tnc18 Trondheim, Norway 10 -14 June 2018
Intelligent networks, cool edges?

GÉANT

# Trends in Network and Service Monitoring

**Ivana Golub, PhD**

**PSNC**

Trondheim, Norway
13 June 2018

# Trends in Network and Service Monitoring Session

- Trends in Network and Service Monitoring -  Ivana Golub (PSNC)
- Performance Verification Monitoring – Pavle Vuletić (UoB/AMRES)
- Network Management as a Service – Frédéric LOUI (Renater) / Ivana Golub (PSNC)
- Performance Measuring & Monitoring - Antoine Delvaux (PSNC)
- eduPERT and SIG-PMV community - Kurt Baumann (SWITCH)
- Discussion - all

# Before we start

- We would like to know more about YOU
- Please use your e-devices and go to:

**https://www.menti.com/**

- And enter the code:

**708228**

- And share about yourself:
  - Where do you come from?
  - What is your professional role?
  - (If) Why are you monitoring network and service performance

# Question #1:
# Where do you come from?


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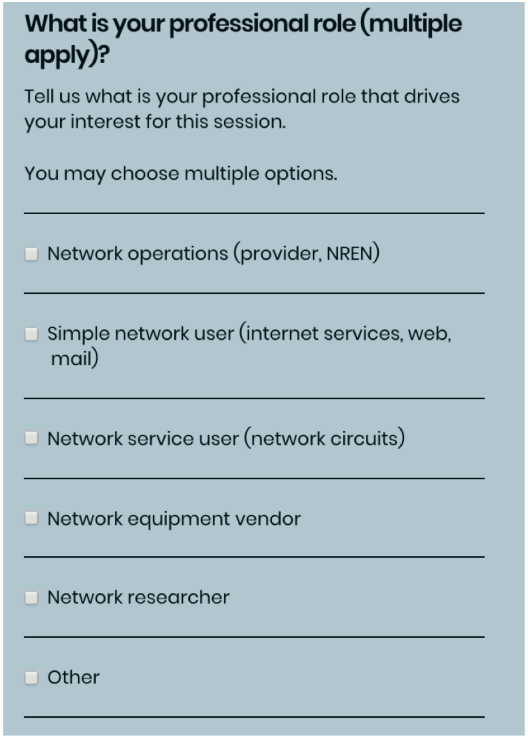
# Question #2:
# What is your professional role?

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# Question #3:
# Reasons for performance monitoring?

**What are the reasons for monitoring network and service performance (multiple apply)?**

You may choose multiple options.

- [ ] to be alerted of performance degradation
- [ ] to analyse trends and keep history
- [ ] to compare and correlate measurements
- [ ] to verify SLA

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# We are witnessing the transition

| From | Towards |
| --- | --- |
| Network element monitoring | Integrated monitoring |
| Physical Infrastructure | Virtualised Infrastructure |
| Active/Passive | Hybrid measurements |
| Core network monitoring | End-to-end client view and IoT |
| Isolated measuring | Data analytics |

# Integrated view

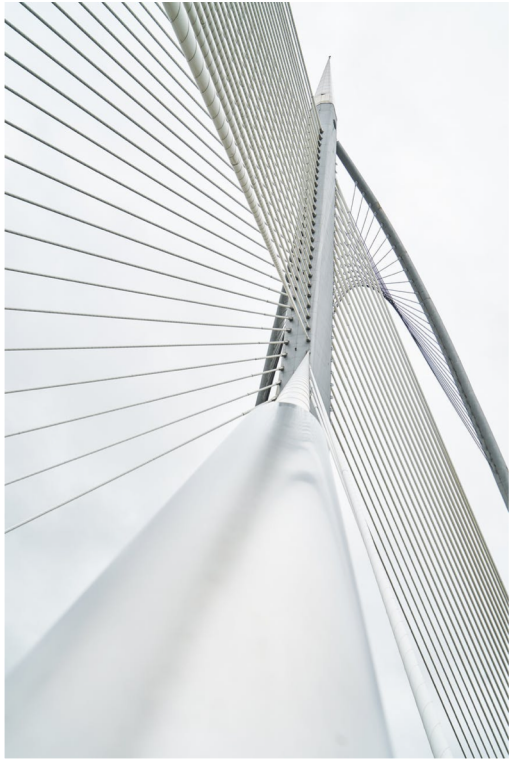
The monitoring of individual elements is important but not sufficient

Additional views are needed:

- Service
  - Overall status and health of the service
  - Visibility and the status of all elements that build the service
- Business view
  - Usage
  - Users/customers – profile, satisfaction
  - Costs
- Integrated monitoring view on the service portfolio

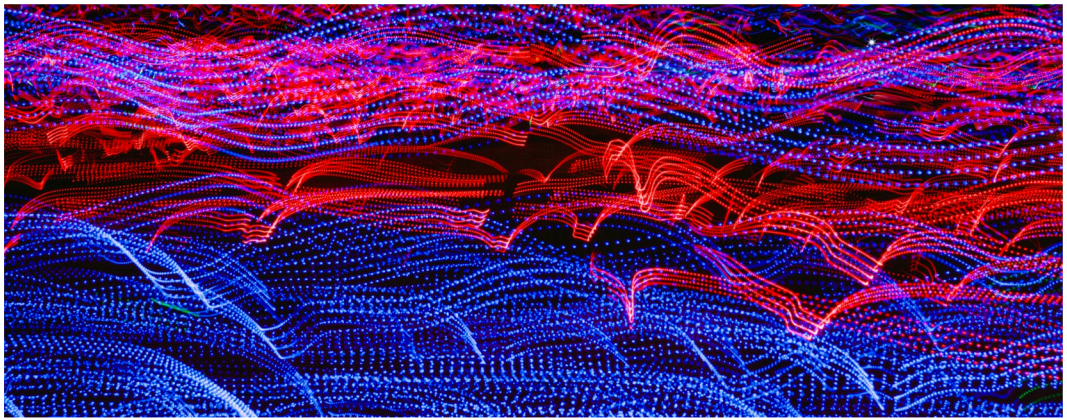
# Virtualisation

- Monitoring of the sub-elements of the physical infrastructure
- In network, server, cloud infrastructure
- Status, Health, Usage, Dependencies,...
- End-to-end
- End-user experience
- Can existing tools support it?



# Hybrid Measurement Techniques

- Passive and active monitoring
- Combining measurements from different sources
- Combining measurement data from different sources
- Orchestrated measurements

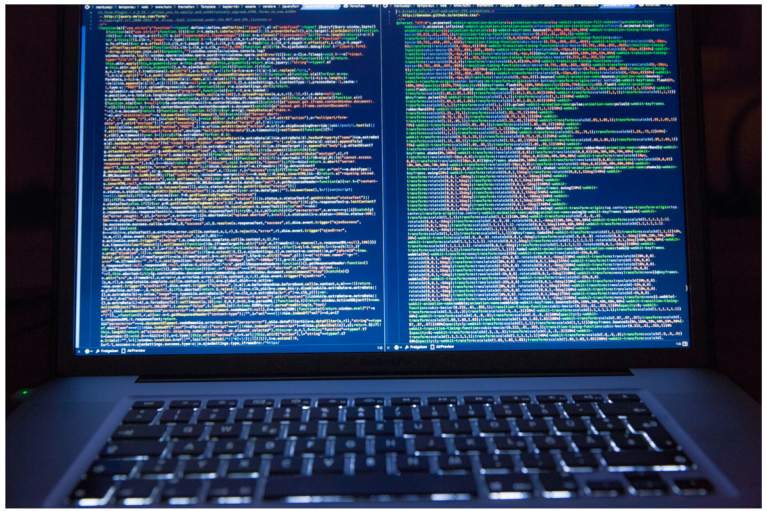


# Client view

- Focus on end-user
- Requires end-to-end monitoring
- IoT
- BYOD
- Control, monitor, manage, assist

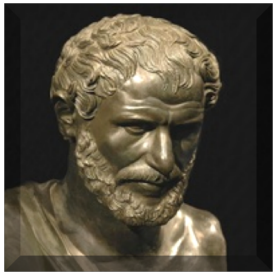
# Data Analytics

- Using relevant / available data from one system
- Correlating relevant / available data from multiple systems
- With or without Artificial Intelligence tools
- Requires automation and orchestration
- Root cause analysis
- Prediction and trends about the system and users' behaviour



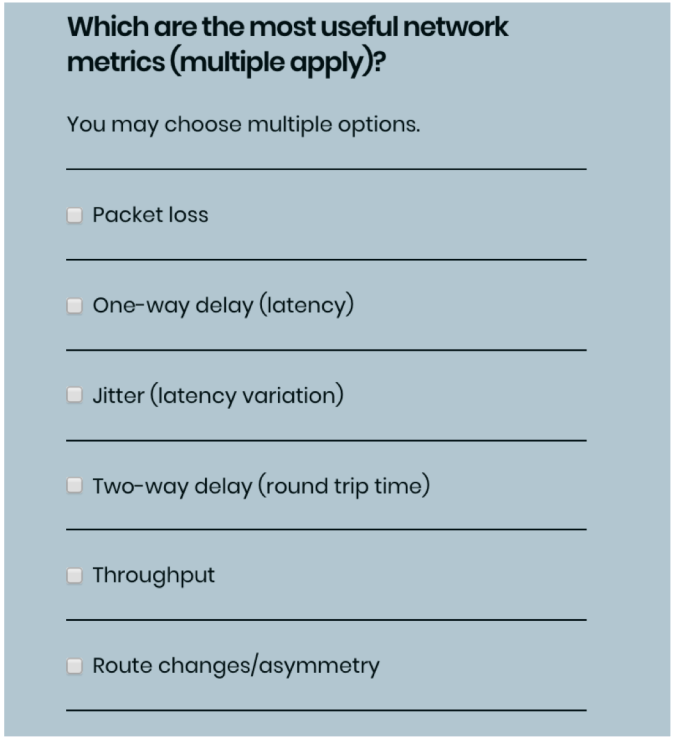
# Conclusion

- Comprehensive transformations in network and service monitoring
- Current status
  - Following presentation address current efforts in GÉANT project
- Next steps
  - Where do we want to be and how do we get there
  - Priorities, directions, dynamics can differ individually
- We would like to hear from you!



*"The Only Thing That Is Constant Is Change"*
*Heraclitus*

# Question #4:
# Most useful metrics?

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# Question #5:
# Virtualised infrastructure performance monitoring level?

**For the virtualized infrastructure, pick the best descriptor of the existing level of performance monitoring:**

- Advanced: all required tools are available
- Medium: some required tools are available
- Low: underdeveloped, tools are required
- Don't have an opinion

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# Thank you
# Any Questions?

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