Hardware Capacities

Rivier University is using Dell™ products in all computer labs. The Computer Science Department has the Experimental Lab that is equipped with the Client and Server machines, switches, and routers for use by students in their lab and research projects. The detailed information about the hardware is given below:

- **Clients**:

<table>
<thead>
<tr>
<th>System Model: OptiPlex 780</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor: 3.00 Gigahertz Intel Core2 Duo</td>
</tr>
<tr>
<td>Memory: 4 GB RAM</td>
</tr>
<tr>
<td>Hard Disk: 320 GB</td>
</tr>
<tr>
<td>Display: ATI Radeon HD 3450 - Dell Optiplex</td>
</tr>
</tbody>
</table>

- **Servers**:

<table>
<thead>
<tr>
<th>System Model: Dell PowerEdge 2650</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor: Intel(R) Xeon(TM) CPU 3.06GHz</td>
</tr>
<tr>
<td>Memory: 2 GB RAM</td>
</tr>
<tr>
<td>Hard Disk: 120 GB, 1 TB external attached</td>
</tr>
</tbody>
</table>

- **Switches**:

<table>
<thead>
<tr>
<th>System Model: Nortel BayStack 5510-48T</th>
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</thead>
<tbody>
<tr>
<td>Port: 48 x 10/100/1000 + 2 x GBIC</td>
</tr>
<tr>
<td>MAC Address Table Size: 48K entries</td>
</tr>
<tr>
<td>Routing Protocol: RIP-1</td>
</tr>
<tr>
<td>Remote Management Protocol: Telnet</td>
</tr>
<tr>
<td>Authentication Method: RADIUS</td>
</tr>
<tr>
<td>Compliant Standards: IEEE 802.3z</td>
</tr>
</tbody>
</table>
Available Operating System

Two operating systems are installed on the client machines: Windows™ and Fedora™ Linux.

- The VirtualBox™ tool is installed and runs in these operating-system environments.
- All clients are of the dual boot. The default operating system is Fedora™ Linux.

- Windows™:
  - Version: Windows™ XP 32 Bit
  - Update: Service Pack 3
  - Authentication: Active Directory

- Fedora™ Linux:
  - Version: Fedora™ 20, 64 Bit
  - Kernel: 3.14.x
  - Desktop: LXDE & KDE
  - Authentication: LDAP service

Installed Software

- Based on the instructor’s request, we can install any software to support University courses, research, and projects.

- Below is the list of the installed software:
  - Windows™ XP 32 bit:
    - gcc
    - g++
    - NetBeans 8
    - JDK 7
    - IntelliJ Idea 13.1
    - Adobe Flash Player 13
    - Git 1.9.2
    - Notepad++ 6.6.3
    - Python
    - VLC
You can find different kinds of compilers, programming languages and IDEs in the lab, such as C, C++, Java, Perl, and Python:

- **Java**
  
  JDK 7
  
  Java Version "1.7.0_55"
  
  OpenJDK Runtime Environment (fedora-2.4.7.4.fc20-x86_64 u55-b13)
  
  OpenJDK 64-Bit Server VM (build 24.51-b03, mixed mode)
  
  Configured IDE: **Netbeans & Eclipse**

- **C, C++**
  
  gcc (GCC) 4.8.2 20131212 (Red Hat 4.8.2-7)
  
  Copyright (C) 2013 Free Software Foundation, Inc.
  
  Configured IDE: **Netbeans**
• **Android SDK** (Just in Windows OS)
  Eclipse - Android Development Tools Plugin (Version: 22.6.3.v201310242005-88782)
  Android SDK includes a virtual mobile (Android) device emulator
  Configured IDE: **Eclipse**

• **Perl**
  Perl 5, version 18, subversion 2 (v5.18.2) built for x86_64-linux-thread-multi

• **Python**
  Python 2.7.5

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**Database**

- We have specific servers for databases. Oracle, MySQL, and PostgreSQL are installed and configured database systems on our servers. Students can connect and use them for programming projects and database courses.
- Necessary tools are installed on all clients to connect and use databases.

• **Oracle™**:
  Version: **Oracle™ 10g Express edition**
  Architecture: **32 bit**
  Platform: **Fedora™ Linux 17, 32 bit**
  Tool to connect: **SQL Developer 4.2**
• **MySQL:**
  
  Version: **MySQL 5.2.3**  
  Architecture: **32 bit**  
  Platform: **Fedora™ Linux 17, 32 bit**  
  Tool to connect: **MySQL Workbench**

• **PostgreSQL:**
  
  Version: **Postgres 9.3.4**  
  Architecture: **32 bit**  
  Platform: **Fedora™ Linux 17, 32 bit**  
  Tool to connect: **PgAdmin 3**

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**Multimedia and Graphics**

- Two servers with powerful graphic driver are available for multimedia and graphic projects and research. The OpenGL library is installed on servers.

• **Server information**
  
  System Model: **Lenovo ThinkServer™ TS140**  
  Processor: **Intel Core™ i3-4130 3.4GHz**  
  Memory: **4 GB DDR3 1600**  
  Hard Disk: **320 GB**  
  Operating System: **Fedora™ Linux 20 64 bit**
• **Graphic Driver**

  - **Core Clock Speed**: 732MHz
  - **Processing Cores**: 480
  - **Memory Clock Speed**: 3800MHz
  - **Memory Bandwidth**: 152GB/sec
  - **Shader Clock Speed**: 1464MHz
  - **Bus**: PCI-E 2.0
  - **Interface**: DVI-I, DVI-I, Mini-DMI

**Featured Technologies:**

- ✔ Microsoft DirectX 11 support
- ✔ NVIDIA CUDA technology
- ✔ NVIDIA PhysX technology
- ✔ NVIDIA 3D Vision Surround Ready
- ✔ NVIDIA PureVideo HD technology
- ✔ Dual-link HDCP-Capable
- ✔ OpenGL 4.1 Support
- ✔ HDMI 1.4 connector
- ✔ PCI Express 2.0 support
- ✔ Two dual-link DVI-I connectors