

LMAP Internet Measurement
draft-ooki-lmap-internet-
measurement-system-00

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Outline

- Motivation
- Background
- Measurement System
- Issues
- Future work

Motivation

- Share to the LMAP WG
 - Measuring the actual Internet performance
 - Since 2011
 - By a custom Internet measurement system
 - Sharing of possible pitfalls and system requirements
- Propose an Inter-ISP measurement option to the LMAP WG
 - Fix requirements in the next step

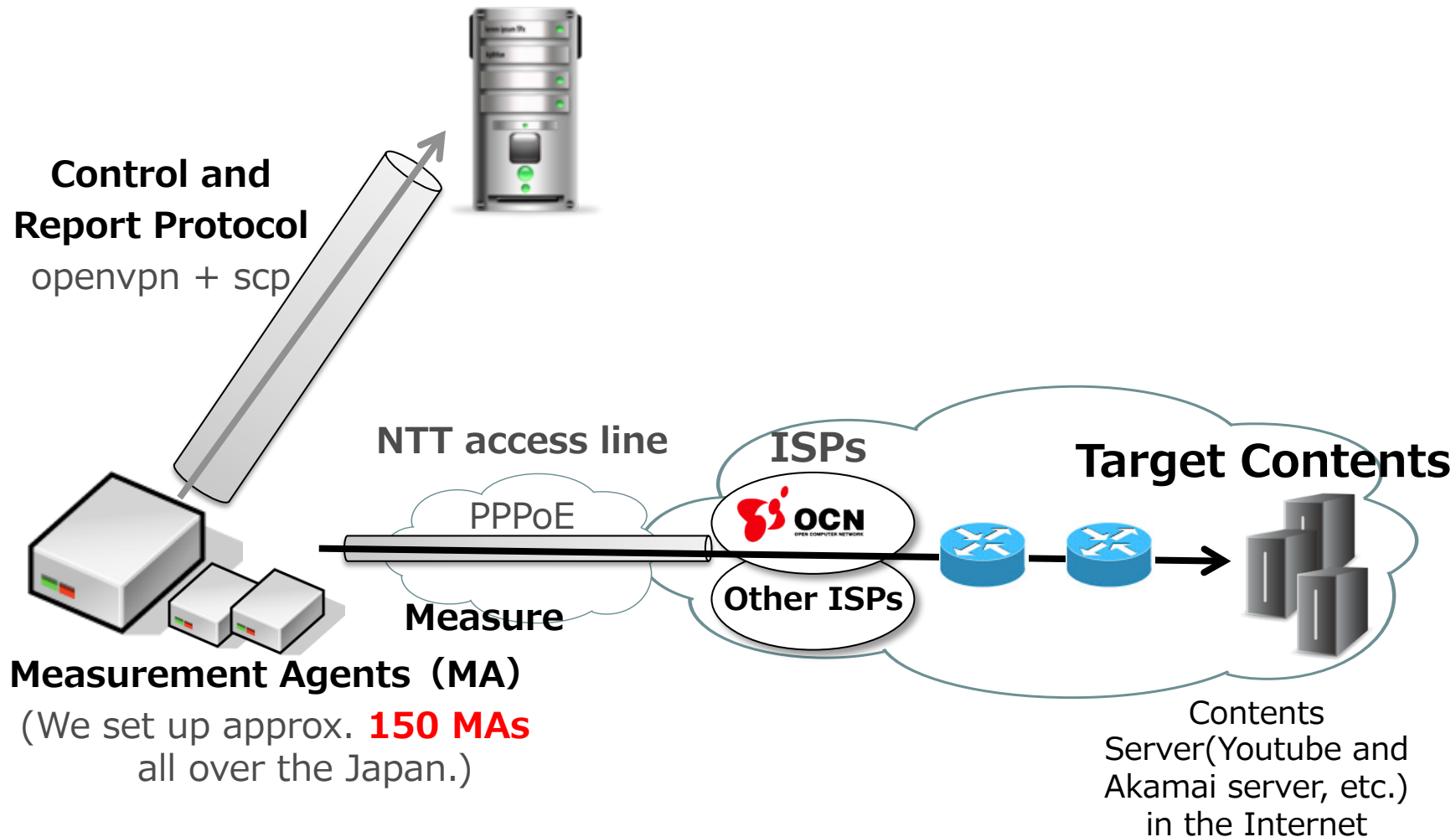
Background

- Improving customer satisfaction and network operation is our (ISP's) goal
 - The monitoring of actual end-to-end communications is important.
- Bigger impact of the CDN's behavior
 - CDN's traffic volume is increasing.
 - The contents are distributed from multiple AS.
- Public evaluations of ISPs (e.g. Google's)
 - Our own double-check

Current System (since 2011)

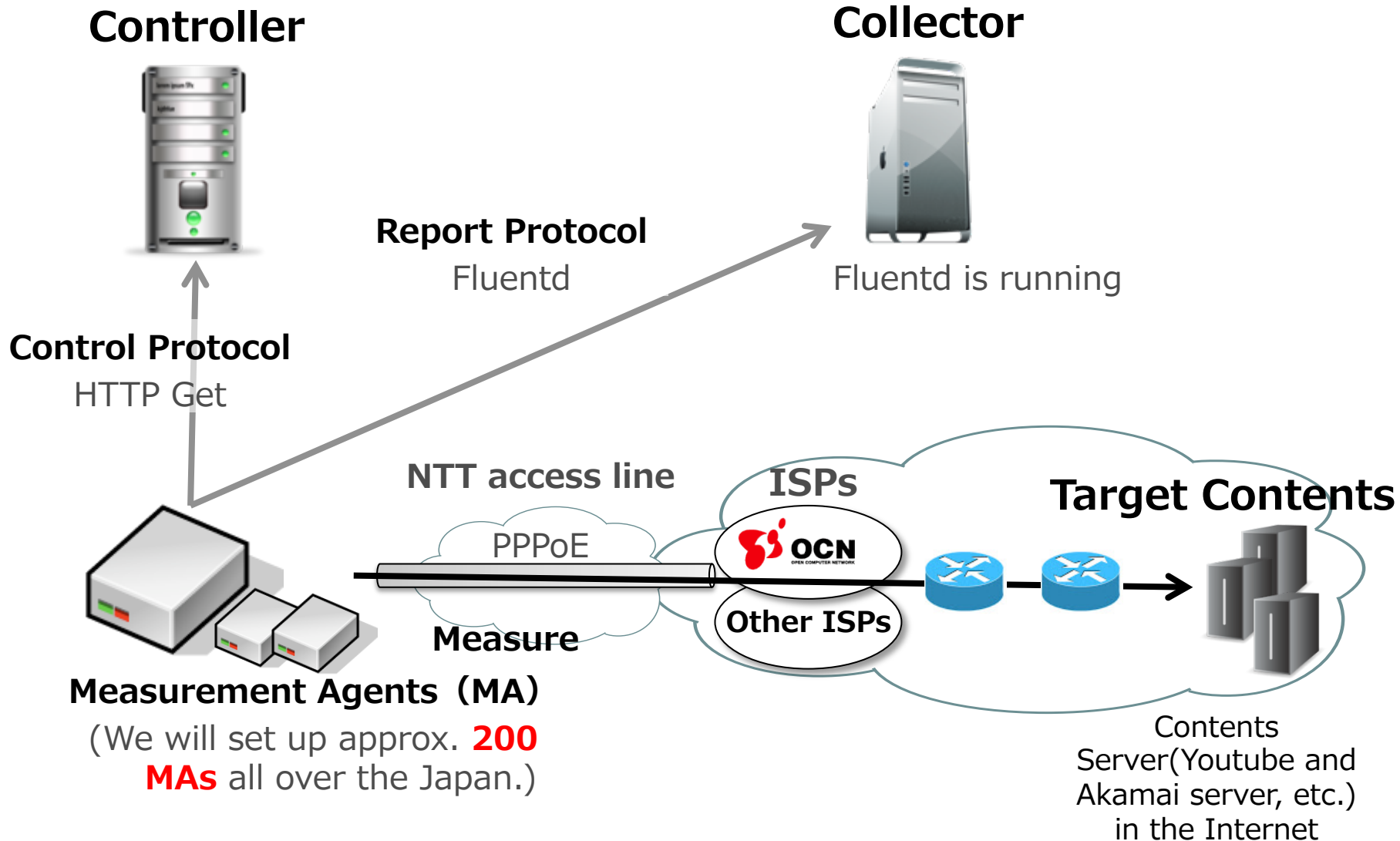
The details are described in the -00 version draft.

Master Server (Controller and Collector)



New System using LMAP model

The details will be described in the -01 version draft (ongoing).

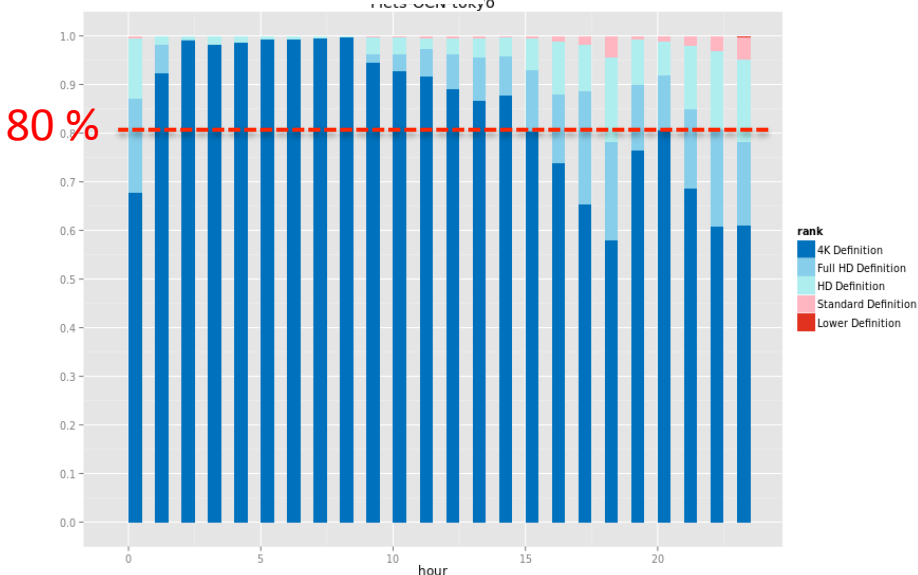
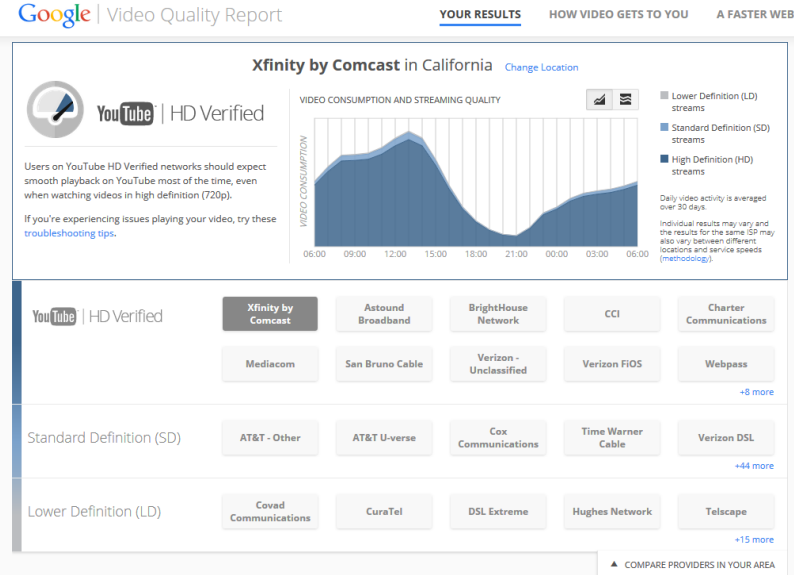


Examples of Analysis

Google ISP's report

(<https://www.google.com/get/videoqualityreport/>)

Our results



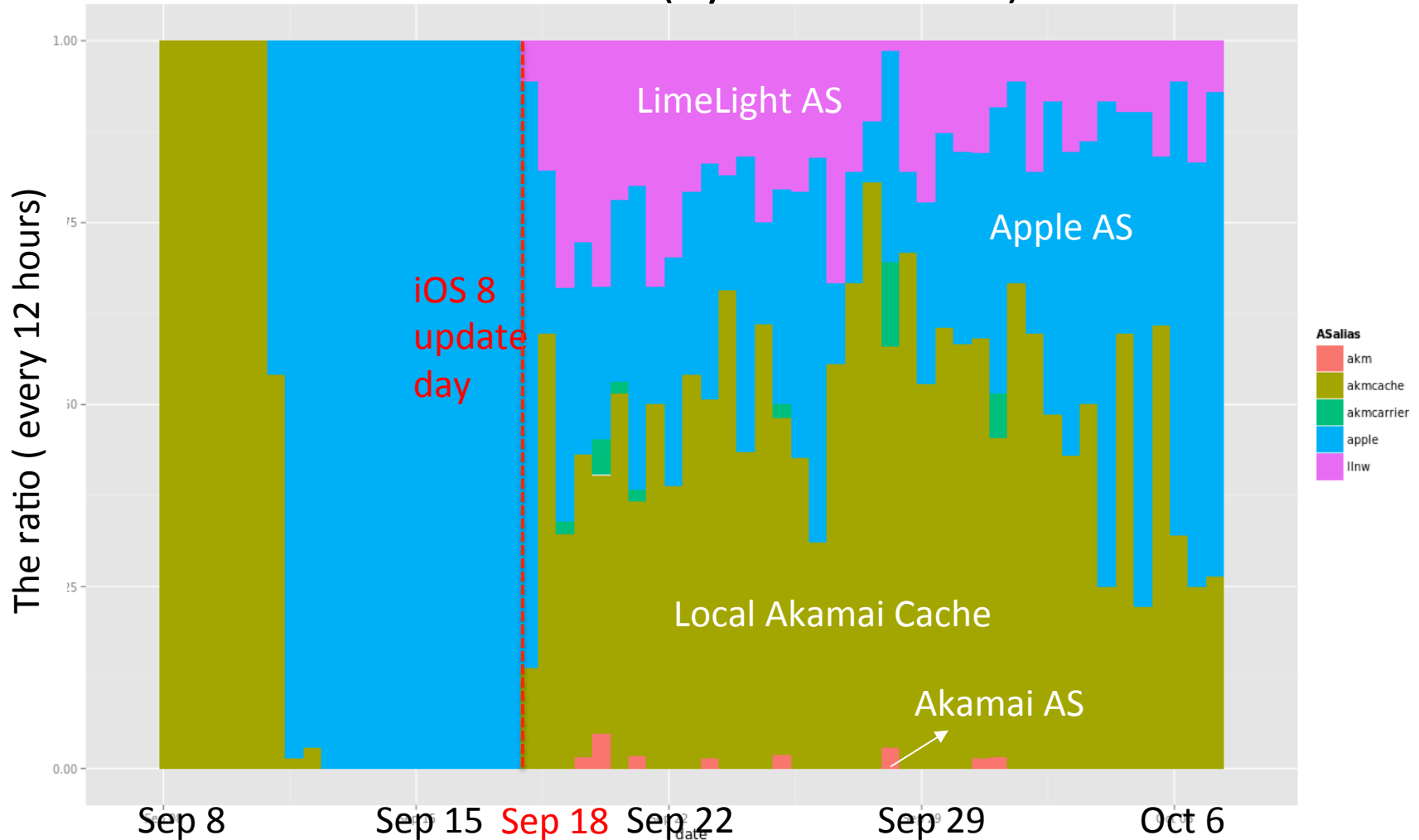
* The almost same criteria with Google

- 4K : 22.5Mbps ~ Full HD : 6.25 ~ 22.5Mbps
- HD : 2.5 ~ 6.25Mbps SD : 0.7 ~ 2.5Mbps
- Lower : 0 ~ 0.7Mbps

Examples of Analysis

Analysis of the traffic around iOS8 update days (Sep 8 – Oct 6)

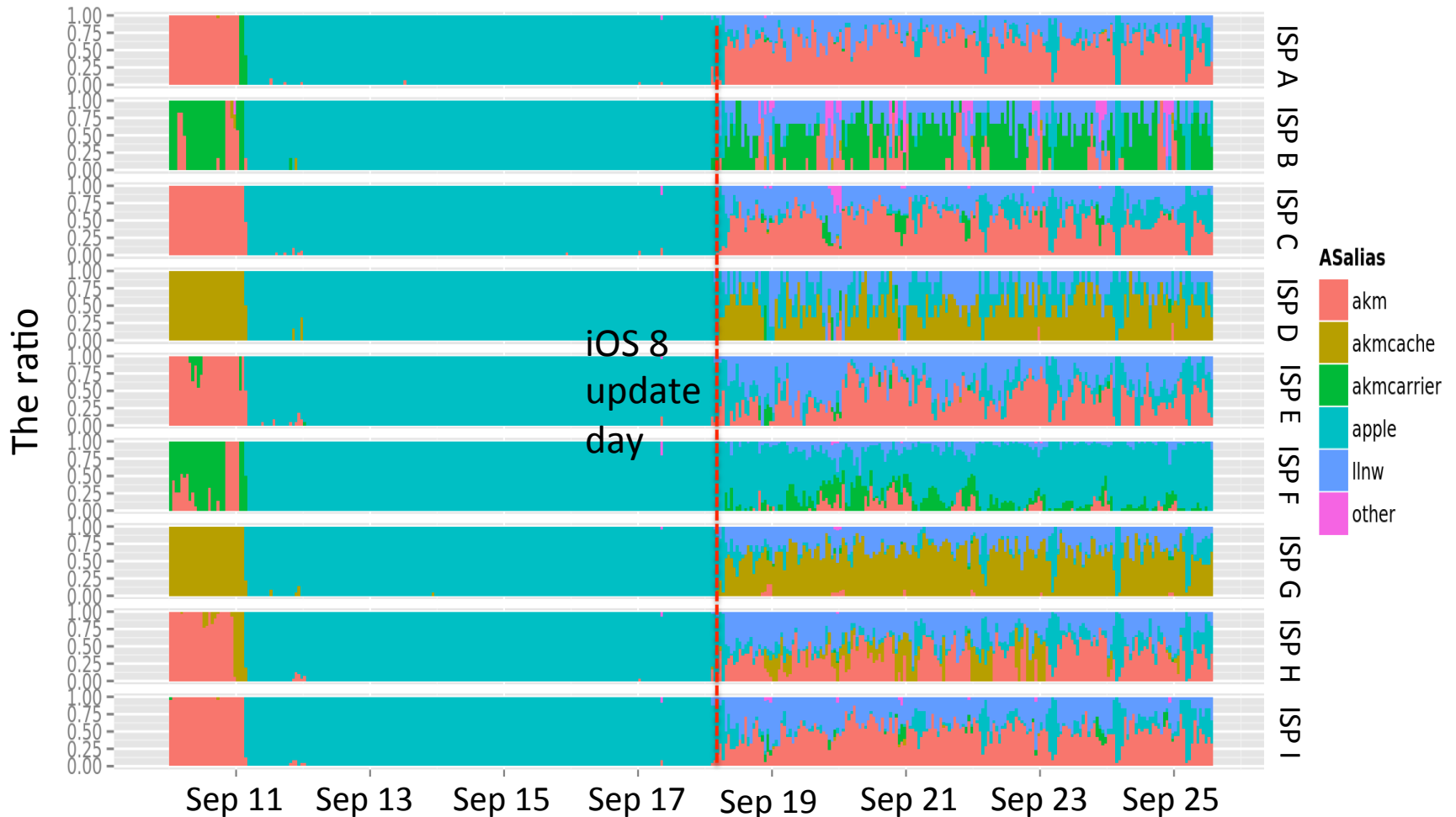
The ratio of AS (by one ISP data)



Examples of Analysis

Analysis of the traffic around iOS8 update days (Sep 11 – Sep 25)

The ratio of AS (by 9 ISPs data)



Issues

- Scalability
 - Master server might have to serve millions of MAs.
 - Protocol difference : scp -> http
- Handle the difference between the MA's groups
 - Instruction by the MA's group
 - For example, west Japan, Tokyo area, or OCN ISP
 - Efficiency for configuration
- Data reliability / the number of data
 - As much and many kinds of data as possible
 - Need Statistical significance
 - Automatic batch process

Future Work

- Updating our draft
 - From -00 to -01 version
 - Add the detailed configuration
 - Focus on requirements of an inter-ISP measurement
- Improvement of our system
 - Refer LMAP Protocol
 - Deploy a new system (the details will be described in the -01 version)

Thank you!