Virtual Host
(Web Server)
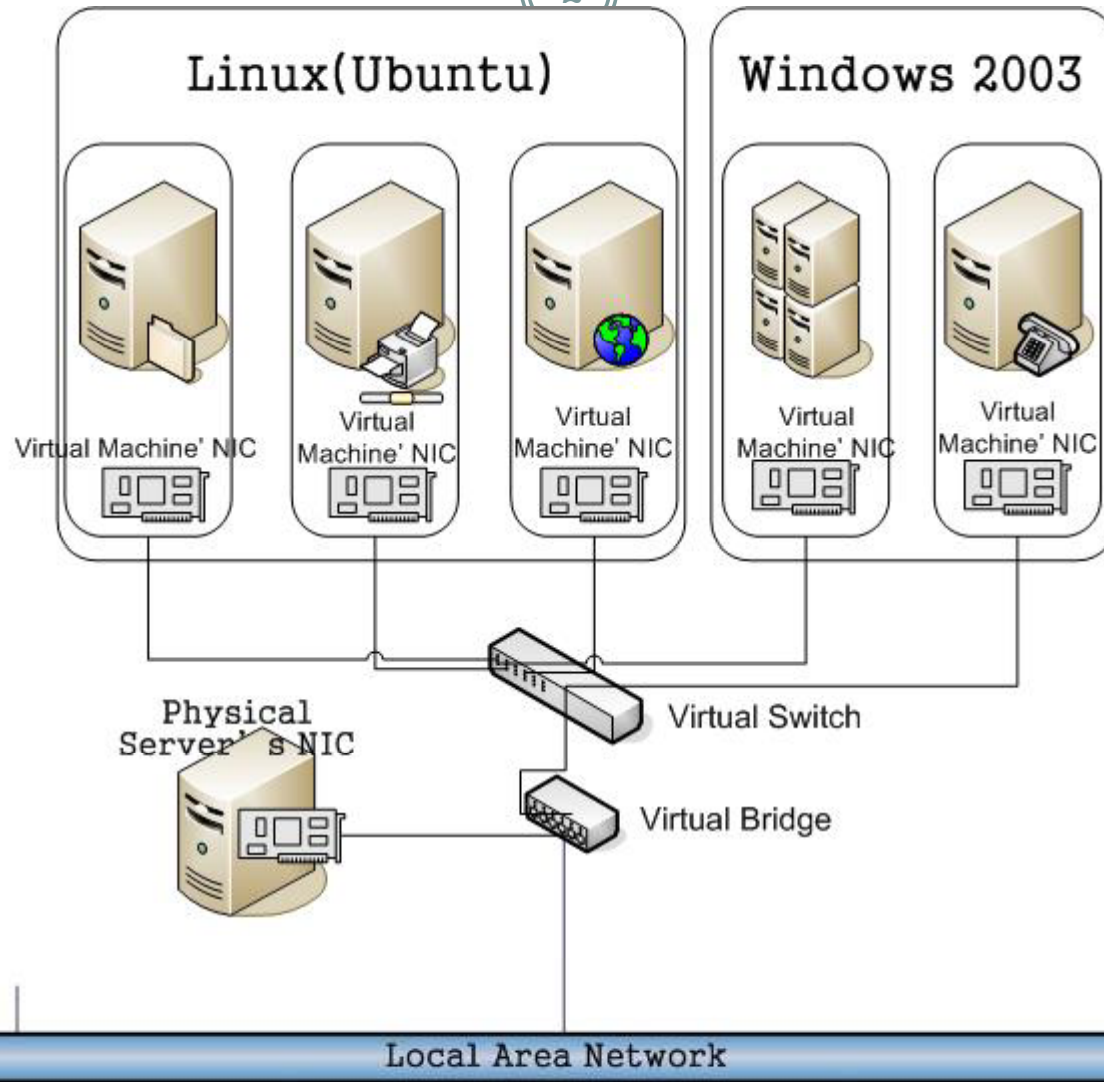
1

Muhammad Zen Samsono Hadi, ST. MSc.

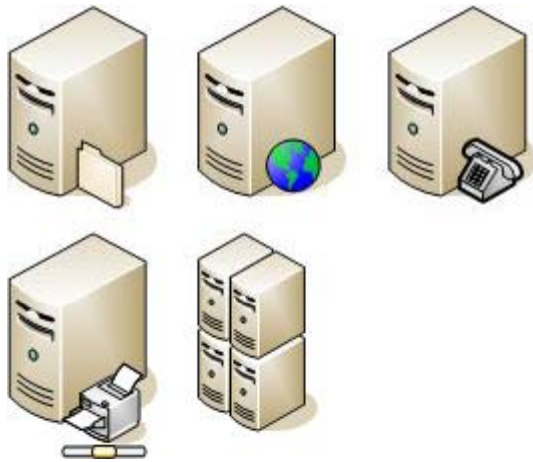### Lab. Komunikasi Digital
Gedung D4 Lt. 1
EEPIS-ITS

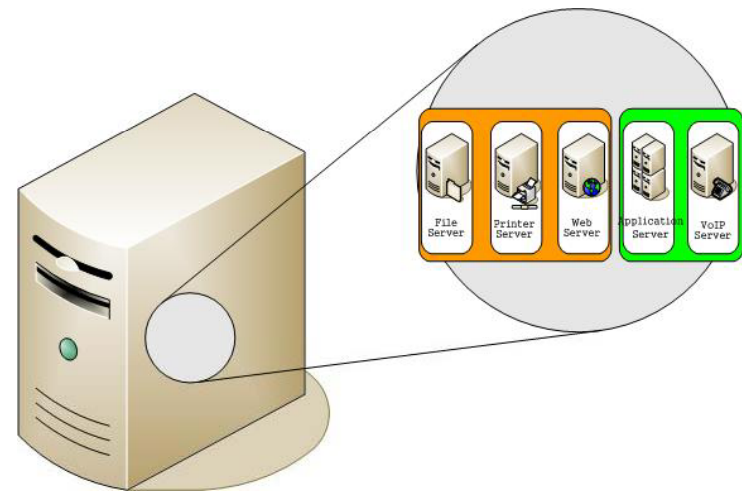# Virtual Networking implementation

Power consumption comparison

5 Physical servers

VS

Virtual Server

Power consumption comparison
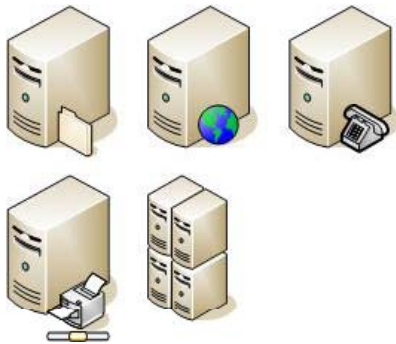
230W

x
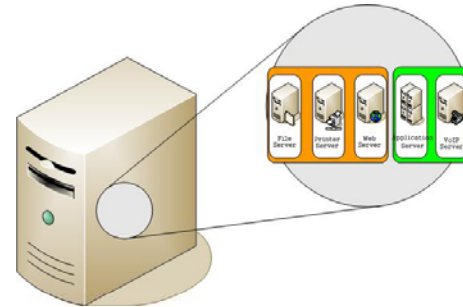
5

x

24h

=

27.6kwh + a

230W

x

24h

=

5.5kwh + a

Virtual Server Advantages

- **Power saving** over multiple physical servers
- Simplify system administration by integrating all servers into one physical machine
- Server hardware resource optimization

Virtual Server disadvantages

- When host server machine crash, all virtual servers embedded in the server crash too.
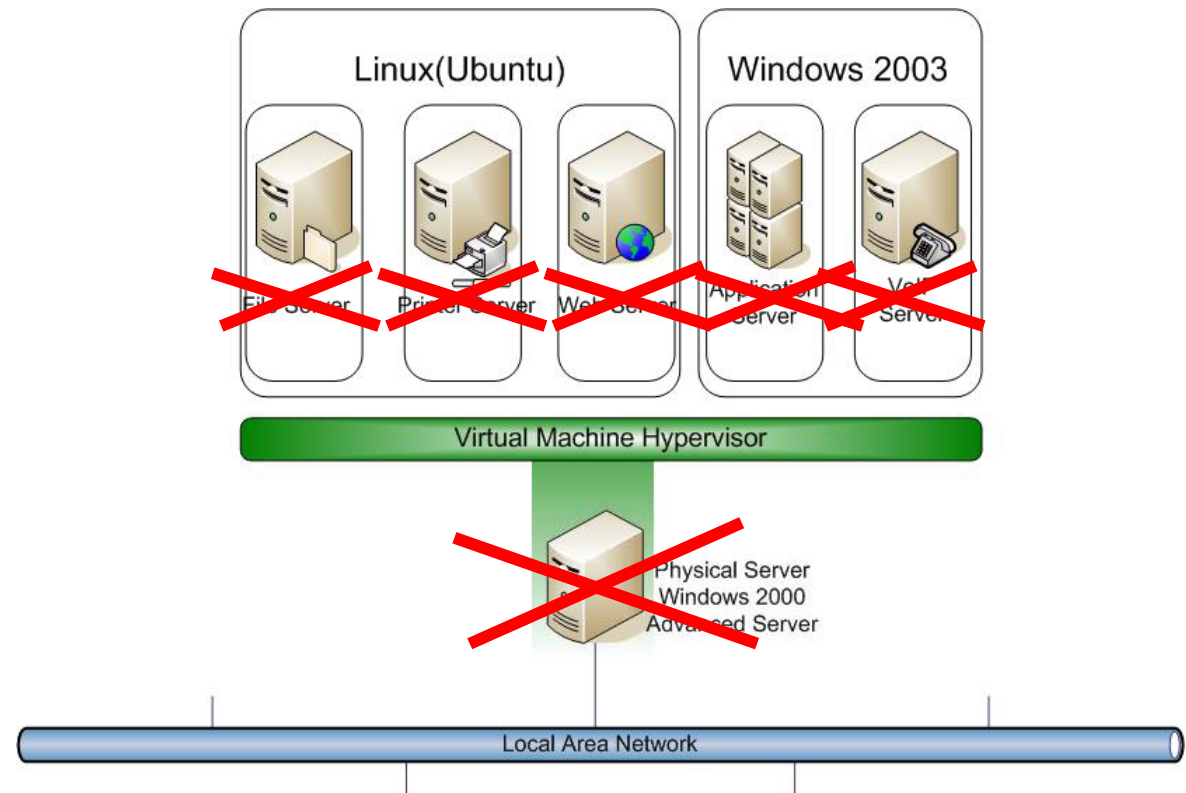
Virtual Hosting

- General term used when you run more than one website on a single system.

- Allows ISPs and hosting providers to make money by sharing resources among clients. Allows companies and individuals to save time and money - a single machine can host many websites.

Virtual Host
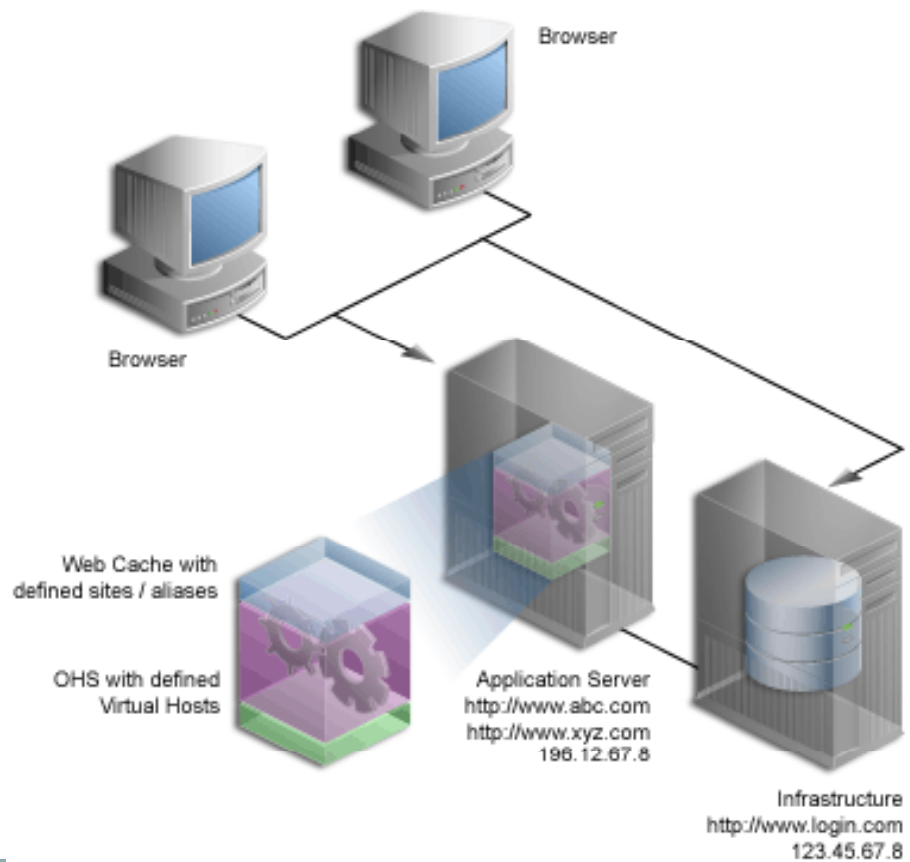
Options for Hosting More than One Website on a Single System

- Run separate instances of httpd servers: *httpd –f /usr/local/apache/conf/httpd-virtual.conf*

- Run a server that will listen on multiple ports and serve different content depending on the port.

- True *Virtual Hosting* - Allows multiple IP address and/or host names to be served through a single Apache server.
  - IP-Based
  - Name-Based

Virtual Hosting: IP Based

- You must configure your machine to "listen" for multiple IP addresses. One NIC *binds* to multiple IP addresses

- One hostname is associated with each IP address

| www.yahoo.com | → | 216.32.74.52 |
| sports.yahoo.com | → | 216.115.105.243 |

SERVER

NIC
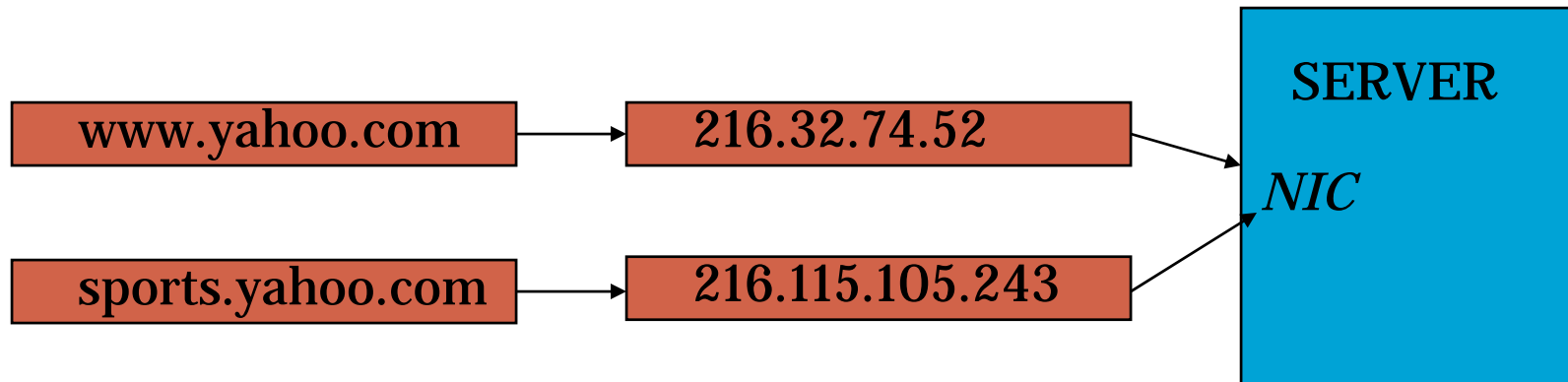
Virtual Hosting: Name Based

- A machine can host multiple websites using only 1 IP address
- All hostnames have the same IP address
- Becoming more and more popular.

```
some.mydomain.com  ┐
                    ├──→ 165.145.26.110 ──→  NIC   SERVER
www.hisdomain.com  ┘
```
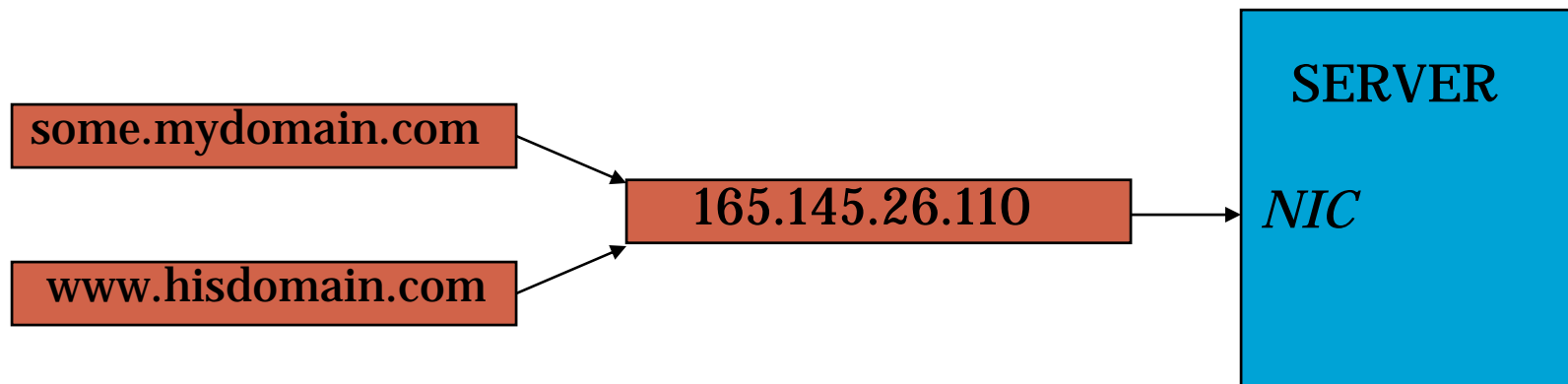
Setting-Up IP-Based Virtual Hosting: An Overview

- Once you have secured the domain names/hostnames you want to use for your website, you need to assign each of them a unique IP address.

- Some ISPs *can* assign you additional IP addresses.

- Blocks of IP addresses are usually assigned with business T1s or DSL lines.

Setting-Up IP-Based Virtual Hosting, Con't.

- You need to have DNS properly configured for your domains, e.g. The world needs to know that www.yourdomain.com is at the IP address 123.23.34.56.

- Remember, your ISP can usually provide DNS service for your domains.

IP-Based Virtual Hosting: Setting Up Your Machine

- Your web server needs to be configured to listen for the IP addresses related to your websites:

- UNIX-based OSs allow you to configure multiple IP addresses using the *ifconfig* command (must be run as root)

- Usage: *ifconfig interface:<sub-number> IP*
  - e.g: *ifconfig eth0:0 165.230.30.71*
  - *ifconfig eth0:1 165.230.30.72*

- **WinNT IP setup through Network control panel.**

Configuring Apache for IP-Based Virtual Hosting

- Configuring Apache for Virtual Hosting is quite simple: Simply add a <VirtualHost> block within the httpd.conf file.

- Format:

```
<VirtualHost IP-or-HOSTNAME:Port>
    #Any Valid httpd.conf directives
</VirtualHost>
```

- Required for each Virtual Host website your are using...therefore your httpd.conf can have multiple <VirtualHost> blocks.

IP-Based VH Configuration con't.

- ## Typical <VirtualHost> block in httpd.conf:

```
<VirtualHost www.bearsnest.org>
   DocumentRoot /home/www/bearsnest/htdocs
   ServerAdmin chrisjur@cju.com
   ServerName www.bearsnest.org
   ErrorLog logs/bears-error_log
   TransferLog logs/bears-access_log
   Redirect /adprotech        http://www.adprotech.com
   Alias /staff        /home/chrisjur/htdocs/bn/staff
</VirtualHost>
```

- ## The key: Vitual hosts will have their own unique DocumentRoot – different content for different sties.

Steps for Setting-Up Name-Based Virtual Hosting

- When setting up Name-based virtual hosts, you need to add the special NameVirtualHost Directive to your httpd.conf:
  - `NameVirtualHost <Your IP Address>`
- Which tells Apache the single IP address you will use for all your websites.
- Now simply add <VirtualHost> blocks for each of your website domains.

Name-Based VH Examples

```
NameVirtualHost 165.230.30.68
<VirtualHost www.yoursite.org>
  DocumentRoot /home/www/yoursite/htdocs
  ServerAdmin you@yoursite.com
  ServerName www.yoursite.com
  ErrorLog logs/yoursite-error_log
</VirtualHost>
<VirtualHost www.mysite.com>
  DocumentRoot /home/www/mysite/htdocs
  ServerAdmin me@mysite.com
  ServerName www.mysite.org
  ErrorLog logs/mysite-error_log
</VirtualHost>
```

Virtual Hosting Recap

- Get your DNS configured for each domain
- IP-based Virtual Hosting vs. Name-based Virtual Hosting
- Configure your server for multiple IP addresses if using IP-based Virtual Hosting
- Create new directories for new Document Roots
- Add <VirtualHost> blocks to your httpd.conf

Delivering Dynamic Content

- **Two ways of delivering dynamic content for the Web: client-side or server-side technologies**

- **Client-Side**
  - Elements are downloaded to the browser and execute on the client's system.
  - Examples: JavaScript, Java Applets, client-side image maps.
  - Web server administrator needs to see that MIME types are set correctly.

- **Server-Side**
  - Server processes "on-the-fly" content that is passed to client browser.
  - Examples: server-side includes, CGI (Common Gateway Interface), server-side image maps, ASP (Active Server Pages), Java Servlets. PHP
  - Server-side technologies generally require additional configuration of the Web server in order to function properly. Usually require specific Apache modules.
  - Enabling server-side technologies generally has security implications.