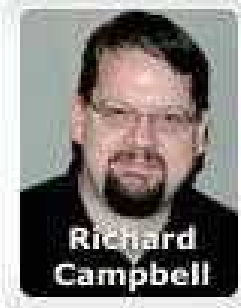


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RunAs Radio is a weekly Internet Audio Talk Show for IT Professionals working with Microsoft products. The full range of IT topics is covered from a Microsoft-centric viewpoint.



*Text Transcript of Show #011*  
(Transcription services provided by [PWOP Productions](#))



**Bill Varga Makes Us IP Intelligent!**  
**June 20, 2007**





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**Carl Franklin:** From [runasradio.com](http://runasradio.com), you're listening to RunAsRadio – The weekly Internet audio talk show for IT professionals with Richard Campbell and Greg Hughes. This is Carl Franklin, introducing show #11, with guest Bill Varga, recorded Saturday June 2<sup>nd</sup>, 2007. RunAs Radio is produced each week by Pwop Productions – Offering professional media and Podcasting services, online at [pwop.com](http://pwop.com).

**Richard Campbell:** Hi, this is Richard Campbell, and you are listening to RunAs Radio - and with me as always, Greg Hughes.

**Greg Hughes:** Hi Richard, hi everybody.

**Richard Campbell:** Well, a couple of weeks after TechEd now, life's coming back to normal.

**Greg Hughes:** Yeah, it was a pretty tiring experience but very worthwhile.

**Richard Campbell:** You were there for three days; I was there from Saturday to Saturday and that was a long time.

**Greg Hughes:** Yeah, I was only able to be there for three days; I can only imagine the amount of time that you spent there and the hours that you kept - that was probably pretty brutal, for you and Carl both.

**Richard Campbell:** It's once a year and it's worth it. But we are looking to go to Barcelona for TechEd Europe as well.

**Greg Hughes:** That's right. If we get the opportunity to do that, I think that would be a lot of fun. I know I had a great time at this show, and you and I certainly discussed some terrific ideas for what we can do with the next one.

**Richard Campbell:** Yes, we met with the organizers of TechEd Europe and we are still nailing down the final details, but if I had my way, we will be there for the whole IT forum week.

**Greg Hughes:** And that would be a show certainly to be remembered.

**Richard Campbell:** We will have a great time. Barcelona is a fabulous city; great place to go to a conference.

**Greg Hughes:** Never been there, but I am sure you are right and I'd like to find out.

**Richard Campbell:** Willing to try it on, huh?

**Greg Hughes:** That's right.

**Richard Campbell:** All right. Hey, I got a great email; let me read this to you. "Hey guys, great show tonight. As always, I am downloading TrueCrypt now. I just wanted to drop a line in agreement with writing down passwords in certain circumstances. This is advice I have given to friends who have used weak passwords; the rationale being that generally speaking, people lose many more passwords than wallets. Also, noteworthy in the SourceForge Security camp is 'Password Safe' -- and that's a piece of software you can get up at SourceForge open source and it's about managing passwords.

**Greg Hughes:** Yeah. Yeah.

**Richard Campbell:** And then he has a little parenthetical statement, "Oh, and as for hiding financial records from a spouse as mentioned in this show, don't overlook the utility of an extra VHD file, if you are in VPC often, but I didn't say that." Okay.

**Greg Hughes:** That's good.

**Richard Campbell:** "Thanks for the great shows. Kind regards, James Greene from Sydney, Australia."

**Greg Hughes:** Well, thanks for the email James; we will forward a copy on to the spouse there.

**Richard Campbell:** Nice.

**Greg Hughes:** You know, I think that James's point -- if I may be so bold, as to make another security point. There are times when writing down passwords is an okay and acceptable thing to do; the real question that comes up if you do that kind of thing is, what do you do with them after they are written down?

**Richard Campbell:** Right; and I guess that his point, 'he put it in his wallet' being that, people lose their wallets a lot less often than they lose their passwords.

**Greg Hughes:** Well, I agree; in my department -- forgive the terminology, but you know, that sort of, at least for me it's sort of 'Sucks Less' solution.

**Richard Campbell:** Yeah, yeah, there you go.

**Greg Hughes:** I really think, you know, the worst one, of course, the cliché thing to do with a 'post it' note is to post it and stick it on your monitor or on your laptop screen.



**Richard Campbell:** Right; stick it to the bottom of the screen.

**Greg Hughes:** Right; but the passwords written down on a piece of paper and then put into a locked drawer, there is probably nothing wrong with that. In certain circumstances, depending on the level of risk and what those passwords protect, that might be completely unrealistic. I know that I use, and it's nice because it can go on a Pen drive, is an encrypted password vault, a piece of software that a friend of mine actually wrote, customized specifically in order to solve the problems of being portable and doing a very strong job of holding securely a set of passwords along with the sites and what not that I use on a regular basis. And so, I found that to be very valuable. Writing passwords down? - Sometimes yes, sometimes no.

**Richard Campbell:** And I think that's exactly what James was talking about with 'Password Safe' which is on SourceForge.

**Greg Hughes:** That's right.

**Richard Campbell:** it's a database for passwords that's highly encrypted and secure, so that you can have multiple passwords the way you are supposed to, but not have to memorize them all.

(00:04:59)

**Greg Hughes:** Right; and in the case of my friend Ful Le Chang who is a co-worker of mine, and he wrote something called CryptoNote and that's what I used to do; that's very simple and it's basically a cryptographic notepad. And there is a lot of similar utilities out there as well.

**Richard Campbell:** Cool. Okay Greg, let's introduce Bill. Bill Varga is Quova's Vice President (Business Development) where he leads the development of strategic relationships and partner programs. Bill's distinguished career includes executive roles in global marketing and sales in the top 100 software companies including; Vice President at Interact Commerce, where CRM sales grew from a start up to \$100m in three years, and Vice President of ERP development Infinium Software - formerly Software2000, where Varga helped lead the company's transformation into an open platform competitor. Bill began his enterprise software career with Sales Technologies, Dun & Bradstreet as a Sales and Marketing Director. Bill has been actively engaged in several technology startup ventures, as an advisory board member, consultant and executive. Bill holds an MBA in marketing from the University of Bridgeport and a

Bachelor of Science from Central Connecticut State University. Hi there Bill.

**Bill Varga:** Hi Richard, thanks for that wonderful intro.

**Richard Campbell:** Central Connecticut is right where PWOP studios is held out of, although I am on the West Coast in Vancouver, and Greg's down in Oregon, but you are close to home base for us - or you were, when you graduated from Central Connecticut State University.

**Bill Varga:** Yeah, that was a little while ago, basically.

**Richard Campbell:** Well, none of us are as young as we once were.

**Greg Hughes:** Bill, we have asked you to come and join us for about half an hour to help us learn a little bit more about IP Intelligence and Geolocation. Maybe be good to have you just sort of kick things off by sort of explaining what those terms mean and what it is that you do?

**Bill Varga:** Sure great. OK. Well yeah, let's define that term 'IP Intelligence' to start off and then I'll back into a little bit and tell you a little background on Quova and what it is we do. So, 'IP Intelligence' is really, we see it as a combination of IP Geolocation -- IP Geolocation data is data that defines where a publicly routable IP address resides. And by the way, there is about 1.5 billion routable IP addresses today.

**Richard Campbell:** Right; so we are not talking IP intellectual property, we are talking IP Internet Protocol.

**Bill Varga:** That's correct. And essentially what we are talking about at its highest level is, when somebody comes to a website, we are able to tell you pretty much in real time almost instantaneously -- actually even before something is displayed to that visitor on a website where they are coming from, down to a country, state, city level.

**Richard Campbell:** Now isn't this just ARIN and AMNIC data?

**Bill Varga:** Yes, that's part of the Intelligence space; actually the research and collection effort that Quova does is a combination of primary research from global centers that actually go out and look at traceroutes and things and how the global Internet is actually working in addition to sources like the registry data.

**Richard Campbell:** The biggest problem of course I have with registry data is that that's the



address of the guy who owns the IP addresses, not necessarily who is using it.

**Bill Varga:** That's correct.

**Richard Campbell:** So I got to think that getting better data, going and doing those census work, is what's going to make a difference.

**Greg Hughes:** Yeah, and just because an address is registered to someone in Germany doesn't mean that that IP address is actually being used by a computer that's in Germany.

**Richard Campbell:** You bring up my favorite one, because I have always found my experience trying to figure out European Geolocation data as the worst because it could be anywhere.

**Bill Varga:** Well that's true, and the registry offers a lot of challenges, and Quova really resolves a considerable amount of those challenges. For example, as you pointed out already, the registry is carrying the owners name, but in an ISP case, they may have very, very large blocks registered to them and then they actually allocate the active IP's all across the globe. So it's because you have in the registry the ISP's corporate address does not mean you have any clue where the IP's are actually residing.

**Richard Campbell:** That's almost not meaningful in that respect.

**Bill Varga:** It's very misleading actually.

**Greg Hughes:** And from a practical standpoint, so, let's say I am bank - I mean, that's who I work with, is banks, and credit unions and financial services. So, there is a list called the OFAC list and its countries that I am just not allowed to do business with for legal reasons. I need to know if somebody is visiting my site or is trying to log into a banking account from Cuba, I need to be able to make real time decisions based on that. So, data that tells me in real time where somebody is coming from, has some real value.

(00:09:53)

**Bill Varga:** Absolutely, and certainly, there are known hotspots or high risk areas on the Internet across the globe, and associating where we expect the user to be coming from, along with -- as you mentioned OFAC, by the way, OFAC is the Office of Foreign Asset Control, it's a U.S. Treasury Branch -- so the combination of where they are coming from, sanctioned country, a high risk area, or literally a mismatch of their credentialing on a bank site - they are writing an application that says, I am Bill Varga, I am in

Massachusetts, but my IP address says, actually Bill is connecting from St. Petersburg, Russia. Certainly be a reason to ask Bill a few more questions.

**Greg Hughes:** Absolutely.

**Bill Varga:** So, that's the first dimension of IP Intelligence; IP Geolocation information. The second dimension, which is really how Quova differentiates itself besides the accuracy of our IP data is, what we call Network Context. And now we're talking about adding information like the domain name. So in Greg's example, a bank might want to know if somebody is doing a fairly large transfer, that that transfer is being done from, let's say an Internet café domain. An e-commerce company that's looking at a large commercial order might want to know that the order is being taken from a public domain like kinkos.com.

**Greg Hughes:** Oh, yeah sure.

**Bill Varga:** So, there is supporting information in terms of how the user is connecting. Another aspect of that that's a little bit technical is, whether the user is connecting through a proxy; and there are some, a variety of different proxy types, but there are some bad proxies like anonymizing proxies, which is where a user is intentionally masking where their location is, and for a bank, we say that's analogous with somebody coming to their site wearing a ski mask.

**Richard Campbell:** Yeah; a guy walks into your branch, he is wearing a ski mask; how much money are you going to give him?

**Greg Hughes:** Not exactly somebody you want to trust right?

**Bill Varga:** Right.

**Richard Campbell:** And of course this is mostly about giving you that information; it's up to you how you are going to react to it. I can see easily that a banking site would simply refuse traffic from anonymizer sites.

**Bill Varga:** Well, having that information certainly allows them to make that decision and also, maybe they just want to watch that visitor with a lot more scrutiny.

**Greg Hughes:** Or they may want to require that user to present additional credentials in order to be able to access an account for example.

**Bill Varga:** Right; so you know, the other analogy there to a banking in a branch is, what if the



same visitor came in and out of the branch 50 times in one hour; sooner or later that's going to be considered suspicious activity. So when you are able to create an IP profile or an IP fingerprint if you will of a user, and all of a sudden, you see a user -- again, coming into the bank 50 times in an hour, again, that you may decide to further credential that person and then ask him a few question about what their intentions are.

**Greg Hughes:** Sure.

**Richard Campbell:** And the trick of course is, all of this being as near real time as possible. Everybody has used or had this IP Geolocation data handed to them, and often I find people don't question its quality, and there is lots and lots of weblog reporting tools that spit out countries at you. But that's not real time - and I got to imagine part of the challenge here is, dealing with, as things change, new blocks of IP's get released and so forth.

**Bill Varga:** Yeah, and that's a great lead-in to what is Quova focused on, and what do we deliver? So, we are delivering virtually a Internet directory, and we do research continuous 24x7, 365, and our clients are subscribed to that dataset which is continuously updated, and the data resides behind their firewall, so that is what enables the real time access. So, you are not calling Quova to look up an address, you actually have the file locally; we are not getting too technical, it exists in RAM, so the entire database is almost instantaneously available - sub millisecond availability.

**Richard Campbell:** So, you are actually providing the application accesses, not just the data file?

**Bill Varga:** We do both; that's correct.

**Richard Campbell:** Okay.

**Bill Varga:** Yeah, and consumers actually utilize it both ways; either they load it into an existing database that they use internally, or they use our software to access it.

**Richard Campbell:** And how often are we talking about updates then?

**Bill Varga:** Normal occurrence is once a week.

**Richard Campbell:** Okay.

**Bill Varga:** And that frequency, it can -- it really depends on the consumability at the customer site.

**Richard Campbell:** I get this idea around the IP location stuff is based on an ISP, but what happens when I am dealing with customers that are on cell phones or these new satellite Internet connections where the physical location is completely independent of the IP address?

(00:14:58)

**Bill Varga:** Great question; recall this history, when we started in 2000, we really were focused on most accurately identifying where the IP address was, and then as we discussed, that quickly grew to not only assessing the IP address, but is the user near the IP address, this network context information we've been talking about? And part of that network context information is establishing whether the user is connected through a proxy, like a mobile gateway? And we are very excited to have announced earlier this month that now, we can actually reach through that proxy, so when the standard Quova capability identifies, that in fact this is a mobile connected user, we can go through that proxy mobile connection right to the user and locate them in real time.

**Richard Campbell:** So, when I am connected using -- let's pick one out of the air, Verizon EVDO Connection, I know from experience, that IP address is a non-routable IP, it's a 10. something, and somewhere along the line in the Verizon network, I am jumping out to the Internet through one of their proxies. And so, it probably comes from the Verizon head office, wherever that may be, somewhere in the north east.

**Bill Varga:** Correct; yeah.

**Richard Campbell:** So you are saying, you are able to have a look at that, and know, that's a Verizon proxy, and you are able to interrogate that proxy to find out where I am?

**Bill Varga:** Yeah; interrogate the proxy and go all the way back to the mobile device and locate the mobile device; that's exactly what we are talking about, and in the cellular marketplace and also on the WiFi market space as well. Now, we are talking pure Geolocation now, because as you have identified, now, we are actually through the Public IP Interface; we are actually locating the user, so the actual location is independent of the IP.

**Greg Hughes:** You know, one of the areas I know that's been a little bit difficult in terms of tracking users across and doing Geolocation has to do especially with just the huge number of WiFi hotspots that are out there nowadays, and you go to the bay area, like where Quova's headquarters are and you have the Google



mobile network. I can drive all over Mountain View down there and get free WiFi thanks to Google. What about that area; what are you guys doing in that regard?

**Richard Campbell:** Well, very similar to the cellular example Greg, where we are going to identify instantaneously that this user is connected in this case through a WiFi proxy, and we again have enabled new technology that allows us to go through their proxy, and it's actually triangulation based technology that lets us identify where that WiFi user is, and by the way, these wireless technologies are much more accurate in terms of proximity than typical IP Geolocation. When you are talking a WiFi, usually the resolution is really within a several hundred yards, when you are talking cellular, you are really talking within a mile or so.

**Richard Campbell:** So, within the postal code certainly, if not even closer.

**Bill Varga:** Yes, much closer than the postal codes for the wireless technologies.

**Greg Hughes:** And in fact just the other day, I was down at Quova's office. I get on a wireless network down there and I was really surprised on a little thing that you had that sort of put my location on like a Yahoo! Map - it was pointing and showing that I was -- it was probably within 50 feet of where I was actually sitting.

**Bill Varga:** Yes, it's quite remarkable. And with both Cellular and WiFi, it has to do with densities of triangulation. So, if you are in a city where there are a very dense configuration of cell towers and/or wireless devices, the resolution is exactly that, it can be a number of feet.

**Richard Campbell:** Well, triangulation implies three points of contact, but WiFi mesh nodes could get much higher than that.

**Bill Varga:** Yeah; and of course the density is also part of that.

**Greg Hughes:** So, I probably should say that the company that I work for, Corillion, and where we do security software, that we use Quovas data in part of what we deliver in our authentication and our forensic software. Might be interesting to talk about forensic or to do analysis; so, if I am doing research or an investigation where maybe I am sort of going after bad guys -- and certainly, IT departments with the higher thresholds that are established in terms of requirements for what IT departments have to do in terms of tracking things and making sure bad guys aren't attacking them or getting in, what are some of the segments -- I mean, certainly security and doing

that is an area that you guys sort of focus on, or anti-fraud if you will. What other areas or market segments are really leveraging the Quova data and the Quova services in terms of IP intelligence, and how do they use it?

(00:19:53)

**Bill Varga:** Yeah, it's actually quite -- used very broadly and I've referred to and we're talking financial services that the eCommerce ecosystems that's how I like to think of it in my mind's eye picture, and where IP Intelligence add value as we go around it. Certainly, there are four big areas in the security and fraud space, and we've talked about a few of them. One of the first is what we talked about in terms of assessing what is the type of activity and the profile of the IP when it arrives, when a visitor arrives at your site. Most commonly that is utilized inside an anti-phishing solution, Corillian happens to offer a very good anti-phishing product as well called Corillian Fraud Detection System.

**Greg Hughes:** My point, by the way, wasn't to make an advertisement out of that but rather an interest to full disclosure, I want to make sure that people are aware that I've been working with Corillian for some time and that's why I find they have information about and find their products to be very interesting.

**Bill Varga:** Yeah, but as we through the ecosystem, no one of our partners, and we have very large partners like Corillian and others, no one partner covers the entire ecosystem. So, I did want to start with the phishing example, but I want to also quickly touch on some of the other more important ones. So, the other area would be online application and online transaction where I think we touched on briefly before, you've got a banking client that's throwing out a new application. So, the credentialing part of the application can look absolutely fine and that's very true with the type of Internet crime we see happen, they've got the social security and license and addressing information all down correctly but in fact trying to match the IP with the application information shows that there are some serious problems like we mentioned before that the applicant says it's in the US but the IP is saying it's coming in from Saint Petersburg, Russia or the IP is one of these anonymizer types where the person is trying to intentionally mask what their location is.

**Richard Campbell:** And I guess to tie these two things together here, obviously Corillian has done a lot of work in this area and so they have their own software, but I was just thinking the challenge of this is actually analyzing it in a useful way. So, if you don't already own a nice



package or software for it, this is the stuff that Quova does. I don't actually want to know the guy's IP address, what I want to know is what's his risk, how risky is this guy.

**Bill Varga:** That's absolutely true.

**Greg Hughes:** I think that Quova, this type of intelligence around Internet Protocol addressing and location is used in a wide variety of risk assessment and risk mitigation technology packages, enterprise software.

**Richard Campbell:** I ran into an interesting situation, and I recognized that Quova addresses this where we were building detection software for bad behavior and one of the things we watched for was that the customer's IP was changing regularly as they were connecting, and it was a simple mistake that you think, oh everybody has got a broadband connection, so their IP address hardly ever changes, but the dial-up guys get a new IP every time, and some poor guy with a bad phone line got cut off from the site because his modem kept quitting on him, and he kept calling back and getting a different IP every time. So, after ten IPs in an hour he was out and wasn't in a loving mood I might add at that point.

**Greg Hughes:** Yeah and Bill, maybe you could address how that works. I know that I can speak to it in terms of our intelligent authentication application that actually tracks and watches those things and the beauty of looking at IP Intelligence in terms of consistency of data for any given user as opposed to looking at individual IPs, that's one of the real values in using like an IP Intelligence set of data.

**Bill Varga:** Yeah, and in fact this scenario that Richard just went through, really would require a dataset in the way Corillian and others typically apply it that that user would not have been prevented coming back in.

**Richard Campbell:** Because you'd recognize it as a dial-up customer.

**Bill Varga:** Well, it's not only that they recognize it as a dial-up, when you're talking about dynamic IP address allocation which a lot of the ISPs do, you have to think about how Quova is identifying the IP and we're talking about onramps to the Internet. So, for an ISP they're assigning onramps to their users like almost the analogy, it's the mailbox within a given community. Well, everybody is coming to that same mailbox. So, how the analogy plays out is even in the same area, even if you have a different street address, you're going to end up using that same mailbox because you're in the same area. So, the

dynamic assignment really doesn't necessarily change their geo location from a lat/long perspective, because they're coming back to that same mailbox.

(00:25:10)

**Richard Campbell:** Well, they're going to tend to be assigned for within the same C or a couple of different Cs. So, they're not going to change a lot but they are going to change.

**Greg Hughes:** Right and the ISP remains the same on the IP block, and maybe the city that you're locating that to or the region or state that you're locating that to remains fairly consistent for that user.

**Richard Campbell:** I always have a laugh when it comes down to the sort of city resolution IP data, because it seems like a lot of people live in Reston, Virginia.

**Bill Varga:** Yeah that is good one because I think most people know that's the home of AOL, and AOL tends to aggregate their users through that proxy.

**Richard Campbell:** Yeah, they are the great proxy users, aren't they?

**Bill Varga:** They are. Of course, that's changing, as their service changes, but it still a multi-million subscriber base that ends up coming through Virginia. So, the new capability that we introduced earlier this month also can penetrate the AOL proxy to the end-user. So, we can uniquely credential that AOL user, even though they no longer have a public facing IP when we credential them, it's much like the CLR we covered when we talk about cellular or Wi-Fi, we're no longer identifying the person based on IP, but we're identifying them uniquely.

**Richard Campbell:** It's interesting, and it's an interesting problem to deal with. I often wondered just how many millions of dollars worth of technology have gone into dealing with AOL's mega proxies.

**Bill Varga:** Yeah it's certainly a challenge and a lot of our clients in the digital rights management space are challenged, and unfortunately for AOL they'll setup what we call an AOL flag, and if the user is coming to and wanting to make a purchase on a digital rights managed product, there are basically disallowed, they're singled out, because they use AOL and they cannot be located and they're not allowed to use the service. So, there are some challenges and hopefully with Quova's latest technology release we can help resolve some of that.



**Richard Campbell:** I am trying to imagine how you've done this. Is this a negotiated deal with all these different carriers?

**Bill Varga:** That's really the fascinating point is it's carrier independent, and the technology that actually we co-developed intellectual property that's now Quova from two gentlemen that were part of Stanford University research project.

**Richard Campbell:** Where all the clever ideas come from.

**Greg Hughes:** I've had the opportunity to meet at least one of those people, and it's every now and then you meet somebody that, the only term that comes to mind is "wicked smart" and that applies in this case.

**Bill Varga:** So, we were talking about uses in the ecosystem, the other big use case of course is not security related but it's marketing related. There's a huge yield and a growing competitive advantage for having IP Intelligence in your marketing ecosystem. Just to touch on a few points here, I want somebody who lands on the site, let's say, again, we're in the financial services market, at the point where the person lands, if you know it's Bill and he is in the Boston market, most financial institutions, they have regional financial products. If Bill is looking for an insurance product, you want to let him know what insurance products you have for the Boston area market as soon as possible. Every additional click that Bill has to do to navigate to the right products in Boston causes a greater site abandonment.

**Richard Campbell:** Yeah, better risk he is going to leave.

**Bill Varga:** If a company has a very strong brand, they mean that they pick up the phone and they call to find out about insurance product or in worst case, they come into the branch, either one of those, but much higher cost channel than having a successful Internet experience.

**Richard Campbell:** I'm also thinking along the multi-national side of things that I like having one dotcom website, but if you come to me from Sweden, I think I should throw Swedish content up there.

**Bill Varga:** Right. Absolutely, content is core enablement, it is enabled by IP Intelligent.

**Greg Hughes:** Yeah, I know, I've seen what I assume as IP Intelligence driven marketing on websites where if I am searching for windshield glass replacement, and I click and I see an ad

that is for maybe a nationwide or a multi-national glass chain that does that for you but it contains the Beaverton, Oregon phone number and address right there in the ad.

**Bill Varga:** Yeah, that's IP Intelligence at work.

**Richard Campbell:** And great personalization stuff, that's how you win a customer.

**Bill Varga:** Yeah, I mean we are all annoyed whether it's a website or an automated voice attendant where you have to go through so many layers to get what you are after and being able to peel back those layers and immediately get directed to exactly what you're interested in is a really value-add.

(00:30:05)

**Greg Hughes:** Well, and it does work. I can tell you. When I got my windshield replaced a couple of weeks ago, it was from the company that had the ad, that was targeted, and showed me the phone number right there without me having to dig for it.

**Bill Varga:** That's great, that's a great story. The other use in terms of assessing all those great Internet activity is they call the dataset independently, typically it gets loaded into analytic engines that customer site where they're -- yeah, the analysis is run across marketing performance on the Website in terms of trying to figure out where geographically and by network connection types users are coming to the site from. But also it -- you know the analytics portion again touches the fraud risk department not only for compliance reporting and auditing purposes and again identifying people like opaque visitors but also to help improve fraud models when you can analyze with IP Intelligence that are added, what are the typical characteristics that make for a high risk visitor, that's very helpful. They change over time so having constant ability to analyze what is happening on your Website, is a very big benefit of IP Intelligence.

**Greg Hughes:** Absolutely and IP Intelligence I think also really helps to further enable this really growing and probably in its infancy concept of behavior oriented security models and it'll be very interesting to see over the next several months and years, how that continues to grow.

**Richard Campbell:** Behavior based profiling and of course IP is just one part of that whole equation.

**Greg Hughes:** Right, I call it modeling; you call it profiling, tomato-tomahto...



**Richard Campbell:** Yeah, yeah, yeah.

**Bill Varga:** The reality is the more information you can put into your risk model the more predictive model, more stable model you have so what Greg is talking about is right absolutely...

**Greg Hughes:** Oh and the beauty of it is, is where we are looking at a person's behavior and information that they are not submitting but rather information that we can reliably glean about that user without touching personal information like Social Security numbers and login IDs and passwords and a variety of other highly sensitive information where privacy is often a concern to be able to use, -- watch for patterns and behavior for people where with information that's not private and to be able to make risk based decisions on that is a pretty valuable thing.

**Bill Varga:** Yeah and in fact I will elaborate on that in terms of we are talking about wireless and the resolution being in some cases the number of feeds. When we resolve someone with a typical IP Geolocation resolution, it's down to the city neighborhood level, it cannot resolve to a street address. And that's because it can't resolve to an individual there's no personal identifiable information in an IP Geolocation search but when you start taking out a wireless, now you can actually -- with the Wi-Fi you can actually do altitude as well. So, not only if you were in a city, you could name the office, but you can also tell what floor it's on. So, Quova is very much an advocate of making sure that when any of that technology is used, the person pre-approves and is fully aware that they are going to be Geolocated. But if you are, for example a majorleaguebaseball.com customer and you want to see the real live streaming of a major league baseball game and you want to do it on your phone or your Wi-Fi device, and you are asked, do we have your permission to locate you to make sure you are not in a owner's blackout zone...

**Greg Hughes:** Sure.

**Bill Varga:** ...in most cases, you are going to say yes. So, we are very, very sensitive to not breaching privacy.

**Greg Hughes:** Maybe we started to discuss a little bit of forensic detail earlier. I can tell you a recent story where Quova's data, through one of our tools, and used by a financial institution where the institution was notified by Federal Law Enforcement about a prison escapee who happened to have a bank account with the institution and they were able to geolocate use of the account by the bad guy and that evening the FBI went and picked him up based on IP

geolocation information, they were able to nail down where that person was and put that person for all intensive purposes back where they belonged.

**Bill Varga:** Yeah and there is a lot of use of IP Intelligence in criminal investigations and you know that brings up another observation about the Internet. Of these 1.5 billion routable IP addresses, Quova observes that they change on the order of 3-5% a month and the assignments change. So, when we are helping with investigations for a variety of different clients, we actually have a historic perspective of the Internet and how it existed for the last four plus years. And then often it comes into play in court cases and investigations where you need to know exactly how the Internet was laid out at the time that the evidence was presented.

**Richard Campbell:** Yeah, because it's just going to keep changing. We keep talking about needing more IP address but it doesn't happen to have happened so far. We find ways to avoid it, more and more proxying I think is the answer there.

**Bill Varga:** The listeners should be aware -- I mean there is as in all technology, in involving next state vision for the Internet which will expand the number of IPs exponentially but that will be again a gradual expansion, Quova is well positioned to handle that expansion. Of the current 1.5 routable IPs that are used, there is a - - their total capability today for well over four billion. So, we are really not close to utilizing all of the available IP addresses today.

**Richard Campbell:** You are right and IPv6 being the next version of it, I think it really stalled because we found ways to avoid needing to go there.

**Bill Varga:** Yeah, exactly. We are not near the capacity that would force us to it. But those things change; they take time but they will change and there are other advantages that are inherent in IPv6 and over time I think we'll see everybody gravitate there, but it'll be several years.

**Richard Campbell:** Yeah, I don't want my iron to have an IP address.

**Bill Varga:** Yeah your outlets, [Laughter] your refrigerator and just about every other appliance.

**Richard Campbell:** Yeah at least you'll know where it is in my house. Alright gentlemen, I think we are about to hit our time limit to the day, any final words, Bill?

**Bill Varga:** Yeah, I would just like to point out that Corillian has done an outstanding job of



actually leading the way, leveraging IP Intelligence data, the use of IP Intelligence data is really a fairly current phenomena and that Greg and his team have done just a great job helping us expand our footprint in the e-commerce ecosystem.

**Greg Hughes:** I should probably point out that anything that we talk about here that I say on this show is my point of view and my opinion alone and does not represent that of my employer. Thank you very much.

**Richard Campbell:** Alright guys, thanks for the conversation and we'll see you next week on RunAsRadio.