What's New and Neat?
September 2017

Apple: iPhones

- Yesterday, Apple announced the iPhone 8 (4.7" display) and iPhone 8 Plus (5.5" display).
- Highlights:
  - A11 processor (2+4 cores)
  - Wireless charging
  - 7MP front / 12MP back cameras
  - True-tone display – adjusts with color of room light
- Apple also announced the iPhone X (5.8" display).
- Highlights:
  - No physical home button
  - OLED display
  - Curved edges on display with thin bezel

Apple: Other Hardware

- Apple also announced the Apple Watch, series 3.
  - Cellular capability, so one can make/receive calls/texts without one's iPhone nearby.
  - Has the same phone number as one's iPhone.
  - Siri enabled.
  - Can stream music directly to the watch.
  - Improved health-related capabilities, such as notifying you if your heartrate goes up significantly when you are not undergoing physical exertion.

Apple: Software

- iOS 11 (for iPhone/iPad), tvOS 11 (for Apple TV), and watchOS 4 (for Apple Watch) will be released Sep 19.
  - These are free upgrades.

Meanwhile, over at Android …

- Android *Oreo*(a.k.a. Android 8) was released
  Aug 21. It includes enhancements such as:
    o Picture-in-Picture (PiP) – Display small video or video call in the corner of your screen.
    o Faster boot time (2X)
    o Improved audio (via Bluetooth 5)
    o Notification dots

Samsung

- In April, Samsung released the Galaxy S8 (5.8" display) and S8 Plus (6.2" display).
    o OLED display
    o Curved screen sides / slim side bezel
    o No physical home button
    o 8MP (front) and 12MP (back) cameras
    o Face recognition phone unlock
    o 4GB RAM
- Samsung will begin shipping the Android-based Galaxy Note 8 on Sep 15.
    o Similar features to S8 and S8 Plus
    o Dual rear camera
    o Stylus / stylus slot
    o 6.3" display
    o 6GB RAM

Television

- While many reasonably-priced TVs support 4K or UHD resolutions, content choices still are slim.
    o Netflix and Amazon Prime Video provide some content in 4K.
    o Be aware that the average 4K movie is estimated to be 100GB in size.
    o If your Internet Service Provider (ISP) has data caps, this could chew through that quickly.

- What are the differences between 4K and UHD (ultra-HD)?
  - The terms are used rather loosely – and sometimes interchangeably – by manufacturers.
  - But the real definitions are these:
    - 4K is a resolution of 4096×2160.
    - UHD is a slightly lower resolution of 3840×2160.
- Last year at this time, the price for a 55", 4K/UHD TV was about $600.
- This year, the same size/resolution TV can be found for as low as $400.
- Before "over the air" networks start providing 4K content, they will have to upgrade their systems.
- OLED TV, which provides the best picture quality now that plasma TVs no longer are produced, have remained steady in price, but could drop significantly in 2018 as more manufacturers move this direction.
  - Right now, OLED TVs are <u>very</u> expensive.
- The picture quality gap between OLED and LCD/LED TVs continues to narrow, and LCD/LED TVs are much less expensive. (More screen space per $.)
- Last year's TV buzzword was *High Dynamic Range* (*HDR*):
  - *HDR … content preserves details in the darkest and brightest areas of a picture that are lost using current standards. It also allows for more natural, true-to-life colours that are closer to how we see them in real life.*
    - – Trusted Reviews
      (http://trustedreviews.com/opinions/hdr-tv-high-dynamic-television-explained)
- This year's TV buzzword is *Color Volume*.
  - *Color volume coverage refers to how many different colors a TV can display across a range of brightnesses.*
  - *TVs with a high color volume can display more of the colors as intended by the content producer and can provide more detail across a range of brightnesses.*
  - *Unlike the color gamut, the color volume measures reproduction for both dark and bright colors.*
    - – RTings.com

(http://www.rtings.com/tv/tests/picture-quality/color-volume-hdr-dci-p3-and-rec-2020)

AppleTV

- Yesterday, Apple also announced Apple TV 4K, with the ability to stream 4K content and HDR support.

Computers: Storage

- Solid-state drives (SSDs) continue to improve in reliability, speed, and capacity.
    - Three years ago ……………….. 50¢/GB
    - Two years ago …………………. 35¢/GB
    - One year ago ……………………. 25¢/GB
    - Today ……………………………… 25¢/GB
    - New SSD technologies are coming online and could cause the price to drop further.
- SSDs are and will continue to be much more expensive than hard drives, per GB.
    - For example, I recently purchased a 4TB (4,000GB) portable hard drive for $109 or about 2.7¢/GB
- The M2 SSD form factor is about the size of a stick of chewing gum.
    - It installs directly on the computer motherboard rather than in a slot.
    - My home computer has an 1TB M2 SSD.

Computers: Operating Systems

- Windows 10 recently upgraded to the Creators Update.
    - 3D Paint
    - Photo inking – annotate photos.
    - Dynamic lock – Sense that your phone (and, supposedly, you) have moved away, and lock the computer.
    - Picture-in-Picture
    - Night Light – Reduce blues in display after sunset.
- This is a free upgrade from earlier versions of Windows 10.

- The Windows 10 Fall Creators Update will be released on Oct 17.
    - The primary addition in this update is Windows Mixed Reality (for working with AR/MR/VR headsets).
    - There are lots of tweaks in the User Interface (UI), Edge, Cortana, etc.
- The High Sierra version of MacOS will be released Sep 25.
    - This OS uses a completely different file system, optimized for solid-state drives.
    - Because of this, once you upgrade to High Sierra, the only way to go back to a previous version is to reformat the drive and reinstall the old version.
    - This release contains a lot of tweaks and adjustments.
    - This is a free upgrade.

Social media: emojis

- All major operating systems (Windows, MacOS, iOS, and Android) work tirelessly to let their users use the latest emojis.
    - The current emojis version is 5.0.
    - Different operating systems and software support different versions of the same emojis.
    - You can find a list of all v5.0 emojis and their different forms at
        http://unicode.org/emoji/charts/full-emoji-list.html

Computers: Processors

- Computer processors continue to feature:
    - Lower power consumption.
    - Modest speed improvements.
    - Increased data throughput.
- However, the processor manufacturers also are pushing these features:
    - Faster start-up times.
    - VR (virtual reality) support.

Computers: Connections

- Almost all older devices support USB 2.0.
- Many newer devices support USB 3.0.
- A few of the newest devices support USB 3.1.
- Computers: Connections
- USB-C has not caught on as quickly as I expected.
    - Apple adopted it for its MacBook computers.
    - Its advantage, as compared to standard USB connectors, is that it can be plugged in right-side-up or upside-down.
    - USB-C connectors have USB 3.1 data transfer rates.

Lighting

- LED light bulbs have stabilized at about $2-$3/bulb.
    - Unless there is a fault in the electronics, such bulbs are expected to have an average life of about 20 years.
- Smart bulbs are those that can communicate with other devices across the internet.
    - Philips Hue bulbs ($40 for 3 bulbs) dominate the market.
    - You can use a phone app to turn them on or off, and to change color.

The Internet of Things

- *The internet of things (IoT) is the internetworking of physical devices, vehicles, buildings and other items – embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data.*
    - *– https://en.wikipedia.org/wiki/Internet_of_things*
- IoT will continue to spread throughout our homes and into other areas of our lives.
- 2017 examples:
    - A countertop oven that can be controlled via an app.
    - A toothbrush that monitors your brushing habits and advises improvements.
    - Smoke detectors that alert you when an "event" occurs.

o Pillows that play music monitors and reacts (!) to snoring, and monitors your sleeping habits.
o A device that visually scans trash to tell you whether or not the trash is recyclable.

Autonomous vehicles

- Flying drones – also known as Unmanned Aerial Vehicles (UAVs) – continue to proliferate.
    o They are useful for making light, short-distance deliveries.
    o They can be sent into areas too dangerous for humans.
    o Many UAVs have the ability to keep themselves upright, regardless of the actions of the person controlling them.
    o It is possible for them to avoid obstacles automatically, follow paths, and return to their point of origin and land.
- UAVs generally are flown using line-of-sight.
    o Less expensive models usually can stay in contact at distances of up to 1000 feet.
    o More expensive models can use cell towers to stay in contact at greater distances.
- While UAVs can be purchased for under $100, a good, hobbyist drone costs in the range of $400 - $1,200.
- On June 4, 2017, Audi stated that its new A8 will be fully self-driving for speeds up to 60 km/h (37mph) using its Audi AI (Artificial Intelligence).
- Contrary to other cars, the driver will not have to do safety checks such as touching the steering wheel every 15 seconds to use this feature.
- The Audi A8 will, therefore, be the first production car to reach level 3 autonomous driving, meaning that the driver can safely turn their attention away from driving tasks, e.g. the driver can text or watch a movie.
    – https://en.wikipedia.org/wiki/History_of_autonomous_cars#2010s