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**NSD OPERATION DAY03**

1. [案例1：部署LNMP环境](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html#case1)
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**1 案例1：部署LNMP环境**

**1.1 问题**

安装部署Nginx、MariaDB、PHP环境

* 安装部署Nginx、MariaDB、PHP、PHP-FPM；
* 启动Nginx、MariaDB、FPM服务；
* 并测试LNMP是否工作正常。

**1.2 方案**

在RHEL7系统中，源码安装Nginx，使用RPM包安装MariaDB、PHP、PHP-FPM软件。

操作过程中需要安装的软件列表如下：

* nginx
* mariadb、mariadb-server、mariadb-devel
* php、php-fpm、php-mysql

**1.3 步骤**

实现此案例需要按照如下步骤进行。

**步骤一：安装软件**

1）使用yum安装基础依赖包

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# yum -y install gcc openssl-devel pcre-devel zlib-devel
2. .. ..

[root@svr5 ~]# yum -y install gcc openssl-devel pcre-devel zlib-devel

.. ..

2）源码安装Nginx

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# useradd –s /sbin/nologin nginx
2. [root@svr5 ~]# tar -zxvf nginx-1.8.0.tar.gz
3. [root@svr5 ~]# cd nginx-1.8.0
4. [root@svr5 nginx-1.8.0]# ./configure \
5. > --prefix=/usr/local/nginx \
6. > --user=nginx --group=nginx \
7. > --with-http\_ssl\_module
8. [root@svr5 ~]# make && make install
9. .. ..

[root@svr5 ~]# useradd –s /sbin/nologin nginx

[root@svr5 ~]# tar -zxvf nginx-1.8.0.tar.gz

[root@svr5 ~]# cd nginx-1.8.0

[root@svr5 nginx-1.8.0]# ./configure \

> --prefix=/usr/local/nginx \

> --user=nginx --group=nginx \

> --with-http\_ssl\_module

[root@svr5 ~]# make && make install

.. ..

3）安装MariaDB

Mariadb在新版RHEL7光盘中包含有该软件，配置yum源后可以直接使用yum安装：

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# yum –y install mariadb mariadb-server mariadb-devel

[root@svr5 ~]# yum –y install mariadb mariadb-server mariadb-devel

4）php和php-fpm

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# yum –y install php php-mysql
2. [root@svr5 ~]# tar –xf lnmp\_soft-2017-03-28.tar.gz
3. [root@svr5 ~]# cd lnmp\_soft
4. [root@svr5 ~]# yum –y localinstall php-fpm-5.4.16-36.el7\_1.x86\_64.rpm

[root@svr5 ~]# yum –y install php php-mysql

[root@svr5 ~]# tar –xf lnmp\_soft-2017-03-28.tar.gz

[root@svr5 ~]# cd lnmp\_soft

[root@svr5 ~]# yum –y localinstall php-fpm-5.4.16-36.el7\_1.x86\_64.rpm

**步骤二：启动服务**

1）启动Nginx服务

这里需要注意的是，如果服务器上已经启动了其他监听80端口的服务软件（如httpd），则需要先关闭该服务，否则会出现冲突。

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# systemctl stop httpd                //如果该服务存在则关闭该服务
2. [root@svr5 ~]# systemctl disable httpd                //关闭httpd的开机启动功能
3. [root@svr5 ~]# /usr/local/nginx/sbin/nginx             //启动Nginx服务
4. [root@svr5 ~]# netstat -utnlp | grep :80
5. tcp    0    0 0.0.0.0:80        0.0.0.0:\*        LISTEN        32428/nginx

[root@svr5 ~]# systemctl stop httpd //如果该服务存在则关闭该服务

[root@svr5 ~]# systemctl disable httpd //关闭httpd的开机启动功能

[root@svr5 ~]# /usr/local/nginx/sbin/nginx //启动Nginx服务

[root@svr5 ~]# netstat -utnlp | grep :80

tcp 0 0 0.0.0.0:80 0.0.0.0:\* LISTEN 32428/nginx

2）启动MySQL服务

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# systemctl start mariadb
2. [root@svr5 ~]# systemctl status mariadb
3. [root@svr5 ~]# systemctl enable mariadb

[root@svr5 ~]# systemctl start mariadb

[root@svr5 ~]# systemctl status mariadb

[root@svr5 ~]# systemctl enable mariadb

3）启动PHP-FPM服务

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# systemctl start php-fpm
2. [root@svr5 ~]# systemctl status php-fpm
3. [root@svr5 ~]# systemctl enable php-fpm

[root@svr5 ~]# systemctl start php-fpm

[root@svr5 ~]# systemctl status php-fpm

[root@svr5 ~]# systemctl enable php-fpm

**2 案例2：构建LNMP平台**

**2.1 问题**

沿用练习一，通过调整Nginx服务端配置，实现以下目标：

1. 配置Fast-CGI支持PHP网页
2. 创建PHP测试页面，测试使用PHP连接数据库的效果

**2.2 方案**

使用2台RHEL7虚拟机，其中一台作为LNMP服务器（192.168.4.5）、另外一台作为测试用的Linux客户机（192.168.4.100），如图-1所示。

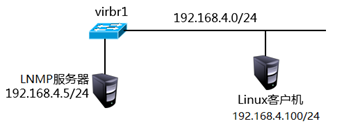


图-1

Nginx结合FastCGI技术即可支持PHP页面架构，因此本案例，需要延续练习一的实验内容，通过修改Nginx及php-fpm配置文件实现对PHP页面的支持。

php-fpm需要修改的常见配置如下：

listen = 127.0.0.1:9000 //PHP端口号

pm.max\_children = 32 //最大进程数量

pm.start\_servers = 15 //最小进程数量

pm.min\_spare\_servers = 5 //最少需要几个空闲着的进程

pm.max\_spare\_servers = 32 //最多允许几个进程处于空闲状态

**2.3 步骤**

实现此案例需要按照如下步骤进行。

**步骤一：创建并修改php-fpm配置文件**

1）查看php-fpm配置文件

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 etc]# vim /etc/php-fpm.d/www.conf
2. [www]
3. listen = 127.0.0.1:9000
4. listen.allowed\_clients = 127.0.0.1
5. user = apache
6. group = apache
7. pm = dynamic
8. pm.max\_children = 50
9. pm.start\_servers = 5
10. pm.min\_spare\_servers = 5
11. pm.max\_spare\_servers = 35

[root@svr5 etc]# vim /etc/php-fpm.d/www.conf

[www]

listen = 127.0.0.1:9000

listen.allowed\_clients = 127.0.0.1

user = apache

group = apache

pm = dynamic

pm.max\_children = 50

pm.start\_servers = 5

pm.min\_spare\_servers = 5

pm.max\_spare\_servers = 35

2）确认php-fpm服务已经启动

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# systemctl restart php-fpm
2. [root@svr5 ~]# systemctl status php-fpm

[root@svr5 ~]# systemctl restart php-fpm

[root@svr5 ~]# systemctl status php-fpm

**步骤二：修改Nginx配置文件并启动服务**

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# vim /usr/local/nginx/conf/nginx.conf
2. location / {
3. root html;
4. index index.php index.html index.htm;
5. }
6. location ~ \.php$ {
7. root html;
8. fastcgi\_pass 127.0.0.1:9000;
9. fastcgi\_index index.php;
10. #fastcgi\_param SCRIPT\_FILENAME $document\_root$fastcgi\_script\_name;
11. include fastcgi.conf;
12. }
13. [root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

[root@svr5 ~]# vim /usr/local/nginx/conf/nginx.conf

location / {

root html;

index index.php index.html index.htm;

}

location ~ \.php$ {

root html;

fastcgi\_pass 127.0.0.1:9000;

fastcgi\_index index.php;

#fastcgi\_param SCRIPT\_FILENAME $document\_root$fastcgi\_script\_name;

include fastcgi.conf;

}

[root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

**步骤三：创建PHP页面，测试LNMP架构能否解析PHP页面**

1）创建PHP测试页面1：

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# vim /usr/local/nginx/html/test1.php
2. <?php
3. $i="This is a test Page";
4. echo $i;
5. ?>

[root@svr5 ~]# vim /usr/local/nginx/html/test1.php

<?php

$i="This is a test Page";

echo $i;

?>

2）创建PHP测试页面,连接MariaDB数据库:

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# vim /usr/local/nginx/html/test2.php
2. <?php
3. $links=mysql\_connect("localhost","root","密码");
4. //注意：root为mysql账户名称，密码需要修改为实际mysql密码，无密码则留空即可
5. if($links){
6. echo "link db ok!!!";
7. }
8. else{
9. echo "link db no!!!";
10. }
11. ?>

[root@svr5 ~]# vim /usr/local/nginx/html/test2.php

<?php

$links=mysql\_connect("localhost","root","密码");

//注意：root为mysql账户名称，密码需要修改为实际mysql密码，无密码则留空即可

if($links){

echo "link db ok!!!";

}

else{

echo "link db no!!!";

}

?>

3）创建PHP测试页面,连接并查询MariaDB数据库：

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# vim /usr/local/nginx/html/test3.php
2. <?php
3. $mysqli = new mysqli('localhost','root','','mysql');
4. if (mysqli\_connect\_errno()){
5. die('Unable to connect!'). mysqli\_connect\_error();
6. }
7. $sql = "select \* from user";
8. $result = $mysqli->query($sql);
9. while($row = $result->fetch\_array()){
10. printf("Host:%s",$row[0]);
11. printf("</br>");
12. printf("Name:%s",$row[1]);
13. printf("</br>");
14. }
15. ?>

[root@svr5 ~]# vim /usr/local/nginx/html/test3.php

<?php

$mysqli = new mysqli('localhost','root','','mysql');

if (mysqli\_connect\_errno()){

die('Unable to connect!'). mysqli\_connect\_error();

}

$sql = "select \* from user";

$result = $mysqli->query($sql);

while($row = $result->fetch\_array()){

printf("Host:%s",$row[0]);

printf("</br>");

printf("Name:%s",$row[1]);

printf("</br>");

}

?>

4）客户端使用浏览器访问服务器PHP首页文档，检验是否成功：

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@client ~]# firefox http://192.168.4.5/test1.php
2. [root@client ~]# firefox http://192.168.4.5/test2.php
3. [root@client ~]# firefox http://192.168.4.5/test3.php

[root@client ~]# firefox http://192.168.4.5/test1.php

[root@client ~]# firefox http://192.168.4.5/test2.php

[root@client ~]# firefox http://192.168.4.5/test3.php

**3 案例3：地址重写**

**3.1 问题**

沿用练习一，通过调整Nginx服务端配置，实现以下目标：

1. 所有访问a.html的请求，重定向到b.html;
2. 所有访问192.168.4.5的请求重定向至www.tmooc.cn；
3. 所有访问192.168.4.5/下面子页面，重定向至www.tmooc.cn/下相同的页面；
4. 实现curl访问不同的页面。

**3.2 方案**

关于Nginx服务器的地址重写，主要用到的配置参数是rewrite：

* rewrite regex replacement flag

**3.3 步骤**

实现此案例需要按照如下步骤进行。

**步骤一：修改配置文件(访问a.html重定向到b.html)**

1）修改Nginx服务配置：

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# vim /usr/local/nginx/conf/nginx.conf
2. .. ..
3. server {
4. listen 80;
5. server\_name localhost;
6. location / {
7. root html;
8. index index.html index.htm;
9. rewrite /a.html /b.html;
10. }
11. }

[root@svr5 ~]# vim /usr/local/nginx/conf/nginx.conf

.. ..

server {

listen 80;

server\_name localhost;

location / {

root html;

index index.html index.htm;

rewrite /a.html /b.html;

}

}

2）重新加载配置文件

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

[root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

3）客户端测试

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@client ~]# firefox http://192.168.4.5/a.html

[root@client ~]# firefox http://192.168.4.5/a.html

**步骤二：修改配置文件(访问192.168.4.5的请求重定向至www.tmooc.cn)**

1) 修改Nginx服务配置

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# vim /usr/local/nginx/conf/nginx.conf
2. .. ..
3. server {
4. listen 80;
5. server\_name localhost;
6. rewrite ^/ http://www.tmooc.cn/;
7. location / {
8. root html;
9. index index.html index.htm;
10. }
11. }

[root@svr5 ~]# vim /usr/local/nginx/conf/nginx.conf

.. ..

server {

listen 80;

server\_name localhost;

rewrite ^/ http://www.tmooc.cn/;

location / {

root html;

index index.html index.htm;

}

}

2）重新加载配置文件

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

[root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

3）客户端测试

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@client ~]# firefox http://192.168.4.5

[root@client ~]# firefox http://192.168.4.5

**步骤三：修改配置文件(访问192.168.4.5/下面子页面，重定向至www.tmooc.cn/下相同的页面)**

1) 修改Nginx服务配置

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# vim /usr/local/nginx/conf/nginx.conf
3. .. ..
4. server {
5. listen 80;
6. server\_name localhost;
7. rewrite ^/(.\*) http://www.tmooc.cn/$1;
8. location / {
9. root html;
10. index index.html index.htm;
11. }
12. }

[root@svr5 ~]# vim /usr/local/nginx/conf/nginx.conf

.. ..

server {

listen 80;

server\_name localhost;

rewrite ^/(.\*) http://www.tmooc.cn/$1;

location / {

root html;

index index.html index.htm;

}

}

2）重新加载配置文件

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

[root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

3）客户端测试

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@client ~]# firefox http://192.168.4.5

[root@client ~]# firefox http://192.168.4.5

步骤三：修改配置文件(实现curl和火狐访问相同连接返回的页面不同)

1) 修改Nginx服务配置

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. .. ..
2. server {
3. listen 80;
4. server\_name localhost;
5. location / {
6. root html;
7. index index.html index.htm;
8. }
9. if ($http\_user\_agent ~\* url) {                    //识别客户端curl浏览器
10. rewrite ^(.\*)$ /curl/$1 break;
11. }
12. }

.. ..

server {

listen 80;

server\_name localhost;

location / {

root html;

index index.html index.htm;

}

if ($http\_user\_agent ~\* url) { //识别客户端curl浏览器

rewrite ^(.\*)$ /curl/$1 break;

}

}

2）创建网页目录以及对应的页面文件：

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# echo "I am Normal page" > /usr/local/nginx/html/test.html
3. [root@svr5 ~]# mkdir -p /usr/local/nginx/html/curl/
4. [root@svr5 ~]# echo "I am is curl page" > /usr/local/nginx/html/curl/test.html
5. [root@svr5 ~]# cp /usr/share/backgrounds/gnome/Road.jpg \
6. > /usr/local/nginx/curl/test.jpg

[root@svr5 ~]# echo "I am Normal page" > /usr/local/nginx/html/test.html

[root@svr5 ~]# mkdir -p /usr/local/nginx/html/curl/

[root@svr5 ~]# echo "I am is curl page" > /usr/local/nginx/html/curl/test.html

[root@svr5 ~]# cp /usr/share/backgrounds/gnome/Road.jpg \

> /usr/local/nginx/curl/test.jpg

2）重新加载配置文件

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

[root@svr5 ~]# /usr/local/nginx/sbin/nginx -s reload

4）客户端测试

[copytextpop-up](http://pdf7.tarena.com.cn/tts8_source/ttsPage/LINUX/NSD_V05/OPERATION/DAY03/CASE/01/index.html)

1. [root@client ~]# firefox http://192.168.4.5/test.html
2. [root@client ~]# curl http://192.168.4.5/test.html
3. [root@client ~]# curl http://192.168.4.5/test.jsp

[root@client ~]# firefox http://192.168.4.5/test.html

[root@client ~]# curl http://192.168.4.5/test.html

[root@client ~]# curl http://192.168.4.5/test.jsp