

A Location-Privacy Threat Stemming from the Use of Shared Public IP Addresses

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APPENDIX A NOTATIONS

TABLE 1
Table of notations.

Symbol	Definition
T	DHCP lease time
p_{New}	Probability of being assigned a new IP
I_k	k -th sub-interval
t	Relative time within a sub-interval
λ_{Arr}	Rate of user arrivals at AP
$N_{Arr}(t)$	Number of arrivals in an interval of length t
T_{Dur}	Time users stay connected to the AP
$1/\lambda_{Dur}$	Avg. time users stay connected to the AP
F_{Dur}, f_{Dur}	Pdf/cdf of T_{Dur}
N_{Con}	Avg. number of users connected to the AP
$\lambda_{Std}, \lambda_{Auth}$	Rates of user std./auth. requests
$P_{Std}(t), P_{Auth}(t)$	Probability that a user makes at least one request during an interval of length t
α_{LBS}	Proportion of users who make LBS requests
λ_{LBS}	Rate of user LBS requests
Λ_{LBS}	Aggregated rate of users' LBS requests
T_{Comp}	First time an LBS request occurs
F_{Comp}, f_{Comp}	Pdf/cdf of T_{Comp}
W	Length of the vulnerability window
ΔT	Time interval used to infer IP changes
$F_{Link}(t)$	Probability of knowing IP change at time t
$F_{Map}^{(k)}(t)$	Probability of having the mapping before time $t \in I_k$

APPENDIX B DATASET STATISTICS

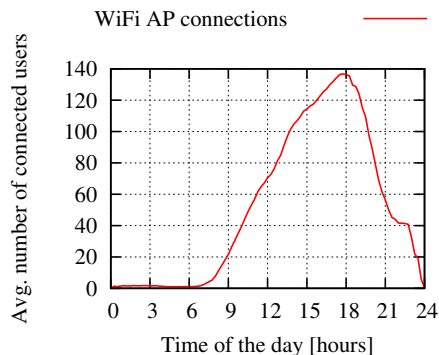


Fig. 1. Average number of users connected to the AP over a day (averaged over the 23 days).