Timemap: GÉANT new latency and jitter monitoring tool, overview

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Public

www.geant.org
Road report: on HWY 101 there are 364 vehicles per minute
Road report: on HWY 101 there are 364 vehicles per minute

Or...
Lots of Stop & Go
Road report: on HWY 101 there are queues at the red spots

And we also like to know transit times
Current weather maps are useful for bulk data transfer!
Can my application set the cruise control on and live happily?
Applications which need “cruise control” on are on fast rise!

• LoLa

+ 30%
Involved NRENs: do they all know about this?

Rhnet*  
Jisc  
RedIris  
RENATER  
BELnet  
SURFnet  
GARR  
SWITCH  
DFN  
Uninett*  
Sunet*  
DeIC*  
ACOnet  
CESnet  

PSNC  
ARNES  
AMRES  
NIIF  
RoEduNet  
GRNET  
Litnet  
EEnet  
FUNET*  
BASNET  
ASNET-AM  
AZscienceNet  
RENAME  

LATNET  
IUCCL  

* Nordunet
TIMEMAP system architecture – independent modules

• High level architecture design

Micro-service architecture
(each module can be implemented using different tools)

Monitoring data query
Database storage
Visualisation analysis

Input events
data normalisation and filtering

Time series Data Base

Weather map graphical visualisation tool
TIMEMAP system architecture – v0.x prototype

• High level architecture design

[Diagram showing architecture with components like Juniper RPM/TWAMP Measurements, Micro-service architecture, Docker containers, Python, Elasticsearch, Kibana, Input events, data normalisation and filtering, Time series Data Base, Weather map graphical visualisation tool]
TIMEMAP – v0.x look & feel
TIMEMAP v1 refactoring - Same architecture different different blocks

- Telegraf probes
- TWAMP
- RPM over SNMP
Timemap v.1 main features

• Latency & Jitter data collection
  • RPM/SNMP from all GÉANT routers
  • TWAMP from selected perfSONAR VMs

• Simplicity: almost zero footprint
  • Docker + standard Linux packages, minimal custom code

• Security and flexibility
  • eduGAIN federated authentication
  • RBAC and multi-tenancy in Grafana and InfluxDB
  • R/W authorization token for APIs
Timemap useful examples
Timemap useful examples: rerouting and periodic events
Timemap useful examples: rerouting and periodic events
Timemap useful examples: trends
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Next steps

• Ready to use, hand over to GÉANT IT and Ops

https://timemap.geant.org/

• Documentation: user, admin, and customization guides

• Release the source code

• Looking to talk at NRENs interested in implementing something similar in their backbones, beyond WP6T1 members
Thank you

Any questions?

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