



# AITS Newsletter

DECEMBER 2019

## Valuable Contribution [Abraham John, Executive Director, AITS]

Although this is a newsletter from an Information Technology (IT) team, this article will not be technical. It will be light and may even evoke a smile or two. I want to take this opportunity to speak about “contribution” and its “value” to an enterprise. I will attempt to do so with a couple of sports examples.

Great enterprises achieve goals through the unsung contributions of a great many and, almost all of the contributions that make enterprises successful happen in the trenches. Legendary sports teams are no exception and they achieve glory because of the contributions of many unsung supporting players.

The first example is from the team that John Facenda introduced in 1978 as “America’s Team”, our beloved Dallas Cowboys.

I want to take you to the heady days of the 1990’s when our Dallas Cowboys won three Super-Bowls and Emmitt Smith “rushed” into history as one of the best running backs in the NFL. On the surface, this appears to be an individual achievement. However when the games are examined the realization sets in rather quickly that Emmitt would not have broken those rushing records without Daryl “Moose” Johnston leading the way or having an offensive line that created breakout opportunities. The successes enjoyed by the 1990’s Dallas Cowboys would not have been possible without these supporting players. Neither Daryl Johnston’s lead blocking nor the offensive line’s contributions take anything away from Emmitt Smith’s achievements. On the contrary, we realize the value of the supporting players so that the enterprise can achieve its goals.

The second example is from the glory days of the Chicago Bulls and Michael Jordan. Michael Jordan is probably the finest basketball player of all time but this did not necessarily translate into championships for the team or Jordan. True success eluded both the team and Jordan. It was not until there was a supporting cast around Jordan that the Bulls became a successful and a legendary team in the 90’s. Of particular note, the supporting role came in the person of Scottie Pippen and others like Kerr, Paxson, Grant, Perdue, and the replacement of Doug Collins by Phil Jackson. Pippen was the one constant who is impossible to ignore in the championship success of the Chicago Bulls. The supporting role of Pippen and others ENABLED Jordan to lead the Bulls to six championships. What Jordan brought to the team was just as crucial since the Bulls did not win a championship during Jordan’s absence and Jordan was unable to lead the Wizards to success during his third comeback that led to his 2<sup>nd</sup> retirement from the NBA. Like the example of the Dallas Cowboys, the Chicago Bulls achieved success through the valuable contributions of their supporting cast.

In a similar vein, **Information Technology (IT)** is a supporting or an enabling role in enterprises like universities. Universities do not create technology products to sell; rather their product is something of far greater value – EDUCATION. Information Technology departments and teams in enterprises like universities, performs the role of enabler to faculty/staff/departments/services. Information Technology enables and is a supporting player in every activity that takes place at enterprises like universities and speaking for AITS this is definitely true at our beloved UNT. All modern enterprises have technology woven into all their



Crows can recognize individual human faces and are capable of holding grudges.

initiatives, goals, and activities. Technology is the indispensable enabler for all activities without which all initiatives and goals would founder.

Quite like the Dallas Cowboys and Chicago Bulls sports examples, the value of the supporting role is realized when it is absent. When we understand the "value" and "contributions" of the supporting cast, success follows as a natural consequence.

I have often drawn a parallel between IT service or IT functions and a light switch. When we step into a dark room, it is the most natural of actions in the modern world to reach for the light switch and the only time we would give it a second thought is if the light does not turn on. When the light switch functions as expected, we are empowered by the light and are able to function productively.

Similarly, as a supporting or enabling service, IT support/service lights the way so the student/faculty/staff member utilizing it appropriately, is productive and perhaps even the STAR. However, the productivity or the STAR is standing on a firm and consistent base of IT service and support.

When you think of Information Technology, rest assured that we, (AITS), are in your corner and always there to support and enable our collective UNT mission and there to support your initiatives and goals that further the UNT mission.

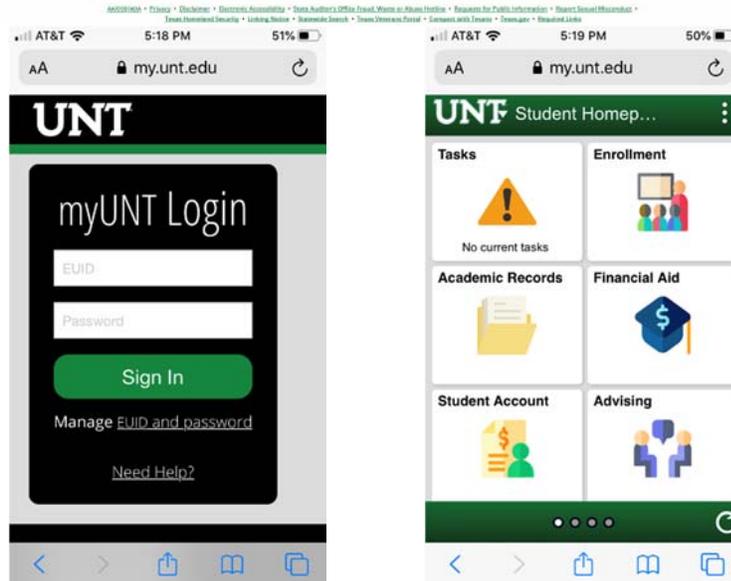
As you read the articles included in this issue of our newsletter, get a chuckle out of pieces like this one, and take a swing at the brainteaser, we in Administrative Information Technology Services (AITS) wish you a happy and safe holiday season.



Lungs are the only human organ that can float on water.

## EIS Fluid is in place. Now what? [Robert Jones]

Over the weekend of September 21<sup>st</sup>, in partnership with stakeholders at UNT, UNTHSC, UNT Dallas, and UNT Dallas College of Law, IT Shared Services upgraded the EIS Campus Solutions system used by students to the new fluid interface. This upgrade provided several improvements in visual design, navigation, and functionality, particularly improving the use of the system on mobile devices, addressing a long-expressed desire by the student body to be able to register, view tuition balances and other services from any of their devices.



The change included updated, branded, student-focused homepages for each of the three institutions. Additionally, it introduced a transition for UNT World employees who now have a single location, (my.untsystem.edu), to obtain their leave balances, view their paycheck stubs, download their W2's and consume other employee facing services.

ITSS is currently in conversations with these same student stakeholders as well as the UNT System HR office, to identify further opportunities to leverage the fluid interface on behalf of both students and employees, improving the self-service experience for both groups. As decisions are made and timeframes for these rollouts are established, there will be communications throughout UNT World to help everyone to be aware of these up-coming events.

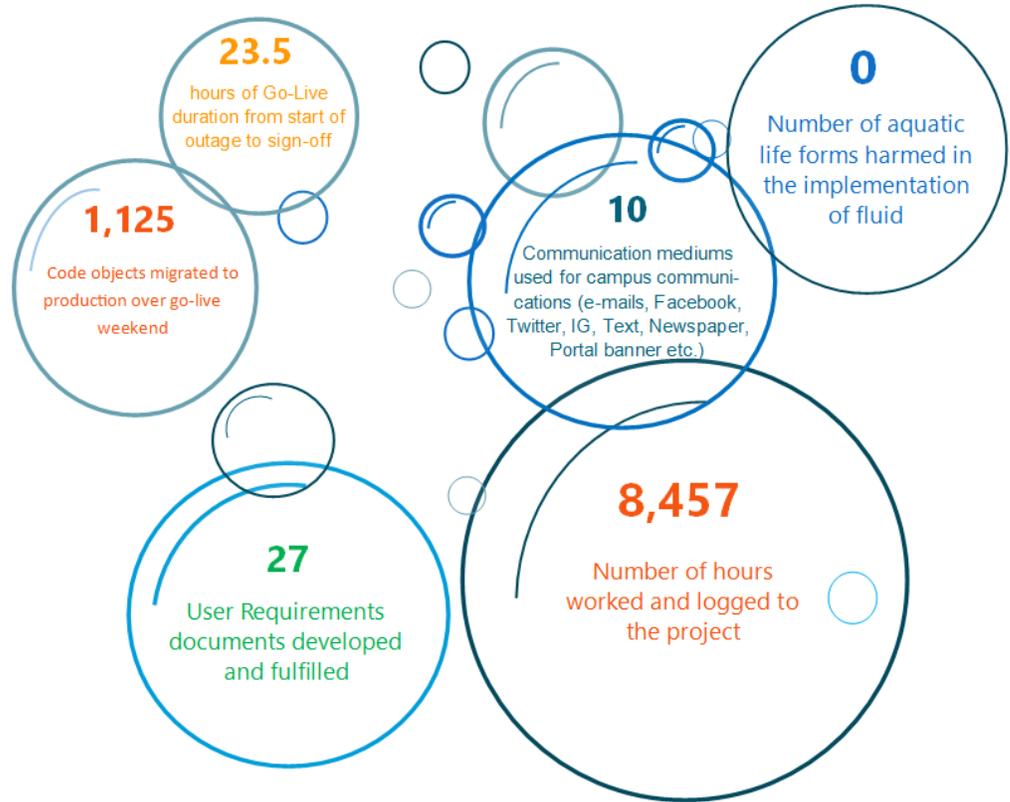


Enjoy this  
brain teaser ☺

The same 5  
letters when  
rearranged will  
make 2 different  
words to fill the  
blanks in the  
following  
sentence.

*Those who wish  
to be good -----,  
must have  
excellent  
memories, or  
their stories run  
off the -----.*

## EIS Fluid for Campus Solutions Facts



Ancient Pompeii had take-out restaurants.

## Deepfake [Ryan Ueland]

Have you ever seen Jim Carrey's head on Alison Brie's body or Bill Hader doing impressions of Tom Cruise then suddenly see Cruise's face pop out at you on Hader's body? If not, are you living under a rock? These videos and countless more are making the rounds on every social media platform and giving people a good laugh with the help of a new, growing technology known as deepfakes. Though entertaining, deepfakes open the door to a whole new realm of technology-based issues that could have a severe impact on society both at home and on a global scale.

Hyper-realistic forgeries, or deepfakes, are videos that take material from one source and alter it and manipulate it to deliver content that the deepfake's creator desires. The majority of deepfakes are based on generative adversarial networks, GANs for short, which were originally developed by Ian Goodfellow in 2014. GANs work on the premise of generative vs discriminative modeling and pitting the two against one another. In this competition the generative network is attempting to generate new data while the discriminative network tries to discern whether that created data is authentic or fake. GANs functionality and growth correspond directly with the growth of AI over the past decade. AI neural networks provide the processing power to allow these GANs to operate at ever-growing speeds and with increased accuracy. Deepfake videos use these models to create highly realistic videos that splice authentic imagery with unauthentic audio, motion, or other visuals.

Outside of the entertaining celebrity splice videos, deepfakes can pose a significant danger as they progress and get better. We have already seen a video of House Speaker Nancy Pelosi appear drunk or impaired while at a public speaking event. This video made its rounds on social media and was the source of embarrassment until it was proven to be an elaborate fake video. A BuzzFeed video intentionally created to show the danger of deepfakes, where a video of President Obama was dubbed by comedian Jordan Peele, was initially picked up as an official video from the former president. In a world where almost 50% of Americans get their news from online video content and large swaths of the population grow even more distrusting of news outlets, deepfake videos can easily be used as weapons of misinformation.

Combating these types of videos is becoming a growing issue for both the government and social media companies. In July, the US House of Representatives' Intelligence Committee distributed a letter to several technology firms, including Facebook and Twitter, requesting information on how the companies are combating the growth of deepfakes. Institutions such as DARPA and Carnegie Mellon are researching how to improve GAN technology while also looking into how to combat and decipher what is real and what is a fake. But the biggest tool that can be used against deepfakes and preventing their influence falls on end users. Experts say that being skeptical and investigating videos and news propagated online is the best way to combat influence campaigns centered around deepfake videos.

But I don't want to leave you thinking GAN/AI technology and deepfakes aren't all bad, please enjoy these videos.

<https://www.youtube.com/watch?v=Dx59bskG8dc>

<https://www.youtube.com/watch?v=VzhN7LyNJHs>

<https://www.youtube.com/watch?v=b5AWhh6MYCg>



Chicago is  
sinking just as  
fast as Venice.

## Cybersecurity 2019 [Mickie Tate]

Last year around this time, I submitted an article discussing cybersecurity. Given that last month was cybersecurity month, we are all at various stages of completing our cybersecurity training, and Internal Audit is kicking off an audit involving cybersecurity, I thought it would be good to rerun the article with a little tweaking. Our audit will involve workstation security, but cybersecurity is a much broader subject. As a refresher, here are some of the areas of cybersecurity:

- Controlled and highly restrictive use of administrative privileges is essential
- Inventory of authorized and unauthorized devices;
- Inventory of authorized and unauthorized software;
- Secure configurations for hardware and software;
- Always on VPN
- Continuous vulnerability assessment and remediation;
- Maintenance, monitoring and analysis of audit logs;
- Email and web browser protections;
- Malware defenses;
- Limitation and control of network ports;
- Data recovery capability;
- Secure configurations for network devices;
- Boundary defense;
- Data protection;
- Controlled access based on the need to know;
- Wireless access control;
- Account monitoring and control;
- Security skills assessment and appropriate training to fill gaps;
- Application software security;
- Incident response and management; and
- Penetration tests and red team exercises.

Much of the time when people talk about cybersecurity, they focus on State Sponsored Terrorism or Corporate Espionage and the complex electronic system attacks. However, we, as people are also very real targets in the cybersecurity battleground – perhaps the easiest target. With the prominence of use of social media and the ease of access to information, luring individuals into falling prey to cyberattacks is becoming much easier. For instance, let us look at how easy phishing, or spear phishing can be. An individual (hacker) goes to our website and locates an individual who they feel might have access to desired information, or desired permissions, or is the personally desired target. The hacker then searches for the target on social media and finds out all of the personal information that would put the individual at ease, or off guard, when presented in a conversation. Alternatively, perhaps the hacker does not even go to social media, they just use the website to determine others in the organization to gain familiarity. The hacker then creates and sends a personalized or urgent email from the social media “friend or relative” or “boss” with the corrupted link imbedded and oops, you click on the link because the email sounded so real, just as if they knew you. Moreover, of course it would sound real, because they have done their homework and they do know personal things about you. However, we are not helpless in combating these types of attacks. We must educate ourselves and be on the alert about the scams being used against us and how to protect ourselves.

Be judicious about the personal information you put on social media. Do not click on links if you are not positive about the source, or have the slightest bit of suspicion. If you are unsure of an email, personally contact the individual who sent the email and ask them if they sent it. If the person is not available, contact your local IT team, tell them of your concern, and ask them for assistance. Complete your cybersecurity training to become more aware of the signs of phishing and other cyberattacks and be vigilant in your approach to security. We all have a role in cybersecurity, it is not just Information Technology’s (IT’s) responsibility, it is all of our responsibility.



Africa is the  
only continent  
with land in all  
four  
hemispheres.

## UNT Wi-Fi [Rory Rivoire]

In 2003, the Information Technology and Shared Services (ITSS), began a project to implement a campus Wifi infrastructure. At the time, Wifi was in its infant stages and it was not known how much it would be used. Many of its standards and functions were still being worked out. The iPhone was yet to come. Tablets were a ways out as well. So why did we need a Wifi network?

Turns out that UNT wanted to keep up with technology and present to its students as much Internet access as possible. Initially, it was decided to place several "hotpots" on campus where students tended to gather. This included public areas within the Union, large hallways of several larger buildings on campus, and in a few areas of the Willis library. We started our quest with a Bluesocket wireless controller and thirty Cisco access points. Students, staff, and faculty could gain access to the Wifi network by simply logging in with their EUID and password. Many folks liked this set up and began using it more and more. The Wifi network grew from one hundred to several hundred users per day.

In 2005, Aruba (our current wireless vendor) approached us with a set of products which would advance our campus Wifi system greatly. Our initial use of the Aruba technology was implemented in the new Academic Building at the UNT@Dallas campus. Aruba used access points, which "tunnel" their connection back to Wi-Fi controllers. This functionality gave us the means to place access points anywhere within our network. A complexity of VLANS at the edge of our network was no longer necessary. We were able to locate our wireless controllers at a central point and at the core of the campus network. This improved security and performance of the system. The Aruba system is also highly scalable which allows us to grow almost indefinitely.

In 2010, UNT announced that it would scale up the campus Wi-Fi system to provide Wi-Fi services in all classrooms. This was quite an undertaking and cost over \$3 million dollars. Over the next two years, RF planning and design was done for every building which had classrooms. Not only were the classrooms taken into consideration but also the surrounding areas which had seating for students during class changes and layovers between classes. As access points were installed into many areas, new seating areas started to emerge and some of the labs were expanded.

Originally, the College of Business did not want Wi-Fi within their building (what is now Sage Hall), but during the building of the new Business Leadership Building, they were adamant about having the highest quality Wi-Fi system on campus. Given the number of 250 seat classrooms layered three stories high and encased in concrete, this was an engineering challenge. The BLB now has 145 access points and remains one of the highest Wi-Fi use buildings on campus (just behind the new Union with 288 access points).

With a successful implementation of Wi-Fi in the classroom, additional projects have come along. Outdoor areas such as the library mall, around the Union, and the Art building courtyard have been covered in Wi-Fi. All new projects within the UNT system includes Wi-Fi as part of the build out of any new building. We have expanded Wi-Fi coverage to the UNT System building and UNT Law school (Municipal building) in downtown Dallas, the UNT@Dallas campus, and new buildings in Frisco, Hall and Inspire Park.

Today, we serve over 20,000 simultaneous users per day on 2500 access points. This number will continue to grow as the UNT World expands. Some proposed future Wi-Fi projects (that may come about depending on funding), are the new Frisco campus, the bowl of the Apogee stadium, the bowl of the Super Pit, the campus upgrade to wifi6 standards, a self-registration guest network, and possible way finding/asset tracking, just to name a few. As fast as this technology is changing, it is hard to predict where we may be in the next 5 to 10 years.

Happy Wifiing!!



Family  
members share a  
smell.

## Save BIG Money Using These Discount Sites... [Troy Bacon]

With the Holiday season coming upon us, now is the time to start searching for great deals. But where do you look for the best deals? Below is a list of web sites that offer daily or weekly discounts. Some of these sites compare offers from hundreds of stores. I recommend checking these sites daily... you may just find that perfect gift at a very nice price!!

TechBargains.com



Offers.com



Slickdeals.com



BensBargains.com



Newegg.com



Woot.com



CamelCamelCamel.com



DealNews.com



PriceGrabber.com



When retailers compete, consumers win. We can be thankful that the Internet allows us to shop around for the best price. Knowing where to look for the best deals will save you BIG money this Holiday season!



Princess  
Leia's hair in Star  
Wars was  
inspired by real  
Mexican rebels.

## VR in Sports Training [Zachary Collins]

Virtual reality has become increasingly popular with headsets such as Samsung Gear VR, Google Cardboard and Oculus Rift. In less than a year, it's already drawn attention and investment from venture capitalists and tech giants such as Facebook and has made huge impact across a great many industries, including sports. Sports is one of the domains where technology is being used in the most effective and aggressive way. We've already become used to the presence of augmented reality (AR) in sports. Think about watching football without the projected first-down line or hockey without puck tracking.

Now, with the sudden leap that VR has taken recently, the sport experience is being amplified and becoming more immersive in nearly every possible field, ranging from consuming content to training and recruiting athletes. Professional teams have long used the study of films to examine their own performance or assess opponents. But with the vantage point being much different from what a player experiences during the game, the results are not always optimal.

Now, coaches and players train better by watching and experiencing plays again and again in virtual reality. This is the idea that, along with a \$50,000 investment, got VR startup STRIVR Labs off the ground a year ago. STRIVR creates VR training videos shot from the player's-eye view of the action during practices. It then enables players to receive realistic, repetitive training by visualizing through VR headsets situations they will face on the field. For instance, in the NBA Andre Drummond center for the Detroit pistons has been using virtual reality to improve his performance at the free throw line. In the past seasons Drummond has averaged 38% from the line. With the help of VR training Drummond saw an increase in his shot percentage and over the last two seasons has averaged 60%.

In the NFL Quarterbacks can review the options and opportunities they missed by going through a play several times and reviewing each of their teammates' position This helps football teams prepare players for games without requiring their excessive presence on the field, where they risk being injured and exposed to summer heat. Teams can thus increase practice time without breaking the stringent rules that both the NFL and NCAA place on outdoor practice.

Virtual reality has yet to manifest its full potential in sports. The opportunities and possibilities are yet to be discovered, and we can expect many pleasant surprises in the near future. It would be an overstatement to say that virtual reality will soon eclipse real-life experience, but there's no doubt that it will transform the sports industry forever.



**Astronauts  
grow up to 2" in  
space.... look  
mum, I am 6'1"**



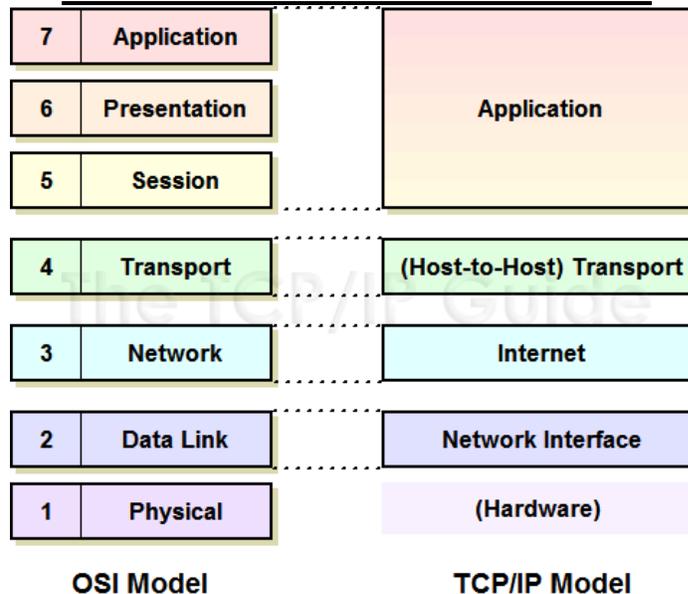
# Dancing and Technology Problem Solving Technique

[Matthew Trammell]

What do dancing and solving technology problems have in common? I am glad that you asked! Or, at least that you are intrigued enough to read on further! Many of you may know that I am an IT professional, but you may not know that I am also a ballroom dancer. After I graduated from UNT, I set a goal to improve my confidence and get out of my shell a bit. Long story short, I called Arthur Murray in Plano, TX and started my journey in the world of ballroom dance. About two years later, I found a smaller studio in McKinney, TX to continue my journey. I had some amazing instructors and met some great friends. Along the way, not only did I learn how to dance, I became a dance host, I taught private and group lessons for adults and teens, and ultimately, I accomplished my goal. I had very little musical knowledge before I started dancing and boy did I look like a robot, but what helped me learn to dance, was my technical knowledge. In this article, I hope to share with you some troubleshooting "technique" and how I was able to apply these similar techniques to learn how to dance. Who knows, you may come out of reading this article learning a dance step!

As an IT professional, I have several responsibilities. One of those, and perhaps my most favorite, is to help others by providing a solution to their technology problems. It may be a simple solution such as I walk in the room and everything starts working as if by magic. Aren't those the best? But, more often than not, I have to apply some troubleshooting techniques to come up with a solution. Perhaps the computer will not turn on, the computer runs slow, an application will not start, or a web page will not load. Your question might be, "Where do I start?" Good question! Now, please bear with me as I get a little technical and introduce two troubleshooting models. The first is the Open Systems Interconnection (OSI) model. The second is the TCP/IP (Transmission Control Protocol / Internet Protocol) model. The OSI model consists of 7 layers: 1) physical, 2) data link, 3) network, 4) transport, 5) session, 6) presentation, and the 7) application layer. The TCP/IP model has 4 layers: 1) network interface, 2) internet, 3) transport, and finally an 4) application layer. Cue handy chart reference below:

## OSI Model vs. TCP/IP Model



The TCP/IP model combines the session and presentation layers of OSI model into its application layer. Many claim TCP/IP to be the most practical model, whereas; OSI is the most theoretical. I could go on and on and on..., and on comparing these two models and telling you about all the fun protocols that you would find in each layer. However, the key points to remember is that each layer depends on the layer



Fish skin can be used to heal burns.

below it working and each layer supporting the layer above it. We are most familiar with the Application layer. In the context of troubleshooting, this is your operating system (OS), web browser, productivity application, such as Microsoft Word, and your favorite game application. Yet, without the lower layers, an application would not have any foundation to stand on. Layer 1 is the foundation layer. It is the physical computer and its internal components like the motherboard, CPU, memory, video card, network card, and hard drives. I use the term foundation because I believe that is where you start troubleshooting. What is algebra without operations and what are operations without numbers? So, "Where do I start?" Layer 1. The beginning. The basics.

It is important to cover the basics especially when providing support over the phone. So, you cannot view that website? Is your computer plugged in? Is your computer powered on? Is your network cable securely plugged in? Do you see blinking lights on your network port? Your router? Is your Internet provider working? What OS are you running? What browser are you using? Oh, Internet Explorer? Try Edge. "Modern websites run the best in Edge," said no IT support professional whatsoever. Use Chrome. Glad it is working! In all seriousness, Edge is a good browser. I even use Edge on my iPhone! But, that is a topic for another article. I realize that these basic questions are annoying. My wife loves it when I ask basic questions when I help her solve a technical problem. I know... I am even guilty of getting frustrated when I am on the phone with a technical support person trying to resolve one of my problems. Yes, I already tried that! I think that is sometimes why IT professionals skirt over the basic questions and try to figure out the "real" problem. And then, they realize that they should have started with the basics.

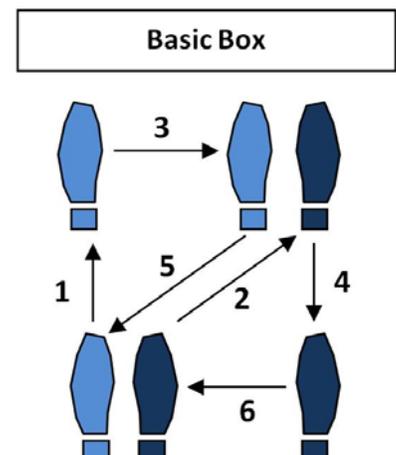
I spent a bit of time on troubleshooting technique. Hey, it is a technology article after all! I know that some of you may have quickly glazed over the troubleshooting section to get here. What in the world does dance and technology have in common?



One of my favorite ballroom dances is the Waltz. It is a beautiful and elegant dance that is fun to watch and even more fun to dance. If you try to take everything in at once and try to dance the Waltz basic box, you can quickly find yourself overwhelmed. There is the unnatural posture, the dance frame, and the 3/4 time signature. 3 beats per measure. 1 2 3, 1 2 3. When do I start moving? Wait, what foot do I start with? The rise and fall. Heel toe, toe toe, toe heel, toe heel, toe toe, toe heel. Rotating the box. And on top of all that... keep smiling? Where does this madness end?! Wait, I am supposed to be encouraging you to dance! My point is all this technique that I mentioned is all layer

stuff. Like an IT professional surveying the problem, we must step back and start with the basics. Start with Layer 1. The foundation. In dance, the foundation is the steps and the steps create patterns. The four basic steps are walking steps, side steps, triple steps, and rock steps. With these four steps, you can dance the patterns to many of the Ballroom and Latin dances. Also, in partner dancing there is a leader and a follower. The leader starts with their left foot because they get what's left. The follower is always right. That joke never gets old in the dance realm. In its most simplest of form, the box step is a combination of walking steps and side steps. Now find your dance partner and get into your best dance frame. Let us learn the Waltz Basic Box pattern.

The leader steps forward with their left foot (1), to the side with their right foot (2), and closes their feet together by bringing their left foot to their right foot (3). Leader steps backward with their right foot (4), to the side with their left foot (5), and completes the box by bringing their right foot to their left foot (6). See the foot pattern picture to the right. If you are leading, you will do 1, 2, 3, and then 4, 5, 6.



Walking  
catfish can walk  
across land  
between bodies  
of water.

The follower lets the leader lead and does the reverse. Follower steps backward with their right foot (4), to the side with their left foot (5), and closes their feet together by bringing their right foot to their left foot (6). Follower steps forward with their left foot (1), side with their right foot (2), and completes their box by bringing their left foot to their right foot (3). Again, refer to the foot pattern picture to the right. If you are following, you will do 4, 5, 6, and then 1, 2, 3.

Congratulations! You have learned the Waltz Basic Box Step! If you are feeling brave, you can try rotating your box counter clockwise as you step forward and backward. Now, relax your frame like the dancers below; you look rather silly in your competition ballroom dance frame! On top of that, unless you are dancing at a dance studio, you may look a little bit out of place.



Now once you feel comfortable at Layer 1, you can start adding on the additional layers such as dancing to the music, understanding the time signature, and starting movement on the first beat. Then there are other technique layers such as always stepping forward with a heel lead, reaching with your toe as you take your back step, and adding rise and fall. Rotation. And do not forget smiling! Smiling is my favorite. It is December, right? Too early? But do not feel overwhelmed. Do not get discouraged if you see someone dancing a complicated pattern. Honestly, there are some dancers out there that may dance complicated patterns, but technically, you can see that the layers are not there. Remember each layer depends on the previous layer working well. In both dancing and troubleshooting, practice, practice, practice helps you get better.

In conclusion, I hope that you have enjoyed reading this article and that you learned a little bit about troubleshooting technique and a little about dancing technique. So, what do dancing and solving technology problems have in common? My answer is layers. I believe that in many aspects of life, the ability to break things down in to smaller steps, or layers if you will, will get you far. A large goal can feel overwhelming, but, if you take that goal and break it down into smaller goals, that allows you to put one foot in front of the other and move forward and achieve your large goal. I hope that you have a wonderful holiday break and are able enjoy time with friends and family.



Darwin  
frequently ate  
the animals he  
studied.

# Configure kiosks and digital signs on Windows desktop editions

[Alexandra Martinez]

With many features that Windows 10 has to offer, Assign Access and Windows provisioning have made it easier for IT administrators to configure a device as a kiosk to serve a special purpose. Usually, such configuration can be found on a PC in a lobby to allow guests to browse the internet or a PC displaying visual content as a digital sign. Windows 10 offers two different locked-down experiences for public or specialized use:

**A single-app kiosk**, which runs a single Universal Windows Platform (UWP) app in fullscreen above the lock screen.



(Using Shell Launcher, you can configure a kiosk device that runs a Windows desktop application as the user interface. The application that you specify replaces the default shell (explorer.exe) that usually runs when a user logs on. This type of single-app kiosk does not run above the lock screen.)

**A multi-app kiosk**, which runs one or more apps from the desktop.



In this guide, we'll walk you through the steps to configure and manage a kiosk device.

## Kiosk configurations

Kiosk configurations are based on assigned access, a feature in Windows 10 that allows an administrator to manage the user's experience by limiting the application entry points exposed to the user.

There are several kiosk configuration methods that you can choose from, depending **which type of app will your kiosk run, which type of kiosk do you need, and which type of user account will be the kiosk account.**



FDR is the only President to have visited the "Gold Vault" at Fort Knox.

## Methods for a single-app kiosk running a UWP app

You can use this method	For this edition	For this kiosk account type
Assigned access in Settings	Pro, Ent, Edu	Local standard user
Assigned access cmdlets	Pro, Ent, Edu	Local standard user
The kiosk wizard in Windows Configuration Designer	Pro (version 1709), Ent, Edu	Local standard user, Active Directory, Azure AD
Microsoft Intune or other MDM	Pro (version 1709), Ent, Edu	Local standard user, Azure AD
Shell Launcher v2	Ent, Edu	Local standard user, Active Directory, Azure AD

## Methods for a single-app kiosk running a Windows desktop application

You can use this method	For this edition	For this kiosk account type
The kiosk wizard in Windows Configuration Designer	Ent, Edu	Local standard user, Active Directory, Azure AD
Microsoft Intune or other mobile device management (MDM)	Pro (version 1709), Ent, Edu	Local standard user, Azure AD
Shell Launcher v1 and v2	Ent, Edu	Local standard user, Active Directory, Azure AD

## Methods for a multi-app kiosk

You can use this method	For this edition	For this kiosk account type
XML in a provisioning package	Pro, Ent, Edu	Local standard user, Active Directory, Azure AD
Microsoft Intune or other MDM	Pro, Ent, Edu	Local standard user, Azure AD
MDM WMI Bridge Provider	Pro, Ent, Edu	Local standard user, Active Directory, Azure AD

## Summary of kiosk configuration methods

Method	App type	Account type	Single-app kiosk	Multi-app kiosk
Assigned access in Settings	UWP	Local account	X	
Assigned access cmdlets	UWP	Local account	X	
The kiosk wizard in Windows Configuration Designer	UWP, Windows desktop app	Local standard user, Active Directory, Azure AD	X	
XML in a provisioning package	UWP, Windows desktop app	Local standard user, Active Directory, Azure AD	X	X
Microsoft Intune or other MDM for full-screen single-app kiosk or for multi-app	UWP, Windows desktop app	Local standard user, Azure AD	X	X

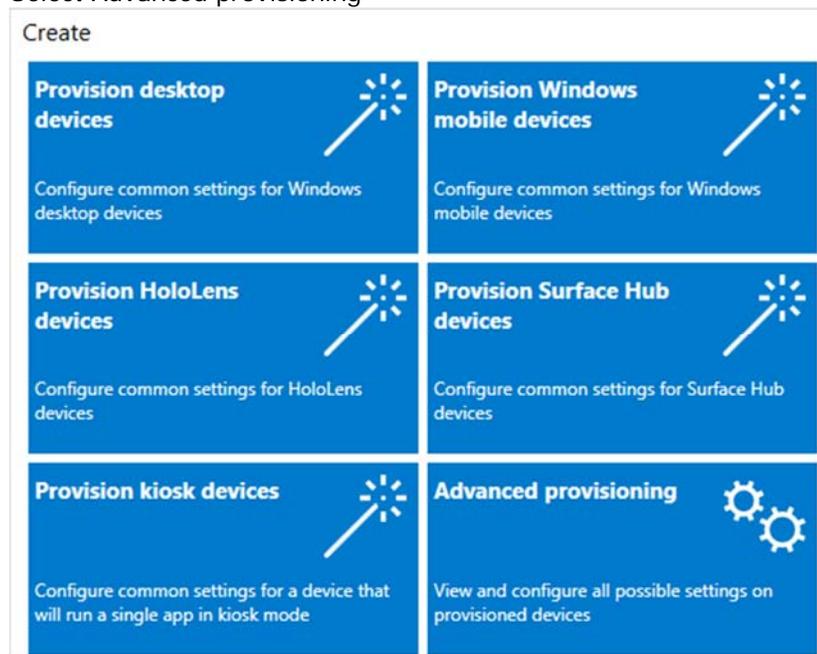


Dogs can smell fear.

kiosk with desktop				
Shell Launcher	Windows desktop app	Local standard user, Active Directory, Azure AD	X	
MDM Bridge WMI Provider	UWP, Windows desktop app	Local standard user, Active Directory, Azure AD		X

## Creating a Kiosk Package

1. Install Windows Configuration Designer
2. Open Windows Configure Designer
3. Select Advanced provisioning



4. Enter project name

The screenshot shows the 'New project' dialog box with the following details:

- Title:** New project
- Section:** Enter project details
- Name:** Project\_3
- Project folder:** C:\Users\demo\Documents\Windows Imaging and Configuration Designer (WICD)\Project\_3\ (with a 'Browse...' button)
- Description:** (Empty text area)
- Buttons:** Next

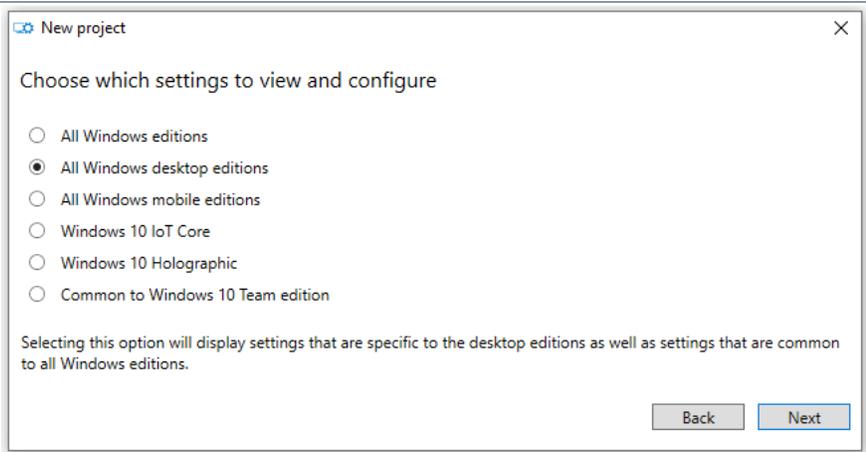
5. Select **All Windows desktop editions** and Next



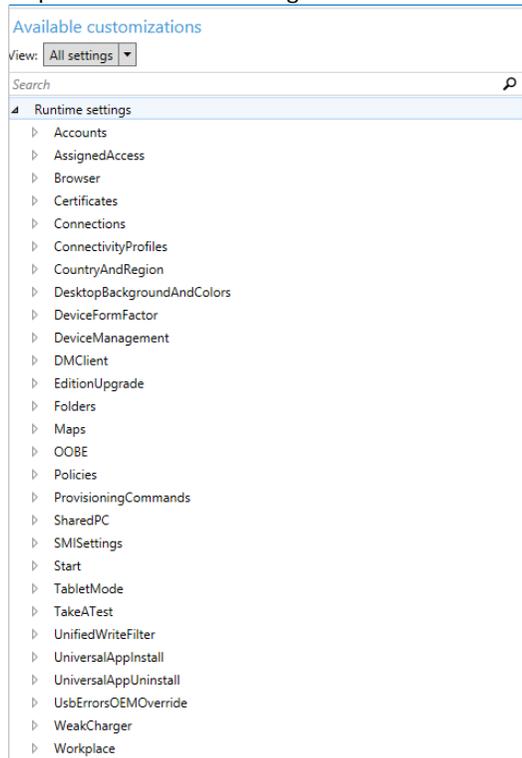
In the Canadian province of Ontario a law was passed prohibiting an apology to be used as an admission of guilt.



German  
Chocolate Cake  
was named after  
Sam German, not  
Germany.



6. Click Finish
7. Expand Runtime Settings to view **Available customizations**



8. Expand **OOBE**
9. Set HideOobe to **"TRUE"**

[OOBE/Desktop/HideOobe](#)



#### Hide OOBE Flow for Desktop

When set to TRUE hides the interactive OOBE flow for desktop.

10. Expand **Policies**
11. Expand **ApplicationManagement**
12. Set AllowAllTrustedApps to **"Yes"**

[Policies/ApplicationManagement/AllowAllTrustedApps](#)



13. Expand **Update**
14. Select **AllowAutoUpdate** and set it to **"Auto-install and resart at specified time"**

 Eugene Shoemaker's final resting place is the moon.

### Policies/Update/AllowAutoUpdate

AllowAutoUpdate	Auto-install and restart at specified time
-----------------	--

15. Select ScheduledInstallTime and set time to the Hour of the day for installs to take place

### Policies/Update/ScheduledInstallTime

ScheduledInstallTime	1
----------------------	---

#### ScheduledInstallTime

Hour of the day for installs to take place, 0 is midnight.

Default value: 3

Minimum value: 0

Maximum value: 23

16. Expand **SMI Settings**
17. Select **HideAutoLogonUI** and set it to "TRUE"

### SMISettings/HideAutologonUI

HideAutologonUI	TRUE
-----------------	------

18. Select **NoLockScreen** and set it to "TRUE"

### SMISettings/NoLockScreen

NoLockScreen	TRUE
--------------	------

#### Disable the Lock Screen.

Boolean setting for disabling lock screen.

19. Enable Shell Launcher
20. Set DefaultCustomShell to "explorer.exe"

### SMISettings/ShellLauncher

DefaultCustomShell	explorer.exe
DefaultReturnCodeAction	No Action
Enable	ENABLE

#### Default Custom Shell

Default custom shell launched by Shell Launcher. The shell will default to cmd.exe if not specified.

Default value: cmd.exe

Maximum length: -1

Minimum length: 0

21. Under **ShellLauncher** expand UserSpecificSettings
- For Domain Account**
22. Select DomainUserSpecificSetting
23. Enter the Domain and username
24. Select username
25. Set **UserCustomShell** to application you would like to run in Kiosk mode
26. Set **Return Code Shell** to the action you want to perform when the shell is closed

UserCustomShell	C:\Program Files (x86)\Four Winds Interactive\Content Player\Signage.exe
UserReturnCodeAction	Restart Shell

**User Custom Shell**

Custom shell launched by Shell Launcher for the specific user. The shell will default to the DefaultCustomShell if not specified.

Maximum length: -1  
Minimum length: 0

## Perform an action when the shell exits

When a custom shell exits, Shell Launcher can perform one of four actions:

Action	Description
0	Restart the shell.
1	Restart the device.
2	Shut down the device.
3	Do nothing.

27. Select **UIVerbosityLevel** and set it to **“Do not Suppress”**

SMISettings/UIVerbosityLevel	
UIVerbosityLevel	Do not suppress

**Message levels for displaying status during Windows logon.**

Integer setting for Windows logon status display.

When the setting is configured, it is displayed in the **Selected**

Selected customizations

- ✕ Remove
- ▲ Runtime settings
  - ▲ OOB
    - Desktop
      - HideOobe
  - ▲ Policies
    - ApplicationManagement
      - AllowAllTrustedApps
    - Update
      - AllowAutoUpdate
      - ScheduledInstallTime
  - ▲ ProvisioningCommands
    - PrimaryContext
  - ▲ SMISettings
    - ▲ AutoLogon
      - DomainName
      - Enable
      - Password
      - UserName
      - HideAutologonUI
      - NoLockScreen
    - ▲ ShellLauncher
      - DefaultCustomShell
      - DefaultReturnCodeAction
      - Enable
      - UserSpecificSettings
        - ▲ DomainUserSpecificSettings
          - ▲ Domain: unt
            - Username: fwplayer
              - UserCustomShell
              - UserReturnCodeAction
      - UIVerbosityLevel

**customizations** pane.

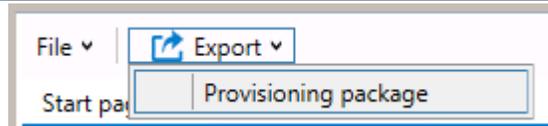
28. After you're done configuring your customizations, click **Export** and select **Provisioning Package**.



Did you know  
IKEA stands for  
Ingvar Kamprad  
Elmtaryd  
Agunnaryd?



Vikings gathered at meetings called "things" to make legal decisions.

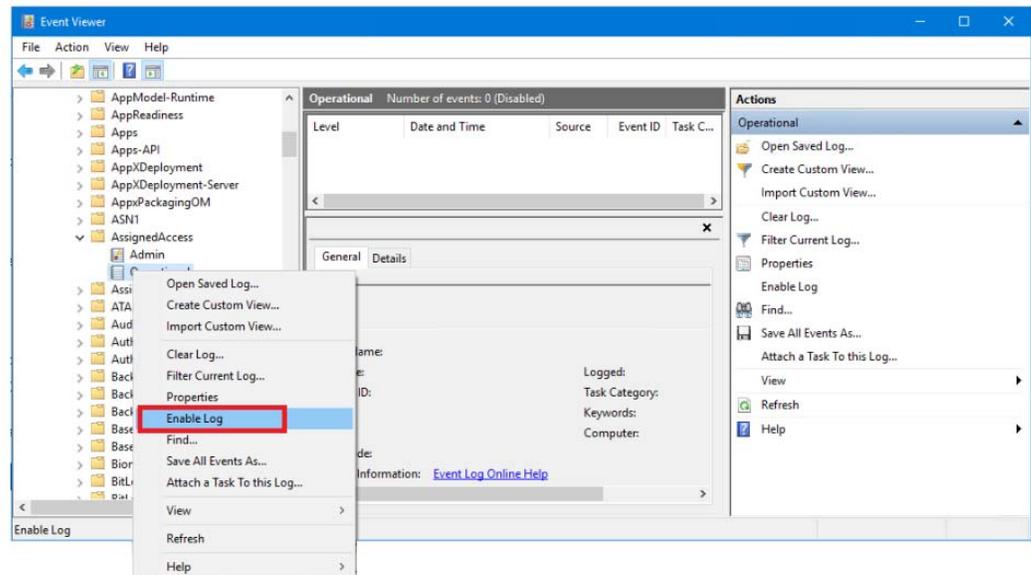


29. In the **Describe the provisioning package** window, enter the following information, and then click **Next**
  - a. **Name** - This field is pre-populated with the project name. You can change this value by entering a different name in the **Name** field.
  - b. **Version (in Major.Minor format)** - Optional. You can change the default package version by specifying a new value in the **Version** field.
  - c. **Owner** - Select **IT Admin**. For more information, see [Precedence for provisioning packages](#).
  - d. **Rank (between 0-99)** - Optional. You can select a value between 0 and 99, inclusive. The default package rank is 0.
30. In the **Select security details for the provisioning package** window, you can select to encrypt and/or sign a provisioning package with a selected certificate. Both selections are optional. Click **Next** after you make your selections.
31. In the **Select where to save the provisioning package** window, specify the output location where you want the provisioning package to go once it's built, and then click **Next**.
  - a. By default, Windows Configuration Designer uses the project folder as the output location.
32. In the **Build the provisioning package** window, click **Build**.
33. When you are done, click **Finish** to close the wizard and go back to the Customizations page.

## Prepare a device for kiosk configuration

### Enable Logs

1. Open Event Viewer
2. Navigate Applications and Services  
Logs\Microsoft\Windows\AssignedAccess\Operational
3. Enable Log for Operational



### Enable Auto Logon

1. Run autologon.exe, fill in the dialog, and hit **Enable**.  
**\* if the shift key is held down before the system performs an autologon, the autologon will be disabled for that logon.**  
<https://docs.microsoft.com/en-us/sysinternals/downloads/autologon>



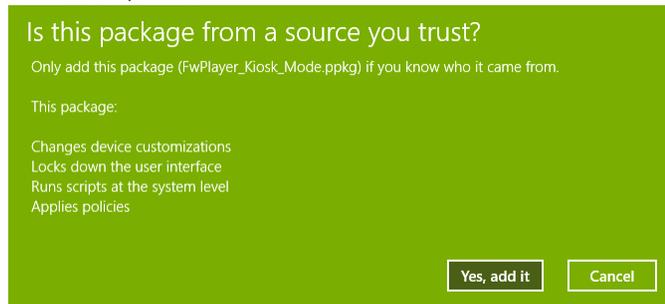
The Pillsbury  
Doughboy's  
name is Poppin'  
Fresh.

## Applying Kiosk Package

1. Copy Kiosk Package Folder to Desktop
2. Double Click Kiosk Mode

Autologon	11/11/2019 10:15 ...	Application	136 KB
customizations	11/11/2019 10:19 ...	XML Document	5 KB
FwPlayer_Kiosk_Mode	11/11/2019 10:19 ...	Security Catalog	1 KB
FwPlayer_Kiosk_Mode.icdproj	11/11/2019 10:19 ...	XML Document	1 KB
FwPlayer_Kiosk_Mode	11/11/2019 10:19 ...	RunTime Provisio...	17 KB
ICD	11/11/2019 9:45 AM	Text Document	242 KB
ICDCommon	11/11/2019 9:45 AM	Text Document	52 KB
SettingsMetadata	11/11/2019 10:19 ...	XML Document	522 KB

3. Click "Yes, add it"



4. Verify that the provisioning package is applied successfully. Go to **Settings > Accounts > Access work or school**, and then click **Add or remove a provisioning package**. You should see a list of packages that were applied to the device.
5. Optionally, run Event Viewer (eventvwr.exe) and look through logs under **Applications and Services Logs > Microsoft > Windows > Provisioning-Diagnostics-Provider > Admin**.

← Settings

## Provisioning packages

### Packages

Provisioning packages help set up your device for work or school.

+ Add a package

 FwPlayer\_Kiosk\_Mode  
11/11/2019 11:05 AM

6. Restart kiosk machine

## Troubleshoot kiosk mode issues

1. [Verify that the provisioning package is applied successfully.](#)
2. Verify that the account (config) is mapped to a profile in the configuration XML file.
3. Verify that the configuration XML file is authored and formatted correctly. Correct any configuration errors, then create and apply a new provisioning package. Sign out and sign in again to check the new configuration.
4. Additional logs about configuration and runtime issues can be obtained by enabling the **Applications and Services Logs\Microsoft\Windows\AssignedAccess\Operational** channel, which is disabled by default.



The  
Andromeda  
Galaxy has a star  
that explodes  
every year.

## Automatic logon issues

Check the Event Viewer logs for auto logon issues under **Applications and Services Logs\Microsoft\Windows\Authentication User Interface\Operational**.

### Apps configured in AllowedList are blocked

1. Ensure the account is mapped to the correct profile and that the apps are specific for that profile.
2. Check the EventViewer logs for Applocker and AppxDeployment (under **Application and Services Logs\Microsoft\Windows**).

### Start layout not as expected

- Make sure the Start layout is authored correctly. Ensure that the attributes **Size**, **Row**, and **Column** are specified for each application and are valid.
- Check if the apps included in the Start layout are installed for the assigned access user.
- Check if the shortcut exists on the target device, if a desktop app is missing on Start.

### Resources:

<https://docs.microsoft.com/en-us/windows/configuration/kiosk-methods>

<https://docs.microsoft.com/en-us/windows/configuration/kiosk-prepare>

<https://docs.microsoft.com/en-us/windows/configuration/kiosk-troubleshoot>

<https://docs.microsoft.com/en-us/windows/configuration/kiosk-validate>

[https://docs.microsoft.com/en-us/windows/configuration/provisioning-](https://docs.microsoft.com/en-us/windows/configuration/provisioning-packages/provisioning-install-icd)

[packages/provisioning-install-icd](https://docs.microsoft.com/en-us/windows/configuration/provisioning-packages/provisioning-install-icd)

[https://docs.microsoft.com/en-us/windows/configuration/provisioning-](https://docs.microsoft.com/en-us/windows/configuration/provisioning-packages/provisioning-packages)

[packages/provisioning-packages](https://docs.microsoft.com/en-us/windows/configuration/provisioning-packages/provisioning-packages)

[https://docs.microsoft.com/en-us/windows/configuration/provisioning-](https://docs.microsoft.com/en-us/windows/configuration/provisioning-packages/provisioning-create-package)

[packages/provisioning-create-package](https://docs.microsoft.com/en-us/windows/configuration/provisioning-packages/provisioning-create-package)

[https://docs.microsoft.com/en-us/windows-hardware/customize/enterprise/shell-](https://docs.microsoft.com/en-us/windows-hardware/customize/enterprise/shell-launcher)

[launcher](https://docs.microsoft.com/en-us/windows-hardware/customize/enterprise/shell-launcher)

## Add an additional layer of security to your online accounts

[Ron Acevedo]

Multi-factor authentication is a security process adopted by many online services, accounts, and applications requiring a user to provide two or more different authentication factors that confirm a user's claimed identity before access can be granted.

Three commonly excepted factors for authentication include:

Something you know, such as a password, zip code, pin or pattern.

Something you possess, for example a fob, ID card, cellular phone, or smart device.

Something physical to you, like your face, voice, fingerprint, or eye.

Two-factor authentication is a form of multi-factor authentication requiring the use of two of the above authentication factors before granting access. In example, access to the UNT Transportation Services Building is done through the use of electronic keypad card readers. To access a non public entrance to the building, a user must possess an ID card or fob in addition to knowing a unique personal identification number.

Two-step verification is yet another form of multi-factor authentication that does not require something you possess, or something physical to you, but rather something you know, your password for example, in addition to a one time password or passcode sent to you via text message, voice, email, or through an authenticator application. If you have a gmail account, you may already be using this form of authentication. While this method uses two steps to verify a user's identity, the factors are not necessarily different.

Furthermore, biometrics, something physical to you, have come to play a key role in accessing many of the applications and smart devices available today. Apple, Android, and Samsung smart phones and tablets all provide the option of access using a password and fingerprint scan along with the ability to do the same for the many applications available for download to these devices.

From Microsoft, Google, and Apple, to Facebook, Twitter and Instagram, along with the myriad of applications available for smart devices, adding an additional layer of security to your online accounts is as simple as checking your account settings for a multi-factor authentication option. To see if a particular website offers a multi-factor authentication option, explore the site below.

<https://twofactorauth.org/>



The deeper  
the dimple in  
your wine bottle,  
the nicer and  
tastier the wine.

## Programming for everyone [Jonathan Piott]

Some articles tout programming as a must have skill for every kid. I don't know if that is really the case, but I do know programming can be a fun and creative outlet for many kids. This was certainly the case for me when I was a kid, and it is something that I enjoy sharing with my kids. Actually putting the puzzles pieces of a program together and getting a website, game, animations, etc. as a result is important, but it doesn't start there. There are foundational skills that can be learned before any lines of code are written.

As early as preschool age, kids can learn the concepts of sequence, logic, and problem solving many ways, but the best way my kids learn is through fun and games. The UNT media library has board games that focus on learning these skills in a fun way and are specifically made for kids. You can check out these games like Robot Turtle and Code Monkey Island as an employee or student for free. These also have the benefit of teaching and learning without the distraction of a screen.

As kids get older, they will be ready to start to actually build programs. My favorite resource for teaching kids is code.org. They are a non-profit dedicated to providing the opportunity to learn programming to everyone. They have many guided courses based on age and reading level, and it is really easy to walk kids through these courses even if you don't have any programming experience yourself.

For adults beginning their programming journey, code.org still has some good resources to follow along with. Also, UNT provides free access to LinkedIn Learning(formerly Lynda.com) which has many professional courses on a variety of programming related topics. That should keep you learning for a long time.

This is just a small amount of information and resources that is available out there, but the most important step is the first one. If you are interested in learning or teaching the basics of programming, I hope this article was helpful. Links are below.

### Resources:

Robot Turtle - <https://bit.ly/2KqrCfA>

Code Monkey Island - <https://bit.ly/2qSThPJ>

Code.org - <https://code.org/student/elementary>

Scratch - <https://scratch.mit.edu/>

LinkedIn Programming Learning Paths - <https://bit.ly/376PnTQ>



Polar bears  
run faster than  
professional  
football players.

## Cloud Rebound – Edge Computing [Jason McMullen]

What goes around, comes around.

Before Cloud computing, processing and storage of information was handled locally by a distributed set of systems, data centers, and networks. In what feels like a long time ago (it wasn't really that long. Maybe 10 years or so), scalability and convenience brought the Cloud forward as the prevailing meme to beat. But it may not be enough to move us forward into the IoT future...

Edge computing is an information architecture that hopes to usher in the new communication revolution. A world of self-driving cars, artificial intelligence, virtual reality, and internet connected toasters, etc.

Now, Cloud computing isn't dead. It has many useful purposes. It has furthered technology's reach the entire time that it has been en vogue. But the bandwidth required for the Internet of Things is costly and latency-ridden. That's where the Edge comes in.

Edge computing moves the processing and data storage back to local locations. Only select or relevant data is sent back through the gateway to the cloud or other remote locations.

This delivers a much faster response, cheaper operating costs, and local scalability. Resources behind the gateway can be dedicated and don't need to share with other systems, customers, or phone home across the county.

Well, you might say, what about 5G networks? Won't they address the latency concerns with increased bandwidth?

Maybe we don't need the Edge after all...

Not so, say the 5G providers. They are already working to incorporate Edge technology into cellular networks. Latency would remain an issue without Edge support. So let us welcome our new localized systems back just like we would an old friend.



**Alcohol  
makes your body  
think it's being  
burned.**

## The Robots Are Taking Over (?)

[James Taylor]

Robots probably don't cross our minds very often as we go about our daily lives. When they do pop into our heads, we typically imagine something like Rosie from the Jetsons, R2-D2 from Star Wars, or even the T-800 from Terminator. However, even though most of us do not come into contact with actual robots in any way, they do touch our lives on a daily basis in small but significant ways.

While robots maintain a place primarily of science fiction within our collective headspace, they have been in use in the manufacturing industry for decades. Nearly every factory on the planet now employs robots in some degree to manufacture their products: candy, toys, electronics, the list goes on. The first industrial robot to be used by a major manufacturer was employed by General Motors back in 1962. Since then, the use of robotics in varying degrees has exploded into ubiquity.

Steady advances in robotics technology over the last half century paired with highly sophisticated artificial intelligence have lately produced robots capable of performing a much greater variety of tasks beyond manufacturing. The mega-retailer Amazon.com uses robots in 26 of their worldwide fulfillment centers to assist with the picking, sorting, transporting, and stowing of packages. One example, which they call a drive unit, is a robot that transports packages around the fulfillment centers. Amazon employees 100,000 of these drive units.

Robots are also seeing increased use in the field of agriculture. Driverless tractors and sprayers, robots that pick fruit, and even sheep shearing robots have been in use for some time. However, certain types of tasks have been ill-suited for robots. Certain types of fruit, for example, are too easily damaged or are difficult for the machines to locate. Such tasks have typically fallen to humans to perform by hand. But recent developments in machine learning have made it possible, with the aid of cameras, for robots to "see" and carefully harvest the more delicate farm products. The Vegebot, developed at the University of Cambridge, is the first robot capable of harvesting iceberg lettuce. The robot is trained by a machine learning algorithm by being shown over a thousand images of ripe lettuce. In the field, it will scan the lettuce with a camera, determine whether it is ready to be picked, use a second camera to position a cage over it, and then cut the stalk with an air-powered blade, all without crushing or damaging it 91% of the time.

Though, like with many other advancements in technology, the increased use of robotics in industry is a double-edged sword. While they may make certain tasks more efficient or even take on undesirable jobs altogether, they are also replacing human workers in certain sectors. According to a report by Oxford economics, "machines are expected to displace about 20 million manufacturing jobs across the world over the next decade". Robots can work longer hours than a human and, due to the falling costs per unit, robots are becoming much cheaper than human workers. However, the same report also notes that moving to robotic workers also tends to generate new jobs just as quickly as they are automated. Time will tell how we benefit or suffer from the increased presence of robots in our lives. All the same, the robot revolution is here to stay.



**Archeologists  
have tracked  
Lewis and Clark  
by their bodily  
waste.**

## Holiday Shopping [Christopher Horiates]

It's that time of year again, where we open our wallets and buy gifts for the Holidays. It seems that every year there's a whole onslaught of new gizmos and gadgets. The must haves and can't finds that are marked up online. While this may be fun for some or a daunting task for others, finding that latest tech gift for that special someone may have unwanted or hidden dangers.

Just about anything "tech" we buy these days almost unavoidably gets "online". It could be directly through your home Wi-Fi, USB connection to your PC or by being paired with your phone's Bluetooth and the corresponding app. Either way once you're online where does that data go? How secure is that device? While these items seem fun, have you ever really thought about what could or does happen once you connect it?

While what I am writing about may be low in probability, it does happen. All of the smart toys could or do pose a hidden danger. Anytime you connect something to your home internet, USB or Bluetooth, you are possibly opening yourself up to having a compromise of data. There are a few ways this could happen.

They come preloaded from the factory with Malware. With this you connect with the preferred method and you are then infected, most of the time not even knowing it. From the technology side of things USB was designed for simply a data transfer. It has since evolved into a power and data port. When we plug in USB devices to charge them we could also be allowing them to have a data connection into your phone or your machine.

You may have noticed that some phones and computers allow you to set power only so no data is passed. This is a security feature for those very reasons. The device or toy could also never get firmware updates. That leaves it possibly exposed to bad actors to take advantage of a security flaw.

What are some ways you could protect yourself? Well for starters buy from reputable retailers and brands. Be wary of those too good to be true online deals. The big name brands in toy manufacturing are also good to stick with. The cheap knock offs, while they might cost less, could cost you more if a hack or data loss were to occur. With any of these types of toys they are only as good as the place they are made allows them to be.

With that being said if a large popular toy company has some bad actors or an infection in the assembly line, the toys go out bad. On the other end if a company gets hacked and or the software on the toy has a vulnerability that is left unpatched, then that can allow hackers into your network or steal information from their servers.

With large retailers and name brands if something were to happen most likely it would be in the news or you would be notified via email or social media. Good luck tracking down that pop up vendor who had a quick discount sale.

When setting up the accounts with the app or software, while you may use your personal email, create a password that is unique to the product. Don't use the same password you have elsewhere. That way if your account is compromised only that account is compromised and no other accounts would be.

Be sure you grab the app from the actual manufacturer of the product. Scammers like to take advantage of hot items and place fake apps that claim to be the real one in the app stores. This actually happened with a fake Amazon Echo app. It trended because so many people were installing it. If you happen to install something like this and provide your data, no telling where it's going.



Brain-eating  
amoebas exist.

The single easiest thing you can do, if it's possible, is change the default password on the device. Leaving it default, whether up to date or not, is the most common and easiest way devices are compromised.

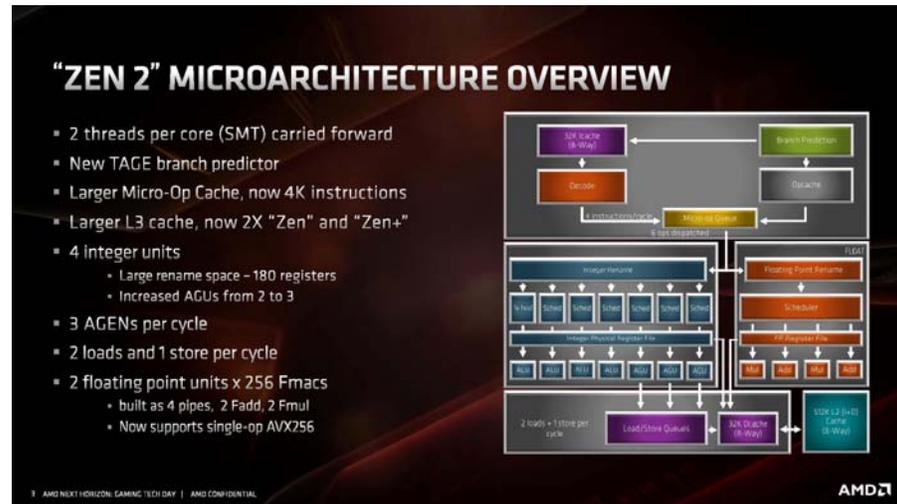
My intent is not to scare you but simply to inform you of what could happen. We have come to a point where we simply click agree, update now, install, click ok and so on without reading what it is will happen when we do. There have been entire organizations taken down by someone plugging in a thumb drive they should not have. Use common sense and if something seems off or too good to be true it probably is. To avoid any of the above scenarios stick with non tech items like we used to get before the internet came to be. Happy shopping!!!!



Sound travels  
four times faster  
in water than in  
air.

## Long Live the King [Patrick Kennedy]

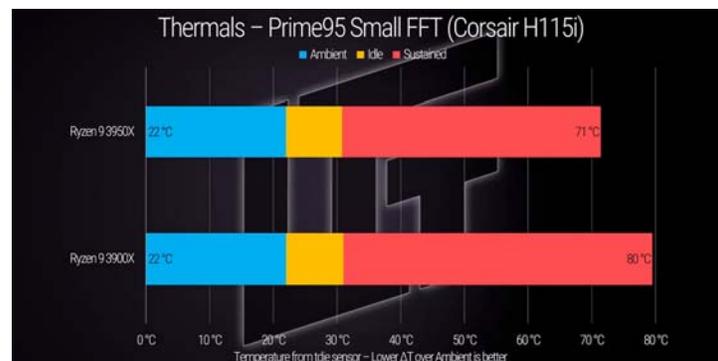
How AMD's Ryzen 9 3950X is fighting Intel for the gaming CPU crown AMD has been on a roll since 2017 with the initial release of their Ryzen processors. These processors introduced the Zen architecture as a successor to their troubled Bulldozer architecture in order to increase per-core performance. AMD has since released three generations, with the current generation being known as Zen 2 with a 7nm process node, a new TAGE branch predictor, improved load/store bandwidth, and more. This update allowed for a significant increase in single-threaded performance (where Intel previously was king), power efficiency, instructions per clock, multi-thread scaling, and more.



Source: AMD

AMD's previous architecture left many disappointed due to poor performance, misleading core counts, high power consumption, and a design that anticipated multi-threaded workloads that never quite arrived as predicted. This shortcoming allowed Intel to reign supreme for consumer gaming processors, and AMD's Ryzen aims to fight that.

Ryzen has been steadily proving itself in the market by offering incredible performance at a lower price than the equivalent Intel processor, and Zen 2 showed Ryzen matching (or even beating) Intel at single-threaded workloads. The recent release of Ryzen 9 3950X, a 16 core, 32 thread monster with a staggering 4.7GHz boost clock, shows that AMD really does have what it takes to dethrone Intel as the go-to processor for PC gamers. Where this becomes even more impressive is when you look at the Ryzen 9 3900X; this CPU had 12 cores and 32 threads (with 2 cores per die disabled for a total of 4 disabled cores), but ran fairly hot. The assumption was that if AMD were to move to a true 16 core, the thermals would be abysmal. However, Linus Tech Tips' testing showed the 3950X running nearly 10°C cooler than the lower core-count 3900X when both cooled by the same Corsair H115i cooler. The 3950X also manages to have a lower power consumption as well.



Source: Linus Tech Tips



The US Supreme Court houses a basketball court.

Furthermore, Ryzen 9 3950X continues to impress by being a strong performer in both single-threaded as well as multi-threaded workloads. The Cinebench R20 scores shows the 3950x absolutely crushing Intel's own \$1500 16 core i9-9960X in multi-threaded workloads, as well as matching or exceeding the performance of lower core-count Intel and AMD processors alike.



Source: Linus Tech Tips

What makes this processor so significant is the price: \$750. While that isn't necessarily cheap, you are getting better performance than the Intel i9-9960X for literally half the price. This processor helps further solidify AMD's offering of incredible performance at an incredible price. Just four years ago, if you wanted a high-end gaming processor, you would buy a 4c/8t Intel i7, and now we have a consumer grade true 16 core. AMD putting up a fight forces Intel to create new products and innovate, resulting in more products for the consumer to choose from. This competition is incredibly important, and only helps to make incredible performance available to more and more consumers.

If you are looking to build a gaming PC, now is a fantastic time to do so. Affordable hardware allows for a great gaming experience at virtually any price point, from \$500 all the way to \$3,000 and beyond. As time goes on, the resurgence in hardware competition will further improve the market to allow for even greater performance for less money, resulting in an even lower barrier to entry for PC gaming.



There is a  
rock that floats –  
Pumice!

## What do the UNT eSports facilities look like? [Dylan Wray]

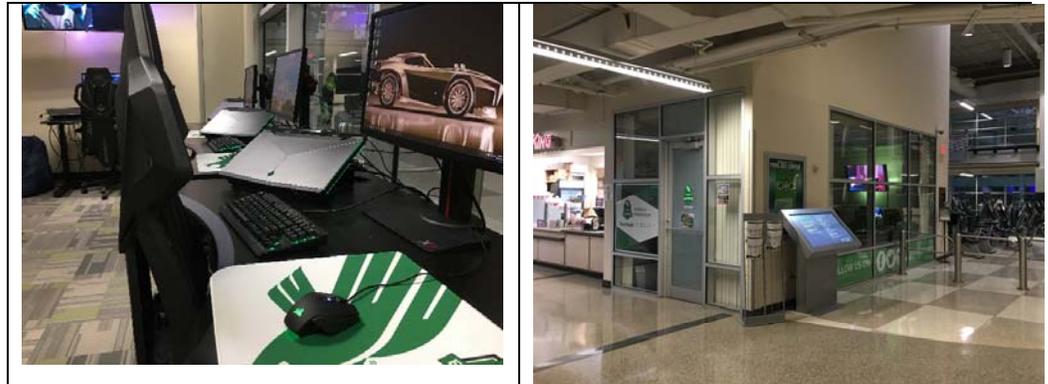
UNT has 38k+ students on our campus, which means we needed to craft programing and facility space to service as many students as possible.



Our first facility that is available for all students is the NEST and the UNT Media Library. It's a multi-platform facility that has 21 PC's, eight console stations, and a Vive and PS4 VR rig. This space is run by the UNT library system and is free to all students. Students can use a console or a PC for up to 4 hours a day and naturally gets a lot of foot traffic!

This is also where the majority of our large teams like Overwatch compete and practice during the evenings or when the facility is normally closed. Varsity teams get a semester advance scheduling, and the student sports club gets a week advance scheduling in the space. In an adjacent room, our students run our casting rig for our twitch channel, whenever our games are not covered by tournament organizers.

We also have a six PC NEST set up in our engineering campus so that students who are away from the main campus have a space to practice or relax in-between classes.



We're gearing up to be even better next year and are expanding to a third practice and performance facility that's reserved for just the varsity team. We're calling it the Eyrle and it's a single team practice and VOD review room!

This room unlike the rest, will be exclusive use for anyone on the varsity team. The facility is made possible by a collaboration with ViewSonic that donated 15 high end gaming monitors for our team members to utilize. The area located inside the Pohl Recreation Center provides practice and meeting space for UNT's Rocket League and Hearthstone teams. The Eyrle is also utilized for the teams to replay their matches to prepare for upcoming competitions.



Fireflies light  
up to flirt.



There are  
more card deck  
combinations  
than there are  
atoms on Earth.

We also pride ourselves in the large scale events we've put on in the last two years. In our Lyceum arena, we can fit up to 500 people to put on large scale esports events. Last year we hosted one of the first intercollegiate League of Legends tournaments on a college campus called the Texas Clash!

These events are broadcasted on twitch and draw in hundreds of views on our channel at these times! Our highest number was at our program's launch event in which 5,000 people watched our event with 400+ people attending live. Most importantly, we are using these events to teach students how run esports events, and with pride we can say that we've run 7 events that were student run, and plan to do 2 more in the spring of 2020.

At UNT we're very committed to creating an esports scene on this campus that is inclusive to anyone who loves to game and our dedicated facilities and departments on campus help us achieve this goal.



## Solution to last newsletter's brainteaser

*A snail is climbing out of a well. The well is 32 feet deep. Each day the snail climbs up 3 feet and each night the poor fella slips back 2 feet. How many days will it take for our intrepid snail to get out of the well?*

If you said that on day 30 our intrepid traveler would be out of the well and be spending the night out of the well, then you would be correct. Our snail traveler climbs 3 feet each **day** and each **night** he loses 2 of those feet that he climbed. His net gain during a day/night period is 1 foot. On day 30 he would be starting from a height of 29 and will climb 3 feet that gets him out and during the night since he is out of the well, he will not slip back.

### Bonus Brainteaser:

*Abyssinia is to Ethiopia as Burma is to Myanmar? (Cambodia, Persia, Myanmar, Kampuchea, Benin)*