Borderless Ethereum is a volunteer-led initiative to try to measure the geographical and jurisdictional distribution of validators in Ethereum. In order for Ethereum to remain a credible neutral platform that is free from nation state coercion, it needs to have a wide geographical distribution of validator nodes. This is a difficult challenge to address, but in order to make any progress, we need to be able to measure where we are at, and to be able to measure the effect of any changes we make.

However, this is a challenge in itself. While we can use existing datasets to track the geographical distribution of nodes on the network, these are CL+EL clients, not validator nodes. Many nodes on the network do not have a Valdiator Client associated with them, think of all the nodes that companies like Infura, Alchemy etc. run. Furthermore, some Beacon Nodes may have several Validator Clients connected to them, and some may even have Validator Clients in separate locations.

So we need some way of tracking where the validator clients are, and in a way that does not reveal details about their location, in fact, we really only need to know which country they are in. To do this, we're trying to get node operators to place a "geo tag" in the graffiti field of the beacon chain blocks they propose. The geo tag is simply GEO-XX where XX is the two letter country code for the country that the validator client is in. We will then scrape the graffiti fields from each block and count how many validators are in which country, and will try to track this over time.

We feel that this form of self-reporting of location can provide valuable information while also maintaining validator location privacy. In order to encourage participation, we will drop a POAP to the addresses of the validators that include the geo tag in their blocks.

We would very much value feedback and suggestions on this proposal, and would appreciate any help that people can give with raising awareness for the project, and hopefully increasing participation.

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Measuring the geographical distribution of Ethereum validator nodes

Original ethresear.ch post: Geographical Decentralisation - Economics - Ethereum Research