**实验3：使用模拟软件搭建互联网络**

**实验目的**：了解交换和路由原理

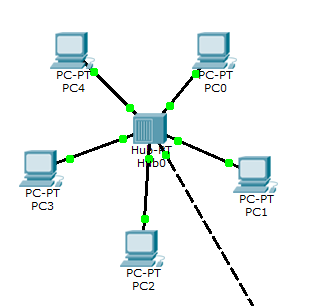
**实验内容**：利用模拟软件提供的多种网络设备，搭建多个互联的局域网，划分VLAN，设置路由表，并利用模拟软件跟踪数据流向和交换路径

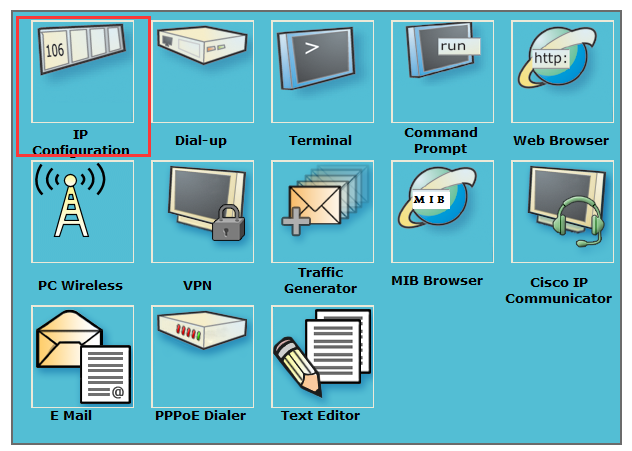
**实验环境**：PC机、PacketTracer软件

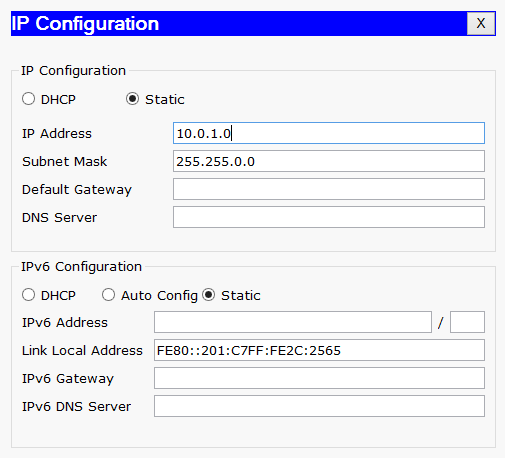
**实验步骤**：

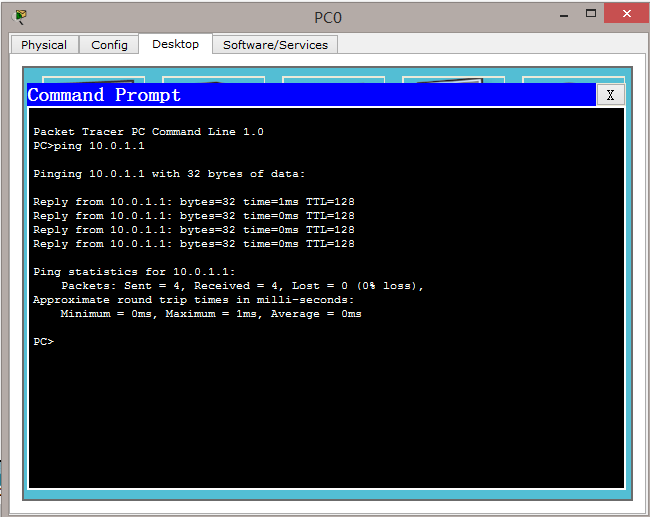
Part 1

* 在PC机上安装PacketTracer模拟软件
* 使用1个HUB和5个PC机搭建第1个局域网，并使用子网地址10.0/16

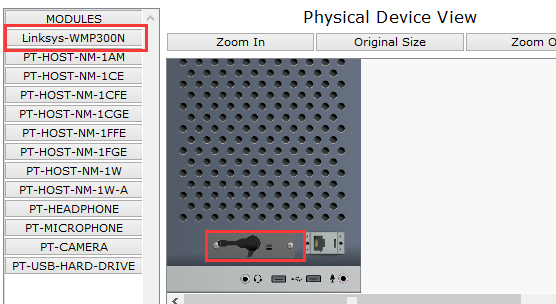


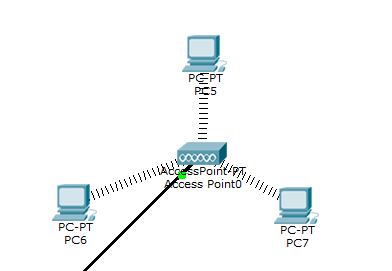


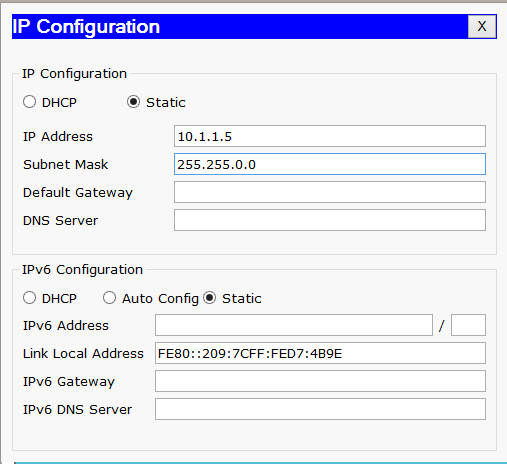


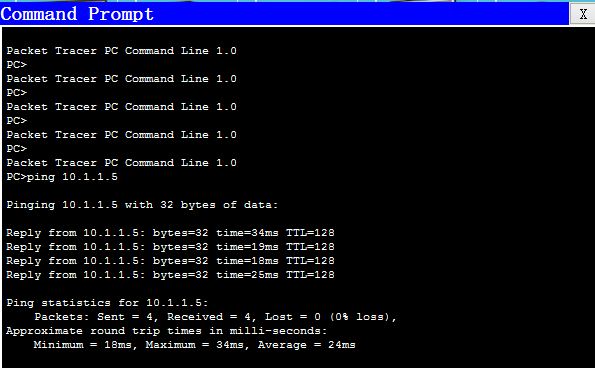


* 使用1个无线AP和3个PC机搭建第2个局域网，并使用子网地址10.1/16

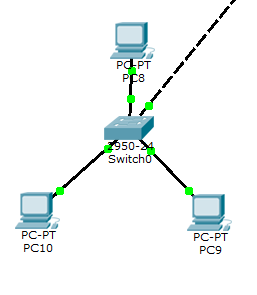


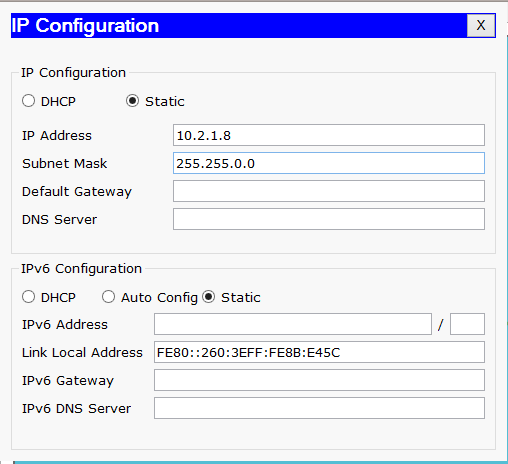


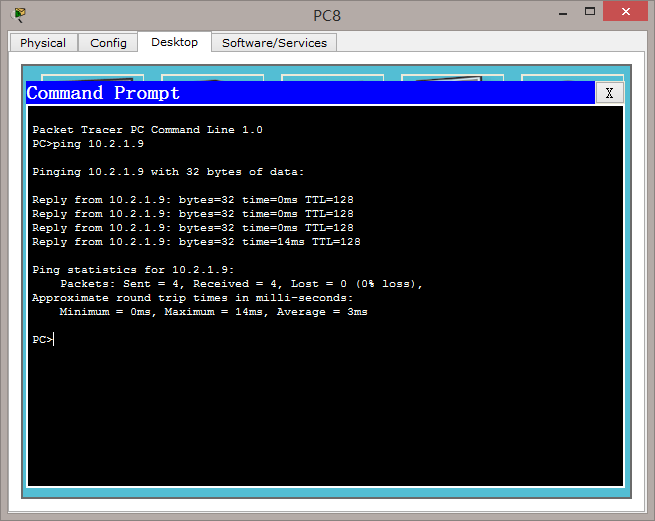




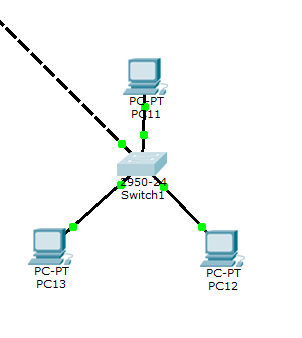
* 使用1个交换机和3个PC机搭建第3个局域网，并使用子网地址10.2/16

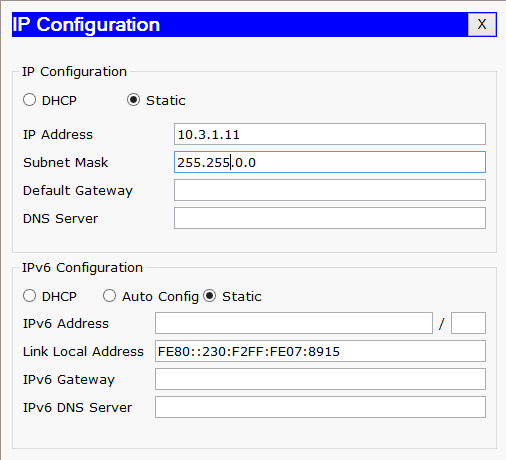


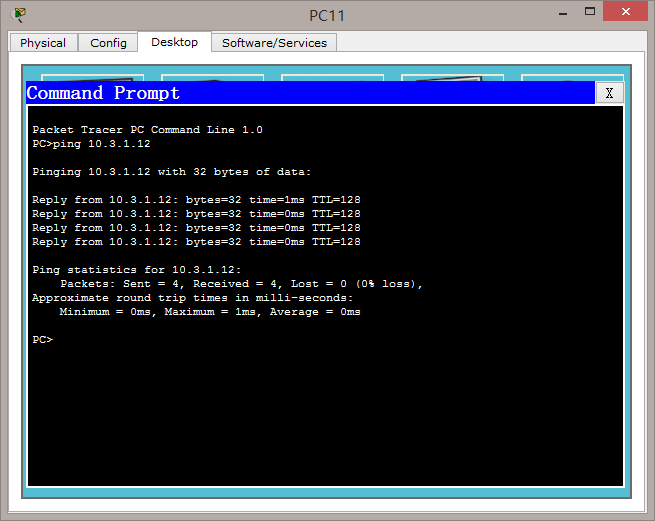




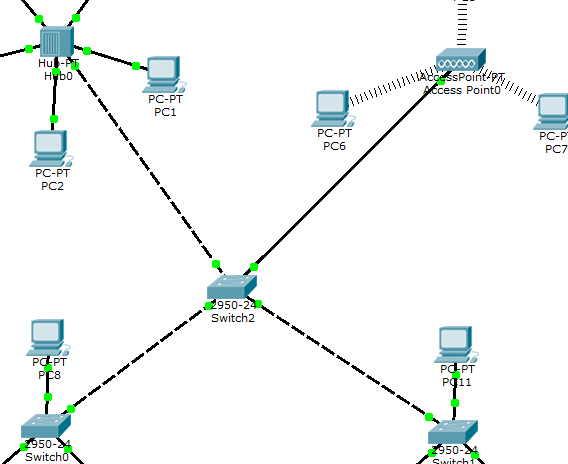
* 使用1个交换机和3个PC机搭建第4个局域网，并使用子网地址10.3/16



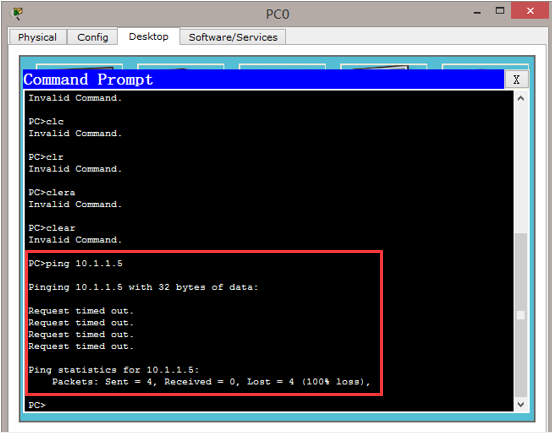


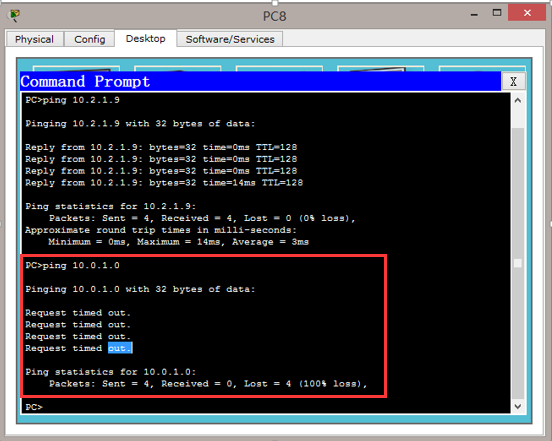


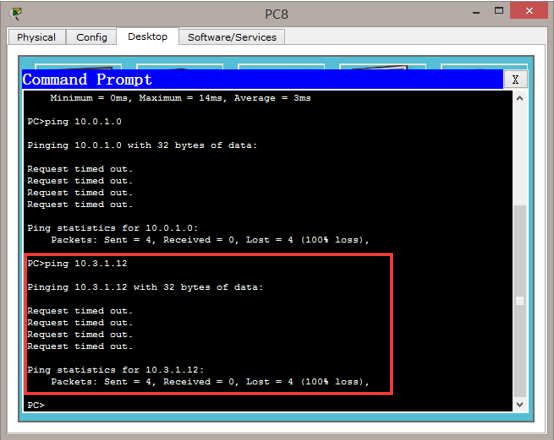
* 使用第5个交换机，将4个局域网连接起来



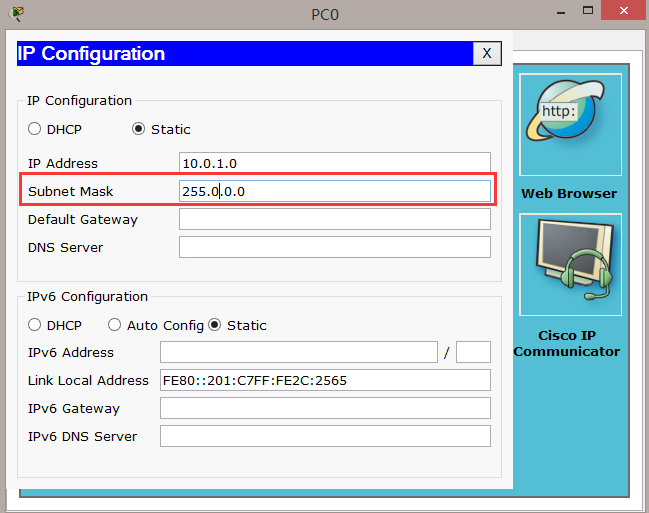
* 使用Ping命令查看各个网络之间的联通性

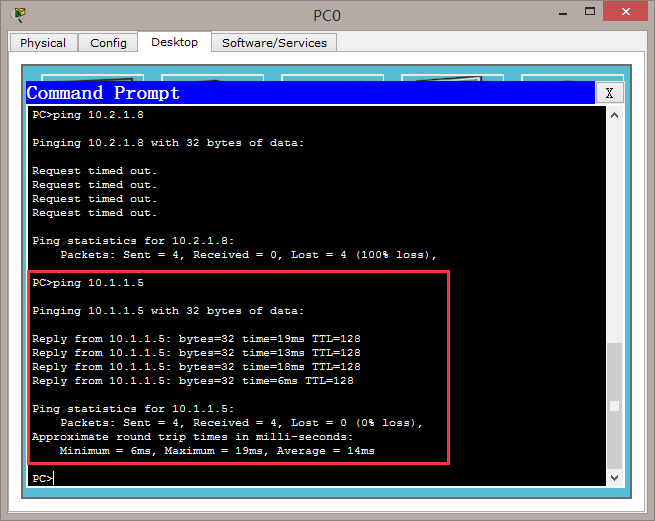


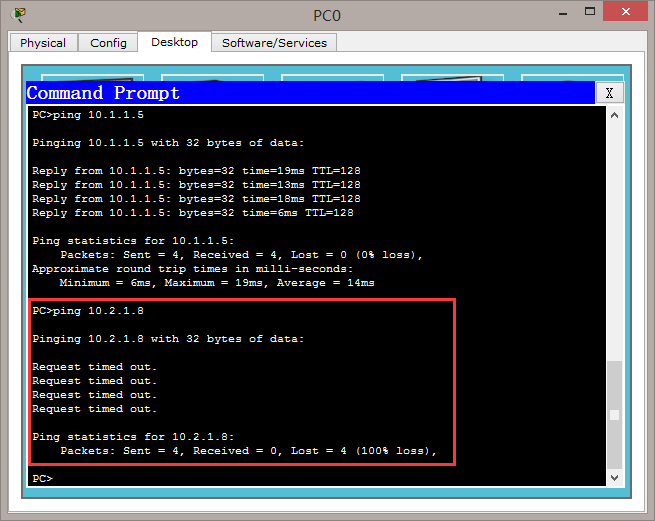




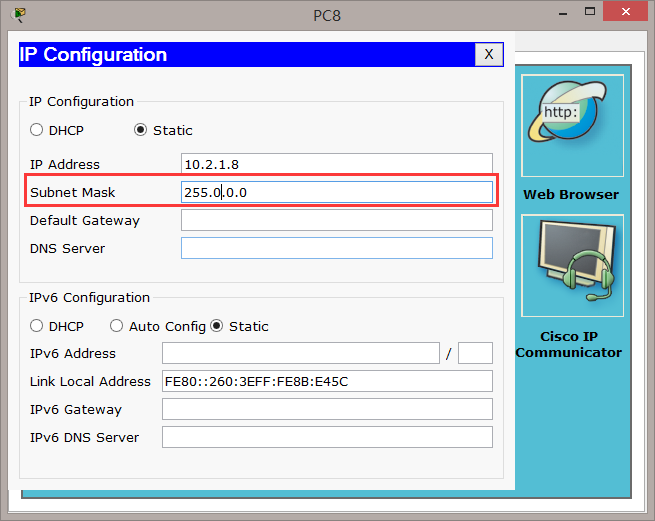
* 修改第1、2局域网的子网掩码为8位，再次查看各个网络之间的联通性

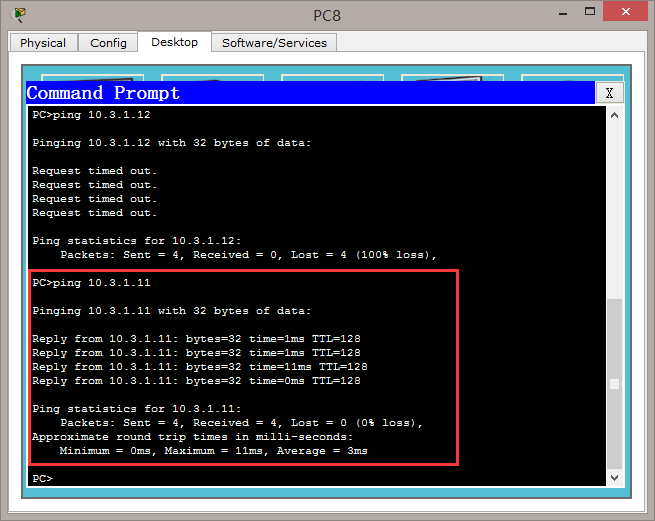


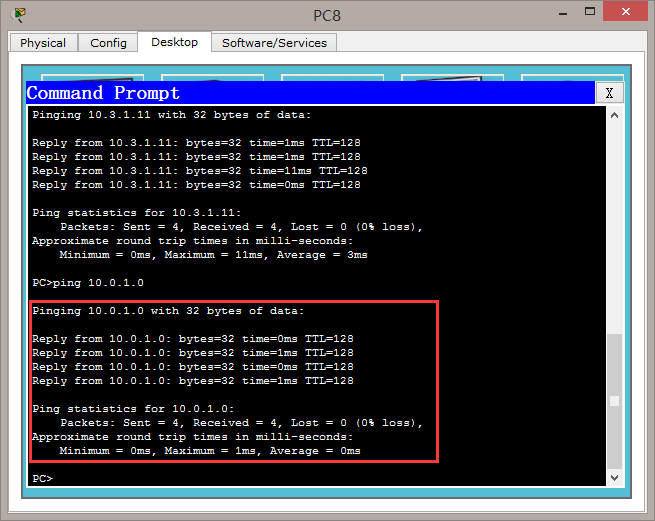




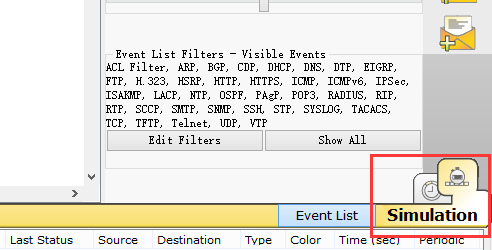
* 修改第3、4局域网的子网掩码为8位，再次查看各个网络之间的联通性

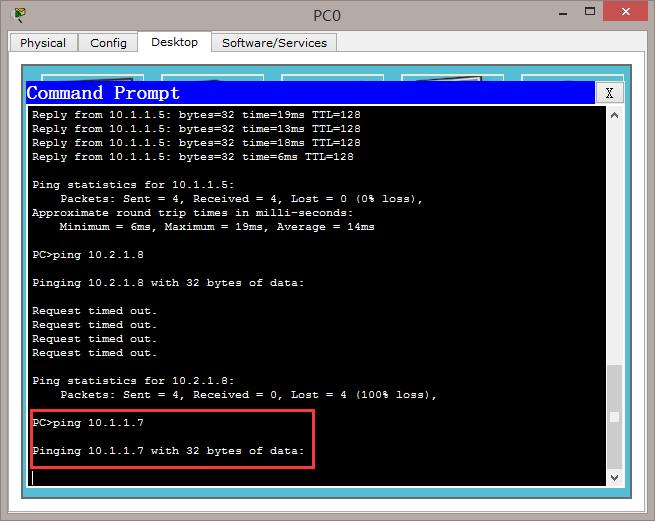


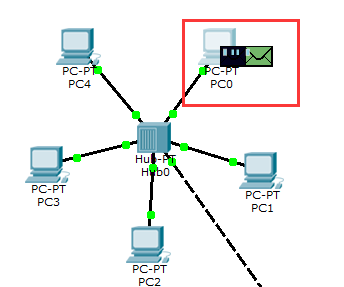


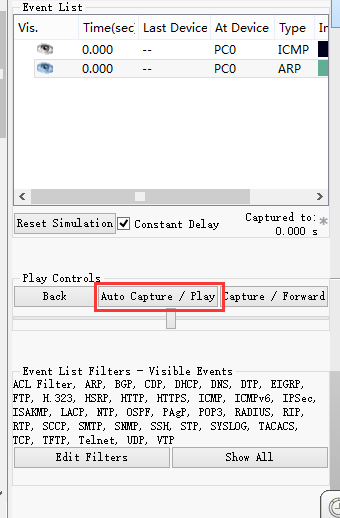


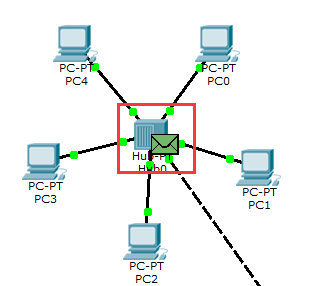
* 产生模拟数据包，通过模拟软件跟踪数据包的流向

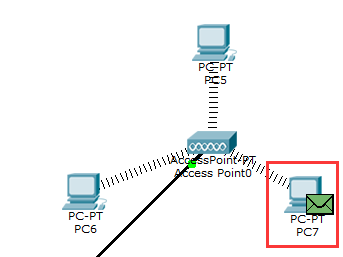


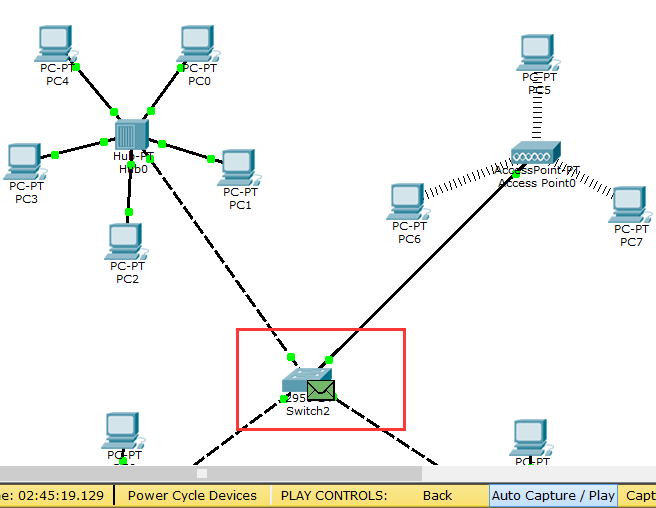






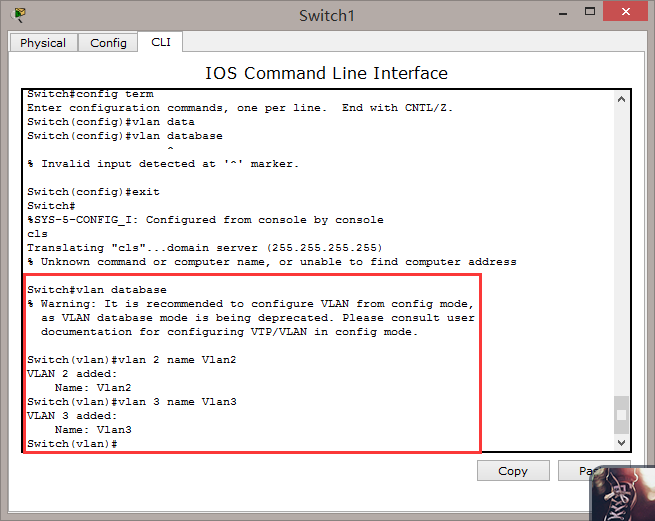


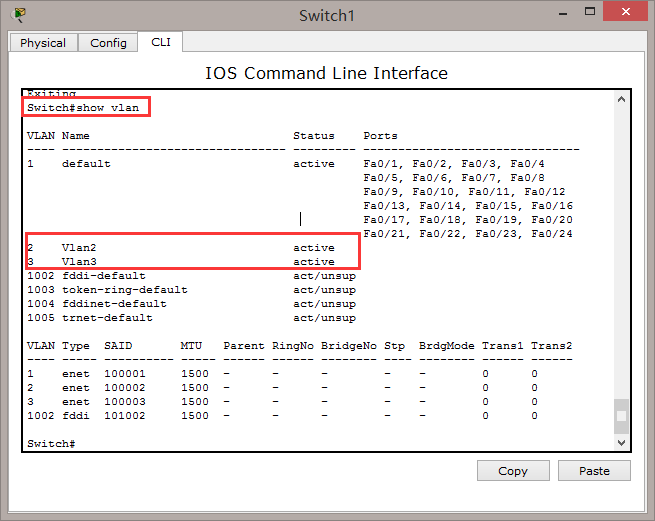


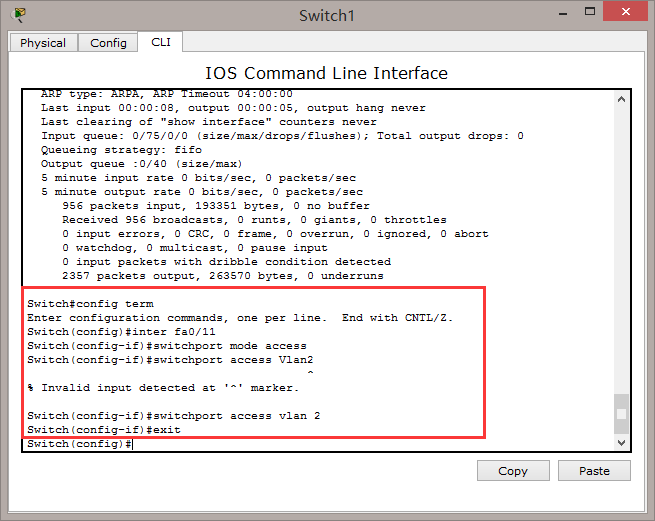


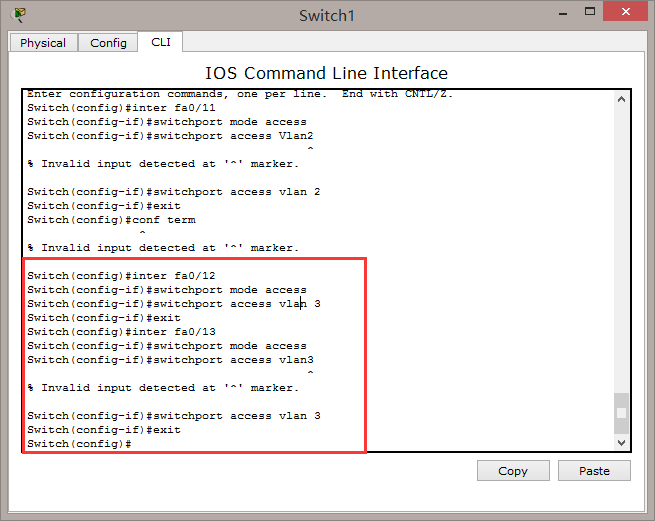
Part 2

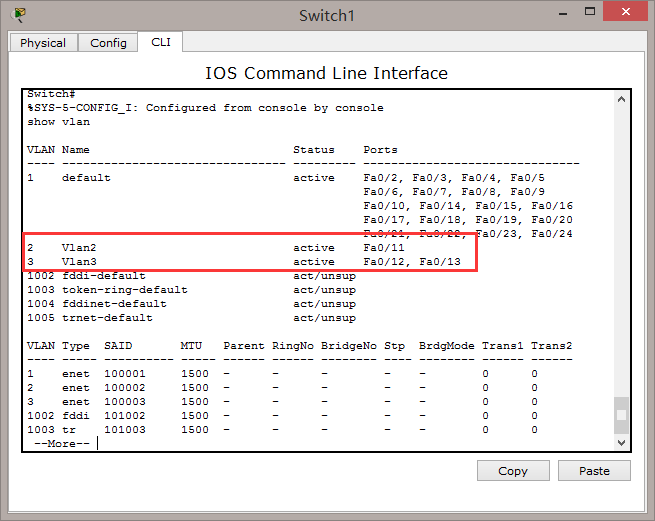
* 在第4个局域网交换机上划分出2个VLAN，让PC机属于不同VLAN



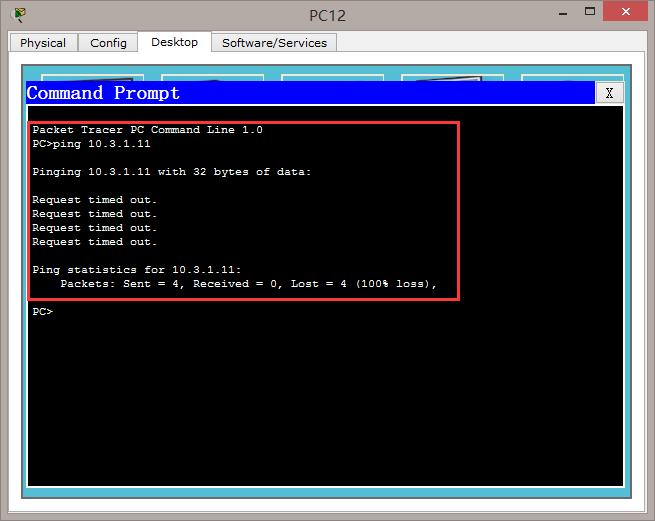


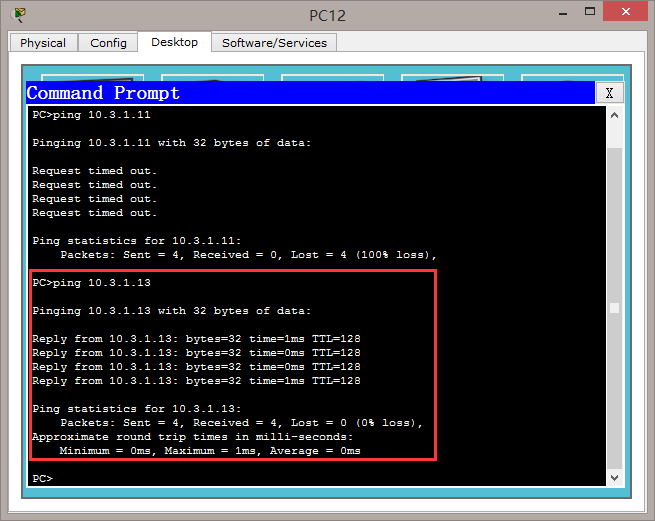


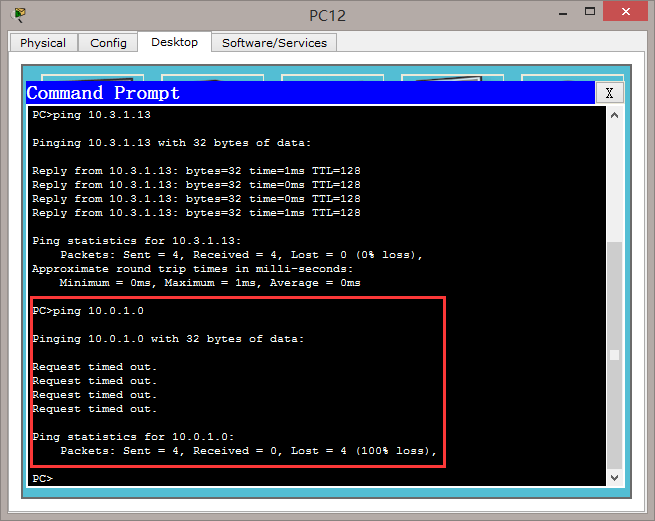




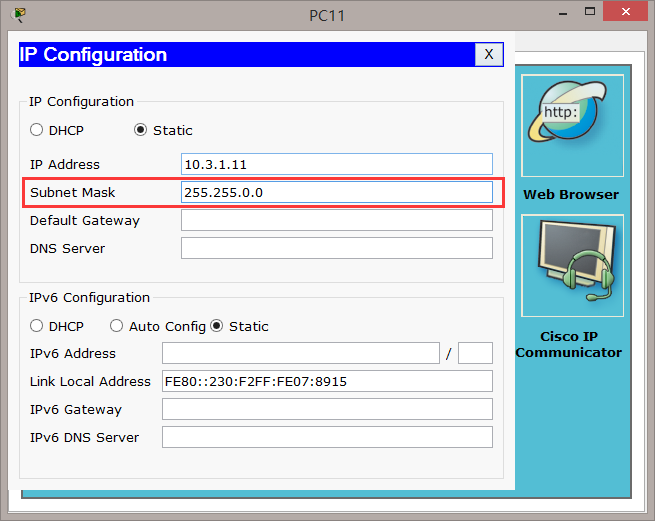
* 使用Ping命令查看各个网络的联通性

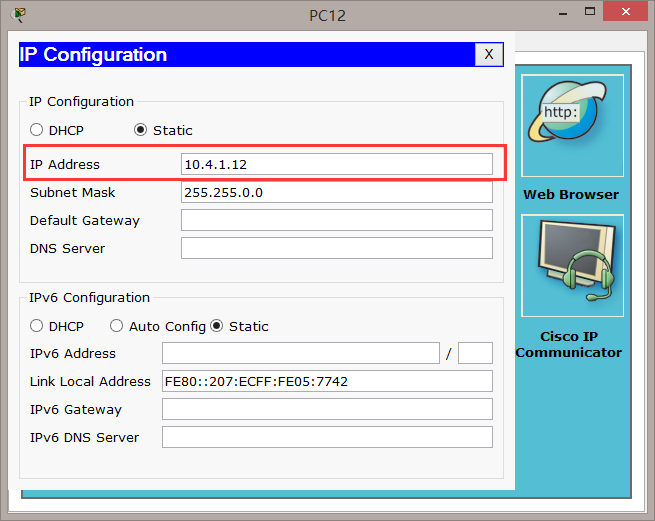


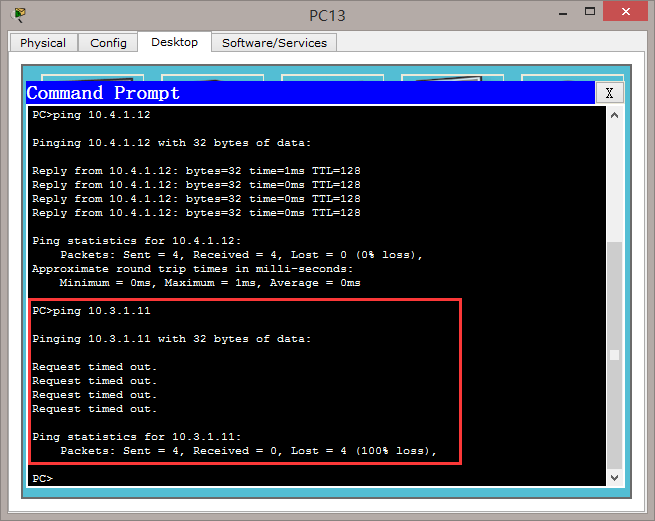




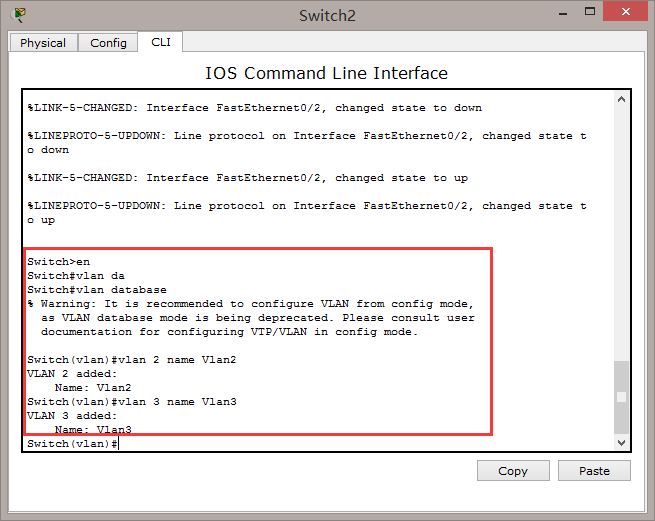
* 修改第4个局域网的子网掩码为16位，并给不同组的VLAN分配不同的子网地址，再次查看各个网络之间的联通性

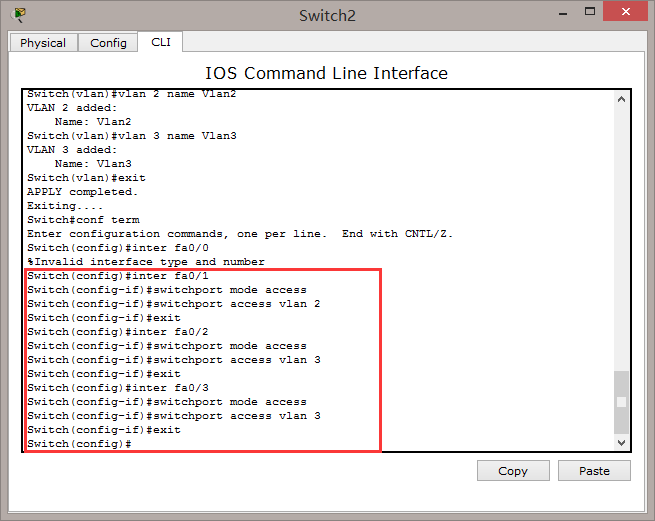


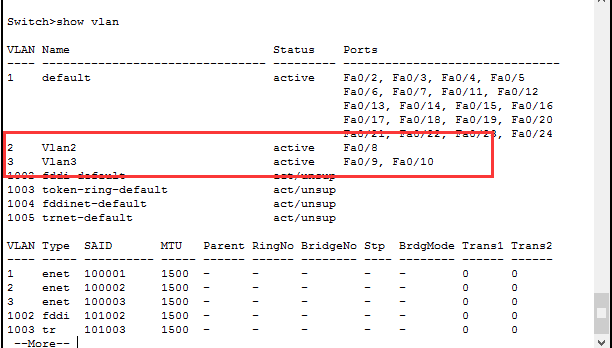


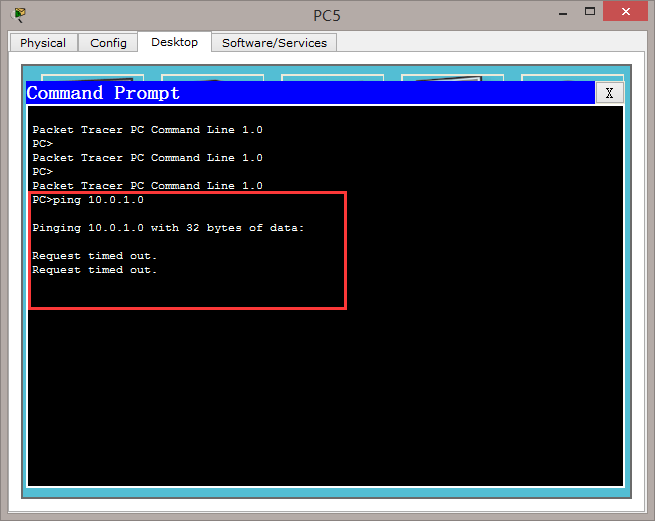


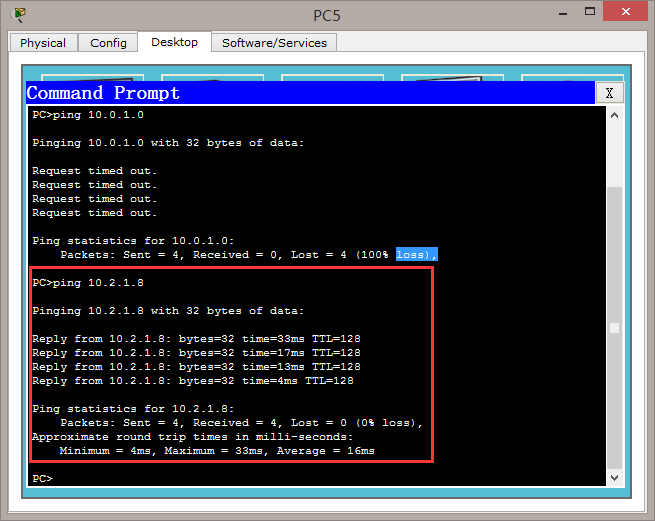
* 在第5个交换机（互联交换机）上设置VLAN，使不同局域网内某个VLAN组的PC之间能够互通



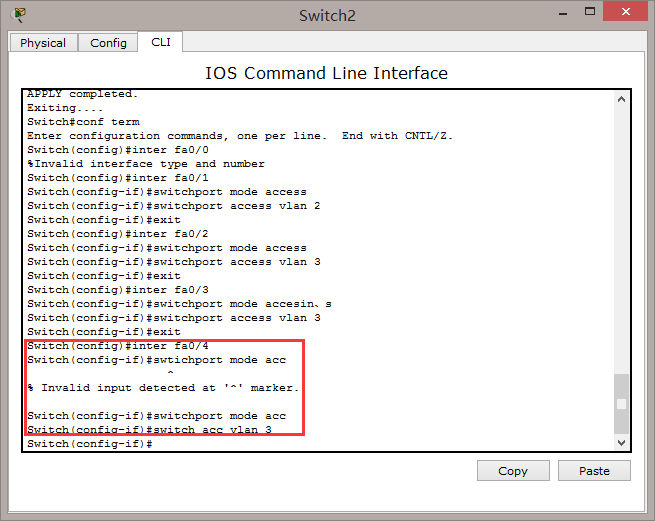


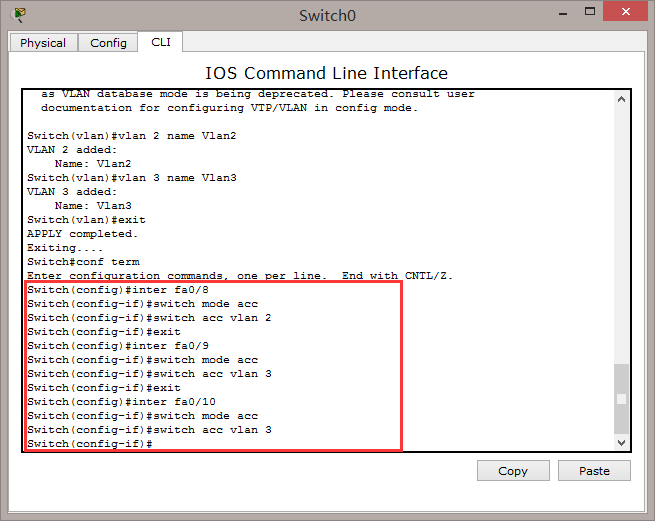


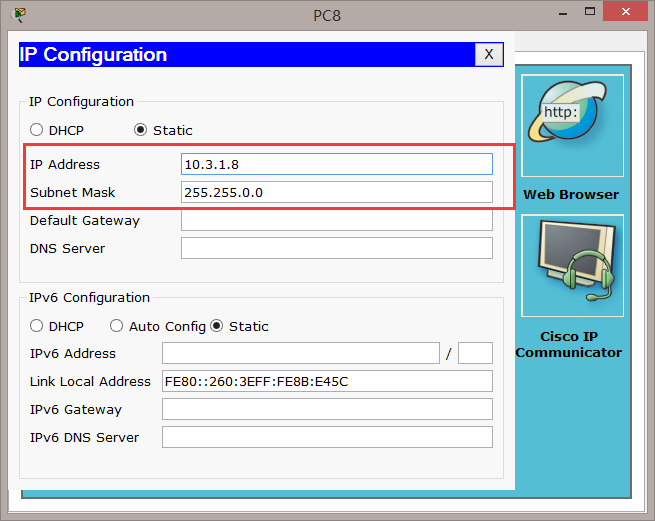


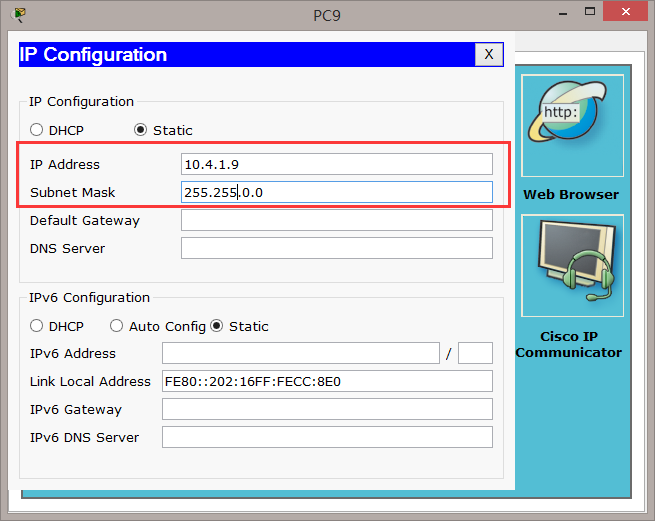


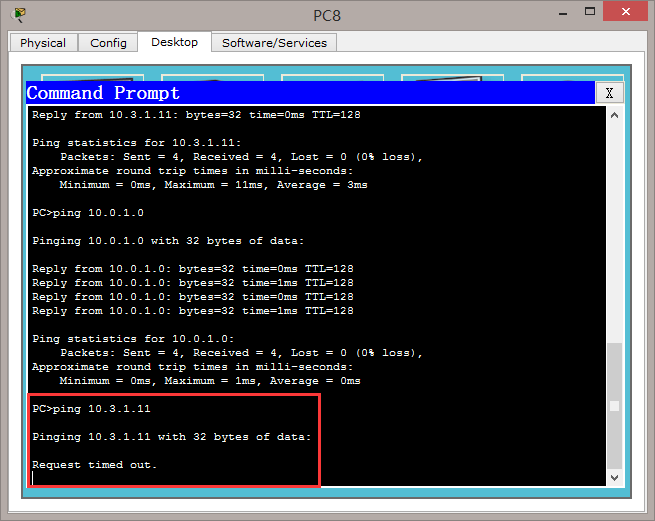
* 在第5个交换机（互联交换机）上启用VLAN Trunk，使不同局域网内相同VLAN组的PC之间都能够互通

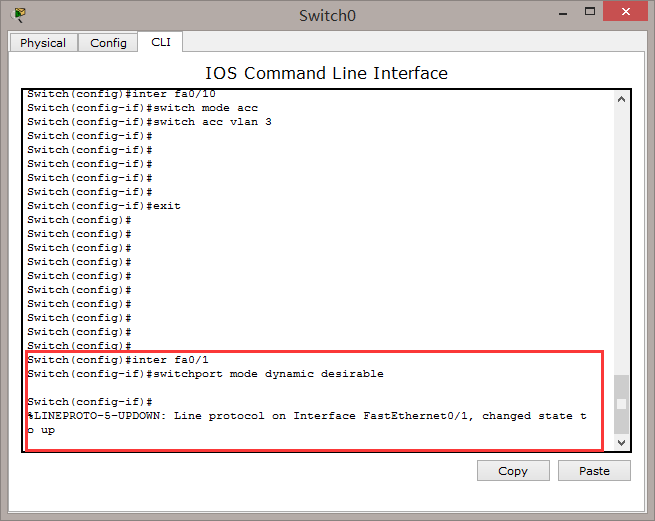


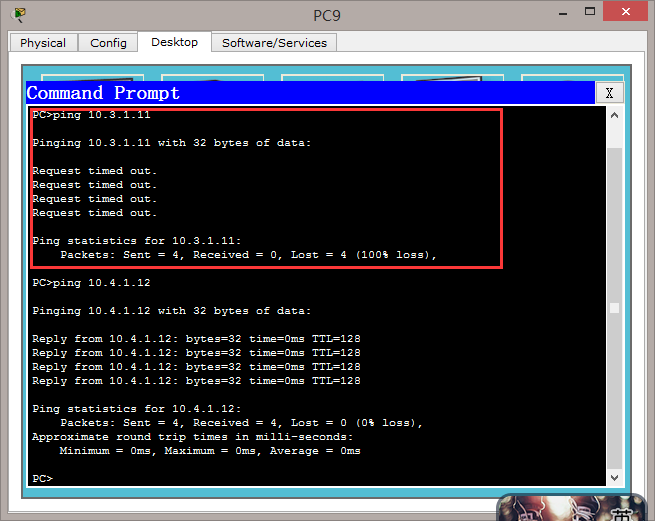


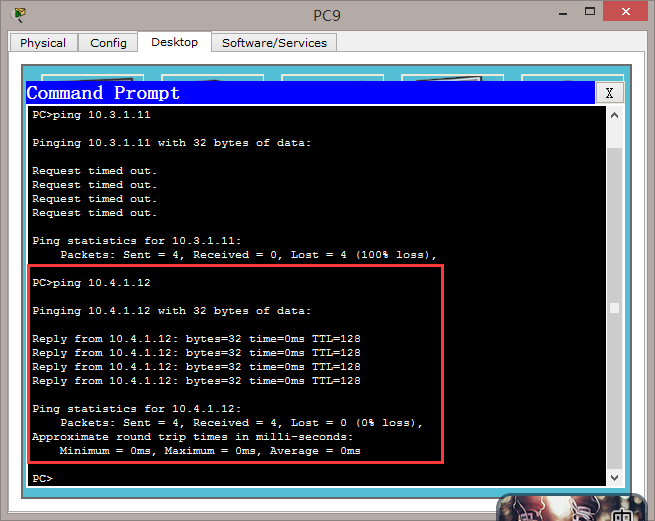




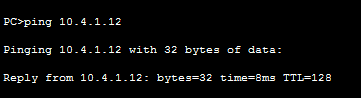


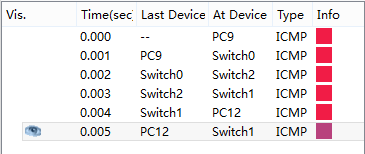






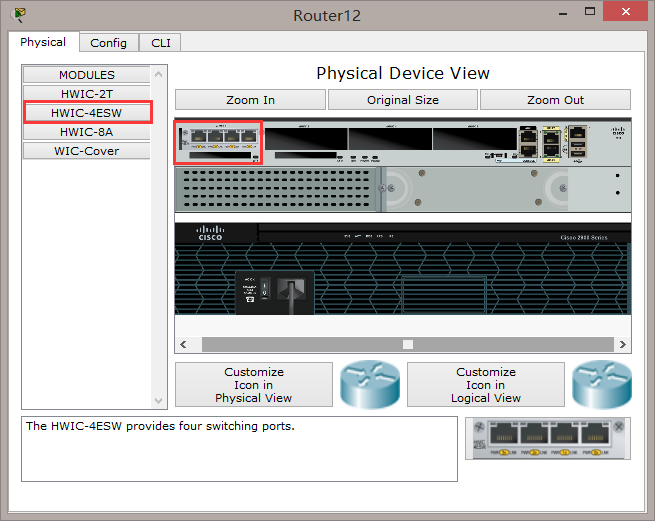
* 产生模拟数据包，通过模拟软件跟踪数据包的流向



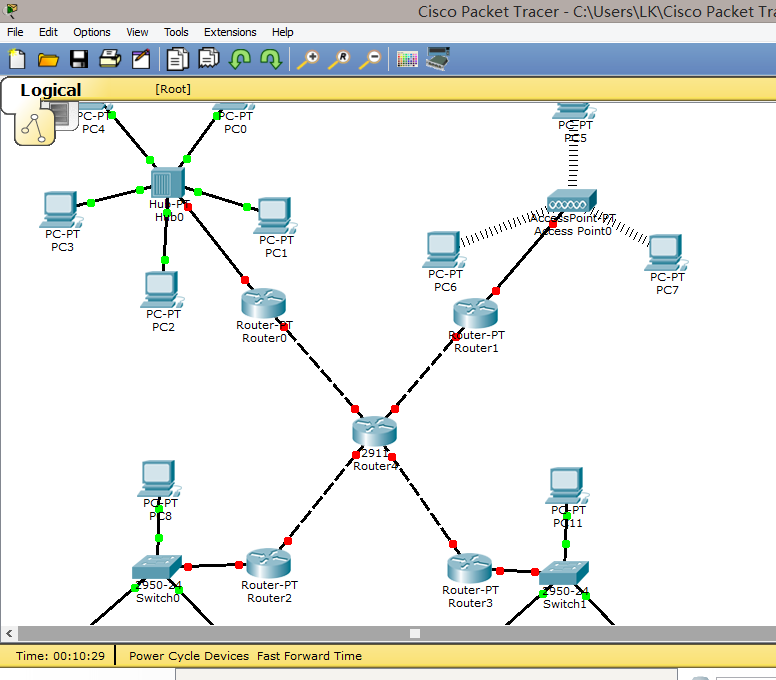


Part 3

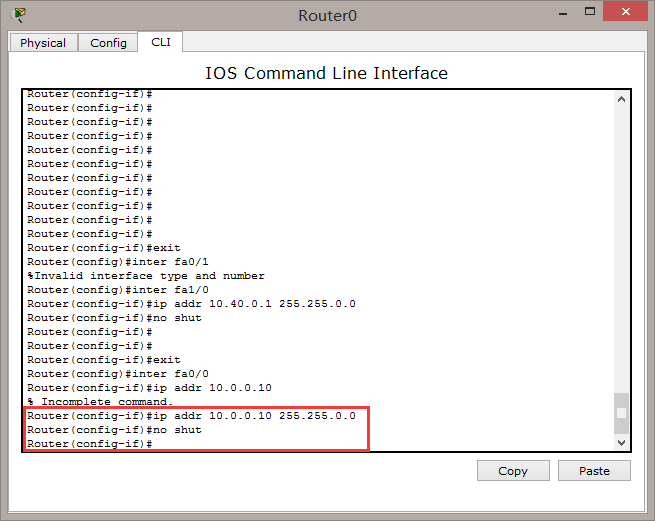
* 将第5个交换机删除，每个局域网分别设立一个路由器

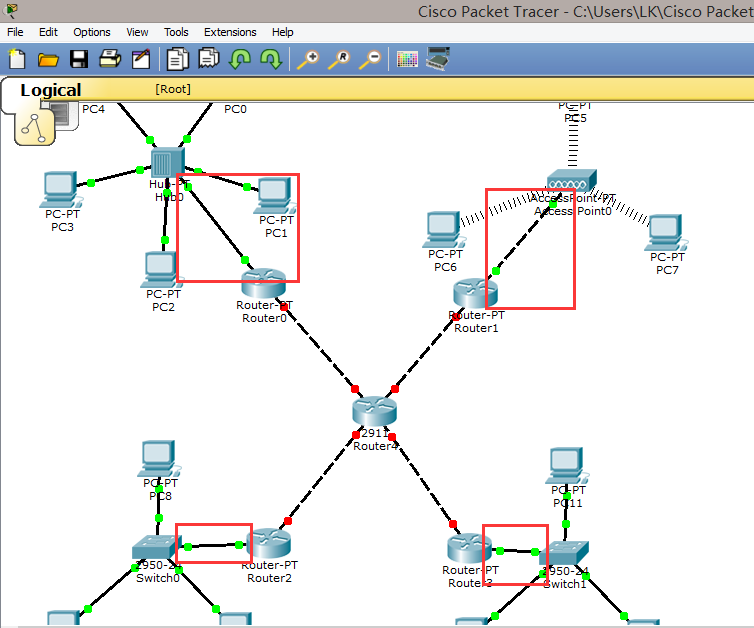


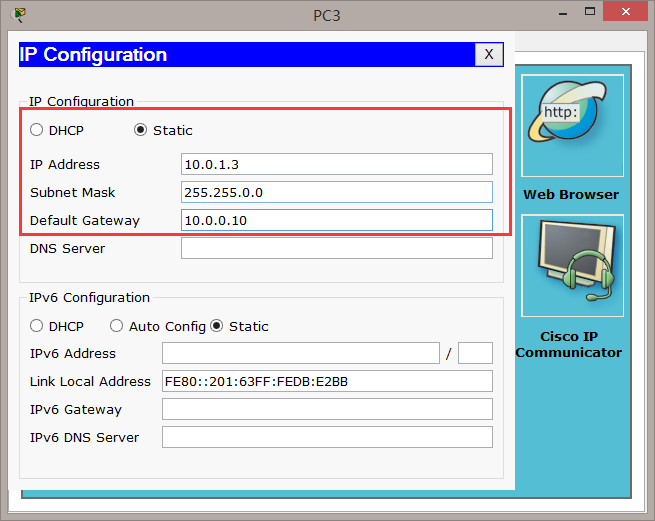
* 使用第5台路由器分别连接4个局域网的路由器

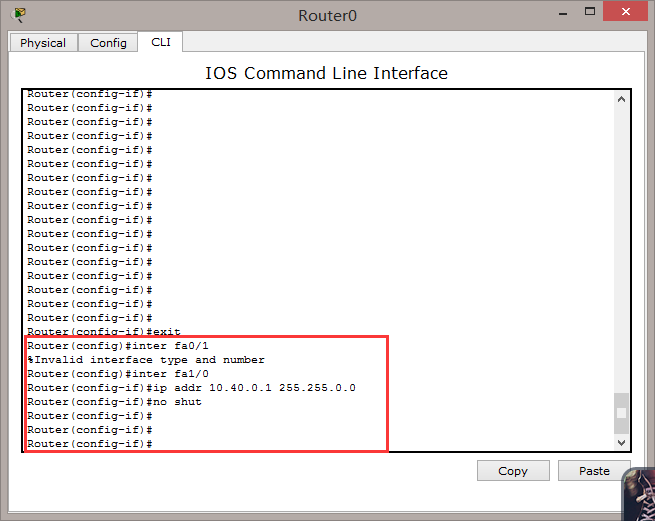


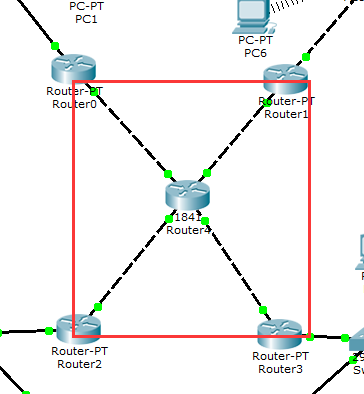
* 给各个路由器分配合适的IP地址



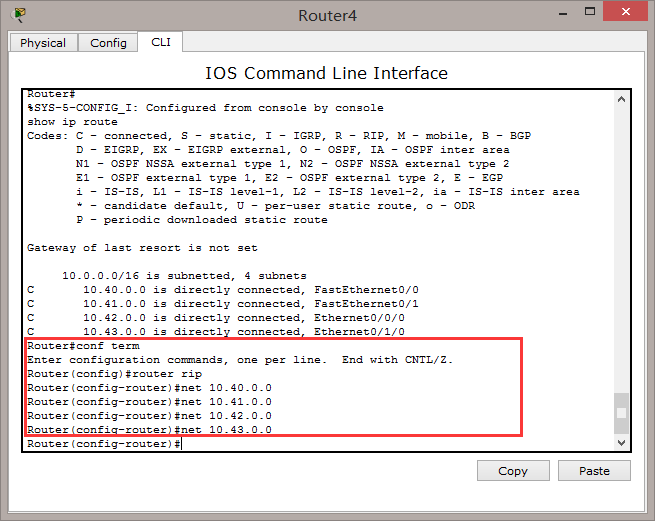


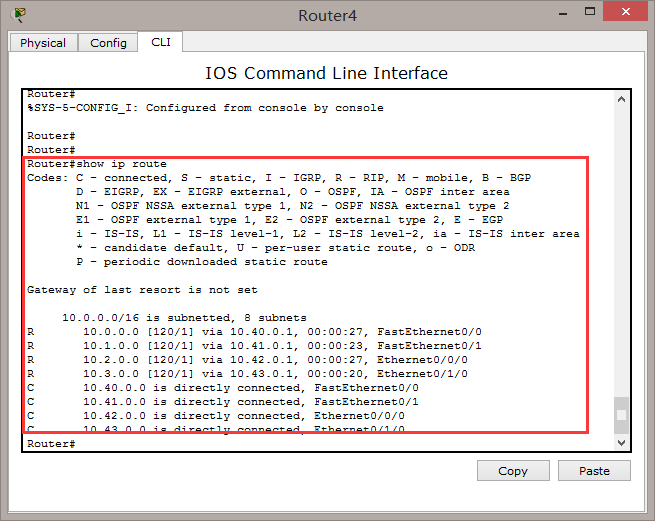




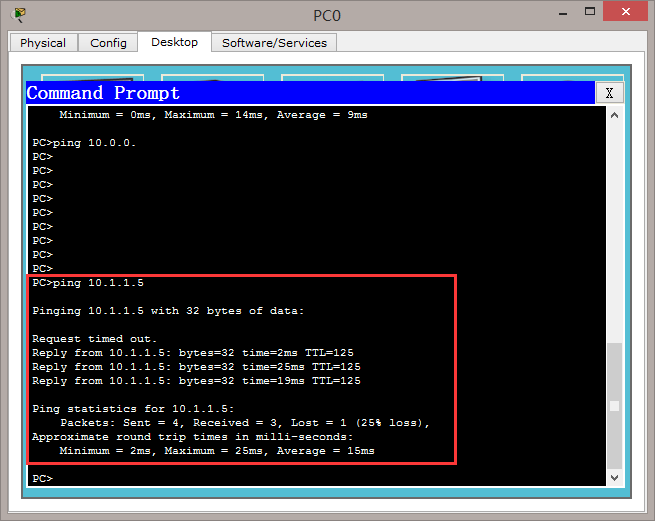


* 给各个路由器设置正确的路由表（RIP v2）





* 使用Ping命令查看各个网络的联通性



* 产生模拟数据包，通过模拟软件跟踪数据包的流向

