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The Digital

Viking



Twin Cities

PC USER GROUP

NEWSLETTER

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TC/PC Exists to Facilitate and Encourage the Cooperative Exchange of PC Knowledge and Information Across All Levels of Experience

March 2020

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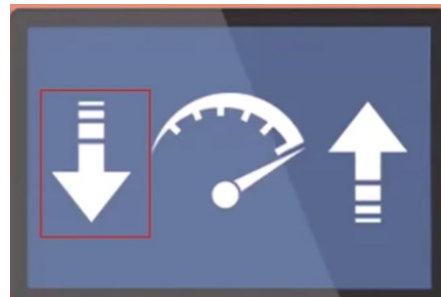
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General Meeting Tuesday, March 10, 2020 7:00 PM

What Will 5G Mean to You?

**Summit Place
8505 Flying Cloud Drive
Eden Prairie, MN**

We have all heard the hype about the next speed leap to 5G, but what are the facts and what will it really mean on a day to day basis. Ron Brown of the user group Silvercom CTC gave this presentation at the most recent APCUG Virtual Tech Conference. He does a nice job of clearly explaining what 5G is and what it will mean for us in terms of download and upload speeds and more. 📺



Tech Topics with Jack Ungerleider at 6:00 PM.

Always lots to learn from our tech guru. 📺

TC/PC is a Member of



24-Hour Information • www.tcpc.com

Application form inside back cover

The Digital Viking

The Digital Viking is the official monthly publication of the Twin Cities PC User Group, a 501(c)(3) organization and an all-volunteer organization dedicated to users of IBM-compatible computers. Subscriptions are included in membership. We welcome articles and reviews from members. The Digital Viking is a copyrighted publication and reproduction of any material is expressly prohibited without permission. Exception: other User Groups may use material if unaltered and credited.

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Full page (7½ x 9½)	\$100.00
Two-thirds page (7½ x 6)	80.00
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Contact Sharon Walbran at: SQWalbran@yahoo.com

Deadline for ad placement is the 1st of the month prior to publication. All rates are per issue and for digital or camera-ready ads. Typesetting and other services are extra and must be requested in advance of submission deadlines.

Payment must accompany order unless other arrangements are made in advance. Place make checks payable to: Twin Cities PC User Group

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Meets once or twice per year. All members welcome to attend.

Visit www.tpc.com for meeting details.

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Editor Sharon Walbran

Smartphone Map Apps vs. Dedicated GPS Devices

Author: Dorothy Fitch, Green Bytes Editor, GVR Computer Club, AZ

October 2019 issue, Greenbytes

www.ccgvaz.org

Newsletter (at) ccgvaz.org



public domain image from pxhere.com

I recently heard an interesting report on a local television station about the pros and cons of using your Smartphone vs. a GPS device to find your way when you travel. I am certainly not an expert on this topic but wanted to share a few things I discovered as well as some links so that you can learn more, too.

I hadn't really thought about it, but perhaps the biggest difference between the two is that Smartphone map apps use cell tower signals to provide your location and generate maps. GPS devices, such as Garmin or TomTom, use satellites for positioning.

What this means is that if you are in a remote area that doesn't have cell coverage, maps on your phone will likely not work.

Other interesting considerations:

GPS devices are more accurate—to within 15 feet your location— because they are using satellite technology.

Smartphone locations are accurate to about 164 feet. Your location is determined by triangulating signals from several cell towers.

A Smartphone app uses your phone's battery (though you may be able to charge it in your car via USB). Beware, however, that on a recent trip, my Android phone was plugged in.

During the half-hour trip, the phone's battery level dropped by 4% because the power used by the app was greater than the rate of charging.

A GPS device will plug into your car's cigarette lighter or USB port.

Using a GPS device will leave your Smartphone available for other purposes (though not when you are driving, of course!).

A Smartphone app will use up mobile data, which may be of concern if your phone service doesn't include an unlimited data plan.

GPS devices often come with a way to mount them to your dashboard, which makes it easier to check your route.

The Google Maps Smartphone app gives you up-to-the-minute accident reports. It even prompts you to respond as to whether the accident someone reported earlier is still there. It provides an estimated time delay, as well as alternate routes.

Some GPS devices offer traffic alerts as well.

Using the Google Maps Smartphone app, I was surprised one time when I entered the address of my destination, which was a store. I got immediate feedback that the store had already closed for the day. Very useful information to know (and saved me a stop).

Many GPS devices include lifetime map updates. This can be handy, as new housing developments are constructed. You can also download (or purchase) maps for foreign countries. You can likely use your Smartphone app abroad, but I haven't tried that.

Some GPS devices can store your trip data, which you can then download to a map, where it displays your route. This is particularly interesting if you are hiking or on a boat.

If you are car-shopping, you may be offered a package that includes a built-in GPS system. However, that option is likely to cost much more than the price of a hand-held separate device.

Articles on the subject:

[Do I need a dedicated GPS device if I have a smartphone?](#)

[Can you trust your phone's GPS driving directions?](#)

[Smartphone vs. Dedicated Car GPS \(PND\)](#)

[The 7 Best Traffic Apps of 2019](#)

[44 Google Maps Tricks You Need to Try](#)



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Virtual Machines

Author: Dick Maybach, Member, Brookdale Computer User Group, NJ

August 2019 issue, BCUG Bytes

www.bcug.com,

n2nd (at) att.net,

A virtual machine (VM) is a program on your PC (called a host in virtual-machine speak) that creates a box that appears to be a PC to an operating system (called a guest in virtual-machine speak) that resides in it. In Figure 1, the outer gray box is your PC hardware and software. The blue box within it is the program (called a hypervisor) that creates the software boxes that hold the guests, each shown as a light gray rectangle. Each guest has its own virtual hardware (in yellow) with which it communicates just as though it were a PC. Each guest also needs its own operating system (in orange) and applications (in green).

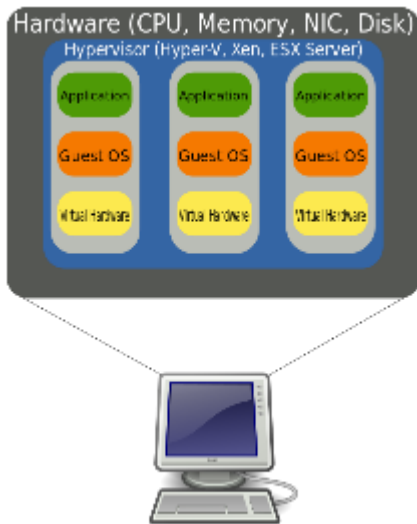


Figure 1. Virtual Machine Organization.

From the host's view each guest is just an application, and each can operate independent of other applications on the PC, which means you can have two or more operating systems live at the same time. Moreover, you can copy and paste data and transfer files between them at any time.

It's not shown in Figure 1, but the hypervisor has an interface to configure and control the VMs; Figure 2 shows an example, in this case VirtualBox. Note that there are five different VMs here, Windows 7, FreeDOS, Tails, Ubuntu 18.04, and Ubuntu 18.10, and all are powered off. The right portion of the screen summarizes the characteristics of the Windows 7 guest.

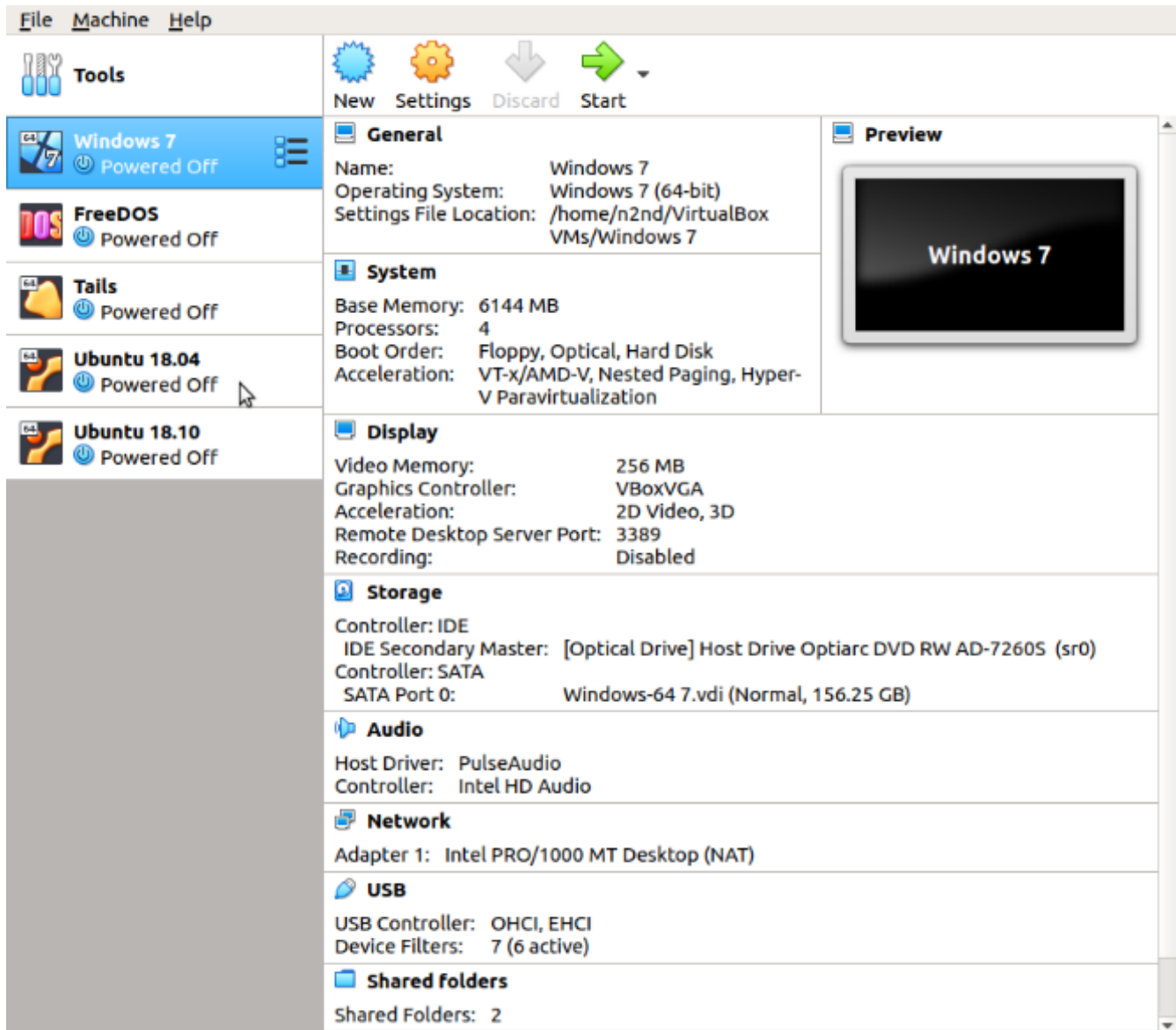


Figure 2. VirtualBox Administration Panel.

Figure 3 shows Windows 7, running as a guest under VirtualBox.

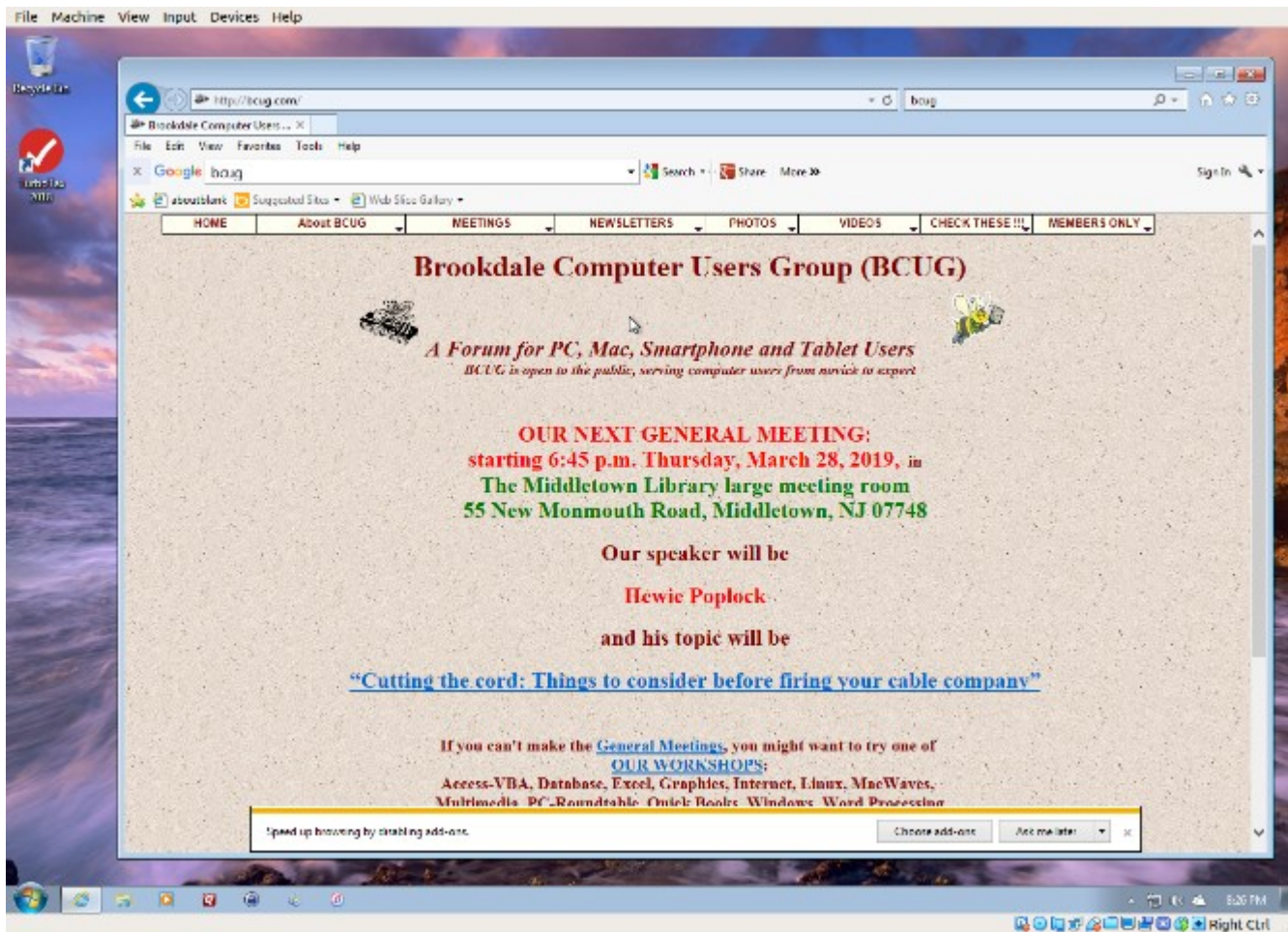


Figure 3. Windows 7 under VirtualBox.

As with most other applications, control follows the cursor. Place the cursor within the VM window and mouse clicks and keystrokes are sent to the VM. Move the cursor outside the VM window, and they affect something else.

Why bother with this? As you probably suspect, adding a software layer between the guest OS and the PC slows down the guest and complicates the host. Here are some possible uses.

- Run a different OS – my host runs on Linux, but there are a few applications available only on Windows, such as TurboTax and the software needed to update my GPS. If your host is Windows, putting Linux on a VM is far superior to running it from a live USB.
- Trial OS upgrades – I prefer to try a new version before I commit to it on the host, as often some applications aren't compatible. In the case of Windows, free trial versions are often available before a new version is introduced, and a VM lets you play with these without risk.
- Test alternate configurations of your host OS – making such experiments on a VM can save you from serious, "It seemed like a good idea at the time," calamities. This is more difficult with a commercial OS but look for ways around this. I've made a duplicate

installation of Windows on a VM, and while it complained, it did run long enough for me to complete my tests.

- Trial applications – testing applications on a VM means you don't have to uninstall them when they don't work out. This is made easier with the VM snapshot feature. Before you install, create a snapshot (equivalent to cloning the hard disk). You can then revert to the snapshot if you decide to discard the application.
- Test live USBs or DVDs – much software is available on live media. You download an ISO file, burn it onto a medium, and boot your PC from it. With a VM, you just designate the file as being installed on the guest's virtual DVD drive, which now boots from the virtual DVD instead of its virtual hard disk. As a result, you don't have to burn the file to a medium.

Before I used VMs, I relied on dual booting for the similar tasks. Here, the alternate OS has direct access to the PC, which means it's substantially faster than when running as a VM guest. However, this requires repartitioning the host's hard drive, where an error can be catastrophic, and moving data between the two hosts is awkward.

There are many VM systems available, with the four most popular being VMWare (for Windows, OS X, and Linux), VirtualBox (for Windows, OS X, and Linux) Parallels Desktop (for OS X) and QEMU/KVM (for Linux). I've used VirtualBox for several years and have recently begun experimenting with QEMU/KVM, so everything I say about the other two is hearsay. From what I've read, it appears that VirtualBox is the easiest to configure and use, plus it's free for home users. VMWare, the oldest of the four, is possibly faster than VirtualBox, but configuring it requires some experience, and it's a commercial product. A free version is available, which is missing only a few unimportant features. QEMU/KVM is not for the faint-hearted, as it was designed by Red Hat for use in professionally staffed server farms. Also, although it appears to be quite fast it runs only on Linux. Making configuration changes such as, increasing the screen resolution and enabling host/guest file sharing involves working at the command line and being familiar with the Linux file organization and permissions. However, once set up, it's as easy to use as VirtualBox. GNOME Boxes (which I haven't used) allows Linux users to use KVM with a simple set-up process and user interface, although with more limited control of the virtual environment.

Figure 4 shows the QEMU configuration panel, which has essentially the same information as that of VirtualBox. After a VM has been installed, the day-by-day configuration is done from here.

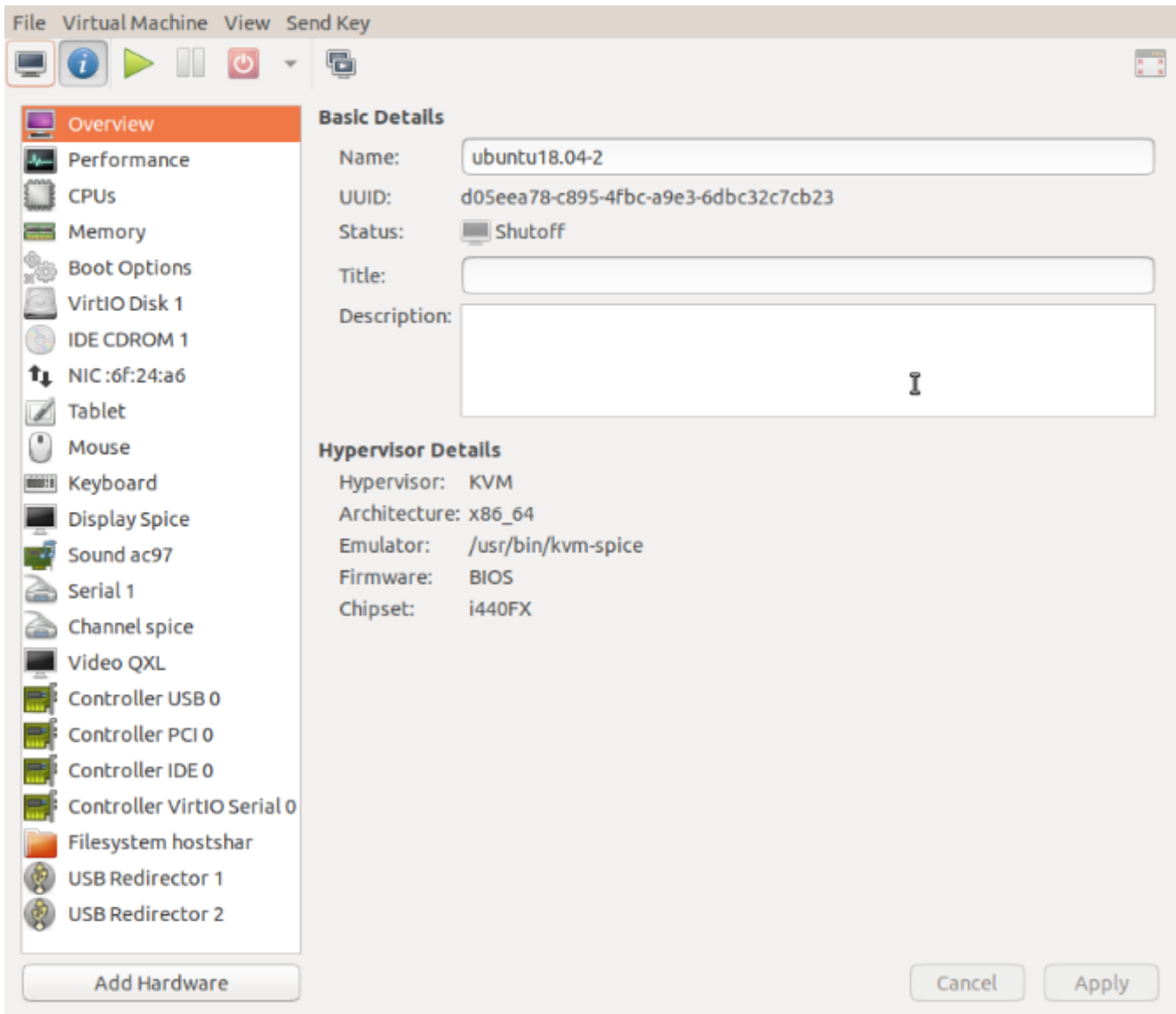


Figure 4. QEMU/KVM Configuration Panel.

A VM operating under QEMU/KVM appears in Figure 5, also essentially the same as it would appear under VirtualBox.

Figure 5. QEMU/KVM in Operation.

Running VMs requires a host with adequate resources. It needs four Gbytes RAM (absolute minimum, eight is preferable) and 12 free Gbytes disk space for each guest (again more is better). VM features on CPU are desirable (VT-x on Intel and AMD-V on AMD processors). Check your VM documentation, as these features may be disabled in your BIOS.

Guest speed will be lower than those of a host, but for most applications this isn't important.

Of course, you should run any resource-intensive tasks on your host. Graphics in particular will be slower and probably have fewer features than your host hardware. Resources used by a guest are no longer available to the host. For example, if your host has eight Gbytes of RAM and you allocate four to a guest, the host now can use only four.

A VM is completely defined by its file, which is essentially an image of its virtual hard disk. If you back up this file, you've backed up the VM. This isn't an unmixed blessing, as any time you boot the VM there will be changes in the file, which typically occupies at least several Gbytes of disk space. As a result, your backups will take longer and occupy more space.

Guests are reasonably well isolated from the host, except for any shared directories, making you fairly secure against the common risks, such as operator error and software bugs. However, some malware attacks can get through to the host, which means a VM is not a good vehicle for investigating malware.

Although VMs are valuable, they do introduce complexity and add risk. I used VirtualBox for several years but noticed beginning with Ubuntu version 18.04 that after a few minutes Ubuntu guests would drastically slow, to the point of being unusable. This can be remedied by turning off VirtualBox's 3D display acceleration, which is enabled by default. The developers have acknowledged the problem but say they don't have the resources to correct it. After the last VirtualBox update, it refused to run my Ubuntu 16.04 guest at all, which is why I ventured into QEMU/KVM land, and fortunately the trip was successful. Using VMWare might also have solved the problem, but since my host is Linux, QEMU/KVM was a better approach.

Despite their disadvantages, VMs are a valuable resource for me, one I use almost every day. They allow me to run software experiments more easily and with less risk than do their alternatives. Without them, many of my articles would have been just cut-and-paste cribs from other folk's work. 🖥️

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Smart Devices in the home – With voice control

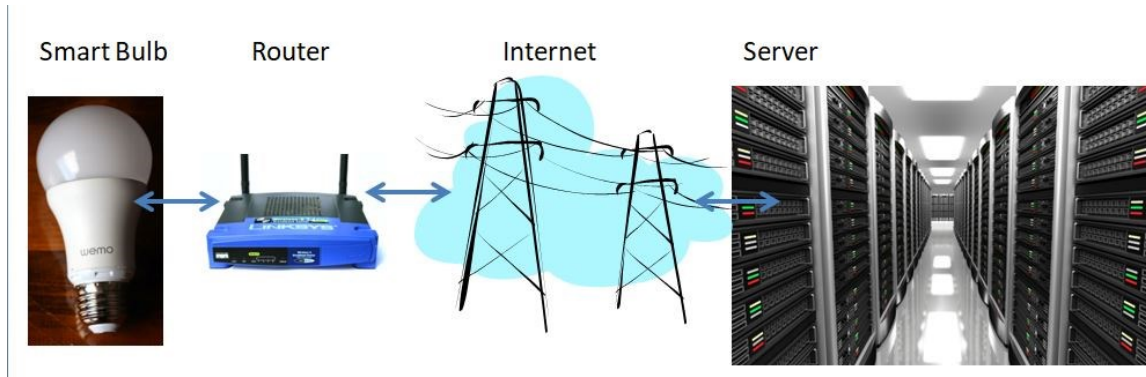
Author: Phil Sorrentino, Contributing Writer

The Computer Club, Florida

September 2019, www.sccccomputerclub.org, [Philsorr \(at\) yahoo.com](mailto:Philsorr@yahoo.com)

There are a whole host of smart devices available for use in the home now. Some of the most basic and least expensive ones are smart bulbs, smart plugs and smart cameras. (Yes, I know cameras can be expensive, but there are some fairly inexpensive indoor-only cameras.) First of all, what makes these devices smart? Well as I have alluded to in previous articles, it's all about Client – Server technology. The devices have some limited intelligence in them. Read "intelligence" as basic processing power, downloadable firmware, and wi-fi electronics. This allows them to be able to communicate with a local wi-fi router, which in turn allows them to access the internet. Once they can access the internet, they can take advantage of the servers on the

internet (sometimes referred to as “in the cloud”). The intelligence in the accessed server is where all the magic happens. Here read “intelligence” as very fast, very powerful, server computers capable of handling millions of requests for service per second. So it’s the combination of the smart device, the internet, and the server that really makes the smart device: smart.



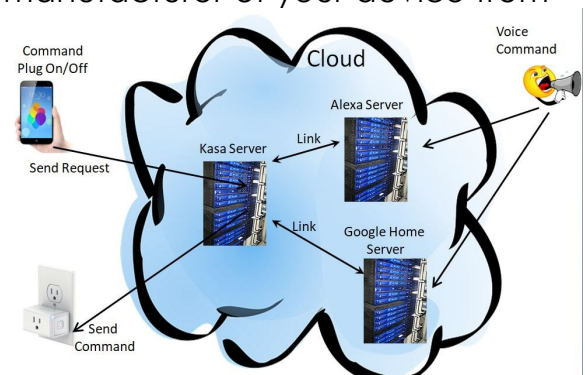
Once you have your smart device ready for installation, it is the App on your smartphone that takes over and steps you through the installation process. (Yes, a smartphone is required for the installation, either Android or Apple.) The App that you will use for installation will be the App from the specific smart device manufacturer. So for example, if you have a TP-Link smart bulb, you would have to get the TP-Link App for your smartphone. In this example that would be the “Kasa” App. Similarly, if you have a Wyze smart bulb you would use the Wyze App for the installation. These Apps are free and are intended to work with the servers from the specific manufacturer. (So just as an aside, think about this. If the company that operates the server, the smart device manufacturer, goes under and the server goes away, your smart device will no longer be smart. The bulb may not even be able to be turned on if there is no server to command it to turn on.)

The installation process is usually pretty easy; after all, it’s the App that is doing all the work. The first thing you have to do is get the device ready for installation. The App will usually start this by having you select something like “add a device,” or “add a product”, or maybe you just have to select the “+” on the screen (as found on the Kasa App) to add a device. You will have to let the App know what type of device you are adding. This is usually done by just selecting the device type from a list of device types manufactured by that specific manufacturer. Once the device type is selected, you are ready to go into the setup mode. The App will give you instructions for getting the device into the “Setup” mode. On a smart plug with a push-button switch it is really easy because pushing the button as directed by the App will get the smart plug ready for installation. With a smart bulb, usually you quickly turn the power on and off maybe three times and the smart bulb goes into the Setup mode. You will know the device is in setup mode when whatever you were watching changes. With a smart bulb, the light may start to pulsate slowly, with a smart plug, the small light on it may blink or change color. Once the device is in the setup mode, it will need to know the name of your wi-fi network and the password for that network. (Note: some devices only support 2.4 GHz networks only;

not 5 GHz networks.) You may have to use your “Settings App” on the smartphone during the setup; just follow the directions from the App. Once you enter the wi-fi network name and the network password you may see a timer count down for a few seconds till the installation is complete. Finally you will be asked to name the smart device; something like “desk light” or “bedroom plug”. (Keep in mind that each manufacturer’s App will be a little different, this is just a general example.)

The installation may seem complex but after you have done it once or twice it will probably become automatic. However, you might want to keep those instructions that you get with the device in a safe, convenient, place because you might have to go through the whole process again. (Before I lose the instructions, I scan them into a file and place the file in a “Home Automation” folder so I can review the directions when I have to do another installation. This was recently necessary when I changed my router and the new wi-fi network had a new name and new password. This forced me to reinstall every device that used the house wi-fi. At the time, I had 7 smart devices that had to be reinstalled.) So now with the smart device installed you can control it from your smartphone App. Typically, you can turn it on and off and maybe even set up a schedule.

Once the device is installed and working, it’s time to move on to voice control. Voice control is supported by Amazon’s Alexa and Google’s Google Home. You can use either of these or both. Amazon calls the link between Alexa and smart devices “skills.” Google Home refers to them as links. In either case you need to have the appropriate App on your smartphone; the “Amazon Alexa” App for Alexa, and the “Home” App for Google Home. Again, the Apps are free and available for Android and Apple. Once you have the appropriate App, you just have to follow the instructions to link your smart device. Typically you will have to select the type of device and the device manufacturer. On Alexa this is started by selecting the “+” on the “Devices” screen and then selecting “Add device,” and then the type of device, and then selecting the manufacturer of your device from a list of manufacturers. To make sure you are linking “your Alexa” to “your smart device,” the App will require the Username and Password for the manufacturer of your smart device. (So, as a general rule, make sure you know the Usernames and Passwords for all of the manufacturers of the smart devices that you use.) Once you have authenticated yourself with your Username and Password, a link will be made between the Alexa server and the smart device manufacturer’s server. And now you can control the smart device, at least to the extent that the skills allow, by voice control. Now enjoy the feeling of power. 📱



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Special Interest Groups (SIGs)

w Work phone h Home phone c Cell phone
* Meets at an alternate location

Most SIGs will meet at Edina Executive Plaza, Conference Room #102, 5200 Willson Road, Edina, MN

Confirm with a SIG group if they meet elsewhere.
For more info contact the SIG Leader(s) listed here.

Get SIG announcements!
Link from www.tpc.com

Board of Directors*

All members are welcome! Check www.tpc.com for location.

Selected Saturday mornings

Linux on Saturday

This is for the Linux newbie and those trying to come over from Microsoft to a different operating system.

Second Saturday @ 9 AM-Noon

Note: No Meetings June-August

Jack Ungerleider 612/418-3494 c
jack@jacku.com

Tech Topics

Technical presentation/discussion on various technical topics from the following areas:

- Web/Internet
- Mobile Devices and Apps
- Playing with Programming
- DIY (3D Printing, R-Pi, other hobby electronics, etc.)

Second Tuesday @ 6:00-7:00 PM

Every month

Right before the general meeting.

Jack Ungerleider 612/418-3494 c
jack@jacku.com

Microsoft Access

All levels. Presentations by expert developers within the group and by MS reps.

Third Saturday 9:00 AM—Noon

Note: No Meetings June-August

Steve Kuhlmeier 952/934-8492
skuhlmeier@hotmail.com

Microsoft Office

Addresses the use, integration, and nuances of the Microsoft Office applications.

Combined with Systems on Saturday

Third Saturday of the Month

9:00 AM—Noon

Note: No Meetings June-August

Steve Kuhlmeier 952/934-8492
skuhlmeier@hotmail.com

Directions to Summit Place for General Meetings:

Proceed to Eden Prairie Center Flying Cloud Drive . [Flying Cloud Drive runs along the West side of the Eden Prairie Center.] Once you have driven past Eden Prairie Center (on the left) along Flying Cloud Drive you will come to a stop light at Prairie Center Drive. The next intersection with a stop light and left turn lane is Fountain Place. Turn left at Fountain Place and go straight into the parking lot. Turn left again to the first covered entry way of Summit Place. There is plenty of parking in the large parking lot in front of the first Summit Place covered entry way. When you enter the door at the first covered entry way, ask to be directed to the Performance Room for the TC/PC meeting. For a map of more detailed directions and *info on Web SIG and Board meeting*, check the TC/PC website.

Directions to **Edina Executive Plaza** for **Systems on Saturday, Access, Word and Picture Perfect SIGs**: Take Highway 100 to the 50th Street/Vernon exit. [If you have come from the north, cross back over Highway 100 to the east side.] Take the first right and go past Perkins [The golf course will be on your left.] and continue on the east frontage road (Willson Road) to the next building—5200 . There is ample parking in the building's lot. Conference Room #102 is on 1st floor.

Help yourself by helping others!

Join the team & share your knowledge with others.

Contact TC/PC at www.tpc.com

Meetings start at 7:00 PM (9:00 AM on Saturday) unless otherwise noted. *Meets at Edina Executive Plaza.

March

April

SUN	MON	TUES	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10 General Mtg What Will 5G Mean to You? 6pm Tech Topics	11	12	13	14 9am-Noon Linux on Sat- urday
15	16	17	18	19	20	21 9am-Noon Microsoft Office (including Access)
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11 9am-Noon Linux on Sat- urday
12	13	14 Gen Mtg TBA 6pm Tech Topics	15	16	17	18 9am-Noon Microsoft Office (including Access)
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26	27	28	29	30		

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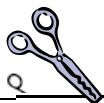
Would you like to receive this delivered directly to your email or business each month?

As a member of TC/PC, the Twin Cities Personal Computer Group, one of the benefits is reading this monthly publication at www.tcpc.com.

As a member of TC/PC, you may attend any or all of the monthly Special Interest Group (SIG) meetings and be eligible for software drawings. The small membership fee also includes access to real-live people with answers via our helplines, discounts, and various other perks.

Does membership in this group sound like a good way to increase your computer knowledge?

It's easy to do! Simply fill in the form below and mail it to the address shown.
(If you use the form in this issue, you will receive an extra month for joining now.)



Here's the info for my TC/PC Membership:	I'm signing up for:	3/20
Full name _____	<input type="radio"/> Individual/Family Membership (\$18)	
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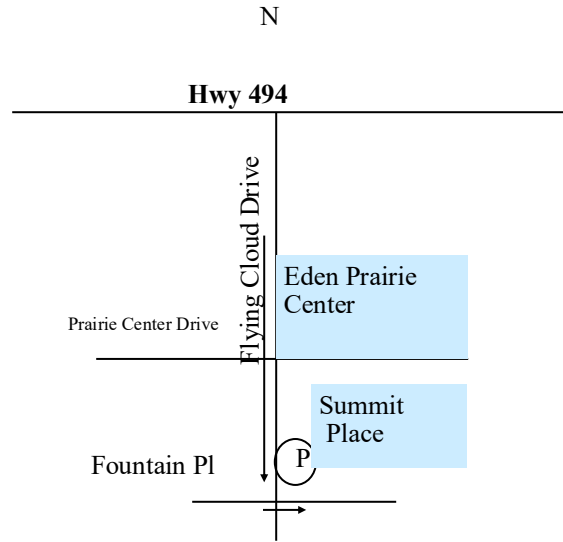
February 11, 2020

General Meeting

What Will 5G Mean to You?

Summit Place
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Eden Prairie, MN

More info and map: www.tpc.com



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Roseville, MN 55113

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