Telemetry/Observability architecture TOWARDS ZERO TOUCH

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THE GOAL

- Telco's desire to automate their operations
 - Zero touch provisioning and life cycle management of VNFs/CNFs and cloud infrastructure
 - AI/ML to automate operations
 - Visibility into operating state of the resources is the key to automation
 - Visibility achieved through Monitoring/Telemetry





ANUKET EBLRUS RELEASE

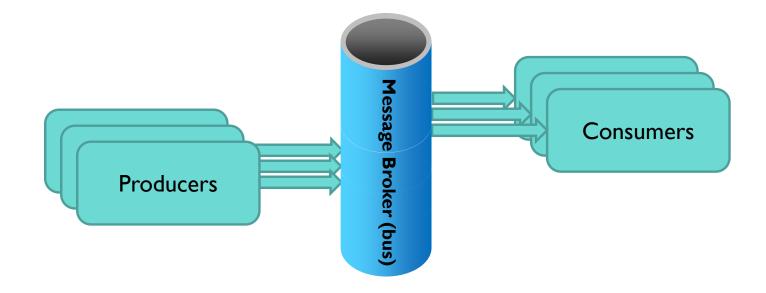


- Elbrus released EOM January 2021
- Telemetry and Observability is introduced in Reference Model
 - See <u>chapter 9 section 9.6</u>

THE ARCHITECTURE CONCEPT - REFRESHER



- Push Model
- Message Broker



BENEFITS OF CENTRALIZATION

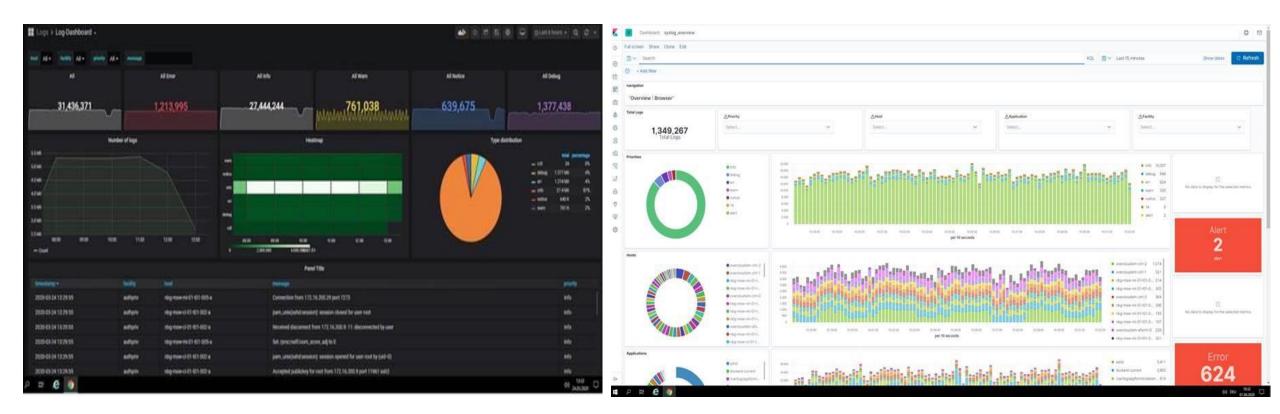


- Unified data
- From data usage perspective: acqusition is not our topic
- Easy to search large amounts of data
- Limitless possibilities for data correlations
- Visual representation of data
- Autonomic observing and problem solving

CENTRALIZATION – VISUALIZATION EXAMPLE (I)



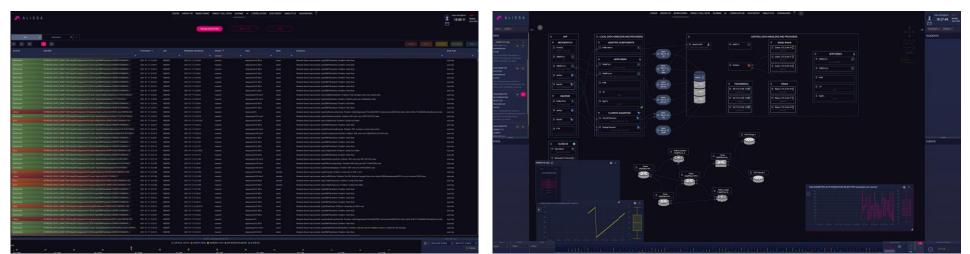
Using open source tools



CENTRALIZATION – VISUALIZATION EXAMPLE (II)



• Combining own tailor-made development with open source





AUTONOMIC OBSERVING & PROBLEM SOLVING (I)

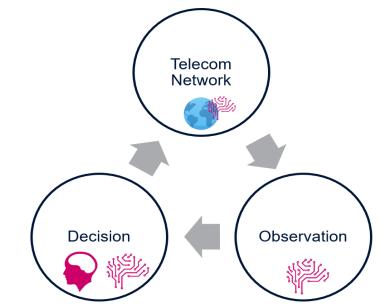
Anuket

Common Challenges

- Not "living inside Telco Cloud"
- Too much information to build proper mental image of the system
 - Metrics several thousands of observed metric parameters
 - Alarms Storm of useful and useless alarms makes it hard to recognize the issue
 - Logs enormous amount of semi-structured human crafted information
- Prompt and proper reactions
- Predictions and preventions

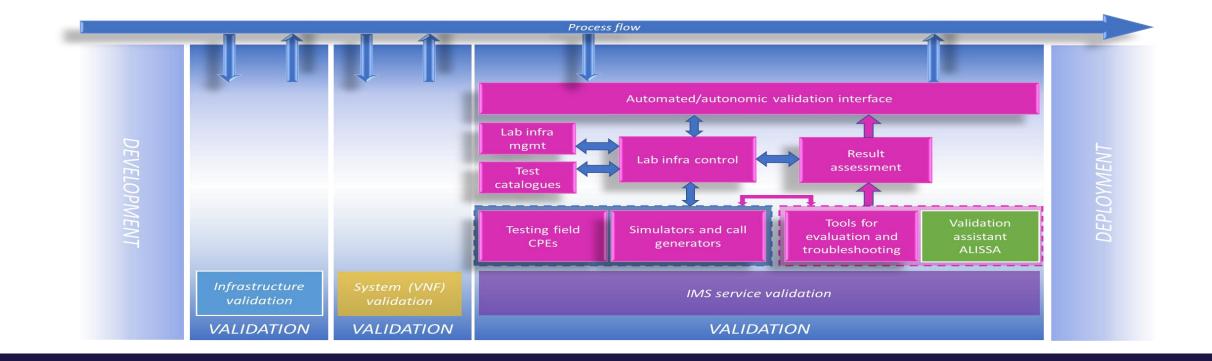
Autonomic Observability

Proposal for new coined term



AUTONOMIC OBSERVING & PROBLEM SOLVING (II)

- Anuket
- Where is autonomic observation with problem solving needed?
 - 1. For validation in CI/CD chain development -> deployment
 - 2. For operations service providing perspective

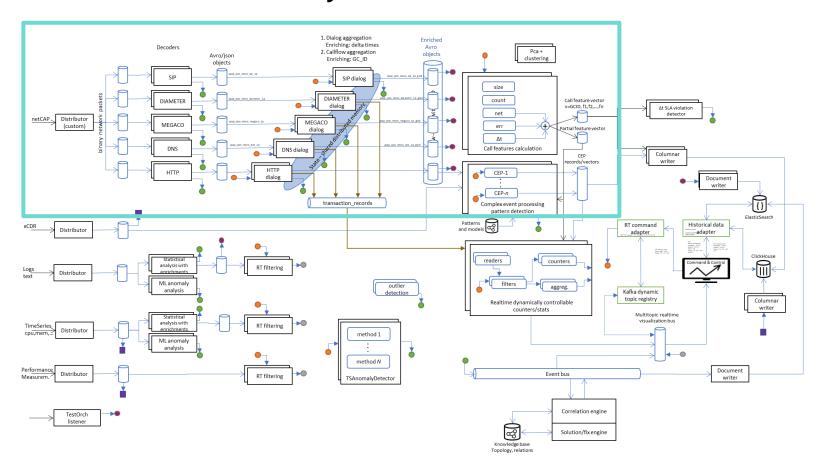


CONCRETE USAGE IN DT (I)

• Autonomic call success and failure (with RCA) analysis

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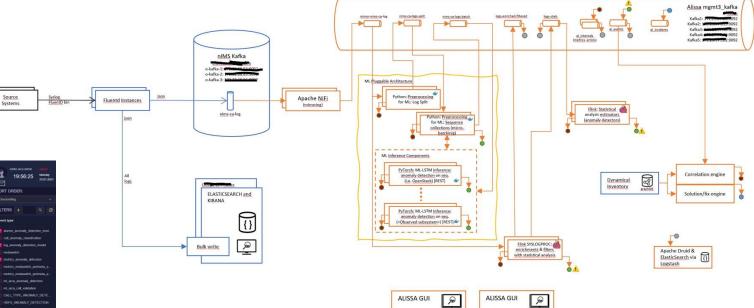


CONCRETE USAGE IN DT (II)



- Anomaly detection on sequences (metrics, alarms, and logs)
- Using LSTMSs
- Correlation engine

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log visualization

al_event visualization

CLOSED LOOP USE CASE



- Detect/predict outage of Diameter links
- Data distributed via message broker alarms in Kafka
- Alissa system reads sequences of alarms (sliding window size /V) and performance inference (LSTM on vCPU)
- Alissa provides output "incident" message on the message bus
- External system (currently implemented as a part of Alissa) triggering call to Ansible AWX to perform action migrating traffic from one node to another

THE SUMMARY



- Juniper and DT jointly put together this architecture
- The joint solution is implemented and deployed in production
- All Telcos need this in their desire to "zero touch" operation

Generic version of this architecture is introduced in Elbrus release of Anuket

- Win for Telcos
- Win for Vendors
 - VNF/CNF and NFVI vendors support this model/API
 - True multi-vendor solution
 - Simplifies VNF/NFVI integration
- No more silo'd solutions

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