

TaaS Training: Execution of integrated experiments Data extraction

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5G-VINNI WP4, 11/03/20

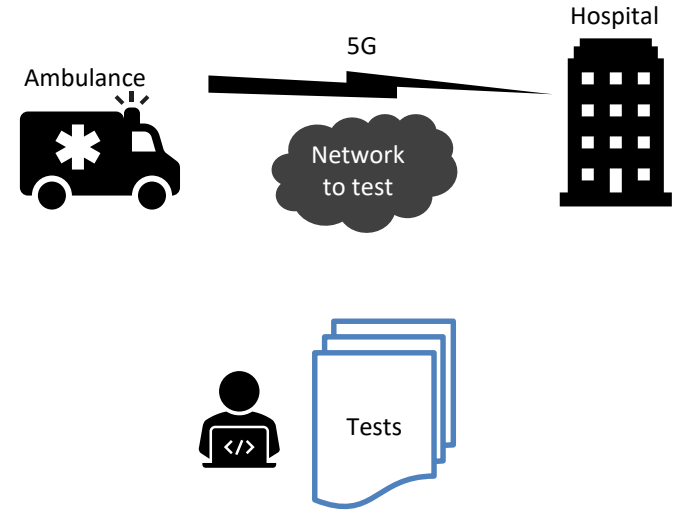
Agenda

- How to execute integrated experiments
 - From use case to formalization
- How to extract data
 - TaaS flow (recap)
 - Tools and data storage
 - Data extraction using Grafana

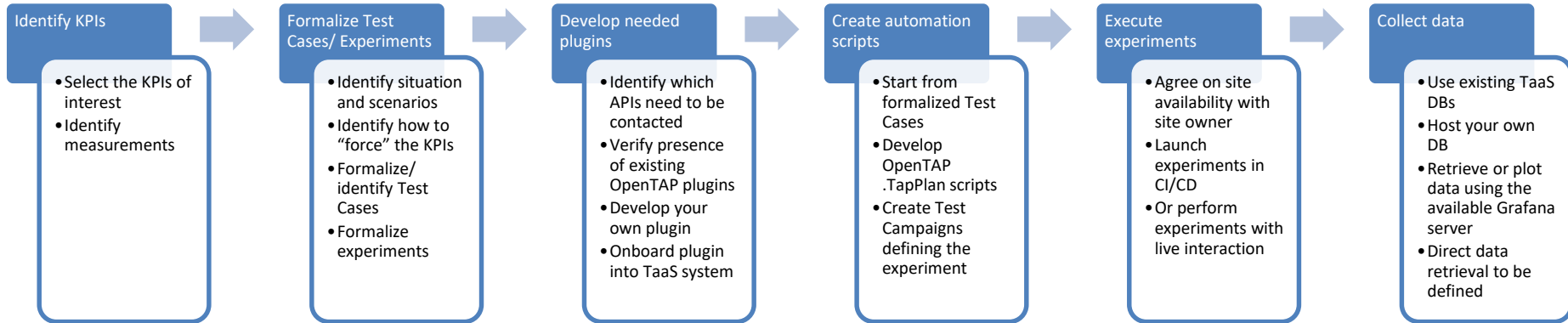
Generic Example of Vertical Application

Use case

- Emergency vehicle transporting patient to hospital
- Communicate status to personal at hospital to prepare/initiate treatment
- Communication equipment in vehicle and hospital
- Equipment support functions to connect and transmit status, live video, vital signs, etc.
- Test engineer to write scripts to test system capabilities in terms of functionality and performance of both system and communication channel



Starting from the use case



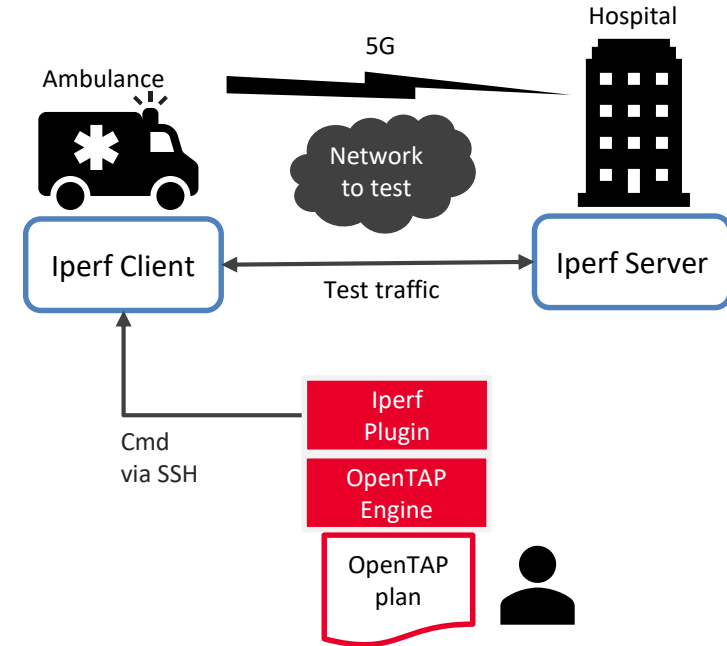
Experiment Formalization

- Test Phase: Any
- SUT: Network between ambulance and hospital
- Test condition: E2E
- Test environment: Semi-isolated TE/Non-isolated TE
- Test type: Performance

Purpose	Evaluate network performance between 2 endpoints. Results to be used in defining SLA for future test cases.
Description	Evaluate performance of network in terms of TCP and UDP throughput along with delay, packet loss and jitter.
Initial conditions	Test traffic should be allowed on path between two endpoints.
Parameters	NA
Procedures & expected results	See next slide

OpenTAP Plugin – Development process

- **Prototype – Ssh Plugin**
 - Single test step setting up connection and performing command
- **Ongoing development – Ssh Plugin**
 - A step to handle the connection
 - A step to execute a command
- **Optimized plugin – Ssh Plugin**
 - An instrument to manage the connection
 - A step to execute a command
- **Packaged for user / customer – Iperf PPlugin**
 - Iperf instrument inherit from Ssh instrument
 - Iperf run measurement step

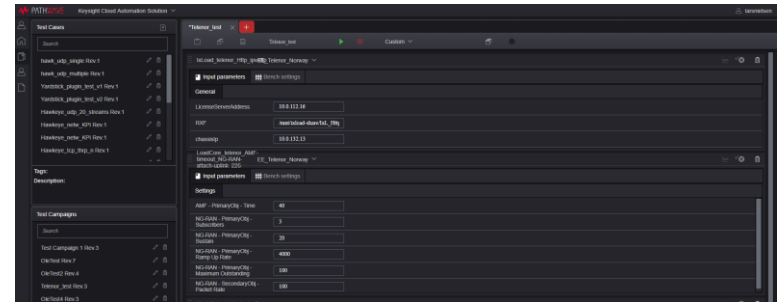
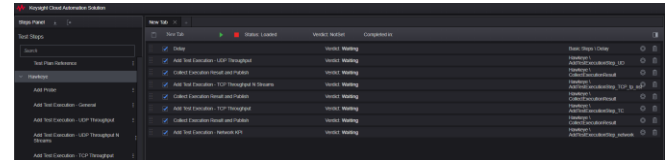


TaaS Data Extraction

HOW DO I GET THE DATA

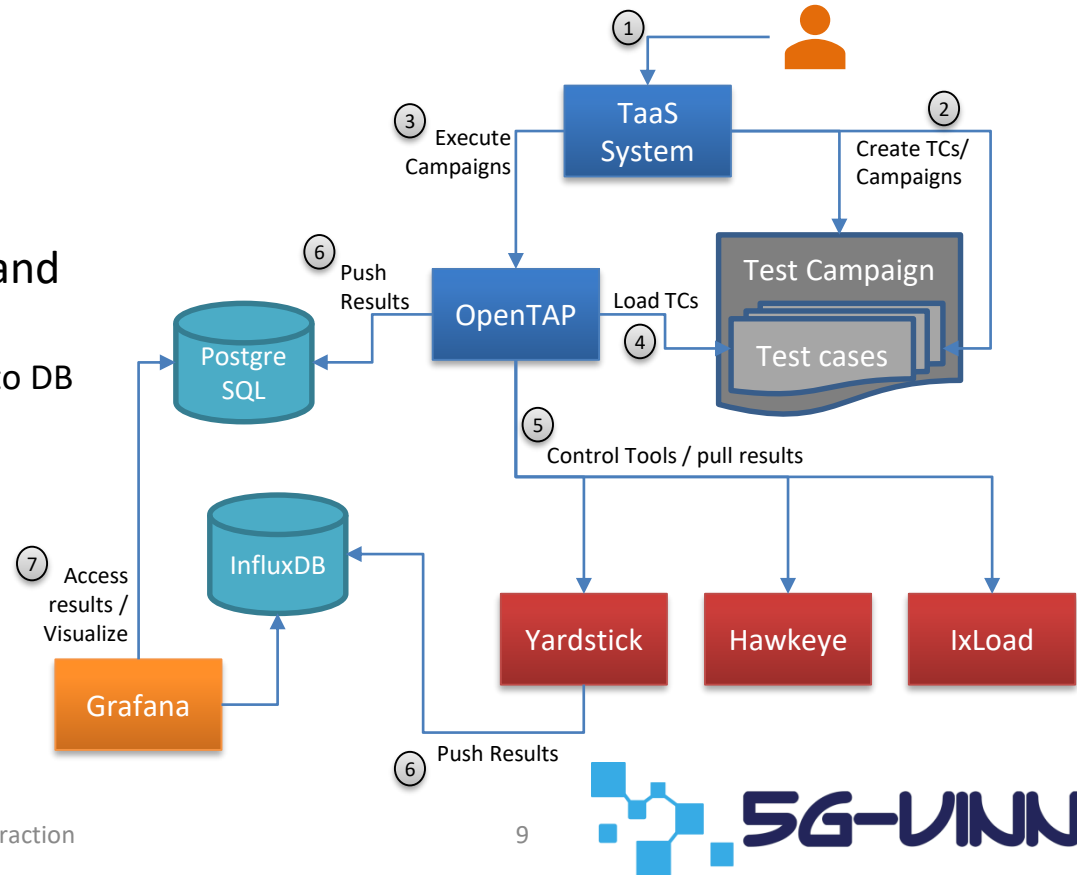
TaaS Flows

- Create test cases
 - Via test case editor
 - Using various plugins for test tools
 - Configure instruments and duts
 - Set external parameters
- Create test campaign
 - Add test cases
 - Modify external parameters
 - Execute campaign
- Evaluate results
 - Go to Grafana
 - Create panels/boards
 - Select data source to consume
 - Visualize generated results



TaaS Flows – Result Data Creation

- User creates test cases and campaigns
- Executes the campaigns
- OpenTAP pulls data from tools and push to DBs
 - In some cases tool pushes directly to DB
- Grafana is configured with data sources, pulling data from DBs
- Boards and panels created in Grafana to visualize data



Tools and result storage

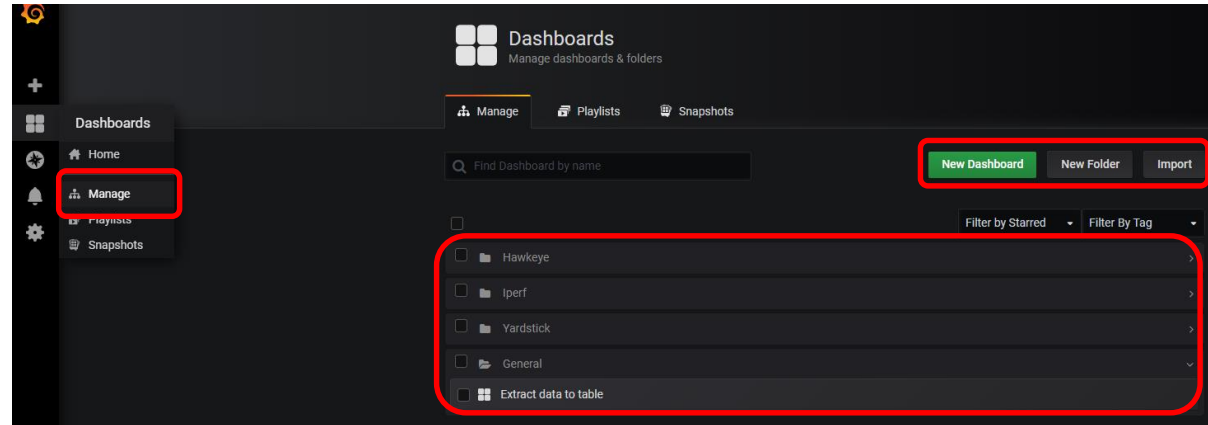
Tool	Database (current)	Push method	OpenTAP plugin currently available	Grafana boards currently available
Yardstick	InfluxDB	From tool	Yes	Yes
IxNetwork	Tbd	Tbd	No	No
IxLoad	Postgresql	From OpenTAP plugin	Yes (RXF file needed)	No
Load Core	Postgresql	From OpenTAP plugin	Yes	No
Hawkeye	Postgresql	From OpenTAP plugin	Yes	Yes
Iperf	Postgresql	From OpenTAP plugin	Yes	Yes

Additional Data Sources

- How to save data from a new tool or from DUT?
 - Create OpenTAP plugin that publish results/data
 - Add plugin to TaaS (Contact Keysight)
 - OpenTAP will listen for results and push to DBs
 - Currently data will be pushed to PostgreSQL DB
- InfluxDB result listener
 - Developed by University of Malaga
 - Might be included if required

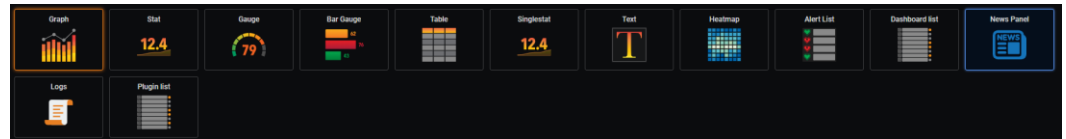
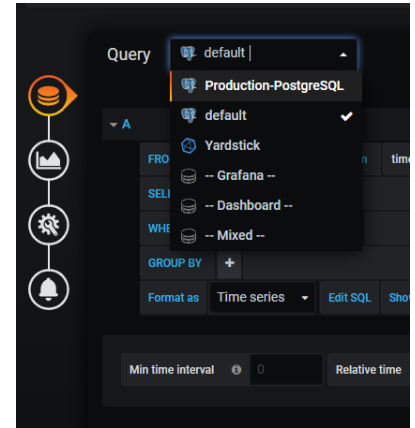
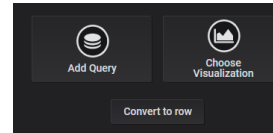
Data extraction - Grafana

- Go to Grafana
 - <http://taas.vinni:3000/>
 - User/Pass: test/vinni
- Go to Dashboards -> Manage
- View existing dashboard
 - Select dashboard
 - Select time range
- Create new dashboard
 - From scratch
 - Import existing
 - Copy existing board



Grafana Panel Creation

- Create data query
 - Select data source
 - PostgreSQL
 - InfluxDB
 - Visual query creation by Grafana
 - Textual query composition
- Select visualization
 - Graphs, stats, gauges, tables, and more
 - More plugins can be added upon request
- Dashboards can be exported/imported in JSON format



TaaS Data Extraction

DEMO

Summary

- Current state
 - PostgreSQL DB offered for data storage
 - Grafana only way to pull data
 - InfluxDB available (but only used by Yardstick)
- Next steps
 - InfluxDB result listener plugin to be integrated
 - Develop procedures for allowing user to select data storage options
 - Allow user to define external DB

Thank you for your attention

Q&A



Resources:

OpenTAP: <https://www.opentap.io/>

OpenTAP on Gitlab: <https://gitlab.com/OpenTAP/opentap>

5G-VINNI: <https://www.5g-vinni.eu/>



This project has received funding from the EU's Horizon 2020 research and innovation programme under grant agreement No 815279.

