



RUNAS RADIO



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Richard  
Campbell

RunAs Radio is a weekly Internet Audio Talk Show for IT Professionals working with Microsoft products. The full range of IT topics is covered from a Microsoft-centric viewpoint.



Greg  
Hughes

*Text Transcript of Show #126*  
(Transcription services provided by [PWOP Productions](#))



**Steve Riley is Up in the Clouds!**  
**September 16, 2009**



[Music]

**Brandon Wenn:** From [runasradio.com](http://runasradio.com), you're listening to RunAs Radio, the Internet audio talk show for IT professionals with Richard Campbell and Greg Hughes. This is Brandon Wenn, announcing show #126, with guest Steve Riley, recorded Friday, August 28, 2009. RunAs Radio is produced each week by PWOP Productions, providing professional media and podcasting services online at [pwop.com](http://pwop.com). You can follow the boys on Twitter at [twitter.com/runasradio](http://twitter.com/runasradio).

**Richard Campbell:** Thank you, Brandon. This is Richard Campbell. With me as always, my co-host Greg Hughes.

**Greg Hughes:** Hey Richard, how are you?

**Richard Campbell:** I'm good, and you're listening to RunAsRadio and we have a special guest, one who basically needs no announcement and more importantly my bio for him, I know, is out of date because it leads off with the senior strategist and worldwide security evangelist at Microsoft Trustworthy Computing group, and you're not that guy anymore, Steve, are you?

**Steve Riley:** No. Back in May, when Microsoft had its second round of layoffs, the Trustworthy Computing group was one of the many groups that were affected by the downsizing and several of us were let go including many of the evangelists. So I'm no longer at Microsoft and after taking a little bit of time to evaluate what my next move would be and trying to determine where I think the industry might be going, I felt that it was probably time to embrace the Cloud and I took a role as a senior evangelist and strategist for Cloud Computing at Amazon Web Services.

**Greg Hughes:** Very cool.

**Richard Campbell:** Neat, yeah.

**Greg Hughes:** Congratulations on that, that's pretty terrific.

**Steve Riley:** Thank you very much. It's exciting. I'm very glad to be here. I was around in the days of the ASP, the Application Service Provider. That's when I come out and got started at Microsoft in the late '90s in Telco consulting practice and I never did think that that industry was really going to go anywhere probably because it was just a little bit too ahead of its time encouraging IT organizations to try to outsource their applications mostly, is where they were headed at that time, and I was involved in a number of projects and some of them weren't successful, some of them are still around, some of them had failed just largely because IT shops I don't

think were quite ready for it then but the second round of this idea, and it's got a new term, Cloud Computing, it's essentially kind of the same thing although instead of just focusing only on applications, there are various iterations of it. Platforms availability or Amazon Web Services more focuses on infrastructure as a service because there are more choices and essentially we've kind of learned from the lessons of the ASP days and have had quite a variety of offerings that I really think is here to stay and I'm kind of excited to be a part of that.

**Richard Campbell:** For me, Amazon really was the Cloud.

**Steve Riley:** They started this whole thing off. Because it was infrastructure they were using themselves that they had excess capacity there and they said, "Well, why don't we try selling some of this?" and it turned out that it work very, very well. Some of the first customers that really jumped on to this were kind of small shops or specialty computing, you know. Think for example like a biotechnology firm that needs an enormous amount of compute time for a short period to do some protein folding exercises or something like that.

**Richard Campbell:** Right.

**Steve Riley:** If you tried to invest in things like that yourself as an IT shop for an organization like this, you're looking at massive amounts of money required, time required to set it up, and the biotech industry is moving so fast that what Amazon Web Services offers was really appealing and remains really appealing to that kind of customer segment where you can essentially just enter a credit card number and spin up as many instances as you want, throw your compute needs across a large number of commodity (boxy essentially,) but really it's virtual images, and in months have your protein falling exercise finished, shut them down and you're not paying for them anymore. So the whole idea of "pay as you go only when you need it" is very appealing.

**Greg Hughes:** Pay for a service too instead of a big capital outlay.

**Steve Riley:** That's right. You turn the expense from a capital expenditure and you're not breaking the expenditure which, you know, I don't know a lot about how it's done, but apparently there's a lot more advantages when it's budgeted that way.

**Greg Hughes:** Yes, there are.

**Richard Campbell:** Steve, you've been a security guy as long as I've known you. Does security play a big role on what you're doing now over at Amazon?



**Steve Riley:** Part of it yes. I'm not a security evangelist anymore although one of the things that I'm focusing on is enterprise customers. So while small firms, start-ups, developers, particular business units of large organizations have been able to jump onto something like AWS very easily and very rapidly, more general purpose IT and for many of you who maybe are listening today have read or had heard elsewhere, there's a bit of a reluctance to move wholeheartedly into the Cloud or...

**Richard Campbell:** Right.

**Steve Riley:** Or work additional line of business applications and many of the reasons cited for this reluctance have to do with security compliance control, where is my data, what happens to it, who takes care of it, how does it get backed-up, these kinds of things. So I think one of the things that I'm going to be focusing on, I'm positive that one of the things that I would be focusing on in my conversations with customers, is how Amazon is positioning itself to address those needs of traditional IT so that more than just small business units and start-ups can take advantage of the cost efficiencies and the rapid scale and elasticity that you get with something like this. So take that experience I have in helping organizations understand risk and mitigate those and move that experience into the Cloud. So I think it would be a great combination of what I've done and what I've known along with something that's quite new.

**Richard Campbell:** And these were the same concerns we had in the ASP era of who's backing up my data, where's my data living, how do I get it back. That whole problem is the same problem.

**Steve Riley:** It is; but we've learned a lot from 10, 12 years ago when we're trying to do that. There's a lot more guidance out there now. There's much greater understanding of who owns stuff. I still think we need to get some legislation to kind of catch up with the times, but I think you're going to start to see that too now. I've noticed earlier in the week there are several of these articles of where state and federal government agencies are starting to even look at cloud writers as ways of taking advantage of many of the economy that you get from there, and when you see governments starting to look at things like this I suspect that we're going to get some pretty smart thinking about the many heading lines of responsibility between the customers and the service providers. There will be particular things where each organization is going to have to take care of things, you know. Just simply moving to the Cloud does not mean that you've abandoned your data. You still need to make sure you keep your own back-ups of it even though something like Amazon EC3 has multiple copies of your data as well for redundancy, for speed

of access. I still think it's very important that you yourself keep your own copy as well.

**Greg Hughes:** What are some of the misconceptions on the part of classic IT Pros who are not familiar with the Cloud that maybe you could help answer? What are the things that you hear over and over again that you find yourself having to explain?

**Steve Riley:** One of them is loss of control and I'm kind of happy to say that many of the people and many of the cloud providers including Amazon are really beginning to think very intelligently about how to make sure that people don't lose that control and I kind of brag a little bit about something that we've released here in limited beta earlier this week. It was Amazon Ritual Private Cloud where a customer can actually take some of the compute instances of what we call the elastic compute Cloud easy to instances and incorporate those inside of VPN and they are now private. They are distinct from the internet phasing, easy to servers, you access them via a VPN connection from your corporate network to Amazon's Cloud, and so it's essentially the idea of extending your IT into Amazon EC2 resources but you manage them yourself. You can join them to your domain if they're Windows instances. You use your own existing management tools to manage these things, you apply your own policies to them. They are your servers. They just sit in Amazon's datacenter. So as the technology matures and other providers look for ways to remove the distinction between their Cloud and your CorpNet, I think we'll start to address some of these concerns and people will still be able to control those resources. They'll know where their data is. They'll understand because the providers are being more transparent and open about how the information is protected but still give IT shops the ability to control that information themselves and use their own security tools. So it's kind of a combination of the industry maturing and effectively communicating the benefits as well as the requirements on both sides.

**Richard Campbell:** And in an EC2, it's really just a VMware Virtual Machines, right.

**Steve Riley:** They are virtual machines. We have a base images that we call Amazon Machine Images.

**Richard Campbell:** Okay.

**Steve Riley:** And there are probably about 30 or so of these public different AMIs as we call them. You would begin, you start up an instance of that and it's like you get a fresh server, and so I've been playing around with these utilities, and of course probably the one that you would expect would be the Windows Server version.



**Richard Campbell:** Right.

**Steve Riley:** I'm not a Linux guy, yet.

**Richard Campbell:** Yeah, yeah.

**Steve Riley:** I'm still a Microsoft guy as far as using a new technology goes, and as long as that machine, the instance runs, you will be paying for the instance hours essentially and it's some number of cents per hour. I don't remember exactly what the number is off the top of my head at this moment. And when you're done with that, you terminate it. Now, what's kind of interesting is there's a little bit of a difference between when you power down a physical server and when you terminate an instance here. When you power down a physical server, what you own, you can come back tomorrow and turn it back on and it resumes from its current state.

**Richard Campbell:** Right.

**Steve Riley:** When you terminate instance here, it's gone forever. So we have another service called the Elastic Block Storage where you can take a snapshot of an instance that's running and save that to disk and then you power down your instance so maybe you don't need it for a month, why pay for it. So create a snapshot, save to disk, power the instance down and then a month later when you do it again boot a new instance from that snapshot so it's essentially resuming from where you left off, but you're right, these are virtual machines. The hardware could be in any of our availability zones and the beauty is that it will move around and you can scale, you can add instances or reduce instances depending on the load.

**Richard Campbell:** At the same time you are paying for that storage when you go over the storage mode although I presume it's fairly inexpensive.

**Steve Riley:** Yes. EBS volumes are stored in the storage service called S3, Simple Storage Service, and of course the per gigabyte rate for that is lower than the instance hour of the machine is running worth.

**Richard Campbell:** Right. So I'm really fascinated with this idea of just extending my datacenter because if I'm running virtual machines in my datacenter and I've got this VPN connection to Amazon, then it seems to me there's no reason I can't just take one of those VMs and stick it out there or do I have to create an Amazon instance to do that?

**Steve Riley:** Right now you base it from an AMI, an Amazon Machine Instance.

**Richard Campbell:** Right.

**Steve Riley:** We are looking at ways of extending that so you can kind of BYOL, Bring Your Own License.

**Richard Campbell:** Yeah.

**Steve Riley:** And one very interesting example is that we have a partnership with Citrix where we're looking at -- and I was just checking this out yesterday as a matter of fact, that there's a lab that is online that Citrix is hosting on Amazon EC2 where people can bring their own client instances, or their licenses, or their own server licenses and then run their own images essentially that they've already built. I'm just beginning to explore this. I haven't looked at it in a lot of detail, but I'm thinking about how this could be extended from the classic kind of server instance that most people think of to client-side virtualization as well and what maybe you could do if you have virtualized desktop infrastructure served up from Amazon EC2, whether that's Ruby PC over the VPN connection to your CorpNet, or what might be more exciting is having a VDI on the public-side of EC2 so that remote workers or the contractors who are working from their own facilities instead of in your office building can still get to your customized desktop images. I think there's a lot of fairly interesting things that could happen within that space.

**Greg Hughes:** It is interesting from a security standpoint. You could certainly exercise some control doing that if you had...

**Steve Riley:** Well...

**Greg Hughes:** Had your virtual call center agents working for home that you want to limit access to sensitive information. It seems that that might be one way to do that as opposed to sending them a laptop and having them do whatever they want to do with it in addition to the sensitive work that you need them to do.

**Steve Riley:** That kind of depends on really what you expect. One of the things that I was looking at as I was kind of preparing for TechEd US before the layoff happened was a presentation where I was going to talk about different kinds of client-side virtualization, and this interesting thing had bubbled up in the conversations I was having in the Executive Briefing Center and CSO Councils was the idea of instead of an organization paying for client hardware like Laptops or Server Desktops or whatever it is, you're given a new hire at \$2,000, go to a computer store and buy whatever you want, bring it in, plug it into the Ethernet and then you got your own based operating system, we don't care what it is, it could be Mac OS, it could be Windows '95, whatever, and you



run the lockdown domain-joined virtual client in the VM on the desktop you own.

**Richard Campbell:** Right. So you're still using your horsepower but you have this image that comes down that runs on your machine and possibly even goes back at the end of the day.

**Steve Riley:** Yup. What I've learned in some of my research was that's not going to do anything to stop somebody, you know Typhoid Mary, at the laptop from infecting the image and then spreading out to the corporate network.

**Richard Campbell:** Right.

**Steve Riley:** Because unlike server-side virtualization where you have the hypervisor that controls everything and essentially prevents one VM from talking to another, you don't get that on client-side virtualization today. So if you look at Virtual PC or if you look at the desktop optimization pack and the technologies that come with that, there is no VM isolation there.

**Richard Campbell:** There's no sandbox.

**Steve Riley:** No, there is not. What we need are desktop hypervisors and it's kind of funny that this has come up because I was just reading an article today, as a matter of fact in this week's issue of Network World about desktop hypervisors and there are a number of people who are -- in NeXTSTEP is one, and Citrix in VMware are just starting to look at this technology and I'm sure that we'll see a version of the Windows Hypervisor on the desktop as well. When this comes out, then the dream environment where the hypervisor actually controls even on the desktop isolation from VMs, that still let's you get the things like the graphics hardware and the sound. That's a big thing you lose if you virtualized clients so you can't play games, you don't hear noise. This will get to what I think is the Nirvana, what the Visual Natives are going to expect when they come in. I want to bring my own PC, I want to work, I don't want to be constrained, so okay, here it goes, here is the corporate image and the hypervisor actually keeps the corporate image from getting attack by the dudgy, you know, whatever software you downloaded last night from the internet.

**Richard Campbell:** So you can also see that in that environment the core OS has nothing in it. It's just a host for other VMs.

**Steve Riley:** That's right and when you look at -- and even when you think about hypervisor based virtualization there isn't really even that idea of a parent OS's so much anymore.

**Richard Campbell:** Yeah.

**Steve Riley:** The parent OS's happen to be the first one that got booted in this case.

**Richard Campbell:** It seems like Win 7.0 is sort of heading that way with its XP emulations and so forth. You start to see some hypervisor-ish behavior.

**Steve Riley:** Right but I need to be very clear that the virtualization that comes in Windows 7.0, when you add Virtual PC is not a client-side hypervisor.

**Richard Campbell:** Right.

**Steve Riley:** As a matter of fact, Virtual PC has changed and it uses terminal server as the presentation layer. So any VM, any virtual machine that you start in Windows 7.0 with Virtual PC has access to the disk drives of the host. You know, backslash, backslash PF Client. Backslash C will get you to the C drive of the host and you can write anything you want to that. So it's not there yet. I hope that it comes sooner because I really love this idea of protected images that can be run anywhere without fear of getting attacked. Now, the technology is not there yet; but it's coming.

**Richard Campbell:** And also this natural separation of your workload, your gaming load, your productivity load, they're certainly having a mismatch together. They're isolated instances possibly all running at once.

**Steve Riley:** You know, you can think of multiple instances that are solving business problems. For example, think of a developer working on a project that is based on Linux.

**Richard Campbell:** Right.

**Steve Riley:** So he's got his development environment in one VM, and he's got his productivity environment in another VM and the productivity environment is say Windows with Outlook and Office, those applications, and for years what have we always said that developers need? They need two PCs; right?

**Richard Campbell:** Yeah.

**Steve Riley:** One that's domain-joined and controlled where they do their productivity. The other -- and the developer essentially is the administrator and owns everything you want. That's really expensive.

**Richard Campbell:** Yes.



**Steve Riley:** Most organizations can't afford that, but if we can get to this Nirvana of where we have a client-side hypervisor and we have isolated VMs on the client themselves, again you're back to the economies of scale, you're doing a lot more and you're spending a lot less on the hardware so you can focus those resources on actually getting the project done and doing new stuff.

**Richard Campbell:** I also love the idea of having those instances centralized in the main server so that they can be patched without having to go down to the desktop hardware each time, like there are just lots of possibilities here. Once I have it in a VM, I can ship it around.

**Steve Riley:** Yeah and I'm working on a white paper that is essentially targeted at enterprise IT to describe scenarios of what you can do with the virtual private Cloud here at Amazon, and one of the scenarios that I'm describing is using VPC to build a test lab. Think about some of the things you've heard me and many others say over the years at conferences, it's that you have to test your patches and your software updates before you put them into production.

**Richard Campbell:** Yup.

**Steve Riley:** What's required to do that? A copy of your environment, basically.

**Richard Campbell:** Right.

**Steve Riley:** You need to have at least one server, probably multiple servers, many servers where you've got some representation of what your production environment looks like. You put the patches there, exercise and make sure nothing breaks, then roll it into production. I could probably count on one hand the number of organizations who actually have a budget set aside to build such a test lab and maintain it. What really happens is somebody scrounges up a bunch of old PCs, they build the test lab, the stuff was fine and somehow eventually even those old servers end up being morph into production and so the test labs just disappear. Think what you could do instead like with VPC. Start with a bunch of Amazon images, customize them, get them to look like your production environment, take snapshots in EBS, store in S3, power the images down. There's your test lab sitting there waiting and ready for you to go. A new software update comes out, start up new instances, you've got your test lab running in half an hour, put the patches on there, exercise them, everything looks good, roll that into production, take new snapshots of your test lab because your test lab now looks like production, right?

**Richard Campbell:** Yeah.

**Steve Riley:** Create, store those, power them down. Yeah, you've got another copy of your production environment and when it comes time to do more testing start up new images from those. So you've got this rolling test lab that sits in storage waiting for times to do the update and it always looks like production because you're following this sequence. I think this is one of the many cool things you can do with something like VPC.

**Greg Hughes:** That is really cool. It causes me to think of one question. It seems to come up every time that we have a conversation or think about Cloud Computing, and in fact we had a conversation on the show recently where this type of question came up and that is how is a business, if a business wants to run a test lab, what if your application deals with sensitive data? So I come from the banking and financial services world where there's a lot of regulatory control, a lot of concern and compliance type of needs. So if I need to be able to do test environments and/or a production environments where there is cardholder-type of data or banking account data, what kind of things, what's the story as far as the Cloud Computing goes? Am I distributed around the world? Can I control-- even in an Amazon case, can I control it only on certain locations? What's Amazon's story as far as helping the need to feel confident that that infrastructure is something that I can actually get my brain around and my regulatory answer around?

**Steve Riley:** Right. You can control, you kind of do it in a broad sense. You can control where that data lives. We have availability zones in different places in the United States, east and west. We have an availability zone in Europe. So that can help satisfy some of those requirements, for example in keeping European data in Europe. We have release some guidance on how to create HIPAA compliant applications on EC2 and S3. You can download that from <http://aws.amazon.com>. There's a white paper there. We have a white paper in the center that talks about security, how we secure the information and what you can do to develop/secure applications on EC2 and S3. There was recently a bit of -- a couple of news about PCI compliance. So we've got some information about what level of PCI compliance can you attain. But in some instances, again this is more like looking at ways that the industry is getting better understanding of what those regulations mean, how to interpret them, how to develop systems and produce guidance that can help customers understand the best thing to do. So if you are looking at what kinds of regulations you can meet or not meet with the services that we offer, we have that information available online where you can look for more information. But I do have to caution one thing, that if the data is really sensitive and really



confidential, there is no substitute for encrypting it. It doesn't matter where it's to work.

**Richard Campbell:** Right.

**Steve Riley:** In this case, I don't care whether it's on your laptop or on a server that's on your datacenter or a server that's a VM in our datacenter. If it is sensitive information, encrypt it, and then design your applications such that they know how to create, store, and process encrypted data. There's no substitute for that and it doesn't matter where the data lives in this case.

**Greg Hughes:** Sure, that's a good valid point.

**Richard Campbell:** At this point, there's no migration of VMs from our datacenter into the Cloud and back again. I'm just thinking from an audit perspective. It might be useful to bring the -- having to be able to bring in a VM in from the Cloud, run it on my local machine and let an auditor go over it.

**Steve Riley:** Right. That feature is common request and it's something that we're looking at doing, but the capability is not there right now.

**Richard Campbell:** Because you know what happens the moment you're able to do that, it's Amazon becomes my disaster recovery site. That's my back-up datacenter. I have a copy of the VM up there and if something, you know, if the meteor hits my datacenter, I know I can light Amazon up and keep going.

**Steve Riley:** Well, that's actually another one of the scenarios that I cover in the white paper. It's that you can use VPC as a way of establishing a disaster recovery in a business continuity plan. Again, it's kind of similar to the patch scenario and what's interesting about this white paper is that all of the scenarios are kind of variations on a theme. It's that you keep those regular snapshots of images that -- like I said before, you start it from the AMI, that you can customize it to look like your own and you can domain-join it to your own network.

**Richard Campbell:** Right.

**Steve Riley:** And you just keep those updated, and then if disaster strikes in that unfortunate incident where it does, you can simply transition all of the processing over to the instances that you bring up inside VPC.

**Richard Campbell:** Right.

**Steve Riley:** And you can only access the VPC resources from inside your CorpNet because it's got to go through the IPSEC VPN. But if the disaster

is so bad that you even lose your side of the peering point, your router that connects to our network, one of the things that's very cool about booting from the EBS, Elastic Block Storage, it's that you could boot a public instance from the same EBS that you booted a private instance from. So you could essentially turn your datacenter on the internet, you power your datacenter up on the internet if a disaster is so bad that you even lose the customer-side of the...

**Richard Campbell:** Right.

**Steve Riley:** That's a very interesting scenario and probably something I would like to really test myself.

**Richard Campbell:** Yeah.

**Steve Riley:** You know, that works but the capability is certainly there to do that right now.

**Richard Campbell:** This is stuff that I was doing for hurricane protection in the Caribbean where we were flopping datacenters between Cayman and Bermuda because they're so isolated from each other, because you needed to go completely cold. We have to shut this entire building down. There's no power. There's no connectivity in and out of it. You lose everything so you've got to know you're over there, that everything is okay. So the idea that I could do that was something that I don't need to keep running all the time because paying for two datacenters, boy, that's bloody expensive...

**Steve Riley:** Yes.

**Richard Campbell:** To just have this back-up site that I'm only paying storage on and only when I need it do I switch it on.

**Steve Riley:** When I was writing this section of the white paper yesterday, I was actually reminded of the time I work for an electric company where we begin investigating what it would take to have a hot standby datacenter and to essentially duplicate everything that's in the current production datacenter including the ES/9000, all of the data to multiple redundant OC3's with the connection in and out, you're looking at multiple millions of dollars to do this.

**Richard Campbell:** Yeah.

**Steve Riley:** And now, like you said, we can just have that hot standby datacenter sitting in a bunch of EBS volumes stored on S3 and you pay a few pennies a month to just keep that ready to go is really quite amazing.

**Richard Campbell:** Yeah. It's an awesome thought. I mean, one of the things that we got into the



habit of is quarterly swaps between the datacenters just so that we're comfortable with it and the datacenters were totally symmetrical so it made no difference whether you're running on one or the other. I got to think that if I was going to do this with Amazon, I want to do that too every so often. Move everything running on Amazon and see what it looks like which of course can be very interesting when you get the bill. You look at monthly cost for running off Amazon, monthly cost for running off my datacenter, hmm, because I bet they're not the same.

**Steve Riley:** Probably not and you'll actually be able to perform this economic analysis yourself soon. We will be releasing a calculator. It's essentially an Excel spreadsheet that you can download and fill in information about your current costs, how many servers you have, how often, what is their utilization, a lot of variables that you can complete that will then give you comparison of continuing to run the environment the way you are versus running an equivalent environment inside EC2 and S3.

**Richard Campbell:** Right. So Steve, what's next for you? I mean, we just a big NeXT. What does the rest of the year look like? Where are we going to see you? What trouble would you be getting into?

**Steve Riley:** Well, I still consider myself in learning mode. There's an amazing amount of stuff to learn when you leave a place you've been at for 10-1/2 years and try something new.

**Richard Campbell:** Right.

**Steve Riley:** There's a lot of good stuff going on in the IT world outside, kind of the Microsoft portion that I have been a part of for so long but I'm getting very comfortable with many of the things I'm seeing right now. I'm very glad for the opportunities that I had to interact with so many different people and executives and kind of understand the risk side of IT because I can adopt to a lot of that learning into the conversations that I had with people as I do my work here with Amazon Web Services. I would be joining a couple of my colleagues. We have a few others here who have the same job, evangelism, so that I can become introduced to the events and the customers that typically we talk to. I will be at a Windows Connections Event in November. This time, of course, talking about the Cloud. I have one of the keynotes where it will be very vendor neutral and essentially talking about what Cloud Computing is and examining the different models that are available. I have three break-out sessions where I will explore Amazon Web Services in detail. We'll talk about management, we'll talk about security, we'll talk about development. Probably I won't be making it to any of the other Microsoft branded events this year because

I just have other things I needed to do to kind of get myself into the Amazon world but I do hope to be able to, maybe next year, start bridging some of these two worlds together.

**Richard Campbell:** I can't believe your staying home. It must be weird for you.

**Steve Riley:** Yeah. My last trip was to Barcelona and that was in April. What are we now? August, and I haven't traveled anywhere since then.

**Richard Campbell:** That would be the longest haul in years.

**Steve Riley:** It's the longest time I've been home for 10 years and it's actually been very, very nice to be able to spend more time with my family. I've gotten back on the mountain bike. It's just, yeah. So you know, in 10-1/2 years of international travel twice a month gave me two 96-page passports that are completely full.

**Richard Campbell:** Right.

**Steve Riley:** A lot of great experience, but I guess maybe I'm ready to try something else for a little while.

**Richard Campbell:** Good for you, man.

**Steve Riley:** And I've been having a lot of fun so far.

**Richard Campbell:** Awesome. Steve, thanks so much for coming back. It's really great to see you land. You've been in a great place on a great project.

**Steve Riley:** Hey, thanks guys. It was good to talk to you again. Great to hear you.

**Richard Campbell:** And we'll talk to you next week on RunAs Radio.