

## A Patent For Geotagging IP Packets Raises Important Internet Law Questions (Guest Blog Post)

January 15, 2018 · by [Eric Goldman](#) · in [Content Regulation](#), [Internet History](#), [Patents](#)

by guest blogger [Marketa Trimble](#)

On September 12, 2017, the U.S. Patent and Trademark Office issued a patent on a technology that could significantly affect the functioning of the internet and the course of internet-related law and policy, and achieve an ultimate territorialization[FN] of the internet.

[FN: “Territorialization” is the action of territorializing, i.e. “mak[ing] (something) territorial; to organize on a territorial basis; to associate with or restrict to a particular territory or district.” Oxford English Dictionary, 3d ed., 2011.]

Patent [US 9,762,683 B2](#) covers the “use of packet header extension for geolocation/geotargeting.” The patented technology should enable the insertion of geolocation information into an IPv6 packet and the transmission of that geotagged IPv6 packet into a communication network.

Packets are the carriers of data on the internet; they consist of user data (a payload), and also of control information about where the data should go (a header). A packet identifies its sender and addressee by their IP addresses but (currently) does not include any information about the sender’s or addressee’s physical location (geolocation); while IP addresses may indicate, generally, a geographical location, they are not an exact and perfectly reliable determinant of the location – for reasons that include, among other things, the possibility of spoofing IP addresses.

The patented technology makes it possible to tag packets with information about the physical location of the sender’s device; the location could be determined based on various data from the sender’s device, such as “a GPS, cellular or other source.” According to the patent, this geolocation information inserted into a packet header could be used to determine the physical location of a device, “authenticate the packets that originate from the sender,” “prioritize data packets from the sender,” and “efficiently route data packets.” A companion [patent application](#), which was published in March 2016 and as of January 12, 2018, was still pending before the USPTO, covers a technology for authenticating, prioritizing, routing, and monitoring a geotagged IPv6 packet.

Patent US 9,762,683 B2 provides some examples of helpful applications of the technology: for example, the technology would enable, in the same company, the prioritization of the traffic originating from one department over the traffic from another department, and, on a larger scale, the prevention of DDOS attacks “by blocking traffic from certain problematic geographic regions.”

A group of researchers from AT&T Labs Research, in a [paper](#) presented in November 2017 at the 25<sup>th</sup> International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2017), noted one even more striking possible application for packet geotagging technology: the capability of limiting the transmission of packets through routers and switches located in only one country. (In the paper, the AT&T researchers do not refer to the patent above; their proposed solution is based on using packet encapsulation to add the geolocation information.)

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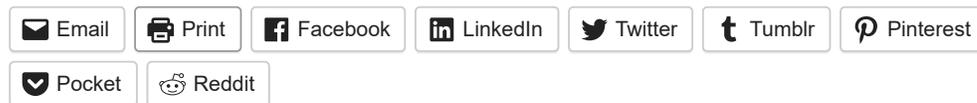
Limiting where packets may travel would enable complete territorial control over data flow on the internet and could replace geoblocking, which is the technology currently employed to territorially delimit the accessibility of content on the internet (e.g., [here](#)). The AT&T researchers noted that geotagged packets could be utilized much more effectively for territorial limitations on access to content than geoblocking (which can be circumvented, e.g., [here](#)). The more remarkable use of the technology, of course, would be the possibility for countries to mandate that the movement of internet data under their control be limited in a certain way; data packets could have a “nationality” and be instructed not to cross the borders of a certain country or territory.

If it becomes possible to dictate where data may be located and where data may travel, some of the most pressing legal questions on the internet could be obviated. If data packet geotagging is implemented, the technology could mean the end of the free flow of data on the internet; and the process of territorialization of the internet – the signs of which are features such as localized advertising, location-based services, geoblocking, and geographical domain names ([here](#)) – could be completed if geotagged IPv6 packets and their territorially-restricted routing become a reality. How desirable this reality might be – and for whom – is an all-important question.

[Eric’s note: I have a strong view on that normative question, and I wrote [a brief post](#) about it in 2007.]

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