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LOS ANGELES – RSSAC Meeting and Caucus Information Session  
Wednesday, October 15, 2014 – 11:00 to 12:30  
ICANN – Los Angeles, USA

LARS-JOHAN LIMAN: Good morning everyone. This is the Root Services Advisory Committee public meeting. My name is Lars-Johan Liman. I'm one of the co-chairs for the Root Services Advisory Committee. I normally work with a company called Netnod and we operate one of the root end servers. This is when I need to figure out where my clicker is here. I hope my voice is going to carry me through this. I did not attend the music night yesterday. You still can't hear me? Okay. So should we go for a different version then? Okay, we'll try again. We're having some issues with the audio. I'm informed that the large public address system in the room does not but, the microphones work and obviously, it works with a translator. So, if you have the little headphones, they would repeat would I say in English and also in other languages.

[CROSSTALK OFF MIC]

LARS-JOHAN LIMAN: I usually start with a few slides about RSSAC. Usually, there are one or two newcomers in the room and just to explain that RSSAC is the Root Services Advisory Committee. We are an advisory committee to the board and we typically advise the board on matters in relation to the operation of administration security and the integrity of the internet root service system and the integrity of the internet root service system as a whole. It's not only the specific servers. It's the entire chain of technically generating the root zone file and distributing that to the root

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*Note: The following is the output resulting from transcribing an audio file into a word/text document. Although the transcription is largely accurate, in some cases may be incomplete or inaccurate due to inaudible passages and grammatical corrections. It is posted as an aid to the original audio file, but should not be treated as an authoritative record.*

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service system and then publishing it. You should note that this is a very narrow scope. It's very easy to confuse us with the System Stability Advisory Committee which has a much wider scope. They're a much larger committee. They have much more on their plate. We're a fairly small committee and we have a very narrow focus.

We do sit next to the Security and Stability Advisory Committee so we're here in the general plan of ICANN. We do participate as one of the advisory committees in the various ICANN-related fora. For instance, we do participate in the NTIA Stewardship transition discussions, the coordination working group for that and also in the various accountability discussions. We try to be present and approachable at least when it comes to general multi-stakeholder discussions. There's lots of stuff going on out there, developing policies and advice. We are a very small committee so we have very small resources but, we try to use them as best as we can. As you will see in later slides, we are trying to build up a bigger foundation of people that we can look to to help us to convey information and participate in other fora. We also interact with the board. We have a liaison on the board. This is Suzanne Woolf here to my left and we do advise and participate in the board discussions. We also have a member on the ICANN's nominating committee.

Those of you who have been following us have probably learned that RSSAC has undergone a rather big reorganization. That is now in place. We are now operating with this new organization. So, we have the RSSAC, which is a formal committee which consists of appointed representatives from root server operators. There are 13 lectors for root servers but there are 12 organizations. We have alternate to these

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and we'll talk about them later. We also have liaisons to various bodies and organizations. The new thing in this new organization is the caucus. Since RSSAC only has 12 formal members and I think it's five or six liaisons, the caucus is intended to be a bigger body of volunteer subject matter experts, which we can interact with, ask for advice, ask for help to produce documents and so on. That's a group of people that RSSAC appoints. In that capacity, we have Joe Abley who is one of the document leaders for a document we were working on.

We have after long and hard work produced a set of operating procedures and principles that we use in our work. This has been a long-standing problem. We haven't had any formal procedures to work along and we now have documented procedures. We know how to do this and this helps us bring work forward in a much better way than we've done before. In these procedures, it's described what RSSAC, the formal committee does, which rolls, it fulfills and they are to list and keep track of work items. When we've identified work items, things we need to address, think of, maybe write documents about, come to conclusions, make statements, whatever, we have a tool here by creating work parties from the caucus. We can solicit volunteers from this group of subject matter experts who can help us to investigate and write documents.

The work parties in the caucus will eventually produce results from the work and it's also the smaller formal committee's role to take formal action with the results that come from the caucus and the work parties. This could be to take the formal decision to publish a document or issues a recommendation to the board or various such things.

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We also appoint and accept liaisons in the formal committee and also the internal procedures course of electing co-chairs to create our own processes and procedures. This is all documented in a document that we refer to as RSSAC 000 and we can find it at that link if you want to. This is the link that goes to a list of publications. So, you can see what we publish but that document is very prominent in that list.

Currently, the co-chairs are Professor Jun Murai, who unfortunately couldn't be here at this meeting and myself. We have two-year terms, staggered so that there's always a senior chair that can bring the new chair into the working procedures and so on. The RSSAC members are appointed, one from each root server organization. You can see the list here. These are then confirmed by the board. They're appointed by their respected organizations and then confirmed by the board. Of these, counting off the top of my head, we have six of these represented here at this ICANN meeting.

UNIDENTIFIED SPEAKER: People should raise their hands.

LARS-JOHAN LIMAN: Why not? Those of you who are members of the RSSAC committee, why don't you raise your hand? So we have five in the room here. These members also have alternates. It's turned out that as usual, you cannot attend all the teleconference or all the meetings. Since, we're a very small committee, we depend on information flow from the committee to the committee members, we sometimes have important decisions to

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make and we need a quorum in order to vote. So, we have created this system of alternates where every member can have an alternate member from the same organization who steps in and votes in case the regular participant is unable to. These alternates participate in the meetings regularly to stay informed so; they can actually fulfill their role in case of the regular member being unable to. They take part in the discussions and all the information flows but, only one member per organization is allowed to vote. Voting is something we do very seldom but it does happen. We do it for publication of documents, election of people and so on.

We have liaisons to the various root administration functions. We have them to the IANA functions operator which is the IANA department [Inaudible]. This is Elise Gerich. I'm sorry, this is a typer error. I am sorry Elise. It should say Elise, not Elsie. Duane Wessels is from Verisign and some may maintain their role. There's also a member the NTIA for the IANA functions administrator. According to the US DoC government principles, they do not name an individual person so, we often see [Ashley Hinamen] in that role but, she's not formally appointed by that government. They say, "We send someone" and that's fine. This works for [Inaudible]. We also have liaisons with the internet architecture board. This is Marc Blanchet and with ISOC with whom we often share concerns or look at similar problems. Russ Mundy fills that for us. We also have Suzanne Woolf here who is the appointed liaison to the board.

As I mentioned, the purpose of the caucus is to be a pool of experts who can help us to produce documents and we created this to widen the

pool of expertise that we can draw from. That well of people and organizations and the liaisons is still a very limited group. We needed a wider footprint. We needed to generate some critical mass and a broader spectrum of the input. We also would like to increase the transparency of who does what work. In order for that to be more apparent, every member of the caucus has to produce a statement of interest saying why that person wants to participate and what other roles, what other hats they wear. The caucus also has a framework for getting the work done, how to select document leaders, deadlines and results and so on. We have a process where we generate the scope document, which is the specification for what work we request volunteers to do so they know what they're buying into.

Caucus members are all members of RSSAC plus others appointed by RSSAC. They also get credit for work they do. If you as a caucus member participate in writing a document, your name is on that document as a contributing member. From the committee, we hand the caucus work items but, as I said, we have clearly defined scoped documents so that they know what the task at hand is and this is something that we also revisit during the work so that we can see that it's reasonable the task that we give them and that it still fits. If there are things that are found underway, we can amend this scope document if we need to but there is at least on the outset, a well-defined document. We ask for volunteers and from the volunteers we select one or two document leaders who lead the process of creating the document, who will lead the discussions, keeping track of issues, making sure the document is edited and so on. This is all very result-oriented.

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We also have the ability to include descending opinions. If there is a majority but not unanimity for a certain opinion to be expressed, people who participate from the caucus or members of the formal committee can state their descending opinion and have that listed in the document so that it becomes apparent for people who read it.

I think is when we hope to get Tripti Sinah is one of the members of the committee and also a member of the caucus membership committee to continue the presentation. Tripti is the member appointed by the University of Maryland who operates the D-root and I hope that she's able to speak to us on line. She couldn't be here unfortunately but, she should be on the phone. Do we have Tripti with us?

TRIPTI SINHA: Yes. I am on the call. Can you hear me?

LARS-JOHAN LIMAN: Oh, gosh. Hang on Tripti. I will get the sound guys a second chance to get...yes; I get the thumbs up here. So, please go ahead. We now have the headline slide in front of us with the headline "RSSAC Caucus Membership Committee" to welcome Tripti.

TRIPTI SINHA: Good morning everyone. I'm Triphi Sinha, a member of the RSSAC caucus membership committee and also a member of the RSSAC. I come from the University of Maryland and [Inaudible] the opportunity. Next slide please. [Inaudible]. We are appointed by the RSSAC as the RSSAC Caucus Membership Committee and we are composed of three

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individuals, one of us [Inaudible] to be a member of the RSSAC. As I said, we are appointed by the RSSAC and we serve a term of one year. Next slide please.

I'll tell you what we do and what we have done thus far. We began by bootstrapping the RSSAC caucus by contacting interested parties. We've been in this space for a while. We began by contacting the old RSSAC mailing list members with an invitation to join. We also extended an invitation to other groups involved in these activities such as the IEFT list, a DNS work and the RIPE working group. Our intent is to maintain a continuous stream of new members to the RSSAC caucus and also to manage membership. We do report back to the RSSAC about the RSSAC caucus membership requests of the status of applications because we intend to maintain a continuous stream and keep the RSSAC informed. Next slide please.

To join the RSSAC caucus, the request comes to [RSSAC-membership@ICANN.org](mailto:RSSAC-membership@ICANN.org). We monitor requests that come into this email address. We request that you send a statement of interest if you're interested in participating and to include your background, development, expertise and skills. Then we do an evaluation process and forward that to the RSSAC for consideration. Then, we do return back to the candidate with what the outcome the decision is. Next slide please.

We meet every other month to discuss the kinds of requests that are pending and at that point immediately forward the request to the RSSAC. There's occasions where they can be some work item that might



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be underway and there might be a candidate that might be very interested in participating in this work item and has germane experience. In that case, we would request a special committee meeting to be able to evaluate the request and forward it to the RSSAC for consideration. Next slide please.

Essentially, there's a part of the website that says, "If you are interested please send an email to [RSSAC-membership@icann.org](mailto:RSSAC-membership@icann.org). Please include a statement of interest and your background." We will continue to issue calls to the community with relevant experience and we also periodically review the composition of the RSSAC caucus with the RSSAC. We have our information posted on line and I've included the URL and I believe that is it, my portion. Thank you, Liman.

LARS-JOHAN LIMAN:

Thank you, Tripti. As you were on the phone, I'll take the chance at this point to stop and see if there are any questions from the floor for Tripti or the membership committee. I don't see any so, thank you very much Tripti and we will continue from here.

The on-going work, we have two work items that are two work parties that are acting right now. They have to respective tasks. One is to work on a document regarding service expectations of root servers. This is something we do in tandem, in parallel with the internet architecture board and Joe Abley will tell you more about that in just a second. The other one regards root server system measurements. A couple years ago, around 2009-2010, I conducted a root scaling study in preparation for the new gTLD program. One of the confusions of that investigation

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was that it would be good if we have standardized measurements of the root server system. What we want to look for are trends and especially, by having such trends, we can look for signs of stress in the root service system and if such stress symptoms should appear we could address the matter at an early stage. In order to do that, we need to have measurements that we can compare between the root servers and that's the task of this second group to find such measurements and then document them.

At this stage, I would like Joe to speak about the first one.

JOE ABLEY:

Good morning, I'm Joe Abley. I work at Dyn. I'm not a root server operator but I am a member of the RSSAC caucus at this moment right? I know what that means Jim. Next slide please.

This effort, which is described in this slide or as Liman has mentioned, it's RSSAC 001. It's the target name for the document. As a result of a recognition that we have a history of public documentation for how the root servers behave that is not sufficient for 2014. This effort is an attempt to try and remedy that situation. We started with no guidance for the operation of root servers. The internet was a different place, a gentler, kinder place. At some point after that, it was recognized that some guidance would be useful to describe exactly how a root server should work and what it should do. I believe the first public example of that RFC 2870. Next slide please.

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Here we have a screen-shot from RFC 2870. It's a document that was written in June 2000. It was needed at the time. It was useful. It's certainly still useful in terms of historical record. We have one of the authors in the room here. What is being recognized in the 14 years that have passed since this document was published is that some of the advice in this document has not kept up with the on-going advancements and the general business of how you do authoritative DNS on a large scale. Next slide.

We have things we have to worry about today that we not things we had to worry about 14 years ago. We have new requirements like IPv6. We have new techniques of how we push authoritative name servers out into the internet like Anycast. We have flash crowds and DDoS attacks that did not exist 14 years ago, at least not on the scale that we see today. The result is that the guidance presented in RFC 2870 has not always aged well. There are sections of that where if you built a root server today, that constrained itself exactly to the recommendations in 2870 would not provide adequate service in 2014. So, this effort aims to update this information and give people who are customers, directly or indirectly, of the root service system better guidance as to what they can expect. Next slide please.

IETF 83, which I believe was held in 2002 in Paris, was the earliest I can remember that there was a sort of vague consensus that the way to update 2870 was a two-pronged approach. It was to identify protocol and technical requirements in the IETF and marry those with operational expectations that can be described better with an RSSAC. The two-pronged approach here is to specify the baseline protocol

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requirements in the place that those protocols live, in the IETF and to produce something resembling a self-declaration from the root server operators which would guide people as to what they can expect in the behavior in the root server system. For example, to allow people to be able to tell whether what they see in their live-production network is what they should expect to see or whether there's some problem that can help them troubleshoot and remediate. 2870 is being updated by the IAB. Marc Blanchet is taking the lead on that document to constrain itself to just those protocol technical points and the remainder is being put into a document to become RSSAC 001 which is being produced in RSSAC. Next slide.

This document has been a long time coming. It's a long time since we met in Paris and as Liman described, there's been a lot of work going on within RSSAC to restructure the way that the committee works and that has naturally held up the production of this document. Since RSSAC has emerged as the new shiny additional AC with extra vim, we now have the ability to push this document through. Next slide.

A couple of points about this document, the intended audience is anybody who cares about root service system, anybody who depends on it directly or indirectly. It's a technical document. It's not intended for consumption by end-users. They're welcomed to read it, of course, but it's not clear that they'll get much out of it. The goal here is not to present something that is a constraining document for root server operators but rather, to provide a central reference that will allow individual root server operators to be able to put up their hand and say, "Our service conforms with the expectations that are described in this

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document." So, it preserves the ability of individual root server operators to control the nature of their own service but also gives people a shortcut in a centralized set of words that allow that service to be described. Next slide.

I am going to skip ahead briefly to the status but, here is a preview of the general categories that are included in the document. Each of these headings, you can image a series of statements which describe the expectations that users of the system might reasonably have. The only reason I didn't put all of these points on the slides is, first of all, there's a lot of them and that would be a lot of slides to read through. The other thing is this document is not quite published yet. We are still in the last phase of the review process and it's probably premature to put actual text while it's still a draft document onto slides. Certainly, these categories here describe the areas this document addresses. Next slide.

I think we talk about the status. On the IETF side, Mark has written this document draft-iab-2870bis.01 that has been through IETF last call. From what I saw during that last call process and what I hear from Mark is that the main concern with that document as written is that it refers to an RSSAC document which has not yet been published. That, I understand is the principle reason why this document has not progressed to an actual RFC in the IETF, it's being held waiting for the RSSAC work to continue. Next slide.

The status of the RSSAC document is that having been written and drafted before and during the RSSAC process, the document was already fairly well-polished. In the most recent discussion period that

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we had in the RSSAC caucus, there was a small amount of feedback and suggestions for improvements which have been incorporated. The current status is that it's nearing the end of a week long last call within RSSAC following which we expect to send some sort of recommendation to the RSSAC exec to publish perhaps with modifications suggested during the last call or perhaps those that will be rolled in before we send it to the exec. We can talk about the process internally, I guess, but the general message here is that document is almost ready to go and we expect the RSSAC exec in the next week or two to be given the opportunity to make a decision on it based on the caucus's recommendation. Next slide, if there is one. Nope. That's not me. So, that was RSSAC 001.

LARS-JOHAN LIMAN:

Thank you, Joe. Since we don't have any of the document leaders for the other document here in Los Angeles this time, I will give this one slide overview what it is all about. As I mentioned, this pertains to the root scaling study that was undertaken a couple years ago. What we're trying to do in this document is to detail a number of specific measurement that we will ask the root server operators to undertake in order to create long-term statistics that we can look at to see if the system starts to show any sign of stress. Of course, the primary reason for wanting to look at this is the new gTLDs because we're now changing the root zone at the pace that we haven't been near until now. Just in the past year or two, we've doubled the size of the root zone and before that, changes were few and far between and the only changes were the existing TLDs who made changes to their names or so, possibly adding IPv6 matters. The pace, change tempo has changed dramatically for the

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root zone so; we want to have some statistics in place to be able to look for long-term trends here. Also the environment that we operate the root servers in is changing. As Joe mentioned we are seeing new types of attacks, new patterns of usage and there are things that could possibly generate stress on the root service system so, we want to have some statistics to identify signs of stress.

Just to mention what things we intend to measure, this is also a document that is fairly mature so, just like Joe did, I will give you the headlines of the document. We're looking at the latency in the distribution system. This means the time from when the root zone is published by Verisign would edit it until it is actually in operation at the end notes that provide the service to the internet. There is a chain from Verisign to the end note which the zone has to propagate through and we're looking at the delay time here. The size of the overall root zone, how the zone content, the number of records grows over time so that we have something to relate the other curves too.

Of course, we're looking at the number of queries, how many queries does the root service system receive and we want to be able to see in total for the entire aggregated number of servers out there. So, we are collecting this or intend to collect this at each and every server. Then, we'll also look at the query and response size distribution, how big packets does the server respond with because that has turned to be an interesting property of the DNS traffic especially, in relation with the DDoS attacks. It also has an impact on the connectivity need on the network bandwidth that we need in front of these servers.

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We also look at R-code, stands for response-code when the DNS servers who respond with the message back to the client they set by your status code in this messages and looking at these can give us some idea of what is going on. Also, the number of sources. The source address identifies a unique client and we want to see whether we have few clients of many clients and how that looks in various parts of the world and how that changes over time. These are the properties that we are going to recommend as it looks right now.

The root servers collect various types of statistics; this is just one picture from one of the servers. This is K-root operated by the [Inaudible] in Amsterdam. They have a public statistic for the root server. This is just a picture of the query load of their aggregated system. You can see in the ledger to the right, the various instances where they operate. They use the encaustic technique to deploy in many sites and to the right is the list of sites and you can see the queried-out aggregate of all these sites. This you can find if you click your way from the root server information web page, [www.root-servers.org](http://www.root-servers.org) (not .net, .net is used for the actual service; .org is used for information about the service). Here all the root server operators are listed. Not all of them provide public statistics but some do. You can also find information about IP addresses, autonomous numbers and other operational issues that they want to provide information about. So, this is a collected portal to reach the various root servers and I believe that there are also ways to contact the various operators if you would like to reach them.

That actually brings us to the end of my presentation. Are there any questions or comments? All peace and quiet, that's how I like it. I like it



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when it just continues to operate and just works fine. Unless there are any comments, I think we're done for now. If you want to speak to me or any of my colleagues, we are here, several of us for the entire week. Just come and talk to us. I'm always happy to talk to people about root service and how it works and everything around that and also about RSSAC, of course. Thank you everyone. [Applause]

[END OF TRANSCRIPTION]