AITS Newsletter

Look back, thankfulness and the view forward
[Abraham John, Executive Director, AITS]

A recent event gave me the opportunity to look back at the many years that I have been blessed with having had the opportunity to work in the computing field and for an institution that I love. This has been a place of learning and contributing to further my University's mission and goals since long before my University's name changed from North Texas State University. I am happy to say that it continues to be such a place. For me UNT has been a place of discovery, learning, nurturing, and growth. *When it comes to my wife, our daughters and my family UNT for me as a student, student employee, and full time staff has been life changing!* This piece is not technical nor is it short by my standards but it is short considering the topic.

I had the very good fortune of starting my professional career with some of the best people I have ever known. Some of you may remember these names and understandably, as time has passed some of these names fade from memory. I started my professional career working for Dr. Joe Stewart who, at the time was the Vice-President of Student Affairs. During those years, I was fortunate to work with Carolyn Cunningham and Mahshid Grooms in assisting with a major conversion of the Financial Aid system. One of my fondest memories of coding was writing an assembly language program in IBM 370 assembler that would allow the passing of very large data sets between our online mainframe programs. If memory serves me that was the very first program I wrote for UNT as a full time employee. The program was passed between the various mainframe teams and survived for just about a decade.

I recall writing the very first student employment systems on the TRS Model 16's/12's as a student employee and the very first career center systems on the PC that would allow them to job match and maintain an electronic applicant file vs. a paper record.

Forward thinking staff members like Katie Green, Dr. Ray Lewis and Dr. Carolyn Bray were excellent partners in these technological advancements. It may be difficult to grasp given the plethora of apps/applications/cloud solutions these days for everything imaginable but off-the-shelf systems were not available in those days for these "specialized" needs. The forward progress we made was all developed in-house.

The development of local area networks in partnership with the Computing Center and adding technology tools that would empower our staff to do more with less all happened in an atmosphere of cooperation, collaboration, trust and staff fulfilling their respective areas of responsibilities in a stellar manner.

When Dr. Joe Stewart retired, I was blessed with the opportunity to work for Dr. Bonita Jacobs who took over as the Vice-President for Student Affairs and the trend of delivering great technology to the Division of Student Affairs continued. One of the remarkable people I met during this time is Dr. Elizabeth With, the current Vice-President of Student Affairs. It is no secret that the Division of Student Affairs has always been and will always be very close to my heart – yeah – I know – we computer people have hearts too ☺ and I am glad to still be capable of supporting the Division of Student Affairs.

February 1, 2019 – The largest gift in the history of the University of North Texas from alumnus G. Brint Ryan and his wife, Amanda. We celebrate the creation of the G. Brint Ryan College of Business through this $30 million gift commitment.

Events like Y2K when the world panicked over 2 bytes in data and code the might render systems useless, UNT came through with flying colors. Not by accident but by the hard work and dedication of the staff who were determined nothing would fail on our watch. I remember coming to work on Friday December 31, 1999 around 9pm and most of us stuck around until about 2am January 1, 2000 just to make certain our systems were functioning as expected. The giddiness and feeling of exultation of that time is not something that can easily be put into words. It was a privilege to see my University through that event as well.

As the years have passed, memory fades and I have forgotten the numerous systems that were written for various purposes to accomplish our University's mission.

Incredible colleagues like Jenny Brooks, Deborah Arnold, Ed Turney, Zelma Deleon, CR Chevli, Joneel Harris, Jason Myre, Jason Gutierrez, Philip Baczewski, Laura Klein, Britton Sherry, Lynn McCreary, Keitha Robertson, Tom Homeke, Tom Overton, Judy McConnell, Jana Crews, Claire Medina, Don Butler, Saeid Parivash, Pam Flint, Randy Frenek Russ Stukel, and Don Swatlowski, to name a few were and continue to be character examples I try to emulate. There are so many more colleagues and friends but space limits my putting down all the names. Some of these colleagues have since passed on and it is with fondness that I remember our time together. Others are at UNT and continue to do the good work of our University's mission in their respective roles. I consider the stellar newer colleagues like Blake Meyer, Joey Cranmore, Rama Dhuwaraha, Nassos Galiopoulos, Mac Edwards, Yoke Teo, Margarita Venegas, Brandi Renton, April Barnes, Brenda Cates, Stephanie McDonald, Dr. Maureen McGuinness, Melissa McGuire, Arlene, Rivero, Georgianna Stone, Paul Goebel, Dan Naegeli, Dr. Teresa McKinney, Charla Friday, Gylynn Hanson, Dr. Kappelman, Daniel Duncan, Sara Huffstetler, Karley Lemmons, Phyllis Vaughn, Mike Flores, Danny Armitage, Karen Snyder, Mari Jo French, Daren Dugan, Larry Worthy, and Luis Rivas to name a few relatively new partners in technology and the furthering of our University's goals. Once again, space constrains a full listing on my part. Each one would be a credit to any organization but I am glad they have made the work of my University theirs as well.

I think of my AITS team today, look at the future while considering the past and I count myself singularly blessed in the people I have had the privilege to call my colleagues but more important, these are my friends and family! My top line managers and staff are the very best of professionals anywhere. Our team philosophy of learning, mentoring, nurturing, longevity, service, and striving to always to our very best is not a slogan or a mantra. It is the AITS DNA and it shows in how we work and conduct ourselves in the service our University. I may be biased in this particular opinion but I think not ☺. *My AITS team is the very best my University has known.* The qualities AITS is imbued with, I attribute quite a bit of that to my teachers and the staff who were my mentors.

When I consider the past and look at the present, I am humbled and am speechless with wonder.

The future is always the great unknown but from an Ecclesiastical view perhaps not so ☺. Regardless, with my team beside me, doing work that makes a difference in the lives of our students, faculty and staff we will meet the future with confidence. I am eagerly looking forward to what the next few years have in store for us as we continue to do what we always have done and that is to delivery great technology that serves the business needs and empowers the students, faculty, and staff at my University!

Define It, Label It, Protect It
[Mickie Tate]

As part of the approved FY19 annual audit plan, Internal Audit will be performing a data classification and protection of information audit for areas supported by Administrative Information Technology Services (AITS). The planning and information gathering phase of the audit started the week of March 11th, 2019. The audit will focus on determining if data classification is being performed by data owners and if the data is being protected in accordance with the level of security required for the classification assigned.

Information security is a very prominent and current topic in higher education. Information Security Strategy is the number one Educause Top 10 IT issue for 2019. Educause is a higher education technology association and the largest community of IT leaders and professionals committed to advancing higher education. Educause has a community of over 100,000 individuals at member organizations in 45 countries with member institutions serving over 16 million students. Here is an excerpt from Educause: "Securing our institutional data and systems is an extremely high priority. Threats are escalating. We need to accelerate our efforts to integrate security into all aspects of our IT strategy and operations. An effective information security strategy will employ a risk-focused, multilayered strategy to secure the institution. This takes a village—everyone needs to be involved."

"Risk is the key word. These are not minor risks. Information security is often ranked in the upper-right quadrant on institutional risk maps. A major breach can significantly damage the institution's reputation and financial health.

Here at UNT, classification is divided into three categories:

- Category I Information. Information that requires protection from unauthorized disclosure or public release based on state or federal law (e.g. the Texas Public Information Act, and other constitutional, statutory, and judicial requirements), legal agreement, or information that requires a high degree of confidentiality, integrity, or availability.

- Category II Information. Information that is proprietary to an institution or has moderate requirements for confidentiality, integrity, or availability.

- Category III Information. Information with low requirements for confidentiality, integrity, or availability and information intended for public release as described in the Texas Public Information Act.

Additional information concerning data classification, data owners, and those responsible for the custodianship for data can be found in the UNT System Information Security Handbook and UNT System Information Security Standards and Practices Guide.

Another excerpt from Educause: "It is not the job of only the IT organization or the chief information security officer (CISO). If each of us does our part, we will be able to make much more progress securing our institutions."

Please feel free to contact Mickie Tate, Sr. Director, IT Audit with any questions or concerns.

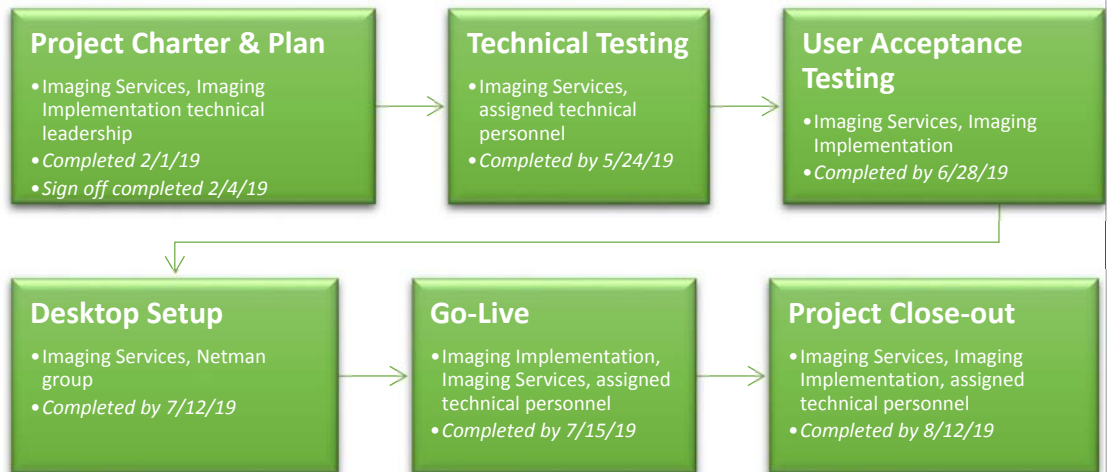# Perceptive Content Upgrade: A System Effort
[Dorothy Flores]

This year, the Imaging Services team is heading up a system-wide upgrade of Perceptive Content, formerly known as ImageNow. The upgrade will be moving Perceptive Content 7.1.4 to 7.2.3. This upgrade will give implemented departments ongoing support and will fix known issues that have been corrected in this newest version. The upgrade will allow us to migrate off of WebNow and onto Perceptive Content Experience in the near future. This move will alleviate many Java issues that have arisen recently. Experience will provide the ability to manage and view their department's content from a desktop, browser-based, or mobile device. This upgrade will also begin the transition of moving away from Internet Explorer as the browser method for linking documents.

The upgrade consists of several functional and technical teams, including Imaging Services, EAST, Tools, EISSEC, EDBA, Production Control and PeopleSoft Developers, as well as data owners from all campuses, functional department leads, and the Network Management group for client support. Lower environment planning and testing began February 1st of this year and the project has an anticipated go-live date of July 2019. Below is a more detailed description of the timeline, as well as the individuals involved in each process.

--- Provided by Tracy Hansen
    Imaging Services Team Lead

An IPv6 packet walks into a bar. No one talks to him.

Project Charter & Plan
- Imaging Services, Imaging Implementation technical leadership
- *Completed 2/1/19*
- *Sign off completed 2/4/19*

Technical Testing
- Imaging Services, assigned technical personnel
- *Completed by 5/24/19*

User Acceptance Testing
- Imaging Services, Imaging Implementation
- *Completed by 6/28/19*

Desktop Setup
- Imaging Services, Netman group
- *Completed by 7/12/19*

Go-Live
- Imaging Implementation, Imaging Services, assigned technical personnel
- *Completed by 7/15/19*

Project Close-out
- Imaging Services, Imaging Implementation, assigned technical personnel
- *Completed by 8/12/19*

For those who don't use the Perceptive Content document imaging and process management system (formerly ImageNow) and would like to know more about it, please use the following links to find out how this technology may benefit your department. There is also information about ITSS' Imaging Services team and the process by which your department can utilize this service, including the service support model, cost, and utilization requirements:

- IT Shared Services Site: Imaging Services Info
- Short video (also contains link to full info session): UNTS Imaging Services Introduction

Enterprise Apps
EIS Fun Facts

DNS is the root of all problems.

- **Over 6000 test scripts were executed by functional staff across all three campuses during the testing phase of the Campus Solutions 9.2 upgrade.**

- **Number of unique logins(users) to each of the 4 campus portals over the past year:**

  - **UNT Dallas College of Law** 847
  - **UNT Health Science Center 10,205**
  - **University of North Texas** 103,289
  - **University of North Texas at Dallas 7,417**

- **In EIS, there are 79,187 tables in the Finance database; 47,493 tables in the HR/Payroll; and 41,328 tables in the database for Campus Solutions. That's a lot of tables!!!**

Behind Closed Doors – the UNT Network
[Blake Meyer]

If you've been in a new construction or remodel meeting with any member of Datacom or Telecom you know we like to raise a stink about not sharing the room with other disciplines and restricting access to essential personnel. These restrictions are necessary due to security and network stability concerns...but let's be fair...IT folks are curious by nature. So here's a quick rundown of what these rooms support, mostly in numbers, because along with being curious by nature IT folks like numbers. And pictures. I'll throw in a picture to grab your attention.

Closet Layout - Aggregator and Layer 2 Stack
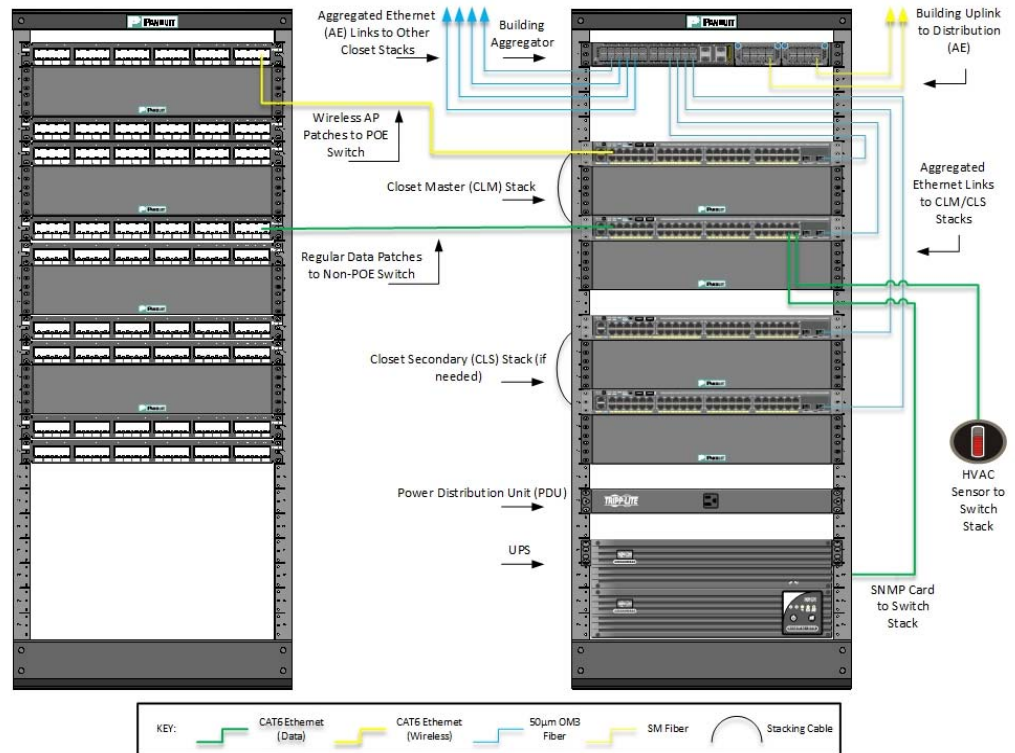
Above is a picture of a standard building IDF layout. (Credit is due to the Visio artist who spent more time than he'd like to admit creating this – me.) On the left side you'll see a 19 inch rack filled with Ethernet jacks. On the right side you'll see a rack containing a building aggregator, two switch stacks, a UPS (uninterruptible power supply), a PDU (power distribution unit), a temperature sensor, and a bunch of fiber optic cabling.

The building aggregator's uplink connects back to the campus core via distribution points at Chilton Hall, Matthews Hall, Sycamore Hall, Victory Hall, and Discovery Park. The standard here is two 10Gb links back to the distribution. That's the yellow fiber at the top right. The networks for each building, with a few exceptions, are sourced off of these aggregators.

The downlinks, the blue fiber on the left, go out to the various switch stacks in the other IDFs within the building. Our standard is 10Gb links to every switch stack. Two such stacks are directly below the building aggregator in the picture. These stacks feed the network to various jacks, wireless access points, and devices across the building. Each port on each switch is patched over to the rack on the left as is represented by the yellow and green lines. (I'm now realizing the green line may not be perfectly straight. OCD triggered, I'll spend the next two hours figuring out how to fix that without distorting the entire diagram.)

All of this gear is plugged into the UPS at the bottom, which is designed to keep everything up and running during brief power outages. These UPS's are plugged into dedicated circuits to prevent other devices on the same circuit affecting power. An example: the cleaning crews used to plug vacuums into outlets in the hallways that shared a circuit with our IDF. Vacuum turns on, breaker flips, network goes

offline. We could pretty much tell what was going on because it would happen at 5:30AM like clockwork. In all new buildings we've started requesting generator backup for these circuits as well.

The temperature sensor…senses the temperature. It'll page us when the temperature gets above or below a certain threshold. About the only place we've seen "below" become an issue was at Apogee Stadium where we have IDFs surrounding the bowl of the stadium. In very cold winter months they'll set them off sometimes.

I promised some numbers, so here we go. Spread across all 98 or so buildings on campus we have about 50 building aggregators (some buildings share aggregation points). Switches: on the UNT campus alone we have about 1000 of these switches. That means about 48,000 switch ports across campus. Not every single port is connected, but you get the idea. These are spread across over 200 closets.

Fun fact: my first job at Datacom as a student was to walk around with a trashcan on a dolly filled with cleaning supplies and clean out every closet on campus. Shout out to Rory Rivoire for that assignment.

Our busiest building on campus is the Union. Spread across 9 closets (and a cabinet in the ceiling of Starbucks) are 15 switch stacks containing 76 switches. That's 3,648 switch ports. The 392A IDF contains 22 switches alone in 4 stacks, mounted in 4 racks, in a room that's about 8x8. This is, without a doubt, the busiest closet on campus. I'd venture to guess 95% of the buildings on campus don't have that many switches in the entire building…and that's just one closet. As I write, the Union aggregator is passing 37874 packets per second input, and 10738 packets per second output between itself and the core. That's roughly 430 megabits per second…and that's during spring break. Those numbers will at least triple next week. The Union is a busy place!

I hope this helps clear up some of the mystery surrounding what goes on behind closed doors. If I'm invited back, in the future I'd like to consult the Datacom brain trust and get more in depth. As always, feel free to reach out with any questions, comments, or concerns. Thanks for reading!

The Oz Principle – Getting Results Through Individual and Organizational Accountability
[Keith Kellermeyer]

We are all victims of circumstance from time to time, but not many of us learn to accept events and circumstances as they are. Instead, we push blame onto another department, or exclaim "that's not my job", effectively skirting accountability and wiping our brow with a sigh of relief. Who do you know that has risen above and beyond their job expectations, and been promoted for it, by exclaiming "that's not my job"?

See it, Own it, Solve it, Do it. These are the four steps outlined in The Oz Principle that are key to getting in a mindset to acknowledge reality, find problems, create solutions, and take action. By implementing these steps, a natural viewpoint to solve issues and press forward emerges. When confronted with your next problem, pause, and acknowledge the reality of the situation you face. Remind yourself of the facts in the situation you're up against. Then, know you have the ability to face this problem, and embrace it. Coming up with a solution to dissolve, or at least mitigate the problem, flows naturally after owning your circumstances. But none of these have an effect until action is taken; until you get out and Do it.

To say this only applies to first-line workers would be the opposite of the message of this book. This concept starts at the management level. All levels of an organization are accountable in one way or another when problems arise. Nothing is achieved by pointing a finger in any direction but at yourself. Questions like "What could I have done better" or "How could I help avoid this next time" push a problem toward a solution, rather than sliding the problem onto someone else's plate.

Having the brains to see the reality of a situation or problem, the heart to embrace those circumstances and create a solution, and the courage to take action is what moves us toward not only our individual goals, but toward the goals of our organization. Just like Dorothy and her three companions discovered upon meeting the great Oz, the power to change your circumstances, and your life, lies not with a magical, mysterious being, but within You.

Blockchain: How doctors plan to secure your pacemaker from cryptolocker
[Ryan Faulder]

Bitcoin has a reputation for being a shady currency used by drug dealers and fraudsters but its underlying blockchain technology has far reaching consequences outside of its main use as a cryptocurrency. Blockchain at its most basic form is the ledger that a cryptocurrency relies on to avoid fraudulent transactions and eliminate the possibility of cryptocurrency duplication. Blockchain secures transactions through public and private cryptographic keys. Once a transaction occurs on the network and it has been cryptographically validated, that transaction is permanently added to the blockchain. Records on the blockchain never disappear and are built upon each other over time. Blockchain has the potential to disrupt electronic healthcare records (EHR's) with increased transparency, ease of sharing, security and decreasing administrative costs associated with managing and securing health records.

Under a

Traditional vs. Blockchain Healthcare Data Transfer Model
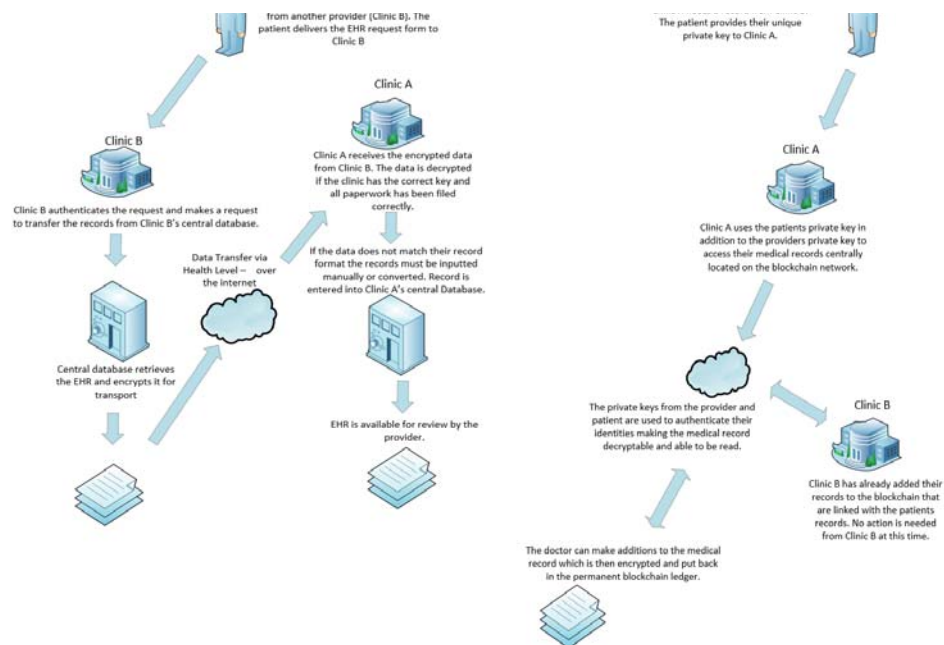
blockchain system, providers and patients would be issued a private and public key which is used to securely accept, send and request data between providers. When a doctor needs an EHR from another provider they will send a request query over the blockchain network, the system takes the patient's and doctor's public key to validate their identities. Once the identity of the provider and patient has been verified, the system will allow the record to be decrypted, viewed and, modified. Currently there is no healthcare blockchain systems used in public practice. So the question exists of who will create the healthcare blockchain. If a company creates the blockchain will they make this software affordable to every hospital from the large regional hospital network down to the rural hospitals and clinics? While the front-end of EHR applications can be vendor specific, it's essential that every healthcare provider is using the same blockchain system for maximum interoperability.

NFC-The safer way to pay (and other stuff)
[Jason McMullen]

Near Field Communication (NFC) is a method of transferring data over short distances. The physical technology behind NFC contains a small tag comprised of a System on a Chip and an antenna. One of the most common uses for NFC is credit card payments (in conjunction with Apple Pay and Google Wallet for example). However, there are several other uses that are sure to become more and more popular.

Regarding payments, NFC has become widely accepted and is preferable to conventional credit cards in many ways. You don't need to carry your card with you. All of your information is stored on your phone and secured behind your lock code, thumbprint, or face ID. Also, NFC transactions do not use a static credit card number. It instead emulates a physical card to create a one-time transaction number that expires very quickly. This makes it much more difficult for someone to intercept your actual card number.

NFC can also be used to store passwords and connect devices to one another (pair). This is accomplished simply by tapping your smartphone to a device such as a speaker, smartwatch, fitness wearables, or other smart devices that pair with phones. Other advanced hardware authentication devices such as Yubikey use NFC along with other methods to usher in a new era of password-less authentication and access control.

Lastly, NFC tags are so small and durable, they can be embedded into or attached to products and provide instant access to online resources at the tap of a phone. They can be coded to prove the authenticity of products to deter counterfeiting. They can also provide marketing opportunities and research by delivering custom, exclusive, and personalized content.

While NFC technology has been around for a while, using NFC for payments has just recently become commonplace. Give it a try next time you need to stop at the grocery store! You may find that soon you won't need to worry about carrying your credit card with you anymore.

Mac users swear by their Mac, PC users swear at their PC.

Tips on Creating a Strong Password
[Hayden Sandel]

AVOID COMMON PHRASES
Hackers often utilize 'Dictionary' attacks to brute force passwords. Dictionary attacks utilize different combinations of common words and phrases to more accurately guess passwords. An analysis of recent hacked account dumps from SplashData shows that some of the most common passwords are
"123456","password","football" and various other popular sports teams and phrases.

DO NOT INCLUDE PERSONAL INFORMATION
Birthdays, phone numbers, and anniversaries often show up in passwords because they are numbers that are easy to remember. A hacker targeting a specific person could use that information to brute force a password even faster.

MAKE YOUR PASSWORD RANDOM BUT MEMORABLE
Create a random four word phrase that you can easily memorize. Having an overcomplicated password is not any more secure and will be very difficult to remember.

Failure is not an option. It comes bundled with your Microsoft product!

THROUGH 20 YEARS OF EFFORT, WE'VE SUCCESSFULLY TRAINED EVERYONE TO USE PASSWORDS THAT ARE HARD FOR HUMANS TO REMEMBER, BUT EASY FOR COMPUTERS TO GUESS.

Fun with Passwords
[James Taylor]

Every few months, we are required to change the password for our work account and for many of us the task of selecting a new password can be quite an onerous one. There are multiple criteria that must be followed and often it takes multiple attempts before we hit on a password that is at once sufficiently complex and memorable to us individually. While it can be difficult to come up with a string of letters, numbers, and symbols that we're likely to memorize, it should be clear to everyone why it is so important to choose something that no one is likely to guess and that can't be easily cracked with brute force methods.

It is equally important to impose standards that are just as rigorous on the passwords we create for our personal accounts. Below are a few tips that can help you strengthen your passwords and hopefully make your accounts a bit more secure.

•   Don't use simple passwords. Many sites have very lax standards when it comes to their password criteria and it can be tempting to choose something short and simple out of convenience. The problem is that those types of passwords are just as easy to crack with brute force or dictionary attacks.

•   Avoid basing your password on personal details such as birthdays, addresses, or the names of loved ones. This information may not always be as confidential as you think.

•   Don't use the same password for multiple sites. Nearly everyone does this and it can be a lot of work to keep track of unique passwords for each account but consider this: if you use the same password for your credit card site, your bank, Facebook, and your email, only one of those sites needs to be hacked for the attackers to have the password to all of those accounts, many of which even share the same username.

•   Never use the password for your email account for any other website. For most sites, if you forget your password, you can reset it by requesting to have a link or a temporary password emailed to you. Using a password unique to your email account greatly decreases the chance of it being compromised when a data leak occurs and it also ensures that you have a fairly reliable way to safely change the passwords for your other accounts in the event that they are hacked.

•   While it is good to have complexity in a password, one of the best things you can do is to choose a long password or 'passphrase'. Each character added to a password increases the difficulty of cracking it by an order of magnitude. Collections of words that make up a sentence can also be much easier to memorize. 'The3PurpleBearsShopForPears!' isn't terribly complex but the length of such a passphrase will make it much more difficult for the password cracking tools that are freely available online to decipher it.

This is by no means a complete list of best practices for choosing a password and I would encourage everyone to do additional reading on how they can better secure their information. In this day and age, it's not only worth it to go the extra mile to protect yourself, it's absolutely necessary.

**CAPS LOCK –
Preventing login
since 1980.**

5G Data
[Christopher Horiates]

If you remember when cell phones first came out, or at least became popular and affordable in the mid to late 90's, it was all about coverage. There were maps that showed how great the coverage was and areas where calls might get dropped. There was no mention of data speeds. Over time as the cell towers improved, as did call coverage, it became less about making calls and more about speed of the data on the phone. The first well known speed you may recall was 3G, which quickly became 4G. The maps then began to show where you could expect 3G or 4G speeds based off the carrier's coverage. Now think back to the last time you saw a commercial or a map where you were shown how X carrier had better speeds and coverage than Y carrier. Been a while, hasn't it? Obviously what has happened is all carriers now offer basically the same coverage and same speeds in all the areas. Now it's all about data caps, limits and plan pricing. Even the small pay as go phone plans use the same towers the big companies have put up, you might just get slightly slower speeds and less coverage.

What does this all mean and where is this taking us? Well, coming soon from a marketing department of your current cell phone provider is 5G and why you need it and have to have it.

5G, what is it and what will it do for us as a society that is always on and always connected? The biggest selling point of 5G will be its speed. Yes, 5G is much faster than 4G but how does that help you? 5G will not make Netflix, Facebook, Instagram, YouTube, Snapchat and all the other apps on your phone run faster, they will run the same. In fact, a newer phone with a faster processor is what will make them faster. 4G, in my opinion, is more than fast enough for the average cell phone user. Where 5G comes into play will be for very large data needs that require extremely fast speeds. This type of technology will open many new opportunities for technology and its usage in a mobile environment. A few examples of this would be streaming AR/VR, autonomous cars, medical, first responder/military networks, 4K video feeds, live streaming in HD and other very data intensive needs. These types of applications and services will run on 4G, to a point, but will run much faster and more smoothly on a 5G network. It will make your overall experience better. Your cell phone, at least the ones we have now and for foreseeable future, will not directly benefit from 5G. If you happen to tether data intensive devices to your phone then you might benefit, but your day-to-day usage of apps and email checking will not.

Currently you might be hearing about certain cell phone companies promoting 5GE in a ramp up to 5G. What this is, from what the opinions of critics of the industry say, is a pure marketing ploy. Is 5GE faster than 4G, yes. Is it 5G, no. 5GE is simply an (I will not get to technical) improvement on the current 4G networks that allows for more speed but it's not anywhere close to being 5G. My phone, and perhaps others reading this, might be or have received updates and now the phone shows 5GE. Just know that you are getting slighter faster speeds, but no your phone is not a 5G phone.

Expect to see an onslaught of new phones and devices starting this year. If you are in the market for a new phone getting one that's 5G will not be a bad investment necessarily. You will pay a premium for one. However, you might be able to get some pretty great deals on "last years" phones that offer 4G. Two items to consider. The first gen 5G phones might have more of a battery draw when on 5G then phones that come thereafter. This was the case when the first gen 4G phones hit the market. As technology improved inside the phone so did battery life. The other item to consider is 5G coverage. We happen to live in the DFW Metroplex and our area will be one of the first to get 5G. However, remember data coverage maps? The thinking is that while 5G will be in the large metropolitan areas first, it

will be a while before all towers are updated in the more rural areas of our great country.

Am I for 5G? Of course I am. I am excited to see what opportunities this will open for us and how it might make our mobile and technology experiences better. Will I will be running out and buying a 5G phone once they hit the market? Personally no, I will not. If you are one that has to have the latest tech there's no harm. If you are ok with what you've had in terms of speed, but might want a faster phone, then upgrade to a newer phone model that does not have 5G and you will be fine. 4G is not going away anytime soon.

Until next time, Full Speed Ahead!

Safe Energy and Recycling Electronics
[Daniel Griffith]

We are living in a constant state of upgrading, updating and moving away from older systems, and at a quicker pace every year. With the growing number of smart devices out there, computers are now found to be integrated into almost everything. Portable devices have connected and assisted us in incalculable ways, but they have also added to the amount of waste we generate. The problem we're facing as a result of this is the large amount of discarded electronics, and the number is increasing every year as companies try to meet demand for devices with the latest features. Take smartphones, tablets and laptops for example. Demand is high, prices are dropping, and they are being treated as more disposable than in the past, so people are more willing to discard them for the newest model.

Electronic refuse may not seem to be as widespread a problem as the amount of single use plastic items, which are most of what we see in those giant islands of trash floating around the middle of the ocean. Discarded electronics contain a higher concentration of toxic chemicals, such as mercury and lead along with the plastics they are housed in. Not only are toxic chemicals entering our ecosystem in higher concentrations, when electronics are trashed they also contain precious materials that could be recovered and recycled for future use. If the precious materials are not properly recovered, then more will need to be produced through mining and refining, which is generally hazardous to the environment. This problem we are facing can be curved with recycling programs and updated technology. Though an important part of every portable electronic, whether it be a laptop, wrist watch, or wireless headphones, batteries can contain the largest portion of the hazardous materials in those devices. The most popular type in our phones and laptops, Lithium-ion batteries, can also start a fire quickly if damaged.

The fact is that electronics need power and since the first battery was invented in 1800, that power has been produced by the chemical reactions between an anode and cathode. Made from copper and zinc, the first batteries generated about .76 volts with the two metals that are considered generally stable chemicals. Changes have been made over the years, in design and materials, and now batteries are more efficient and cheaper than ever before. Currently lead acid, zinc-carbon, and lithium-ion batteries are the most widely used. Lead acid batteries are mostly used in most vehicles, a highly regulated industry, and nonfunctional batteries are accepted for recycling at almost any garage. That cannot be said for the lithium-ion batteries that power most of our devices we carry around every day. Unfortunately, until wireless power becomes substantially more efficient, batteries are the best solution for our portable energy needs. They are also becoming an important part of newer, clean power plants. Battery storage facilities have already been built for renewable energy grids.

Renewable energy sources are nothing new. Solar and wind farms are already here, and the cost for building and maintaining these systems are now lower than traditional sources, such as coal and gas. This also means the demand will steadily increase. The problem for most renewable sources, except for geothermal (which is much rarer), are the time of day where need for electricity is larger than what can be output at that moment. For example: the potential for solar to generate the most electricity is midday, but it's mostly consumed during the evening. The first of these battery stations have already been built and tested in Australia and Hawaii with better results in meeting power demand that their traditional counterparts. The end goal to renewable energy sources, is to stabilize production and demand. Though there are some classic and innovative ways to store energy for peak usage, the most reasonable solution in most cases are large battery stations. They can store excess energy generated at peak times for times of high demand despite the environment they are installed in. Not only does this solve the problem of unreliable weather for solar and wind, it also helps with the issue of distance that old power plants have struggled with. The power source can be closer to the customer, as they do not produce greenhouse gases or other toxic chemicals that can harm a community. Shorter distances between the power plant and the end user also reduces energy loss between the power plant and the end customer.

Clean battery technology is still in development and methods of manufacturing them with new, less toxic materials may reduce the need for recycling in the future, but batteries are not going anywhere anytime soon. In order to realize a future where all of our electricity needs are generated by renewable and clean sources we'll need reliable energy storage solutions and a stable method of manufacturing them.

It's not always easy to find a way to recycle your electronic devices and you cannot just throw them in your recycling bin for the city to pick up. Here is a list of resources that you can use to locate electronic and battery recycling programs:

https://earth911.com/

https://www.call2recycle.org/

https://www.cityofdenton.com/en-us/residents/services/trash-recycling/hazardous-waste-(1)

http://takecareoftexas.org/hot-wire/what-do-i-do-used-batteries

https://www.energizer.com/responsibility/battery-recycling/where-to-recycle-batteries

A computer once beat me at chess, but it was no match for me at kick boxing!

Impact of Open Data Initiative to Technology
[Leah Atinda]

Open data is the idea that some data should be freely available to everyone to use and republish as they wish, without restriction form copyright. Wikipedia defines open data as an idea that some data should be freely available to everyone to use and republish as they wish without restrictions from copyright, patents or other mechanisms of control. The goal is like all other open source movements. What makes data open date, first the data needs to be available and accessible, it must be also be available in a convenient and modifiable form.

Secondly, re-usable and redistributable, the data terms should under the permit re-use and redistribution including the intermixing with other databases. Thirdly, it should have universal participation which includes everyone in the whole wide world being able to have access to it without discrimination. This will allow the diverse systems and organizations to work together which is an essential part to build large and complex systems.

The other definition that will that relates to our topic is open data is digital information that is licensed in a way that is available to anyone, with just a few stipulations. The that is being talked about includes government financial data, stock information, market data statistics, published academic research and many more related information. Washington, D.C., non-profit advocacy group promoting open and transparent government, believes the term open data can be applied to a variety of information created or collected by public entities. Among the benefits of open data are improved measurement of policies, better government efficiency, deeper analytical insights, greater citizen participation, and a boost to local companies by way of products and services that use government data.

In September 24, 2018 Microsoft, Adobe and SAP officially partnered for a project called open data initiative and they took this a next level. There idea is that one day data will be stored centrally and be able to flow smoothly between different systems run by each of this software giants. Microsoft, Adobe and SAP view this partnership as set up with a mindset of safeguard customer data in an age where privacy concerns are mounting. What does this imply to the technology as a whole?

Simply said this will be a move to extract more information from customers which means the hardware and software that are used need to be modified, programed to meet the demand which will have an impact on technology as we know it today. One of the presenters mentioned that with a single comprehensive view of data, you will discover in real-time more about your customers, identify ways to maximize operations and find new ways to provide the amazing experiences that your customers deserves. More and more technology being mentioned is the Artificial Interagency being used to manage and gain deeper understanding of the business.
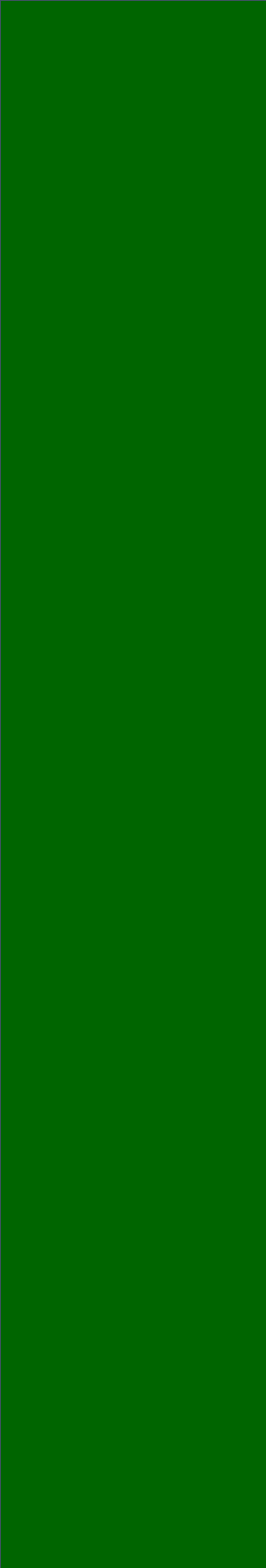
Open data brings along emerging technologies including artificial intelligence and distributed ledgers such as blockchain. The common voice shared by Microsoft, Adobe and SAP is that customer experience is no longer a sales management conversation, Bill McDermott CEO SAP said, "with the open data initiative we will help businesses run with a true single view of the customer" As open data initiative becomes a reality to many aspects of day to day business, each of us need to be ready for the change that comes with this concept.

In DigitalGov publication of August 24, 2017 said that they will invite new partners to help craft potential goals, it will tap into U.S private sector and federal IT modernizations efforts towards open data innovative and accountability.

It is believed that technology has allowed capture data in ways and in volumes that many never imagined. More analytics tools are being invented and modified to allow people parse data in new ways, the tools also allow people to see a connection between data that has never been explored. Good example of how open data is impacting technology is openSensors, which is an internet of things provider that

links sensory hardware through the internet to a business. In the same way research communities have built layers of research to cure illness, tech sector is using open data to encourage advances in everything from phone apps to virtual reality. It is giving business new ideas on what the customer needs are, and they will need various technologies to meet the demand.

The Rise of a Smart Home: An Alexa Story
[Matthew Trammell]

I never thought that I would own a smart home. I figured that you would have to decide to build a smart home from the ground up and run wire throughout your entire house to a dedicated server room. It would be too expensive and out of reach. Then, as a combined birthday gift, my youngest sister gave my wife and me an Amazon Echo. Little did I know – I had just received Alexa, the brain of a smart home.

I carefully unboxed our new Echo and set it up on the kitchen counter. The setup was straightforward. I chose to use the Alexa app on my iPhone. The app is available on Android and iOS devices. Alternatively, you can use your favorite web browser on a Wi-Fi enabled computer. Be sure to connect the setup device of choice to your wireless network and verify that it can reach the Internet. During the setup process, your device will connect to the Echo, prompt you for your Wi-Fi password, and then connect the Echo to your wireless network. Now that you are connected, the fun begins!

The quickest way to interact with Alexa is to start talking. "Alexa, what day is it?" "Alexa, what time is it?" "Alexa, what is the weather like today?" "Alexa, tell me a joke." "Alexa, sing me a song." As you can imagine, you can get very creative with your questions and statements. The commonality between our questions and statements is a single word, "Alexa." This is the wake word and it is easily customizable. So, have fun with that too!

After the novelty of asking questions, stating statements, gathering trivial information, and setting senseless wake words wears off, you may ask, "Alexa, what else can you do for me?" Alexa has lists, reminders, alarms, and timers. I especially like the Shopping list and using multiple timers for cooking. Now, I do not have to render the microwave inoperable while running a food timer! The Alexa app has contacts, routines, and skills and games, oh my. The Echo itself works very well as a speakerphone and as a music player. The sound quality is great and rich for such a small device. In fact, I could write an entire article on the features of Alexa and the Echo. However, I should get back to how Alexa works in our smart home.

It was before the holiday season. My wife and I were talking about what we wanted to get each other for Christmas. We finally decided to get a combined gift of a Ring doorbell. The Ring doorbell is another great product that I highly recommend. As usual, I did some intense online research to find the best price for the Ring doorbell. Days later, Amazon won because I had some Amazon gift cards that allowed me to get one for half-off! It also did not hurt that one of the advertising points was "Amazon Certified: Works with Alexa." Okay, so I knew that we were getting an Echo. My sister messaged me back in November and said that she could get a great deal on the Echo if she bought two. She then asked if Shannon and I would be interested in one. After a quick consult, I said, "Sure, sounds great!" thinking that we would at least have a good music player. That explains why I was interested that the Ring doorbell works with Alexa. I started thinking, "What else works with Alexa?" Then, I did something that I enjoy doing - Internet research! That is when the realization hit me.

"I have the brain of a smart home. Wow!" I learned that Alexa is a cloud-based service that is a leader in the home automation industry. Because of that, many smart home devices work with Alexa. I read about light switches, light bulbs, light strips, plugs, TVs, security systems, door locks, and garage doors to name a few. Amazon even released a microwave with Alexa built-in at their most recent technology event. These are all devices that you can connect and group together within the Alexa app. To view all current Alexa devices, open the app and browse to the Devices section. To add a new device, click the plus sign in the upper right screen.

I read that Amazon teamed up with Lennar Homes to create Amazon Experience Centers across the country. In fact, one is conveniently located near here, in the DFW Metroplex. It is in Richardson, TX, within walking distance of the University of Texas at Dallas. I have not checked it out yet, but I would encourage you to look up the Amazon Experience Center and visit, especially if you are interested in home automation solutions.

Now, I bet that my home still has a way to go compared to what I think you would see at any of the Amazon Experience Centers. It can definitely get smarter. Should it? In our December 2018 AITS Newsletter, Leah Atinda wrote a great article called

"The Impact of Smart Home Technology". I encourage you to check it out, if you have not already.

Nevertheless, I do have the basic building blocks of a smart home in place. It started with a wireless network, with Internet access. Yes, you do need the smart home devices that I mentioned. Not all of them. It can get overwhelming and expensive trying to figure out how to incorporate all of the devices that you want into your home at once. Start small and gradually add devices over time. However, I think that you also need to look for product, or a brain, like Alexa that can connect everything together.

I have been very happy with our Ring doorbell. The hardest part of the setup was drilling a hole through brick in order to mount the hardware. The coolest part is having our Ring doorbell enhanced with Alexa. When the Ring doorbell detects motion or a doorbell ring event, Alexa uses our Echo to broadcast out a message that an event occurred.

That is just the beginning of our small smart home. What is next you may ask? For now, I am looking at adding an Echo Dot, which is a smaller version of the Echo and purchasing a new smart TV with Amazon Fire TV and Alexa built in. From there, who knows? The possibilities are endless… but one thing is for sure; smart home technology is here and smart homes are on the rise.

Buying a new TV anytime soon?
[Christopher Horiates]

One of the mainstays in most American households is a TV. Since the first TV in 1926, to the first color TV in 1951, TV's have come quite a ways from the early days. From a simple TV that had "rabbit ears with aluminum foil" to now Digital, 3D, HD, UHD, HDR, 1080, 4K, 8K, Smart TV, LCD, DLP, QLED and OLED….. The tech and features seem ever expanding. As a consumer, you have so many options to choose from and if you are not up on what all this means you might over buy or under buy what you are needing or wanting to meet your TV needs.

If you simply want a TV and the picture quality (color, contrast, refresh rate, screen size etc….) are not important to you, then any new TV for a few hundred dollars will meet your needs most likely. However, if you are one who enjoys researching and having knowledge and information before a large purchase then the point of this article is to help educate you in buying your next TV.

When buying diamonds the industry rule is look for the 4 C's. Cut, Color, Clarity and Carat. That is what makes a diamond. Go to a jeweler and look at some low end and high end based off the 4 C's and you will see a difference.
Now when it comes to TV's there is no rule that I am aware of, but when I shop, I consider these what I am looking for. Size, Screen, Technology and Features. In addition, where you buy is important. Going to just any store that sells TV's, sure you can find one and buy it on your own. However, going to a higher end retailer who have trained professionals on all of the products is worth the time and perhaps slight increase in money to get what you truly need and want.

Size – Yes, screen size does make a huge difference when buying a TV. Bigger is not always better. You need to buy a screen that fits your room. If you get a TV that is too big and you sit too close to it the picture will not look as crisp as it should. Of course, budget is the deciding factor, but if you go to certain electronic stores, they have trained staff who will be able to determine the right screen size for the room. There are also websites, the TV manufactures and such, which have this information.

Screen – When HD TV arrived to the masses and 1080P became the standard we asked could it truly get any better? Well yes, now we have 4K and 8K will be coming out soon. While this sounds great and the newer TV's will upscale content to a higher resolution you are not truly getting native 4K or 8K unless the original content was recorded in that resolution. 4K is just now starting to show up on broadcast based services. You can also get it with Ultra HD players. Some online services like Netflix and YouTube offer 4K content too. So for now a 1080P TV with the correct setup will suffice for the vast majority of content. If you want to spend the money on 4K and be ready for some current and future content, I would say as of today it would not be a bad investment. In fact in today's market, it is almost hard not find a 4K TV. 8K, unless you just have to have the latest is not worth the purchase quite yet, in my opinion, when it hits the market. Now if you really want to get technical when buying, not that this is much of an issue anymore, but contrast ratio and refresh rate do matter. I will leave that up to you to discuss with the person helping with your purchase if you want to discuss this. Small secret, the best-uncompressed HD Content you can get is using an antenna on your TV and picking up the local HD Broadcasts. If you have not tried antenna TV in quite some time I highly recommend it for the quality and the sheer amount of channels there are now. Moreover, it is free!

Technology – I broke this out from the screen paragraph because I am not talking about resolution and contrast but instead talking about the technology that makes your TV work and the type of screen you have. CRT, remember those large 100lb TVs that were only 30" in size? Those giant computer monitors that took up half your desk? When is the last time you saw one of those? Not too long ago Plasma, LCD and DLP were all the rage. This allowed TVs to get thinner, larger and started the HD boom. While those are still around if you go looking, if you want to go with the latest and newer technologies are QLED and OLED. Quantum Dot Light Emitting Diode (QLED) tends to have a better value for screen size and good colors, but for

the best picture Organic Light Emitting Diode screens are where you will see the greatest increase in price but you get what you pay for. While both look great, see if you can get two side by side running the same content for a comparison. If they are setup correctly and running the same content there will be a difference. It really comes down to what looks best to you, as you cannot go wrong with either one. One advantage both of these technologies offer is very large screen sizes and extremely thin and lite weight screens. They also consume much less power than older TV's and do not get hot. Overall if you have your TV on for extended periods these will save you on your electric usage over time.

Features – This all comes down to how connected you want your TV. Most TV's now have built in Apps and other services like mirror casting and such. Some have more than others do and different features. If you happen to have a Samsung Products at your home, like a newer Samsung Phone, if you get a Samsung TV, you can natively control it with the Smart Things app. I have also been able to stream the TV picture to my phone and watch TV on it. Of course other TV's might have apps you can download onto your phone that do the same. That being the case this all comes down to are you needing a TV to be the center of your home and have everything hook into it or are you looking for something to put out in a garage to have background on while working on something. You really cannot go wrong with all the features but sometimes too many is too confusing for some.

I hope you have found this article informational and helpful. Who knows what the next big thing in TV watching will be? Maybe it will not be a TV we place on the wall but instead we wear on our head like a VR or MR unit. That or we just all are placed into pods like in the Matrix and live our lives virtually. Until then enjoy the technologies we have out as there has never been a better time to enjoy movies, sports and live TV in the comfort of your home.

Decoding Esports Jargon
[Dylan Wray]

When you watch a game of football or basketball you are spoon fed lingo and jargon that is related to the sport all the time. From touchdowns to interceptions, free-throws to point guards, traditional sports is laden with terminology that without experience means nothing to the English language. You learn the lingo and jargon by growing up in a culture that exposes you to these games through playing, or watching matches.

The games that collectively make up the movement of esports have their own collective language barrier that can be daunting to someone who is interested in learning more, or understanding the esport movement. The generations that grew up with gaming, or have children who game and are exposed to playing or watching have been exposed to this relatively new found jargon.

However, there is a sizable number of people that did not grow up around the related esport lingo.

Esports, is the umbrella term of digital games that are played competitively, in mostly team environments that are fun to spectate and watch. There are hundreds of thousands of digital games that are out there, but in the way that no one closely follows curling, or competitive checkers, there are only 30-40 major games that are considered esports.

The first major genre of games that started the grass roots movement of Esports belong to **Fighting Games**. In a Fighting Game, the player controls an on-screen character and typically engages in close combat with a single or several opponents. Score is typically settled by rounds or knockouts like a real wrestling match. Games: *Street Fighter, Mortal Kombat, Tekken, Super Smash Bro's (series), Marvel vs. Capcom.*

A major title, and historically one of the strongest titles belongs to **FPS —** First Person Shooter. A game type that usually involves objective based gaming, involving gun play through the eye level view of the avatar. By killing or eliminating players, the team is allowed to take key points of a map, or secure better weapons to increase the lead the team has. Games*: Counter Strike Global Offensive, Overwatch, Halo, Call of Duty.*

Another major genre of esports are **MOBA's —** Multiplayer Online Battle Arena: Five players on each team control an (avatar) with the objective of destroying a building called a central building on the enemy base before the other team destroys theirs. Uncontrollable soldiers called "creeps" spawn on each team's base and run down three lanes at the opposing enemy lanes to push past them and the team's defenses to destroy the nexus. Killing these creeps and enemy heroes award a player gold and experience they can use to better themselves and make them more effective and powerful avatars to push the waves of creeps into the enemy base and destroy the win condition. Games: *Dota 2, League of Legends, Heroes of the Storm.*

There are plenty of other titles and genres of games, and some are seen as a hybrid of several ideas and genres. Generally speaking, an esport is considered so after several years of sustained competitive growth beyond a game's normal life cycle of initial interest and slowly fading into a small player base. The strongest titles, like CSGO, LoL, Dota 2, and CoD have had an active competitive scene, and viewer base for years.

Below is a by no means comprehensive, but at least a gateway into some of the various terms, lingo, acronyms, or jargon used by **casters** (sports play by play broadcasters for esports) and players alike.

Gaming Terminology / Dictionary

A
- **ADC** – Attack Damage Carry (LoL)
- **Avatar** – A character that is controlled by a real life person who is embodying the character to an extent.
- **Assassin** – An Player that deals an extreme amount of damage in a short amount of time relative to the games norm of play.

B
- **Bruiser** – Hard to kill Player that can deal a decent amount of damage due to its survivability

C
- **Champion** – Player controlled Players for LoL
- **Carry** – a role of a player controlled Player that usually is a win condition for several MOBA type games. Typically the more farm or kills they get, the more effective they become to help the team win the game.
- **Camping** – a first person shooter or third person shooter term that refers to someone who hides or "camps" in one spot that gives them an advantage to an opposing player that walks by.
- **CSGO** – Short form of *Counterstrike Global Offensive.*

D
- **DPS –** Damage Per Second. Normally referred to a role that a player is assigned to, or how much total damage output a character or ability can deliver.

E
- **EZ –** a rude gesture to say that the win was an easy victory

F
- **FPS –** First Person Shooter. A game type that usually involves objective based gaming, involving gun play through the eye level view of the avatar. Games*: Counter Strike Global Offensive, Overwatch, Halo, Call of Duty.*
- **FF** – Finish Fast. A casual way to say that you concede the game and will probably won't defend a vital objective, or try hard to prevent the opposing team from winning. Occasionally a sign of saltiness or tilt.

G
- **GG** – Good Game (sometimes a symbol of polite conceding of the game)
- **GGWP** – Good Game Well Played
- **Gank –** The overall play of reposition a player to knock out opposing players in a MOBA. Can be a coordinated effort with multiple players attempting to sneak up on, or deliberately put pressure on an area of the map.

H
- **Hit Scan –** A role in FPS games that have a projectile shot that immediately damages the clicked target. Usually a high damage dealing role, weapon, or character.

I
- **Initiate** - The act a player performs to start a play or team fight in competitive team games.
- **Initiator –** A roll a player controlled Player has to start plays or team fights in competitive team games. They often have abilities or powers that enable them to set up favorable situations for the team to perform ideal plays or team fights that create favorable situations*.*

J
- **Juke –** The act of avoiding or dodging a play or intended gank attempt.

K
- **KO –** Knock out. Often used in fighting games

In a world without fences and walls, who needs Gates and Windows?

L

- **LoL –** The acronym for League of Legends
- **League** – another shorthand for League of Legends

M

- **Meta** – (Most effective Tactic Available) The general strategies that are considered common practice at a professional or semiprofessional tier of play. Most meta's inspire counter strategies that create an overall climate or ecosystem of competitive play. Often games will patch or update the game to refresh strategies and inspire new meta's to emerge for healthy competition.
- **MOBA –** Multiplayer Online Battle Arena: Five players on each team control an (avatar) with the objective of destroying a building called a central building on the enemy base before the other team destroys theirs. Uncontrollable soldiers called "creeps" spawn on each team's base and run down three lanes at the opposing enemy lanes to push past them and the team's defenses to destroy the nexus. Killing these creeps and enemy heroes award a player gold and experience they can use to better themselves and make them more effective and powerful avatars to push the waves of creeps into the enemy base and destroy the win condition. Games: *Dota 2, League of Legends, Heroes of the Storm.*
-

N

- **Nexus** – Win Condition for League of Legends. When a team's nexus is destroyed by creeps or enemy champions, they lose the game.

O

- **OW** – Often the shortened form of Overwatch.

P

- **Payload** – Primary win condition for Overwatch's Escort or Escort/Assault game modes, and generally takes the shape of a vehicle. The attacking team has to be in a short range of the Payload for it to move through the map. If there are no attacking team members in range, the Payload doesn't move toward the objective, and will actually move back to the most recent checkpoint. If the Payload reaches the last check point / end of the map within the time range, the attacking team wins. If the Payload fails to do so, the defending team wins.
- **Projectile DPS –** Damage character or weapon that sends out a slow moving projectile that can do a decent amount of damage if the user correctly lines up the shot. Grenade launchers, or missiles typically.

Q
R

- **Respawn** – (see spawn) A point in which a player or NPC enters the game world space for a subsequent time, often due to a death or loss factor in a game.

S

- **Salty** – Poor sportsmanship or negative behavior in a game.
- **Spawn** – A point in the game in which a player enters a world space for the first time or an NPC enters the game world space.
- **Squishy** – An Player or NPC that is easy to kill, or doesn't survive well in a combat type game. Usually has an ability or skill that makes up for its squishiness.
- **Support** – A role of a player controlled Player that assists the team through utility abilities like healing, immobilizing enemies, or providing map awareness for the team.

T

- **Tank** – Tank or "tanky" refers to an Player or NPC that can survive a decent amount of damage before dying or being destroyed.

How do you make your Mac go faster?

Drop it from a higher window.

- **Tilt –** a psychological disposition that leads to you losing a game. Can be caused by many factors both in the game and out.

U
- **Untilt** – Various activities, communication or mental strategies that help the player get out of a negative disposition (see tilt) to play the game level headed and focused.

V
W
- **World Space** – The environment that is playable in the game for players to move around or utilize within the game.
- **Wrecked –** A term for referring to a very one sided game or phase of the game.

X
- **XP –** short for experience. Used in games where characters earn experience to level up their character to improve their abilities in the game, or outside of the game for a player's account.

Y
Z
- **ZZZ** – A rude gesture to tell someone to shhh or shut up.

Solution to last newsletter's brainteaser

In the days when there were maidens around who could see unicorns, two such maidens passed a field in which some unicorns and rams were prancing about. One young lady remarked that she could see 52 horns and the other young lady remarked that there were twice as many unicorns as rams. How many unicorns and rams were there?

26 Unicorns with 1 horn each

13 Rams with 2 horns each

ASCII table to aid you with this issue's puzzle

ASCII printable characters				Extended ASCII characters						
32	space	64	@	96	`	128	Ç	160	á	192	└	224	Ó
33	!	65	A	97	a	129	ü	161	í	193	┴	225	ß
34	"	66	B	98	b	130	é	162	ó	194	┬	226	Ô
35	#	67	C	99	c	131	â	163	ú	195	├	227	Ò
36	$	68	D	100	d	132	ä	164	ñ	196	─	228	õ
37	%	69	E	101	e	133	à	165	Ñ	197	┼	229	Õ
38	&	70	F	102	f	134	å	166	ª	198	ã	230	µ
39	'	71	G	103	g	135	ç	167	º	199	Ã	231	þ
40	(	72	H	104	h	136	ê	168	¿	200	╚	232	Þ
41	)	73	I	105	i	137	ë	169	®	201	╔	233	Ú
42	*	74	J	106	j	138	è	170	¬	202	╩	234	Û
43	+	75	K	107	k	139	ï	171	½	203	╦	235	Ù
44	,	76	L	108	l	140	î	172	¼	204	╠	236	ý
45	-	77	M	109	m	141	ì	173	¡	205	=	237	Ý
46	.	78	N	110	n	142	Ä	174	«	206	╬	238	¯
47	/	79	O	111	o	143	Å	175	»	207	¤	239	´
48	0	80	P	112	p	144	É	176	░	208	ð	240	≡
49	1	81	Q	113	q	145	æ	177	▒	209	Ð	241	±
50	2	82	R	114	r	146	Æ	178	▓	210	Ê	242	‗
51	3	83	S	115	s	147	ô	179	│	211	Ë	243	¾
52	4	84	T	116	t	148	ö	180	┤	212	È	244	¶
53	5	85	U	117	u	149	ò	181	Á	213	ı	245	§
54	6	86	V	118	v	150	û	182	Â	214	Í	246	÷
55	7	87	W	119	w	151	ù	183	À	215	Î	247	¸
56	8	88	X	120	x	152	ÿ	184	©	216	Ï	248	°
57	9	89	Y	121	y	153	Ö	185	╣	217	┘	249	¨
58	:	90	Z	122	z	154	Ü	186	║	218	┌	250	·
59	;	91	[	123	{	155	ø	187	╗	219	█	251	¹
60	<	92	\	124			156	£	188	╝	220	▄	252	³
61	=	93	]	125	}	157	Ø	189	¢	221	▌	253	²
62	>	94	^	126	~	158	×	190	¥	222	▐	254	■
63	?	95	_			159	ƒ	191	┐	223	▀	255	nbsp

If it weren't for C, we'd all be programming in BASI and OBOL.