

Welcome to the Event Tech podcast, where we explore the ever evolving work of event technology every week. This show is brought to you by Endless Events, the Event AV company that doesn't suck. Now, let's talk tech.

Brandt:

Hello everybody and welcome to another edition of the Event Tech podcast, that gentleman right over there is Will Curran of Endless Events.

Will:

And that guy talking about me is the icky Brandt Krueger.

Brandt:

Icky? Man. Is there anyway you can get a positive adjective generator instead of-

Will:

I'm wondering if I can put sentiment analysis on it. And maybe I can set it to only pick positive adjectives. No, I just get ... it says I can choose quantity, and I can choose duplicates. Maybe I'm going to have to build an adjective generator. The Event Tech podcast adjective generator, that way everyone can participate at home.

Brandt:

Or we get a mulligan, where we're like no, no we're not going to use that one. I think toothsome is still my favorite.

Will:

Toothsome. I don't remember what episode that was.

Brandt:

It came out relatively recently as we're recording this, but ... is that really what we came here to talk about today? Did we come here to talk about adjectives, or is there something actually event tech related that we want to-

Will:

No there's definitely something event tech related, and for once I think we'll actually talk about event tech on this podcast. But no, the concept and the idea that I kind of had is that this last week I actually brought a backup solution for my data, and so I thought wow, this is so important and I was thinking a lot about it and just realized how little people probably are doing this sort of thing, so I figured why don't we talk a little about backups, and how it relates to event technology specifically?

Brandt:

It's a great topic, and I'm really glad you brought it up, because I think we ... when we're dealing with events, we get a lot of planners, that are used to certain kinds of backups rights, we're used

to okay what do we do, if it rains? And we've got, we're planning on having something out on the front lawn, and what do we do if it rains? Some planners start to go even a little bit further down the road, depending on how meticulous they are. Dealing with things like okay what happens if there's a national emergency, right? We have an emergency plan in place, in case something happens. That's kind of backup.

Brandt:

Sometimes we deal with backup venues, complete backup venues like okay, that venue literally won't work if X, Y and Z happens. But it seems to be much more dealing with venues and spaces and things like that, and less about data and equipment. So that's why I thought it was a good idea to maybe start to expand and think beyond what do we do if it rains, and start to deal with what do we do if-

Will:

If it rains on our technology?

Brandt:

Right, right. If it rains on our parade, as it were, metaphorically speaking if it rains on our technology. Because as we all know, rain and technology don't mix.

Will:

Nope, not at all-

Brandt:

So tell us about the NAS. First of all, we got a jargon jail situation there, what is a NAS and then I think you need to tell the story of why it came to be that you've purchased a NAS?

Will:

Oh yeah, yeah. Did I even use the word NAS? I was really trying to avoid using that term. But NAS is a network attached storage. So we all know what a hard drive is right? I think that's pretty commonplace right, when it comes to that piece of technology. It's where you store your data and everything like that. We're all used to having hard drives inside our computers right? And you're probably well aware of an external hard drive, right? Where you plug a hard drive into maybe the USB port of your computer, and you can unplug it, plug it into another computer, or flash drives, things like that.

Will:

Now you're ready for that next step, which is backing it up outside of your computer, outside of an external hard drive that's plugged in via USB. And probably the most common one that people know is called the Time Machine, a product created by Apple that essentially plugged into your network, and then every time you hopped on a network, your computer backed up to it, magically. Which was really, really cool. And I think props to them for creating that really awesome product, because it was just so easy to use.

Will:

Well the general term that that Time Machine, that product, would fall under is called a Network Attached Storage. It's the idea that normally a hard drive would either be in a computer, plugged in via USB, instead you connect to this hard drive via your wifi, through your internet, basically through the network that you have. So really cool about this, is that you don't have to actually physically have it. So if your computer ever got lost, or stolen, you still have a completely separate device that's holding all the data. Right? And it's also so easy, because you can access it anywhere, you can set it so when you get home it automatically backs up your computer, there's a lot of really cool things to do for it.

Will:

So the reason why I ended up purchasing one of these, actually, was because of a very unfortunate thing happening, which was that I actually lost a hard drive. Hard drive failed on me. And luckily, it wasn't a client-based one, we do a ton of back ups on our clients stuff, it was actually for an Endless specific hard drive. Essentially, I had a hard drive that one of our video editors used, and we stored all of our bulk footage on it. Keep in mind too, they technically are working on their computers, and this is supposed to be the backup for their computers? They had all of our footage, from all of our events, all of our testimonials, it was kind of like our B-roll, moving hard drive. And we all took care of it, very, very well. No one dropped it, no one ever hurt it any, no one lit it on fire, didn't get in a car crash.

Will:

And I remember we were done with a bunch of projects, we're like "Oh hey, I'm going to get that footage, and I'm going to back it up on Google Drive, can you give me that hard drive?" And put it on the internet, on the cloud. And I got the hard drive, I plugged it in and it was like 'could not recognize hard drive'. And I was like huh, okay, I maybe got this hard drive when I had a Mac, now I have a PC, maybe that's what it is. So I used a software that was supposed to read it, still couldn't read it. I'm like okay, maybe it's my computer. So I try another computer, that one didn't work. I'm like okay, maybe it's the fact that I'm using a PC. So I borrowed one of my friends Mac Books, plugged it in, it didn't recognize it as well. I'm like uh-oh.

Will:

It was really weird, it was really, really weird. It recognizes it being plugged in, it shows up as the G drive or whatever it is, but I literally can't ... every time I open it it's like can't open anything that's on here. So, what ended up happening is I found, I looked up data recovery companies, which there's a lot of them. And god bless their souls. And they're really cool, what they can do, and maybe we'll link to a video talking about how data recovery works, but we don't ever want to get to this point. Don't ever get to the point where you have to worry about data recovery, because I submitted it and I was thinking this would be a really easy problem, the data's obviously there, shows that it's occupying, I'm hoping it's just like oh hey, maybe a chip is broken let's just fix that. I don't know how data recovery works.

Will:

So they email me back and they say hey we did the free diagnostic on it, you know, here's all the things wrong with it, or here's the one thing wrong with it. And it's literally, the way they described it, it sounds like they have to almost turn on a switch just to get it to recognize the data, and they're like yeah and it's going to cost you \$1700.

Will:

And it's one of those things where you have to sit there and debate, is this data worth \$1700 to me. And obviously it's like five years of video content from our events and shots of us building stuff, basically priceless data, that sure I could pull from the existing final renders and things like that, but it would be gone forever. So I made the decision to obviously do that, and just to give an idea, that hard drive was like an eight terabyte hard drive or so, not necessarily huge.

Will:

I brought a network attached storage unit, that stays in my closet, that's off of my computer, that's going to be in the most safe place possible, as long as my apartment complex doesn't burn down, and even then there's backups for those backups, but it's all on there and I have 16 terabytes of backup on there, and it basically cost me \$1700. So this backup, if I had done it in the first place, would have a. Had more storage space, but more convenience because I can access it anywhere, and it can do a bunch of other cool stuff, and it costs the same much as just to recover one darn hard drive, that probably doesn't even have the full eight terabytes of footage, it was probably only like two terabytes of footage.

Will:

And so that's my sad story of why you end up getting backups, is because you end up making a mistake and then you sit here in hindsight and say "Man, that's never going to happen to me, I take care", again we didn't drop the hard drive, it didn't get caught in a fire, it literally just stopped working.

Brandt:

It's unfortunate, like you said, the majority of time when people put in a backup plan is for that reason. Because they got bit, they got hosed. And it's the worst time to possibly do it right? Because after that you've already spent the money, you've already tried to recover it or fix it.

Brandt:

I had a similar situation with a work machine at my old ... it was one of our production video desktops, and lost a ton of client footage and things like that that was on there. Because we weren't doing proper backups. I personally was not doing proper backups, I'll take the hit for that. And yeah, we had to do even more expensive run on that, it was several thousand dollars to recover that hard drive.

Brandt:

I will throw out, just while we're on the subject and then we can kind of expand out a little bit, but while we're on the subject, there is an option I frequently spoken on the various shows about a security researcher named Steve Gibson, who runs the Gibson Research Corporation, and he is old school security guy. He has a product called Spin Right, and Spin Right is like the ultimate hard drive recovery tool. So the fact that your drive was still mountable means this probably would have worked for you, which I know is not going to be much comfort for you, now that you've already spent the \$1700.

Brandt:

But Spin Right Six, a copy of that is actually \$89. But it's a little geeky, it's not meant for the average person to plug it in and make it go.

Will:

The screenshots here are like Windows XP on here, so that's how you can tell it hasn't changed.

Brandt:

It literally hasn't changed and it still works, that's the thing, is it literally ... he's in the process right now of doing Spin Right 6.1, but Spin Right 6 hasn't changed for like ten years. Because the fundamentals of hard drives haven't changed in that time. How hard drives work hasn't changed in any of that time. And this is like machine level access that it does. You have to boot up in DOS, and make it go.

Brandt:

You probably would have been able to do it, because you've got a desktop PC, but you can't just do it by plugging it into a Mac or something like that. So anyway, just wanted to throw that out there as an option, it's a bit geeky, you kind of need a desktop, you can open up and take the hard drives out and plug in and get access from the really low level access, you're not going to be able to do it from Windows.

Will:

Interesting.

Brandt:

If you've got the time, and an eight terabyte drive, that would probably take three days to chug along.

Will:

Yeah, that's the thing I learnt too, I thought oh hey they just do this quick fix, they're like it's probably going to take a couple of days worth. And now I understand why they're charging the money for it, because they're like yeah.

Brandt:

It's like bit by bit. And you know what, they probably were using Spin Drive.

Will:

Probably.

Brandt:

Because it's like the thing. So anyway, I just wanted to throw that out for our audience, it's a little geeky and if anybody ever gets into that position, and wants to ping me, I'm more than happy to walk them through what needs to be done in order to recover a drive. As long as the computer can see the drive, there's a good chance that Spin Right would be able to fix it.

Will:

Brandt you're like the Taken guy off data. You're like "I will find you and I will recover your data".

Brandt:

If you need help, I will help you. Recover your data-

Will:

I love it. Okay, so let's bring this back full circle to data. I think everyone's probably at this point is well aware, have heard someone who's lost data or things like that. So maybe we talk about what sort of solutions there are, and maybe how people can use this to backup personal data, and a lot of this can be applied to company data as well.

Will:

Maybe we talk a little bit about how that's possible?

Brandt:

Yeah that's what I was kind of thinking is we can expand out a little bit, because I think there's a bunch of different kinds of data out there, that we want to make sure people are thinking about. So in your instance, it wasn't necessarily client information, but that's something that we want to think about as well. So typical event, maybe we're recording the general sessions or things like that, those are being recorded on higher end video specific hard drives. I don't know how would you describe an AJA drive, it's a box that's really designed to record instantaneously all of the video with as high a quality and as little compression as possible. Does that sum it up?

Will:

Yeah, it's not just recording to a USB, plug in drive. And then like nowadays too, we have the hyper drive system, made by Black Magic, which actually uses more standard solid state drives like you would actually have in your laptop, or have in your desktop computer, what's great about them is that they're hot swappable and all these things like that.

Will:

But again, these are not cheap hard drives. An AJA drive is like a couple hundred dollars, the solid state drives that they use in the hyper drive system is a little bit more expensive as well. Yeah, definitely high end, fast hard drives.

Brandt:

So where I was going with that, so at the end of the day right you're going to .. the AV company ... they're not going to hand you those drives, because like you said, those drives are incredibly expensive and only for those purposes. So at the end of the day, they're going to copy that footage from that original drive and throw it on your typical external hard drive, and then at the end of the show, they're going to hand you that hard drive.

Brandt:

Now if they're good, and they're doing their job, and I'm sure you guys do all this the time, you're going to then make your own copy, the AV company's going to make a copy as well. And because you're not going to-

Will:

Sometimes. Sometimes.

Brandt:

Depends on the uses, depends on the purposes, yeah fair enough on that. But what you're going to do is eventually you're going to reuse those AJA drives, you know? You're not going to just stick those in a closet and never touch them again.

Will:

Correct, yeah.

Brandt:

And they could be rentals, they could be all kinds of things. But the point being is that once those AJA drives are reused, that footage is gone. So they're handing you a copy on an external drive, and if you're lucky, and if they've arranged it, they'll keep a copy for a certain amount of time.

Brandt:

So a lot of times AV companies will say we'll hang onto that for six months, unless you need us to hang onto it longer, in which case you're going to have to pay us a little something, to hang onto your data for an infinite amount of time. That's fairly common. Or if they hang onto stuff, there may be an archival fee or an un-archiving fee, or something along those lines as well.

Brandt:

Point being, once they've handed you that drive, what do you do with it? And the first thing that I tell people, as I hand them the drive at the end of the event is as soon as you get this home, make a copy. So that you've got more than one copy. So that you've got a copy, if you're lucky

the AV company's keeping a copy for a certain amount of time but you have two copies right away, so that if for some reason something happens to that first drive, you've got it somewhere else. So maybe you would copy it over to your NAS, if you had one, or something along those lines.

Brandt:

But at the very least, got to get that second copy made right away.

Will:

Totally. I think you bring up a really good point, and actually I realize, I don't think I've ever talked about this on any of our shows before, but the idea of hard drives and that kind of process, I don't think many people think about it. But I think the important thing to know that you bring up is when we copy that over, you also need to make sure in your quoting process, if you want us to hang on to a copy and have a backup, you need to make sure that we're going to do that ahead of time. Because to be honest, that cost, obviously the hard drive to hold it, it takes man power, it takes us to organize it, there's costs associated with us holding onto that.

Will:

And you want to make sure, that most companies, I know for a fact, just will copy it over, hand you the hard drive and then wipe those AJA drives or those hyper deck drives, and it's gone. You won't get it ever again. So if you are looking, for example I have a client who's like "Look, I want you to just take all that footage and upload it somewhere so I can access it via the cloud", you have to ask those questions right away. And make sure that you understand that process of ... that data, once it's wiped, it's gone, and you have to let us know how you want it handled and everything like that.

Will:

Because otherwise, we're just going to copy it onto an external USB hard drive, hand it to you at the end of the show, and then you know, it's up to you to do the second process, which I love that you said yeah, back it up immediately upon getting it. Or ask maybe your AV company to make two copies of it, pay a little bit extra to get two copies so the back ups already done then at the point.

Will:

But also the important thing I think on that same note is realize that copying that data takes a lot of time, we're talking-

Brandt:

Exactly what I was thinking, as soon you said a second copy I'm like you're lucky to get that first copy by the end of strike.

Will:

Yeah, totally, totally. Yeah, absolutely. I think just make sure that you build in that time. And understand too, so I've heard this multiple times from clients, is "Oh my gosh, the company took forever to get us footage". It shouldn't take forever. It should take maybe maximum, if they're traveling and things like that, a week maybe to copy the footage, because they have to copy it, they have to wait overnight probably for it to copy, then they're going to verify it's all good to go, but a lot of times too if you're like "Hey I need this at the end of the show", they can build in a plan to make sure they get it to you at the end of the show. Most companies will try to get it to you at the end of the show, because they're like I want this off my hands as soon as possible, I need to wipe these drives because they're going to another show, and I need that free space on that hard drive.

Brandt:

It's yet another example of just making sure that you're having solid communications with your AV team. Never assume that they're doing any of this, you have to be able to have this conversation, never assume that they're keeping a copy. Especially with more and more emphasis being put on data retention policies and things like that, is really important that those conversations are being had explicitly, saying do you retain a copy? Are you planning on keeping a copy? If so, for how long? Whether that's video, or now we start getting into assets and things like that, whether it's PowerPoints, things along those lines.

Brandt:

A lot of times those machines being used are rentals, so you're getting them from a PC rental company, or it's just something that the AV company uses and they use over and over again. Those frequently get wiped in between shows, so never assuming that the AV company is hanging onto a copy of the presentation that was used, the final, final underscore final version to final, of the PowerPoint that got used in the general session.

Will:

Absolutely. Absolutely. Yeah, I think you bring up super good points, it's all about communication, because anything is possible, anything can be done, it just has to be discussed ahead of time. Otherwise, we're playing he said she said, oh my gosh, I wish we had talked about this, all that sort of stuff.

Brandt:

So that's show assets right? So we're talking about show assets, we've got the video that's coming from being recorded, you've got videos that are being provided, a lot of times those are coming from disparate entities right? So this is coming from marketing, that's coming from one of the sponsors, that's coming the other thing. That's another part of that communication, that frequently it's easy, as they're handing you that hard drive with the footage, that they drop all of that stuff on there as well, so at the end that hard drive that you're being handed by your AV company not only includes the footage, but will also include all of the final assets, including all videos, all PowerPoints and anything else that was used for that show.

Brandt:

But again, don't assume, you got to have that conversation and say "Hey can you throw all that stuff on there as well?"

Will:

Yep, I love it, I love it. And I think that you bring up a really good point then, if you're cool with me transitioning, is what should that be, process of handling it, moving forward? And I think that we have a lot of solutions potentially available to us, but obviously I'm on the network attached storage train right now, because I got one.

Will:

But I think that it's really important for you to have kind of three sets of backups right? You have the original external hard drive, keep in mind that these hard drives, as much as they are great, and sometimes they're really expensive, there's always the potential that it can fail, even if it's just sitting in a closet. Something to keep in mind.

Will:

So immediately, take it and put it on some sort of, another hard drive, or things like that. You can easily just copy to another hard drive if you want to, or in my case, I would love for you to put it on a network attached storage unit, because that way you can access it anywhere, you can access it ... you don't have to be connected to the computer, and they're also designed for these huge volumes of data.

Will:

The third thing that you should do, when it comes to your data is put it on the cloud. In the cloud, as much as we want to all praise, that's amazing, and we hope that Google's backing it up, the cloud should be one of your backups. You should always have two completely separate locations, because let's say for example, some master hacker out there figures out how to crack Google something or other, and they delete all of Google Drive's data. And all the backups. What's going to happen next?

Will:

You're just like well, guess the world's going to end at that point probably. But definitely make sure that you have a backup. So one of the things I'm doing is my system allows me to take everything that's on my network attached storage unit, and immediately back it up onto Google drive. And it seems kind of redundant, you buy this expensive hardware, you own it, you don't have to pay extra fees for it, and you're also paying monthly for these offsite backup services or whatever maybe, but to be honest, as Chris Tillman is saying on the livestream, one is none as they say. And so if you think about, two is a great backup, then three is a really, really great backup.

Brandt:

It's three, two, one. Three, two, one is the backup strategy that most people recommend. So it's three total copies, two of which are local but on different mediums, all right, so your laptop and an external hard drive, or two different machines. And then one offsite copy. So three copies, three copies, two local, one offsite, is the easiest way to remember it.

Brandt:

That way, catastrophe happens, you're going to be fine. Because one way or another, you've got ... the two locations is really the big part. Whether that's the cloud or literally two physical locations, like two different offices, and we'll get into personal data, this applies to that as well. So that's the easy way to remember it, three, two, one.

Will:

I love it. I love it. So yeah, and there's so many different solutions out there. Is it okay if I start dropping some model names and things to check into?

Brandt:

Yeah I want to real quick before we dive a little bit deeper into that, just to kind of round out some of the even tee stuff, just to talk about ... we started about stuff that was coming incoming. So incoming to your event right, you've got different media coming from different places, now this isn't as big of a problem now that we've got cloud services like Dropbox and One Drive and Box and all these other things that are out there, but it's important to still realize that you don't want that being flopped in one location and then gone forever, right?

Brandt:

So thinking about only having ... having multiple points of failure. I always remember, and this dates me obviously, but I was traveling to an event and I had all of the materials for the event. I had all of the PowerPoints, all of the video, everything, in my possession. Now this was before we had Dropbox and things like that, and I missed my flight, and it's really the only time I missed my flight for sheer stupidity reasons, it wasn't because of weather or anything like that. And so I had to call my coworkers that were already there on site, and be like "Hey, I missed my flight, I'll be there as quick as I can, and oh by the way, I have all of the materials for the event".

Brandt:

So very early on, we started then having you have to have two different people carrying it. So if someone's going in early, and someone's coming in later, send what you have. If all the materials aren't in, that's great, but just send what you have with the early team, so that the later team are ... now that's still a good idea, even in the age of Dropbox and Box and things like that. Just throw what you have done on an external hard drive, and send it with the people that are coming in a couple days early, and then everything else you bring with you later, as other people arrive.

Brandt:

Just splitting it up, making sure it's in a couple different locations. It goes back to the three, two, one idea of even as we're bringing our assets to the events, making sure that it's coming from a couple different directions, and then mainly even still is out in the cloud somewhere in case of-

Will:

I think you bring up a super duper solid point, planners might be thinking now well what does this have to do with me? But this is all great questions for you to understand, so you can ask your vendors as well. Say "So tell me about this", and you can kind of see, like hey if they're just like "Oh yeah we always have a backup, we're good to go", ask them specifically, "Okay well are you bringing a hard drive? Is it going in the cloud?" All these things like that I think is really, really important.

Will:

Something that's really common, I just ... learning so much about this, because I've been really learning a lot of cinematography stuff, oh my god it's not even a word, definitely Friday today. And basically the idea that they always have is a lot of times they'll record onto two separate SD cards going into their cameras, and what they'll do is they'll copy it over on an SD card, they put one in one case, it goes in their backpack, and the other one usually goes with another person. Because in the chance that your backpack gets stolen, or your luggage gets lost, there's always that second copy.

Will:

Because a lot of times you don't get home to back it up onto the NAS and put it onto the cloud until you're at home with your fast internet connection, all your hardware and everything like that. I think it's super, duper a good point, and again, you won't know it until it happens to you, and then you'll freak out a little bit-

Brandt:

Exactly, exactly. Now I know you want to get into the nitty gritty of hardware, but I think before we do that, just want to emphasize a couple-

Will:

Yeah totally-

Brandt:

We kind of hit the importance of the event stuff, now a lot of the people that listen to the show and Event Icons are independent freelance planners, or they're planners within a company. You want to be sure you're finding out what your company's backup policies are, so if you're part of a larger organization, find out what their backup policies are, where are those things being backed up, and how do you keep your assets and your even your spreadsheets, all of that kind of stuff, for your registration, where is that all being backed up?

Brandt:

And then that starts to blur the lines into okay, well if you're a smaller company, a vendor, or a new event tech company or something like that, where are your files being stored? How are those being backed up? And that could be what we're going to get into in the hardware stuff, that could be a NAS, that could be something else, but also I just want to touch on the personal side as well. Because this is something that's also bitten me as well.

Will:
Totally.

Brandt:
Where the importance of backups isn't just for work, it isn't just for business, but the personal side as well. Where are all your photos? Are they out in Google Photo land? What happens if Google Photos gets closed tomorrow? It's not likely to happen, but Google has a tendency lately to just shut stuff down. For no apparent reason.

Will:
Hashtag still bitter.

Brandt:
So where are those files? I had a really nice groove going, where all my Google Photos were backing up to my Google Drive, my Google Drive was then being backed up locally. So I had a local copy of everything that was in my drive, which meant every photo that I added from my phone was automatically getting added to my personal backups.

Brandt:
Google just shut this off, or is about to within a week. So because they were getting such feedback, because people were so confused because their photos were in their Drive, and you got my peanut butter and your chocolate all mixed up, people were so confused they've actually shut off that feature, or are about to within the next couple of weeks, as of when we're recording this. So now I'm left going-

Will:
Told you guys, hashtag still bitter-

Brandt:
I'm left asking okay now how do I easily backup my Google Photos? I'm taking so many pictures of my kids, okay-

Will:
I could tell you-

Brandt:

Maybe we save that for a different, no, no go for it. Bring it on. I want to know. I want to know right now.

Will:

All right, so I think the ... yeah, well here's the big thing, I think most people don't even backup. I mean people, Apple users obviously, iCloud is huge for them. They might be backing up and not even know it, and I know a lot of people like that, they're like "My i Cloud's full, why is it full?", it's like "Because you have it set to backup all your photos", which is awesome, pay for that backup to do that.

Will:

But Google Photos is free, I'm just obviously a Google fanboy, so I'm always going to preach that. But a, like set to Google Photos, but what you can do is easily set it up, so for example that you have a secondary service, like Dropbox and you can set it to back up on there, and maybe find one that has an integration with-

Brandt:

You're misunderstanding which way I want to go though. I want my Google Photos backed up locally.

Will:

Okay what you could do though is then take your Dropbox and install Dropbox on your NAS or computer, this is getting really nerdy, be ready everybody, you install that on that computer, and then you can set your Dropbox to automatically download, and you can set up things like automatically copy it over. But there's a lot of services that do this, so actually, I'm going to drop this hardware early, because I was going to mention it, but the NAS that I'm using is by a company called Synology, and there's also another big company called Q-NAP, Q-N-A-P, but Synology and Q-NAP, these are two big prosumer NAS companies, before you're going to levels of "Hey I'm going to build a server or whatever it's going to be".

Will:

But Synology has some really cool features, if you're ready to spend the money and really do this the right way, there's softwares that are so cool. So you can set it up that a, your Google Drive backs up onto the NAS, just copies over automatically. You can also set it the other way around, so your whole local hard drives automatically back up onto Google Drive as well, you can also set to go to Amazon, you can set it to go to Microsoft's, you can set it to go to any service you want, and you can have it go to all of them. So you could back it up in the cloud across like 30 different servers if you wanted to. So cool, so nerdy. This is day ... 24 hours of having this thing, and I haven't even utilized it to it's full potential.

Will:

But there's some really cool things you can do. Again, this stuff is possible, and I think as we've always talked with tech-

Brandt:

You still haven't answered my question-

Will:

No, it's totally possible, you can set Google Photos to go back that way.

Brandt:

Right, but here's the deal. So I take a photo with my phone, right? And that phone uploads it automatically to Google Photos. How do I get it to automatically get me a copy locally on my server, of that Google Photos image?

Will:

I believe there is an integration, with Q-NAP or Synology. So it exists. But-

Brandt:

See everything else that you said, I totally get. I know how to copy, I know how to copy from Dropbox to Drive, and that was the thing, that's actually how I was running it. So Google Photos copied to Drive, Drive copied to ... so what I use for my backup is a Mac mini, so my Mac mini is just logged in, and constantly full sync with Dropbox, One Drive and Google Drive. So it does a full sync with all three of those services, and then that computer itself is backed up to an offsite backup company.

Brandt:

So that's my local version of everything that's in the cloud, and then that computer itself gets completely backed up to an offsite backup company. So like I said, I've got it figured out how to backup my One Drive, how to backup my Dropbox, how to backup my Google Drive. The problem is Google has now disconnected-

Will:

Totally, totally-

Brandt:

Google Photos from Drive, that's the thing that I'm-

Will:

I think the larger picture, before we get into too nitty gritty of helping Brandt solve his tech problems today-

Brandt:

That's what the show is for, this show you're helping me figure out my own stuff.

Will:

Brandt literally just has me on the podcast so we can figure out problems together. But I think before we go into nitty gritty of it, because there's a lot of things, we're seeing a lot of people in the comments right now, and thank you to everyone who's watching this show, in the comments sharing these, if you do know a solution, obviously hit us up, eventtechpodcast@helloendless.com.

Brandt:

Help Brandt figure this out.

Will:

Help Brandt figure this out.

Brandt:

You've got two weeks before they turn it off.

Will:

But I think most people who are maybe they're not as techy and they don't have this problem or like head spinning, like oh nope I'm tuning out now, I definitely don't have anything to do with this, I think the important thing to understand is that if this sounds confusing, you're not sure what to do, this is where you bring in partners and people who understand this, because there's probably someone in your family or someone that you know that's really tech-savvy, does IT and understands all of that stuff.

Will:

And a lot of these things aren't things that need massive maintenance. You're not like every day I have to go and remember to press this button, a lot of this can be set up passively, it just happens and does its thing, and maybe check in on it once a year to make sure it's working, and obviously set up alerts if a drive is failing, things like that. But techy people can help you solve this, you just have to be aware that there are solutions, and a right way to do it, I think.

Brandt:

And take advantage of those cloud solutions, so even ... it's funny, we did some hand me downs of laptops around my house, and what used to take days, you'd get a new laptop, and you got to set it all up, and you've got to transfer all your files over, is like my wife and I were doing it, I was like "You done? Yeah me too", because everything's out in One Drive, and everything's ... it's all that kind of stuff, everything's out in the cloud, so it makes it so much easier to get set up and running when you change machines out.

Brandt:

It's when you're storing it locally in your My Documents folder, right, that you're running into a danger. So yeah, if your mind is blown with what we've thrown out already, just take a moment, take a breath, and just start to think about how can I utilize these services in a way where I can start to get some of my stuff backed up? They're not very expensive, a lot of them have free

tiers, the Dropbox free tier covers I believe two devices. And I think a decent amount of storage, I forget what it is, and just start to get ... what would happen if my house burned down right now? What would happen if my office burned down right now?

Brandt:

And something we barely, we haven't even touched on yet, is that ransom ware is getting worse and worse and worse-

Will:

Yeah, definitely want to talk about that-

Brandt:

And maybe it's too early to dive into it, but just to say if you haven't heard about ransom ware, it's not just for big corporations, we're seeing a lot of problems with cities, so cities, it's very easy, especially in Florida for some reason, a lot of cities in Florida are getting hit with these ransom wares.

Brandt:

So what happens is, and it's always through email, you open up an email, and you click on a link, or you open up a file. We're well past ... we obviously did a whole episode on cyber security, but we're well past the days when it's not don't click on a link from someone you don't know, it's don't click on a link from anyone, because it's going to come from someone you know.

Brandt:

So what they do is they look up these cities, and they say okay, I see who the city manager is, I see who the finance officer, who the treasurer is, and so I'm going to craft an email from the city manager to the treasurer that says "Hey, I don't understand the numbers in this spreadsheet, maybe can you give me a hand?" And then the treasurer says "Oh it looks like it's coming from the city manager", they open it, boom. And then that infects their computer, and it infects the whole network, and all of the computers lock up and cryptographically encrypt all of the files on those machines and they say we're not going to open it until you pay.

Brandt:

And so you then have to pay a certain amount of money in bitcoin, and then they send you the unlocking key, and if you're lucky it works. Now it's to their advantage to send you the actual key, because they want people to pay. So if people start to think it's not going to work, they're going to stop paying. So, so far a lot of those cities are choosing to pay money. Now, why did I bring all that up?

Brandt:

Because we also work in a world where it's easy for people to look up who works with who and who does what. Not so much in the corporate world, but definitely in the association world, right? Where you're able to see okay this is the president, this is the vice president, this is the

treasurer, all of that stuff is usually publicly available for the vast majority of our associations. So it's very easy now, we're going to be able to start see crafting these emails that say it's from the president to the treasurer, "Hey I'm having trouble with the spreadsheet", and boom you're locked up.

Brandt:

So all of our friends out there in the association world, all of our friends out there in the nonprofit world, be aware, you are likely going to be a target of this, so it's all the more important, the reason these cities are paying, is because they don't have backups. They don't have backups of the data, so the only way they're able to get this data recovered is to pay the ransom ware, pay the bad guys in order to get their data back.

Brandt:

So that was a long way to go around, but I think it's really important, and as we've talked about in the cybersecurity stuff, we are targets now, and we're going to be greater targets in the future, in this industry.

Will:

I love how we start off by getting them scared, and then we start providing everyone solutions, and things make me feel like oh yeah there are ways that I can make this not happen, and then we just dropped another thing-

Brandt:

Almost all these services, Dropbox and One Drive, they've got versioning. So even if your files get locally encrypted, so that you can't open them, you're going to be able to go into Dropbox and say okay, I just need you to drop back one version of those files, so that we're dealing with the unencrypted files, and almost all of those services have that. All the more reason though to have this offsite backup right?

Brandt:

Even maybe a disconnected backup, so it's great to have the NAS, but if something's really important, you can throw it on a hard drive and put it in a vault somewhere else. The other thing is the service, and I'll just throw this out there, this is super geeky, but again if you're interested in it, the service that I use is called Wasabi, it's actually basically the same as Amazon, AWS, it's not really meant for backup, it's meant more for storage, but it's a Wasabi hot cloud storage, and it's relatively inexpensive, it's like \$5 a month, but what's really cool about it is you can label things as immutable, it cannot be changed.

Brandt:

So if there's things that I want to be able to go okay these folders they cannot be changed, and so it's not going to backup those folders once they've already been backed up, or it's not going to change the data in those folders once they've been backed up. So if there's really important

stuff that you don't want to be any way, shape or form messed with, you can actually label those things as immutable.

Will:

Wow. I've never heard of Wasabi before, so now I'm going to definitely geek on this after the episode. This is, I'm basically at that point now, I have the in person one, obviously Google Drive can get really expensive .. this is the great object for the NAS backup, I bet there's some sort of integration.

Will:

Real quick, I want to pivot to something that's going to seem a little bit off topic, before we go to finally solutions, if you're okay with it?

Brandt:

Yeah, absolutely, bring it.

Will:

So obviously as Endless, being an AV provider, Brandt's an AV dude, we naturally obviously want to talk also about backup gear for events, and I want to give a shoutout to Karen Hartline, who actually asked about this question on Twitter to me directly, and said "Hey, obviously backup's are needed for AV gear", and we'll talk about the things that we believe should be backed up in a second, but she said "When should we pay for backups?"

Will:

And my philosophy behind backups is that you shouldn't ethnically have to pay for them, unless it's something where you're asking for a backup of a backup. Like if it's mission critical, the AV company should provide it, but there's a lot of pieces of gear that really need some backups, and that you need to make sure it's mission critical, here are the things that should have backups.

Will:

So we want to kind of quickfire, we can go through them, I'll start off with one, and then Brandt we'll let you go to the next one. So first one I will notice is also the number one thing that gets asked from clients, and that is laptop backups. You might be thinking to yourself, well okay, and this is an area that we do, it isn't 100% necessary, and that's the thing with all this, this isn't 100% necessary, you might be able to get by without it, but the second it happens then you're going to wish you had it.

Will:

But more commonly, as an AV company, whenever we're doing a big general session, we'll always have the main laptop running PowerPoint, and we run what's called the backup laptop, and the backup laptop literally runs the exact same presentation, it does the exact same thing that the main laptop's doing, but it's gained control so that when someone's clicking through the

slides, it advances the other one identically. The idea behind this is that we all know that PowerPoint can be temperamental sometimes, and it just says hey I'm just going to crash, or hey this person's video didn't load right, oh hey by the way you used some corrupted font that we didn't see when we were previewing it, whatever, boom I'm going to crash, or I'm going to lock up.

Will:

The idea is if it's running on that backup laptop, the idea is that the video guy can literally switch immediately over to that backup laptop, and the presenter won't even know the difference. And I think that this is an area that honestly, you're going to save a couple hundred bucks, getting rid of it, yeah sure if you absolutely need to get that budget down, but at the same time, when you get rid of it, and it locks up, sometimes you're just sitting there, you're like "Okay well the whole computer is locked up now", as a video guy you're like my choices are I can just let it sit here, and let the presenter suffer on stage and he figures it out, or I reboot the computer. All this stuff is going to just mess up the presentation, just add a backup laptop, pay the extra couple hundred bucks.

Brandt:

There's even more benefits to it than that. So in addition to pure backup, the number of times that someone has run backstage and said okay we need to change the housekeeping notes, and you're running a combined deck, and you're in presentation, you're in show, so being able to have that second laptop running as a backup, you can then quick dive into that presentation, make those changes, and then when it comes to that point in the show, flip over to laptop two, to graphics two, and show those changed things.

Brandt:

Because otherwise, you can't make changes in PowerPoint while you're in PowerPoint, right?

Will:

Yeah, totally. Totally. What ends up happening a lot of times, and I know so many AV guys, and this is just something I think planners should be aware of, a lot of times the AV guy is just like "Oh well, you didn't pay for backup, let me just pull out my personal laptop, do this on my personal laptop", and obviously we're not going to let the show go to crap, but let's say for example someone didn't bring that laptop that day, then you're just sitting there like "Okay well have to do it on my laptop", the client's laptop. Creates a whole headache as well, and I definitely recommend doing some laptop backups. Any other things related to laptops, maybe you want to drop another-

Brandt:

Well just anytime you're in a general session like scenario right? Anytime you're in ... there's just different levels of expectations, that if you're ... it's a breakout session or whatever, that's one thing, and a lot of times in breakouts you're asking presenters to use their own machines anyway, and maybe .. sometimes it's even more trouble than it's worth when you are actually

providing the laptops in the breakouts, because again you're having trouble with fonts or whatever.

Brandt:

But anytime you're definitely in a general season scenario, there's a different audience expectation that things are going to work, and so that's ... yes, spend the couple hundred bucks to rent a secondary laptop, but it goes for video too. Anytime you've got mission critical video, when you've got an opening splashy video with lights and it's that conference opener thing, again, spend the extra money to have another playback machine, so playback pro is kind of the industry standard, runs on a Mac. So having a primary and backup video, so that when those videos are rolling, in case the sound doesn't work, or the cable goes bad, or something along those lines, on your big giant reveal of your product that's going to happen at 37 minutes into the keynote, that you've got that backup option running there as well.

Will:

I love it, I love it. And I think that you bring up a good point too, about cables going bad. Also making sure you have a backup cable line being ran and things like that, and that whole single point of failure that you talked about, with the event materials and things like that, you are the single point of failure that if you weren't there, it didn't happen. Same thing I think also as well, when it comes to cables and things like that as well, always make sure there's backup, as well.

Will:

Another one that's going to be a curve ball before we got into the last one, I know that we wanted to talk about when it comes to backup gear, but also power backup as well. Make sure that there is some sort of power backup. I'll give you a great example of this, and how Murphy's Law, in events obviously the events industry is generally Murphy's Law, but the AV is where Murphy's Law acceptable reason for things just not working right. And we had this show where basically we ran power to a set of projectors, we ran backup power to those projectors. Not only did the primary kick, the backup kicked, so we had to, at the last minute, put a third backup as well.

Will:

And talking to my AV team, I was like "Yeah how often is this common? When the rig's up in the area, we have projectors up in the air, this can happen?" They're like "Yeah this is the temperamental thing that you get when it comes to power". So just always make sure you have a power backup plan as well, and that you talk to your venues, like what happens if the power goes out, things like that.

Will:

Obviously if the whole entire venues power's going to go out, your event's probably not really going to ... it's going to kind of come to a standstill, but making sure that you have power backup ran to things like, for example, if you've ever heard of what's called an uninterrupted power supply, or UPS, you've seen them probably on your computers or server rooms, where if the

power goes out they start beeping at you, saying "Plug me in, plug me in". It basically is like a little battery to kind of keep it going, so in the chance that power just goes out for a split second, not all the computers restart, things like that.

Will:

Things like that are awesome to put on mission critical stuff on your events like lighting boards, video boards, computers, things like that. Luckily, laptops that are running your presentations already have a battery built into them, which is nice. But just something to keep in mind when it comes to it.

Will:

Always make sure you have a power backup as well. If you're running a generator, for your event, and it's mission critical, and it's a big enough event, maybe you need a backup generator there, just in case.

Brandt:

You brought up projectors, and that's always a controversial one, and kind of touching, was it Karen who wrote in on Twitter. Yeah, yeah, touching on that point of should I pay for backups, that's usually the one that gets stuck out there, and for some reason, I don't know what it is about projectors, but that's the one that a lot of AV companies will plant their flag on and be like well, it'd be a shame if something was to happen to your projector during your show maybe you should think about having one in the case over there, just in case.

Brandt:

Okay, great, well it's not doing any good over there in the case, so that's why it's nice to use a stacked projector system, where you've got two on top of each other pointing, because at-

Will:

Yeah can you kind of explain that to people, how that works?

Brandt:

Yeah, it's a great technique for a lot of different reasons. So if you've got two stacked projectors, one directly on top of each other, and they're perfectly aligned, a, you get, it's not doubled just because of the way light works, but it's like one and a half times the brightness, and then if one of them goes down, you're not down to nothing. Because if you've got this big bad 20k, 20000 lumen projector, amazing projector up there, and the bulb blows, it's dark. It's completely off.

Brandt:

But if you've got two 10ks up there, you've got basically the equivalent of a 15k projector, and it's going to be nice and bright, nice and crisp, and takes a little bit more noodling, because you've got to line those images up perfectly so it doesn't look a little fuzzy or a little ghosty, but then if one of those goes, you've still got basically half the brightness going, and you're not dead in the water. You've still got a great presentation.

Brandt:

So it's cost effective, because those lower lumen projectors don't cost as much as the super high end ones. And you've got a built in backup, and I'll take that any day of the week over the second 20k projector over in a case against the wall, because then it really feels like you're spending money on nothing and I will always say ... if they're really stuck on it for some reason, and I haven't seen this in a long time, I'd be like "Okay I'll pay half price for the one that's in the case". But most of the time now, you just stack them and call it good. And then you're not having to worry about it.

Will:

Yeah I think you bring up a good point too, if for example there's one extra projector being brought, that's the backup, just in case it blows we can replace it at the end of the day or something like that. You should never be paying for that in any sort of way, because it's literally just sitting there, and if it doesn't ever end up getting used, then literally the only thing lost to the AV company is opportunity cost at that point.

Will:

However, if we are doing it where we're rigging up all the projectors in the ceiling, it's going to be hard to get, or we're doing trip wide 30 foot by 10 foot screens, blended together, that's when I always recommend backups in doing that sort of stuff. But I will tell you, there's so many times, and this is very, very common with AV, this is probably another subject, people will be like "Yeah I really want this thing, but it's just out of my budget", and it's an area of contention between AV companies, because like for example me, I'm going to push up backups from the beginning unless you're like "I absolutely need to save that much money to not do backups", and I'm going to tell you, I'm going to be like here's a big fat warning sticker. I can't promise you, if a projector just decides to go Murphy's Law on me, that I can't do anything about it.

Will:

So that's obviously up to the choice of the planner on that end, but a lot of times those projectors, because they're staying on, and they're going to be on and used for four days, there's wear and tear, there's costs associated with that. And whether you bake that into your cost, that your one projector is the price of two, and you always include the backup for free or something like that, you just need to make sure that you're aware that that can happen as well. I think that's really important.

Brandt:

Bring it home.

Will:

Away from projectors, can I talk a little a bit about the last little bit of internet before we go into solutions land? And this is very, very common now too, is internet backups. Especially with live streams, especially with event apps, especially with internet just needing to be used for events.

Make sure that you got internet backup as well. If you're doing a livestream, absolutely make sure that you have some sort of secondary internet that falls over, that if for example your main internet connection goes down, you have a back up.

Will:

Whether it's a 4G, whether it's a satellite, whatever it may be, talk to your internet team for your events, but it's really smart to make sure that you have it. Or, again, just be always prepared, that if it's going to go down, that you don't have a backup, and there's going to be some patience around waiting for it to get back up or whatever it may be.

Will:

But I think having internet backups really important, because for example, literally yesterday we were live streaming an event from Chile, and the convention center, which is one of the nice convention centers in Santiago, internet just decided boom, it just took major hits, the last 30 minutes of the livestream. And we were just the livestream provider company, we weren't the people on site, and that's why there wasn't internet backup. So there's the caveat, but they basically start taking hits. They didn't have any sort of internet backup, so now we're telling the client, "Hey when you have us down there in six months for your next event, when we're the AV company, we're going to push you to use backups of internet, have a 4G backup, have a satellite backup", and then if this Internets really poor, like in this case it was, that that's maybe one of the backups rather than the primary as well.

Will:

And I think that's really just important, is that you have a backup plan for your internet as well.

Brandt:

Absolutely. And another, I'll throw one more question that you can ask, so as you're approaching your venue, and you're getting your wifi quote, and you're asking for a hard line internet connection and all that kind of stuff, you can ask them hey how's your network setup? Are those independent networks, or can they talk to each other? Do they wind up being on the same network at some point, or are they totally separate?

Brandt:

Because how they answer those questions is going to be at the very least enlightening. So if they all can talk to each other, so if the wifi can talk to the hard line internet, it means at some point, those two networks come together and there's a choke point right? So it means that it's potentially an issue with 10000 attendees all getting on the wifi at once and your hard line internet. If those can talk to each other, that means they're connected. And can create a choke point.

Brandt:

If they are totally separate, then that means there's things you need to know about that, it means anything you put on the hard line can't talk to anything that's on the wifi, so if you're

worrying about registration or something along those lines, but that's also in a way a good thing, because it means that you're going to have that nice, clean feed that's not going to be impacted in any way, shape or form by your attendees data use. So you're able to have that, and it acts as a backup right?

Brandt:

So if you're for some reason the hard line goes down, you're able to quick hop over and get on even the attendee wifi network, where at least if there's hits, it's still on. And running. And so, especially maybe not with livestream technology, but I've definitely had to do that with some of the event engagement technology, events that I've worked on where we had a hard line and it was all set up for the Q and A that was coming in, but for whatever reason the hard line stopped working, so we just had to bounce on over to the attendee wifi, and we were able to finish out the event using the attendee wifi.

Will:

Absolutely. Absolutely. All right, so should we take this home with some good news and maybe start talking about some solutions? I think let's talk primarily about data backup, because I think that's a big one, obviously a lot of these other ones relate to talking to partners and being able to ask what is a backup scenario, what is my registration backup and things like that, but maybe we talk about a lot of those data solutions, because I feel like something that's actionable, that you literally can go on Amazon, order this stuff, have it set up.

Will:

Personally, when I ordered my NAS, it got delivered the next day, I had it set up by the end of the the day easily, so we can jump right on into that?

Brandt:

Yeah, so why don't we start with the cloud, and work our way into the hardware-

Will:

We're just going to do it the other way around, yeah let's do cloud-

Brandt:

I think we can bang out the cloud really quick, just because the services are services that you've probably heard about, so we're talking about Dropbox. If you are a Microsoft 365 customer, you have a terabyte of data that comes with One Drive, so if you're already a subscription office user, you just get a terabyte of free storage with your One Drive account.

Brandt:

So Dropbox, One Drive, Box is the other big one that gets used quite a bit-

Will:

Yeah, Box is more enterprise, got that security too-

Brandt:

It's possibly one of the worst named services. I get it, I get it, where you were trying to go with that, but it makes for some really awkward phrasing sometimes. So we've got those, those are probably the big three. Are there any other ones you want to throw out there?

Will:

Google Drive's the other big one too-

Brandt:

Of course, Google Drive. For some reason I just don't like it. It's kind of clunky. But that's just me.

Will:

It's rudimentary. But it's also pretty cheap too, so just, I have the prices in front of me, but like if you want 100 gigs of space, \$1.99 a month, literally less than a cup of a coffee. A terabyte is only \$10 a month. I am right now sitting at two terabytes, that's going to get up real soon, is \$20 a month. You can switch to 10 terabytes for \$100 a month, 20 terabytes for \$200 a month, 30 terabytes for 300 bucks a month, and you might be able to find some discounts too if for example you're an enterprise and you have lots of users.

Will:

I also know that if you're using G-suite to do your email, things like that, so you can have Gmail, but it's your helloendless email, for example, like endless does, you can pay to upgrade to their enterprise version of it, and it's extra \$5 per user per month, but everyone gets unlimited Google Drive storage.

Will:

And I'll link to a video in the show notes, but there's a company called Linus Tech Tips, was looking for a way to cloud back up their petabyte versus flow of data, and they were looking at all their cost options, and they were like "Well Google says its unlimited, let's see how really unlimited it is", and they ended up signing up for it, they need minimum of three users, so it cost them like \$30 a month or something like that, whatever it was, and they backed up a petabyte of video content for the rest of their life, they're good for the rest of their lives. And that's also possible, so I'll share that link on there as well.

Brandt:

And I'll throw out Dropbox, they kind of suckered me in, because of the device limit, and it just so easily works with ... especially Mac, Mac and iPad and things like that, a lot of Dropbox integrations, 99 bucks a year, they just upped it to two terabytes of storage on Dropbox and are getting into a lot, they're adding a lot more features for that as well. Although I'm annoyed that they finally got me to pay, I guess I'll still throw that out as a recommendation for Dropbox.

Brandt:

Now the last one that I wanted to throw out is my little bit more professional solution of Wasabi. It takes a little bit more geeky knowledge, in order to get good backups going, but I'm not a rocket scientist and I was able to figure it out. If you can kind of follow along the internet, I'm using a combination of, what's the software called, Arq, A-R-Q, Arq Agent as a backup agent, that's again relatively easy to setup and that ties right into Wasabi on the back end, and is able to backup offsite to my Wasabi.

Brandt:

Little bit geekier, little bit more involved, but ... I would say ordinary user, use your Dropbox, use your Google Drive, use your One Drive and all of the features that come along with that. If you're a little bit nerdier, and want to spend some time reading, reading through help manuals and things like that, on how to make it go, it's not that bad, I'm joking, but it takes a little nerdy, then Arq Agent and Wasabi, I'm so far digging on that really well.

Will:

Well the thing that I learned, because before I got a NAS and understood the idea of backing up these huge amounts of terabytes, because right now my stuff's just spread across local hard drives, external hard drives, now everything's getting backed up in one single place, that Wasabi also looks like this is what they would call more enterprise solution, when you're getting up to larger terabytes, terabytes and terabytes of data, you're not just talking about hey I only have to backup two computers and each one has a hundred gigabyte hard drive, we're talking terabytes and terabytes of data.

Will:

So for example, Wasabi's priced at .0059 gigabytes per month, or \$5.99 per terabyte per month. And the idea behind these solutions, and the comparison to it, I'm looking at their site, which is a really cool comparison, is that the other main solutions are Google Cloud, which is like their enterprise version of this, Microsoft Azure, which is enterprise version of One Drive, and Amazon S3, which is like the general storage that a lot of people use. But their cost comparisons, so for example I'm looking at, if I wanted to store 597 terabytes of data, my god, so much but I'm probably going to get there soon, Wasabi's \$42000 a year to back this up, Amazon's \$300000 a year, and you can go check out their site and see what that looks like.

Will:

But really, really helpful to also understand when you start to get large amounts of storage, that there's these other options available to you, and again when you look at that YouTube video that Linus Tech Tips did, it literally is, the title of it is "I hope Google doesn't ban us for this". But there are options out there to backup all this sort of stuff.

Will:

Another one that I've heard a lot of good things about, I haven't looked it into a 100%, but I've heard some pretty good stuff do is Back Blaze, which is really good if you're looking to backup

your whole computer, and you're just like hey back up my whole hard drive, I heard some pretty good things on there, but again, look in, compare into it, Google things like best cloud storage, do your research on here. We're just giving you a bunch of things to be aware of. But there's a lot of really, really good stuff out there.

Will:

And I think what's important is that minimum, when we're talking about backup, you might be thinking to yourself well I don't have any specific data. If you keep a lot of things on your hard drive, and you're not backing up everything on cloud, I don't actually keep anything on my computer, everything's stored in my Google Drive, which obviously has a single point of failure, but the idea behind it is if my computer ever gets stolen, crashed, just doesn't work, I can just go on, start a new computer, download Google Drive and then boom I have all my files right then and there.

Will:

If you store things on your computer, consider just cloning your hard drive and making an exact back up of your hard drive. And what's cool about a lot of these services, Google Drive, whatever it may be, even the local stuff, is you can just go in, plug your computer in, say restore from, and this is like Time Machine essentially, for Apple if you know that really well, you hit restore from backup, and boom it just literally takes a copy, like a picture of your hard drive and loads it on a new hard drive, and it's like as if you have the same computer all over again.

Will:

However, I'll put one little caveat on that, this is my personal preference when it comes to backups, is I don't like to backup my whole hard drive a lot of times, because if for example I'm getting a new computer, I actually want to start fresh so I get rid of all the clunkiness, all those extra pieces of software I've downloaded over the years that I don't use anymore, things like that. I like to actually start fresh, and then reinstall just the programs and then have access to the files and the Google Drive. And that's personal preference though as well.

Brandt:

And all of those services, Google Drive, Dropbox and One Drive have the ability to selectively sync, so you can keep stuff out in the cloud, but if there's certain folders that you want to keep locally, you're able to say yep, get that one, that one and that one. So that's kind of what I do as well, so I'm able to get away with lighter and lighter weight hard drives, you know. I'm down to 256 hard drives on my laptops-

Will:

Love it.

Brandt:

Because I'm only syncing the files that I need, the rest are still living out on the cloud. And then that Mac mini that I was talking about is doing a full sync, so I've got that local storage copy of

everything that's in One Drive, everything that's in Google Drive, and everything that's in Dropbox.

Brandt:

You know, I remembered one more that we need to throw out and I actually had blanked it from my memory on purpose. But Carbonite is one that works well for a lot of people. I personally had a very bad experience with Carbonite, it just never worked properly for me. That was just me, but I know lots and lots and lots of people have successfully set it up and used it, but for me, it just sat and spun and never uploaded anything, and I went back to them, I didn't get great customer service about it. They were just like basically you're doing it wrong, and okay, well how do I fix it?

Brandt:

Well try uninstalling and reinstalling, the usual stuff, and for whatever reason I could not get it working properly for me. But I still want to throw it out, because hey have lots of happy customers and lots of satisfied people as a set it and forget it backup for your individual laptops and computers and things like that. Don't rule it out because of my bad experience, but, I did have a bad experience, so take that with a grain of salt.

Will:

I think something important to note too when it comes to cloud stuff as you're backing up as well, make sure you're keeping caveats with your internet, and I know that I'm very, very lucky to have an amazing internet connection, that I have a gigabyte up and down, and I have zero limits on it, but I know so many people have bandwidth limits, by month, for example how much you can upload and download, and just be careful. Because if you're backing up these terabytes and terabytes of data, it can use up a lot.

Will:

So if you work for a big company, make sure that you do it when you're using their bandwidth, not yours.

Brandt:

All right, let's roll this thing out. Hardware?

Will:

Hardware. So all right now let's talk about NAS, and then I'll talk about, then we'll maybe go to USB hard drives and things like that and normal hard drives.

Will:

So for NAS's, obviously I picked up a Synology one, I picked up a rack mountable one, they make ones that sit up on your desktop. Literally, you can YouTube Synology, people love it, Q-Nap is really great as well. Obviously, I don't know, does Apple actually still make the Time Machine system?

Brandt:

I don't think they do, but it still works.

Will:

I think they still support the software, and a lot of things, for example Q-Nap and Synology hard drives actually have the ability to turn it into a Time Machine backup, so literally can use those features, and the ease of using it, but you use a different hardware, and I think that's where they're mainly moving towards. Apple's like "I don't want to build that hardware anymore".

Brandt:

Yeah, and any external drive that you pop in on a Mac these days will say "Hey do you want to use this for Time Machine?" And you can do it with connected drives, for sure-

Will:

Oh cool, I didn't even know that anymore. So yeah, check into that, that's the easy one. Synology and Q-Nap are kind of next step up. If you're looking to get a little nerdier, I'd check out Free NAS, and it's freenas.org, and basically you build a computer, you put all the hard drives in it and you basically build your own NAS, whereas Synology is kind of a mini computer, it has all software. It's like as if you brought a PC from Microsoft store and it had everything you needed already inside of it, versus Free NAS is kind of like the build your own PC option as well.

Will:

And when you're looking at these things, they do a lot of really crazy things. I think I hinted at obviously the immediate backup stuff, we can backup our computers, we can use it as a file server to put all our files on. I, for example, our video editor is accessing it remotely to back up all his footage as well, we turned it into our own personal Google Drive, personal Dropbox, which is so cool, but it also does a million other things.

Will:

It can do things like chat, it can be an email server, but the thing that I think people are going to be surprised that it's so cool that it can do, is it also can be what's called a plex server, and people love plex. It's like you download the movie, you have the mp4 file, you can literally watch it on your computer locally, it's like having your own Netflix. Which is really, really cool.

Will:

So if you're looking at these NAS's, they aren't just for the boring purpose of just hey backing up stuff, but they also do a lot of exciting things. You can go on their sites, and I'm sure they'll sell it a lot better than I ever will. The things that I learned, when it comes to these devices, is that when it comes to NAS's, they're limited on their transfer speeds based on your network, and so ... this is me getting nerdy, and the networking side of things, but just make that if your wifi doesn't work fast and you try transferring files across wifi, and it's not fast, you might find that it gets a little bit cumbersome on it.

Will:

So make sure that you understand a little bit about networking, or that you know, for example if you're planning on transferring stuff hardwired into a NAS, and you want to access it later, you can do that. Just be aware that your network can throttle your speeds when it comes to it. So for example, mine, I have a beasted out gigabit per second network, everything's hardwired in, I was just transferring files just now, and it was only transferring over at a gigabit per second, which is way way less than a gigabyte per second, so if you're transferring terabytes and terabytes of data, it can take a little while to do that, just something to keep in mind. And again, it will be throttled by your internet connection if you're trying to remotely access it as well, so it's something just kind of keep in mind.

Will:

But it's super duper nice, that I literally don't have a hard drive connected to this computer, I can just move some stuff over it and it's sitting in a closet somewhere in my apartment. Anything ... and then obviously I don't want to screw this up, Brandt's option of doing the Mac mini, you can just get a computer, hook a hard drive or plug hard drives into it, and then basically also just kind of turn it into a personal NAS as well, right Brandt?

Brandt:

That's exactly what I was going to say, so right now you can pick up a renewed Mac mini on Amazon for \$219, that includes a 500 gigabyte hard drive, because you don't need as fast processor, you don't need an amazing amount of memory. What I did is I had two older ones that were being used for playback pros, way back in the day, and I replaced the hard drives with SSD hard drives, so the faster, non-spinning hard drives. And then I strapped a four terabyte Western Digital, literally strapped a four terabyte Western Digital to the back of it.

Brandt:

And so, like I said, it's backing up my Dropbox, my Google Drive, and my One Drive all to local backups. It's making a backup of itself to that hard drive. My other laptop's here in the office and stuff are backing up to that hard drive as well, and then that hard drive is being backed up to Wasabi, so that's kind of the system that I've got set up. That machine is also running a plex server, that you just mentioned, which lets you stream your own personal videos and things like that to your Roku, and Chrome and other devices as well. That's the other fun thing, if you start rolling your own you can add those types of services as well.

Brandt:

And then whenever I need too, I actually just remote into it. So I've got it hung on the wall, using a visa mount, so you can visa mount the ... visa mount is just the type of screws that you put on a monitor to mount it to the wall. And then I just remote into it whenever I need too, and it's set to come back on if the power goes off, and that's been a really cost effective way of doing it.

Will:

I love it, I love it. I think one important thing too, this is just a side caveat related to backups as well, just always keep in mind, we hinted at it a little bit, but keep in mind these services that exist might not exist forever, so that's where sometimes you want to roll your own and build it on your own. That was one decision we made kind of on the NAS side of things, was hey, what if this ever goes away, and for example, Netflix is probably not going to be around forever, so if you want to for example have that show that you love so much, and they decide to take it off, maybe you want to move that onto your own.

Will:

And the same thing can happen with the hardware as well. You never know when Google's going to say "Well we're going to triple our storage costs" and things like that. But if you already have it backed up, your onetime hardware costs, boom, you're good to go.

Will:

All right, speaking of hardware, should we talk about the last and final bit, which is external hard drives, internal hard drives, things like that, I have just some notes for people to know.

Will:

So obviously we all have hard drives in our computers, there's two distinctive notes on differences on hard drives I feel like everyone needs to know, and that is the spinning hard drives, they are like the original iPods, and then the solid state hard drives, which are like what's in our phones and flash drives and everything like that. The idea behind the spinning drives is they're a lot more vulnerable to being corrupted, to being damaged, things like that, because obviously it's a physical mechanical spinning action. It's what is usually in your larger desktop computers, things like that.

Will:

However, when you go to flash storage, things like solid states drives, or SSDs as they're called, or flash drives that are built into our phones, is that they can be a little bit more rugged, they last a lot longer, things like that. I feel like it's really important for people to know the difference, is because while those spinning hard drives are a lot cheaper, and you can get for example ten terabytes for \$200, if you want to get a ... I don't even know if they make a ten terabyte solid state drive yet, but if you're getting a solid state version, it's going to be a lot more expensive, but it's a lot more reliable. They also are a lot faster as well.

Will:

So something to just keep in mind, if you're looking to, for example, use an external hard drive, you'll notice that those Western Digital ones, whether it's just the one that plugs in via USB and powers itself that way, or needs external power adapter, if they're big and bulky, they tend to be the spinning hard drives. They're a lot cheaper, but they're a lot more vulnerable to corruption and damage and things like that. Just something to be made aware of.

Will:

So for example if you are using a drive over and over, and it's going with you in the bag and things like that, consider picking up a solid state drive. And the ones I'm actually going to recommend are one of my newest pieces of technology I picked up in the last year, which are the Samsung T5 drives. They're literally so small, smaller than my cellphone, it holds a terabyte of data, and it's super duper fast, and it's super duper reliable, and it's super rugged too. I can drop it, and it's going to be totally fine. Whereas that hard drive that I'm now getting recovered was the traditional spinning hard drive, and that's why I definitely relate the issue that I'm having to the fact that it was an old school spinning drive versus a solid state drive.

Brandt:

I'll throw one little caveat on that, and that is that solid state drives tend to wear out in a different way. The more that you use them, there's some debate in the industry for how long they'll last, if you're writing and rewriting and writing and rewriting and writing and rewriting. They're pretty comfortable with if you write it and leave it, it'll be good. But if you're using it over and over and over and over again you're going to start to have sectors that just drop.

Brandt:

The good news is that all drives, whether it's spinning drives or SSDs, are really good at error correction, and will do everything in their power to make sure that your data stays good, because even on ... especially with these high capacity drives, they just expect a certain number of sectors to die over the course of time as you're using it, so there's a lot of built in error correction, and that's what actually Spin Right does, is an even further level of error correction and fixing that stuff.

Brandt:

So just a little caveat that the jury's a little out on the longevity of SSD drives, as far as if they're being frequently and continuously used.

Will:

Nice. Yeah. Super duper good solid point. No pun intended. That sounds like it's the end of the episode right there.

Brandt:

Yeah I think that's going to be wrapped up. I hope you took everything out of that, I think the one takeaway that I'm going to leave is the three, two, one idea. So three copies, two different locations, so that you've always got that ability to make sure that worst case scenario, right? Sorry. Three copies, two are local, one copy offsite, that's the way you do it to make sure that you've got it all times. Three, two, one, backup. Three copies, two local, one offsite and you'll be covered.

Brandt:

And bring that to everything right? Bring that to your event, bring that to the medium that you're bringing, so that two people are bringing it on different flights, or two different locations, one's on a Dropbox, one's on a physical hard drive, that kind of stuff. So three, two, one, go.

Will:

I love it. And I think one takeaway for me too is convenience and cost are two of the things that you're going to end up paying for ... well I guess I should say, convenience of the backups and the idea of this peace of mind is going to cost you money, and I think that's the big thing I've learned as well, is you look at these things and be like "Ah it's going to cost me money, oh my gosh look at this hardware, it's a two thousand dollar NAS", or whatever's going to be, mine's a little bit more expensive than most, you can pick these up for like five hundred bucks.

Will:

But if you want to have this peace of mind, it's going to cost you money. And you have to be willing to put in the time to research it, and also build it out. But, when you have piece of mind, oh my gosh, it's priceless, knowing that at any moment that I could have backups of all that video footage, and I don't have to worry if it's going to be gone tomorrow, is really priceless.

Brandt:

And some of those cities in Florida we were talking about have spent millions of dollars trying to recover the data, or in the end, wound up paying the ransom so just imagine what they could have done, had they actually spent a fraction of that money for backup solutions. It's always one of those things, it's like "Oh we don't want to spend that", or "Oh we don't want to spend that", but as soon as you get bit, man you wish you would have spent that money.

Will:

That's true.

Brandt:

So do it now before you get bit, like Will did. Before, like I did. So do it now, before you get bit so that you don't have the same problems.

Will:

Absolutely. Absolutely. All right, let's take it home, you guys got a lot of actionable stuff out of this one, so make sure that you go check out all the links that we included in those show notes down below. But Brandt, you want to kick us home?

Brandt:

Yeah, let us know, what do you think, what are you using for backups? Any other creative solutions like my Mac mini solution? What else have you got out there? Are you using Dropbox, One Drive, what's your preferred method of backup? Or maybe have we changed your mind, have you not been using a backup solution but hopefully you're going to give it a try. Let us know, #eventtechpodcast, or drop us an email at eventtechpodcast@helloendless.com, let us

know what you think, let us know what kind of things you'd like to hear on the show, just let us know how we're doing. Is everything all right? How you doing? Is everything okay? Drop us a note and let us know how things are going for you.

Brandt:

We want to thank all of you for listening, remember that you can check out all of the information at eventtechpodcast.com, you're going to see the show notes, the links to all the resources there, the transcripts, all of the ums and ahs are going to be there transcribed in their glory, as we go through and add those to the site. The links to subscribe in your favorite podcast app, iTunes, Pocket cast, Google Play, all of the fave pod catchers that are out there, we want to be where you want to listen.

Brandt:

Thank you so much for listening. Will, thank you so much for joining me as always.

Will:

Yeah, absolutely.

Brandt:

Really appreciate it, and we'll see you next time on Event Tech podcast.

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Brandt:

Event tech out. It's the ASMR version.