

Good Practices in Internet Exchange Point Documentation

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Bill Woodcock

Packet Clearing House

Motivation

Since 1994, PCH has been maintaining a canonical global directory of Internet exchange points, visible at www.pch.net/ixpdir. More recently, Serge has been keeping a similar list of European IXes, at www.euro-ix.net/resources/list-eur.php. Both of us are frequently approached by researchers, NGOs, and governmental and intergovernmental bodies, asking for more complete and more accurate numbers which they can use to characterize the size and rate of growth of the Internet.

Motivation

The OECD and the FCC have asked PCH to work with the rest of the global Internet exchange community to prepare a good practices document which describes documentation practices for Internet exchange points and, once done, to promote it and help IXes implement it, globally.

Balance

On one hand, we're trying to solve a problem which exists due to present insufficient documentation. On the other hand, we don't want to claim a "best practice" that is not actually currently implemented.

Balance

Therefore, we've taken as our model the practice as currently extant in the IXes which have generally been most consistently diligent in documenting their operations. We have examined the many specific current practices and distilled what we believe to be their commonality, and about half a dozen IXes have now implemented it exactly as written in this document. We believe this is a reasonable and achievable goal, while being sufficient solution to be worth implementing.

Specifically

Publication of traffic statistics

Publication of membership contacts

Maintenance of the IN-ADDR zones

Publication of Traffic Statistics

On the IX web site, in addition to any other localized or translated URLs, a page shall be located at `/statistics` relative to the root of the web site, containing any statistical information which the IX chooses to publish, in the language of its choice. This shall include at a minimum, a graphical histogram of the past 24 hours' aggregate traffic, counting each byte which has flowed across the IX switch fabric exactly once, with care not to double-count at inter-switch connections. The time-base of the graph may be in the local time-zone of the IX. The graph image itself shall also be reachable at `/statistics/graph`. The same data shall also be provided in tabular form at `/statistics/table`, of at least 288 lines, where each consists of a Unix-style timestamp five-minute aligned UTC, a tab, and the number of bits passed in the preceding five-minute period, divided by 300 and rounded to the nearest integer (in other words, five-minute average bits per second), followed by a carriage return, and the next entry. In the event that data is simply unavailable, no value should follow the tab. Under no circumstances should a lack of data be represented by a zero or an interpolated value. The earliest entry shall be at the beginning (top) of the file, and the most recent entry shall be at the end (bottom) of the file.

Publication of Participant Contacts

On the IX web site, in addition to any other localized or translated URLs, a page shall be located at `/participants` relative to the root of the web site, containing any information about the IX's membership or participants which the IX chooses to publish, in the language of its choice. This shall include, at a minimum, the organization name and contact method, such as a peering information URL, for each participant. Participant data shall also be provided in tabular form at `/participants/table`, exactly one line per assigned IP address of each subnet used for public interconnection across the IX, where each line consists of the assigned IP address, a slash, the subnet mask length in bits, a tab, the organization name of the participant to which it has been assigned, a tab, the principal Autonomous System Number which the participant reports to be in use on that interface, a tab, and the preferred contact information for the responsible party for that participant organization, followed by a carriage return, and the next entry. Unassigned IP addresses shall not appear in the file. The file shall be sorted by IP address, with the lowest address at the beginning (top) of the file, and the highest address at the end (bottom) of the file. ISPs shall not use private Autonomous System Numbers for public peering.

Maintenance of the IN-ADDR

In the publicly-visible in-addr DNS, one PTR record shall be maintained for each assigned IP address in each subnet used for public interconnection across the IX, consisting of the fully-qualified domain name received from the participant to which that IP address is assigned, and each participant shall be encouraged to maintain a matching A record in their forward domain. Unassigned IP addresses shall have no associated PTR record in the publicly-visible DNS. Address ranges for which the IX does not control authoritative IN-ADDR delegation shall not be used for the exchange of Internet traffic.

Cautions to Client Implementors

Note that the canonical URLs specified in this document are likely to be implemented on the server side using either http redirects or html redirects, so clients must be prepared to follow such redirects to reach the data.

This Document Describes Minimums

It is important to understand that this document describes a least common denominator practice, intended to facilitate easy programmatic interaction, and is in no way intended to discourage the implementation of additional features or language localization for the convenience of the IX's first constituency, its participants.

Beta-Phase Implementors

Amsterdam Internet Exchange

Seattle Internet Exchange

Nepal Internet Exchange

Toronto Internet Exchange

West Australia Internet Exchange

Wellington Internet Exchange

Internet Exchange of Puerto Rico

Feedback, Please!

This is a living document, and although its utility will greatly benefit from stability, we should also expect the document to be updated periodically, as needs and capabilities change.

Thanks, and Questions?

Copies of this presentation can be found
in Keynote, PDF, and QuickTime formats at:

<http://www.pch.net/resources/papers/ix-documentation-bcp>

Bill Woodcock
Research Director
Packet Clearing House
woody@pch.net