
ICANN83 | PF – SSAC Work Session: FOSS Work Party Meeting
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This session will now begin. Hello and welcome to our SSAC work session for the Free and Open Source Software Work Party. My name is Danielle, and I am the participation manager for this session.

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MAARTEN AERTSEN

Good morning everyone, and thanks for joining our Open Source Software Work Party. So, we'll be doing a couple of things today. I would like to briefly review the slides we prepared, or John mostly prepared for the presentation we'll have later this week to talk about what we're doing. We'll review the comments made during the seven-day SSAC review period, and of course the floor is open for your comments. But before we go there, I would like to give a

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special welcome to Elena from ICANN's government relations team, and we'll involve her in the discussions today. I think, that's it for an agenda and I'll head over to the slides.

So we've been writing this paper about the use of FOSS in DNS infrastructure, and in particular because it has unique characteristics compared to physical products, compared to proprietary software. And the motivation for writing this paper is that there have been policy debates, and also regulatory developments in the EU in particular that regulate this space. It turned out that they did not at all times fully understand this model. The idea of the paper is to make the critical reliance of Open Source Software in the DNS space visible, because it turned out there's not actually citable papers on this particular topic.

And then try and flesh out the space a little bit in terms of explaining what is there, how is it used, what are some of the misunderstandings that can occur logically, actually as a consequence of how this is a bit odd as compared to other fields. And then lastly, give some recommendations to a policymaker audience to help them when they are intent on regulating the software or infrastructure space. That is, I think, in brief what we set out to accomplish last year and we're now at the point where we are working towards a published document.

So we look at four areas. We survey the landscape, what is actually used in the registry space, what's used on the DNS side of things. We then look at characteristics of open source software, generally

across all of software, but specifically about the DNS that I've just identified in the landscape. So we compare and contrast and we describe how this fits together. Then there is more of a policy consideration part of the document, which lists a number of misconceptions that some of us observed in practice and try to clarify how to think about this space. So it's not like an exhaustive list, it's more of things that we observed and felt that there could be like a more technical driven perspective on how this works.

And then finally there are risk factors we identify in this space, which might or might not be relevant for policymakers when they discuss this. So this is the investigation we did. And like I said, we're working towards a publication by next ICANN, next slide, where we will also offer guidelines. I think, that is about it for the slides. I'm not sure, do we want to dive into the, no, I think, it's fine, right?

JOHN EMERY

Yeah, we have the breakdown if you want to go through that briefly, or just kind of high level summary especially for the audience.

MAARTEN AERTSEN

Yeah. So in each of these portions of the pie, we have some preliminary findings. So in the landscape, we find that open source software is mostly everywhere. So if you look at the ccTLD space we find that 20 out of 25 top operators use open source software. The same, if you look at the space like ccTLDs and gTLDs together,

it's 9 out of 10 and then the root system there's 9 out of 12 that use FOSS exclusively. Some others use it part of the time. So in this space, the use of open source is a norm. Next slide, please.

So then we dive into characteristics. We observe that the funding of making the software and use of this software is completely decoupled. So unlike other products where you might pay for use, that's not the case here. So what this means is that the entire world can depend on software that is sustained by few, and we see this in other spaces as well. There's some like cited material.

Now going from FOSS in general to FOSS for the DNS, it turns out that the DNS software is backed by a couple of long-lived small organizations, and this turns out to negate some of the effects we describe in a general space. And this means there's like a long-term support for those like for everyone actually, but also for those who are willing to pay for this. So this is kind of a dynamic of how this works. This is relevant later in the paper, because we're saying if you're regulating this space, you should account for this type of model because it's relevant to this ecosystem. Next slide, please.

There is a number of misconceptions that we brainstormed based on the Istanbul meeting, where we invited the larger audience to give input to this work, and we have tried to clarify them. So one of the misconceptions that was heard repeatedly is that there's somehow a negative security implication of the use of FOSS. And it turns out that that's actually not a settled debate. It's much more nuanced, and it turns out there's not actually like a security

property inherent in whatever license you choose. It can be more secure, it can be less secure, but it's definitely not one way or the other. And we do a couple more of these misconceptions. Next slide, please.

And then we dive into what we feel are relevant risk factors for this space. And the two ones that I've zoomed in here are, if you regulate developers directly, the regulatory burden should be within their ability to absorb costs, and this directly relates to the idea that the use of their software is not actually tied to their funding. And for operators if you regulate like supply chain security requirements, for example you might preclude them from using the software that's best in class if you do not consider how this model works. So that's it for the zoom-ins.

This slide deck does not have the recommendations, or like executive summary level, because we've not settled on that. This is more of the work we did already. And this is also, I think, the last slide of this deck except for contact details. Thank you John. So maybe to the floor any comments on this slide deck that will, I think, bring as a like a sneak preview to the GAC, and to ALAC later this week. People seem to be in Monday morning mood, but I'm also not seeing big objections so.

JOE ABLEY

I like your slide deck. I think, it's good.

MAARTEN AERTSEN

Thank you. I'll call it John's slide deck.

JOHN EMERY

Staff slide deck. So with that, thank you everyone from SSAC who took the time to go through in the official review period. So for the audience right now, we're in sort of the final stages of this paper, where the full SSAC beyond just this work party was able to review, and give their comments. So now what we're going to be doing is kind of going through the document, and trying to resolve some of those comments. So that's basically the next hour or so of our working session.

So the first comments that we have are from Greg, looking at with respect to registration infrastructure this report establishes. And he changed the wording a little bit to most registry systems, and there is also a comment about Google's Nomulus registry system. So Greg I'll hand it to you if you want to just give us a little context for this.

GREG AARON

Okay, hi. I think, the statement is probably true. I think, one of the things you did is you went, and queried some operators, and they told you. They probably, I think, under responded.

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- MAARTEN AERTSEN Actually, everyone we approached gave us information. So, I think, the limitation is mostly that we didn't talk to everyone, but we did talk to a lot of the larger players.
- GREG AARON Yeah. So like some of them said we use it for this, but left out something else that they probably do use FOSS for. Like some of them use open source to run their web servers, which run the registrar portals, and their web tools, which are central to the registry operations. So anyway, I don't know.
- MAARTEN AERTSEN We will definitely under report. We've been pretty conservative in the statements we're making.
- GREG AARON Yeah that's true. So that's all.
- JOE ABLEY So Greg, what you just said, I think, we have another whole paragraph about that further down talking about how the operations of anything is riddled with open source for all kinds of good reasons, and there are some examples in there. But I do think it's a reasonable question to say would it be worth putting a forward reference or something or acknowledging that that's true, and perhaps for more see this paragraph down below.

MAARTEN AERTSEN

So, I think, this ties together a couple of the like higher-level comments that were made. So Joe contributed text in section 2 relatively late in the process because we invited him to at that time about FOSS use like beyond our tight scope. So remarking like oh this is actually like turtles all the way down. I don't think there's a forward reference. I would like to make that if there's no objections to doing so. And, I think, it also relates to the comment you make later in the document on 2.3, and 2.4.

JOHN EMERY

Yeah, I think, he proposed 2.4, and 2.5.

MAARTEN AERTSEN

So, what I would like to understand is if this is how this relates to the text that Joe contributed, because it might be that we are just not signposting that text clearly enough around the document, and so you missed that part, or it's missing a particular perspective, and then we know if we should point in the right direction or it's missing something.

GREG AARON

I don't know if I made my comments before Joe or after Joe did his markup.

MAARTEN AERTSEN

I think it was after. Because Joe's text was in there before we started SSAC review.

JOHN EMERY

So, did we want to keep it as most, and then add in the forward reference, or do we want to keep it as registry systems, and registry service backends? What do we feel is more accurate?

JOE ABLEY

I think part of the problem here is this phrase in majority, and what that means. I mean there are obviously lots of open source, well there's at least several open source registry packages, which one is Nomulus, which is open source even though you have to run it in GCP, so it's a bit constrained. Well, you don't have to. You have to find somebody who can still speak Java. And there's FRED. CoCCA has got an openish license, so it can be used without payments in some circumstances. I mean, there are some things around this that, I think, maybe this could be softened a little bit. I don't know what we mean by mostly. If we're just counting TLDs by revenue, by domains under. I mean, how do we rank in these things? What does mostly mean?

GREG AARON

I think, like an example would be a registry uses Postgres to run its database, but other components are not FOSS. I think, that's the concept. A piece of the registry system.

MAARTEN AERTSEN

Can we maybe briefly bring up the table, which lists this? Because then I guess that might inspire conversation on how to. I think, it's table what is it? Six, and six, and seven. So these are software systems for registries that are completely open source. So some they are used in some places, but definitely not everywhere like you can see. And then the next table, is we asked a bunch of larger operators to hear like what is the deal here, and the answer was mostly this is proprietary. However we build it on top of open source components.

WARREN KUMARI

Can we go back up to the in majority bit? I mean, I think, that even people who use Nomulus or Fred or something, probably have a few custom scripts as well that they have. So like it feels like the whole, the in majority. Maybe we should say, most registry systems are not exclusively free and open source or something, because like the in majority is weird.

MAARTEN AERTSEN

I agree, and I'm open to changing some of the language. So your proposal is to get rid of in majority?

WARREN KUMARI

Yeah. Not entirely run on free, and open source or something.

JOE ABLEY

To be honest, instead of sort of quibbling about individual words, I think, what we want to say is that there are some registry systems, which are packaged and supported, and they're created in the open source model, and there are some that are not. But regardless of what you're using, chances are you're stacking open source around it in order to actually run it. And without going into precise definitions of every word, I'm pretty sure we can say that. So I mean, I can suggest some text, if you want if you stick my name on there to remind me.

MAARTEN AERTSEN

Thank you Joe. Sounds like a good proposal. Any reactions to Joe or shall we take it that way? Thank you Joe. Back to you John.

JOHN EMERY

Alright, thank you, Joe. You made my job easier. I did just update that a little bit with our discussion, but we'll wait for Joe's there. So moving on, Matt gave this comment existing avenues mechanisms. I just wasn't sure if we wanted to write avenues, and mechanisms or just mechanisms.

MAARTEN AERTSEN

He's proposing a replacement.

JOHN EMERY

Okay. Yeah, easy. Look at us moving right along. Okay so this is in the following guidelines. For guideline number one, ensure that technology, and necessary software is available when legislation and regulations are established. So there's a bit of a discussion here on exactly what this means from Peter, which software needs to be available when regulation is established. And there's a bit of misunderstanding. There's a proposal by Vittorio to say something a bit more generic here, is available to meet the regulator's public policy goals. But, I think, we talked about goals earlier in the session, and how that was a little bit too broad. So any thoughts here?

MAARTEN AERTSEN

I went back to the section that this is summarizing, and then in that section this actually makes somewhat of a sense, but here it doesn't. So we just need to cut this last sentence shorter, and make it more to the point. I actually do like Vittorio's suggestion, but then we would need to actually cut it from this type onwards. So, I guess, my question to the group would be, how do we feel about Vittorio's suggestion?

Because that to my mind would provide a way out. Because the point we're trying to make here is that this is under the bullet of recognizing that FOSS underpins much of critical infrastructure, and the section that this refers to basically points out that this is not a complete coincidence. Because in the past, governments

have funded this effort. So I guess what this bullet could say is something like, this has worked before, it might work again. Yeah.

JOHN LEVINE

Yeah, I agree. As far as I understand it, what we know is like they've thrown money at it, and some useful software has arrived. So I would snip after cooperation, and say something like, has led to the creation of useful FOSS software of useful software or something like that, and just stop without trying to explain what the policy implications are.

JOHN EMERY

And from Joe as well, or is that an old hand?

JOE ABLEY

No, I think, it's an old hand. I can say something, but I don't have anything to say.

MAARTEN AERTSEN

So, can you propose that text as an edit, John? I like it. Any other comments or shall we take John's proposed language?

JOHN EMERY

Yeah, I think, that proposed language sounds good, and avoids a lot of the pitfalls of the run-on sentence. So John you go ahead and put that in, and we'll resolve that. I will drop it in the chat. Okay.

Query here from Matt. Is this just the supply portion, or is it supply and development model?

MAARTEN AERTSEN

So, our charter said development, and supply, but, I think, people asked for that to be removed. I was fine with the development and supply. I'm fine both ways.

JOE ABLEY

I assumed it also included development that's in my mind so, I think, it's fine to stick it in, doesn't hurt.

JOHN EMERY

Okay, with that we will add development if there's no objections.

MAARTEN AERTSEN

Yeah, I would turn it around.

JOHN LEVINE

Oh, development and supply. Yeah, okay.

JOHN EMERY

So, on Number 3 bullet number 2, Peter mentioned it may be worth emphasizing that this may cause quality to deteriorate causing the opposite of the intended effects. So FOSS may risk disrupting the development and integration of FOSS in the DNS ecosystem and infrastructure.

MAARTEN AERTSEN

Let's just actually say what we're trying to say. I like the suggestion. So we just need some text. I'm not sure if this is it, but yeah maybe we can ask Peter to actually give us a sentence, and add it to the section this is summarizing to, which, I think, is 4.2 or something.

JOHN EMERY

Okay, we want to have a discussion on proposed fourth bullet here. Lawmakers and regulators are encouraged to create favorable policies that recognize the unique nature of FOSS. Joe gave it a thumbs up. Vittorio also agreed, but suggested perhaps making it a general concluding sentence rather than a fourth bullet. So we'd invite thoughts on this. Do we want a fourth bullet or general concluding sentence, since this is a pretty broad statement?

JOE ABLEY

I think Vittorio's idea is good. And that will that will tie it up nicely. It's nicer to end on a conclusion than just a bullet point.

JOHN EMERY

Any objections to that proposal? So that will be the concluding sentence of our recommendations. Sorry, the text color is going to bother me if I don't do it. Okay moving on to the introduction. We actually got quite far in this. We were able to resolve. Thank you for all of the grammatical comments, and that it's actually extremely helpful. We had the comment here in the beginning of

2.1 about registration infrastructure, and Matt asked if it's registry, and registrar, and Maarten responded just registration infrastructure throughout. And so do we want to just keep it as registration infrastructure?

MAARTEN AERTSEN

So, it currently says registry. I think, that it is a good comment in the sense that we should be consistent in our wording, and maybe we should just also say registration infrastructure here even though it's not like a standard term. But for our audience, I don't think it really matters whether it's a standard term. We just need to introduce it properly, and, I think, we did in the earlier paragraphs.

JOHN EMERY

All right. The proposal here from Greg on the Google's Nomulus system, and Maarten's response today was proposing instead improve the readability of the reference to appendix A. 2.1. Because it's not just Nomulus it's FRED as well. So thoughts on that Greg? Go ahead.

GREG AARON

It's fine.

WARREN KUMARI

Shouldn't actually be at least one registry platform?

JOHN EMERY

We'll eliminate the sentence, and how do we want to do the forward reference?

MAARTEN AERTSEN

Yeah, I think, the little blue appendix A. 2.1 thing in the middle of that block is just not very readable. Because it has like appendix, and then it lists EPP, which is also. I think, we should just rewrite that single sentence in the middle there, and basically state what Greg was saying, like that there are false registry platforms, and they are listed in appendix something something.

JOHN EMERY

All right. I will take an action item to do that clean this up a little bit. ccTLDs are special examples. We're going to say they're just examples if that's okay, nothing special about them. So accept that. So we had a few comments here that the sentence was a bit unclear, so maybe if we can wordsmith it a little bit. TLD registry operators manage the namespace assigned to them using the data maintained in the TLD, their registry. So it's not proper English, and it doesn't make sense. Any suggestions?

MAARTEN AERTSEN

Yeah, I think, we should just cut some of this paragraph.

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- JOE ABLEY I think, if you just made the end of it using data maintained in the registry.
- JOHN LEVINE Using data maintained?
- JOE ABLEY Yeah, get rid of the that even, so just using data maintained in the registry.
- JOHN LEVINE Does that solve it?
- JOE ABLEY I mean, no, not that the. No, the other, the.
- JOHN EMERY Yeah, using data. All right, any objections to this or comments?
- GAUTAM AKIWATE I'm actually still not sure what it means.
- MAARTEN AERTSEN How about we just cut after them?
- JOHN EMERY What are you proposing?

MAARTEN AERTSEN

Starting with, the link starting with using.

JOE ABLEY

So I don't remember where this, I may have had something to do with this sentence originally. Because it sounds like the sort of convoluted garbage I would come up with. But, I think, the general idea that I think, is still worth thinking about is that people frequently conflate the registry data with the DNS, and they conflate domain name registries with the DNS, and they're different. So, I think, if it was me, or whoever was writing it was unfortunately thinking like me, they were trying to suggest a data workflow where the registry contains data, which is used for various purposes.

So you use that to maintain this, the namespace, which is the TLD, and descendants. I still think there's some sort of distinction that's useful, but the document also makes distinction between the DNS and registry infrastructure in other places too, so perhaps it's not important to make it here. But I don't know, I guess maybe, maybe what the problem here is, is we're trying to dumb down the technical details so far that they don't actually really mean anything anymore.

JOHN EMERY

Yeah, it's a delicate balance we're trying to strike.

MAARTEN AERTSEN

Yeah.

JOHN EMERY

Greg?

GREG AARON

Well, what does the registry do? So you could say it maintains the database of, or data repository of domains, and disseminates the zone file, you know, something like that. Holds the data, does some stuff with it.

JOE ABLEY

Even the word namespace, I think, is a nice word, but it's also probably not helpful. We put it, we could say TLD registry operators manage the top level domain associated to them, but then that's kind of just restating what TLD means, so maybe the whole sentence does not saying very much.

MAARTEN AERTSEN

I would propose cutting this whole first sentence and have a look at the edit I just proposed in the second one, and then maybe we solve something. How does it sound, Joe?

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- JOE ABLEY I think it's good. I think, what you, what you've done there, if we cut that first sentence, that still seems informative.
- MAARTEN AERTSEN We could even like put a period instead of a, what is it? Yeah, semicolon.
- JOHN EMERY Okay. If there's no objections, this reads much better, and then we're not saying nothing in improper English. It's always, the goal of our reports, like say something in proper English. So a suggestion on just making it gTLDs, and deleting the such as .org unless anyone feels that's essential.
- JOE ABLEY Right, it's the most important gTLD.
- JOHN EMERY All true. Okay, so this one will need, well, we're almost there, so unattended software. Matthew or Matt was a little bit unsure exactly what this meant, and Maarten implied that it's in contrast to actions of people, but is it worth just cutting these, making these workload significant DNS users, Maarten?

MAARTEN AERTSEN

Yeah, I would just cut it. Because this paragraph says there's not just people using their devices and causing DNS queries, there's also computers causing DNS queries.

JOE ABLEY

I'm not sure we want to say these workloads are users. Because that makes it more confusing, I think. I think, what we're saying is these workloads generate DNS traffic, which is comparable to that generated by users.

JOHN EMERY

How's that? Now we have traffic twice, and significant twice.

MAARTEN AERTSEN

Yeah, we can also just cut after the comma. Yeah, that's good, I think. I think, we did a good job if we leave this room, and the report is shorter.

JOHN EMERY

Yeah, so cutting that. How's that look? Look at us, proper English, and making it shorter. So this one here was a proposal by Greg. I'll let him speak to it a little bit, so a discussion about adding 2.4 as a brief section here with some of the examples. So Greg, if you could tell us a bit about your proposal for DNS protocol, and DNS service FOSS.

GREG AARON

So one of the ideas of the paper is to note that if regulation is changed or if liability is changed for open source creators, it affects a lot of people. The paper talks especially about registry and DNS provision, which is natural. But I thought that maybe a pillar of the ecosystem was under referenced, which was that registrars also use FOSS. And again, we don't have to query them to see what they use, but it's worth mentioning that if there's a problem, things get regulated or something, it's going to affect all of them as well.

The paper talks more about, less about segments of the supply chain, and more about stuff like escrow, which is used by registries and registrars, for example. So I thought 2.5 addresses that, mentions it just in passing, but it would be important to do. 2.4, what were the notes? Yeah. Alert people to the fact that FOSS powers DNS at a fundamental level, which is not so much whether you use bind or something, but there are all the other things that touch it. So in that note, I gave a couple of examples. The biggest, for example, Heartbleed was a problem with the open SSL library, which is not part of BIND or something else, but it's something that people use, and it turns out to be incredibly consequential sometimes. So just mentioned a couple of those. It doesn't have to be deep.

JOE ABLEY

So, I think, there's two. I didn't read this comment before. So, I think, we use registration infrastructure as the phrase you

mentioned before. And to me that includes registrars. Perhaps we need to, I haven't gone back to look at the definition.

GREG AARON Yeah. Because the appendices only really talk about list registries.

JOE ABLEY Okay. Then maybe that's worth another look. Yeah.

GREG AARON So I'm just saying registrars, and their stacks, and we're going to have probably have some FOSS. Don't have to do a survey of them, but just mention it. Because when I read it, it was just like, it ended up being more about registries. That was the impression I got.

JOE ABLEY Right, okay. Well, that's interesting. The other thing you mentioned about Heartbleed as the example, I think, if we try, and tie in every bit of software that uses a domain name, then it's kind of all software. And I don't think that's helpful. So I mean, OpenSSL using, I mean, Heartbleed systems that rely on domain names in SNI, in HTTP, for example, certificate issuance, and the use of domain names inside certificates. I mean, these are all related to the namespace.

GREG AARON Yeah.

JOE ABLEY

But, I think, that's separate from the topic that we're looking at.

GREG AARON

Yeah, you don't want to go too far afield for sure. But like anything that was central to DNS, you might want to just mention in passing that there's all of that as well.

JOE ABLEY

I mean, the OpenSSL vulnerabilities, and the other things that around Heartbleed, I think, are not to do with DNS. But I mean, maybe I'm just the only one. I mean, maybe it's worth pointing out, I suppose, that there are an awful lot of things that rely on domain names. And so the security of the DNS or the recognizing DNS as critical infrastructure is done for a reason. Because the implications of doing it wrong means all the other precautions you take, therefore, are kind of pointless. So maybe we could mention somewhere in there the reason why the DNS is a particularly interesting topic, and an attractive target for regulation because it is important. Maybe that's another way of approaching the broader context.

GREG AARON

Yeah, yeah. The paper's mainly about registering domain names, and making them work. In other words, disseminating its own files. But there's all the other things that also make domain names

actually function, which are peripheral. Just a thought I'd mention, it'd be good to mention them. Because those things actually make a lot of things work. It's the infrastructure that the DNS functions as a part of. So it's just a suggestion, just trying to emphasize the fact that if people start messing with this stuff, then things get out of control.

MAARTEN AERTSEN

Thank you, Greg. Thank you, Joe. So, I think, the registrar point, we can actually expand on that a little bit in section 2.1. So we have a little bit of introduction there. And then we state what we actually gather data on. And I suppose we can then write a short paragraph saying we did not actually study the registrar space, but we have some observations to share anyway. I would like to make sure that whenever we say something that we actually have the backing data. And in our scoping, we decided quite early on to not look at the registrar side.

So even though, I think, maybe many of us might believe certain things about their use of open source software, we don't have that backing data. But, I think, we can actually share some of the observations that Greg suggested. And, I think, this would be a good place in the document to do so. So I'm not sure if that would work for you, Greg. Would you mind suggesting a sentence 2.3 under 2.1, like at the end of this paragraph that basically states something about registrars?

GREG AARON

Yeah, maybe it's another bullet. Maybe another bullet.

MAARTEN AERTSEN

Oh, okay.

JOHN EMERY

Yeah. So instead of 2.4, then we would insert another bullet here under 2.1 or?

MAARTEN AERTSEN

Yeah. So I'm trying to split the suggestions that Greg was making in various topics. And this one is the registrar topic that I would propose addressing here. And then the second one was just discussed by Joe, and Greg, and related to the broader space. And, I think, we have text for that in 3.2. And I guess my question to Greg would be, should we move that content around to somewhere where it's more discoverable? Because to me, the thing you're asking for is addressed, but it might be addressed in the wrong place in terms of where a reader expects this. So I guess that's a question to both of you.

JOE ABLEY

I think 3.2 is saying something different.

MAARTEN AERTSEN

Okay. Can you elaborate?

JOE ABLEY

So, I think, 3.2 is saying, even in the examples where you have proprietary software or non-open source software being used to provide a function, it's still supported by this ecosystem of open source components for operational or other reasons, or just the operating system or the compilers or something. But, I think, very possible I didn't understand Greg's point but, I think, what Greg was saying was that there are other protocols, and systems, and services that depend on domain names. I think, it's depend on domain names, but we may be talking about different examples. Maybe we just need to take this offline a bit, and try and figure out what it is we think. Because I'm not sure we're talking about the same thing.

JOHN EMERY

Okay. So we'll have a proposal then for Greg to add the registrar topic, and for Joe, and Greg to have a conversation on list for this. Perfect. So we will take that as an action item, and move on. Let's see. So in 2.5, we essentially have a two sentence here as well. Okay. That's all part of it.

MAARTEN AERTSEN

Yeah. I think, these are, this is the same thing, right? Yeah.

JOHN EMERY

Okay. Matt's suggestion here. Is it worth mentioning here? There's nothing to prevent people to fork or create their own derivative FOSS project. Is that worth a footnote or something within the sentence itself? So common open source practices is that all collaborative contributions cannot impose additional constraints on the use of software beyond the conditions already associated with the software, nor can they impose additional copyright or intellectual property constraints on the existing software base.

MAARTEN AERTSEN

I'm not against a footnote. I'm not sure if it's--

WARREN KUMARI

I don't entirely understand the point of it. I mean, some of it is like, in many cases, the license says what you can do, and you can do with the licenses.

JOHN EMERY

So should we ask Matt to propose a footnote then, or do we want to maybe reject this?

MAARTEN AERTSEN

So if there's going to be a footnote, it should refer back to the introduction where we explain the freedoms that these licenses give. And one of them is that you can just take stuff and do your own thing elsewhere. So yeah.

JOHN EMERY

Okay. So we'll note that we can refer back to the introduction. All right. So we've got a pretty substantive comment here from Peter on market convergence. This may result in market convergence on open source products leading to a general convergence on a single product. There are risks in such a general dependency on a single product akin to the adoption of a monoculture.

If the product is comprised or impaired in any way, then consequences are felt by a very large body of users. It may not be an option for a user to express preference for a supported proprietary offering if the free product has driven all alternative product offerings from the market. So substantial comment here by Peter that Vittorio agreed with. So any thoughts on this comment in this paragraph? Give everyone a second to read the comment if they need to. Maarten, any thoughts?

MAARTEN AERTSEN

So it's a bit hard that Jeff is not here. Because he wrote this text. I like this subsection because it balances the perspective, and shows that there are projects that are so successful, get into like millions of devices that are out there, that they effectively have quite a large role to play, and do crowd out other stuff. So it's not that I'm not in agreement with the section entirely. I do think Peter's suggestion might actually work by cutting some of this. Because then the message still stands. I'm inclined to ask Jeff to do some work on this subsection, but we haven't heard in response to this comment

train yet, and I would like to move ahead as well. So I guess that's some of my thoughts. I'm not sure if others feel they can maybe contribute here or yeah.

JOE ABLEY

Can you scroll back up a little bit? So I'm not, perhaps I just don't understand Peter's point. I mean the fact that we see market convergence on non-open source software, and other places still, the point still stands. In those circumstances there is a dependency on a certain set of software. That fault in that software does cause widespread problems. This is known, and happened. I don't think that means this sentence, this paragraph is not true. I think, it's just pointing out that this can also happen with open source software. I don't know. So I mean, I don't know. I'm not sure I understand Peter's point. I mean, I think, in my mind is just reinforcing this point. So I don't see why we should cut it.

MAARTEN AERTSEN

Appreciated. Any other points of view? Gautam?

GAUTAM AKIWATE

I don't know. I thought this seemed to indicate that this was a problem that was unique. Like the way I read it, this seemed to indicate that this was a problem unique to FOSS was my take away from it. And, I think, that what Peter was responding to is like when we bring this out, I think, Peter's point is how is this different from like our dependence on Microsoft. And, I think, he has a valid point.

Like why are we bringing this up, and how is it not more generally applicable?

JOHN EMERY

Would it perhaps be helpful then instead of cutting to keep this, and then just add a sentence at the end saying this is more generally applicable in line with Peter's comment? Or would that take away from it?

MAARTEN AERTSEN

It is a bit weird in a section labeled characteristics of free, and open source software to then list a general characteristic that goes beyond. So I'm quite sympathetic to what you're saying. So maybe, I guess my current proposal would be to cut it, and then I'd like to hear from Joe why that is a bad idea.

JOE ABLEY

I mean, I don't think it's a bad idea. I mean it is a risk. In this case, in the Microsoft case, I suppose I'm not an economist or historian, but I mean there are all kinds of reasons why Microsoft became very prevalent in certain good marketing or something. I don't know. I mean this one gives a different possible reason why open source could also form a monoculture. So the reasoning is different. It's not suggesting that open source is becoming prevalent in the 80s on people's desktops because of marketing. It's certainly not prevalent on the desktop now.

So, I think, this is fine. I mean obviously you can cut all kinds of text, and then you're just not making the point, and the document still has plenty of other substance, and the document will survive, so you can cut it. That's fine. But it does seem to me that this is a reasonable point. I mean you could possibly qualify it, and say that like the risks of monoculture are not isolated to open source, but this may be a reason why those general risks are applicable to open source.

MAARTEN AERTSEN

Okay, so maybe I'm back to actually the suggestion that you did to actually add that sentence, and to say that this is applicable beyond open source. So the next paragraph talks about a different point. So if we do cut this then we do lose this angle. I'm flip-flopping a bit. And I do like the suggestion. So do you provide some text John or do you do so Joe?

JOHN EMERY

How about I go to the recording. Because what Joe said sounded perfect. So instead of making him type it out, we'll suggest that. So I'll take an action item for that. This is why we record.

Okay, Matt's comment risks inherent. Support organizations would normally be submitted back to the open source project, and he feels this needs to be qualified a little bit. Any thoughts on this sentence?

WARREN KUMARI I'm not even entirely sure that I agree with would normally, but maybe should normally. Should normally?

JOHN LEVINE It depends on the license. I mean if it's GPL then you have to release it. If it's BSD it's up to you. And I'm not sure we can say anything generally useful in a small number of words. What are we trying to say here?

WARREN KUMARI The GPL stuff only really applies if you actually sell the product. If I download a random thing of GitHub, put it on my local laptop, and futz with it, I don't have to release it or contribute it back. But I mean we could say.

WARREN KUMARI How about if we say traditionally submitted back?

JOHN LEVINE Yeah. Or ideally as submitted back. It doesn't really matter though.

JOHN EMERY So we have a proposal for ideally or traditionally.

How about sometimes?

JOHN EMERY

Sometimes or ideally are currently winning out. Do we want to say ideally?

JOE ABLEY

I mean ideally sounds like, I mean who's, I don't know. It depends on your perspective whether that's ideal or not, doesn't it?

JOHN EMERY

So sometimes. Any objections to sometimes? Maarten.

MAARTEN AERTSEN

I think my personal preference would be to read this paragraph a bit, and propose some text, and get back to you for the next meeting. Because I feel this is a rather long paragraph, and if we are taking the suggestions that are going around now, I don't think the writing improves in clarity.

JOHN EMERY

So Maarten will take an action item to rework this entire paragraph so we're not wordsmithing around there. Okay, so scrolling through the document now. Thankfully, we were able to get through most of this. So, this was a comment from Greg about what language we use. This is the misplaced assumptions, common, but misplaced assumptions section, and we struggled

quite a bit with the wording here. So we ended up with clarification because we were using double and triple negatives, and it got very confusing for a while, but these are still like misplaced assumptions.

So we'd be looking for kind of input here on what makes the most sense. Because we used to label it misplaced assumption like one, two, three, four, but then we were getting into double, and triple negatives. And it got very confusing. So we added clarifications instead. But I see Greg here talks about how this could use some sharpening, and Peter agreed as well clarification with misplaced assumptions. So going back to this discussion on what would be most accessible to someone reading it.

MAARTEN AERTSEN

Yeah, I think, Peter's sub-comment is actually the bike chatting about how this title works. I think, we've spent quite a bit of time going back and forth. So I would propose we don't actually go back on that, and hear from Peter if he's fine. I think, Greg is making a different point about this subsection. I would like to focus our attention there if that's okay.

GREG AARON

Yeah, it's more about the argument or that's the sections trying to surface. On one hand it seems to say that because open source gets used it's well provisioned for, or if important people are contributing to it, that mitigates some of the problems.

MAARTEN AERTSEN

So, I think, this is good feedback. Because that's not what I tried to say when I wrote this little thing. So in discussions with policy makers, the assumption that I ran up against, is that if something is everywhere in the world, then it must be made by people that have power in some dimension like economic. Because if you take the example that's given here if you make elevators, and the world is full of elevators of your particular brand, then it's very unlikely that it's two people in the garage. Because elevators have costs etc.

So there is a quite natural assumption that if things are everywhere then whoever is behind them must be big or somehow. And this paragraph is trying to counter that narrative. Because specifically in this context, the opposite might be true. That it is actually two people or 15 people, and they don't actually hold power beyond well making their software. So I'm open to suggestions on how to reword this because the message is obviously not coming across.

WARREN KUMARI

And I mean, I think, it is a very useful message to be able to do, but that concerns me is this makes it sound like free, and open source software then doesn't require a large investment. Whereas for example NLnet Labs has presumably spent a fair bit of money on building stuff. So has ISC. So maybe it's worth focusing some on why people do open source, and it's not just because it's free, and they were bored, but because they feel that there's an ethical requirement to it. Or actually I've got no idea why ISC does as much

as they do. But you know what I mean right like there is not. Some of it is. Because it's the right thing to do. There is an ethos behind open source.

There is also some of the you know rising tide lifts all boats type thing. And for many orgs there's also some prestige. But there's also for other open source stuff a belief that if you release things, and people use it then it ends up being good for you right. Like good for you, and good for the internet at large. Like an example of something like that is things like protocol buffers. The reason that people use protocol buffers, and the reason that somebody funded development of it is because it makes everything more efficient, and. So that helps too. Like Cloudflare does a bunch of free stuff, which is good for the internet, and so also happens to be good for Cloudflare. Actually I don't know why you give me so much free service.

MAARTEN AERTSEN

So, while I agree with what you're saying, that's not the point we're trying to make here. It's not about motivations per se. We're trying to clarify a misconception, and the misconception is that if you're regulating a space, and someone shows up to talk about that, if their stuff is everywhere then they must be powerful too. That is the misconception. So, and I'm not sure how motivation plays in there. I mean maybe it explains why you don't have to be, but okay.

WARREN KUMARI

I think sort of it explains that people are building this not because they are trying to be powerful. Although, I mean like I will point out, ISC has a reasonable amount of power in the internet as an example, so does NLNet Labs. You have power. You could if you wanted be difficult, and use it.

MAARTEN AERTSEN

So that's about like software defaults right. Like if you make something, which is a default then that turns out to be used in a certain amount.

JOE ABLEY

So that seems optimistic. I think, the text in your paragraph is actually quite clear about the point you're trying to make. I think, people are just being misled by the title. I agree with John. I think, the title just needs to be made better.

GAUTAM AKIWATE

I think, Greg's text about Heartbleed might also be useful here as an example of under-resourced developers. Like, I think, in Greg's comment in 2.4, he talks about Heartbleed, there is a foundation, which is to people. I think, putting that as an example here might give people an example about exactly what you're trying to do.

MAARTEN AERTSEN

So we, I think, we used under-resourced. Because we were trying to find words that mean the opposite of power. Because now we've

used under-resourced, we get into different discussion. But I don't think that was the original intent here. So if we want to make a point about under-resourced, I think, Heartbleed etc., and OpenSSL might be a useful topic to get into. But, I think, we worked on this title quite a bit. It's still not good enough. But I don't think this particular angle is.

WARREN KUMARI

So just on the Heartbleed stuff, I don't think that does make a good example at all. Because no matter how well-funded people were, they could still do it dumb right. Like it happens all the time that you see commercial software people do.

JOE ABLEY

Maarten, when you were talking about this before, when you were just describing it off the cuff, and you were struggling about what words to use you used the word big in the end. Because big was nebulous enough that it makes sense. This thing is produced by Google, which is big. This is produced by Microsoft, which is big. This software, which is used everywhere is produced by a collection of people or one person that's not big, I think, actually big is a vague enough term that is actually useful. It doesn't imply that necessarily it's to do with resourcing or whether people are getting paid or what the risks are of those people getting hit by a bus. It just is big. I think, that you're right. I think, that's the assumption.

Microsoft is big. Nokia once upon a time was big. You know those kinds of things.

JOHN EMERY

Hold on one second. So we have a queue going a little bit. So I've Greg, and then Eleanor, and then Andre. Sorry I was blanking on your name for two seconds.

GREG AARON

So as Kata, mentioned maybe an example would be useful. For example, say okay here's this piece of software. Yeah, perhaps many people contribute to it, but there are only four who are actually empowered to promote the changes. It actually depends in the end on those four people. It doesn't mean that it's necessarily underresourced, maybe that's a reasonable number of people for the job, but it still means that those people aren't necessarily funded a lot. And yes, somebody can get hit by a bus, and then you're in trouble.

ELENA PLEXIDA

Not to prolong the discussion on that one. You are already into a good discussion. I really like the big small wording before. Only to say that if I were a policymaker, and I was reading the word underresourced, that's a red flag for me. It's like, oh, I have to do something on that one. So yeah, definitely rethink about it. What I can do is dig out some wording from existing regulations maybe,

that are going to this big small thing, and send it over to you. Might be a source of inspiration. Thanks.

ANDREI KOLESNIKOV

Yeah. My short comment, and I agree yes it's a red flag underresourced. But there are projects in the FOSS, which are good resources like Kubernetes or Linux kernel. Their projects are good resources, but if we talk about the particular applications like OpenSSL, it's underresourced. So it's also related. It's the most popular thing in the internet, but it's underresourced. So there are things like red flag their dependency on the developers who are underresourced. So maybe the wording should be a little bit rounded. So the different projects, and different sources.

JOHN EMERY

Warren?

WARREN KUMARI

I wasn't sure who was running the queue. So yes, I think, it might be a red flag for many people that developers are under not necessarily sufficiently resourced. Is that a feature or a bug though? Like if people are using projects, which don't have enough resources potentially what you should do is provide some resources. Like, NTPD is a perfect example. It's something that's used in basically every machine, and some guy was like I'm tired of doing this. I'm going to stop doing this, and it would be bad if the internet stopped because there were unpatched vulnerabilities in

various NTP daemons. So maybe what we want to clarify is the internet relies a huge amount on free and open source stuff, and if you think the internet's useful, potentially you should contribute some money to a foundation or a fund, which helps continue making it work.

JOHN EMERY

Elena. And then Joe.

ELENA PLEXIDA

That's an excellent point, and if so, it should somehow be reflected in guidelines you're giving to the governments.

JOHN EMERY

Yeah, I think, that's one of our key essential points that we should really, really highlight up front maybe even in the executive summary.

WARREN KUMARI

Which I don't think we do a great job of.

JOHN EMERY

No, I think, our plan was to expand the executive summary, and, I think, this is something that needs to be kind of front, and center there as well. So Joe, and then Matthias.

JOE ABLEY

So I just thought I'd say quickly that I agree with what Warren is saying about the resourcing, but I still think this is a different point. I think, we're distracting from this point if we try and tilt it towards those kinds of things, and run out of battery. So anyway, I think, this point is different, and I'm not disagreeing that we should perhaps amplify that point somewhere else.

MAARTEN AERTSEN

I'll take Chair's prerogative for a little bit, and say that I like the big small suggestion being made here for this one, and I would like to take the suggestion on underresources a good keyword to 4.2.1, which is actually about financial sustainability. And then, I think, we might treat these two topics separately in a way they well they deserve attention. I also like the suggestion of revisiting the executive summary to surface some of this. I guess my question before I give the word back to the queue, and Matthias is whether that would make everyone happy.

MATTHIAS HUDOBNIK

Yeah, very quickly the point regarding European legislation, I think, is quite interesting. So I quickly checked when we for example look at wording about big and large in regards to the Digital Markets Act or Service Act they often speak about gatekeepers, or, I mean, which is maybe not really ideal, or maybe sometimes also they say very large online platforms or very large small or medium enterprises.

MAARTEN AERTSEN

Thank you.

JOHN EMERY

Okay. So we've got a lot of work to do there, but really important discussion that, I think, is extremely helpful. A good point here. So this text was accepted without discussion. So we want to highlight this here as note above some important pieces of FOSS used by DNS providers are maintained by very small organizations, and sometimes individuals. These are especially vulnerable to aging, and abandonment. Go ahead Warren.

WARREN KUMARI

I mean if I'm reading this, I'm like wow that seems scary, let's not do this open source thing. Maybe we want to somehow temper that with a you know, do we delete it?

JOHN EMERY

Yeah, I think, it's too scary.

MAARTEN AERTSEN

But also it was there was an addition done during SSAC review, and, I think, it might have been accepted without. So if we want to make this point, I'm not sure if this particular section is the one to make it, and I'm not sure if I would want to make that point. So yeah.

JOE ABLEY

So the point of this document is not to advocate for open source. The point of this document is to recognize that open source is widely used, and people should take that into account when they're doing things. So I don't think we should ditch text just because we think it doesn't promote open source or it might encourage people not to use it. I think, if it's if it's a reasonable statement to make, we should make it.

WARREN KUMARI

Yeah, but the wording of that, I mean, that requires a fair amount of nuance, and understanding, and blah blah blah. This to me feels not quite like FUD, but like oh my god danger, danger warning run away. And yeah, for some things, there is concern, but we could say some of this could. I mean, if for example, a well-known piece of open source like PyDNS stopped being maintained, somebody else would pick it up, or Mike Benz's GoDNS stuff, if he got hit by a bus it's on GitHub. Somebody else, if they think it is an important piece of free and open source, they could take it over, because it's free, and open source. So yeah we definitely shouldn't be advocating it.

JOE ABLEY

So, I agree with you. I think, what you're saying is we shouldn't say things that effectively lead us down an advocacy path unintentionally, but we are still saying that there are assumptions in that popular software must be maintained by big people, if that to use that word, gatekeeper type people or something.

ROBERT GUERRA I think, more to the point though, that if we say this we need to say a lot more to put it in context.

JOE ABLEY That seems fair.

WARREN KUMARI But we also as, Joe was saying, shouldn't just like sweep it under the rug that. Because there are important things right? Like, Harlan's NTP thing almost ended really badly when he was, yeah fight me.

LAYAL JEBRAN So to echo this, on sweeping it under the rug, maybe this should actually go under challenges that open source software phases. It can be part of that section. Because we need to mention it, and it doesn't go here for sure.

JOHN EMERY Robert.

ROBERT GUERRA Sure. So, I think, I'm in agreement with many of the others that in terms of, should something like this be said? Yes. Is this the section? No. But the other thing too is something that we say earlier, is like how software is maintained, and stuff like that. So, I

think, the biggest problem I have with this is the very last sentence. And so, I think, it just like the values of open source that it's maintained that it's a public online, and stuff like that that's in a repository people could take over it. So, I think, that in isolation doesn't talk about well the other values of open source.

And so, I think, if you're going to have this put it in a context that reflects those other values as well, saying if it gets abandoned, there may be an opportunity for other people to take it over as opposed to leaving it in a spot, where says it might be abandoned, full stop. Thinking in terms of when regulators, and other take a look at it if they don't see it in the context, they're going to think this is why we shouldn't do it. So that's my suggestion. Thank you.

JOHN EMERY

And L.J. what section were you referencing. Sorry. Can you turn on the mic. Sorry.

LAYAL JEBRAN

So challenges mainly there's a there was a section on guidelines, I think, maybe in that it should go somewhere. Yeah the general characteristics section.

JOHN EMERY

Okay. So essentially, the proposal is to move this, and contextualize it a bit more in the general characteristics so that it's not as scary, and not out of place.

MAARTEN AERTSEN

I think it would fit nicely in 3.1.2. Because we already talk about this there. And if people feel that we should make this a high level risk factor then we should just add a section or like a subsection to 4.2 talking about this specifically. But for now I propose first seeing if we can add this to 3.1.2.

ROBERT GUERRA

Just a quick follow up. I think, moving it, I think, is good. I think, it's something that should be mentioned. So, I think, we shouldn't shy away from this either. But contextualizing it then tells it just like well like commercial products that are abandoned, this is also a risk with open source. However, given how it's maintained, and given how the community works, there's a possibility it can take over, whereas for commercial products, that's what I would say. So just like this is also a risk that can occur with commercial products would be another thing maybe to add as well too.

JOHN EMERY

Okay, this was a really great discussion. Something we'll revisit as we as we add it into 3.1.2. Okay, moving on in the paper a little bit. We're getting close to the end, which is good. Because we have about 15 minutes left. In our conclusion, basically we just need to match this to what we put up there. So, we're saying the same thing across both, and we've tackled this in the beginning. So anything to add in the appendix? I was able to go through, and edit

quite a bit in the appendix. And thank you especially to, we had a few additions in the columns, especially by Peter. So a big thanks to Peter for this. Anything you'd like to add to the appendices Maarten?

MAARTEN AERTSEN

Well I would like to give a shout out to Gustavo, who helped us source data on the data escrow side. So we had great staff support on this, and it helped us make this report better. So thank you.

JOHN EMERY

Yeah, big thanks to Gustavo there, especially on data escrow. Okay, does anyone have any other high-level comments or anything that we want to discuss here? We're able to get through essentially the whole document. We will need to revisit the executive summary a little bit to make sure that that is very honed in especially gearing toward a policy audience. Oftentimes only the executive summary will get read. So we want to make sure that every point is especially clear at the beginning, and linking to the sections, and data that we offer to ensure that those that are interested can dig a little deeper. Elena did you have any high level thoughts or anything you'd like to add?

ELENA PLEXIDA

Yes. First of all, thank you for inviting me yet again. High-level thought is a great document. Me being coming from the policy world is eye-opening to me. I mean, at the general level, I know this

is a problem, but I understood way more by reading this why this is a problem. The high level comment I would have, and I understand you're going to beat that up is on your guidelines to policymakers. They're there for the purposes of this document, they feel good. I suppose that you're going to flesh them a bit more out. Like I do read there.

If you have a conversation with the policymaker, the first question you'll be asked is, okay what do you propose? And you don't want to make it a document where you say do this or don't do that. So that's not it. But bear in mind that as you said, they're going to read the summary, and then they're going to read the guidelines. And the guidelines I do read they're saying when you put in place policies please account for false in the DNS. There are other messages too, though, that I see in the document that I don't really see the guidelines such as, for security reasons, consider other avenues such as support community work or offer more funds. So like if maybe beat it up a little bit. Just a general comment. Thank you.

JOHN EMERY

Thank you that's extremely helpful. I think, it's worth revisiting the guidelines there too in recognition of our target audience, and exactly what's going to be read. So we want to make sure that every point we make in the document, well all the high level points are made, especially clearly in the guidelines. Maarten anything else?

MAARTEN AERTSEN Yeah, I appreciate the suggestion to basically say, if I understand this correctly, like if a policymaker would ask how can we boost security in this space? What should they do? Did I paraphrase that correctly?

ELENA PLEXIDA I'd say yes. But in the more generally like, okay this is the issue, what do you suggest we do? And that's affair.

MAARTEN AERTSEN Right. Okay, thank you.

JOHN EMERY Okay, if nothing else, we have John Levine's proposed text. We can resolve that for the number one bullet. This type of public-private cooperation has enabled creation of new, and improved software. Everyone okay with this text? Perfect. One more thing off the list. All right, I think, that's going to be it for today. So Maarten, you want to close us out?

MAARTEN AERTSEN Yeah thank you very much for the productive discussions today, for all the people that spend time reviewing this document. I feel we're in good shape. We have some work ahead of us, but I'm feeling good about shipping this before we head out to Oman. And, I think,

we will not have a meeting next week on Friday because it's the customary week after ICANN. And then I believe we will continue our regular schedule on Fridays the week after. So thank you everyone.

JOHN EMERY

Thank you, everyone. Please stop the recording.

[END OF TRANSCRIPTION]