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DIGITAL MEDIA GALAXY

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ALEX NEIHAUS: Welcome to the Digital Media Galaxy
Podcast #2. I'm Alex Neihaus.

TOM OHANIAN: And I'm Tom Ohanian.

AN: And today our topic is the central management of
digital media workflows. I'd like to thank everyone who
downloaded Digital Media Galaxy Podcast #1 and encourage you
to subscribe in iTunes because we now have the proper
linkage set up for you to be able to do that. You can just
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of course you can always subscribe to the feed at digitalmediagalaxy.com. We'd also like your feedback. And we would be grateful to hear anything that you actually have to say about our podcast, including suggestions for topics. So just send us an email at editor@digitalmediagalaxy.com, and we will take that under advisement, I think is the way they say it in legal terms. But actually we'll probably do whatever you ask us to.

So I'm here again with Tom, who I hope is feeling a little better.

TO: I am feeling fantastic, Alex.

AN: That's great.

TO: May I say that you look marvelous.

AN: Oh, thank you, yes. Well, for those of you who like to interpret what you might expect people to look like based on their voices, I'm a lot cuter than I sound.

Anyway, I want to get right to the discussion today. Can you describe what your concept is of central management of digital media workflows? Last week we talked a lot about file-based workflows. Or not last week, but last time. We

talked a lot about file-based workflows and how they impact the lives of people all through the production and delivery of digital media. But what I really want to focus in on this time is one of the core things that we're concerned about, which is central management of those media distribution workflows. So maybe you could set up the concept for us and then give us a little of your thinking about how this actually plays out in the real world.

TO: Well, I think, Alex, the point really that we were talking about on our first podcast was this adoption and movement to file-based workflows and why it makes sense and why it's happening throughout different verticals and so for. You know, because a frame is a file, and you can do lots of things once you have these frames as files that can now flow in a digital media workflow environment. So now the question becomes, as you start to move video, audio, all things media, if you will, into the digital domain, and you start adopting and implementing digital file-based workflows, you start to see in your four walls, in your facility, the rise of importance of really kind of three things. And I think we should take a look at them again because it impacts greatly our whole emphasis on centrally managing how files are moved around in a digital environment.

So let's take a look at these three things. The first, of course, is your environment starts to become incredibly impacted by CPU, dual-proc, dual-core, extremely powerful computers; very large, dense, low-cost-per-megabyte storage; and very fast little networking technologies. You put these three pieces together - CPU, storage, and networks - and you start to see exactly what the facility of today morphs into, and certainly what the facility of the future that you would build would require.

AN: So do you think the combination of those three things has completely removed the barriers to implementing centralized management? I mean, is it no longer - you don't even think about it; right? At some point the capabilities are so impressive that it's irrelevant. Have we reached that?

TO: I think it's in waves, Alex; right? And so the cost of storage becoming so low has really been sort of the biggest thing that people have looked at. It's been, well, how do we move all - how do we put all this video in a digital form? The storage costs too much. Well, you don't hear a lot about that. Certainly storage isn't free. But you start to see that the tremendously low cost of storage is a huge catalyst for people digitizing more and more and more and keeping it in a digital form. Now we start to see - and

that fuels the ability to actually adopt file-based workflows. And now you start to see the importance of the network because, as you start to communicate with people, and you start to send digital media to them, or they have to come to your central storage device in a workgroup environment where you have, for example, maybe 10, 15, 20 different people collaborating on a show and doing it from central storage, you now have these fast, robust interconnections via a network. Via the network cards, the NIC cards, via the switches, you know, via a robust topology that allows you to connect. And that's really what this is about. It's putting media on a network to connect, to collaborate, to send, to receive, to transmit. And that ultimately becomes a distribution mechanism.

So we take these things in combination. You know, one leads to another. So low-cost storage leads to more digital media being put on disk drives. Pooled disk drives, or storage area networks, SANs, allow you to collaborate in real time by having, as we said, multiple editors working on a show, cranking out things and so forth. And now the next piece, of course, is, well, how do we actually flow this media around inside our four walls? And as importantly, we're part of a complete ecosystem, we have businesses, we have sister companies, we have vendors that we have to communicate with, we have all of these people who are

dependent upon seeing things. And we're dependent upon them telling us if the product that we're creating is correct, maybe from a legal point of view, or maybe from a vendor point of view. And so when you have all of this, you now face this daunting task of digital media in a raw form, in a semi-ready form, in a review form, and in a finished form, in all the multiple versions that finished form takes...

AN: And in multiple places, as well.

TO: And in multiple places, dispersed, certainly. Doesn't mean that, you know, the four walls that we have in downtown New York doesn't have to communicate with the same, you know, a sister facility in uptown New York. And so, or for that matter, if you're doing a feature film, and you're shooting in, oh, heck, London, and you're doing special effects in New Zealand, the studio is based in Hollywood, and there are some publicists in a publicity wing that's based in Los Angeles and New York. You've got to flow this content around. And so what we're seeing is this tremendously perfect storm for all things digital media and the rise of the network and the importance of the network. It's like your postal system. People have varying views about the United States Postal Service, certainly. Some love it; some don't like it. But I've got to tell you, you know, for \$0.39 it does a pretty good job.

AN: It does a pretty good job, and it also has central management.

TO: Right.

AN: Right? I mean, so what I'm hearing you articulate is an interesting pendulum, or dichotomy, right, in which you want maximal distribution of collaboration, you want maximal distance between a studio in Hollywood and the location in New Zealand, right, because you can't bring Auckland to the back lot.

TO: Right, you want to use...

AN: But you must have central management of the flows between and among those for effective collaboration. So you have sort of managed chaos. And the central management is the way to make sure that those flows don't get out of hand, something doesn't leak out, something that's inappropriate doesn't get in and so on. Is that what you're talking about?

TO: Sure, absolutely. And so the decision of what content to put on the network, and the decision of what content should go to a location, or the decision of what location

should be authorized to send content, and what content, to another location has to be centrally managed. Otherwise you will have chaos. More importantly, you'll have an inefficient use of that very expensive limited bandwidth that you have between and among these different destinations or groups that have to collaborate.

AN: Chaos is expensive.

TO: Chaos is expensive. And more importantly, business continuity, the phrase that everyone uses, is dependent upon a pretty understood workflow. And so when you start to communicate, and when you start to collaborate in multiple locations with different people touching different pieces of the program for audio, special effects, offline editorial finishing and so forth, you now start to - you need to be in a position to be the coordinator, the choreographer of the movement of this digital media.

AN: So you not only have to communicate and collaborate, you also have to coordinate.

TO: You have to coordinate. And so ultimately it comes down to simple words such as being able to centrally manage how this digital media is distributed, refined, and then ultimately finished and then distributed. And so that's what the central management piece is. It's about

coordinating how the digital media flows around the network as it's being created, as it's being distributed.

AN: So I think you've done a remarkable job of painting a picture in my mind of what the challenge is. Can you tell us a little bit about what the features of a central manager are that help actually deliver this coordination among these different communicating and collaborating entities?

TO: Well, I think it's a huge bucket of functionality that you actually have to put together to have something that, when you actually look at it, you can say, okay, this has the features that I need to feel comfortable that I can be the coordinator of flying this digital media around.

So what are some of these characteristics? You know, first probably is, as a bedrock, is to be able to identify locations, to be able to identify, literally identify computers in fixed locations that are going to be the senders and receivers of digital content. And so it has to do with developing a network of computers who are authorized by you, the central manager, to send and receive content. This means that they have to be part of a secure system. They have to be authorized to send and receive material. They have to be obviously identified. I think the next

piece has to do with what are the actual access rights that come into play for a piece of media.

AN: And the ability to dynamically change those, I would imagine...

TO: And to change them...

AN: ...from project to project; right?

TO: Certainly, because most of the digital media creation, as we know it, most of the digital media creation is project based. You know, you have multiple projects that you're working at any particular time. And it sure is important that a piece of content for two competing clients are never traversed or seen by the wrong client. So integrity of the media is certainly important - integrity of the media, security of the media, authorized access for the media. And so what you start to rapidly see is the technology that the central management piece of this puzzle has to call upon. So it has to authorize users; it has to identify users; it has to be able to deauthorize users. It has to be able to turn them on and turn them off in a moment's notice if people are traveling, if people are shooting on location and they don't have a fixed site. So the ability to authorize a secure connection that can be a download or upload experience off a common web browser. And obviously

ancillary media encryption. So some clients may have a very, very secure VPN, a virtual private network in place where they don't need media encryption. And some others might want the added benefit of encrypting media, as well.

And so you start to see a checklist that you build up here. And you say, well, to actually do this, if I could no longer have FedEx and UPS and DHL, the United States Postal Service and foreign postal service handling my packages, what would I want to have here? Well, I would want to know where the asset is at any particular point as it's traveling its route. If I have a pathway of a series of network connections going from computer to computer to computer, and access rights associated with that digital media, it's important that I know that those computers are authorized, that those recipients are authorized. It's important for me to be able to say incontrovertibly, to have proof that says Alex was on this computer, and he uploaded this content, and it traversed this network, and Tom got it, and he got it at this time.

AN: And there's no denying that Tom got it.

TO: No denying that I received it. And so, more importantly, if we want to send this to Bill, you know, Alex, you and I are creating something, you've created a

piece of content, I've finished the special effects for it, I sent it back to you, you reviewed it, and you determined that it was okay to send it to Bill now for him to finalize and put the audio on, maybe you're not authorized to do that. Maybe actually it has to be authorized by the central manager, you know, that individual who is coordinating the efforts of you and me and Bill. And so now it really becomes an arbitrator, as well, in terms of how content should move around. And then you get into best practices and things of this nature.

So you start to build a list of things such as digital signatures, media encryption, end-site recipient identification, network usage. I mean, Alex, if you have a piece of content that's more important than my piece of content, that has to get to Bill in a faster way, I shouldn't be allowed to indiscriminately lob content onto expensive network bandwidth. And so you want to have policies that can be driven down to the end users or be centrally managed that determine how the content should move and with what - what business policy it should utilize so that you are consuming the appropriate bandwidth for the relative importance of that package.

AN: So you know what strikes me as I listen to you, Tom, is that the FedEx or logistical management or systems

management metaphor is pretty interesting here. And what also strikes me is that you're not describing piece parts. I think it's important for listeners to understand that we are not describing a security system that is separate from the workflow management system. While it's possible, I think, to cobble together many of these technologies with lower level protocols - you know, you can pick AES, advanced encryption standard, for encryption even if you are using a VPN tunnel; you could use FTP to actually move files; you could write some kind of workflow system yourself - the burden of integrating those into a cohesive central management environment is not simple. That's what we think - I believe that's what you're articulating here, right, is that it's the unification of these capabilities in a coherent, consistent management interface that applies to the media and entertainment business that makes your concept of central management different from piece parts. Do I have that right?

TO: No, that's right. I think the notion of, look, you know, the landscape in the media and entertainment business is littered with people and companies who felt that they overnight were going to become software manufacturers and software writers, and they got away from their core competencies, which were content creation, you know, what they lived and breathed was bringing an idea to life, and

sort of got pushed into the software development business because they were trying to solve a problem, and then ultimately had to pull technology from five different types of companies - this one for security, this one for encryption, this one for network control systems, this one for storage area network or network-attached storage systems. All of these different core competencies are hard to pull together and build into a complete holistic system. But I think increasingly what you're going to find is - and certainly one of the other ones that I forgot to mention was just the issue of optimizing how traffic flows on a network.

And so the result of this is that you really seek a complete system because you're implementing something that really does have to work and cannot be pieced together. Plus there's the logistical aspect of how do you actually support something that comes from five different companies? Who puts it together? Are you now dependent upon your own internal staff to handle these five separate, disconnected applications that maybe you wrote middleware for, or that you got middleware from a sixth company or one of the larger consulting organizations that implements these types of disconnected systems and connects them together?

And so that's why I think every time we go into this area in terms of digital media distribution, it's been one where,

well, the telcos started first, you know, Sprint Drums project, MCI, Global Crossing, they all - all of those companies dabbled in this and then ultimately found it wasn't just about having the network.

AN: Yeah, but dabbling is the wrong way to do it. That's your point; right?

TO: Well, and in point of fact, you know, when you actually talk to some of the senior vice presidents of the media and entertainment conglomerates, they don't really identify their companies as media and entertainment company per se. They identify themselves as a branding company, an IP company, their characters, you know, their brands. It's no different than we would think of Procter & Gamble in terms of its brands. You know, these are the things that are the core lifeblood of a company. Why would you entrust your core lifeblood of the company, that now exists in a completely unprotected, huge, highest resolution digital media asset, putting it on a digital media network to flow to who knows how many hundreds of endpoints, if not thousands of endpoints...

AN: Without central management.

TO: ...without centrally managing how it moves around? I mean, you wouldn't do that because ultimately the cost of not being able to know where it is at any particular point, or centrally managing how your network, your expensive network resources are going to get utilized, you know, it would be unthinkable.

AN: So I think we're going to stop there because that's the strongest idea to leave people with is that it really is unthinkable in today's world to not have a central management for these very critical, as you put it, lifeblood digital media distribution flows and management challenges inside media and entertainment businesses. I think you've made a very strong case that it's not a piece parts infrastructure, and that it is a matter of fundamental economics inside the business.

So I want to thank you for that, Tom. And, you know, I look forward to, as we develop the podcast more, talking in some technical detail about the actual implementation of some of these points. But I did want to start with the technology. I was hoping that we would have the kind of discussion that we've had today where you make really the prima facie case for why central management to communicate, collaborate, and coordinate is absolutely required; and that the technology, which is interesting, is only in service of

that idea. So thank you again, Tom Ohanian, for taking a half-hour to explain your thinking to us. It was a scintillating discussion.

TO: Thanks, Alex.

AN: I really appreciate it. I learned a lot. And we hope that this is what this podcast will do for you, if you're thinking about digital media distribution managed strategies and how they fit into the work that you do every day.

Once again, we appreciate you spending your time with us. Contact us at editor@digitalmediagalaxy.com with any ideas or questions. And we also hope to see you on the blog, where Tom will be expanding on some of the thoughts that we've been covering in the podcast. So thanks so much, Tom.

TO: Thanks, Alex.

AN: And we'll see you again soon. Take care.

TO: Bye.

AN: Bye bye.

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