

Refreshing MLab

www.measurementlab.net

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maprg at

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M-Lab's Mission

- Measure the Internet as seen by end users
- Archive all data
- Make it easy to analyse and understand
- Using fully open source and open data

Collaborators

- Open Technology Institute
- PlanetLab
- Google

Since 2009!

Current state

- More than 100 sites, worldwide, with 1 Gb/s connectivity
- Running 300k+ (user initiated) tests per day
- Multiple Petabytes in Google Storage
- Multiple Terabytes in Google BigQuery DBs
- Interactive visualizations, etc...

See www.measurementlab.net

Major upgrades to HW, SW, and network

- Modern virtualization (docker + kubernetes, instead of vservers + scripts)
- Modern kernels (using netlink + TCP_INFO instead of Web100)
- Modernize key tools (NDT, sidestream, paris-traceroute)
- HW refresh for both switches and hosts
- Upgrade to 10Gb/s as needed
- New sites in EU and elsewhere

Reboot experiment approval process

- Docker and kubernetes will permit agile tool deployment
- Refreshing MLab mission, governance, policies and procedures
- New approval process to take advantage of the new tool agility

Looking for new measurement collaborators this summer

- Will need to help us debug a new process

Always looking for people to find fun things in existing data

- Our data is freely available for download
- Can be queried for free via BigQuery
- Most ISPs are represented
- Data goes back 8 years!

Backup Slides

Presentation by Peter Boothe at Google Network Research Summit 3/8/2017

MLAB

M-Lab people here today:

Peter Boothe pboothe@google.com (me!)

Matt Mathis mattmathis@google.com

Stephen Stuart sstuart@google.com



MLAB

Measure the Internet, save the data,
make it easy to analyze and understand

(all done in the open - open source, open data, open everything)



**OPEN
TECHNOLOGY
INSTITUTE**



MLAB



PLANETLAB

An open platform for developing, deploying, and accessing planetary-scale services

Since 2009!

<https://www.measurementlab.net>



Measure the Internet

<https://mlab-ns.appspot.com>

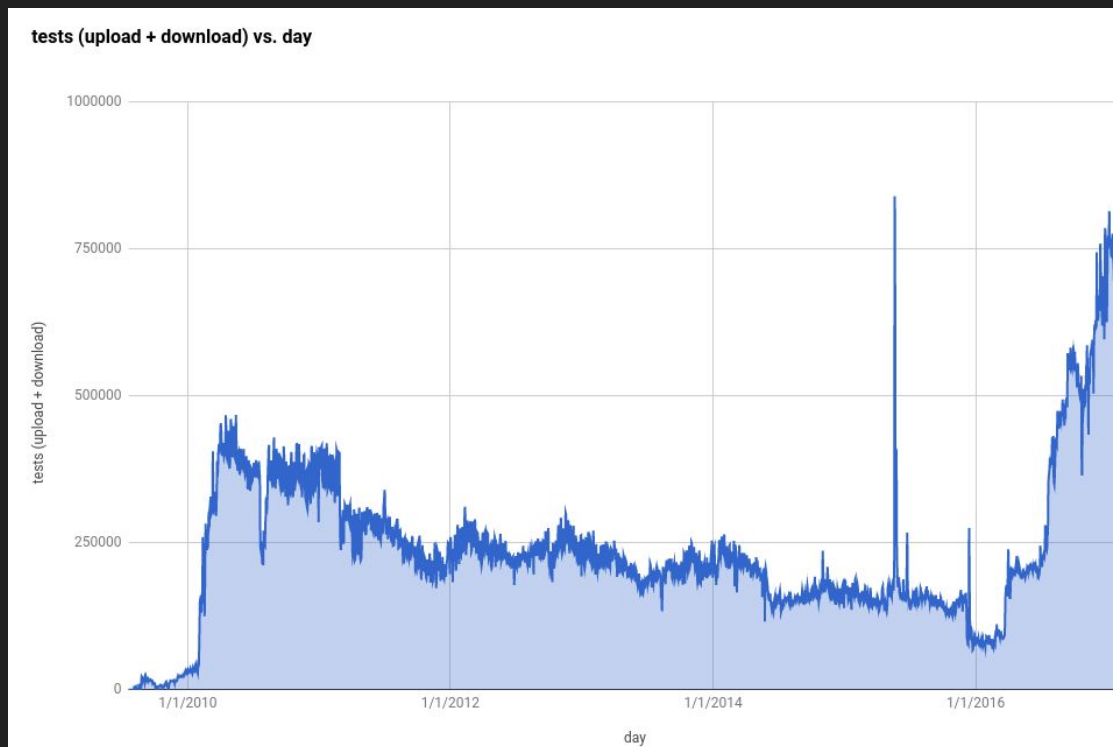
More than one hundred 1Gb connected sites worldwide, and more coming online in 2017 (and a fleet upgrade to 10Gb)

Save the Data

Hundreds of thousands of TCP diagnostic tests each day, and growing

Multiple Petabytes in Google Storage

Multiple Terabyte Google Bigquery DBs



Daily counts from MLab's public BigQuery data.

New York

02/01/2014 - 02/01/2016

Client ISPs

Compare Providers

Select Client ISP to view

Time Warner Cable

Verizon

Improved Visualization

COMING SOON!

Metric

Download Speed

Upload Speed

Round-trip Time

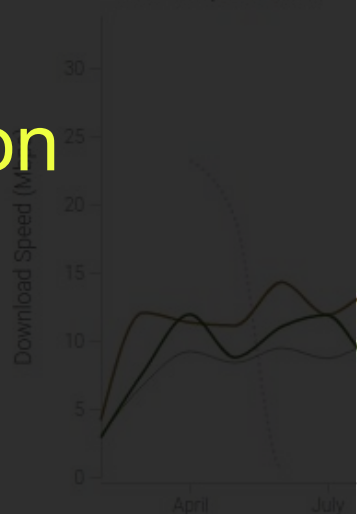
Retransmission Rate

Time Aggregation

Day

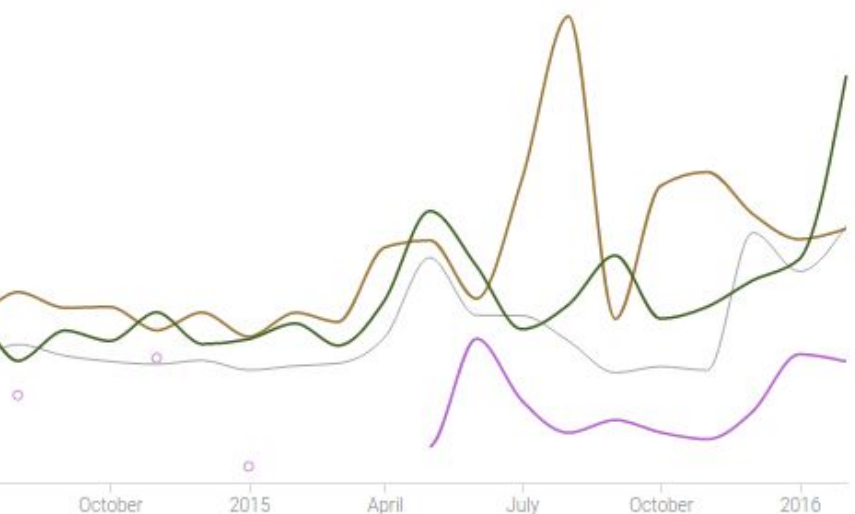
Month

Time Warner Cable
New York, New York



Verizon

Hosting Services



Why Google participates in MLab

- ❖ MLab measures the performance of the non-Google Internet
- ❖ Google sends people to non-Google websites and services
- ❖ When the other websites and services work better, Google users have a better user experience

MLab in 2017

- ❖ Major upgrades to the SW, HW, and NW infrastructure
 - Modern virtualization (docker + kubernetes, instead of vservers + scripts)
 - Modern kernels (using netlink + TCP_INFO instead of Web100)
 - HW refresh for both switches and hosts
 - 1Gb uplinks → 10Gb uplinks
 - New sites in the EU and elsewhere
- ❖ New visualization of speedtest data
 - Aid all stakeholders in understanding the data

MLAB

- ❖ Since 2009: Measure the Internet, save the data, make it easy to analyze and understand
- ❖ Getting way, way better in 2017
- ❖ Our data is open (all 5 Pb of it!), please take it and use it
- ❖ Our experiment platform is becoming more manageable
 - Paving the way for new experiments and analyses

Thanks! Questions?

This is one after the last slide. All other slides are extras.

Measure the Internet

NDT, BISmark, Sidestream, Paris Traceroute, Neubot, MobiPerf, Glasnost, and more...

Each test runs in its own resource-protected sandbox.
Currently vservers, but soon: docker containers.