Interview with Terry Curren – Founder and President of The AlphaDogs

Dave: Welcome to the Elegant Workflow Interview Series - A member of the Tech Podcast Network. Today we are chatting with Terry Curren – Founder and President of The AlphaDogs. Terry, welcome back to the Podcast.

Terry: Thanks for having me Dave.

Dave: So we have another NAB in the record books and I just wanted to get your thoughts on what you saw there, what you thought was interesting and especially all the buzz on 4K.

Terry: 4K, that's an entire subject in itself.

Dave: Well hopefully we'll cover a lot of that today

Terry: Where do you want to start?

Dave: Well, let's start off with NAB, what did you see there? Were there any surprises that you saw?

Terry: Actually no, well okay yeah. The one surprise would be the black magic mini camera or personal camera, whatever they call it; you know the pocket camera, that's pretty cool. I'm going to buy one of those as soon as they come out as I think a lot of people will. They also had there you know, they showed another version of the camera that exists and now it's going to be the 4K version which is cool. Surprising other than that, not really; fun was the drones, there were a lot of drones there, you know D is for camera obviously. They have these little ones that you know, from the $500 or $600 range that can carry a GoPro up to ones that can carry a Scarlet camera or any of the basic Canon cameras, etc. So it's pretty impressive stuff but it opens up to me a whole lot of questions about the future. I bought a, let's call it AR drone. I bought one of those a couple of years ago and it's like $300 all in and it's really cool and you can fly it. It has a built in 720p camera, also has a downward facing camera and you can run it from an iPad or and iPod or an iPhone or any Android device. So you can actually, while you're flying you see what the camera is seeing as you're flying it. When I first started playing around with it, I was sitting there thinking, geez I can technically fly this up next to somebody's house and record what's going on right through the window. I mean, this brings up privacy issues that are pretty darn scary so that was the first thing. Looking at all these drone, you know the drone technology as its come, one of the little like $500, $600 models there, they have GPS coordinate technology built into it so you can sit there, for instance if it gets out of WIFI range, it will come back and land wherever it took off from all by itself or you can program in specific GPS coordinates and it will fly to them. And I'm looking at that and I'm thinking you know, how long before somebody straps a bomb to one of these things. So, I think these are going to be huge conversations amongst the public in the next few years because one or the other of those two things is going to happen.

Dave: I guarantee you the first thing probably will happen, the privacy because you're right.

Terry: Yes it probably happen already, you know, you could be flying it up high enough to go over your neighbor's backyard to see if she's nude sun bathing or something. I mean all of these stuff is you know, its amazing tools to put in everybody's hands. We're not, it's not hey this is

just the local police department has it. The scary part is that it's now the genie is out of the bottle because now it's in the public's hands. You know, it's like the police department or the military has that ability but when everybody has it, it's really scary.

Dave: You know, how good or reliable are these things because I heard stories where people go out and they buy the $300 model which are Brimage or I guess Barnes and Nobles sells them now and they fly at once and they land it a little harder, they crash it and then they're done.

Terry: Yeah the $300 one I mean the one I had the Air drone, you know the first time I was flying around and playing with it and then it has like the you know, he software that you load on your Android device and had this emergency. Now see of course instead of reading the manual, like we never do, I just start flying it so I see this thing and this emergency and I'm curious, I wonder what that button does. Well, it just basically cuts power and you know it was about 10 feet up and all of a sudden, it slam and yeah that broke a solid right on it that I had to replace. These ones aren't direct but at any bet I saw some huge big helicopters like 10 feet long that were remote. So, it depends on what you want to spend. I mean if you think in terms of the remote, there's been people, model hobbyist have been flying the remote planes and even jets. You go to Bell Park and see them flying the jet, it's pretty cool. So that technology has been around but what's different now is adding in the smart that you know, you don't have to be there. You can program the GPS coordinates for the White House and launch this thing from half a mile away; you know what I'm saying so it's scary stuff.

Dave: But let's look at the positive side, you mentioned they have models now that could carry like a red or any number of different cameras.

Terry: That's just awesome, that's just awesome and because of the GPS you can set up tracking shots there that are really intricate.

Dave: Yeah imagine that it used to be you had to be a major motion picture studio to go out and afford a helicopter and do these beautiful establishing shots. You know some of these shots that people are doing used to cost a lot of money and now what you think, are we down to the tens of thousands to get the same type of helicopter shots that used to maybe cost a hundred thousand.

Terry: Or much less, much less. The really sophisticated ones are a couple of thousand bucks you know but don't even think of it in those terms, think of it is now you can go out and buy one of these let's say for $3000 or $4000, rig it out with a nice camera so maybe you have $10,000 in it and you can sit there and rent out your services, you know like $300 or $400 an hour. If I need a helicopter shot, I'd rather do that than pay for a helicopter, you see what I'm saying? There's a business model there. Now, that being said, it sinter sting because its technically illegal and we kind of mentioned it to the guy at the drone booths, you know. You have to have a commercial pilot's license as soon as you start charging for something, you know for flying something in other words. Yes you as a personal hobbyist who can fly these things around but as soon as you charge somebody for it, you have to have not only a commercial pilot's license but I believe you have to have a commercial FCC license because you're not, technically even walkie talkies on a film shoot are you know, you're supposed to have a license for that. So, you know we mentioned that to the guy and he's like, no this is only for personal use, we wouldn't use this professionally.

Dave: Yeah at NAB, a professional show.

Terry: Yeah you're here at NAB. Exactly. So it's you know, there is that side of it

Dave: But I think the other side of it too is so I go out and I buy the $10,000 drone for example. I build this whole business and business model and then 2 months later the drones are half the cost. Somebody buys the $5,000 model and they can undercut my business model completely.

Terry: Yeah you would be the center of your skill of, in other words I can go out and buy this and then I'd have to spend how many hours getting really good at flying it, you know. To do all of that is time and so forth so if I'm doing a production and you know even if it's a small budget production, I'll go hey I want to get a really cool looking, some really cool aerial shots. Let's hire this guy for a couple of hours for $500 and I get all these really cool shots. Boom you know. It would cost me a lot more in time and effort and all to do that so you know it's sort of like, who's going to pay for renting an Avid edit system but if you get an editor who comes with the system, that's part of the cost.

Dave: I think it's the discussion you and I have been having for years which is just because the cost of tools have gone down, it doesn't necessarily mean that you go and you get the cheapest person who has the tools. I mean, you can go and you can find Avid editors for $5, $10 an hour, really easily. I mean you can find some kid who does in high school lives at home with mom and dad who will be happy to do whatever you want. He'll do your video on a flat but on the other hand, you get what you pay for versus going out getting a seasoned professional, going to a facility like your facility where people know what you're doing and you're, in the long run, you're going to get better quality and often you will save a lot of money. People don't realize that, it may look like its more money but when you do things in half to a third the amount of time and they're done right the first time, there's huge cost savings.

Terry: Exactly. And that's, again you're going back to time versus money, you know. It's funny as I was talking with a friend yesterday, yeah yesterday we were talking about going back into production because we both started out in production. We were saying you know it will be cool if we make another film because now the tools obviously are less expensive, etc but you know what I was telling him was the I just don't think I have the energy anymore to do that and he goes, what do you mean? I say, well you know first, Steven Spielberg it doesn't matter as he's older to make a movie because he's got the budget so all these professional people are hired and put in place right but when you have low budget you tend to have to have more energy because you don't have the money to do a lot of things so you make up for it by personal energy, staying up all night to get things done, etc, etc. It's kind of the same like it's you know, you trade energy and time for money so if you have the money, you can get the seasoned people to know what they're going to get stuff done easier and faster. Otherwise, you're going to pay another way.

Dave: One thing I thought that was really interesting was Adobe Anywhere. What are your impressions on that and it looked to me like, I don't know what the pricing's going to be but it looked to me like Interplay per hopefully a lot less cost than what Avid charges for.

Terry: Well we don't know yet because we don't know what the prices are going to be and what the infrastructure going to be behind it. It really sounds exactly like Sphere when you look at it so I don't know it will be interesting to see. You know they make this big deal about yeah you've got the full quality there and it was like, not really it is streaming. If you park on a frame then it

gives you the full quality of that frame, you know, in press or whatever but as soon as you hit play, its playing a proxy. You don't truly have that the way they make it sound also it downloads you know in the background, its downloading this stuff to your local computer so that if you go back over that shot again then you can have the higher resolution version because its downloaded to the local computer. My question for them was okay well what about if I now am going to, I'm working on my laptop and I want to go jump into a plane and continue working on it but I don't have WIFI access. Sorry, it's not going to work.

Dave: Let's say that Adobe solves this with some reasonable price level to build that and you get Interplay Central, you get Interplay Sphere to try to duplicate this in the Avid world is very expensive and very complicated as well. What I'm curious about is not just the cost but as Adobe figured out an easier way to set all this up and will be a little bit easier for users or would you need to have an engineering degree like you have to with Avid to use their solution?

Terry: Well the person who puts it together has to have an engineering degree on the Avid side but you know certainly as an editor who sits down and just starts using, if you're using Sphere, you, it doesn't matter, you're just in Media Composer. You know what I mean? Except that the media is not local. But from an operator's point of view it's just sit down and start editing you know. So, they've you know made that part pretty seamless, I'm going to be interested to see I mean I had a close demonstration, personal demonstration of Sphere but it left me with more questions than answers because there was a lot of stuff that they couldn't answer that I was asking about so you know until it really shifts we won't know what exactly it is or how well it works you know what I mean. In the unity universe with Sphere etc, you know you never work on, you can't screw somebody else's project, you know what I mean? It's like this, whoever opens the bin first they have ownership and it's locked. Everybody else can play from it or copy out of it or whatever but they can't alter anything in it. I've asked the Premier guys because the Premier guys make this a big thing, well now you now multiple people could be working on the same project and I'm like oh okay so what happens if I, let's say I go in here and I make an edit and somebody else makes an edit in a different place in the same shot at the same time who gets priority? They didn't have a clear answer for that at that point so those kind of things are still up in the air. I mean that's a big issue.

Dave: If it really does what they say it can do, I could see you set up something in a cloud provider, your editor's in Texas, your graphic artist is in Montana, you could really fully start distributing your workflow. Get the best person wherever they are in the world and have them working on it and that brings up a lot of points too. We see a bunch of work getting done in India and China just because they are the cheapest place to do this kind of work. And did you get a chance to take a look at any of the cloud providers that were showing things at NAB? Companies like Aframe, that solutions were basically upload your data and you can do your review and approval, you can do your notes, you can do transcription for you and you can download all these information and do an A&F loaded into your Avid. We'll see what the future holds as far as what this is going to be but the guys described it to me as like a sales force for video. Did you get a chance to look at any of those products or do you have any thoughts about that?

Terry: Yeah I did I saw a bunch of them. There's actually one in the, there's a small booth in the I think it's the north hall that are new companies or new technologies or something like that you know. it's like this little start up kind of guys. There was one there called First Guts who's doing you know the same concept of less expense. You know you do your, it's the same deal, they all kind of have of the same concept where the client can you know get the streami9ng video

basically and they can make notes on it etc and those comes back in to your Avid or Final Cut or whatever as you know, notes on your timeline. It's interesting, we saw that 13 years ago when Avid had Avid Pronet it came out. You know they were just way ahead of their time because the bandwidth wasn't there to handle it at that time plus they never can figure out what the business model for it. I'd be interested the same, there's a bunch of them out there doing just another review and approval interface. I don't get excited about it personally because we're primarily finishing so we don't do that, that's more of universe where you have to get approvals. So I looked but they don't float my boat, I guess that makes sense.

Dave: These are huge data sets that you have to get in to these systems so yeah they can make a proxy and you could watch the proxy but you still have to get the original material and if you track it all through their system and you want to basically do partial file downloads for finishing, you know there's a lot of math, there's a lot of bandwidth issues. I think it's interesting; I think there could be a future with it. I would rather you know, maybe I go back and forth but right now I lean more towards like an Interplay Sphere solution or Adobe Anywhere solution and necessarily using their solution set but I also see there's some smart people really looking at this space. I was pretty impressed with Aframe that's why I interviewed them because these guys seem to really get it. They seem to understand that the biggest thing is metadata and they're going to collect the metadata out of the camera and track it all the way through the production and post process.

Terry: It comes down to metadata, you're right. It's trying to keep all metadata all the way through the whole chain and never have to disappear. You know, and so you're keeping the original metadata and adding additional metadata into it through the pipeline but never losing the all original metadata, that's the key. I think were, in the file based world the opportunities to do that are certainly greater than they were in the tape cased world but yeah it's a lot of complexity in itself. One approach of course is a unique identifier number for every shot out there you know and then you just like you have a unique web address or anything else. If you have a unique identifier then it can always be tied to a metadata table somewhere wherever that ends up being.

Dave: Yeah that will be fun, I mean the closest thing we have are the item numbers that the studio's all got together for properties and I think to a certain extent it works well but that's whatever maybe 10 entities who were tied into that and then some suppliers. It's nothing like having a unique identifier for every piece of media ever shot by anyone which would be the holy grail.

Terry: Right. And obviously going backward will be tough but certainly going forward you can I mean every camera manufacturer can have, every camera can have a unique identifier just like that you have a MAC address on your computer you know, every camera could have that and using that as part of its tag then maybe a date and time and those 2 things tied together. There would be no other shot ever that would come from that camera at that date and time so you'd have a unique identifier there and it wouldn't be that difficult to video.

Dave: That's actually an interesting thought because it was tried with Keycode and obviously at a certain point they had to, the key numbers were kind of had to be recycled but you're right if you have date, time, GPS, camera, it will always be unique because who else is going to be at that same location at that same time using that same camera.

Terry: Well, you don't even need a location because you just have time and camera and you're done you know because that camera is the only camera and it can't produce 2 different files at the same time. And every piece of equipment now I think has a MAC address in it anyway probably all the cameras do, I would assume. Once you taped that you tie it with a date and time you got both, a unique identifier that can stay with it that file forever.

Dave: It's really not that hard to do and if you don't want to use it you don't have to use it but at least be in there, in the file editors and there's so much stuff in file editors right now anyway that everybody ignores.

Terry: Now the hard part is making that stuff stick for the entire process. In other words, you take all these shots and you add it all in the sequence and now that sequence comes out, you want all those unique identifiers still stuck to the shots or to that you know somehow. So if somebody goes to the sequence, hey where did that shot come from? Well boom here it is you know. And that's the hard part is not having, having it be never be destroyed, always stay with the video. It had to be buried in the video somehow. Maybe like the way they hide, you know the way they do the release prints and they hide the codes in so they can tell when somebody's tape or which theatre it was. You know something like that maybe its buried in the actual visual data that can't be seen by human eye or something along those lines.

Dave: Although if you notice in the theatres sometimes you actually can see it.

Terry: It's like 3 orange dots.

Dave: Exactly.

Terry: I'm like, first time I saw it, what the heck? And then I keep seeing it in movies oh that's got to be the code.

Dave: Yeah because if you try to do it and you try to do it invisibly, it's really hard to carry that through a lot of generations but when you do the dots, from what I heard, it really do stick to whatever you know, however many generations down you go or any type of processing you do but imagine that per shot, I mean that could get pretty tedious if every shot had that burned in.

Terry: Couldn't be something that was visible, it has to be not visible to the human eye, that would be the key.

Dave: Or I imagine the other side of it I don't know how familiar you are with the levels beyond Reach Engine but they actually have the smarts on this thing that it can do tracing you know, the stuff we do back in the day with computer programs. It could actually trace back through sequences as long as you check all the sequences into it so there's tech there the problem is you got to remember to check all the sequences into it so it can keep track of all these.

Terry: I see it has to have all that stuff you know, I'm thinking more in terms of anybody should be able to access, anyone should be able to get it, you deliver a master to NBC, NBC should be able to, with that master going and identify where a specific shot came from so they could call you and say hey we need this shot, or we need the full length of this or you know, sell us or whatever. So it's not just for people who happen to have all of the elements in-house, it should be something that stays with it all the way through the process forever.

Dave: I think that's a great point. Hopefully moving more to file based you could just stick it on the headers and can be carried through the systems like you know Final Cut Pro and Avid and Premier and all that. It could just keep carrying it through, kind of almost like captioning but hopefully it will work better because as we all know that's never quite work through these edits systems correctly. But I don't think captioning was really designed for that, it was never designed to stick to the stuff through file based workflows. It was designed before they even had a concept of file based workflows.

Terry: Right, yes tape based.

Dave: Exactly, which to this day sometimes it's still is the easiest way to do things.

Terry: I still think it's the best way but it's just me.

Dave: Now you know we've spoken about that before and I've sometimes pulled my hair out trying to figure out a way to do something file based and I can load it in real time off a tape. I have my back up sitting on a show on tape. I know that there's no interchange problem because a digi beta is a digi beta as long as it's correct. You know all these things that we deal with day to day with files and then files are constantly changing and there's a new camera now and a new raw format and I don't have the latest version of my editing program. Now I have to run it through a transcoder on and on. So here's another interesting thing to talk about is the new latest Apple announcements especially the new Mac Pro. What do you think of the new Mac Pro obviously we haven't seen one yet but what do you think about what we're going to be getting, the differences with the product now, no expansion slots, can't put drives into it but it sure looks pretty and the reviews I've read of people who've played with it a little bit, its supposedly is very fast.

Terry: That's what's being said and absolutely. You know it's definitely a jobs in, you're not allowed to go inside and change anything. You want to adapt you know to have it do something else, you have to be on the outside be a thunderbolt. That's the downside for our universe but our universe is insignificant to Apple. For their universe it makes sense. We don't know what the cost is going to be that's a contributing factor. If its $3,500, $4,000, $5,000or something by the time you get it configured the way you want which is kind of what I would expect is going to be then it's a little frustrating because yeah its really cool its really fast right now. In 2 years when the GPU cards are 10 times faster than they are now, this is going to be a slow computer and you can't swap the GPUs out so you know Apple's approach is going to be yeah well just every 2 years you just replace it all at $5,000 - that's not an option. If it's a $1,000 sure but it's not going to be a $1,000 so you know I mean I've got PCs that you know, I'm using PCs that are 10 years old as scopes. I buy a new graphics card for $100 a price and I throw in the ultra scope for $700 you know the card and then Bam! that PC is actually a scope.

Dave: You're right. How is this going to work? What's the cost going to be? And most of all so now I have my system and I still need my fiber card, I still need a bunch of different cards.

Terry: You're going to buy all new adapters because everything is got to be a thunderbolt.

Dave: Or I'm going to buy an expansion chassis and then what happens when the cable gets kicked out and I'm sitting there trying to figure out what's going on. Or what happens when the

board should loose because you remember the days of the Avid with the expansion chassis. I know the cabling will not be as cumbersome, but that was like, that was terrible trying to keep those running.

Terry: We still have expansion chassis on our Pro Tools because you know the Macs, the Mac Pro only had 3 slots so basically you know you put your fiber card in there, you put your video card in there. You've got 1 slot left and you want to put all of these HD accelerator cards in to give you more track and more voices in the Pro Tools so we had to buy expansion chassis. It was only because the audio mixers are like no, got to work on a Mac. I can buy a PC that has a bunch of slots in it for a fraction of what I end up paying when I had to buy a Mac Pro and expansion chassis because expansion chassis are thousands of dollars, like $3,000 or $4,000. You can't, one of the things that people go on the GPS are a problem because you can just put new ones on thunderbolt but you can't, there's not enough throughput. The current version of thunderbolt has 4 lanes, you know your typical graphics card is 16 lanes at least. The thunderbolt 2 is supposed to double that which is what the Mac Pro is supposed to come out with so okay, now you have 8 lanes. You still don't have enough for 1 graphics card so you're not going to be able to do that to add external graphics card. Resolve, the Da Vinci Resolve software it uses the graphics card to give you more real time. The more graphics card you can throw at it, the more real time you can get. What people are doing is you get a PC and you put a bunch of graphics card in there or they're using the Mac Pro as is now and they're using an expansion chassis and putting a bunch of graphics cards in there but you won't be able to do that with the new Mac Pro so you get whatever that horsepower is you know as they say is screamingly fast but you're locked at that forever.

Dave: But I also think you're starting to see Apple moving to this mode where okay every 2 to 4 years they expect you to buy a new computer because even if you could replace the graphics card, even if you could replace whatever on the system, there still will be a point I have a Mac Pro here that's I don't know about 5 or 6 years old, still runs fine but I can't put anything beyond line on it because they won't support it. So I think that's the next thing is even if you could upgrade the system for almost let's say for 5 years, 7 years whatever, they'll still locked you out on the OS level and will get stuck at their OS.

Terry: I think it's also, we don't know yet we haven't seen it but I guess it probably doesn't run Final Cut 7.

Dave: Oh I'm sure it won't.

Terry: And you know that would be their whoop see now you have to get Final Cut 10 guys so Id don't know if I'll be interested. There's a lot of people who are still doing stuff on Final Cut 7.

Dave: Most of the professional users are still doing 7, some are experimenting with 10 and 10 can work if you have simple needs as far as IO and also if you're a single user in audio.

Terry: Audio.

Dave: The audio's a huge problem. Especially when professionally you have to deliver certain things on certain tracks and now you don't have any control over that.

Terry: Very difficult to work with.

Dave: I guess we'll wait and see and then the other big issue too is we're still missing some type of a server line from Apple and they got rid of the X serves. They said, oh you can get a Mac Mini and you can put it in a case and you can use thunderbolt but really what am I going to do to get a bunch of, there are other solutions with Mac Pros so what am I going to do to get a bunch of these Mac Pros that are designed to be mounted a certain way because of the airflow. They're not going to go onto a rack; they're definitely not designed for that.

Terry: Right. I'm waiting to see who's the first person to build the rack mall holder...

Dave: Oh I'm sure somebody's working on it as we speak.

Terry: Yeah. But that brings another interesting point, they put giggy and now they input 10 giggy. At least you know with 10 giggy built in you could have some good connect goody. They're banking everything on thunderbolt.

Dave: I think in their mind oh you want 10 gig, get the thunderbolt adapter, oh you want video IO, get the thunderbolt adapter and that's why there's so many thunderbolt ports too. So I think it will be interesting I agree with you, I'm waiting to see what the price point is. I would love it if it was maybe around $2,000, $1000 to $2000, I doubt it.

Terry: I kind of, I doubt it. Look at how much are the laptops and its going to be more than the laptops. I'm thinking yeah, no yours is going to be tears of course and you can add RAM and all that. Big question would be, can you add your own RAM afterwards which is always cheaper than using Apple's but I'm going to guess that you can't and then I'm going to guess it's going to be them or else it will be really difficult to do.

Dave: Yeah I'm going to guess so too because from what the case looks like I don't know how you get in there easily.

Terry: Well that's Steve Jobs. What you're seeing, it's funny because you know I had been predicting for a year and a half or two that if one came out, I didn't think one would but that if it did it would be basically a Mac Mini on steroids and what we're getting is a Mac Mini on steroids because Steve Jobs always wanted to have a self contained, you cannot change anything, computers. That's what his idea when you know, if you read his biography in the early days of Apple, he and Wozniak went at it because Wozniak wanted to make the Lisa with you know, lots of slots so that people can go in and do their own stuff in there and Jobs, no there shouldn't be any. Nobody should be able to get in there and do anything. And if you look at what he did, he went off and made the Mac and of course the Mac was self contained and it was closed and it was not easy to open it except to do anything it was supposed to. If you look at everything that he's designed from iPod to iPad to iPhone, etc, all of these things are closed. You're not allowed to go inside and do anything to it because he wants complete control of the user experience. Now Pros were being, those were introduced before he came back and it was just an existing line that he had to deal with and keep it going but it wasn't his baby. So, what you're seeing now is what he would have done with the Mac Pro.

Dave: Makes total sense and I think we've been seeing that for a while. Once again back to getting rid of the Xserves.

Terry: That's why you won't see, you're not going to see another Xserve unless they can figure out how to have a completely self contained, you can't change anything in it the server, you're not going to see one from Apple.

Dave: Nor would I go buy one because also what I can get in the PC world with even more power, for less money and I can have slots. In the server world, you have to have these slots. You have to put in these various cards, you just have to. I don't want to have a server rack with all these thunderbolt cabling running through expansion chassis. Let's say I have a server, I need a fiber card, I need 10 gig, let's say I need 3 things per server. I don't want to have the server and then next to it is an expansion chassis and all these little boxes. Now I could see like AJA or Black Magic making a bunch of boxes, that's great but now I have more things I have to troubleshoot whenever the server goes down.

Terry: Right, absolutely but this is, Apple's concept is not, a swirl of the past and you just have to keep remembering that. The future is you shoot on your iPhone, you edit on your iPad, you post it to the cloud, iCloud and people can watch it anywhere in the world and if any money exchanges hands, Apple takes their third, that's it, that's their universe. The future is not the film business. I don't know if you saw the article where Spielberg and Lucas were talking about the film business. It was circulating around yesterday, I don't know if you saw it or not but basically they're saying, yeah the film business, the film model is pretty much toast, it's going to change. Their prediction is that there's going to be a lot less theatres and only if you film, big films will be made and you'll be paying like $50 to go to the theatre because it will be a very special thing, it will be like going to a play. They can see it because everything is a streaming universe now.

Dave: I agree with them, I mean there's 19 you know, mega blockbusters this summer from May to August and they're not all going to succeed and I think you get too many of these that don't make enough money, and it's going to change the whole landscape and to be honest if I was an Indie filmmaker, there's so many other outlets. I can go to Netflix, I can do it through Amazon Prime, you know Amazon video and even myself I don't like going to the theatre anymore. If I go I would spend extra money, I would go to the archive where I generally have a good experience but I won't go to the average theatre because it's just not worth it to me when I can wait a little bit, watch it on Blu-Ray at home.

Terry: That's exactly it. The funny part is I remember, you remember, I'm not going to mention his name, a particular person. I remember having a debate with him back in the early 90s because the theatre model is in trouble because at home I have a large screen TV and I've got a beaching surround sound and as soon as we're doing HD everywhere, it's done for the theatres because who wants to go spend that amount of money and be in an inconvenient situation, etc for what really isn't that much better of a presentation that you can do at home. He was like oh I've got all these studies and it's a cultural event where people will continue to go. You know I think there will always be a place for it. Certainly, teenagers can go there and they can make out without their parents watching them or whatever but it's not going to be anything than what it's been in the past.

Dave: I totally agree and even the teenagers, would they be able to afford it? When I was in high school, I remember we used to go see a major motion picture and it was $4 or $5. Now to go see the same thing, now granted I live in LA so it's closer to 15 in some cases but how many teens can afford that even when we would go it was $5 and then you would spend sometimes close to $10 on food. You take a day before you know it, you spent like $30 or $40 and that was in the 80s.

Terry: And you open the back door so your buddies could come in, oh now we never did that.

Dave: Yeah we don't like to talk about part. The other little trick at the multiplexes is we would just stay there and go movie to movie. You go see the first movie...

Terry: Right, right exactly, theatre hopping, which you know it's so much easier now that it ever was in the past. Remember when they would used to like, they would occasionally police the door and stuff like that, they don't ever do that anymore.

Dave: Well they can't because they have one guy in the projection booth running 10 screens, one guy getting your money to concession stand and somebody selling you tickets. It's funny because you still probably have 2 people per probably, 2 people from maybe I don't know 3 screens or 4 screens because you use film in those platters and things would go wrong. Now it's just click a button and the lights go down, everything's all automated and its all digital cinema packaging anyway so what can go wrong. It either plays or it doesn't play.

Terry: Yeah that's true.

Dave: That's true. And I think that kind of leads us to our next topic which is 4K, which you touched on a little bit at the beginning but what do you think? Is this the next 3D?

Terry: Oh by the way, I don't know if you've heard the news that ESPN 3D channel is now defunct.

Dave: Yeah I saw that yesterday.

Terry: Okay I just want to say. Alright. It's done. Once again, we've gone through the 3D cycle. I was predicting that it was going to be just a cycle. I took a lot of flak from a lot of people, oh no it's different this time. Now, so here we go.

Dave: Just not to jump on 3D right away. I agree with you. Who's going to want to sit in their house wearing 3D glasses for 3 hours a night to watch primetime?

Terry: Exactly. And I was saying that and you know the 3D aficionados are, oh no it's going to be, you know, or don't make the TV without the glasses and that will be the solution. Well first of all, they haven't burned that one out, that's going to be tough and again, it doesn't, if there's so many intricacies in doing 3D production correctly. I mean it's really hard to do it right and most of what is produced for television is not done with anywhere near that level of detail oriented approach, you know what I mean? It's not like all of a sudden we're going to get tons of well-trained professionals who are now going to be making all the reality shows and everything else, no. There would just be a lot of really bad 3D and people will be throwing up and that will be the end of it. I mean it was doomed from the word go because it was just too hard to do it properly.

Dave: Yeah and most of all, I don't need to watch American Idol on 3D. I don't need to watch Breaking Bad in 3D. I think the programming is whatever the programming is you know. When I'm watching a reality show, it's hopefully about the people on the show and I get pulled into it that way. If I'm watching a drama, it's about the drama and even the Hugo, you know I watched

it in 2D and I enjoyed it in 2d. I hear it's kind of cool in 3D but I don't feel like I missed that much by not watching it in 3D.

Terry: Yeah I watched most of the movies, like Hobbit I watched in 2D. I did see Hugo in 3D because somebody told me oh its really cool in 3D and I was like, it didn't really matter. I mean, the shot at the beginning and the end you know the long tracking shot, those were cool but it was like okay while it was cool but it had nothing to do with the story. Anyway, so back to, so yeah 3D, so 4K, the interesting thing about NAB that I, you know, I've been going for a long time since the 80s. The interesting thing about NAB is it seems to go on a 2 year cycle so you have one year to go hey here's the new thing and then next year it's like okay well here's actually how you can work with it. If you remember 3D, it was like hey 3D's the real thing and then next year everybody had 3D solutions even Avid who wastes an enormous amount of money on a stupid concept. Can you tell I'm a little irritated? They could have spent those engineering dollars on the color corrector at NAB so far ahead of the game right now. But anyways, now they want the 3D, now they're going to have to do it with 4K correct because this year was the big 4K, oh this is the thing and so next year will be here's the solutions because nobody has real solutions for working with 4K right now. From a facility owner's point of view, its irritating to me that I have to buy all new gear. I mean everything, my scopes can't monitor 4K, my monitors don't, aren't set for 4K. Nothing here is designed for that. You're talking 4 times the bandwidth of HD so even if you're working in a compressed resolution like ProRes or DNx, it's still going to be 4 times that. When you're editing, you've got multiple streams coming through and if you're on shared storage like we are, now you've got tons of different rooms running this, you know. An enormous bandwidth hit storage, again it's going to be 4 times as much. If you're working on compressed, it's 4 times as much on compressed. If you're working some form of compression, it's going to be 4 times compressed material, how are we going to look at it? Everything is 4 times as much okay so this is you know a huge infrastructure investment that's going required of everybody in post to handle this stuff okay. That's where I look at it from, as a facility owner and I can't turn around and go to the producers, well you got to pay us 4 times as much now for post because they're going to, no were not paying you anymore. Just like they did with HD, I don't know if you remember. We got a little bump for HD but not much. And this time around, I don't think, I don't see anybody going yeah, were going to up our budget to deal with this. We're expected to, the investment so that's the facility owner's point of view. From an operator's point of view, everything is going to work slower. Your resistance is going to run slower, you know it's just 4 times as much data to crunch through the computers. Its 4 times as much resolution to go in and fix issues that there maybe, if there's dead pixels or whatever. All of these kinds of things are now that much more work at a slower rate. It's going to take as 4 times longer. All of these things add up and, so that's from an operator's point of view how 4K is going to come across. Now, let's talk about why were doing it, I mean the real reason why we want it, Ill get to in a moment. The alleged reason why is to deliver more quality to the home viewer right okay so, are we going to increase the bandwidth of the pipes in everybody's house by 4? I kind of doubt that so that means were going to take this 4K signal and squeeze it down to the same size as what were running down now. So, were not going to have any better quality coming into the house tell people they have to buy a new television to watch this and now let's get to the ugly little truth about 4K where people aren't talking about and that is that the average how viewing environment with the average television size, you can't see the difference between HD and 4K. If you see what the numbers are I think it's like at 10 feet you have to have a 95 inch screen to be able to tell the difference. How many people are going to put a 95 inch screen in their living room? So were not truly giving the clients, the end users something that's better than what they have now in their experience which means they're not going to buy it just like they didn't buy 3D because if you go into the store and you can't see the difference between HD and 4K on the monitors, you're going to go, I'm not replacing my perfectly good HD set. So now were going to

talk about why is this being pushed. It is being pushed because the LCD manufacturers are dying. The Koreans came along and said, hey we could make LCDs too and they make them really cheap and all of a sudden the businesses, the Sony and the Sharp of the world that have been a traditional television suppliers are going, ahhhhh. They thought they're going to save their asses by selling everybody 3D TVs. No, so now they're sitting they're going, well, well, well, sell them 4K TV that's it. But the reality is, everybody who's got an HD TV is fine. Until that thing breaks, they're not going to replace it, there's not a reason to and this 4K game isn't going to change that but this is what they think – what they'll do is they'll force all of us to put huge infrastructure investments in that we can't recoup the cost of and we'll have to deal with all these nightmare just so that they can go, oh we have 4K material to provide to people who don't need it and couldn't tell it even if they got it. Want an alternate? Here's an alternate. Okay if we got much efficient codecs coming down the line in H265, instead of saying well let's see if we can squeeze 4K down the pipe. How about we just start giving them HD with 10-bit or even 12-bit and 444 color space. There's something that they can see right now. We won't have to change all of infrastructure to do it and we'll truly be providing better quality to the end consumer but see that's the key, if they truly want to provide better quality, if that was what they were after, this would be fine but that's not the after, they're after selling TVs.

Dave: I think, some of the

Terry: While I'm a little frustrated

Dave: Well I don't blame you I mean if I had to rip out my whole facility I would be feeling the same way. I think some interesting points you brought up that I definitely, fully agree with, I went to go check out the Sony Ultra HD monitors at the Sony store and the only one that I can tell that looks any different is the 84-inch which is $25,000. The thing I noticed is when you brought this up the color space looks different and better and I think that's a great point that what people are going to react to like I have for years, I had a 720p TV in my house it looked great. It was a rear projection thing, it had the mirrors, you know the rube Goldberg thing with the wheel and the mirrors and everything. In some ways, it looks better than what I have now with LCD. So it's not always about resolution, sometimes it's about the systems you have and actually what you're projecting onto the screen but I think the color spaces is a great thing to talk about because I think that's really what would excite a user and excite a customer is just, oh I can see things better, I have better colors, it jumps out, you know it's more vibrant. Because you're right, you're not going to notice the difference when you go look at these Sony sets, the ones people can afford even though they're really expensive that the 55-inch sets is I think is like $7,000. It looked to me like HD. I didn't even notice the color space differences to be honest it might be there.

Terry: Yeah well you can't because it's the limits of the human eyes ability to perceive resolution or the fine detail; there is a limit to it, we are not eagles. We don't have a vision so when you get a certain distance away, you can't tell. Now granted if you went up into that 55-inch TV and you got like 3 inches from the screen, you'll probably go, damn that is really fine detail there but back up 5 feet and it makes no difference because you can't resolve that anymore. So yeah it's really frustrating because you're never going to hear the manufacturers talk about any of this obviously because they are trying to hoodwink the public. But you know...

Dave: But don't you think the killer app 4K might be gaming, like maybe that's the killer app?

Terry: Once again, if you can't resolve the difference, what makes it a killer app?

Dave: That's true. Yeah.

Terry: You see what I mean? We're missing the whole plan here, it's like saying hey we shot Imax so you know if you look at an Imax screen from the building next door, you're not going to know that it's Imax. It's just going to look like a small picture because it's that far away. I mean you can't, it's the distance versus size thing and it's a lie that everybody's going to put huge, humongous televisions in their house, you know just to see that extra detail.

Dave: Well I don't think it will be about that. I think like you said it's a reason for something new to sell possibly. I mean I don't know if you saw some of the booze at NAB where like an entire wall is your TV. That could be interesting; first of all you have to have the money to do that. I can't imagine most of the public can do it. I could see some applications around that but once again the number of people especially with this kind of economy who could afford that kind of solution is very small. It's like delivering theatrical movies into people's homes. Sure I need a $35,000 server, I need to pay $500 a movie. If I'm a multi-millionaire, yeah I'm going to do that because I don't want to go to theater if I'm a celebrity. I don't want to have to deal with people wanting my autograph or people stalking me or whatever but the average home consumer, I'll never have that. I can't afford that. It makes no sense.

Terry: Right. So there you go. There's the answer to 4K so why are we all going to suffer through this?

Dave: What do you think is next on the horizon? What do you think will be the next so-called killer app that's going to sell bunch of equipment?

Terry: Well I'm not trying to sell equipment for this, for Sony. So I don't care what they do. You have to look at, who's your target audience. I've a got a 30-year old son. I've got a 28-year old daughter. I've got a 14-year old daughter and a 13-year old son and I have a 5-year old grandson. I see all of the upcoming viewing habits and none of them are about, oh I've got to have a giant television. So, this concept you know, 4K doesn't really matter when your life is about watching it on your iPad or Google Glasses or whatever. That is really what the future's going to be about. And even in the theater, 4K, once you get past the first 10 or 15 rows is going to be again imperceptible difference. So, I don't know. It's an interesting challenge you know. I mean, I remember Imax, when you go to Imax, an original Imax not the new up-res crap that they're trying to pass off as Imax but actual Imax film where it was shot on 70mm film running through sideways. It was like 4 times, 3 or 4 times 70mm, oh I guess it was 3 times 70mm frame because it was square right and they had all these tricks they did like the projector had a vacuum seal on it. So as each frame was pulled down, it was actually held back in tight when the light through the X through it and then the next one pulled down back in tight so there was no weave, gate weave for anything happening either. I mean they did all kinds of tricks they were doing to make this really optimum. I remember seeing, I think it was called To Fly. It was one of the first Imax ones and I remember going to see that and I'm like, Jesus I'm sitting in this amphitheatre seating where your gigantic screen is 30 feet away or 25 feet away or something and I remember they were shooting from a balloon, hot air balloon and it's like going over these trees back east and I'm like, I can see the leaves on the trees, the individual leaves. But I was so close to the screen in those arrangements that you kind of always panning around the screen. It wasn't like you wouldn't watch a dramatic movie that way, it would kill you. You would end up with a sore neck. I mean this was a 20-minute spectacle which is what Imax was great for. Now we're talking about the same kind of preferable, to get to the point where you can resolve those differences, you're kind of buried in it and it's not a good dramatic environment for

watching a movie per se. It's more like the spectacle of you know, the wide screen, the super wide screen movie like Cinemascope etc. It's fine if you're in the middle of the theatre but if you're sitting in the front row, you're like ah God I can't, where am I supposed to look.

Dave: Exactly. Well it sounds like if you wait long enough we'll have 8K anyway because after everybody buys the 4K TVs, now they need to buy the 8K TVs.

Terry: Right, and there's a really good argument for let's just wait for 8K instead of doing the entire infrastructure and then re-doing the entire infrastructure again in a few years, let's just all wait for 8K. Manufacturers obviously have a different concept but for the rest of us, it makes more sense and again, you're not going to see the difference in an 8K anymore than you're going to see the difference in 4K unless you have a giant TV.

Dave: And the funny thing is even HD, if most, I don't know if the study is still true this was a few years ago, most people didn't even get true HD because they didn't have the right cable boxes. I think the biggest thing people like about HD was that it was 16:9 and not necessarily the high resolution but the fact you could watch a sporting event and see more of the field. You're right what does 4K do for that? What does 8K do for that? I think HD was definitely a big jump over what we have before. I think that's why people adopted it but if you look at it they also waited for the right price point too.

Terry: Well that's true but you could see the difference in HD from SD. You know what I mean? With a normal television set and a normal viewing distance, the human eye can easily resolve the difference between those 2 but the difference between HD and 4K, they can't. That's why. They think this is going to be HD but it's not and look how long it took to convince everybody. Like you just said, many people are still watching because they have the wrong boxes. Look how long it took HD to take off. I remember them talking about HD back in the 80s. I mean the Japanese were broadcasting it back then and look how long it took to get it over here.

Dave: Yeah I remember there's 1-inch machines that would spin so fast I would sit through at NAB watching the real spinning because it was amazing.

Terry: Exactly. You know, okay 4K I mean I can see the concept of 4K, of shooting 4K because it allows you to go on and reposition on shots and what not. I can see down the line where, are you familiar with the Light Throw camera?

Dave: Yes.

Terry: Okay you know, it's like you adjust your depth and field of focus after the fact you can change it in post so you take that technology, you combine it with let's say 8K right. Now, you walk through a location you put 2 of these cameras, 45 degree angles from each other, you shoot the scene. You go to the next scene. Boom, boom, boom, boom! And then you do all your pushing for close-ups etc, changing the depth of field whatever, you do all of that in post because in post, you're paying an editor to sit there and do this. In production, you're paying a fortune because you got a huge crew so if you can get through production in a fraction of a time and move all of that to post where it's much less expensive, producers are going to do it.

Dave: And then the other thing, the killer app for that could be an iPad app for something where I could watch a nature documentary or watch a sporting event and I decide what I want to see.

It's all data. Just figuring out how to do the upstream and downstream data so okay, I'm watching a baseball game. I want to watch the first basement. I don't care what's going on in the rest of the field; I just want to watch him. And that could all be possible as well, to me that's more exciting. If there's people who love to watch the NBC feeds on the internet because they have that camera on top of the stadium and you can actually watch the formations of the players. They don't offer it all the time but I've heard there's people who just love that because you can actually watch the true strategy in football. So I could see like that's interesting, once again it's still a small audience. I can't imagine a lot of people going after wanting to buy that but you're right the savings in production, I mean this is a whole new paradigm how you could shoot a movie or how you would shoot a TV show.

Terry: Right, right.

Dave: I think this is probably a good place for us to stop but we've definitely solved all the problems of post production and 4K and 3D and this built many myths and maybe created some new myths who knows.

Terry: Yeah there you go.