Operators and the IETF

Standardizing the future, together

Internet Society

The Operators

Not just ISPs…

- **Enterprise networks**

- **Campus networks**

- **Data centers**

- **Content providers**

- **Educational networks**

- **Transit networks**

- **And of course Internet service providers too**

The IETF

The goal of the IETF is to make the Internet work better.

The mission of the IETF is to produce high quality, relevant technical and engineering documents that influence the way people design, use, and manage the Internet in such a way as to make the Internet work better. These documents include protocol standards, best current practices, and informational documents of various kinds.

The Dream

In a perfect world…

• The IETF creates standard protocols with operator input and they work great

• Deployment and operationalization concerns are consistently addressed

• The level of operator engagement makes sense when compared to vendor and academic involvement

• Operators always know when their input is needed

• Operators always provide their input when it's needed

The Perception

Many operators are not engaged enough…

- A significant portion of operators (particularly mid/small size) don't join IETF mailing lists nor do they show up to IETF meetings

- Academics and vendors rule many decision making processes within the IETF

- The operators expected to deploy these technologies often don't even know that they are being developed

- Critical new technologies are being developed with little to no direct operator input

- Things may be and often are broken…

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The Plan

Facilitate increased operator input into the IETF…

- **Phase 1 – Survey the operator community**

- **The survey closed on 1 July with over 350 responses**

- **Phase 2 - Synthesize and discuss the survey results**

- **First, an Internet-Draft:**
  https://tools.ietf.org/html/draft-opsawg-operators-ietf

- **Next:** *Discussion! (here, now)*

- **Phase 3 – Make the world a better place**

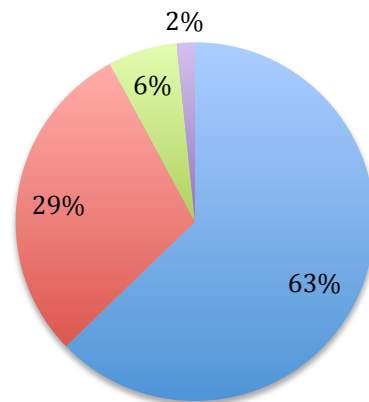# The Results

Job Type

I am an operator

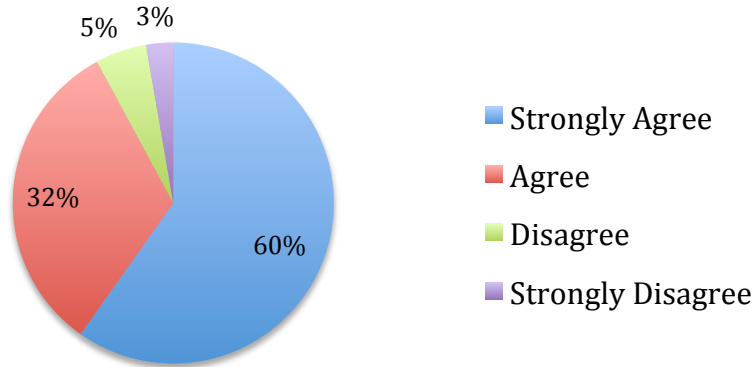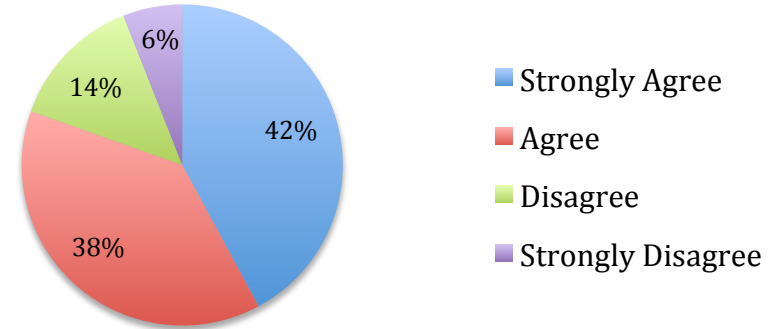- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

44%
34%
12%
10%
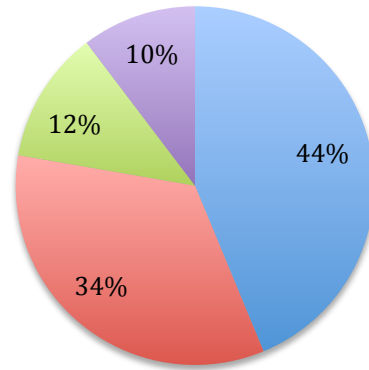
My role is primarily technical

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

63%
29%
6%
2%

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Job Type (cont.)
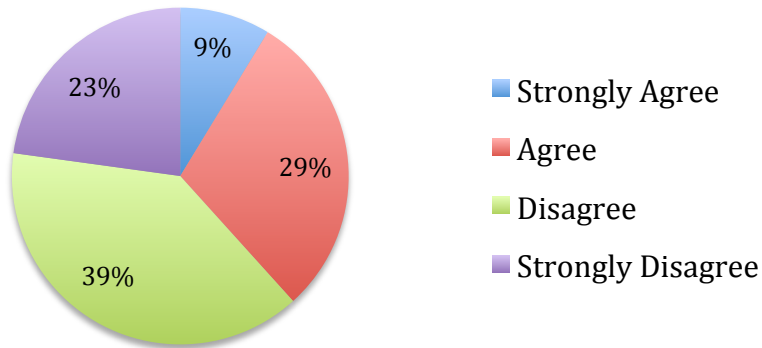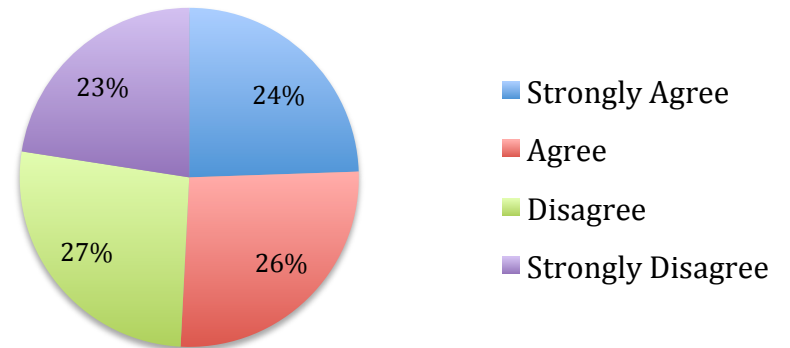
IETF Involvement

Indicate your level of IETF participation

- 50% — I do not currently participate in the IETF
- 30% — I participate on IETF mailing lists only (on 1+ mailing list)
- 2% — I participate at IETF meetings only (attend 1+ meetings each year)
- 18% — I participate both on IETF mailing lists and at IETF meetings (on 1+ mailing list, attend 1+ meetings each year)
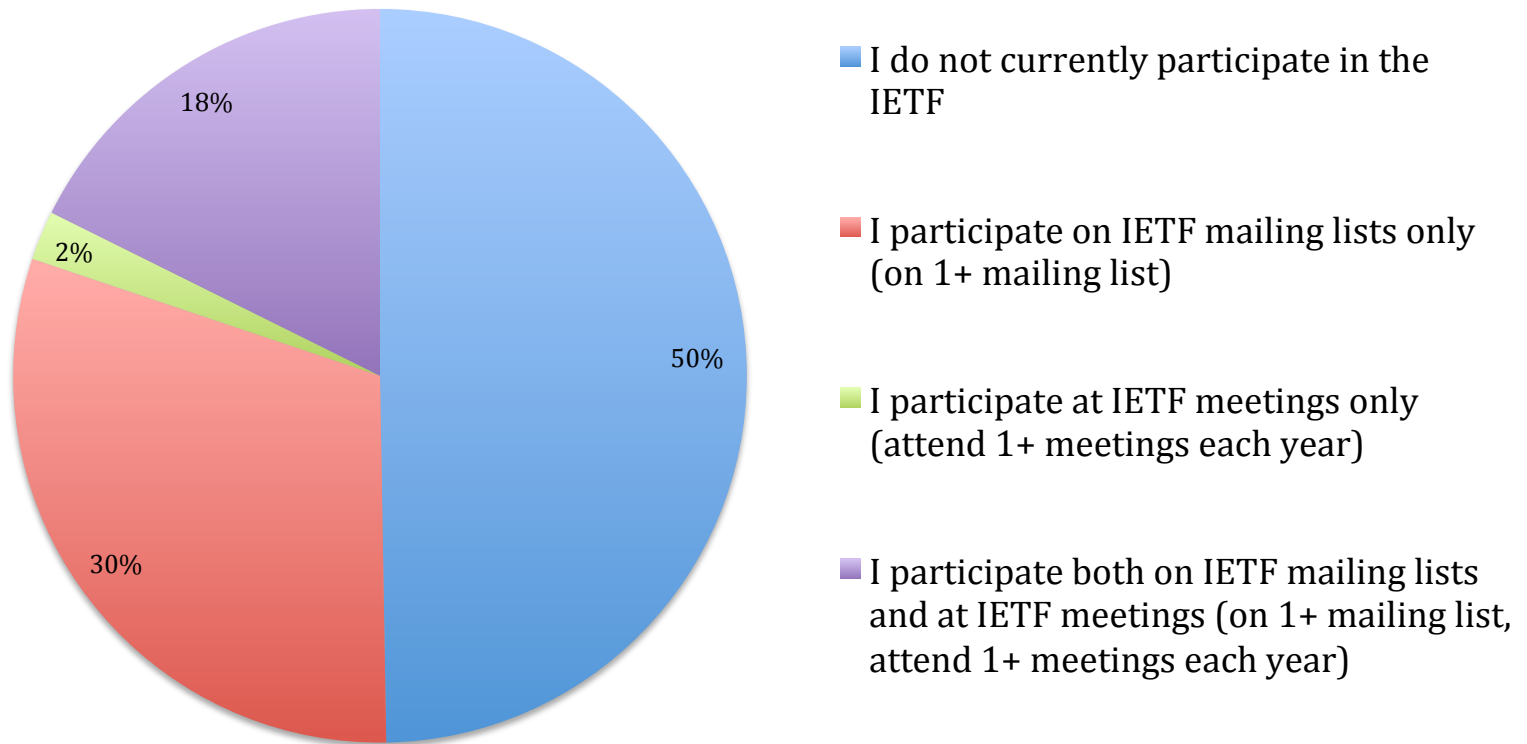
Do not currently participate in the IETF

I never heard of IETF: 4% report not having heard of the IETF before the survey

I don't know what IETF does: 8% don't participate because they don't know what the IETF does

I don't know how to participate: 58% of those who do not participate in the IETF do not know how

I don't believe IETF documents are relevant to my job: 14% believe that IETF documents are not relevant to their work

I don't feel my operator input is welcomed: 44% do not participate because they feel unwelcome

I rely on my vendors to represent me: 36% rely on their vendors to represent them at the IETF

I don't need to participate, I just need the output: 27% choose not to participate because they are only concerned with the output of the IETF (RFCs)

Do not currently participate on IETF mailing lists

I've never heard of IETF mailing lists: 31% had never heard of IETF mailing lists before this survey

I don't know what happens on IETF mailing lists: 54% don't know what happens on an IETF mailing list

I don't know how to join an IETF mailing list: 40% aren't on an IETF mailing list because they don't know how to join

I'm not interested: 16% of respondents don't participate due to lack of interest

I find the content too technical or abstract: 26% find IETF mailing list content too technical or too abstract

I don't have enough time: 72% say they don't participate because they don't have time

I don't find the content relevant: 17% report finding IETF mailing list content not relevant to them

It's not my job: 70% think that following IETF mailing lists falls within their job duties, even though they don't currently do it

There's too much noise on the lists (off-topic discussions, etc…): 34% replied that "list noise" is an issue for them

Do not currently participate in IETF meetings

I've never heard of IETF meetings: 15% don't come to IETF meetings because they hadn't heard of them before

I don't know what happens at IETF meetings: 45% don't show up because they don't understand what goes on at an IETF meeting

I don't know how to participate in an IETF meeting: 49% don't participate in meetings because they don't know how to

I'm not interested: 13% avoid IETF meetings due to a lack of interest

I find the content too technical or abstract: 19% don't participate in IETF meetings because the content is too technical or too abstract

I don't have enough time: 64% don't come because they don't have enough time to participate

I don't have the travel budget: 82% don't attend IETF meetings because they lack the travel budget

I don't find the content relevant: 14% don't come to meetings because they content is not relevant to them

It's not my job: 30% don't attend IETF meetings because it doesn't fit their job duties

General Awareness

Before taking this survey...

54% I was aware that most of the work in the IETF happens on mailing lists between meetings

46% I thought I had to show up at IETF meetings to participate

--

50% I was aware that most of the IETF meeting sessions are available to remote participants

50% I thought I had to show up at IETF meetings to participate

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The Synthesis

Potential Challenges

Four major (perceived) obstacles to IETF participation:

- **Time**

- **Culture**

- **Money**

- **Awareness**

Potential Challenge: Time

"The IETF has grown so large and so enamored of complexity and featuritis that it is a full-time job to participate."

~Randy Bush circa 2005:

[Into the Future with the Internet Vendor Task Force: A Very Curmudgeonly View – or – Testing Spaghetti — A Wall's Point of View](#)

Potential Challenge: Time

72% of respondents who do not participate in IETF mailing lists say they don't participate because they don't have enough time

64% of respondents who don't attend IETF meetings report that they don't come because they don't have enough time to participate

Potential Challenge: Time

"Time restriction is an issue. Keeping up with my "day job" responsibilities is challenging. There's difficulty in sorting out where the different BoFs and working groups are in the process - very hard to step into the middle of an ongoing conversation, translate it to my world, and engage in the discussion. Makes it hard to do more than lurk."

"I don't have the time to sift through the entrenched autistic and esoteric arguments.   There are very obviously people who are paid to participate in the IETF by vendors (and other orgs) for whom it's their full time job, or one of the primary purposes of their job, and they don't have other significant responsibilities. It therefore makes debating with these people very difficult if your involvement in IETF is a secondary (or tertiary) function of your role."

Potential Challenge: Culture

44% of the respondents who do not currently participate in the IETF at all avoid it because they don't feel their operator input is welcomed.

"The IETF is not really focused towards operations and, historically, operator input has not been well received."

Potential Challenge: Culture

"I do not feel that the IETF is responsive to the needs and requirements of those delivering services. The responses to the IPv6 DHCP enterprise requirements are an example of the disconnection in the IETF. Many times I have read or participated in discussions on different mailing lists about many of the topics and the final item pushed out by people in the IETF has been "you're stupid and an idiot and we're going to do it my way". I can get that at home with my teenager."

"Despite claims that operators were welcome, as I switched from protocol engineer to operator, I saw growing irrelevance."

"[I don't participate in the IETF] Because its become a political fight between vendors. Vendors push their individual agendas without caring about user opinions. A contentious issue will bring out half the opposition companies employees to bash and kill it regardless of whether there is a true customer that may benefit from it."

Potential Challenge: Culture

"Conversations are heavily dominated by academics with little or no practical experience (but deep theoretical knowledge and skills), and vendor professionals who are so senior and experienced. Both folks cast long shadows that are intimidating to others who can't devote the time to keeping up with what are often detailed and nuanced discussions."

"I perceive it to be full of pompous, self-serving, out-of-touch with reality, technology actors."

"Most studies have been conducted in English, which makes it difficult for those who have not mastered the language."

Potential Challenge: Money

82% of respondents who don't attend IETF meetings reported that it was because they lack the needed travel budget.

Potential Challenge: Money

"It is too expensive to attend regularly. It is not my primary job to attend IETF meetings, so is secondary to other things."

"I don't have enough budget to attend the conference. Based in India, my travel budget + accommodation + food + visa will come around 2000 USD (for Conferences in US) at the minimum, this is my 2 months salary."

"I'm a self-employed contractor. I can't afford to pay for it myself, and my clients wouldn't pay to send me there because it's not what gets their business needs met. And every hour I spend at conferences and the like is an hour I don't get paid."

Potential Challenge: Awareness

58% of those who do not participate in the IETF at all reported that they do not know how to.

Among respondents who don't follow any IETF mailing lists:
- 31% had never heard of the mailing lists,
- 54% don't know what happens on them, and
- 40% reported not knowing how to join a list.

Among those who do not attend IETF meetings:
- 45% don't show up because they don't understand what goes on at an IETF meeting and
- 49% don't participate because they don't know how to.

Potential Challenge: Awareness

"No awareness of how I can help, what I can do, and where my goals would align with the IETF."

"I do not know how can I participate in IETF. I would love to know how can I participate. Not just by subscribing to mailing list but by doing some work in my part time."

"I have no idea how to even begin participating."

The Discussion

Possible Solutions

Solutions we've heard so far fall into three areas:

- **Communication**

- **Outreach**

- **Inclusion**

Note: Those likely in a position to implement solutions:
- *IETF*
- *Operators and Operator Groups (NOGs & NOFs)*
- *ISOC*

Possible Solution Area: Communication

Two primary ideas emerged to improve communication:

- **Mailing List Digests**

- **Alternative Communication Mediums**

Possible Solution: Mailing List Digests

"Quarterly summaries for those that are not able to attend."

"Provide a curating service that takes key developments in a working group and shares them from time to time - save operators from having to make sense out of nuanced arguments so that they can jump into conversations with reasonable confidence they know what's happened so far and therefore won't embarrass themselves."

"There's probably no silver bullet, but one thing that I would find most useful would be a single daily/weekly/monthly digest mailing list. Just headlines and updates from each of the working groups. (Along with links to where to find more information for each.)"

Possible Solution: Mailing List Digests

"Make it dead simple for folks to see the specific topics being discussed and worked on. If I had some idea what the topics were, I would be more likely to participate if there was a topic that I had some expertise in and more importantly an opinion about how to address the issue."

"At least provide weekly summaries what's currently in discussion and which new drafts or RFCs were published."

"Invest in reducing perceived entropy and lower the time commitment to do so - both require energy inputs. Action: Introduce and invest support staff that write accessible summaries (like the former Cisco IPJ) - licensed under CC so that they can be freely translated to other languages without breaking the bank."

Mailing List Digests: A Twist

"Highlight specifically which groups' efforts are looking for operator input. Or color-code agendas by "how close" different efforts are to needing operator input. Have those folks write an operator's abstract. Package the background homework to make it easy for us to catch up and easy to see if the effort is relevant to us. Give ways for us to input to the process that is separated from the "players" usual modes (eg mailing list)."

Possible Solution: Alternative Communication Mediums

"Offer communications options other than e-mail."

"Surveys like this are a good start. Ask about the vendors we have relationships with, what technologies we currently use, what we're deploying now, and what we'd like to deploy in future."

"Determine the questions to ask of Operators, and then start distributing those questions/forms via social media and reddit."

"Audio-only podcasts are a really great medium for busy people, IMO. They convey the personality of the people who are presenting them whilst still allowing us to do things like drive to work, cook, vacuum, or jog."

Possible Solution: Alternative Communication Mediums

"Make it easier and less time consuming, like having a simple system for feedback on drafts and decisions."

"We need tools which makes IETF-related work more effective. For example, my main problem is I can not see any way of easily track/find all discussions related to a particular drafts. Let's say I see that a very interesting draft has been published. Most likely there will be a lot of different email threads going on so it is really hard to track all discussions/comments."

"RSS feeds that help busy people keep track of the really important happenings would be good (maybe they exist already)."

Possible Solution Area: Outreach

Again, two primary ideas within this area so far:

- **Direct outreach to operator communities**

- **Generate publicity**

Possible Solution: Direct Outreach

"Give more information about IETF to local engineers in local languages with simple example of advantages of participation."

"More liaisons between the IETF and Operator forums"

"Possibly smaller events like ARIN road show events for the general IT community"

"Co-located sessions in Network Operators meetings"

"Post in relevant worldwide networking mailing lists when you have information that wouldn't be spam like.   For example, when you post meetings, are also at an event related to the mailing list, etc etc."

Possible Solution: Direct Outreach

"Increase interaction and outreach between IETF and operator forums, probably by identifying a subset of IETF drafts and areas that could most benefit from additional operator input such that we can focus the help that we're asking for - simply trying to convince people to participate generically isn't likely to be successful, while asking for specific feedback on specific items will be seen as a better use of time. It may even be useful to try to coordinate one meeting per year or every two years with an operator forum to encourage cross-pollination."

"Participation in I.E.T.F needs to be demystified. Internet Society needs to reach out to the operators and the local technical community in every country to create awareness that I.E.T.F is open for participation, it does have a membership system, and that anyone who participates can equally contribute to discussions on the same level as more qualified or frequent participants. And that funding opportunities are open. And that it is important for operators to take part."

Possible Solution: Additional Publicity

"ensure that meaningful RFC's and other publications get more press than TCP over Avian Carrier."

"Strategic Plan of publicity about IETF and its main activities. This strategic plan should be in several languages to reach everyone."

"I would love to see a list of reasons why operator participation is needed and what the pay-off is for the operator, as well as the community as a whole."

"It's a tough question... You need a "hot RFC" and turn it into a media-backed frenzy. Something to focus the interest of a large number of technical folks. You may also want to just elevate a few select 'products'. Keep a few key items "up front".   For instance, take a look at Mozilla and Mozilla Labs. Even Google and (now defunct) Google Labs. Push a few key "products" (of the IETF's 7136 RFC's) and put them everywhere, showcase a few more. Focus and push the technologies forward and you may get more participation."

Possible Solution Area: Inclusion

"Make the operators feel more welcome."

But how? Some ideas in this area are:

- **Make participation at meetings easier**

- **Make the process more operator friendly**

- **Require operational input**

- **Be multi-lingual**

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Possible Solution:
Make participation at meetings easier

"Try and group more operationally-relevant sessions together so that it doesn't require a full week to participate."

"Publish agendas early"

"Have more operator relevant side meetings" *[and vice verse]*

"One day ticket is good idea."

"Do some IETF meetings in our region"

"Provide more sponsorships"

"Asking vendors to bring operators to the meetings."

"New ways of gathering people reducing the cost (remote participations from multiple locations?)."

"Make remote participation easier."

Possible Solution:
Make the process more operator friendly

"Create a WG for operators to establish business needs, and customer needs - let them create "requirement's documents" in the form of conceptual abstraction meta models that can be put out in the body."

"Better stewardship/shepherding of drafts and stopping the brain damaged drafts from wasting WG time. Not everything requires IETF work, nor needs to be written in a standard."

"The use of operators as working group Operator Councils rather than just having Co-Chairs to determine what topics are good and not good for that working group."

"It needs more open leadership. The top of the IETF is like merry go round. The same folks make sure their colleagues all get jobs, same names, same people, no change"

"Start to accept that operator requests may be valid even if they are not in agreement with existing opinions."

Possible Solution: Require operational input

"Require standards to get the buy-in of a variety of operators."

"define a class of documents that requires the participation of at least two operators"

Related: "I guess, having a BCOP (best current operational practices; like http://bcop.nanog.org/ and http://www.ipbcop.org/) would attract more operators."

Possible Solution: Be multi-lingual

"Introduce works in multi language."

"Well you see....　武夫盲魯，何須自投入網。　如貴方無心親面請儌人入瓮。　怎以，伯樂就在我不願之處。　感謝 改善我們的世界"

"We end up sending our best English speakers, rather than our best engineers."

Now What?

Potential Challenges vs. Possible Solutions

	Time	Culture	Money	Awareness
Communication	■			
Outreach				■
Inclusion		■		

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Next Steps

- **Host discussions, gather feedback**

- **Here, today, and all around the world**

- **All types of operators**

- **Update the Internet-Draft**

- **Synthesize additional input into future versions**

- **https://datatracker.ietf.org/doc/draft-opsawg-operators-ietf/**

- **Lobby for specific solutions?**

- **Take necessary actions**

- **Based on what we hear from You and others**

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Batteries Not Included

We need your help!

- ## Talk to us today
- **Come to the microphone now**
- **Find us at a break, or a meal**

- ## Read and comment on the I-D
- **https://tools.ietf.org/html/draft-opsawg-operators-ietf**
- **https://www.ietf.org/mailman/listinfo/opsawg**

- ## Let us know what you think!
- **Email: deploy360@isoc.org**
- **Social media, etc.:
  http://www.internetsociety.org/deploy360/about/contact/**

Thank You!

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