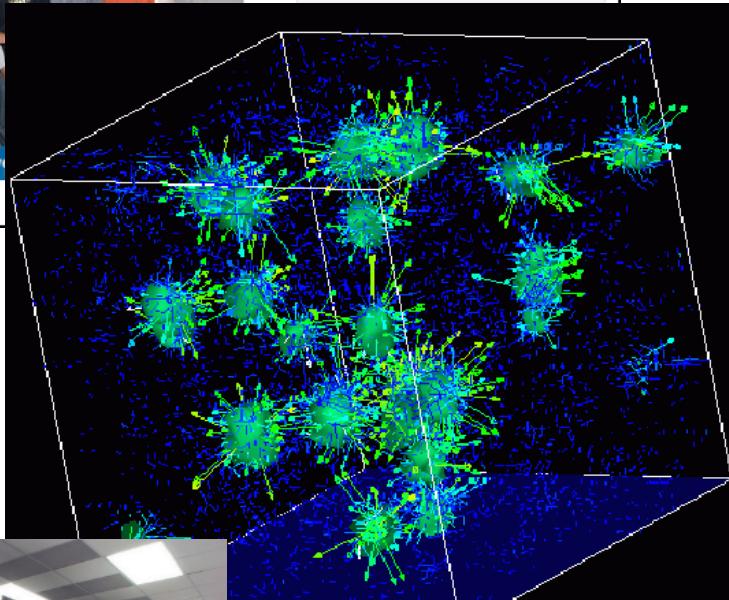


The screenshot shows the Brookhaven National Laboratory's Educational Programs page. The header features the laboratory's logo and the text "Educational Programs". Below the header is a navigation menu with links to Home, About, Teachers, Students, College Faculty, Postdocs, Mentors, and News. To the right of the menu is a "Follow Us" section with links to Facebook, Twitter, Google+, and YouTube. A "Now Featuring" box highlights the "4th Annual SCI-ED Day" on November 4, 2014. Below the header, there are three image thumbnails: one showing a person in a lab coat, one showing a group of people at a booth, and one showing a group of people standing together. A blue banner at the bottom left reads "Upcoming Events".

# Survey of Scientific Computing (SciComp)



```
1  using System;
2  using System.Collections.Generic;
3  using System.ComponentModel;
4  using System.Data;
5  using System.Drawing;
6  using System.Linq;
7  using System.Text;
8  using System.Windows.Forms;
9
10 namespace SimpleEvents
11 {
12     public partial class Form1 : Form
13     {
14         Person person = new Person();
15
16         public Form1()
17         {
18             InitializeComponent();
19             person.FirstName = "Christian";
20             person.LastName = "Rene";
21         }
22
23         private void button1_Click(object sender, EventArgs e)
24         {
25             person.HairColor = textBox1.Text;
26         }
27     }
28 }
```

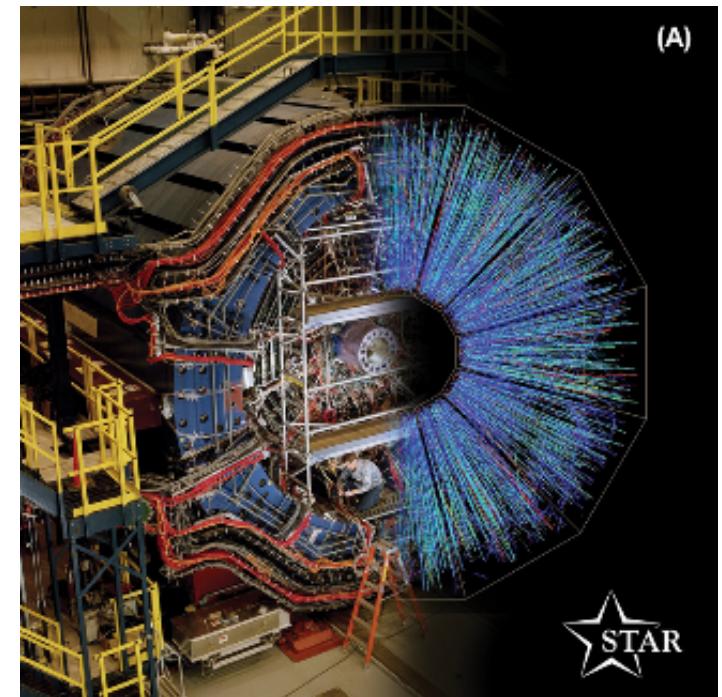
## Unit 1 Remote Access

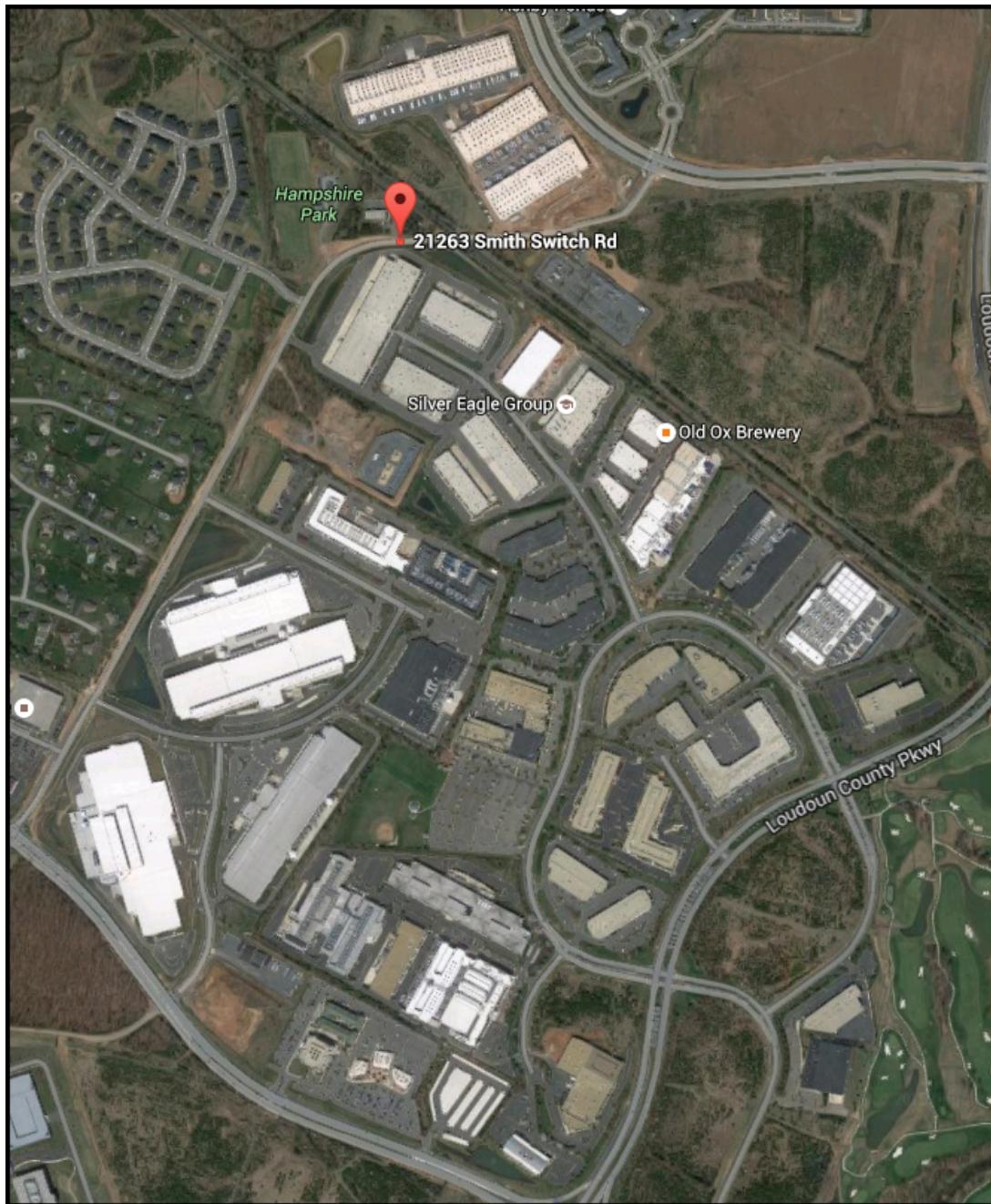
# Goals

- Access **your** remote PC in Amazon's cloud
- Learning and Practicing commands in the terminal
- Learning to restart the remote PC

# Scientific Computing in the Cloud

- The cloud is a great **equalizer**
- Allows participants to continue learning at home as on campus
- Cloud machines are fully isolated from school networks - eliminates local software installation restrictions & campus cybersecurity concerns
- Schools with low-end PC labs can still access the newest generation of hardware





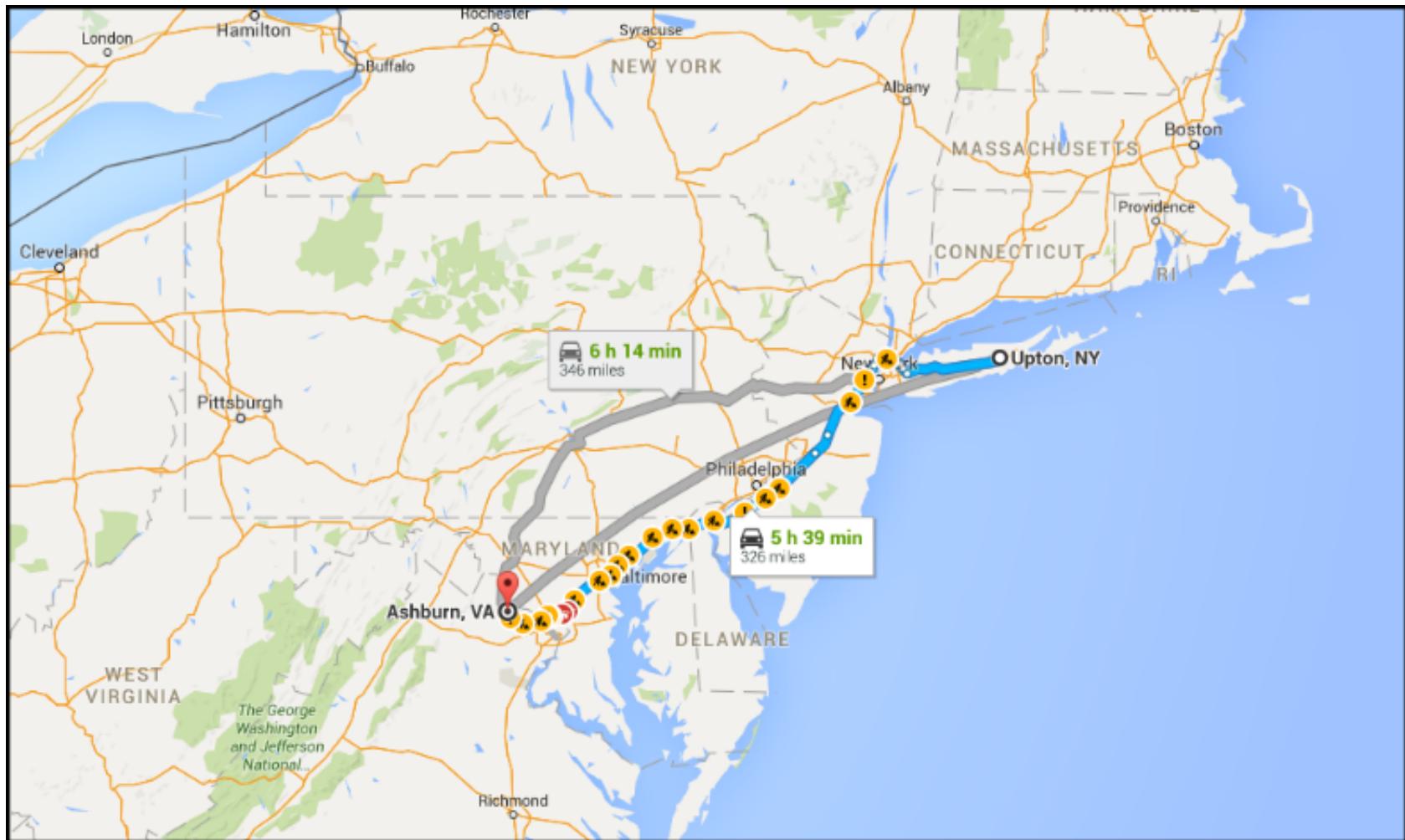
Amazon's  
23 data centers in  
Ashburn, Virginia

Just two of Amazon's 23 cloud data centers in Ashburn, Virginia



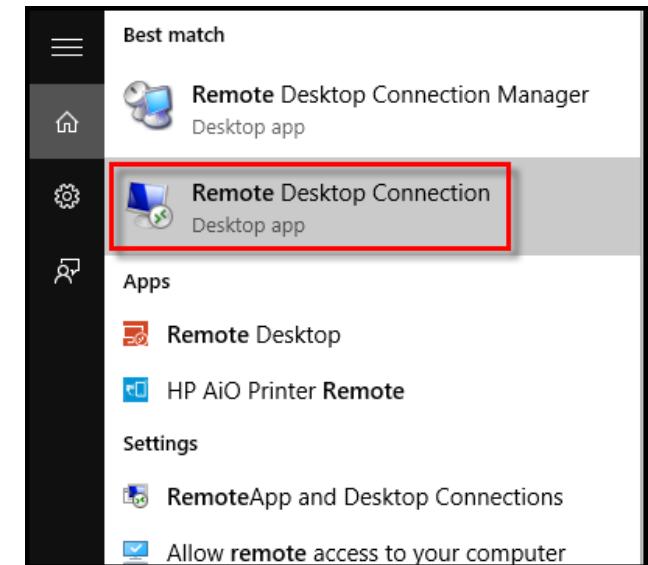
# BNL ↔ Ashburn

Roundtrip = 660 miles



# Accessing an Amazon Remote PC

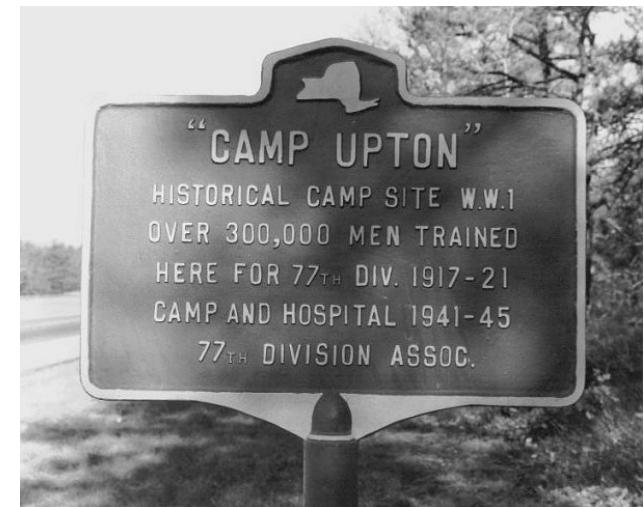
- Uses Microsoft's “**Remote Desktop Connection**” application
- Students have assigned credentials
  - The IP address (**computer name**) of their specific machine in Amazon's cloud
  - Their user name (case sensitive!)
  - Their password (case sensitive!)
- Students can access their Amazon machine **from their home**
- Educators can remotely monitor student progress **real-time** on the lab exercises



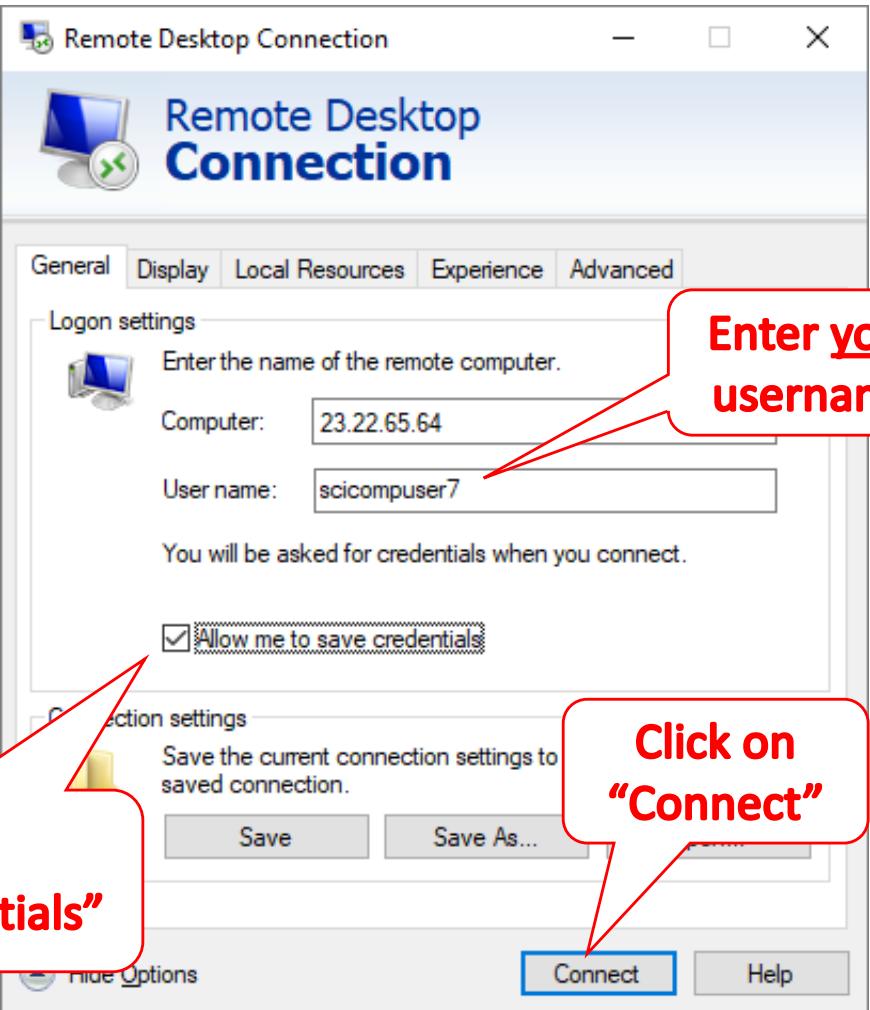
# Accessing an Amazon Remote PC

IP Address	Last Name	First Name
23.21.36.204		
23.22.65.64		
23.22.66.177		
23.22.77.143		
23.22.79.115		
23.23.69.92		
50.16.130.78		
50.16.135.127		
50.16.144.96		
50.16.147.112		
50.16.159.220		
50.16.160.201		
50.16.163.25		
50.16.163.117		
50.16.163.174		
50.16.165.70		
50.16.165.235		
50.16.170.168		
50.16.175.58		
50.16.175.233		

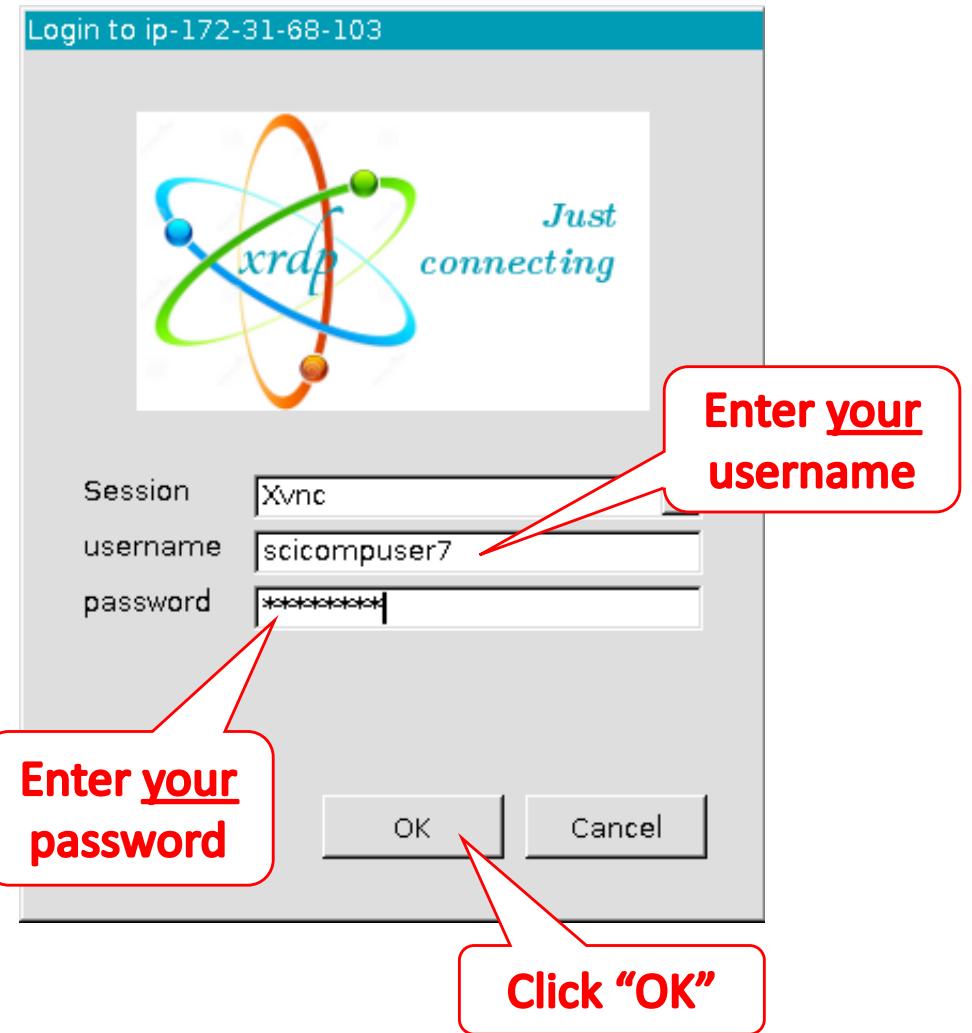
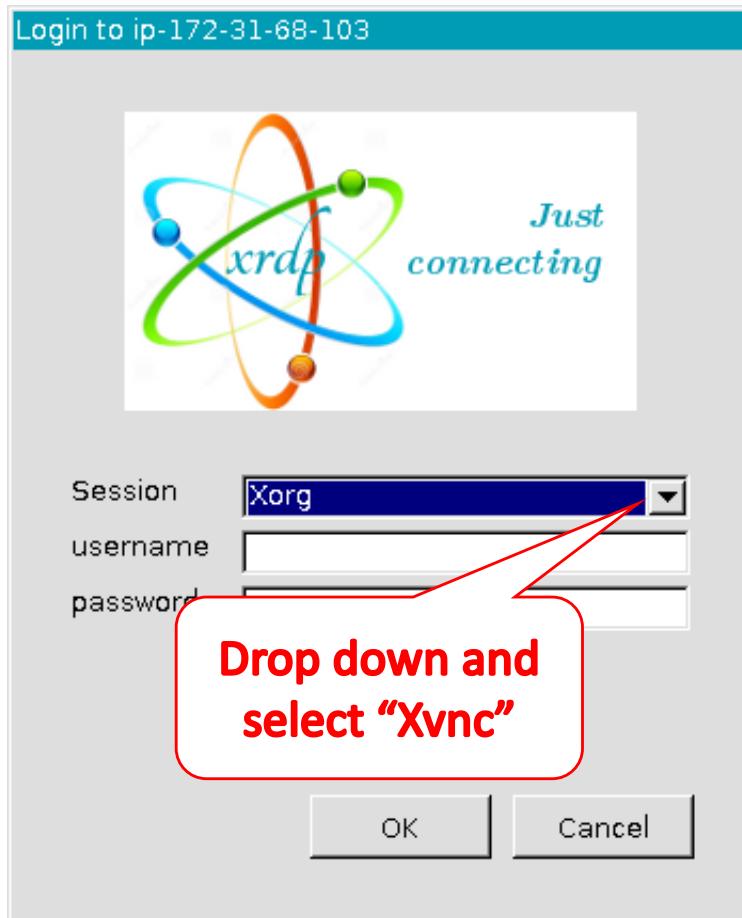
1. Write down your IP address, username, and password in your notebook
2. Take a picture of your login information to keep on your smart phone



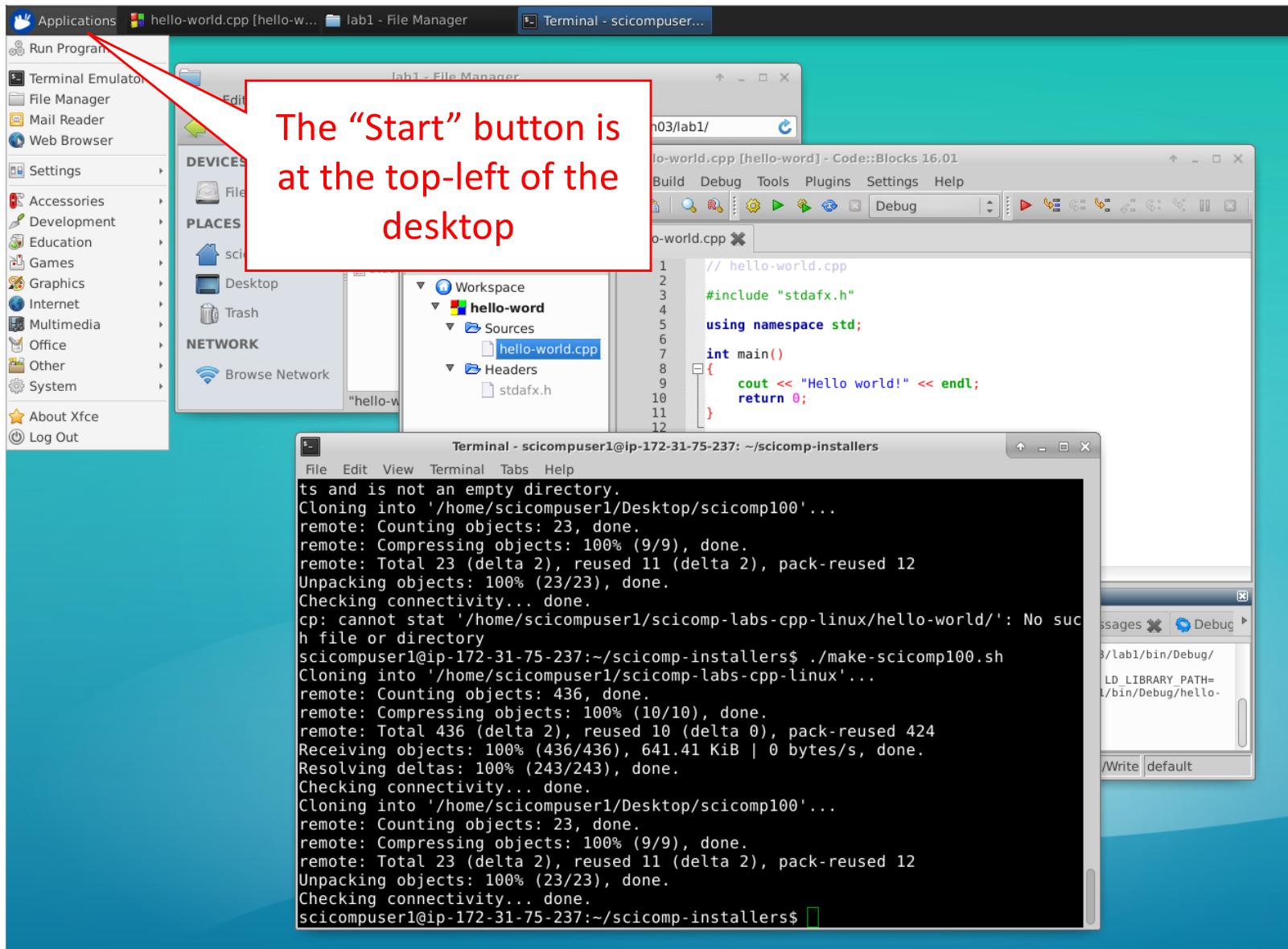
# Accessing an Amazon Remote PC



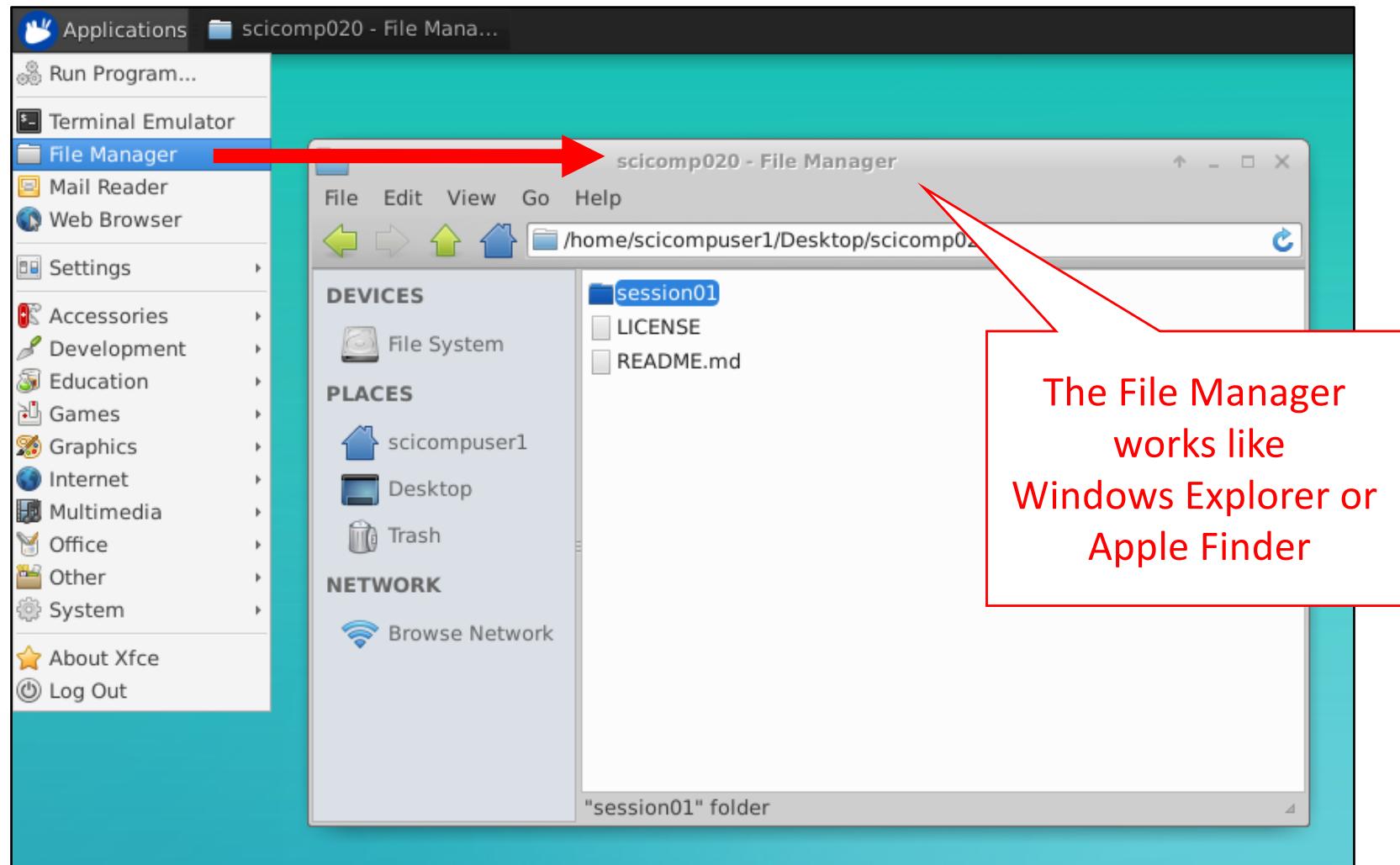
# Accessing an Amazon Remote PC



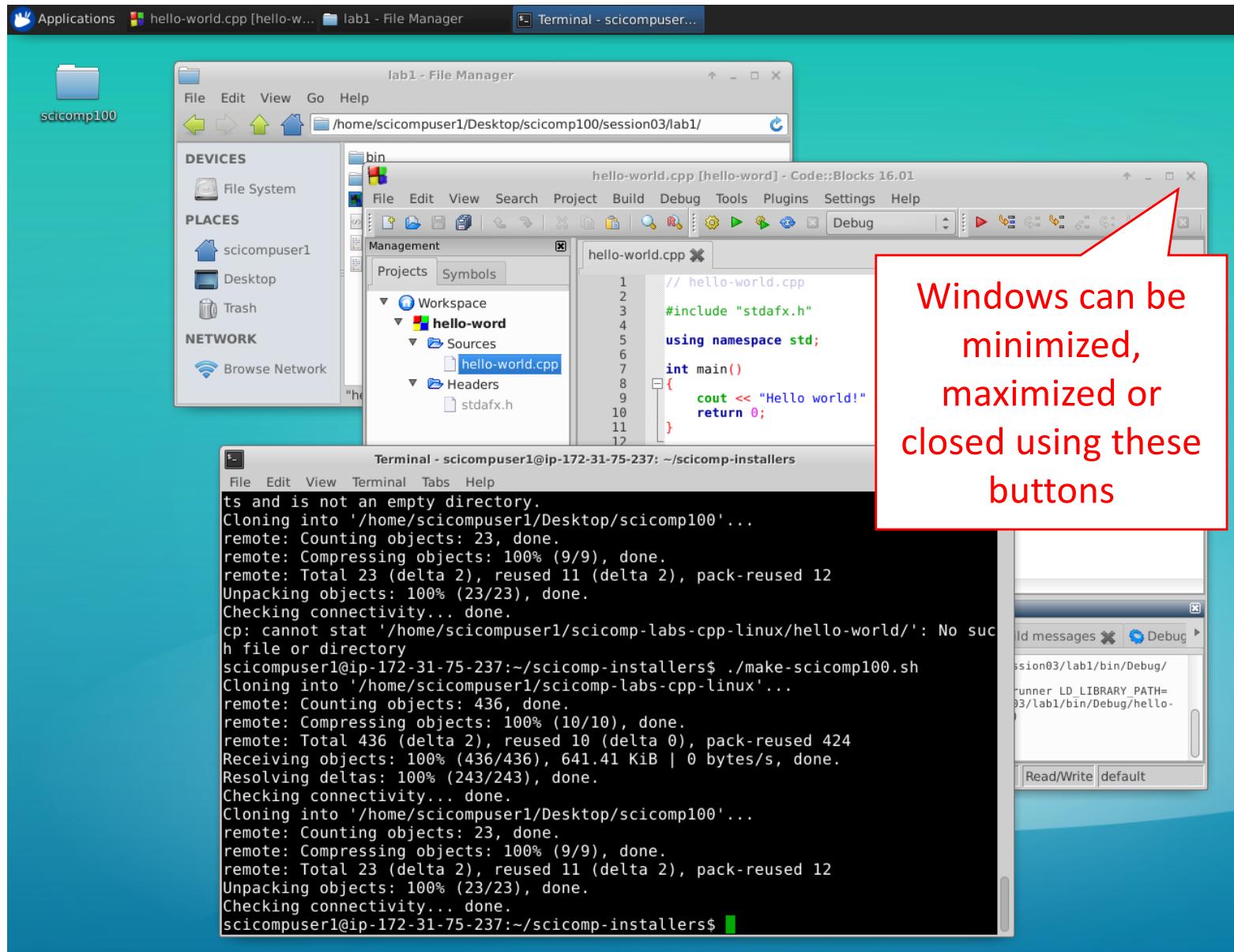
# Ubuntu Linux with Xfce Desktop



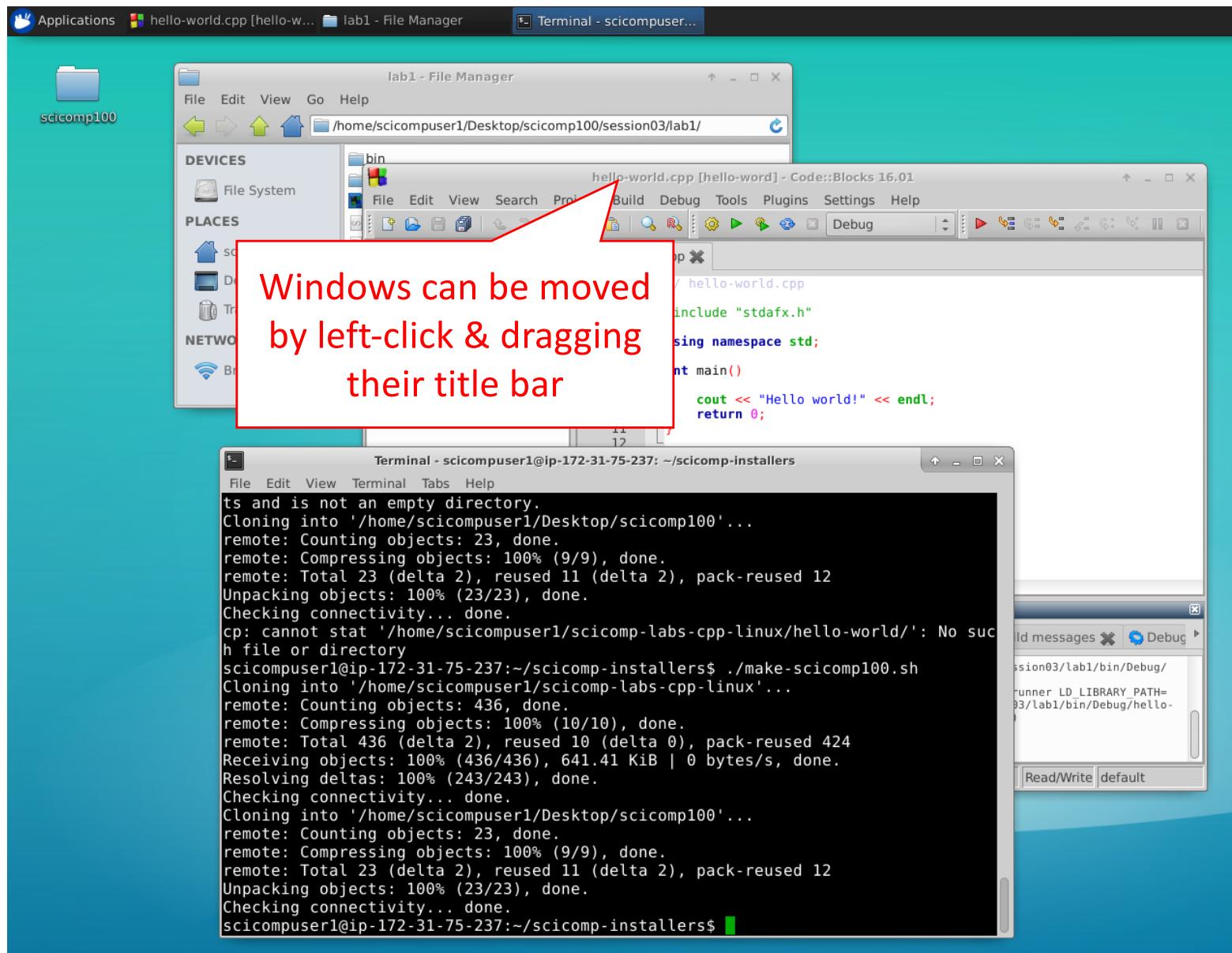
# Ubuntu Linux with Xfce Desktop



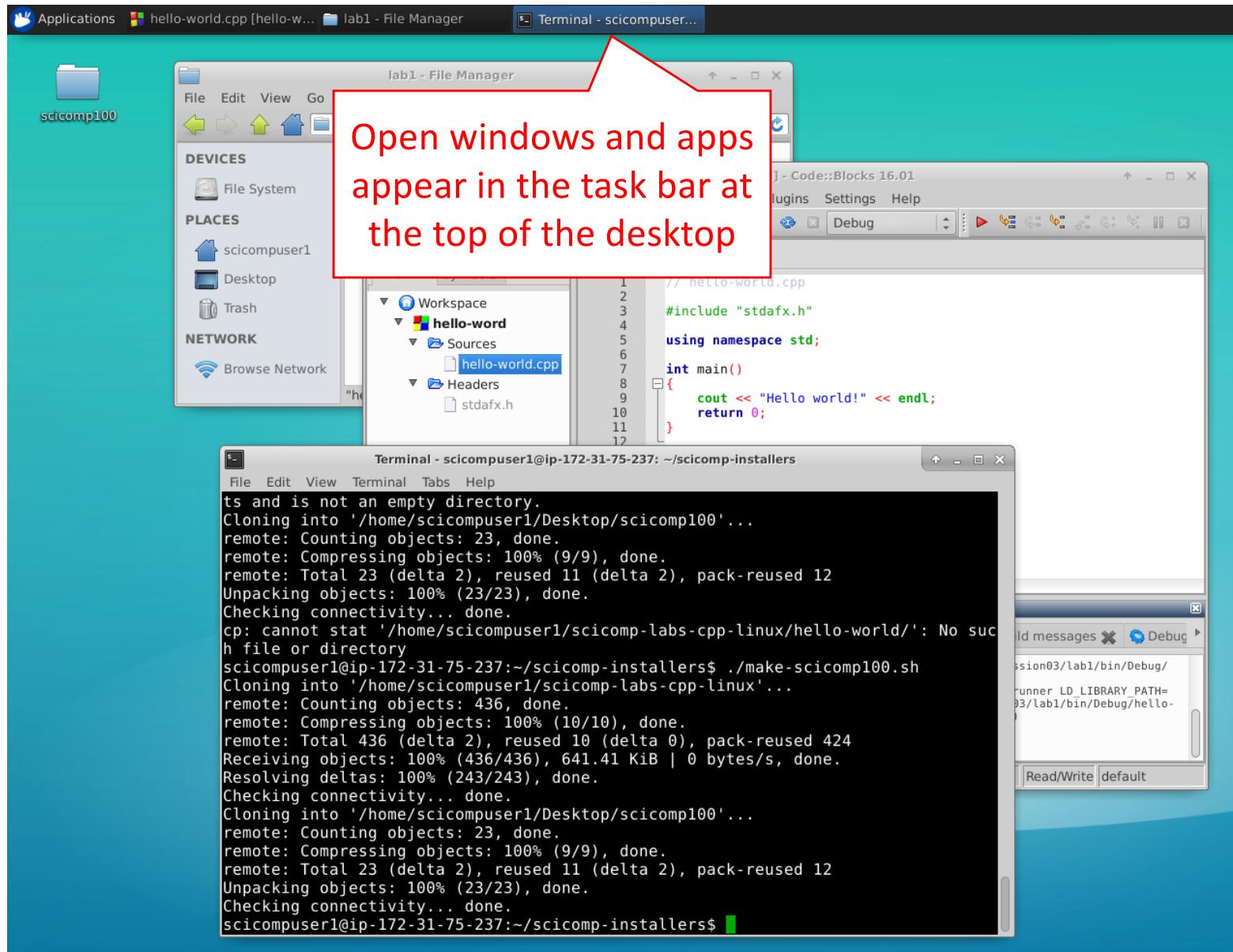
# Ubuntu Linux with Xfce Desktop



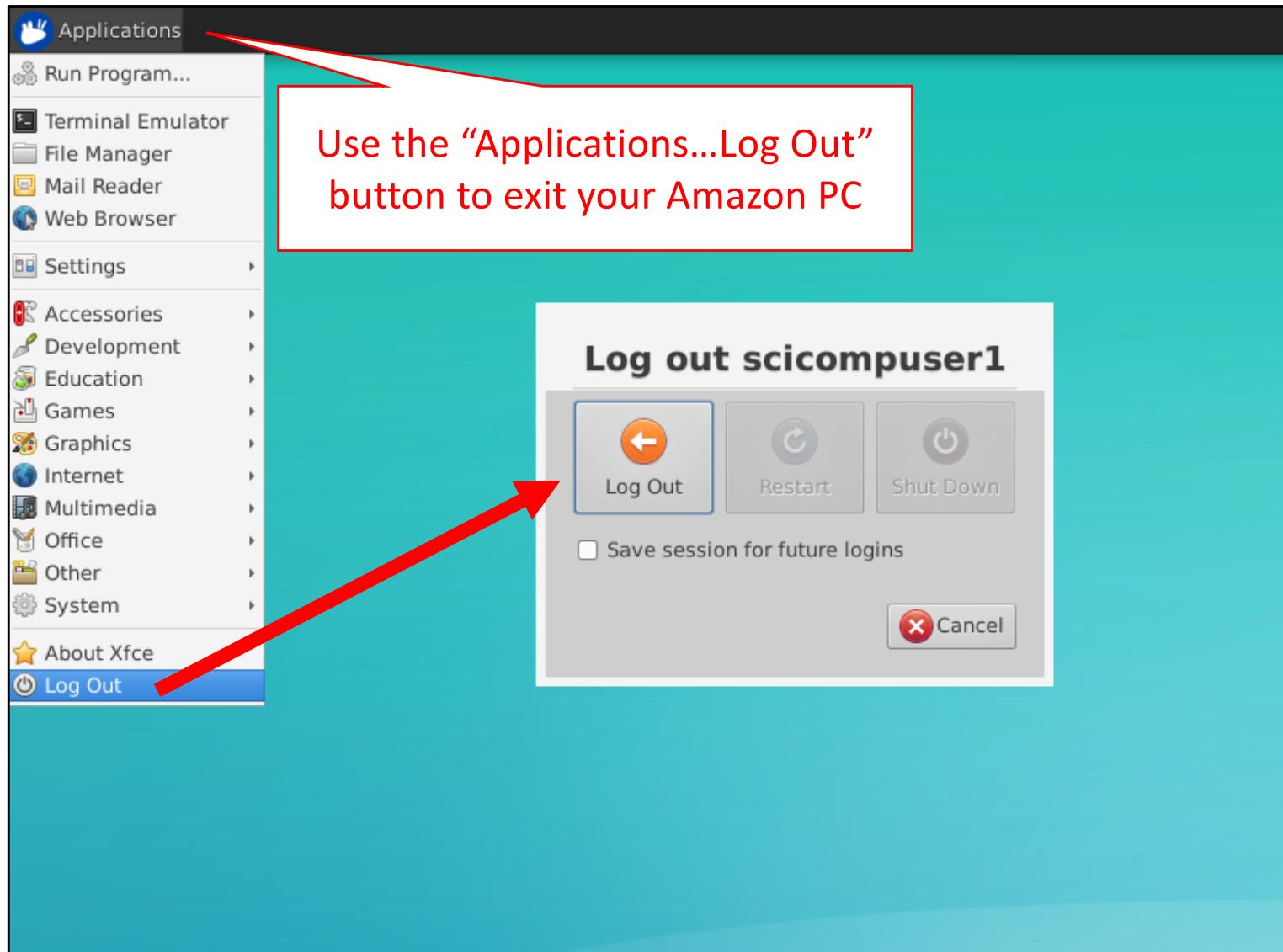
# Ubuntu Linux with Xfce Desktop



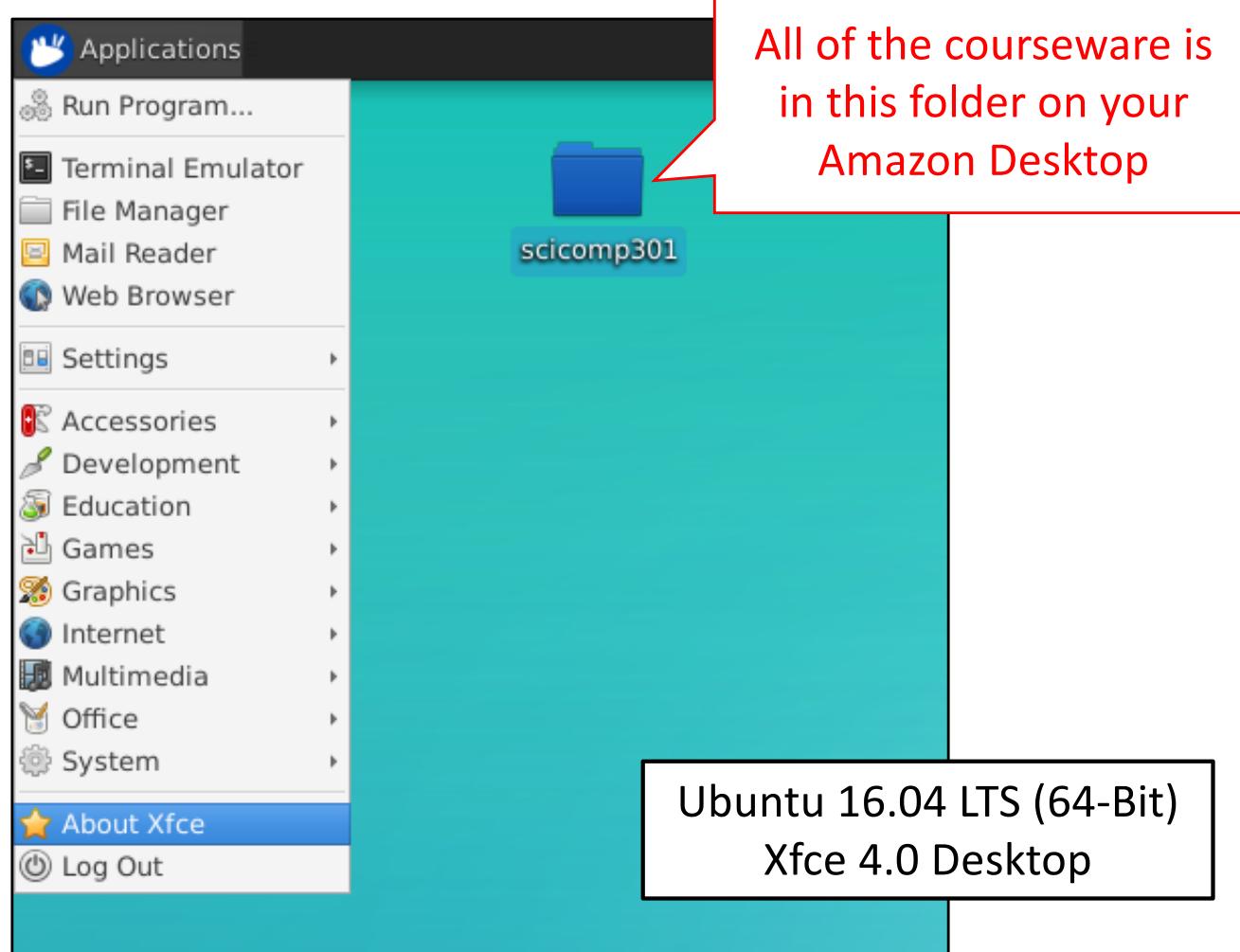
# Ubuntu Linux with Xfce Desktop



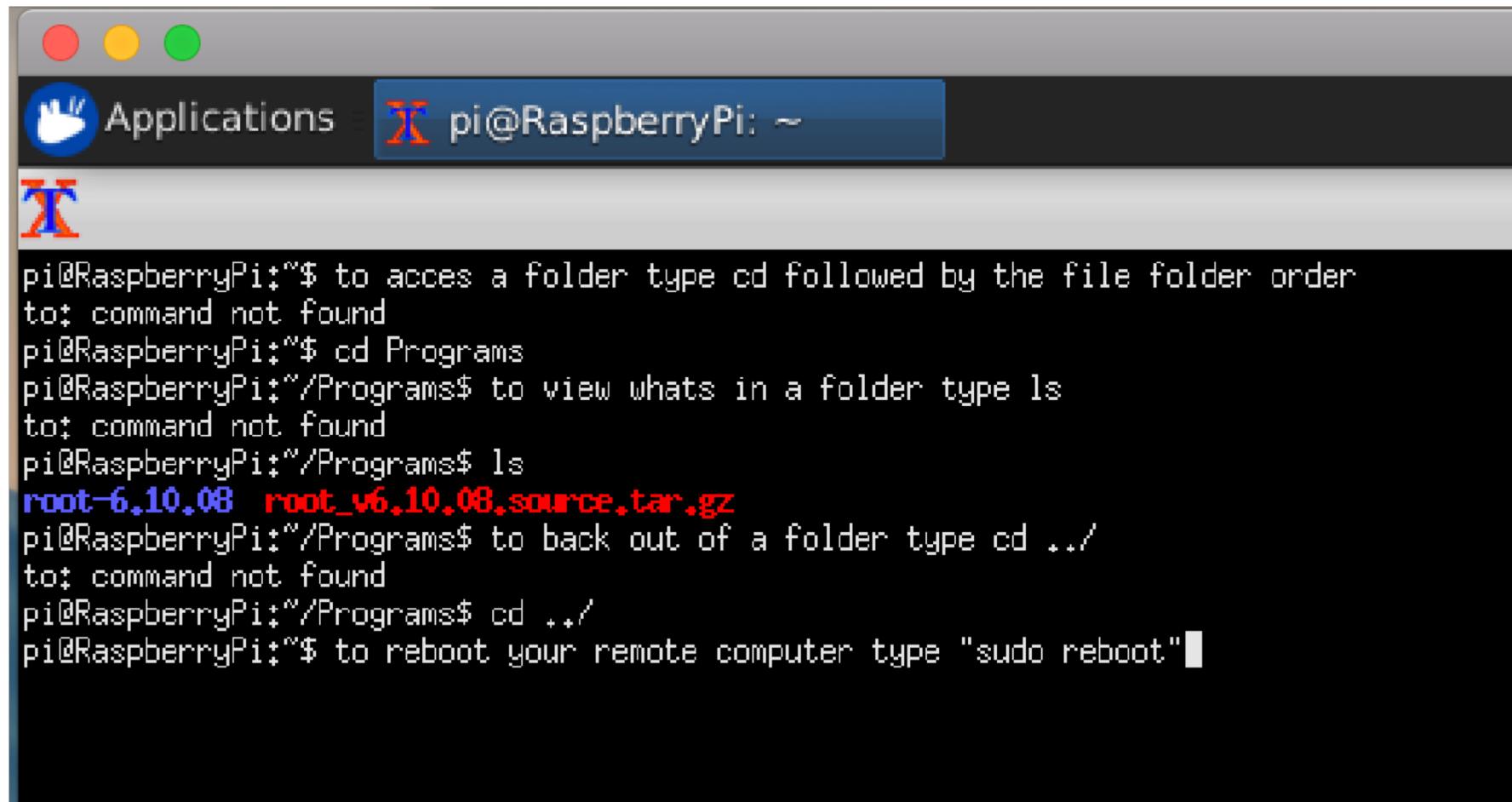
# Ubuntu Linux with Xfce Desktop



# SciComp Courseware Layout



# Explore Terminal

A screenshot of a terminal window on a Mac OS X desktop. The window title bar shows the application icon and the text "Applications". The tab bar shows the current session as "pi@RaspberryPi: ~". The terminal itself has a blue header with the letter "T" and a red footer. The text in the terminal is:

```
pi@RaspberryPi:~$ to acces a folder type cd followed by the file folder order  
tot: command not found  
pi@RaspberryPi:~$ cd Programs  
pi@RaspberryPi:~/Programs$ to view whats in a folder type ls  
tot: command not found  
pi@RaspberryPi:~/Programs$ ls  
root-6.10.08 root_v6.10.08.source.tar.gz  
pi@RaspberryPi:~/Programs$ to back out of a folder type cd ../  
tot: command not found  
pi@RaspberryPi:~/Programs$ cd ../  
pi@RaspberryPi:~$ to reboot your remote computer type "sudo reboot"
```

## Now you know...

- How to access your remote Amazon PC
- Linux with Xfce is quite similar to Microsoft Windows
- How to log out of your Linux (Ubuntu) desktop session