

PoC Demo #1

ZSM ISG Interim Meeting

Kista, Sweden – Ericsson

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PoC Champions

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ZSM PoC #1, Demo #1 <https://vimeo.com/279707642/619706d16c>

The video is about 50m, first half is relevance/alignment to ETSI ZSM and second half is the demo

Automated End-to-End SLA Management of multi-vendor, multi-domain, secure, VoLTE Network Service

The Story

- Congestion caused by DDoS results decreased voice quality in Network Service as per specified KPIs - fault is detected by Service Monitoring, which raises alarm
- Faults reported from one or more Domains via E2E Integration Fabric, shared with E2E Service Orchestrator , which correlates alarms to interpret events based on metadata and metrics to classify SLA violations (may involve multiple queries for additional KPIs)
- E2E Service Orchestrator makes policy-based decisions , which trigger commands (ETSI NFV standard LCM operations) issued back to Domain(s) for remediation via E2E Integration Fabric
- End-to-End Service Orchestrator queries Domain(s) via E2E Integration Fabric for Post-action application state and network telemetry for automated closed-loop control
 - Re-configured and assured Network Service may result in a Billing event, based on policies , which would be reported by End-to-End Service Orchestrator to Administrative Domain via E2E Integration Fabric

Functional Domains:

- EPC (Radisys/AWS Zone)
- IMS (Metaswitch/AWS Zone)
- Secure Traffic (Fortinet/AWS Zone)

Administrative Domain:

- Billing (Amdocs/On Premise) [Future Iteration]

E2E ZSM Framework-based Solution

- End-to-End Service Orchestrator (EnterpriseWeb)
- E2E Integration Fabric (EnterpriseWeb)
- E2E Network Service Modeling Environment (EnterpriseWeb)
 - Compose Network Services
 - Define SLAs using proposed FCAPS metadata and metrics to model conditions for events and then specify related actions (state machines)
 - Declare Service and Resource Monitoring Requirements as part of Service Topology

End-to-End Automation of Network and Service Management requires clear definition of Domain NBI to enable higher-level programmability

- **Domain NBI exposes controls to E2E ZSM Framework-based Solution**
 - Network Service Ordering and Configuration
 - End-to-End Service Orchestrator queries Domain(s) via E2E Integration Fabric and orders and configures existing Domain Network Services via exposed interface (Radisys EPC, Metaswitch IMS, Fortinet Firewall)
 - Service and Resource Monitoring Ordering and Configuration
 - End-to-End Service Orchestrator queries Domain(s) via E2E Integration Fabric and requests and configures existing Domain Monitoring Services via exposed interface (EXFO Service Monitoring probes / Infosim Resource Monitoring agents)

- **Domain NBI exposes data stream to E2E ZSM Framework-based Solution**
 - Return state/telemetry alarms as per configuration of Monitoring Services

4.2 The Principles

Principle 01: Modularity

Principle 02: Extensibility

Principle 03: Scalability

Principle 04: Model-driven open interfaces

Principle 05: Closed loop management automation

Principle 06: Support for stateless components

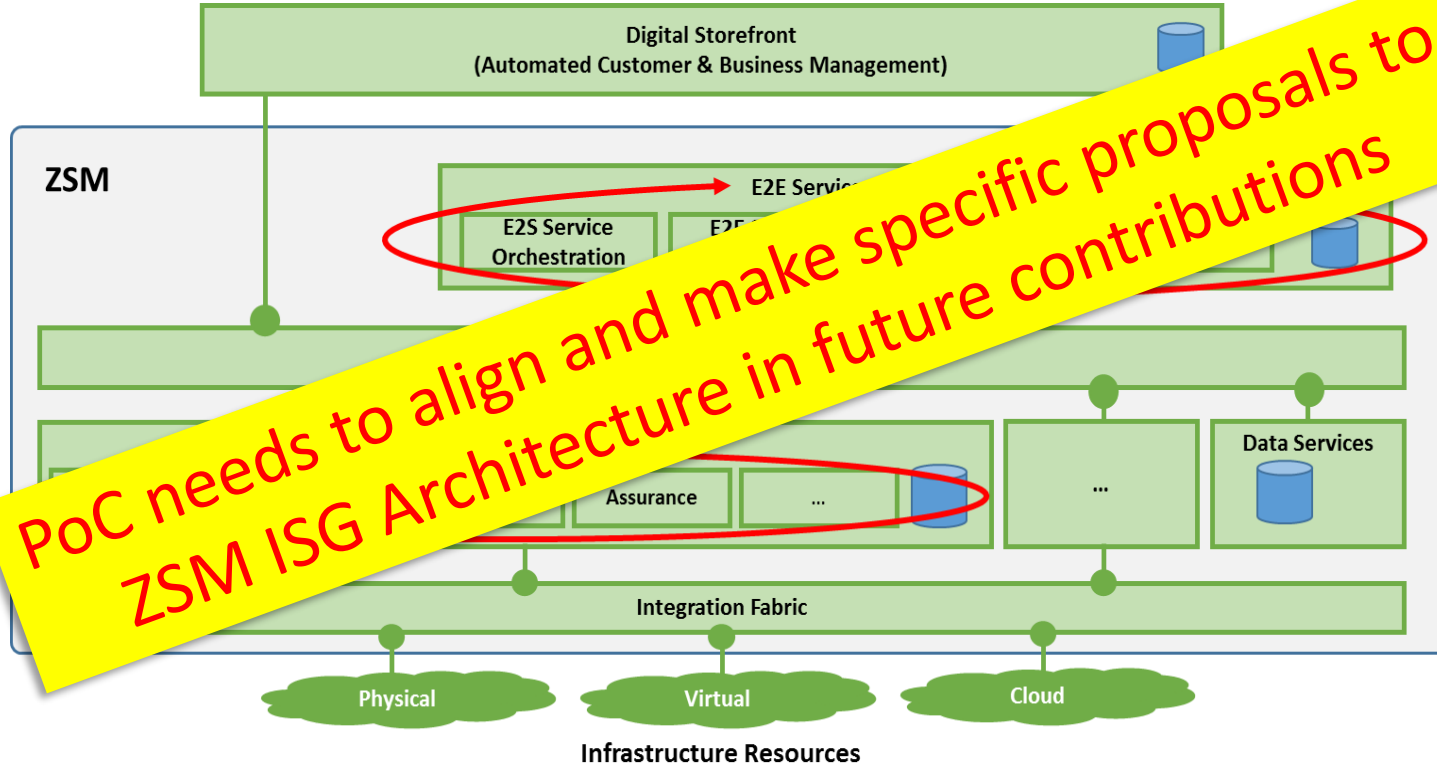
Principle 07: Resilience for failure

Principle 08: Separation of concerns in management

ZSM Requirements based on documented scenarios

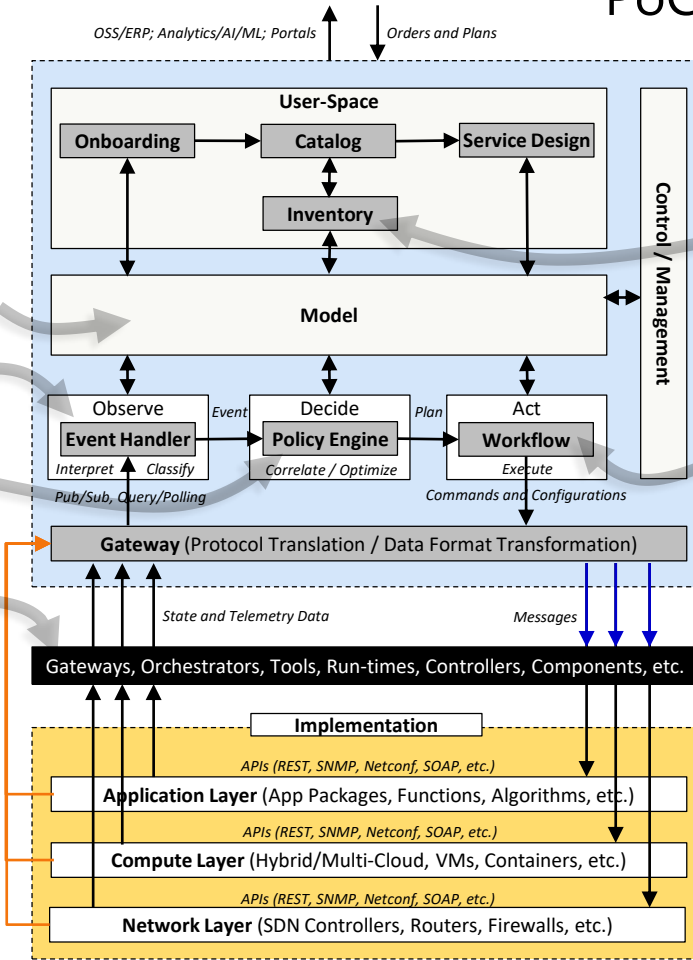
PoC Scenario and Use-Cases cover 50% of requirements

Future iterations of PoC will cover additional Scenarios and Use-Cases to demonstrate broader coverage



FCAPS policies modeled with standard metadata and metrics for consistent event-sourcing and handling

Model-based
Event-driven
Policy-controlled
Federated Processing



Real-time Inventory

Closed-loop Automation

Lifecycle Management operations are abstracted out of use-cases for virtually-centralized control and high-level programmable behavior across multi-vendor, multi-domain use-cases.

Assumptions

Day 2 demo running multi-vendor, multi-domain Network Service

Day 0-1 onboarding & deployment out-of-scope of this iteration of PoC

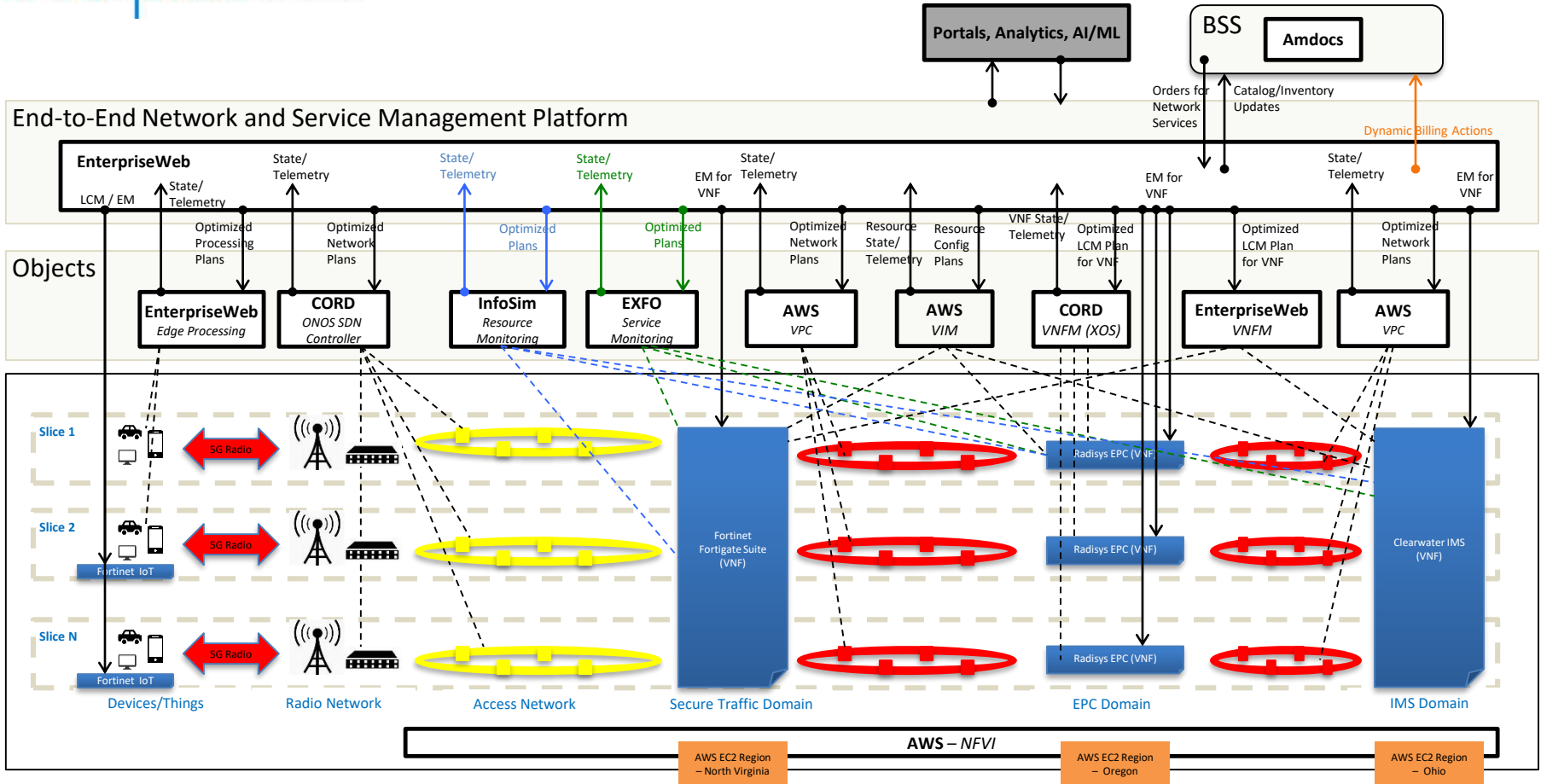
Design Time

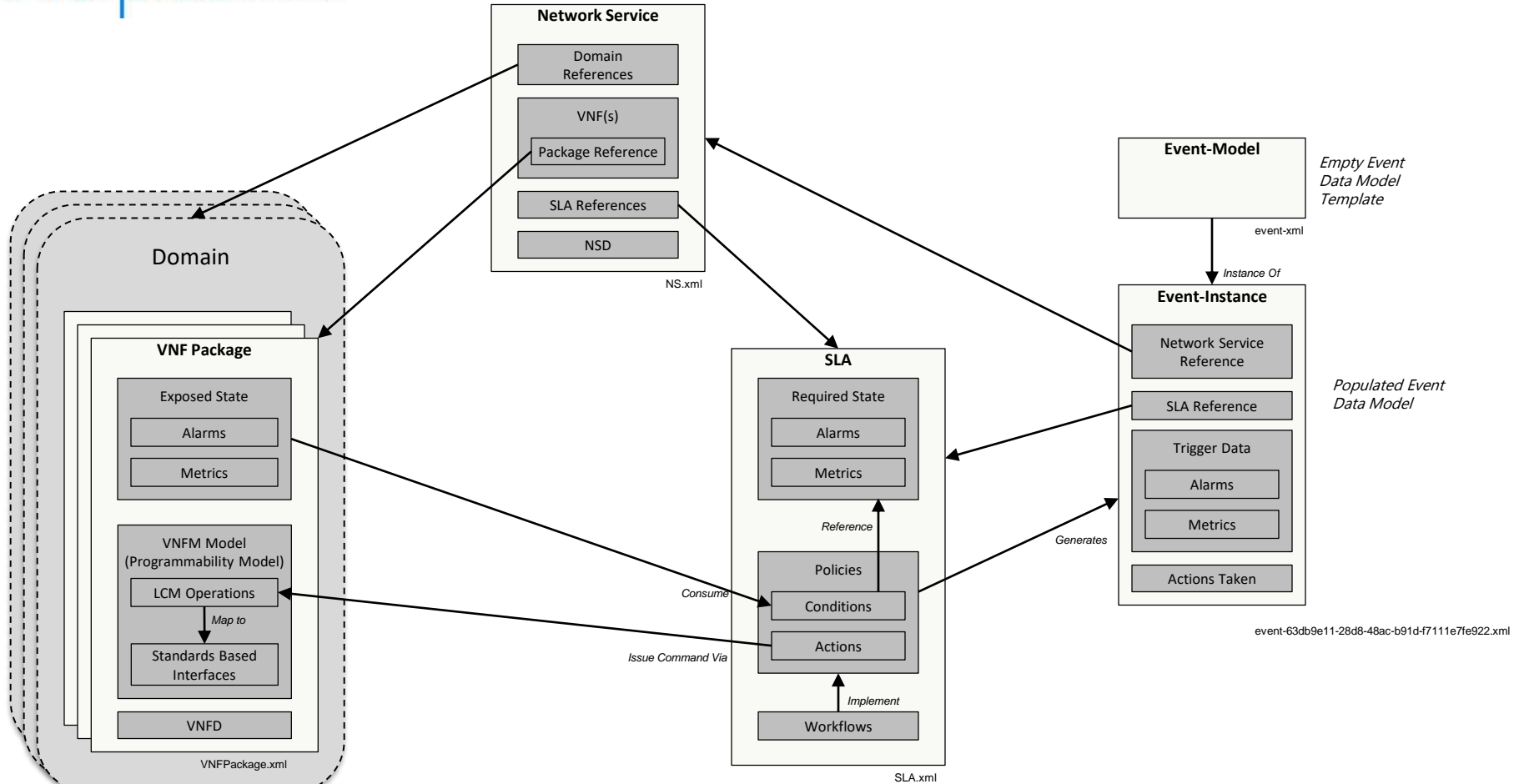
Compose End-to-End Network Service: NSD with a) Packages plus b) reference to an SLA, exposed by API to c) ZSM Framework-based Solution

- a. **VNF Packages:** where Package is described as VNFD plus metric, plus relationships to VNFM/LCM, and standards-based interfaces exposed by an API
- b. **SLA:** – model FCAPS events using metadata/metrics to configure policies, trigger actions
- c. **ZSM Framework-based Solution:** implementation-independent, minimum viable XML data models of event, policies, actions

Run-Time

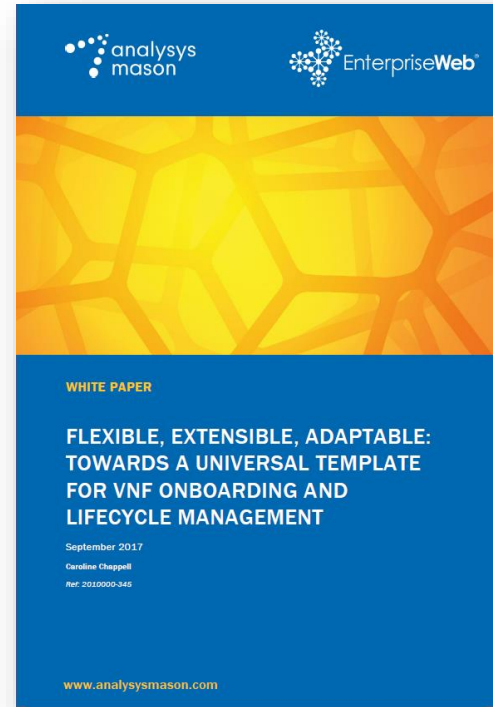
Demonstrate ZSM Framework-based Solution: As per PoC Use-Case / Story





FLEXIBLE, EXTENSIBLE, ADAPTABLE:
TOWARDS A UNIVERSAL TEMPLATE FOR VNF
ONBOARDING AND LIFECYCLE MANAGEMENT

September 2017
Caroline Chappell



<http://www.analysismason.com/VNF-onboarding-lifecycle-management-white-paper>