Web Proxy
Proxy

- A proxy server is a server which services the requests of its clients by:
  - Making requests to other servers
  - Caching some results for further same requests
- Goals:
  - Performance
  - Stability
  - Central Control
  - …etc.
- Roles:
  - Forward Proxy
  - Reverse Proxy
- Targets:
  - Web/FTP Pages
  - TCP/IP Connections
  - …etc.
Proxy
– The Forward Proxy

- Forward Proxy
  - Proxy the outgoing requests, for the reason of
    - Bandwidth saving
    - Performance
    - Central control
  - When objects requested are
    - In cache, return the cached objects
    - Otherwise, proxy server requests object from origin server, then cache it and return to client
Proxy
– The Reverse Proxy

- Reverse Proxy
  - Proxy the incoming requests, for the reason of
    - Reducing Server Load (by caching)
    - Load Balance
    - Fault Tolerant
  - Reverse proxy acts as the original server, accept incoming requests, reply corresponding result. SEAMLESS for clients!
Proxy – SQUID

- A web proxy server & cache daemon.
  - Supports HTTP, FTP
  - Limited support for TLS, SSL, Gopher, HTTPS
  - Latest stable version: 2.6-STABLE13, 2007/5/11

- Port install: /usr/ports/www/squid

- Startup:
  - /etc/rc.conf
    - squid_enable="YES"
    - squid_config="/usr/local/etc/squid/squid.conf"
    - squid_user="squid"
  - /usr/local/etc/rc.d/squid start

- Configuration Sample/Documents:
  - /usr/local/etc/squid/squid.conf.default
Proxy
– SQUID Configuration (1)

- **Listen Port**
  - Service Port
    - http_port 3128
  - Neighbored Communication
    - icp_port 3130

- **Logs**
  - access_log
    - access_log /var/log/squid/access.log squid
  - cache_log
    - cache_log /var/log/squid/cache.log
  - cache_store_log
    - cache_store_log /var/log/squid/store.log
Proxy
– SQUID Configuration (2)

Access Control

- acl – define an access control list
  - Format: acl acl-name acl-type data
    - acl all src 0.0.0.0/0.0.0.0
    - acl NCTU srcdomain .nctu.edu.tw
    - acl YAHOO dstdomain .yahoo.com
    - acl allowhost src “/usr/local/etc/squid.squid.allow”

- http_access – define the control rule
  - Format: http_access allow|deny acl-name
    - http_access allow NCTU
    - http_access allow allowhost
    - http_access deny all
Proxy

– SQUID Configuration (3)

Proxy Relationship

- Protocol: ICP (Internet Cache Protocol)
  RFC 2186 2187, using UDP
- Related Configuration
  - cache_peer hostname type http_port icp_port [options]
  - cache_peer_domain cache-host domain [domain ...]
  - cache_peer_access cache-host allow|deny acl-name
Proxy

– SQUID Configuration (4)

- Cache Control
  - cache_mem 256 MB
  - cache_dir ufs /usr/local/squid/cache 100 16 256
  - cache_swap_low 93
  - cache_swap_high 98
  - maximum_object_size 4096 KB
  - maximum_object_size_in_memory 8 KB
## Proxy

### – SQUID Configuration (5)

#### Sample: Proxy Configuration

<table>
<thead>
<tr>
<th>Command</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>http_port</td>
<td>3128</td>
</tr>
<tr>
<td>icp_port</td>
<td>3130</td>
</tr>
<tr>
<td>cache_mem</td>
<td>32 MB</td>
</tr>
<tr>
<td>cache_dir</td>
<td>ufs /usr/local/squid/cache</td>
</tr>
<tr>
<td></td>
<td>100 16 256</td>
</tr>
<tr>
<td>access_log</td>
<td>/var/log/squid/access.log</td>
</tr>
<tr>
<td></td>
<td>squid</td>
</tr>
<tr>
<td>cache_log</td>
<td>/var/log/squid/cache.log</td>
</tr>
<tr>
<td>cache_store_log</td>
<td>/var/log/squid/store.log</td>
</tr>
<tr>
<td>pid_filename</td>
<td>/usr/local/squid/logs/squid.pid</td>
</tr>
<tr>
<td>visible_hostname</td>
<td>nabsd.cs.nctu.edu.tw</td>
</tr>
<tr>
<td>acl allowhosts</td>
<td>src &quot; /usr/local/etc/squid/squid.allow&quot;</td>
</tr>
<tr>
<td>http_access</td>
<td>allow allow allowhosts</td>
</tr>
<tr>
<td></td>
<td>deny all</td>
</tr>
</tbody>
</table>
Sample: Reverse Proxy Configuration

```
http_port 80 vhost
icp_port 3130

cache_mem 32 MB
cache_dir ufs /usr/local/squid/cache 100 16 256

access_log /var/log/squid/access.log squid
cache_log /var/log/squid/cache.log
cache_store_log /var/log/squid/store.log
pid_filename /usr/local/squid/logs/squid.pid

visible_hostname nabsd.cs.nctu.edu.tw
url_rewrite_program /usr/local/squid/bin/redirect.sh
acl cswww dstdomain csws1 csws2
http_access allow all cswww
always_direct allow cswww
```
Proxy

– SQUID Configuration (7)

% cat /usr/local/squid/bin/redirect.sh

#!/bin/sh

while read line
do
    TIME=`date "+%S"`
    SERV=`expr $TIME % 2 + 1`
done