.17.1 案例目标

（1）了解应用系统需要的基础服务。

（2）安装应用系统需要的基础服务。

3.17.2 案例分析

1. 规划节点

安装基础服务的服务器规划，见表 3-17-1。

表 3-17-1 节点规划

IP 地址	主机名	节点
172.16.51.29	mall	单节点服务器

2. 基础准备

使用 VMWare Workstation 软件安装 CentOS 7.2 操作系统，镜像使用提供的 CentOS-7-x86_64-DVD-1511.iso，最小化安装 CentOS 7.2 系统，YUM 源使用提供的本地 gpmall-repo 包（在项目 3-软件包/商城系统-单节点中），安装基础环境。

3.17.3 案例实施

1. 修改主机名

修改主机名命令如下所示：

```
[root@localhost ~]# hostnamectl set-hostname mall
[root@mall ~]# hostnamectl
   Static hostname: mall
         Icon name: computer-vm
           Chassis: vm
        Machine ID: dae72fe0cc064eb0b7797f25bfaf69df
           Boot ID: af0da0209e864a9badd064fcc9ad7b0e
    Virtualization: kvm
  Operating System: CentOS Linux 7 (Core)
       CPE OS Name: cpe:/o:centos:centos:7
```

```
            Kernel: Linux 3.10.0-229.el7.x86_64
      Architecture: x86_64
```

修改/etc/hosts 配置文件如下：

```
[root@mall ~]# cat /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6


172.16.51.29 mall
```

2. 配置本地 YUM 源

将提供的 packages 包上传到服务器的/root 目录下，并配置本地 local.repo 文件，具体代码如下所示。（若使用的是 VMware 安装的 CentOS 7.2 系统，自带的 CentOS.repo 文件不要移除。若使用的是 OpenStack 中的 centos7.2qcow2 镜像需要将自带的 CentOS.repo 文件移除。）

```
[root@mall ~]# cat /etc/yum.repos.d/local.repo
[mall]
name=mall
baseurl=file:///root/gpmall-repo
gpgcheck=0
enabled=1
```

3. 安装基础服务

安装基础服务，包括 Java JDK 环境、数据库、Redis、Nginx 等，安装基础服务的命令具体如下。

（1）安装 Java 环境

```
[root@mall ~]# yum install -y java-1.8.0-openjdk java-1.8.0-openjdk-devel
...
[root@mall ~]# java -version
openjdk version "1.8.0_222"
OpenJDK Runtime Environment (build 1.8.0_222-b10)
OpenJDK 64-Bit Server VM (build 25.222-b10, mixed mode)
```

（2）安装Redis缓存服务

```
[root@mall ~]# yum install redis -y
```

（3）安装Elasticsearch服务

```
[root@mall ~]# yum install elasticsearch -y
```

（4）安装Nginx服务

```
[root@mall ~]# yum install nginx -y
```

（5）安装MariaDB数据库

```
[root@mall ~]# yum install mariadb mariadb-server -y
```

（6）安装ZooKeeper服务

将提供的zookeeper-3.4.14.tar.gz上传至云主机的/opt内，解压压缩包命令如下：

```
[root@mall ~]# tar -zxvf zookeeper-3.4.14.tar.gz
```

进入到zookeeper-3.4.14/conf目录下，将zoo_sample.cfg文件重命名为zoo.cfg，命令如下：

```
[root@mall conf]# mv zoo_sample.cfg zoo.cfg
```

进入到zookeeper-3.4.14/bin目录下，启动ZooKeeper服务，命令如下：

```
[root@mall bin]# ./zkServer.sh start
ZooKeeper JMX enabled by default
Using config: /root/zookeeper-3.4.14/bin/../conf/zoo.cfg
Starting zookeeper ... STARTED
```

查看ZooKeeper状态，命令如下：

```
[root@mall bin]# ./zkServer.sh status
ZooKeeper JMX enabled by default
Using config: /root/zookeeper-3.4.14/bin/../conf/zoo.cfg
Mode: standalone
```

（7）安装Kafka服务

将提供的kafka_2.11-1.1.1.tgz包上传到云主机的/opt目录下，解压该压缩包，命令如下：

```
tar -zxvf kafka_2.11-1.1.1.tgz
```

进入到kafka_2.11-1.1.1/bin目录下，启动Kafka服务，命令如下：

```
[root@mall bin]# ./kafka-server-start.sh -daemon ../config/server.properties
```

使用jps或者netstat –ntpl命令查看Kafka是否成功启动，命令如下：

```
[root@mall bin]# jps
```

```
    6039 Kafka
    1722 QuorumPeerMain
    6126 Jps
    [root@mall bin]# netstat -ntpl
    Active Internet connections (only servers)
    Proto  Recv-Q  Send-Q  Local  Address               Foreign  Address             State
PID/Program name
    tcp           0          0  0.0.0.0:22              0.0.0.0:*                   LISTEN
1008/sshd
    tcp           0          0  127.0.0.1:25            0.0.0.0:*                   LISTEN
887/master
    tcp6         0          0  :::9092                  :::*                        LISTEN
6039/java
    tcp6         0          0  :::46949                 :::*                        LISTEN
6039/java
    tcp6         0          0  :::2181                  :::*                        LISTEN
1722/java
    tcp6         0          0  :::48677                 :::*                        LISTEN
1722/java
    tcp6         0          0  :::22                    :::*                        LISTEN
1008/sshd
    tcp6         0          0  ::1:25                   :::*                        LISTEN
887/master
```

运行结果查看到 Kafka 服务和 9092 端口，说明 Kafka 服务已启动。

4. 启动服务

（1）启动数据库并配置

修改数据库配置文件并启动 MariaDB 数据库，设置 root 用户密码为 123456，并创建 gpmall 数据库，将提供的 gpmall.sql 导入。

修改/etc/my.cnf 文件，添加字段如下所示：

```
    #
```

```
# This group is read both both by the client and the server
# use it for options that affect everything
#
[client-server]

#
# include all files from the config directory
#
!includedir /etc/my.cnf.d
[mysqld]

init_connect='SET collation_connection = utf8_unicode_ci'
init_connect='SET NAMES utf8'
character-set-server=utf8
collation-server=utf8_unicode_ci
skip-character-set-client-handshake
```

启动数据库命令如下。

```
[root@mall ~]# systemctl start mariadb
```

设置 root 用户的密码为 123456 并登录。

```
[root@mall ~]# mysql_secure_installation
/usr/bin/mysql_secure_installation: line 379: find_mysql_client: command not found
NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB
      SERVERS IN PRODUCTION USE!  PLEASE READ EACH STEP CAREFULLY!
In order to log into MariaDB to secure it, we'll need the current
password for the root user.  If you've just installed MariaDB, and
you haven't set the root password yet, the password will be blank,
so you should just press enter here.
Enter current password for root (enter for none):     #默认按回车
```

```
OK, successfully used password, moving on...
Setting the root password ensures that nobody can log into the MariaDB
root user without the proper authorisation.
Set root password? [Y/n] y
New password:                                   #输入数据库 root 密码 123456
Re-enter new password:                          #重复输入密码 123456
Password updated successfully!
Reloading privilege tables..
  ... Success!
By default, a MariaDB installation has an anonymous user, allowing anyone
to log into MariaDB without having to have a user account created for
them.   This is intended only for testing, and to make the installation
go a bit smoother.   You should remove them before moving into a
production environment.
Remove anonymous users? [Y/n] y
  ... Success!
Normally, root should only be allowed to connect from 'localhost'.   This
ensures that someone cannot guess at the root password from the network.
Disallow root login remotely? [Y/n] n
  ... skipping.
By default, MariaDB comes with a database named 'test' that anyone can
access.   This is also intended only for testing, and should be removed
before moving into a production environment.
Remove test database and access to it? [Y/n] y
  - Dropping test database...
  ... Success!
  - Removing privileges on test database...
  ... Success!
Reloading the privilege tables will ensure that all changes made so far
```

```
will take effect immediately.
Reload privilege tables now? [Y/n] y
 ... Success!
Cleaning up...
All done!  If you've completed all of the above steps, your MariaDB
installation should now be secure.
Thanks for using MariaDB!
 [root@mall ~]# mysql -uroot –p123456
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 9
Server version: 10.3.18-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)]>
```

设置 root 用户的权限，命令如下：

```
MariaDB [(none)]> grant all privileges on *.* to root@localhost identified by '123456' with grant option;
Query OK, 0 rows affected (0.001 sec)

MariaDB [(none)]> grant all privileges on *.* to root@"%" identified by '123456' with grant option;
Query OK, 0 rows affected (0.001 sec)
```

将 gpmall.sql 文件上传至云主机的/root 目录下。创建数据库 gpmall 并导入 gpmall.sql 文件。

```
MariaDB [(none)]> create database gpmall;
Query OK, 1 row affected (0.00 sec)
MariaDB [(none)]> use gpmall;
MariaDB [mall]> source /root/gpmall.sql
```

退出数据库并设置开机自启。

```
MariaDB [mall]> Ctrl-C -- exit!
Aborted
[root@mall ~]# systemctl enable mariadb
Created symlink from /etc/systemd/system/multi-user.target.wants/mariadb.service to /usr/lib/systemd/system/mariadb.service.
```

（2）启动 Redis 服务

修改 Redis 配置文件，编辑/etc/redis.conf 文件。

将 bind 127.0.0.1 这一行注释掉；将 protected-mode yes 改为 protected-mode no。

启动 Redis 服务命令如下。

```
[root@mall ~]# systemctl start redis
[root@mall ~]# systemctl enable redis
Created symlink from /etc/systemd/system/multi-user.target.wants/redis.service to /usr/lib/systemd/system/redis.service.
```

（3）配置 Elasticsearch 服务并启动

配置 Elasticsearch 服务命令如下：

```
[root@mall ~]# vi /etc/elasticsearch/elasticsearch.yml
```

在文件最上面加入 3 条语句如下：

```
http.cors.enabled: true
http.cors.allow-origin: "*"
http.cors.allow-credentials: true
```

将如下 4 条语句前的注释符去掉，并修改 network.host 的 IP 为本机 IP。

```
cluster.name: my-application
node.name: node-1
network.host: 172.16.51.29
http.port: 9200
```

最后修改完之后保存退出。然后启动 Elasticsearch 并设置开机自启，命令如下。

```
[root@mall ~]# systemctl start elasticsearch
```

```
[root@mall ~]# systemctl enable elasticsearch
Created symlink from /etc/systemd/system/multi-user.target.wants/elasticsearch.service to /usr/lib/systemd/system/elasticsearch.service.
```

（4）启动 Nginx 服务

启动 Nginx 服务命令如下。

```
[root@mall ~]# systemctl start nginx
[root@mall ~]# systemctl enable nginx
Created symlink from /etc/systemd/system/multi-user.target.wants/nginx.service to /usr/lib/systemd/system/nginx.service.
```