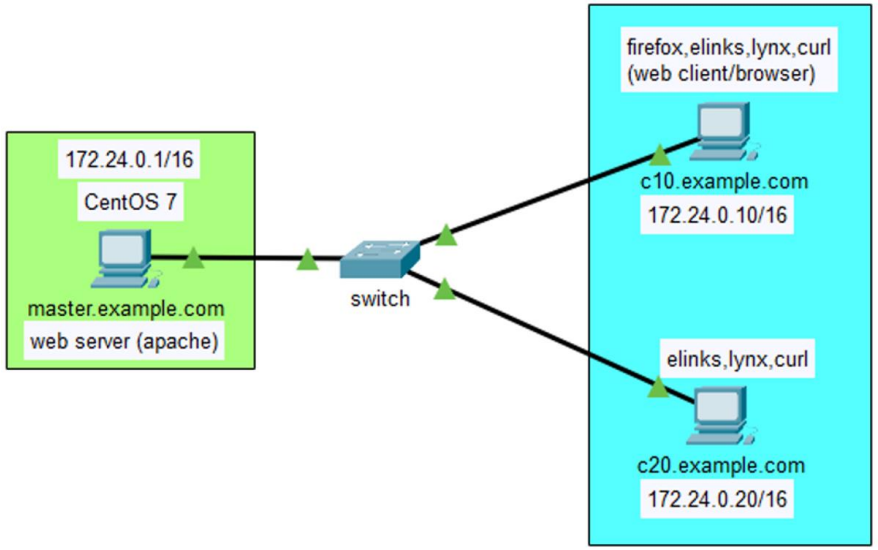


# Working With LAMP Stack

## (Linux, Apache, Mariadb, PHP)

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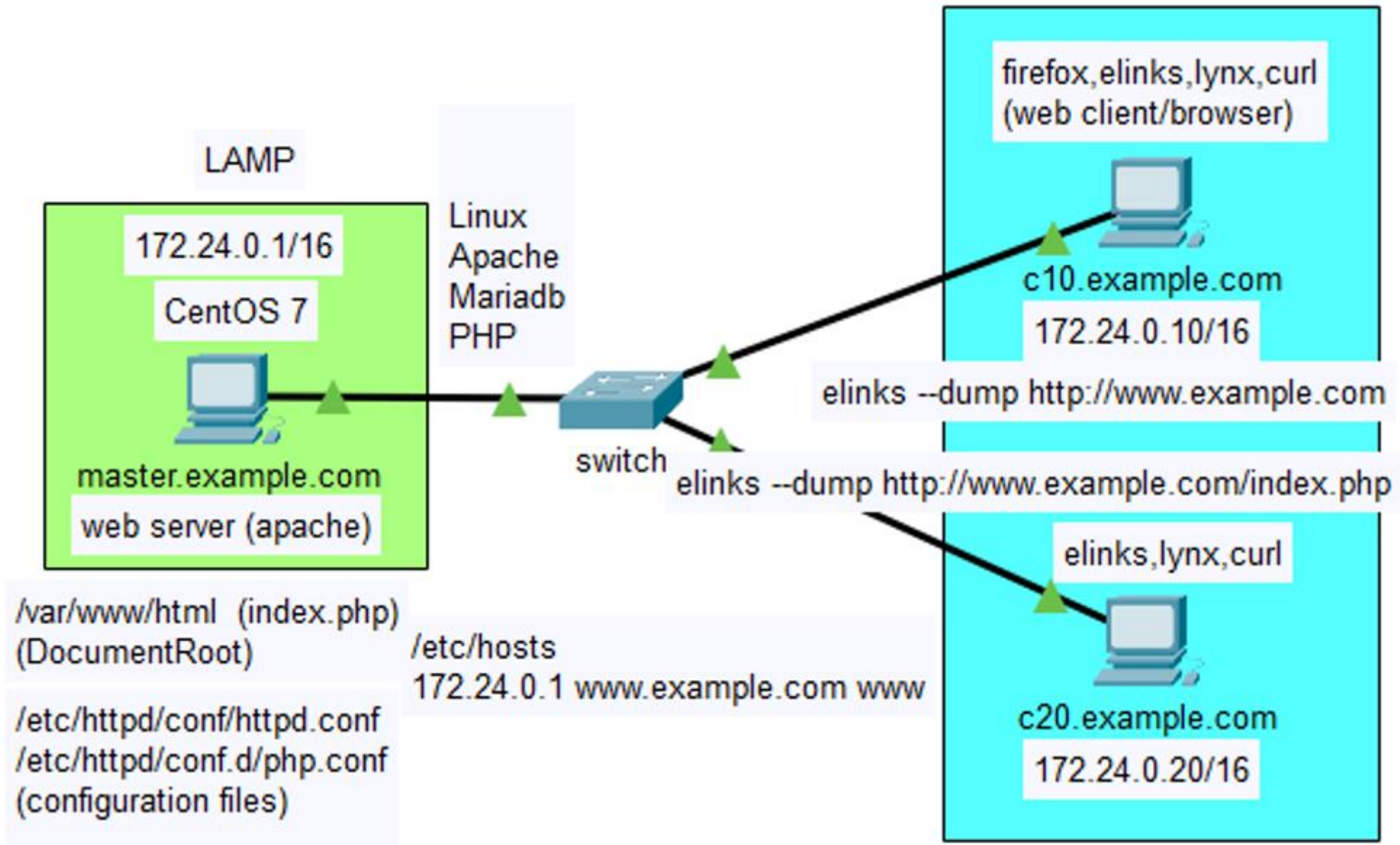
# Lab Setup


LAMP
172.24.0.1/16
CentOS 7
master.example.com
web server (apache)
Linux
Apache
Mariadb
PHP
switch
firefox,elinks,lynx,curl
(web client/browser)
c10.example.com
172.24.0.10/16
elinks --dump http://www.example.com
elinks --dump http://www.example.com/index.php
elinks,lynx,curl
c20.example.com
172.24.0.20/16
/var/www/html (index.php)
(DocumentRoot)
/etc/hosts
172.24.0.1 www.example.com www
/etc/httpd/conf/httpd.conf
/etc/httpd/conf.d/php.conf
(configuration files)

# Create Simple PHP Page

```
[root@master ~]# cd /var/www/html
[root@master html]#
[root@master html]# cat index.php
<?php
echo "hello hi";
?>
[root@master html]#
[root@master html]# ls
index.php
[root@master html]#
[root@master html]# systemctl restart httpd
[root@master html]#
```

Create “index.php” page.

# Why “index.php”

```
[root@master ~]# cd /etc/httpd/
[root@master httpd]#
[root@master httpd]# tree
.
├── conf
│   ├── httpd.conf
│   ├── httpd.conf.bak
│   └── magic
├── conf.d
│   ├── autoindex.conf
│   ├── php.conf
│   ├── README
│   ├── ssl.conf
│   ├── userdir.conf
│   └── welcome.conf
```

```
[root@master httpd]# head -18 conf.d/php.conf
#
# Cause the PHP interpreter to handle files with a .php extension.
#
<FilesMatch \.php$>
    SetHandler application/x-httpd-php
</FilesMatch>

#
# Allow php to handle Multiviews
#
AddType text/html .php

#
# Add index.php to the list of files that will be served as directory
# indexes.
#
DirectoryIndex index.php
```

The “DirectoryIndex” directive will decide which files will be searched in what order, to be delivered to web clients.
The “index.php” is included in the directive, that is why we created the main file with name “index.php”.

# Check Web Connectivity From C10

```
[root@c10 ~]# elinks --dump http://172.24.0.1
   hello hi
[root@c10 ~]#
[root@c10 ~]# elinks --dump http://172.24.0.1/index.php
   hello hi
```

# Create Entries in Hosts File & Test Using Name

```
[root@master httpd]# cat /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
172.24.0.1  master.example.com master
172.24.0.1  www.example.com www
[root@master httpd]#
```

```
[root@c10 ~]# cat /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
172.24.0.10 c10.example.com c10
172.24.0.1  www.example.com www
[root@c10 ~]#
[root@c10 ~]# elinks --dump http://www.example.com
   hello hi
```

# Check Database Packages & Start Mariadb Server

```
[root@master ~]# rpm -q mariadb-server
mariadb-server-5.5.68-1.el7.x86_64
[root@master ~]#
[root@master ~]# rpm -q mariadb
mariadb-5.5.68-1.el7.x86_64
[root@master ~]#
[root@master ~]# systemctl start mariadb
[root@master ~]#
[root@master ~]# systemctl enable mariadb
Created symlink from /etc/systemd/system/multi-user.target.wants/mariadb.service
m/mariadb.service.
[root@master ~]#
```

First check, whether the all Mariadb packages are installed or not by using “rpm -q” command.

# Connect To Mariadb Server

```
[root@master ~]# mysql
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 2
Server version: 5.5.68-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]>
MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| test               |
+--------------------+
4 rows in set (0.00 sec)

MariaDB [(none)]> _
```

use “mysql” client to connect to mariadb server..

# Create Database & User For Managing Database

```
MariaDB [(none)]> create database employee;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> grant all on employee.* to aanya@localhost identified by "Asdf#1234";
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> flush privileges;
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| employee           |
| mysql              |
| performance_schema |
| test               |
+--------------------+
5 rows in set (0.00 sec)

MariaDB [(none)]> quit
Bye
[root@master ~]#
```

Create database “employee”. Create user “aanya” for managing the database.

# Connect To Database

```
[root@master ~]# mysql -u aanya -pAsdf#1234 employee
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 5
Server version: 5.5.68-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [employee]> use employee;
Database changed
MariaDB [employee]>
MariaDB [employee]> show tables;
Empty set (0.00 sec)

MariaDB [employee]>
```

Connect to “employee” database as user “aanya”.

# Create Table & Insert Some Data Into Table

```
MariaDB [employee]> create table salary (
    -> eno char(3) primary key,
    -> dept varchar(15),
    -> salary int(6)
    -> );
Query OK, 0 rows affected (0.00 sec)

MariaDB [employee]> show tables;
+--------------------+
| Tables_in_employee |
+--------------------+
| salary             |
+--------------------+
1 row in set (0.00 sec)

MariaDB [employee]> insert into salary values ("101","marketing",30000);
Query OK, 1 row affected (0.00 sec)

MariaDB [employee]> _
```

Create table “salary” and insert data into table.

# Create Table & Insert Some Data Into Table

```
MariaDB [employee]> insert into salary values ("102","sales",25000);
Query OK, 1 row affected (0.00 sec)

MariaDB [employee]> insert into salary values ("103","production",12000);
Query OK, 1 row affected (0.00 sec)

MariaDB [employee]> insert into salary values ("104","cs",20000);
Query OK, 1 row affected (0.00 sec)

MariaDB [employee]> insert into salary values ("105","cs",55000);
Query OK, 1 row affected (0.00 sec)

MariaDB [employee]> insert into salary values ("106","it",90000);
Query OK, 1 row affected (0.00 sec)
```

Create table “salary” and insert data into table.

# Perform Query

```
MariaDB [employee]> select * from salary;
+-----+-------------+--------+
| eno | dept        | salary |
+-----+-------------+--------+
| 101 | marketing   |  30000 |
| 102 | sales       |  25000 |
| 103 | production  |  12000 |
| 104 | cs          |  20000 |
| 105 | cs          |  55000 |
| 106 | it          |  90000 |
+-----+-------------+--------+
6 rows in set (0.00 sec)

MariaDB [employee]> quit
Bye
[root@master ~]#
```

Perform query  and quit.

# Create Sample LAMP Application

```
[root@master html]# cat index.php
<?php
        $conn = mysqli_connect('localhost','aanya','Asdf#1234','employee');

        $q = "select * from salary limit 4";

        $result = mysqli_query($conn,$q);

        while ($row = mysqli_fetch_array($result))
                {
                        echo $row['eno']." ";
                        echo $row['dept']." ";
                        echo $row['salary']." ";
                        echo "<br />";
                }
?>
[root@master html]#
```

We can access data stored in database by creating PHP application. Create simple PHP application. The file name of file is “index.php”.

# Test LAMP Application From Master System

```
[root@master ~]# elinks --dump http://172.24.0.1
   101 marketing 30000
   102 sales 25000
   103 production 12000
   104 cs 20000
[root@master ~]#
[root@master ~]#
[root@master ~]# elinks --dump http://www.example.com
   101 marketing 30000
   102 sales 25000
   103 production 12000
   104 cs 20000
[root@master ~]#
```

We are successful in fetching data stored in database by using PHP application. Here Linux is OS, Apache is web server used, data is stored in Mariadb database and language used is PHP. Thus it shows the use of LAMP stack

# Test LAMP Application From C10 System

```
[root@c10 ~]# elinks --dump http://172.24.0.1
   101 marketing 30000
   102 sales 25000
   103 production 12000
   104 cs 20000
[root@c10 ~]#
[root@c10 ~]# elinks --dump http://172.24.0.1/index.php
   101 marketing 30000
   102 sales 25000
   103 production 12000
   104 cs 20000
[root@c10 ~]#
[root@c10 ~]# elinks --dump http://www.example.com
   101 marketing 30000
   102 sales 25000
   103 production 12000
   104 cs 20000
[root@c10 ~]#
```

We are successful in fetching data stored in database by using PHP application. Here Linux is OS, Apache is web server used, data is stored in Mariadb database and language used is PHP. Thus it shows the use of LAMP stack

# View Log Files

```
[root@master ~]# tail /var/log/httpd/error_log
sh: localhost: command not found
sh: aanya: command not found
sh: Asdf#1234: command not found
sh: employee: command not found
[Sun Jan 10 08:57:40.452658 2021] [:error] [pid 2077] [client 172.24.0.1:50564] PHP Warning:  mysqli_fetch
_array() expects parameter 1 to be mysqli_result, boolean given in /var/www/html/index.php on line 8
sh: 127.0.0.1: command not found
sh: aanya: command not found
sh: Asdf#1234: command not found
sh: employee: command not found
[Sun Jan 10 08:58:18.526436 2021] [:error] [pid 2076] [client 172.24.0.1:50566] PHP Warning:  mysqli_fetch
_array() expects parameter 1 to be mysqli_result, boolean given in /var/www/html/index.php on line 8
[root@master ~]#
```

# View Log Files

```
[root@master ~]# tail /var/log/httpd/access_log
172.24.0.1 - - [10/Jan/2021:09:02:53 +0530] "GET / HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmode; Linux;
 -)"
172.24.0.10 - - [10/Jan/2021:09:03:14 +0530] "GET / HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmode; Linux
; 106x34-2)"
172.24.0.1 - - [10/Jan/2021:09:08:22 +0530] "GET / HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmode; Linux;
 -)"
172.24.0.1 - - [10/Jan/2021:09:08:34 +0530] "GET / HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmode; Linux;
 -)"
172.24.0.10 - - [10/Jan/2021:09:08:45 +0530] "GET / HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmode; Linux
; -)"
172.24.0.10 - - [10/Jan/2021:09:08:53 +0530] "GET / HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmode; Linux
; -)"
172.24.0.10 - - [10/Jan/2021:09:11:02 +0530] "GET /index.html HTTP/1.1" 404 208 "-" "ELinks/0.12pre6 (text
mode; Linux; -)"
172.24.0.10 - - [10/Jan/2021:09:11:12 +0530] "GET / HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmode; Linux
; -)"
172.24.0.10 - - [10/Jan/2021:09:11:18 +0530] "GET /index.php HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmo
de; Linux; -)"
172.24.0.10 - - [10/Jan/2021:09:11:23 +0530] "GET / HTTP/1.1" 200 94 "-" "ELinks/0.12pre6 (textmode; Linux
; -)"
```