Intent Driven Network Operations with AppFormix Advanced Analytics Platform

Joseph Li
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DURING THIS SESSION: YOU WILL BE ABLE TO...

• Understand AppFormix network monitoring and analytics capabilities
• Understand how AppFormix
  • Simplify network operations
  • Maximize network performance
  • Drive network automation
CHALLENGE
Data Collection and Analysis

LARGE # OF HETEROGENEOUS HARDWARE & SOFTWARE COMPONENTS
• Large # of heterogeneous, fragile & interconnected hardware and software components → make it a challenge to run cloud-enabled infrastructure at scale

HUGE AMOUNTS OF MONITORING DATA FROM MULTIPLE SOURCES
• Multiple data sources generate large amount of data
• Real-time management and monitoring of large & disparate data sets requires complex data, network and storage management tools

NO OUT-OF-THE BOX SOLUTION
• Legacy tools were not built for cloud-enabled environments
• Open-source based tools require significant customization and lack production-grade reliability and scalability
“INTENT-DRIVEN INFRASTRUCTURE”

- **Automation & Orchestration**: Build adaptable systems for Efficiency and Cost
- **Visibility**: Monitor resources and Services in Real-Time
- **Analysis**: Use Machine Learning to Analyze Resource Management SLAs
- **Continuous Real-Time Evaluation and Optimization**
CROSS LAYER VISIBILITY

Stream analysis to monitor SLAs and predict faults

Real-time optimizations to improve efficiency and ensure service availability

Single operations platform to monitor all layers of the infrastructure
APPFORMIX ARCHITECTURE

Controller

Agent

Host

NOTIFICATIONS
JSON over HTTP(S)

REST API

DASHBOARD

Orchestration & Automation

Any ITSM System – ServiceNow, PagerDuty, …

Host or Network Device

AGENT

JTI / GRPC
OPEN CONFIG
SNMP / IPMI / RES

central policy management

Automatic import of data model using Ecosystem adaptors

Insight

Policy

Events
NETWORK TOPOLOGY - UNDERLAY
NETWORK DEVICE HEATMAP
Real-time network health and performance at-a-glance
NETWORK TOPOLOGY - OVERLAY

- Overlay network discovery and monitoring via integration with infrastructure orchestrators and SDN controllers
- Correlated topology between overlay and underlay entities
NETWORK INFRASTRUCTURE SLA
User-configurable Health and Risk SLA Profiles
NETWORK TELEMETRY

JUNOS Telemetry Interface (JTI)

• Real-time streaming telemetry at scale
• Performance and resource monitoring, as well as accounting
• Available across many Juniper product lines
• Additional JTI information:
ANALYZING JTI METRICS

All collected JTI metrics can be charted, alarmed and used in SLA rules in AppFormix.
SNMP-BASED MONITORING
Monitor network devices via SNMP

Network Device Settings

Configured SNMP Devices
contrall-qfx1

MIBs
- IF-MIB::ifTable
- IF-MIB::ifXTable
- TCP-MIB::tcp
- APPFORMIX_ROUTING_
- enterprises.2636.3.1.13.1

contrall-qfx10
contrall-qfx11
contrall-qfx12
ANALYZING SNMP-BASED METRICS

All collected metrics via SNMP can be charted, alarmed and used in SLA rules in AppFormix.
STATIC ALARMS

• Alarm is active when measured value is above or below a static threshold
• Simple to understand and implement
• Good for well-understood performance profile with “constant” boundaries
  • Packet drops, interface flaps, CPU temperature, disk space
DYNAMIC ADAPTIVE ALARMS

- Machine-learning to determine baseline value
  - Value of “normal” is variable
- User configures acceptable deviation from baseline
- Detect and alarm on sudden spikes and Anomalies
CLOSE-LOOP AUTOMATION
Sending notification signal to ANY HTTP endpoint

- Improve network and infrastructure in real-time
  - Performance, resiliency, scalability, responsiveness, economics
- Example of notification endpoints
  - Network automation system and controllers
  - Incident Management Systems.
  - Collaboration tools

Infra. Orchestrator, Network/SDN Controller

Control Signal

Network Under Management

Real-time Events

Real-time Telemetry

AppFormix
FOR MORE INFORMATION ON APPFORMIX

  - Data sheet, solution briefs, demo video, demo request, etc.
  - User guide, software download, support, etc.
RECAP – APPFORMIX PROVIDES...

• Cross-layer network discovery and visualization
• Comprehensive monitoring and correlation of physical and virtual network infrastructure and resources
• Scalable, real-time visibility and alarms
• Machine-learning and adaptive analysis
• Optimized network performance, resiliency, scalability, economics and responsiveness through event-driven automation and orchestration
Q&A