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**Subject:** PCH Peering Survey 2021  
**Date:** October 29, 2021 at 1:47:37 PM GMT+2  
**To:** NANOG <[nanog@nanog.org](mailto:nanog@nanog.org)>

## Background:

Five and ten years ago PCH conducted comprehensive global surveys characterizing Internet peering agreements. They are the only ones of their kind, and are relied upon by legislators and regulators throughout the world to understand the Internet interconnection landscape.

Our write-ups of the prior surveys can be found here:

<https://www.pch.net/resources/Papers/peering-survey/PCH-Peering-Survey-2011.pdf>

<https://www.pch.net/resources/Papers/peering-survey/PCH-Peering-Survey-2016/PCH-Peering-Survey-2016.pdf>

...and video of the NANOG presentation of the 2016 results is here:

<https://www.youtube.com/watch?v=IPuoBmxyXMc>

At the time of the 2011 survey, we committed to repeating the survey every five years, to provide time-series data about the direction peering trends take. We're now conducting the third iteration of the survey.

Among other things, the surveys have helped establish a better understanding of trends in:

- The increasingly uniform global norms of interconnection
- National preferences within the network operator community for country of governing law
- The long tail of small networks which don't yet support IPv6 routing
- The significance of multilateral peering agreements in the density of the interconnection mesh

These findings, particularly the first, have been invaluable in giving regulators in the vast majority of the world's countries a data-driven basis for refraining from prescriptively regulating Internet interconnection. They have demonstrated in objective terms that the Internet self-regulates in a way that's more globally uniform and closely harmonized than any coordination of national regulatory bodies could accomplish.

## Participation:

The survey is global in scope, and our goal is to reflect the diversity of peering agreements in the world. Your participation ensures that your norms and ways of doing business are represented accurately and proportionately in the dataset. If you don't participate, the way you do business will be less well-represented in the data, and will seem less normal to regulators and policy-makers. We're interested in large ISPs and small ISPs, ISPs in Afghanistan and in Zimbabwe, bilateral agreements and multilateral, private and public. Our intent is to be as comprehensive as possible. In 2011, the responses we received represented 4,331 networks in 96 countries, or 86% of the world's ISPs at that time. In

2016, responses represented 10,794 networks in 148 countries, or 60% of the world's ISPs in 2016. Our aim is to be equally inclusive this year.

Since our principal method of soliciting participation is via NOG mailing lists, I'm afraid many of you will see this message several times, on different lists, for which we apologize.

## Privacy:

In 2011 and 2016, we promised to collect the smallest set of data necessary to answer the questions, to perform the analysis immediately, and not to retain the data after the analysis was accomplished. In that way, we ensured that the privacy of respondents was fully protected. We did as we said, no data was leaked, and the whole community benefited from the trust that was extended to us. We ask for your trust again now as we make the same commitment to protect the privacy of all respondents, using the same process as was successfully employed the last two times. We are asking for no more data than is absolutely necessary. We will perform the analysis immediately upon receiving all of the data. We will delete the data once the analysis has been performed.

## The Survey:

We would like to know your Autonomous System Number, and the following five pieces of information relative to each other AS you peer with:

- **Your peer's ASN** (peers only, not upstream transit providers or downstream customers)
- **Whether a written and signed peering agreement exists** (the alternative being a less formal arrangement, such as a "handshake agreement")
- **Whether the terms are roughly symmetric** (the alternative being that they describe an agreement with different terms for each of the two parties, such as one compensating the other, or one receiving more or fewer than full customer routes)
- **Whether a jurisdiction of governing law is defined**
- **Whether IPv6 routes are being exchanged** (this year, we'll still assume that IPv4 are)

The easiest way for us to receive the information is as a tab-text or CSV file or an Excel spreadsheet, consisting of rows with the following columns:

Your ASN: Integer

Peer ASN: Integer

Written agreement: Boolean [true,1,yes,y] or [false,0,no,n]

Symmetric: Boolean [true,1,yes,y] or [false,0,no,n]

Governing Law: ISO 3166 two-digit country-code, or empty

IPv6 Routes: Boolean [true,1,yes,y] or [false,0,no,n]

For instance:

```
42 <tab> 715 <tab> false <tab> true <tab> us <tab> true <cr>
```

```
42 <tab> 3856 <tab> true <tab> true <tab> us <tab> true <cr>
```

We need the ASNs so we can avoid double-counting a single pair of peers when we hear from both of them, and so that when we hear about a relationship in responses from both peers we can see how closely the two responses match, an important check on the quality

of the survey. As soon as we've collated the data, we will protect your privacy by discarding the raw data of the responses, and only final aggregate statistics will be published. We will never disclose any ASN or any information about any ASN.

If you're peering with an MLPA route-server, you're welcome to include just the route-server's ASN, if that's easiest, rather than trying to include each of the peer ASNs on the other side of the route-server. Either way is fine.

If all of your sessions have the same characteristics, you can just tell us what those characteristics are once, your own ASN once, and give us a simple list of your peer ASNs.

If your number of peers is small enough to be pasted or typed into an email, rather than attached as a file, and that's simpler, just go ahead and do that.

If you have written peering agreements that are covered by non-disclosure agreements, or if your organizational policy precludes disclosing your peers, but you'd still like to participate in the survey, please let us know, and we'll work with whatever information you're able to give us and try to ensure that your practices are statistically represented in our results.

If you're able to help us, please email me the data in whatever form you can. If you need a non-disclosure, we're happy to sign one.

Finally, if there are questions you'd like us to try to answer when we analyze the data, please suggest them, and if there are any additional questions you'd like us to include in future iterations of the survey, please let us know so that we can consider including them in the 2026 survey.

**Please respond by replying to this email, by the middle of November, two weeks from now.**

Thank you for considering participating. We very much appreciate it, and we look forward to returning the results to the community.

-Bill Woodcock  
Executive Director  
Packet Clearing House