experimental result : Better

Default Proxy Server

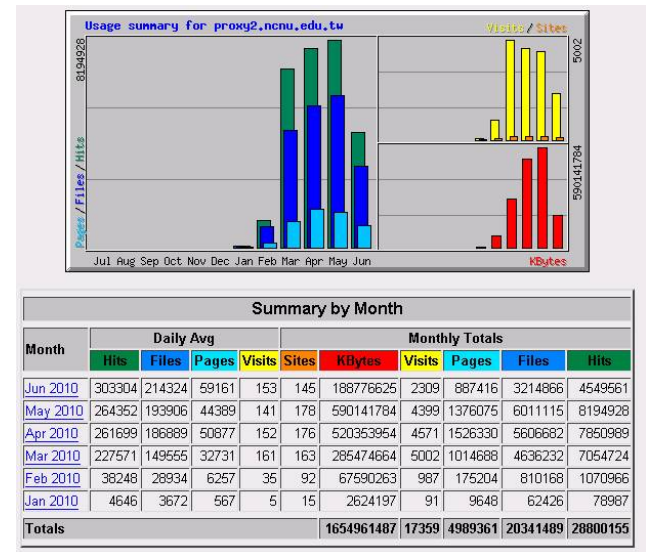


Intelligent Proxy Server

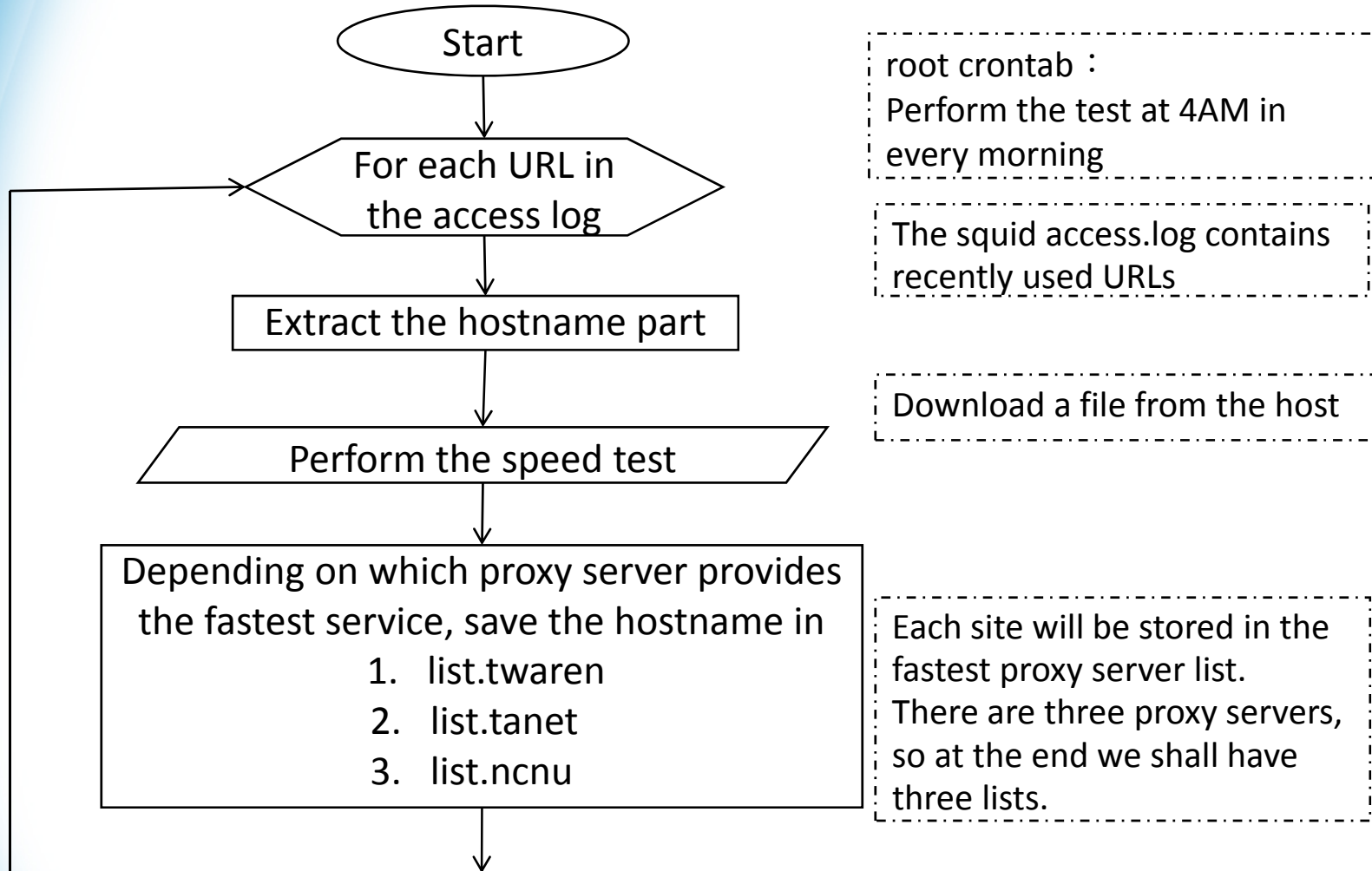


System Components

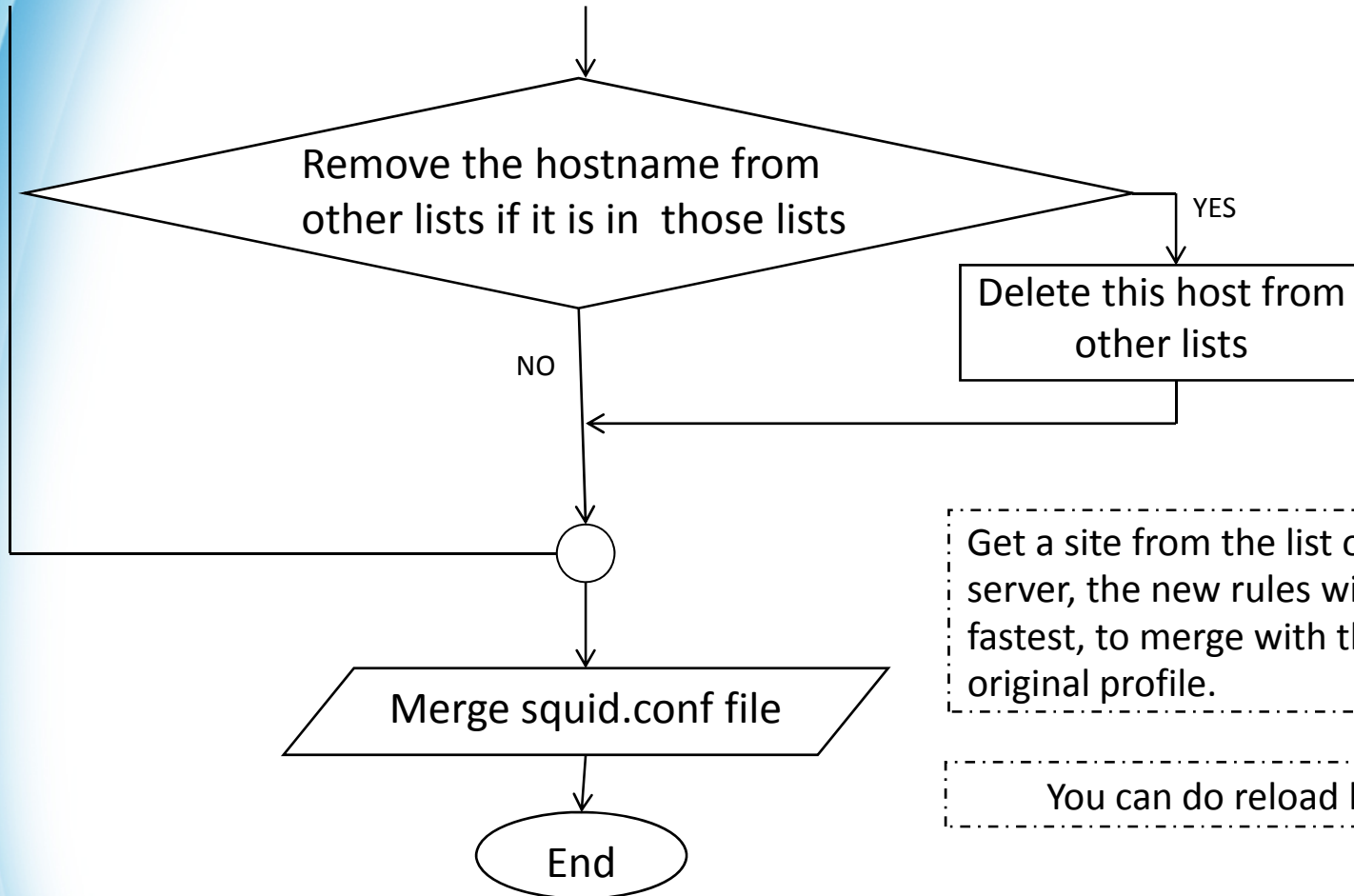
- CentOS 5.4 – Linux operating system
- Squid version 3.1 – http proxy server
- Report generator
 - Webalizer
 - Sarg
- Upstream proxy server
 - TWAREN : proxy1.twaren.net
 - TANET : proxy.moe.edu.tw



Data Collection Process



Data Collection Process



Get a site from the list of a proxy server, the new rules will be the fastest, to merge with the original profile.

You can do reload later.

Data Collection Process



Data Collection Process

```
cache_mgr ycc@ncnu.edu.tw
acl manager proto cache_object
acl localhost src 127.0.0.1/32
acl localhost src ::1/128
acl localhost src 163.22.0.0/19
acl localhost src 163.22.32.0/23
acl localhost src 163.22.34.0/24
acl localhost src 2001:e10:6840::/48
acl to_localhost dst 127.0.0.0/8 0.0.0.0/32
acl to_localhost dst ::1/128

acl localnet src 10.0.0.0/8      # RFC1918 possible internal network
acl localnet src 172.16.0.0/12 # RFC1918 possible internal network
acl localnet src 192.168.0.0/16 # RFC1918 possible internal network
acl localnet src fc00::/7      # RFC 4193 local private network range
acl localnet src fe80::/10     # RFC 4291 link-local (directly plugged) machines

acl SSL_ports port 443
acl Safe_ports port 80          # http
acl Safe_ports port 21          # ftp
acl Safe_ports port 443        # https
acl Safe_ports port 70         # gopher
acl Safe_ports port 210        # wais
acl Safe_ports port 1025-65535 # unregistered ports
acl Safe_ports port 280        # http-mgmt
acl Safe_ports port 488        # gss-http
acl Safe_ports port 591        # filemaker
acl Safe_ports port 777        # multiling http
acl CONNECT method CONNECT

http_access allow manager localhost
http_access deny manager

http_access deny !Safe_ports
http_access deny CONNECT !SSL_ports
http_access allow localnet
http_access allow localhost
http_access deny all

http_port 3128

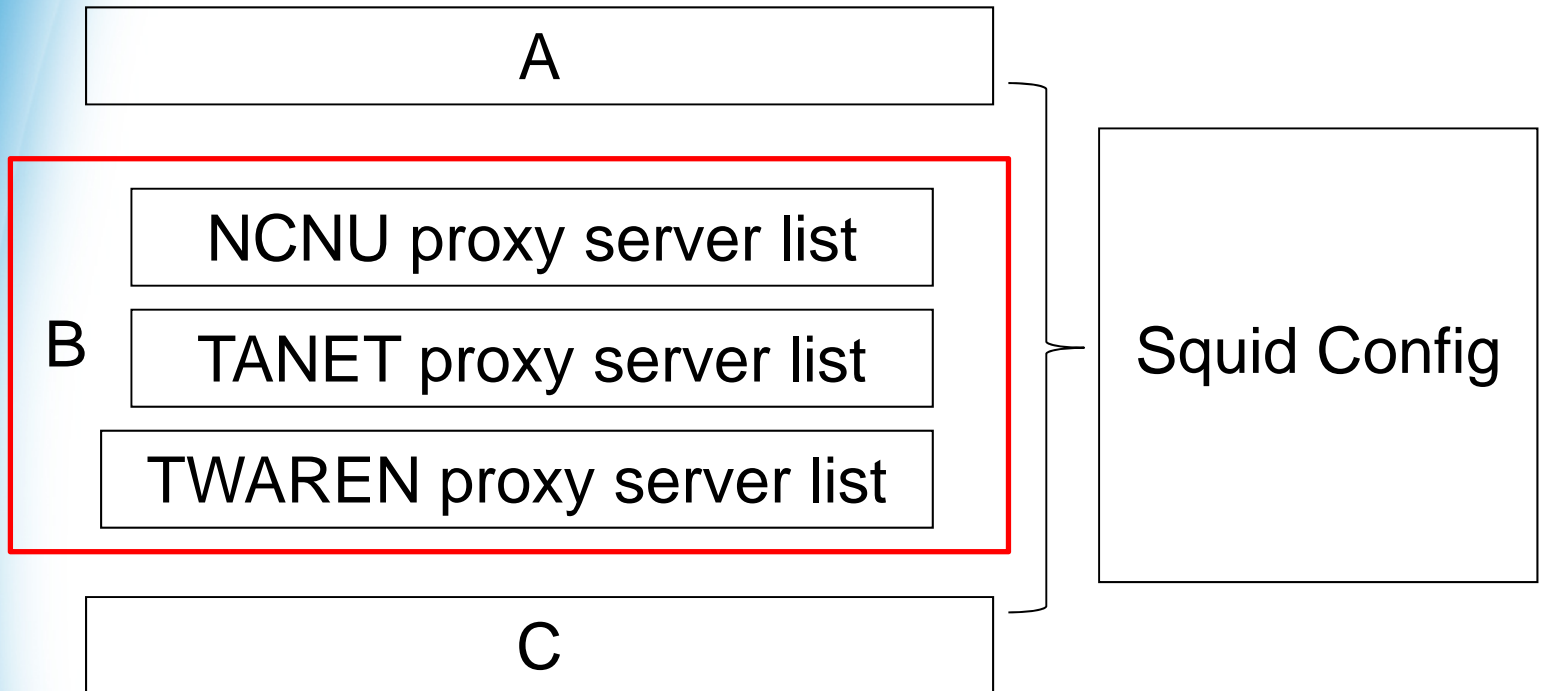
cache_peer proxy1.twaren.net parent 3128 0 no-query no-netdb-exchange no-digest
acl twaren dstdomain .edu .org .gov .jp .cn .hk .vn .th .kr .in .my .ph .sg .ca
cache_peer_access proxy1.twaren.net allow twaren
```

A

B 010/07

```
# We recommend you to use at least the following line
```

Data Collection Process

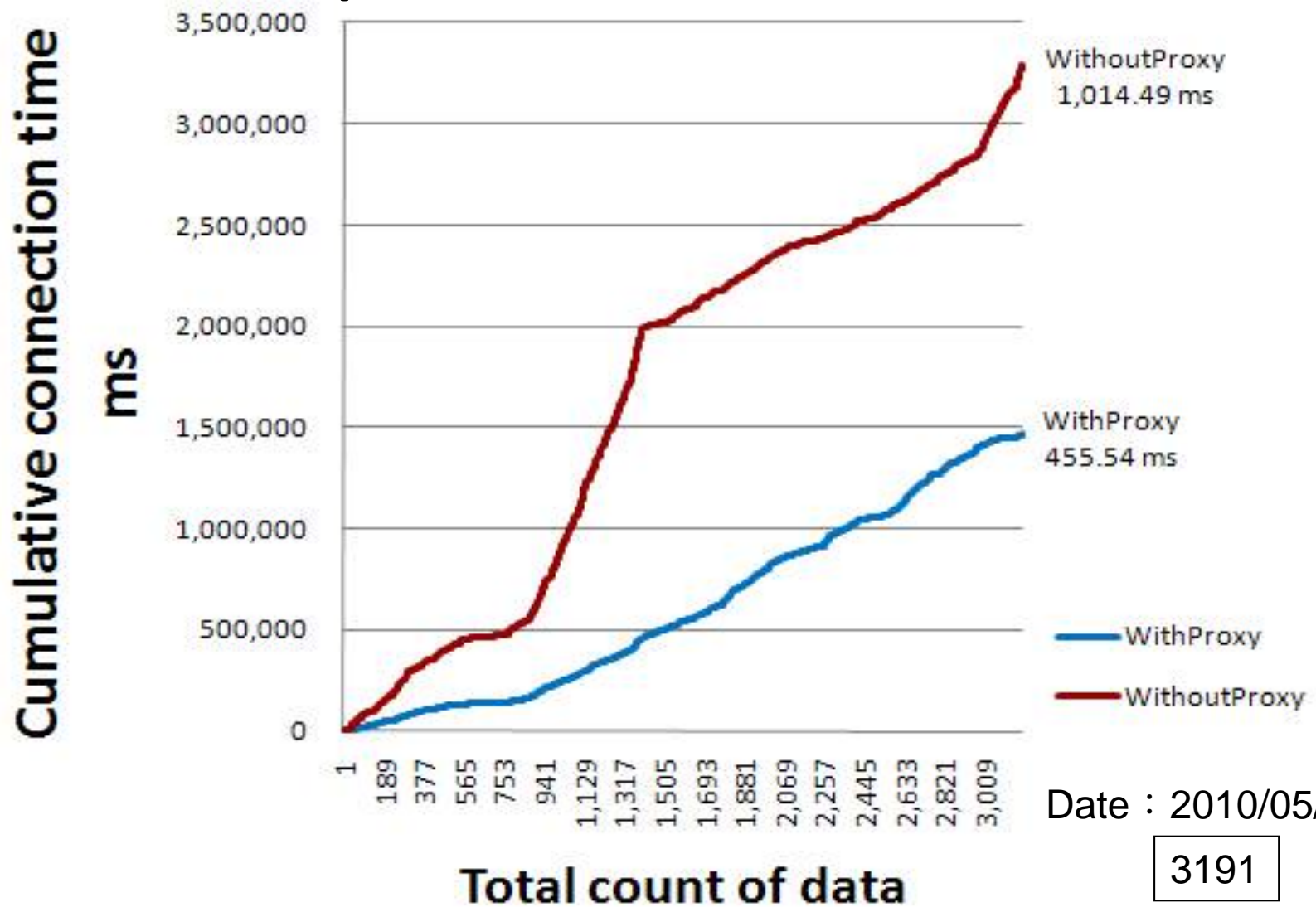


Experimental Results

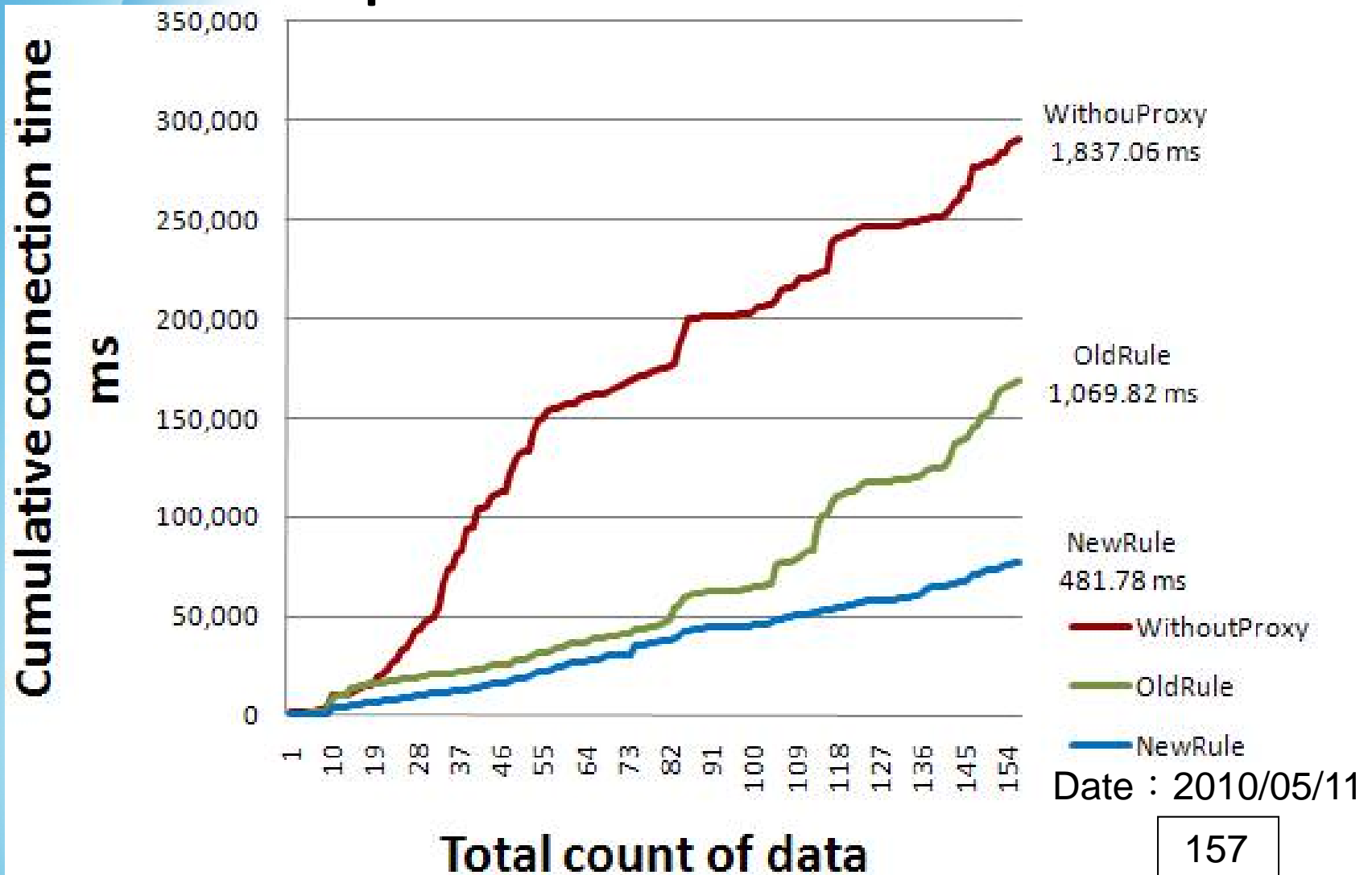
NCNU school inflows rankings

IP address : 163.22.12.5			
date	TOP	Inflow (bytes)	FQDN
2010 / 04 / 29	15	7,946,919,322	proxy.ncnu.edu.tw
2010 / 04 / 30	15	6,082,848,187	proxy.ncnu.edu.tw
2010 / 05 / 01	36	1,633,764,588	proxy.ncnu.edu.tw
2010 / 05 / 02	17	4,105,709,382	proxy.ncnu.edu.tw
2010 / 05 / 03	26	2,947,806,027	proxy.ncnu.edu.tw
2010 / 05 / 04	15	9,523,143,539	proxy.ncnu.edu.tw
2010 / 05 / 05	18	6,607,241,838	proxy.ncnu.edu.tw
2010 / 05 / 06	24	3,740,517,234	proxy.ncnu.edu.tw
2010 / 05 / 07	17	7,855,203,024	proxy.ncnu.edu.tw
2010 / 05 / 08	17	6,211,977,904	proxy.ncnu.edu.tw
2010 / 05 / 09	196	349,948,151	proxy.ncnu.edu.tw
2010 / 05 / 10	20	5,091,735,935	proxy.ncnu.edu.tw

Experimental Results



Experimental Results



Conclusion

- More User
 - More Webpages
 - More Accurate
 - More Upstream Proxy Server
- Automatic, Learning, Intelligent Proxy Server

Future Work

- Re-use the perfSONAR system on Internet2 for bandwidth measurement.
- Re-use network routing table to choose the “shortest” path.

Any Question?

END

Thanks for your listening

Measurement Tools

- `http_ping -proxy ServerName:Port URL`

```
[linlin@proxy HTTPING]$ http_ping -proxy proxy.ncnu.edu.tw:3128 http://www.ncnu.edu.tw
135 bytes from http://www.ncnu.edu.tw: 0.345 ms (0.059c/0.273r/0.013d)
135 bytes from http://www.ncnu.edu.tw: 0.289 ms (0.037c/0.24r/0.012d)
135 bytes from http://www.ncnu.edu.tw: 0.296 ms (0.036c/0.248r/0.012d)

--- http://www.ncnu.edu.tw http_ping statistics ---
3 fetches started, 3 completed (100%), 0 failures (0%), 0 timeouts (0%)
total      min/avg/max = 0.289/0.31/0.345 ms
connect   min/avg/max = 0.036/0.044/0.059 ms
response  min/avg/max = 0.24/0.253667/0.273 ms
data      min/avg/max = 0.012/0.0123333/0.013 ms
```

Measurement Tools

- Useful options
 - `http_ping -proxy ServerName:Port`
 - `http_ping -count Number of retries`
- Commands in our experiments

```
[linlin@proxy HTTPING]$ http_ping -count 1 -proxy proxy.ncnu.edu.tw:3128 http://www.ncnu.edu.tw
135 bytes from http://www.ncnu.edu.tw: 0.364 ms (0.079c/0.27r/0.015d)

--- http://www.ncnu.edu.tw http_ping statistics ---
1 fetches started, 1 completed (100%), 0 failures (0%), 0 timeouts (0%)
total      min/avg/max = 0.364/0.364/0.364 ms
connect    min/avg/max = 0.079/0.079/0.079 ms
response   min/avg/max = 0.27/0.27/0.27 ms
data       min/avg/max = 0.015/0.015/0.015 ms
```