

计算机任务的系统设计

摘要

计算机网络课程是大学信息学院学习的课程中的一门非常重要的专业课，更是让同学们很难理解的一门学科，许多同学认为计算机网络学起来比较抽象。首先计算机网络是由许多独立的，但彼此连接起来的计算机来一起运行计算机任务的系统，这些系统叫做计算机网络。因为与计算机网络相关的实验模拟需要比较多的经费，学校已经有的网络设备在一定程度上很难满足学生们的基本实验要求，而且做网络实验大多是老师在课堂上讲，然后演示给同学们看，学生们基本没有自己真正动手去做实验的机会，致使同学们对网络实验渐渐失去了兴趣。而在短时间里，学校并不一定能满足同学们的实验需求，所以一个网络实验模拟环境的出现就很需要。

GNS3 是思科的网络虚拟软件，其界面将选项和设备图形化，并可以在多个平台上运行。同时 GNS3 也是适合学生学习网络课程的一大法宝，并能通过设计拓扑图、配置网络地址、排除网络故障来深层次理解他们的工作原理的网络模拟环境。使用者能在 GNS3 的设备栏中找到做实验用到的设备直接将其拖到工作区，然后点设备栏的最后一个连线按钮，将所有的设备连线，绘制成拓扑图来做网络实验。GNS3 还可以使用数据包在虚拟网络里传送并将实时的运行情况显示出来。在使用路由器前需要导入镜像文件 IOS，并完成其配置。因为路由器很重要而且是基础，在此基础上才可以进行更高级的实验开发。因为 GNS3 自带的交换机比较简单不能配置，但许多的网络实验需要配置交换机，所以要用路由器模拟交换机，这也是 GNS3 的一大特点。在没有镜像文件 PC 的情况下，我们也可以用路由器模拟 PC，总的来说 GNS3 真的很方便也很简单实用。学习并使用 GNS3 能让我们对网络原理和网络的各种协议有进一步的理解。

关键词： 计算机网络；GNS3，网络实验

Abstract

Computer network course is a very important professional course in the college of information, but also makes students learn more difficult and difficult to understand a subject, many students think that computer network is more abstract to learn. First of all, computer networks are systems in which many independent but connected computers run computer tasks together. These systems are called computer networks. Because computer network related experimental simulation needs more funds, the school has some network equipment in a certain extent, it is difficult to satisfy the students the basic experimental requirements, and the network experiment is mostly the teacher speak in class, and then show the students, the students basic does not have the opportunity to really begin to do the experiment, the students gradually kill the interest of network experiment. However, in a short time, the school may not be able to meet the experimental needs of students, so the emergence of a network experiment simulation environment is very necessary.

GNS3 is a Cisco simulator with a graphical interface. It is a network virtual software that can run on multiple platforms. It is a network simulation environment that is suitable for young people to learn computer network courses, and they can deeply understand their working principles by designing topology, configuring network addresses and eliminating network faults. Users can find the devices used in the GNS3 device bar and drag them directly to the workspace. Then they click the last connection button in the device bar to connect all the devices and draw a topology diagram for network experiment. GNS3 can also use packets to send over a virtual network and display real-time performance. You need to import the image file IOS and complete its configuration before using the router. Because the router is very important and basic, only on this basis can we carry out more advanced experimental development. For example, the router is used to simulate the second layer, the third layer switch and the PC. Because the switch of GNS3 is relatively simple and cannot be configured, many network experiments need to configure the switch, so we need to use routers to simulate the switch, which is also a major feature of GNS3. In the case of no mirrored file PC, we can also use the router to simulate the PC, in general GNS3 is really convenient and simple practical. Learning and using GNS3 gives us a better understanding of the principles of the network and the various protocols of the network.

Keywords: computer network; GNS3, network experiment

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