

What does the Internet look like? A multilayer graph model of the internet topology

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What does the Internet look like and how can data be navigated it around it most efficiently and effectively? That is the question that a paper detailing a multilayer graph model of the internet topology could answer. Details are reported in the *International Journal of Networking and Virtual Organisations*.

Georg Tilch and Benjamin Fabian of the Humboldt University of Berlin,

and Tatiana Ermakova of the Central Research Institute of Ambulatory Health Care, in Germany discuss how internet maps can be used to develop effective routing algorithms. The same maps can also be used to improve security mechanisms and resilience management at the [internet service provider](#) and commercial user level through detailed structural decomposition.

The team has studied so-called traceroute datasets from various large-scale measurement campaigns such as iPlane, CAIDA, Carna, DIMES, RIPE Atlas and RIPE IPv6L. Traceroute is a internet command that, as the name would suggest, traces the route taken by packets of data as they travel from user A to user Z via various servers and nodes on the internet. They have integrated this traceroute data into internet graphs to give them a view with an unprecedented level of detail and a solid scale.

"By employing a broad diversity of graph measures, this study creates an exhaustive snapshot of the global internet topology," the team writes. "This work creates a baseline for future internet research." They additionally suggest that repeated measurements and automated data integration could enable a better understanding of [internet](#) dynamics.

More information: Georg Tilch et al. A multilayer graph model of the internet topology, *International Journal of Networking and Virtual Organisations* (2020). [DOI: 10.1504/IJNVO.2020.106488](https://doi.org/10.1504/IJNVO.2020.106488)

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