

DISPUTATION

Donnerstag, 22. Dezember 2016, 10.00 Uhr

Ort: Institut für Informatik, Raum 006, Takustr. 9, 14195 Berlin

Disputation über die Doktorarbeit von

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Thema der Dissertation:

A Platform for End-Host-based Active Measurements on the Internet

Thema der Disputation:

How Broadcast Data Reveals Your Identity and Social Graph

Die Arbeit wurde unter der Betreuung von **Prof. Dr.-Ing. J. Schiller** durchgeführt.

Abstract: Networks rely on broadcasts and multicasts for some of the most basic services such as auto-configuration. In the recent past, application layer protocols have increasingly made use of the broadcast mechanism. Examples of these applications include Dropbox, Spotify or BitTorrent Sync. Given that broadcasts can be seen by every device in a broadcast domain, information that can be gleaned from this traffic is trivially accessible by a passive observer. Therefore, an obvious question is: what does broadcast and multicast traffic reveal about a device, a user or a group in a network?

To answer this question, the broadcast traffic of two fairly large wireless networks was analyzed. One of these networks was the campus network of a university which was analyzed for a period of six months. Also, two SSIDs of the IETF meeting network in Yokohama in November 2015 were analyzed for a period of about 36 hours.

In addition to a general analysis of the composition of the daily broadcast traffic such as protocols observed, the number of devices, the peak times of user activity etc., a more in-depth analysis of a few protocols was carried out in order to identify users and their relation to each other. In other words, the available broadcast data was used to show that it is possible to generate a social graph of the network's users base, which e.g. helps to identify groups among students, their course of study, their online times and other personal information. The correctness of this inferred social graph was verified by asking students to confirm the findings.

None of the observed broadcast protocols alone is to blame for the above and there is no easy technical solution to the problem while retaining the benefits of the broadcast protocols. However, there is a simple yet effective countermeasure against this kind of analysis which is non-technical and "only" requires changing user behavior.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission

Prof. Dr.-Ing. J. Schiller