

FIRE Testbeds and PlanetLab

Exploring the Future Internet Today

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(EVERGROW and OneLab/Ozone)

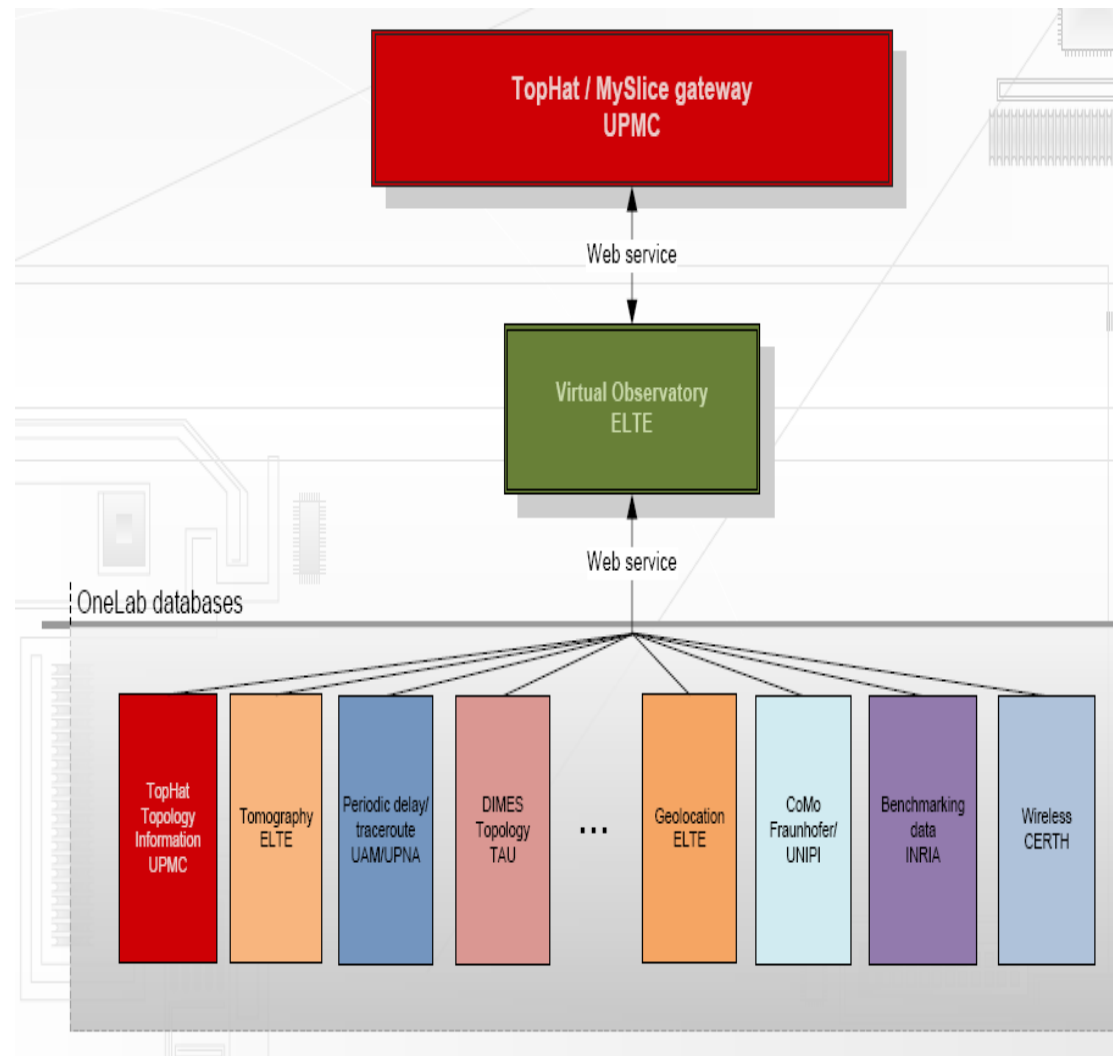


Where is the future coming fastest?

- The internet is exploding at both ends
 - Backbone capacity
 - Edge growth: function, location, population
 - Wireless and intermittent
- In the middle, the end-to-end philosophy has broken
 - Peers everywhere supplement and augment enduser apps
 - Deterministic routing of packets inside a “diffusion” of information content
- Virtualization and Federation have been catchphrases, now we are learning what they will really entail
- FIRE is a federation of testbeds, extensively supplemented by measurement capability


Network Measurement Virtual Observatory (nmVO)

- **Interfacing between data storages and**
 - **human users**
 - **APIs**
 - **TopHat service**
- **Via webservice techniques**
- **Already integrated with the ETOMIC**
- **Running at ELTE Budapest**




Overall Picture (PLC)

<http://everlab.cs.huji.ac.il/plcstats>



Planet Stats

OneLab2 Statistics



OneLab
FUTURE INTERNET TEST BEDS

Tue, 17 Nov 2009 11:20:22 GMT
574 nodes reporting (out of 939)
Past 13:27:56
7002 CPU Hours (out of 13776)
4.25 GB In, 4.08 GB out

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General

Everstats collects historical information about slices resource consumption on nodes from PlanetLab systems. Everstats maintains a database of aggregate historical information that can be queried and graphed using this web interface.

Using Everstats, you can:

- View the resource consumption for each slice (or slice group) on the different nodes over time
- View the different nodes usages over time

Features

User Features:

- View the resource consumption of all slices on nodes, aggregated over the past week/month/year, or for a selected date range.
- View the resource consumption of all slice groups (which are defined by the administrator), aggregated over the past week/month/year, or for a selected date range.
- View the utilization of all the nodes in this PlanetLab instance, over the past week/month/year, or for a selected date range.
- View the resource consumption of a single slice on the different nodes, over the past week/month/year, or for a selected date range.
- View the utilization of a singled node by slices, over the past week/month/year, or for a selected date range.

Admin Features:

Top 5 slices
Total Sending Bandwidth
for the past 7 days

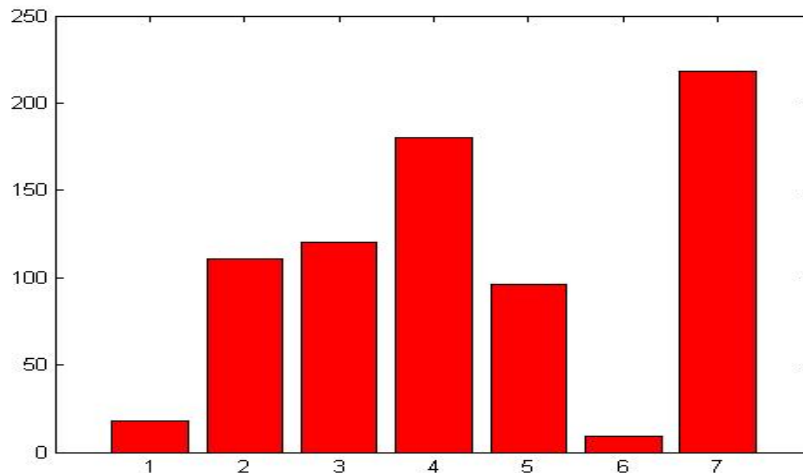


About

Everstats was developed in the School of Computer Science and Engineering at the Hebrew University of Jerusalem with the support of the EverGrow and Onelab2 projects.

kMeans Analysis

Nodes	minutes	avg cpu	avg sendBW	avg rcvBW	avg pctmem	avg phyMem	avg virMem	avg procs	avg runProcs
0.1003	0.1185	0.1458	0.0013	0.0035	0.0888	0.1062	0.2001	0.0026	0.0645
0.0371	0.2476	0.0092	0.0003	0.0012	0.0111	0.012	0.015	0.0017	0.0068
0.3177	0.9309	0.0414	0.015	0.0161	0.0239	0.0229	0.0225	0.0047	0.0362
0.0755	0.4926	0.0096	0.002	0.0026	0.0121	0.0131	0.0205	0.0023	0.0113
0.1026	0.7299	0.0182	0.0017	0.0026	0.0157	0.018	0.0295	0.0022	0.0118
0.1419	0.4233	0.3549	0.0128	0.0162	0.3299	0.3916	0.3566	0.1241	0.4348
0.0203	0.028	0.0047	0.0007	0.0016	0.0064	0.0061	0.0056	0.0016	0.0101



Min Value	Green
10th decile	Cyan
90th decile	Light Red
Max Value	Red

Some Implications

- Planet-Lab has a wide user base
 - No single type of research
- Benefit of Planet-Lab not obvious for the 52% who use less than 10 nodes
- What is the barrier that is holding researchers back from wider use?
- Future efforts will vary the deployment model, enhance network-awareness, and blur the distinction between data center (“cloud”) and distributed capabilities.