Telemetry/Observability architecture
TOWARDS ZERO TOUCH

Sukhdev Kapur, Juniper Networks

Zlatko Dukic, Deutsche Telekom

THE GOAL

Anuket

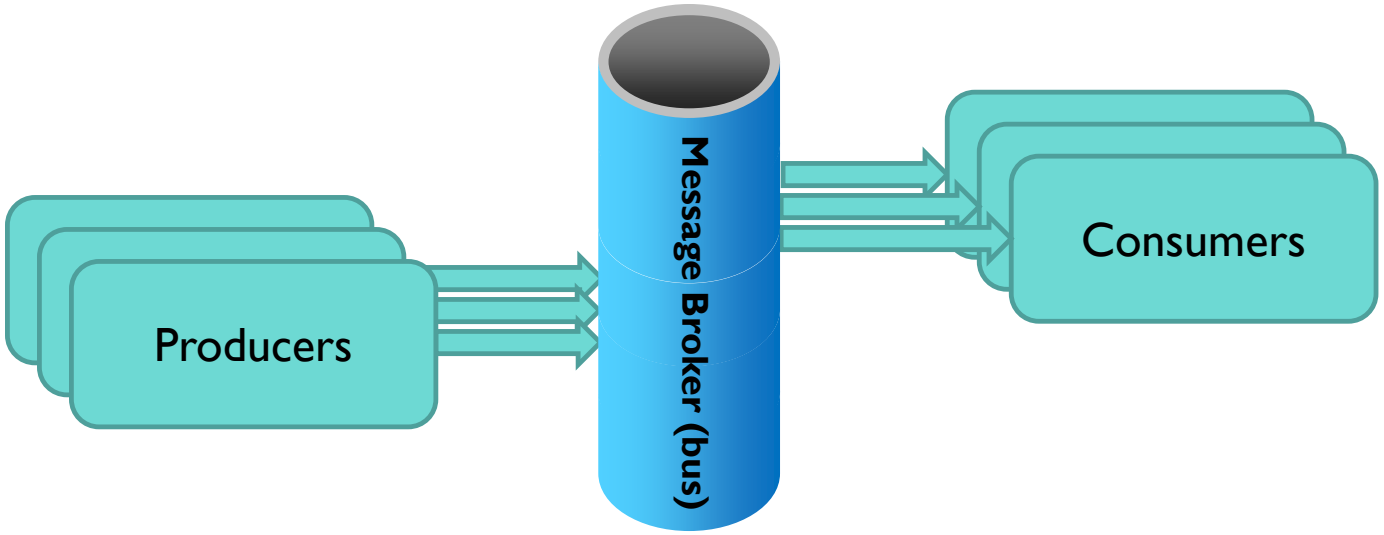
- Telco's desire to automate their operations
  - Zero touch provisioning and life cycle management of VNFs/CNFs and cloud infrastructure
  - AI/ML to automate operations
  - Visibility into operating state of the resources is the key to automation
  - Visibility achieved through Monitoring/Telemetry

ANUKET EBLRUS RELEASE

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

THE ARCHITECTURE CONCEPT - REFRESHER

- Push Model
- Message Broker

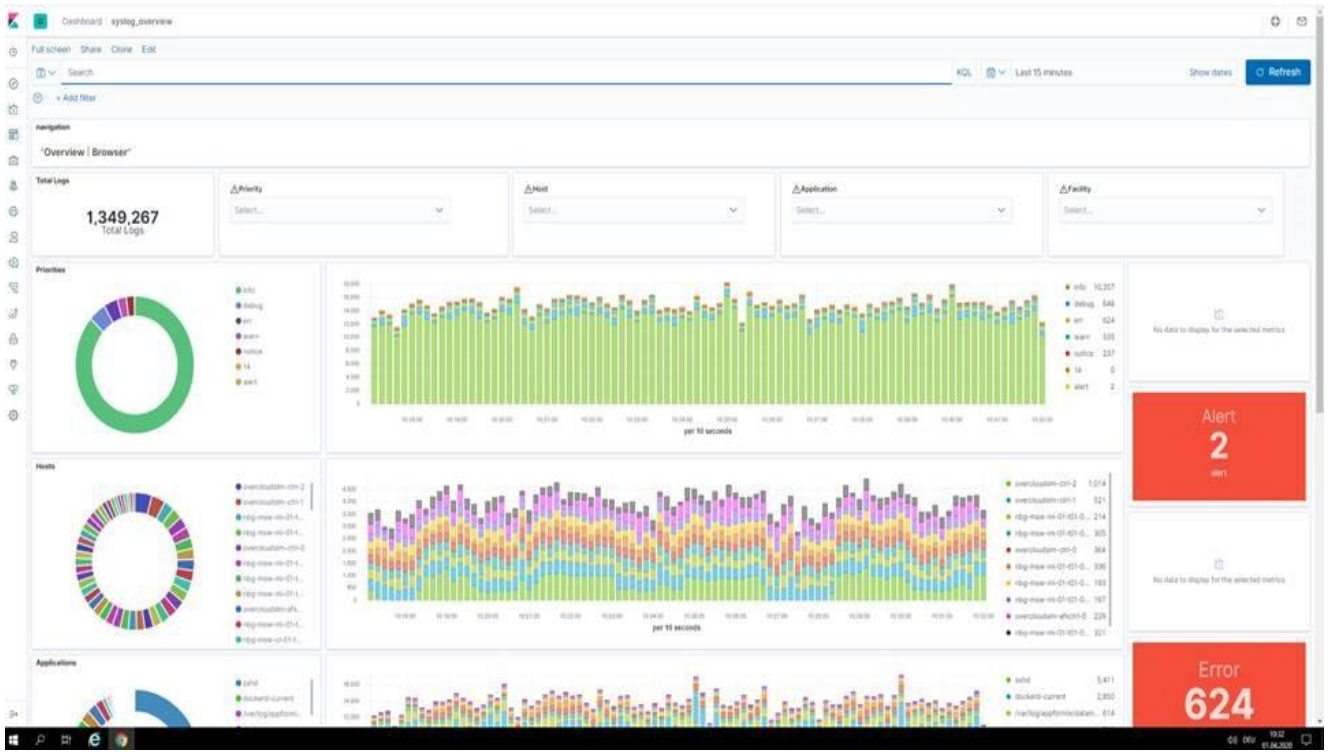


BENEFITS OF CENTRALIZATION

- 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

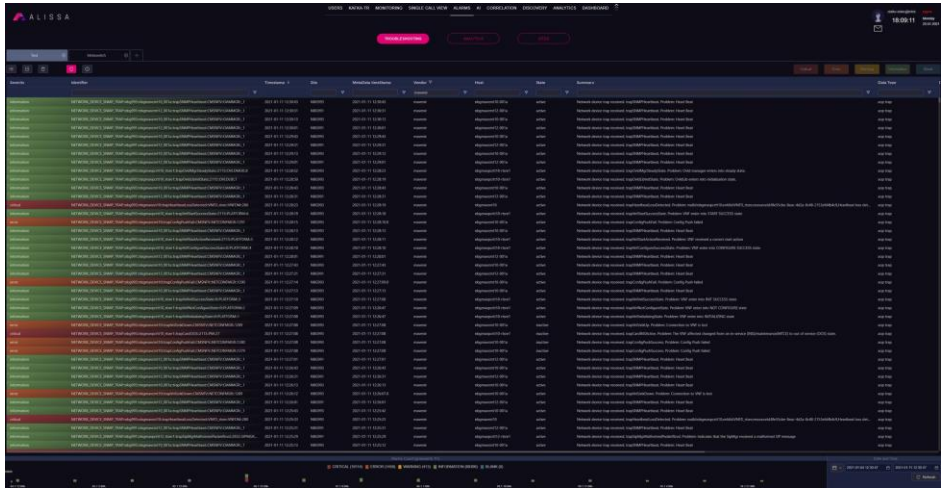
CENTRALIZATION – VISUALIZATION EXAMPLE (I)

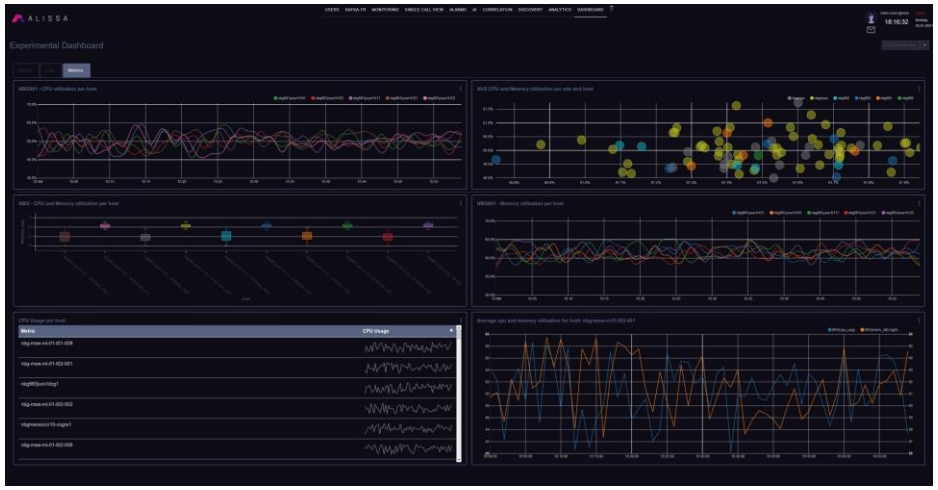
- Using open source tools



CENTRALIZATION – VISUALIZATION EXAMPLE (II)

- Combining own tailor-made development with open source





AUTONOMIC OBSERVING & PROBLEM SOLVING (I)

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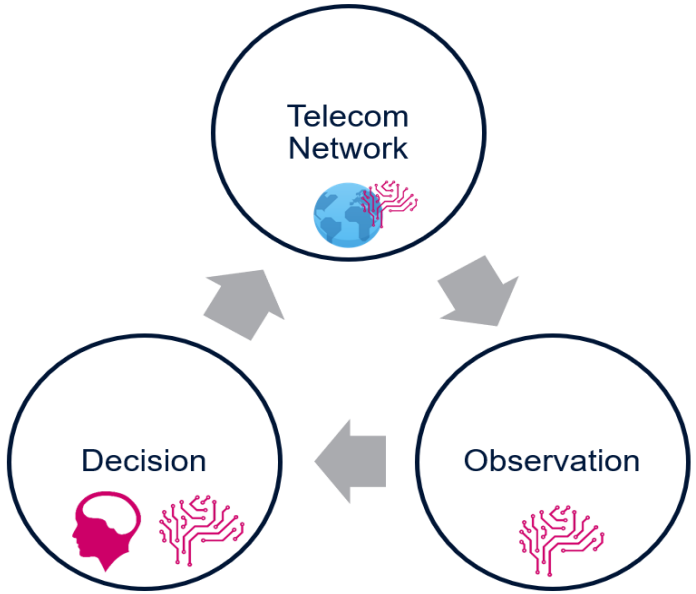
Common Challenges

- 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

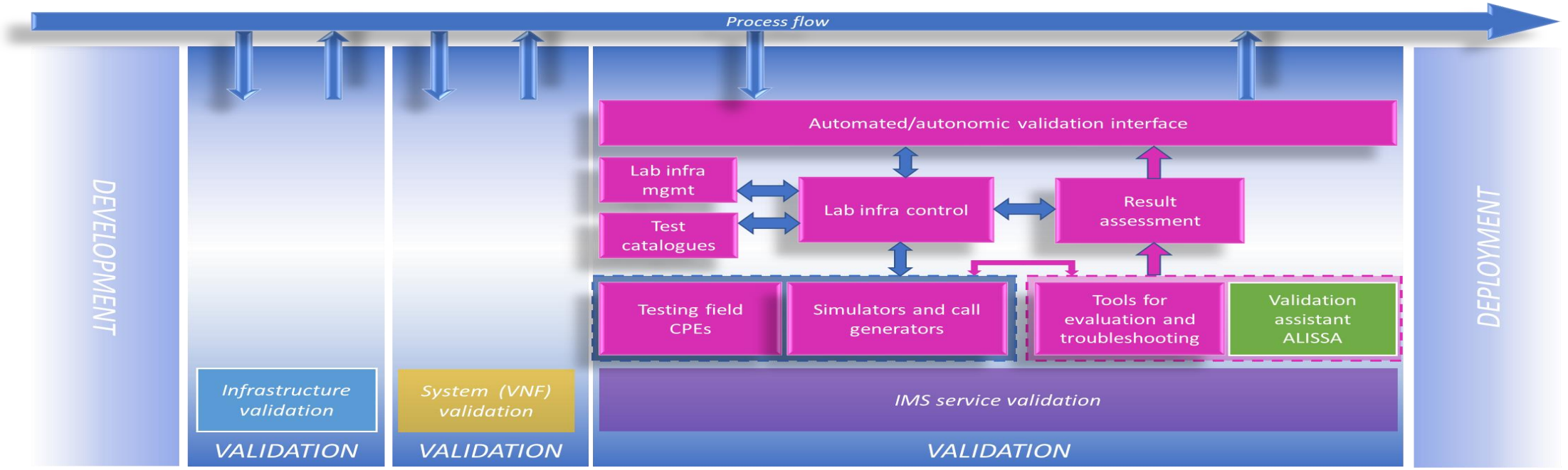


Autonomic Observability

- Proposal for new coined term

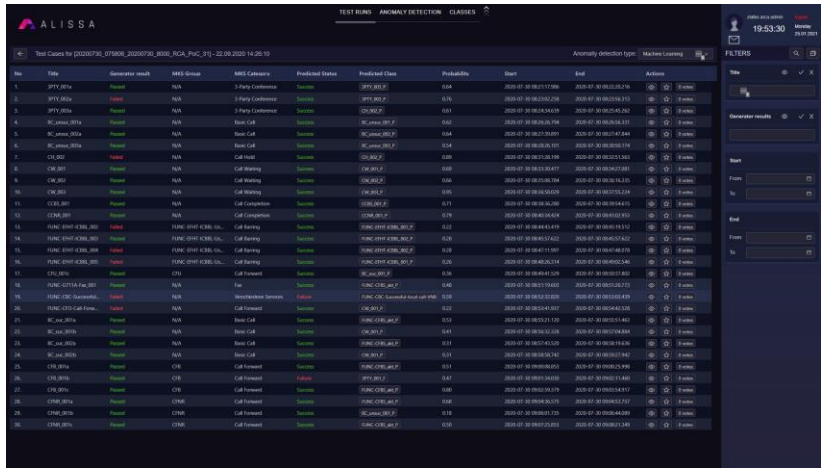
AUTONOMIC OBSERVING & PROBLEM SOLVING (II)

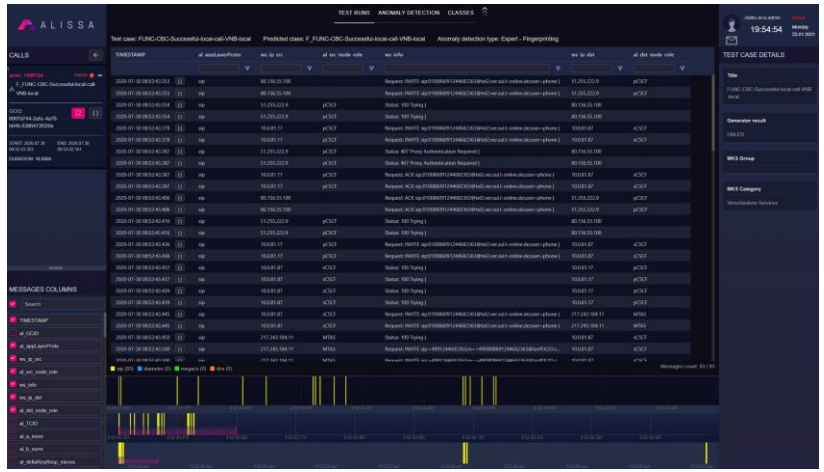
- Where is autonomic observation with problem solving needed?
  1. For validation in CI/CD chain - development -> deployment
  2. For operations - service providing perspective

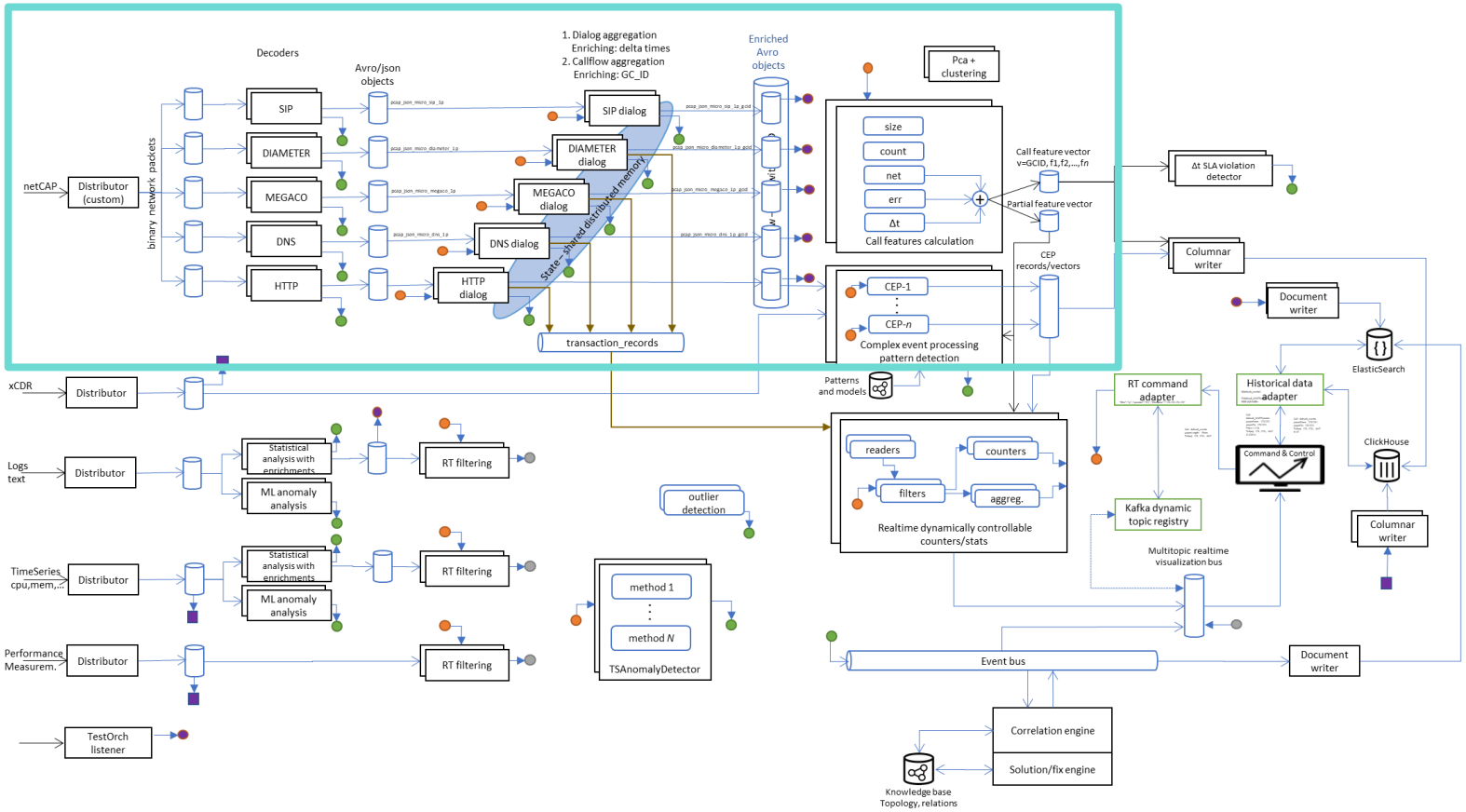


CONCRETE USAGE IN DT (I)

- Autonomic call success and failure (with RCA) analysis

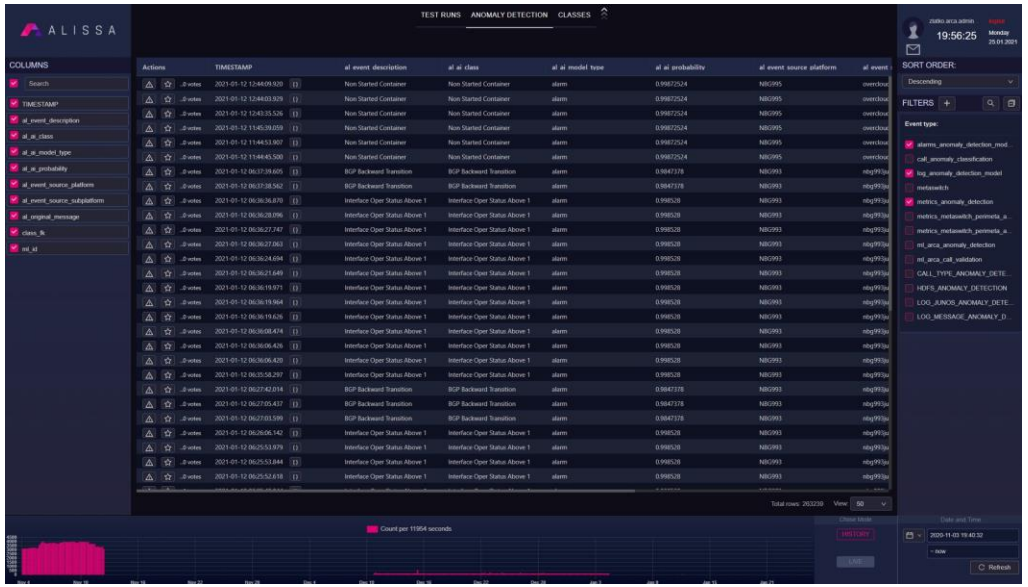


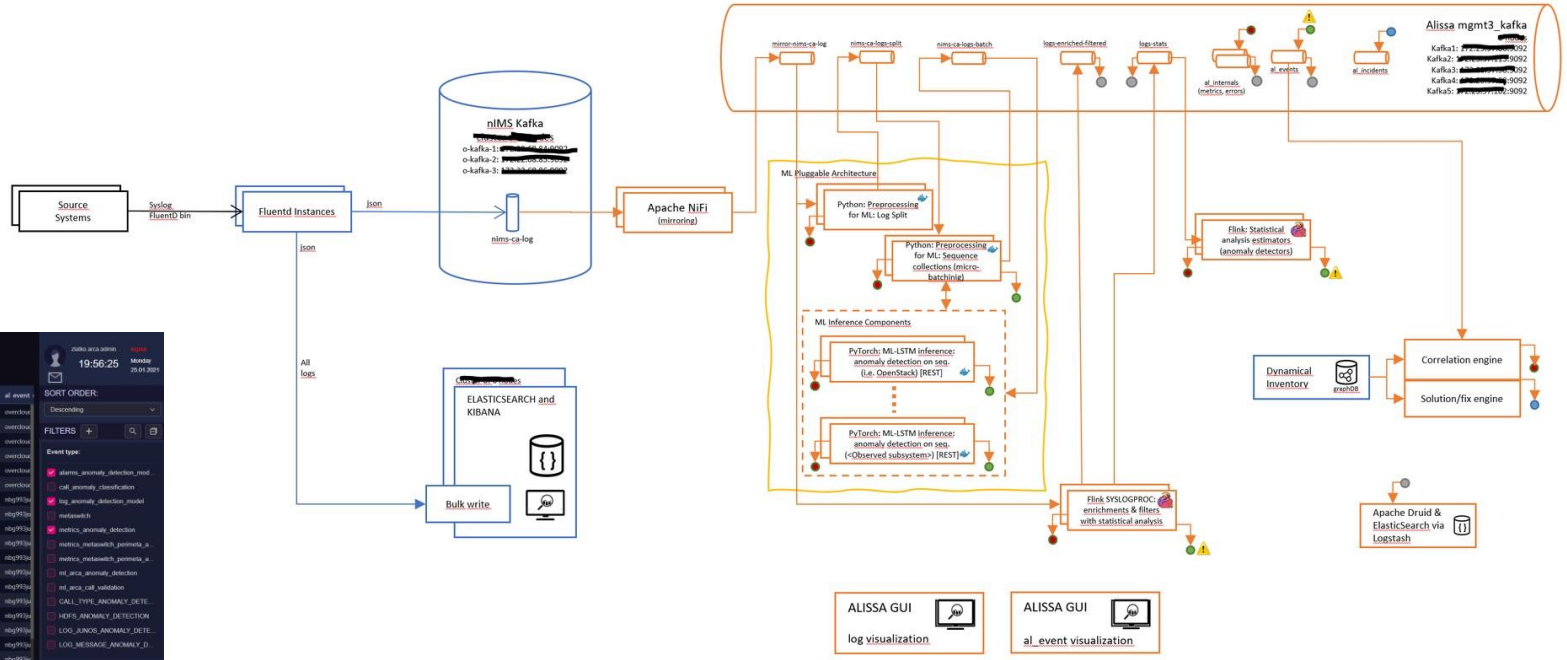




CONCRETE USAGE IN DT (II)

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





CLOSED LOOP USE CASE

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- 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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