

Kathará

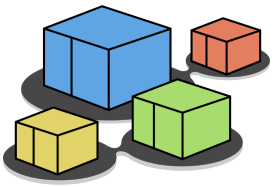
Lab webserver

web server and browser

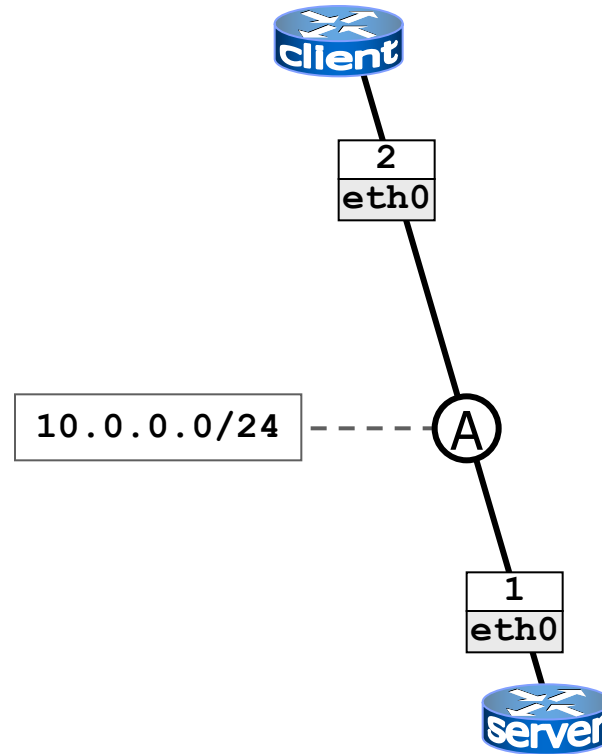
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Description	A lab showing the operation of a web server accessed by a browser client – kathara simplified version of the corresponding netkit lab vers. 1.2

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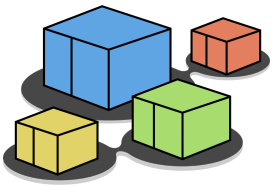
Lab topology





Lab description

- server
 - runs apache2 (with a default configuration)
- client
 - the user can launch a text-based web browser (**links**) to check the server operation



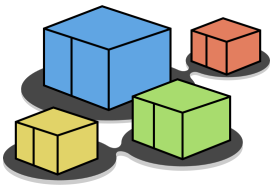
The server

- the user can check that apache2 is up and running by using the following command:

```
root@server:~$ systemctl start apache2  
root@server:~$
```

- we have put a test html page
 - located in `/var/www/html/index.html`

```
<html>  
  <body>  
    <h1>Hello!</h1>  
  </body>  
</html>
```

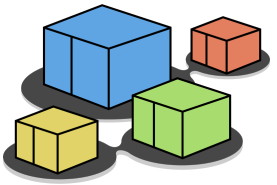


The client

- the user is supposed to start the web browser **links** on the client

```
root@client:~$ links http://10.0.0.1
```

- you should get a screen saying “Hello!”



The server (again)

- to monitor accesses to the web server you can use the following command (on the server):

```
root@server:~$ tail -f /var/log/apache2/access.log
10.0.0.2 - - [19/Oct/2011:08:04:08 +0000] "GET / HTTP/1.1" 200 56
 "-" "Links (2.2; Linux; 80x39)"
```

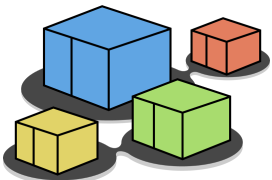


The server (again)

- to monitor errors on the web server you can use the following command (on the server):

```
root@server:~$ tail -f /var/log/apache2/error.log
[Wed Nov 14 15:57:58 2019] [notice] Apache/2.2.9 (Debian)
configured -- resuming normal operations
[Wed Nov 14 16:14:07 2019] [notice] caught SIGTERM, shutting down
```

- very useful when debugging configurations



Apache modules

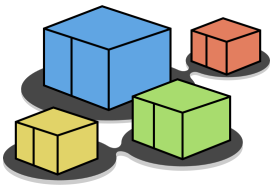
- most of apache's functionalities are built-in
 - retrieve the list using `apache2 -l`
- others can be added by enabling modules
 - to enable a module:

```
root@server:~$ a2enmod rewrite
Enabling module rewrite.
To activate the new configuration, you need to run:
    service apache2 restart
root@server:~$
```



apache modules

- available modules are located in:
 - `/etc/apache2/mods-available`
- enabled modules are located in:
 - `/etc/apache2/mods-enabled`
- `a2enmod` puts a symbolic link from the relevant file(s) in:
 - `/etc/apache2/mods-available` to `/etc/apache2/mods-enabled`
- `a2dismod` removes these symbolic links



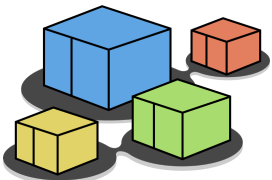
some useful apache modules

<code>userdir</code>	enables per-user web sites (this feature does not work with Kathará)
<code>rewrite</code>	implements URL rewriting
<code>proxy</code>	implements a proxy/gateway
<code>cgi/cgid</code>	supports execution of CGI scripts



per-directory configuration

- apache allows configuration changes on a per-directory basis
- creating a special file `/some/path/.htaccess` with apache configuration statements applies those statements to all files and subdirectories inside `/some/path`
 - `.htaccess` files can be nested in a directory tree
 - nested files override their parents



per-directory configuration

- sample configuration statements:

- restrict access from specific hosts

- `Deny from example.org test.com 10.0.0 192.168.0.0/24`

- perform URL rewriting

- (transparently) redirect to other sites

- restrict access to a specific subdirectory

- change name of file containing the default page

- `DirectoryIndex pippo.html`

- enable/disable directory indexing

- `Options -Indexes`



Exercise: per-directory configuration

- when a resource name is not specified in the URL, apache serves `index.html` from the requested path
- hands-on:
 - edit file `/var/www/html/.htaccess` and add the following directive:
`DirectoryIndex custom_file.html`
 - rename previously created file `/var/www/html/index.html` to `custom_file.html`
 - try accessing `http://10.0.0.1/` from client
 - rename `custom_file.html` back to `index.html` and try accessing the page again