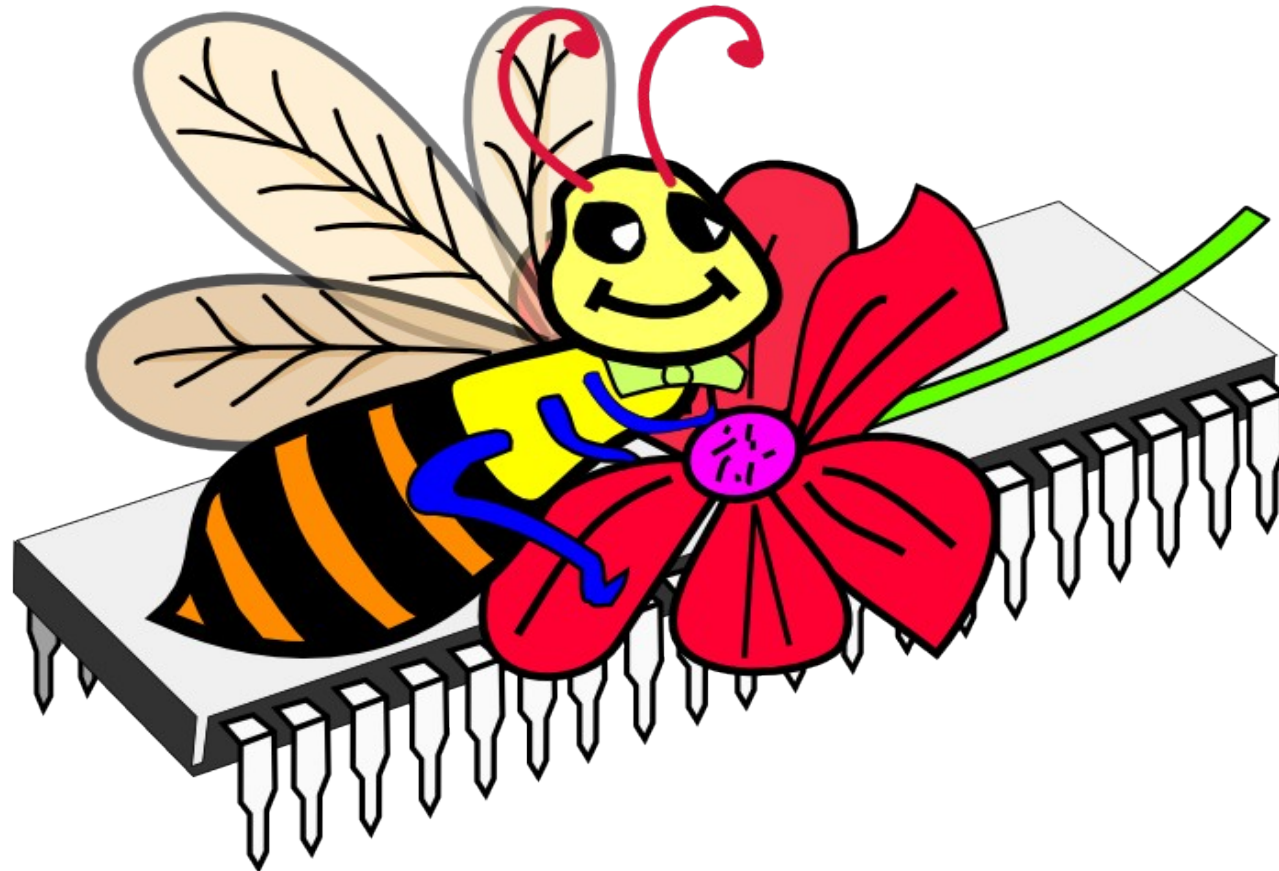


BCUG Internet Workshop 2010-04-02

Internet Potpourri

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<http://www.bcug.com/>



Disclaimers

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2 Introduction

Tonight's presentation is a potpourri of Internet tidbits.

3 Any Port In A Storm

All internet connections are divided into a number of “ports”... these are like lanes on a very wide highway. Some ports are reserved for special purposes, mostly for servers providing doors that clients can knock on to open a connection. Port 80 is the port for normal “http” operations. Port 443 is reserved for secure “https” connections.

That magic prefix, which can be mail, ftp, and many others, identifies the port the client is to knock on, and which “protocol” is to be used to make the connection. Protocols are like rules of the road, except here some of the rules change from lane to lane.

4 Internet vs internet

While it is not as important as it used to be, Internet, with a capital I, is historically the total Internet, with Web, as a proper noun, while “internet” (small I) is a more

generic term. An “Intranet” is a corporate network.

The “World Wide Web” is just a part of the web, and a Jonny Come Lately as well. “The Web” just covers the web page side of the Internet. This includes some odd non-web activities that happen on the Web ports.

5 Google vs Bing



In the search engine war, Microsoft's new Bing service concentrated on popular searches, called “short tail” searches. But it seems the majority of searches are “long tail” searches, or subjects little searched for. The current win still goes to Google.

6 LogMeIn®



Would you like to remotely access a business computer? A computer of a family or friend you administer for them, all without actually going to the computer? Then LogMeIn may have solutions for you. No VPN needed.

Before using LogMeIn on institutional accounts, be sure it is not violating the local rules; you do not want to be fired, or otherwise have a bad time over this.

Never use LogMeIn from an untrusted computer else keyloggers, or other malware, may give your passwords away.

LogMeIn allows you to access remote Windows computers from other Windows or Gnu/Linux systems. If you use LogMeIn a lot, the LogMeIn [Http://www.LogMeIn.com/](http://www.LogMeIn.com/) is the website. You must install LogMeIn on your target computer. For businesses check to be sure they will accept LogMeIn.

- LogMeIn Free provides free connections.
- LogMeIn Pro is a subscription service that makes for easier file transfers, remote sounds, and more.

This is *not a remote desktop or standard VPN tunnel*. It is something quite different; something that may work when the others don't.

After logging into your LogMeIn account you

- 1.Are presented with a list of computers you previously installed LogMeIn on.
- 2.Select the computer for remote control to log onto that computer. **RESTRICTION:** any existing log in will be closed; Windows is a one-person at a time operating system.

3. Once you log in you get a special “full screen” button that can take over the total screen of the local computer.

4. Two new special areas are found at the top of the screen:

◦ “LogMeIn Remote Session”: a security notice that LogMeIn is active. No using the product to sneak onto a system without it being announced.



◦ A control bar, including the ability to get a better resolution match between the two computers, improve colors, and do other connection related things.

5. The  icon is pressed to provide a control-alt-delete to the remote computer.

6. Your connection will be degraded in colors to reduce bandwidth. You may also need to take more care to double-click remote items.

7. Uses more bandwidth than Remote Desktop, but can be more flexible.

7 Google Maps maps.google.com

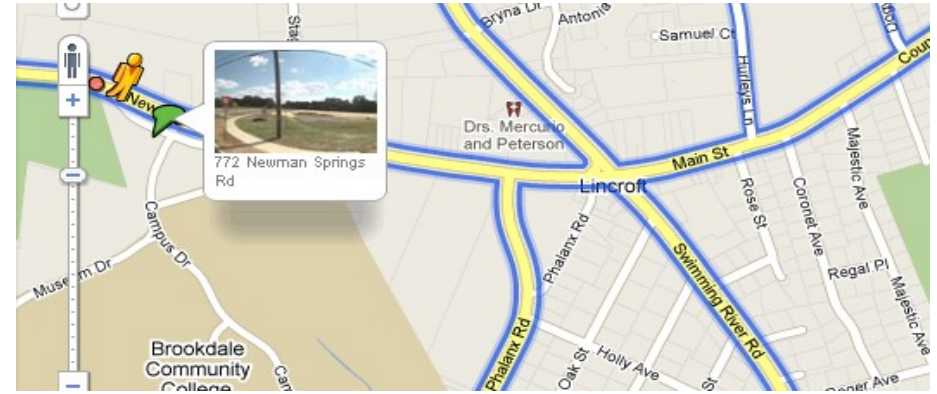
The “Google Earth” application is separate from Google Maps. We focus now on some lesser known features of Google Maps at <http://maps.google.com>.

- Straight route.
- Directions...
- Directions with special cases (avoid highways, tools, by bicycle, etc.)
- Change your route by left clicking the route line and drag that point to a place you want to go to make a new stop. This makes a new “node” on the route.
 - Beware of getting a wrong route by dropping the node on a SLIGHTLY incorrect place.
 - This can be down to the wrong side of a divided highway, which can send you in circles or on exceptionally “scenic routes”.
 - The “Remove” link at the top of the direction clears your adjustments.
 - A few “Beware Of The Routes” follow:

- The automated choice is not always best, even if it is shorter.
- Illegal turns.
- Worst traffic delays
- Dangerous intersections.
- Closed roads.
- Notice how time and distance change as you play with routes.
- Explore distance and times of alternate routes.
- Save a route by right-clicking the **Link** hyperlink above the top right of the map and selecting the copy link option, or whatever your browser calls it.
- You can pull out the Longitude and Latitude coordinates from Google Maps, though doing it from Google Earth tends to be easier. Google Earth can also provide pure decimal numbers as well as hours-degrees-minutes-seconds. From Google Maps,
 - Put your pointer over the point of interest, on or off a road.
 - Right click and select “What's Here”.

- The coordinates appear in the box you enter addresses in.
- Give useful coordinates on driving instructions for people with GPS systems.
- You can make routes using arbitrary starting or ending positions by creative use of dragging the starting and ending points of existing routes or,
 - Left click over a starting or ending point on a road. This is often easier to do in Map View rather than Satellite View.
 - Right click Begin Here or End Here. Note the coordinates pop up in the starting or ending box.
 - Repeat on the other end, if needed.
- Search for types of stores or products by,
 - First centering the map on the area you want to search in
 - Typing in a search phrase as you would on a normal Google page.
 - Stronger hits are show by markers, lesser, but often still useful hits, shown by small dots.
 - Put the cursor of a marker or dot to get more information.

- Left click an open area of the map to drag it in any direction to move to new areas. New hits will pop up as you go.
- Street View: Google Maps has been sending cars equipped with very special 360+° cameras down streets around the world to capture the view from the street.
 - Left click the little person at the top of the zoom slider.
 - Streets that have pictures are outlined in blue.
 - Drag your avatar onto a blue-outlined street and get the view from the street. The point to aim with is not the avatar icon, but a little circle below it.
 - You can zoom, rotate, and tilt, the view.
 - Press the arrows by the street names to move down the street.



8 E-Mail Tips

- Rather than scattering E-mail addresses on larger mailings to the four winds, to be picked up by any system that has been malware, it is better to just put a special version of your name on the “To” and the actual addresses on a BCC (Blind Carbon Copy).

To: "Friends of Gilbert Heaton" <gilbert@heaton.net>

BCC: Charles@example.com, "Dick Dickson" <dick@example.net>

- Note of angle brackets to hold the real E-mail address.
- Commas separates multiple names.
- The quotes are not needed for names containing only letters, digits, and spaces.
- Microsoft Outlook by nature uses different conventions, though it accepts this one *if you use semi-colons to separate names*.
- The " quotes around the name must use simple ascii-double quotes and not “xxx” quotes that looks like two upside, or elevated, down commas.

This is not a problem if you type addresses in, but if you write your address in Microsoft Word and copy-paste the address into the address space, it may be a problem. If you type a ", but get a “, press UNDO before typing the next character.

A lot of people get picked up by spammers by someone being too free with their E-mail address in forwarded or large mailings.

- When replying to a list, replying just to sender is usually best. The all too easy **Reply To All** senders gives your reply to everyone.
- If you receive an E-mail from someone you want to forward on, strip off the E-mail addresses of other people before relaying the mail. This again protects those people from evil spammers.
- Return receipts (e.g., read-receipts) show when E-mail is read by receivers. Most mailers support this, somehow. Some free webmail services may not.
- Delivery receipts show when E-mail reached target E-mail box. Not as available as return receipts.
- Receipts can be shut off by E-mail administrators OR individual users.

9 TCP vs IP

What is TCP/IP? MAC vs IP addresses?

- MAC (Machine Access Code) communicates with machines on the same “wire”.
 - In the form of a string of six two-digit hexadecimal numbers (base 16), often separated by colons. 00:01:02:03:04:05
 - Does not go outside of your building.
 - Each manufacturer of the network card buy blocks of MAC addresses they build into the network controllers. Produces of virtual machines also get their own MAC number blocks that VMs pull from. In this case different VMs may happen to share the same MAC address.
 - Horrid problems can happen if two machines somehow get the same MAC.
 - When IP addresses are automatically assigned by local DHCP servers, the DHCP tracks who's who by MAC addresses. Your local Broadband Modem typically supplies this service to your in-house computers.
- IP addresses are nominally global in nature.

- IP Version 4 (IPV4) addresses are in the form of four numbers from 0 to 255. Often separated by periods. 1.2.3.4.
- The high digits serve as a type of area code while the low are the machine on the network.
- IP Version 6 (IPV6, an up and coming, but not yet big time in the United States) is a series of eight hex numbers up to four digits each (IPV4 are two-digits written in hex).
- While a few reserved IP address series exist that are local and not accessible to the global network, “public” IP addresses are unique. Each machine has a unique public IP address.
- Again, strange things happen if two different machines try to use the same public IP address.
- Some IP address ranges, such as those starting with 192.168, are private. See RFC 3330 if you want more details. RFC 1918 for a more practical list.
- Private addresses are not honored by ISP if they escape to the outside world.
- Each home router tends to assign computers in the house to 192.168 addresses.

■ When routers pass inside packets to the outside world, the packet is rewritten to use the router's public address, to which the server responds to. The router then forwards the reply to the proper private address.

■ Private addresses have several advantages:

- Reduces demand for IP addresses. Some companies put all of their internal systems on private addresses, such as 10. addresses, so they need much fewer IP addresses than you may think.

- Private addresses provide greater security. The outside world can not connect directly to your computer, unless the router is explicitly told to pass requests on. This “port forwarding” is on a specific port-by-port nature. (NOTE: Most IPS contracts for home services explicitly forbid providing public services on your home system).

- IP address indicate both the wire and the machine the address is on (show chart from last month's workshop:

<http://www.bcug.com/files/Internet-BrowsersUnderHood-2010-03.pdf>)

- IP (Internet Protocol) is a lower-level protocol. It just performs the routing of packets across the network and assures, if they are received, they are received correctly.

- TCP (Transport Control Protocol) sits on top of IP. It does things like assure connections are stable, packets are not dropped, arrive in sequence, and other fun things you need for reliable two-way communication.
 - If your web pages has a big delay, it is likely a packet got dropped and TCP is waiting for a duplicate to arrive before it continues. Subsequent packets may have arrived correctly, but everything stalls until the required packet comes in.
- UDP (User Datagram Protocol) is a cousin to TCP that also sits on top of IP. However UDP is less fussy in some areas. If packets are dropped it simply lets the application know about the trouble and continues on without delaying other packets.
 - Does not go into a stall if a packets gets dropped.
 - Great for real-time operations, like video and voice over IP, where you want a small blip from a lost packet rather than a total delay. Then there is the difficulty of catching up after a 10 second delay or so.