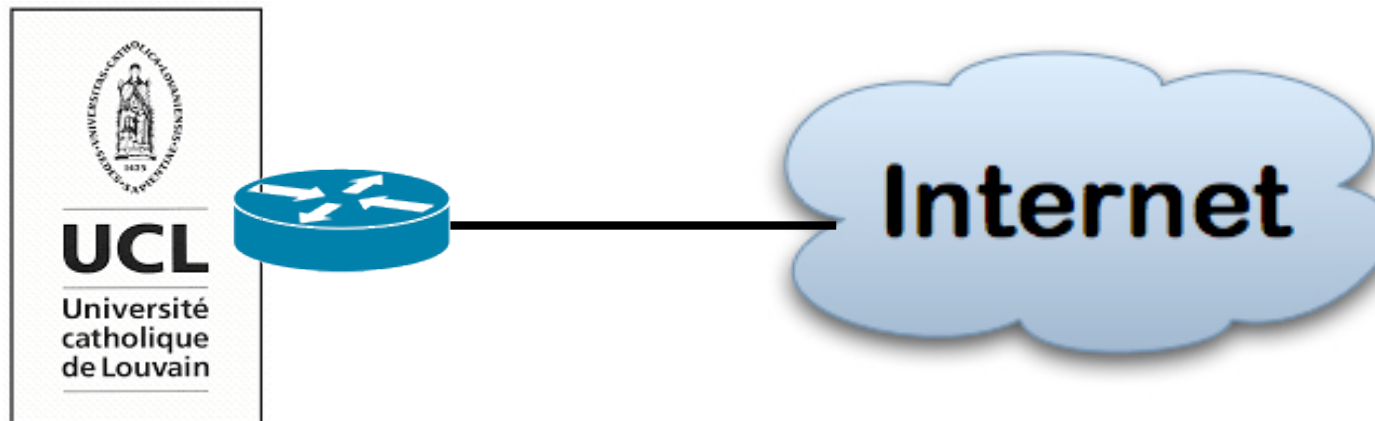


# **Locator/ID Separation: Study on the cost of Mappings Caching and Mappings Lookups**

**Luigi Iannone and Olivier Bonaventure**



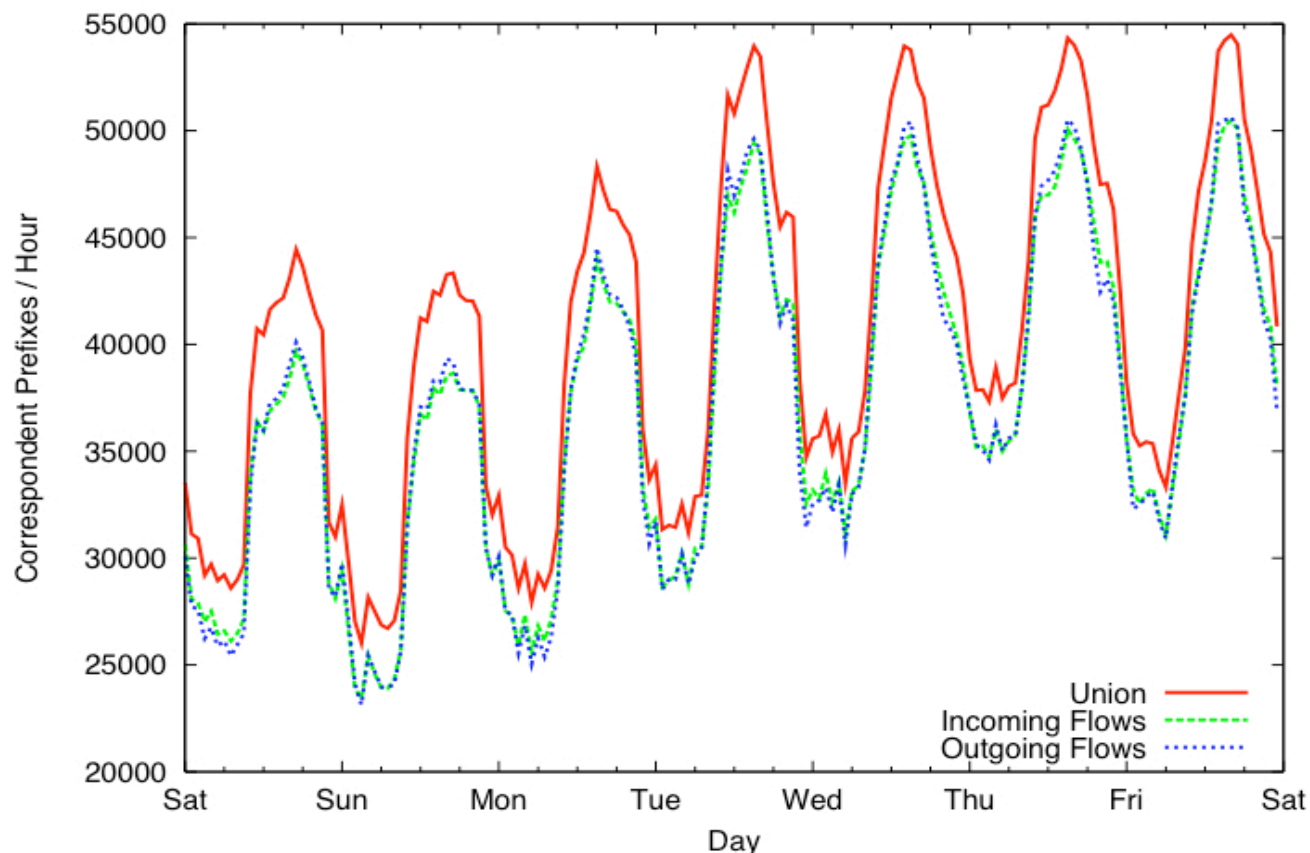
# Netflow data collection



- Netflow (v7) on border router
- 1 Gigabit link to Belnet
- ~10000 users (/16 prefix block)
- Analysis: flow-tools + custom software
- /BGP Granularity of mappings
  - iPlane data set

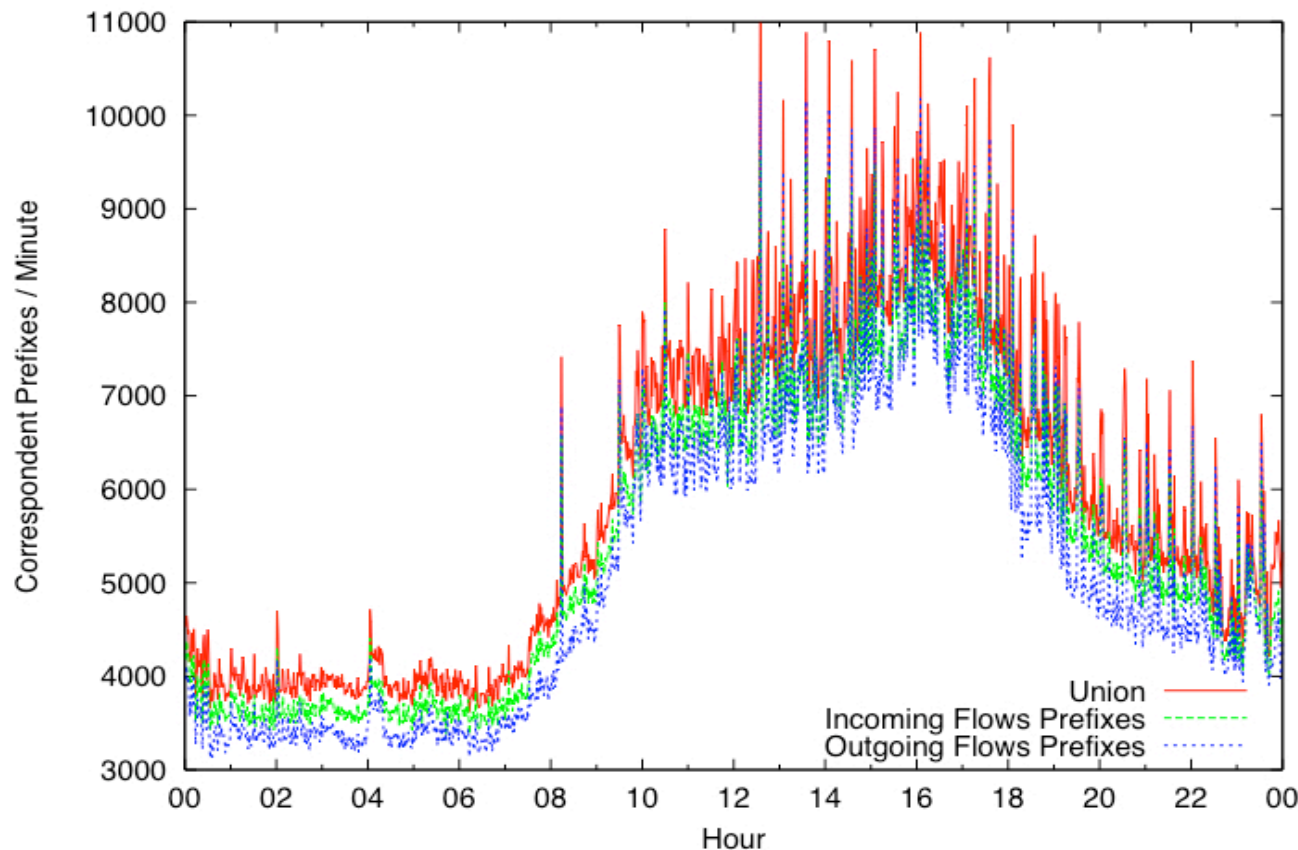
# Correspondent Prefixes (I)

- Weekly Report of Correspondent Prefixes
  - Per-Hour Granularity



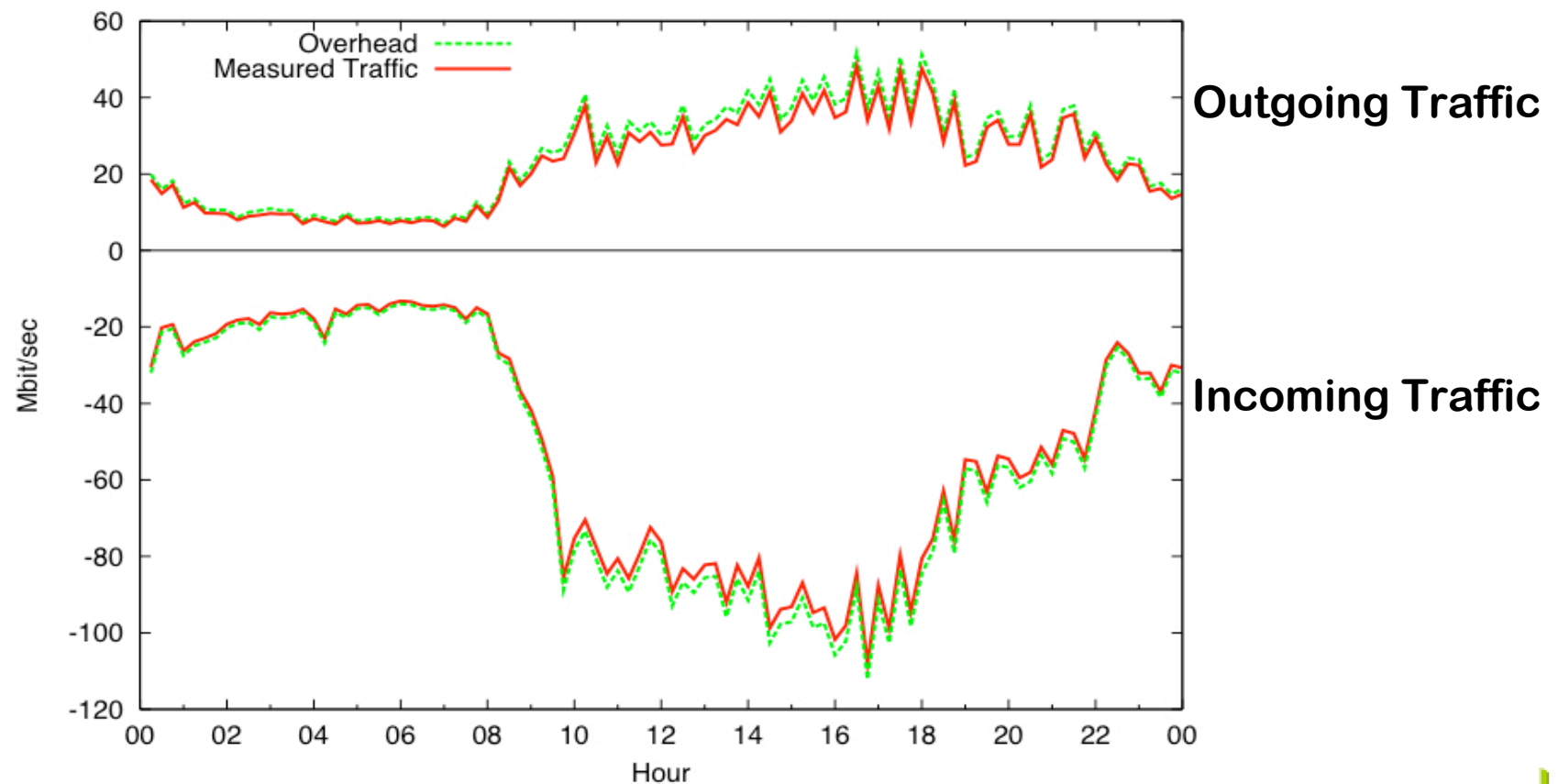
# Correspondent Prefixes (II)

- Daily Report of Correspondent Prefixes
  - Per-Minute Granularity



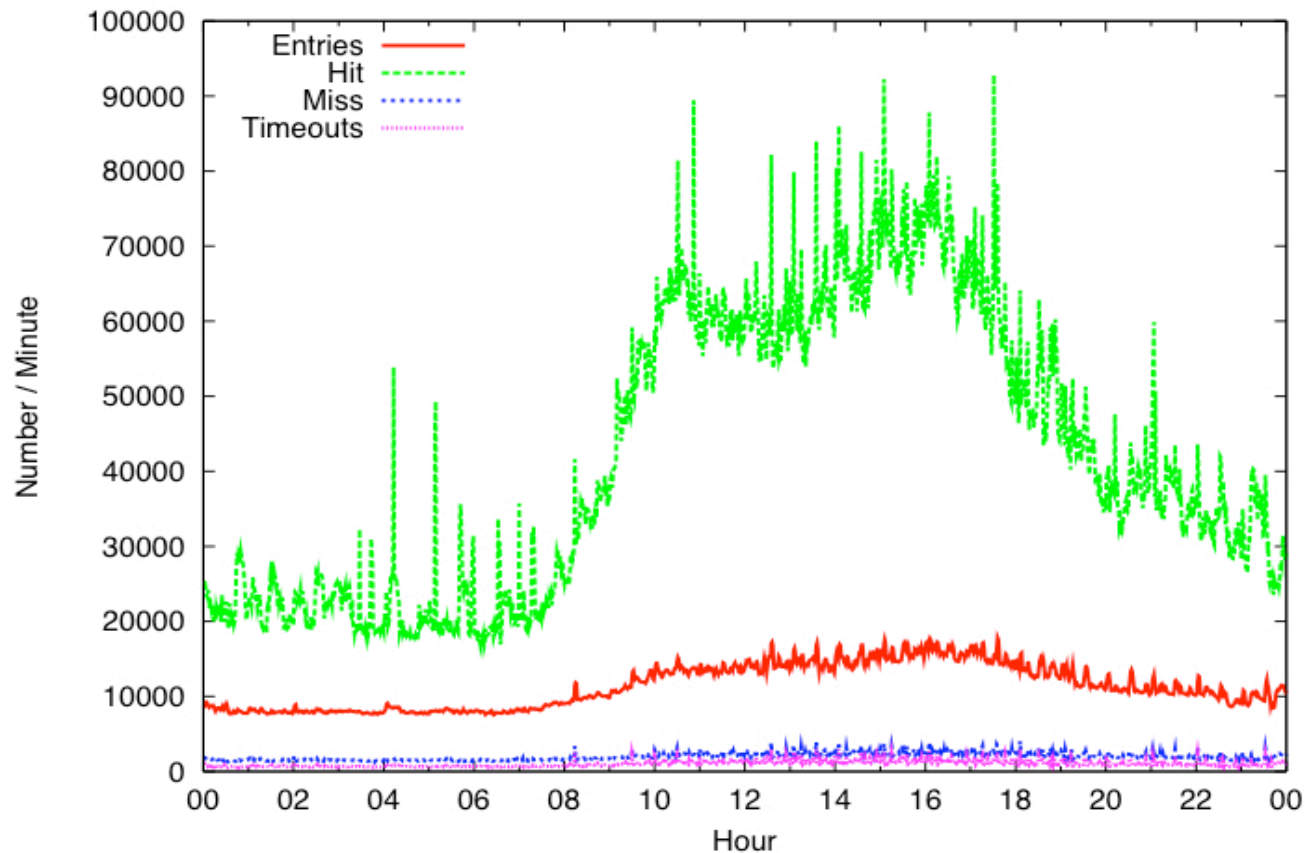
# Traffic Volume & Tunneling Overhead

## Overhead using LISP encapsulation (draft -01)



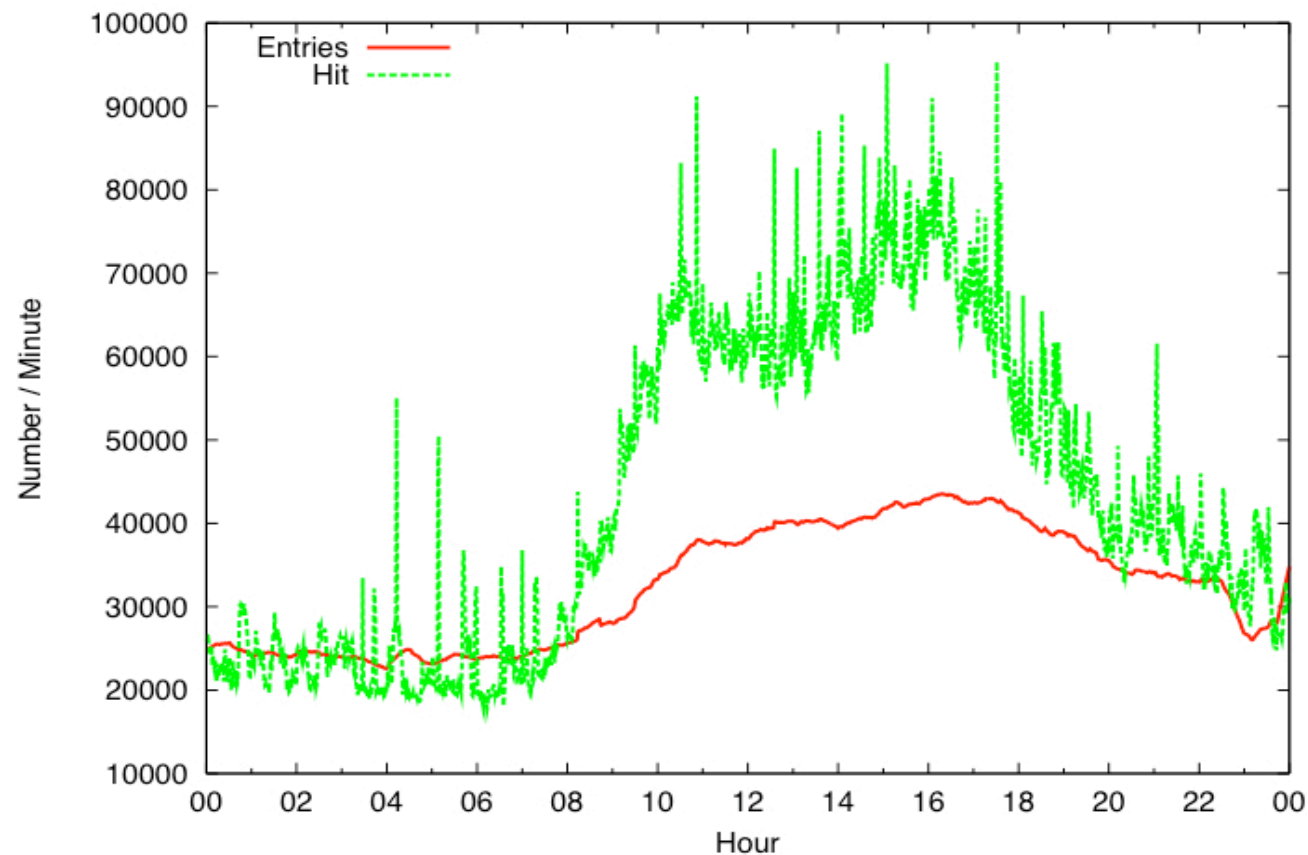
# Cache (3 min timeout)

Period	1 RLOC	2 RLOCs	3 RLOCs
Night	139 KB	183 KB	227 KB
Day	334 KB	440 KB	545 KB



# Cache (30 min timeout)

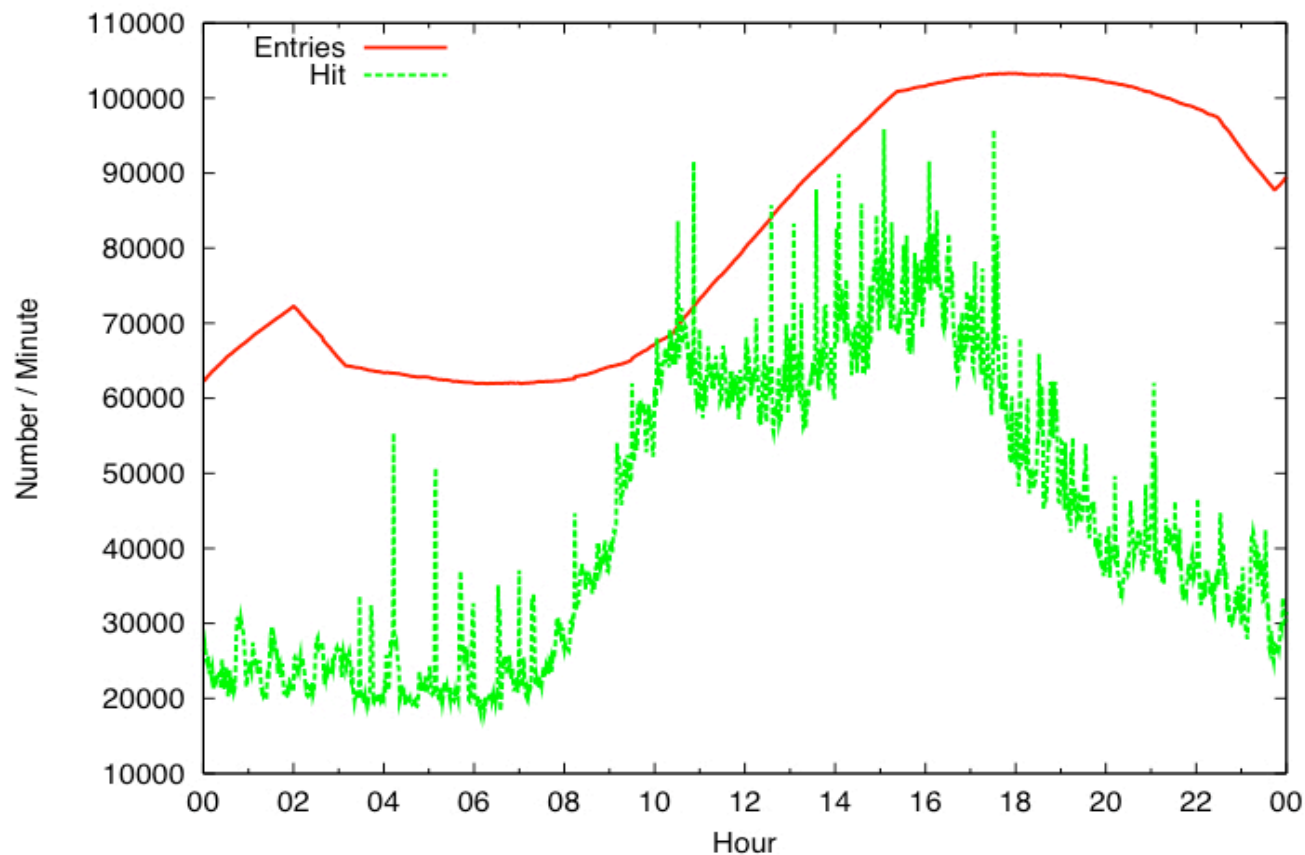
Period	1 RLOC	2 RLOCs	3 RLOCs
Night	417 KB	550 KB	681 KB
Day	807 KB	1062 KB	1317 KB





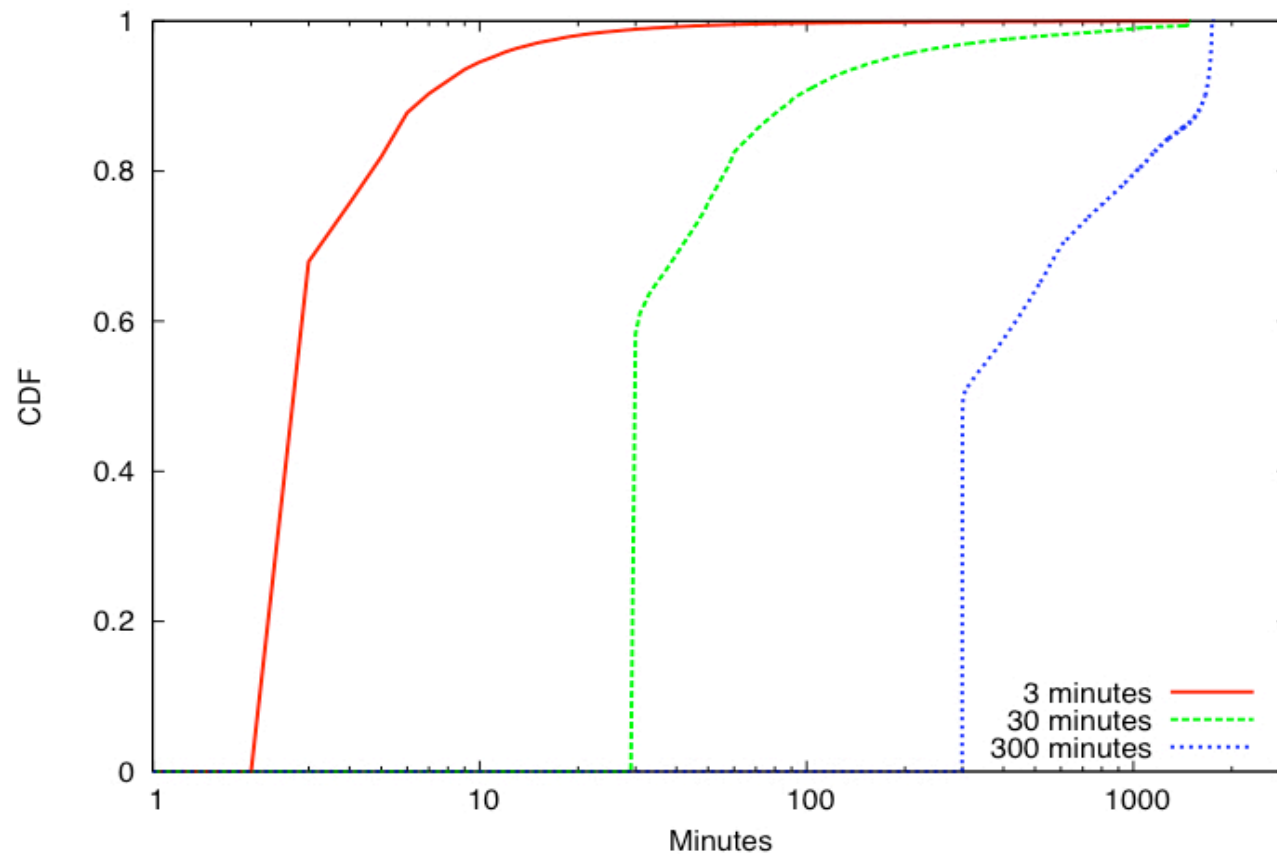
# Cache (300 min timeout)

Period	1 RLOC	2 RLOCs	3 RLOCs
Night	1132 KB	1490 KB	1847 KB
Day	1917 KB	2522 KB	3127 KB

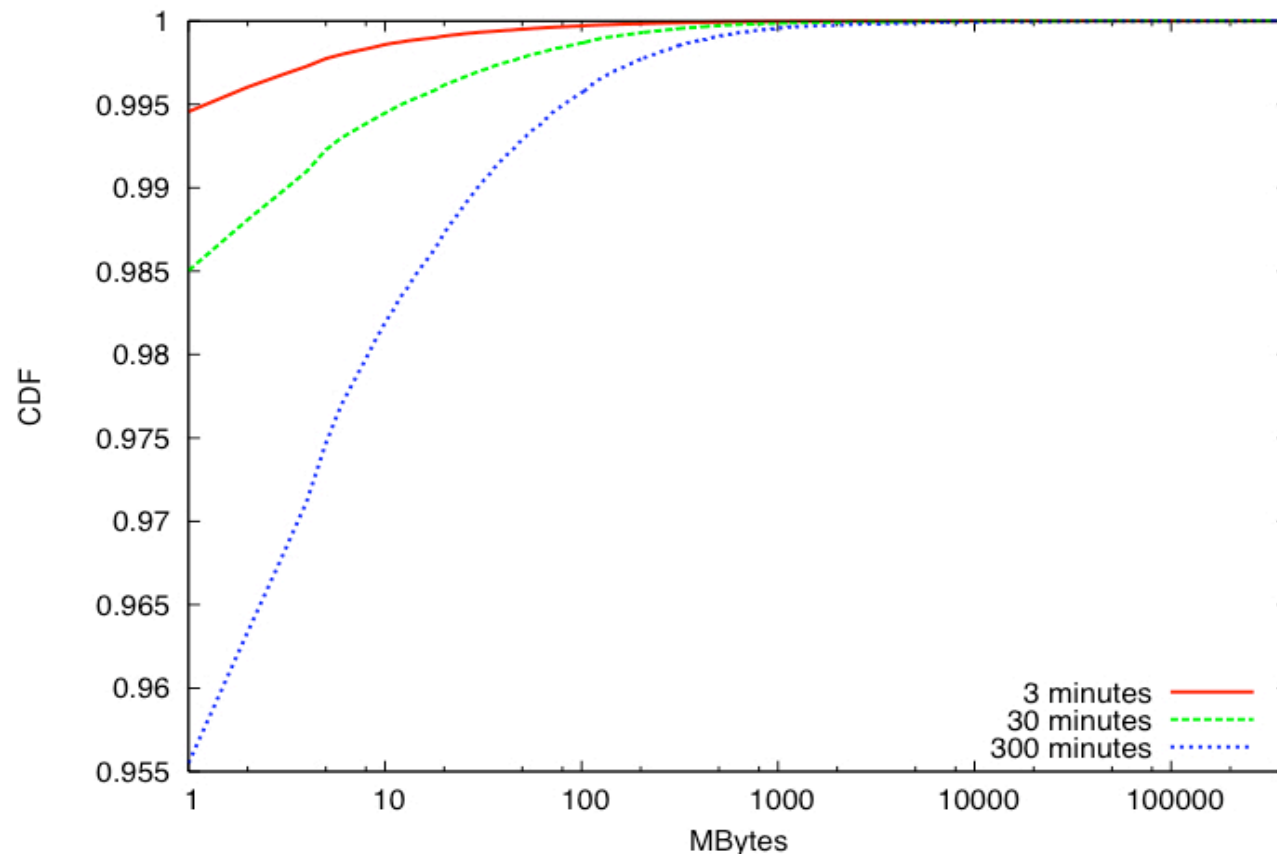




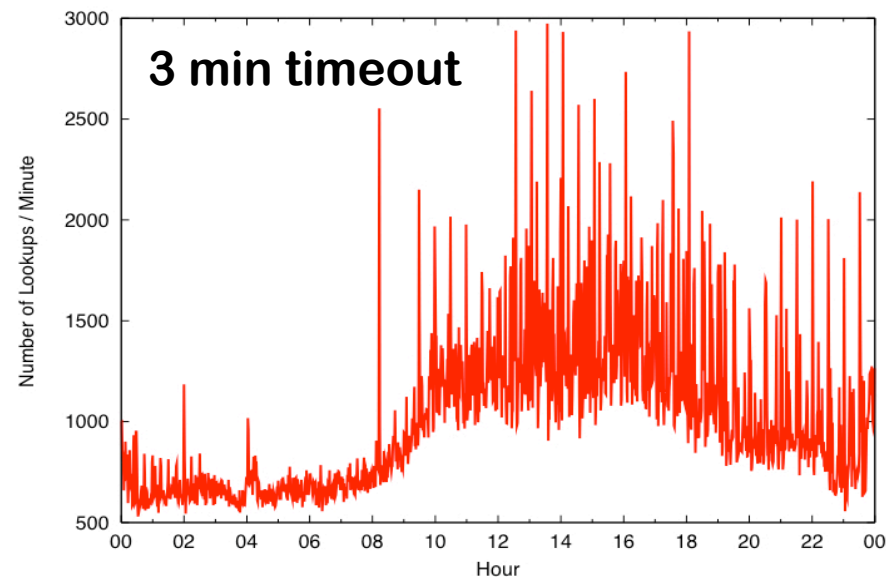
# Cache Entries Lifetime



# Traffic Volume per Entry



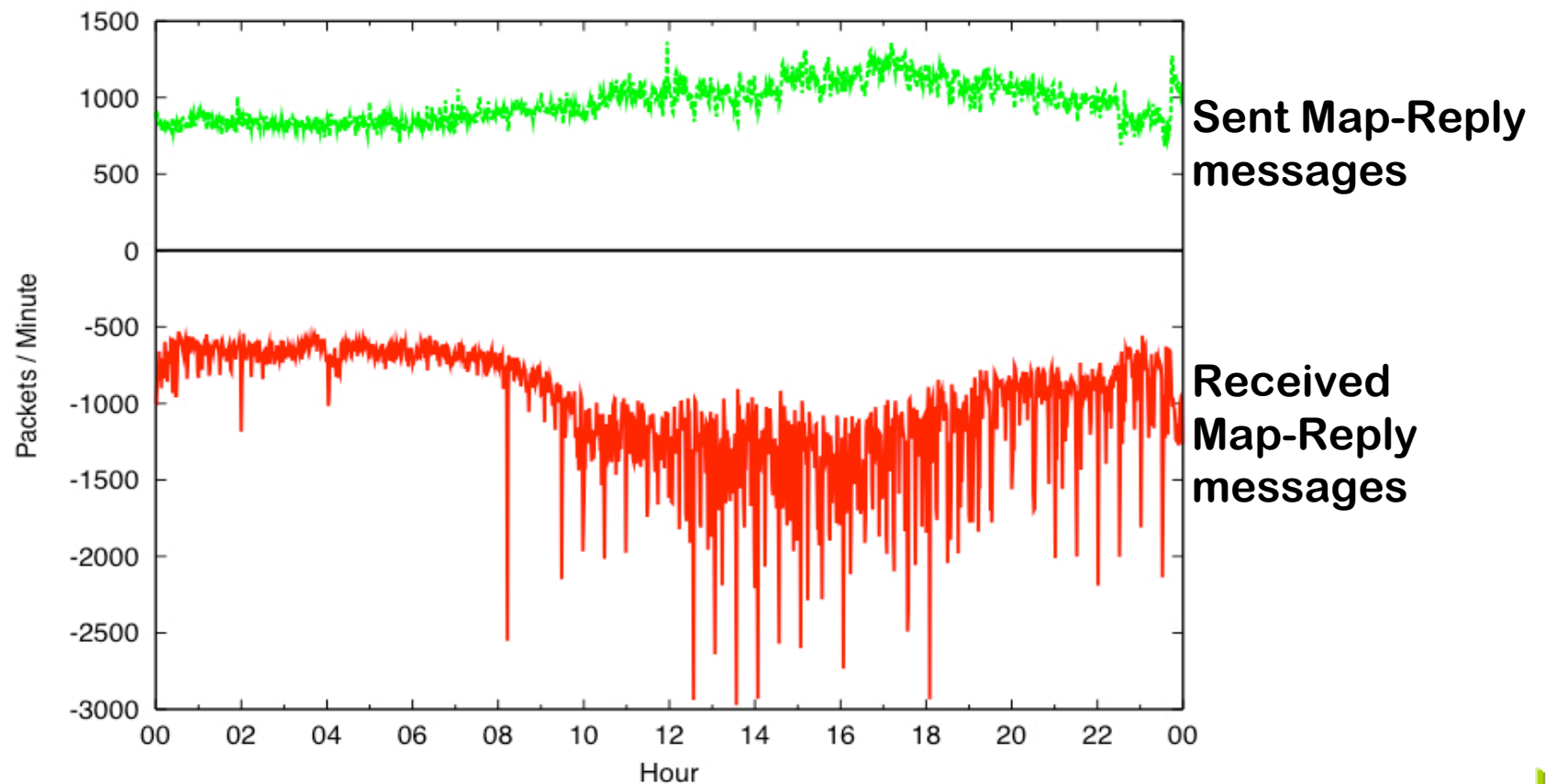
# Lookups - PULL Model



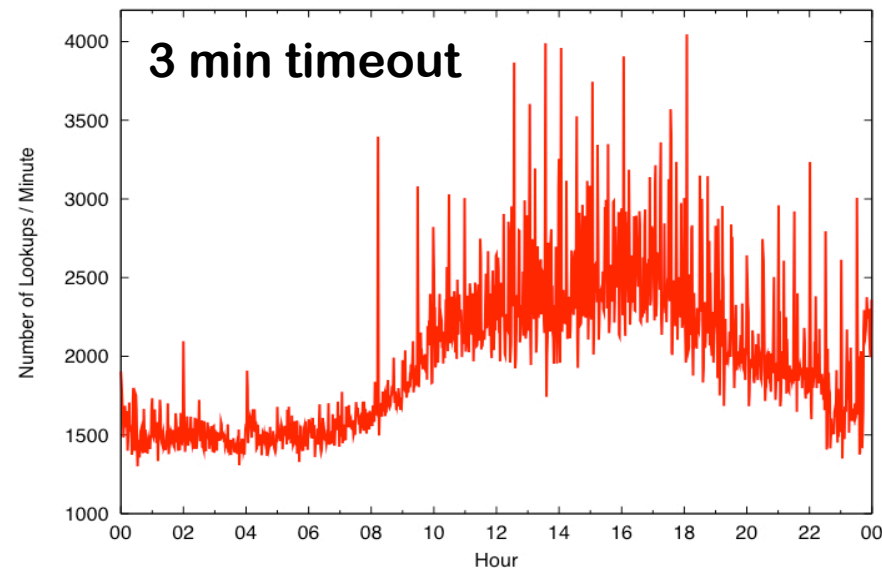
Timeout	Period	1 RLOC	2 RLOCs	3 RLOCs
3 min.	Night	4 kbps	4.9 kbps	5.7 kbps
	Day	24.4 kpbs	29.2 kbps	34 kbps
30 min.	Night	0.814 kbps	0.974 kbps	1.14 kbps
	Day	8.2 kbps	9.7 kbps	11.3 kbps
300 min.	Night	0.041 kbps	0.049 kbps	0.057 kbps
	Day	2.36 kbps	2.82 kbps	3.29 kbps

# LISP gleaning mechanism

3 min timeout

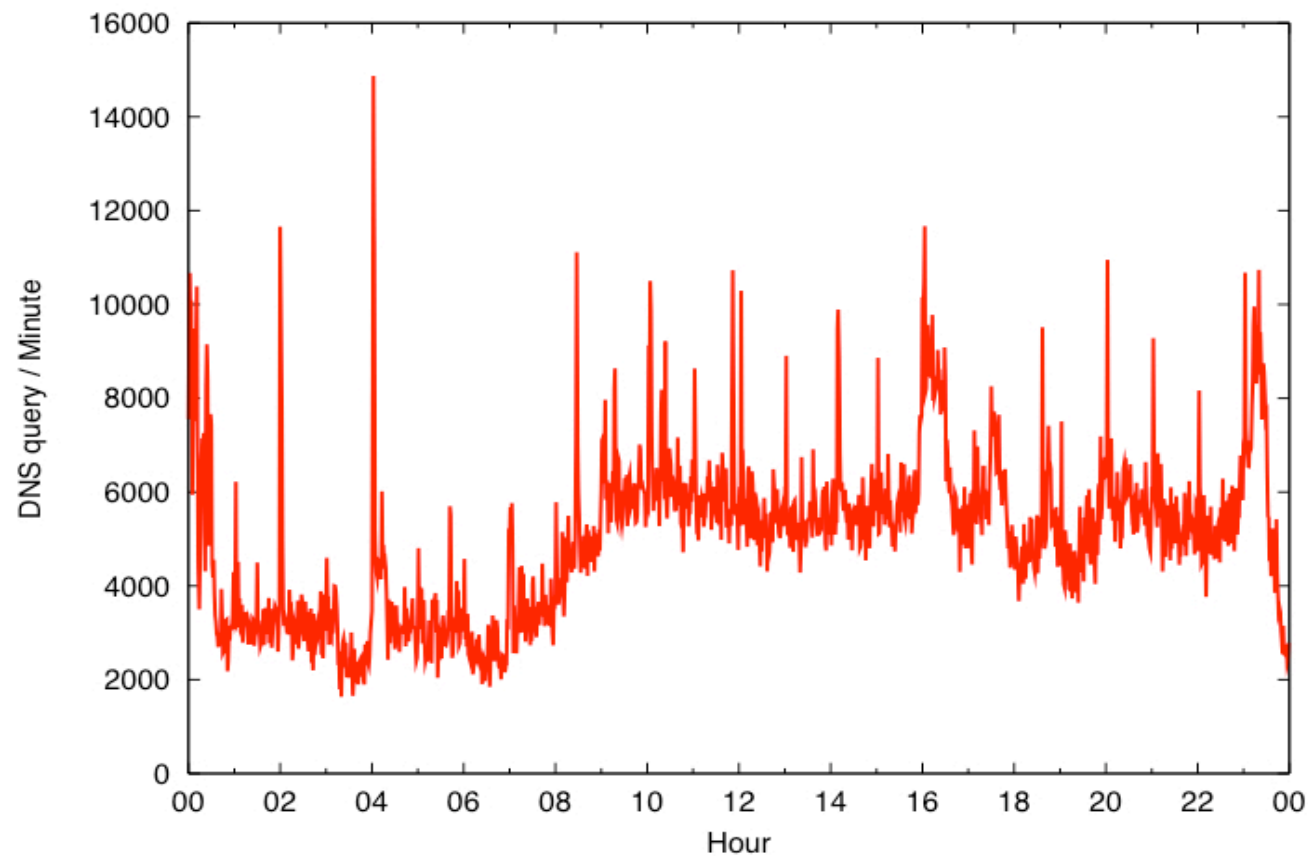


# Lookups - full PULL Model



Timeout	Period	1 RLOC	2 RLOCs	3 RLOCs
3 min.	Night	10.17 kbps	12.17 kbps	14.17 kbps
	Day	34.97 kbps	41.85 kbps	48.74 kbps
30 min.	Night	2.04 kbps	2.44 kbps	2.84 kbps
	Day	8.95 kbps	10.71 kbps	12.47 kbps
300 min.	Night	0.163 kbps	0.195 kbps	0.227 kbps
	Day	2.68 kbps	3.21 kbps	3.74 kbps

# DNS Traffic



# Thanks

**Comments and suggestions**  
(willing to run our scripts?)

[Luigi.lannone@uclouvain.be](mailto:Luigi.lannone@uclouvain.be)  
<http://inl.info.ucl.ac.be>