

TLDR

: This is a proposal addressed to the [Relay Maintenance Committee](#) to add the ultra sound relay to the “must use some” list.
proposal

We propose to add [the ultra sound relay](#) to the “must use some” (is_mandatory = True

) relay list. Our understanding is that such inclusion is contingent on good performance. We argue below that the ultra sound relay has had continued excellent performance, from the perspective of both inclusion rate and stability.

inclusion rate

The ultra sound relay wins ~50% of its auctions—significantly more than any other relay. The [rated.network](#) screenshot below (time frame set to 1d) shows the inclusion rate for 8 Lido operators. Notice the size of the green bands corresponding to the ultra sound relay. For example, the ultra sound relay has roughly 5x the inclusion rate of the Flashbots relay (in yellow).

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Screenshot 2023-02-24 at 11.24.59

1708×1182 138 KB

](<https://europe1.discourse-cdn.com/business20/uploads/lido/original/2X/b/bc534052bea3eb12311981949ec9cd5b05a487a8.png>)

The high inclusion rate is due to various optimisations that reduce latency. For example, we run validation nodes on top-notch baremetal machines with AMD Epyc CPUs. The machines running validation nodes have 512GB of RAM, allowing to run Geth with the full Ethereum state in a RAM disk. We also have excellent connectivity to builders—the ultra sound relay enjoys roughly 90% of winning blockflow.

stability

: The ultra sound relay has been running extremely stably on mainnet. We run the Flashbots relay codebase which has proven to be reliable. We have integrated devops best practices shared by Flashbots, and in some places tried to go above and beyond. We have not suffered any missed slot due to operational accidents on our side.

We have suffered only one partial outage of roughly 15 minutes due to an automatic update to the Flashbots relay version v1.15.1 which was buggy. This outage was quickly resolved thanks to a custom monitoring and alert system that called (and woke up!) our lead devops engineer Niclas. We have learned from this outage, and validators didn't suffer from missed slots.