Using Graphite to Visualize Network Data

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ESnet Statistics Overview

ESxSNMP (Data Collection)	Graphite (Visualization)
Analytics (Custom Reports)	Net Almanac (Metadata)
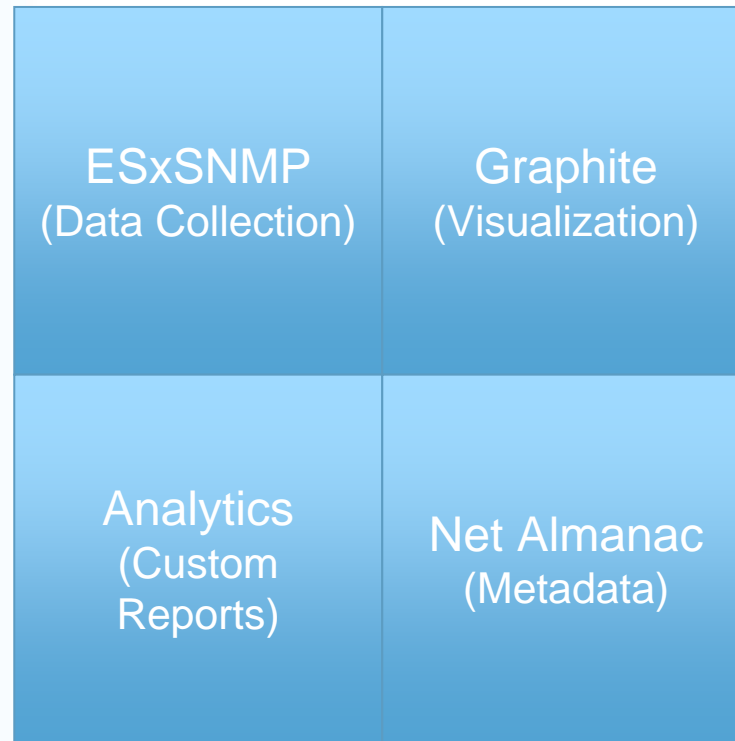
What is Graphite?

"**Enterprise scalable realtime graphing**"

- Developed by Orbitz for visualizing internal performance data

- Open source: https://launchpad.net/graphite

- Has own RRD like database called Carbon

- RRD Compatible

ESxSNMP Integration

- via REST interface

- Easy integration, Graphite is well written

What is available through Graphite?

All publically available interface data

- Traffic in/out

- Errors (in testing)

- Discards (in testing)

What isn't there?

- Private peerings

- Some internal infrastructure

Data Aggregation

For longer time ranges the data points are aggregated together

Time Period of Graph	Aggregation Interval
< 24 hours	30 seconds (base rate)
24 hours to 30 day	5 minutes
30 days to 6 months	1 hour
> 6 months	1 day

Capabilities

Basic plotting of data

Saving of graphs

Exporting of raw data

Applying functions to transform data

Live Demo

Demo showing the use of the Graphite interface

Graphite accounts

Anyone from an ESnet site can have a Graphite login

Allows you to save your custom graphs (and that's all)

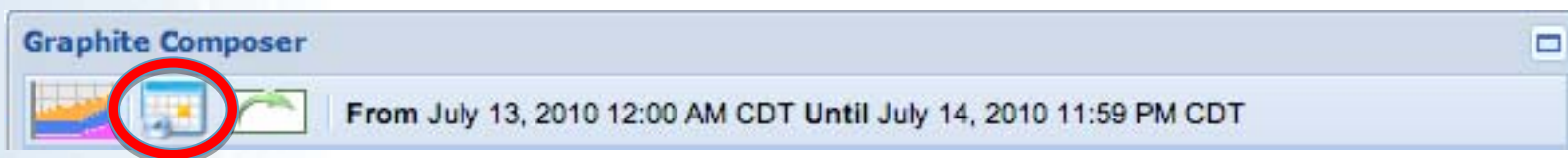Send me an mail to get an account (jdugan@es.net)

As we get a bit further with our new web rollout we'll have a integated, single sign on solution using some form of federation (eg. Shibboleth, OpenID)

Relative versus Absolute Time

Relative, "Date for the last …"

Absolute, "From … to …"

Usage Suggestions

- Absolute is good for looking at specific events

- Relative is good for looking at what's happened recently

- Important to pick the right one when saving graphs

Raw data

The 'Raw Data' link will give you the raw data for the graph

Format

- One line per data source

- variable,start_time, end_time, interval|data0,…,dataN

- Example:

  - clev-cr1/interface/xe-0_0_0.0/in,1278947430,1279033830,30|1637878470.93,28369.3333333,24090.6666667,23144.8,30200.0,23412.5333333,…,

- Time stamps are seconds since the unix epoch

- Delivered as a downloaded file called graphite_data.txt

URL API

Graphite allows you to build graphs through structured URLs

Example

- https://stats1.es.net/graphite/render/?target=clevcr1.interface.xe-0_0_0%400.in&target=clev-cr1.interface.xe-0_0_0%400.out

Available options:

- http://graphite.wikidot.com/url-api-reference/

Command line tool (shell script) available, just ask

Upcoming Features and Improvements

Integration with My ESnet portal

Clearer x axis labels (aka week 37 isn't very intuitive)

Add date/time range to graphs

Right edge artifacts

What else?

What would make this more useful for you?

Questions?

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Follow us: **http://esnetupdates.wordpress.com**, **http://www.twitter.com/esnetupdates**