

# AIOps SD-WAN USE CASES



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## AIOps AND THE BENEFITS DELIVERED

**AIOps, artificial intelligence for IT Operations**, uses the ability to ingest multiple data sources at scale and combine this with machine learning and analytics to improve IT operations processes and tasks including performance analysis, anomaly detection, event correlation and analysis, IT service management and automation. AIOps is being leveraged by a growing number of companies across a diverse spectrum of industry sectors to improve customer service quality. Companies that choose a next generation AIOps application can address performance across service-delivery layers from the infrastructure through the application.

AIOps improves the efficacy of IT operations by automating many normal operation workflows by integrating artificial intelligence and machine learning technologies into infrastructure and application monitoring processes. In essence, a next generation AIOps application can accelerate the incident to response life cycle. The application ingests and analyzes real-time data then takes intelligent action to support faster resolution, implements workarounds automatically, triggers customer notification to stem the volume of service calls, and in many cases, resolves the problem proactively without human intervention.

AIOps can refocus operations around customer experience and other business metrics, such as revenue generation, instead of traditional IT metrics, such as uptime or availability. With this cultural shift, operations teams begin focusing on the customer experience and the root cause – no matter where it may reside. Customer experience and highly correlated performance data often sits in different silos across an organization making it very difficult for one part of the organization to understand how process performance between silos impacts the customer experience. AIOps supports the breaking down of organizational silos that are often counterproductive to issue resolution or improvement in the overall customer experience.

## AIOps USE CASES IN AN SD-WAN ENVIRONMENT

A Fortune 500 company implemented **VIA, AIOps by Vitria** in order to:

- **Increase** SD-WAN performance through proactive response.
- **Drive** efficiency through closed-loop, automated action to accelerate response and resolution.
- **Improve** the security posture of their SD-WAN environment.

### USE CASE: REAL-TIME MONITORING AND AUTOMATED CLOSED-LOOP ASSURANCE

Customer dissatisfaction and lost opportunities caused by degradation in network performance are the nemesis of the operations staff. Expectations are clear – SD-WAN network performance must be maintained while costs are managed. Network monitoring with alarm notification is insufficient to maintain network performance SLAs across a complex SD-WAN environment. When traffic congestion trends to non-conformance, response must be immediate to avoid degradation in the customer experience and an increase in customer calls for support. But, as with most companies, the operations team is short on skilled staff and faced with budget constraints, so the answer had to be automation and intelligent action.

VIA AIOps provided the solution. VIA monitors the entire SD-WAN network and takes the necessary action to ensure that performance is not compromised. When performance is trending to non-conformance, automated closed-loop actions – based on problem diagnosis and machine-learned utilization thresholds – maintain performance within committed thresholds. Monitoring continues until the network returns to a steady state or the problem is resolved. Automated closed-loop intelligent action avoids human intervention and reduces operational cost.

VIA also enables intelligent, closed-loop actions to be taken automatically if there is a service incident or the prediction of a service incident due to unique fingerprints and trends observed and analyzed in real-time. VIA ingests, analyzes, and acts on the data for touchless resolution of the problem or implements a workaround until the problem is resolved and then monitors for resolution.

# OVERVIEW OF THE SD-WAN ENVIRONMENT

There are multiple network interface devices in the three sites as shown in the diagram below.

## Site 1: SD-WAN connectivity over the operator's fiber Internet access service

There is no prioritization or traffic steering as a single SD-WAN uplink is deployed. All traffic within the SD-WAN overlay tunnel is treated with best effort service. The SD-WAN edge provides SD-WAN connectivity to the SD-WAN gateway device.

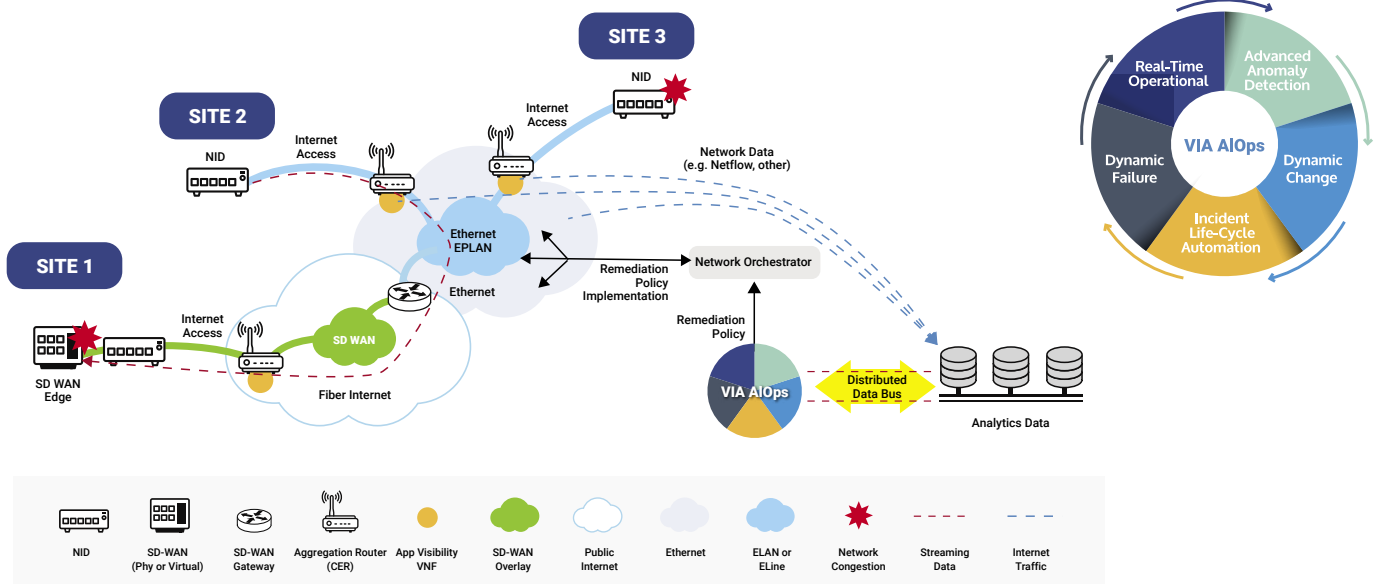
## Site 2 and 3: Ethernet

Site 2 sources traffic to destination site 3. All traffic is treated with the same best-effort class of service at sites 2 and 3. Application monitoring is in place at both points of ingress and egress for Site 2. A threshold trigger is in place if utilization reaches or exceeds a certain percentage over a sustained period of time for both site 2 and 3.

Utilization is being measured at all three sites.

### Illustration of Use Case : Real-Time Monitoring and Automated Closed-Loop Assurance

### AIOps Operations templates



### Situation: Traffic congestion with automated response

Site 3 is exceeding their designated capacity threshold. VIA is monitoring the port utilization and automatically responds to increase the bandwidth at site 3 in order to bring the utilization within acceptable levels. Network monitoring continues. When traffic drops and is sustained at a level capable of being supported by the original bandwidth, the original bandwidth is reinstated.

**Situation: Traffic delays trigger service level action with automated response**

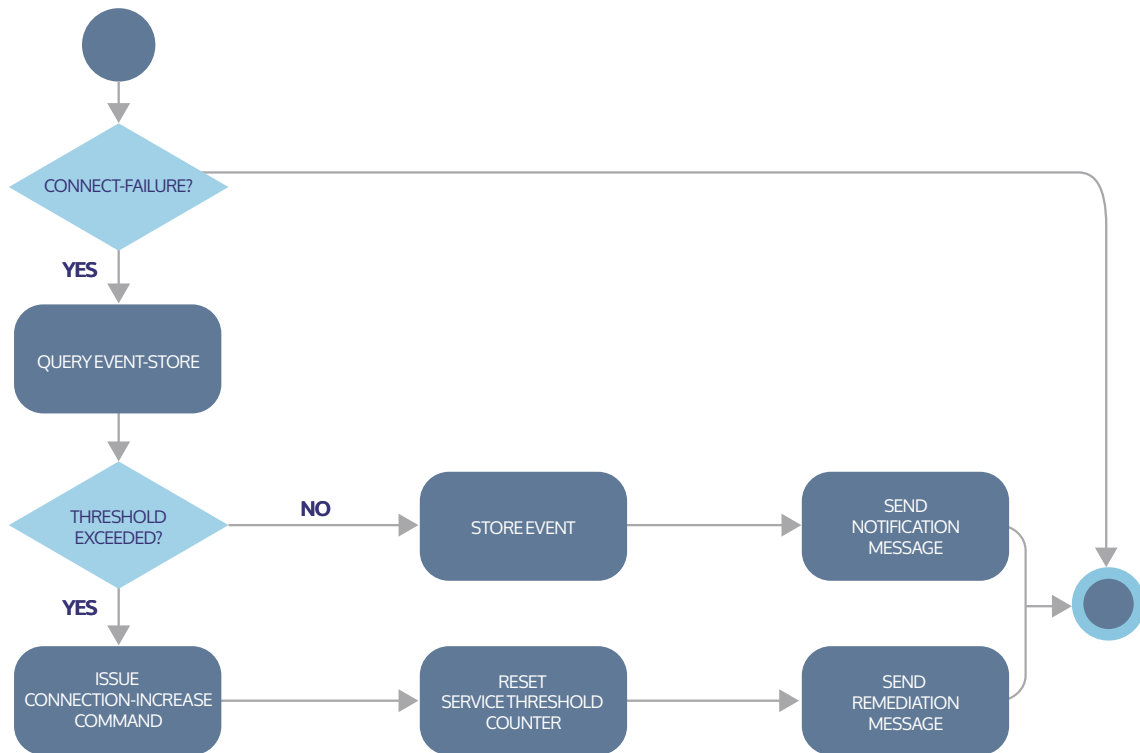
VIA is monitoring the SD-WAN network and a missed threshold is detected. VIA determines that the uplink bandwidth rates are not the issue and responds with remediation by modifying from best effort to priority service until the quality of network service returns.

**Situation: Potential device connection failure with multiple automated actions triggers based on logical rules**

VIA is monitoring and analyzing metric streams in real-time and detects a potential device connection failure. VIA validates the failed connection and makes an assessment against the risk violation threshold. Multiple automated actions are taken based on this event by VIA.

- Open work order in the ITSM
- Network Orchestrator sent the steps required for remediation
- Threshold indicator reset
- Work Order closed

The automated actions taken by VIA are outlined in the workflow diagram below.



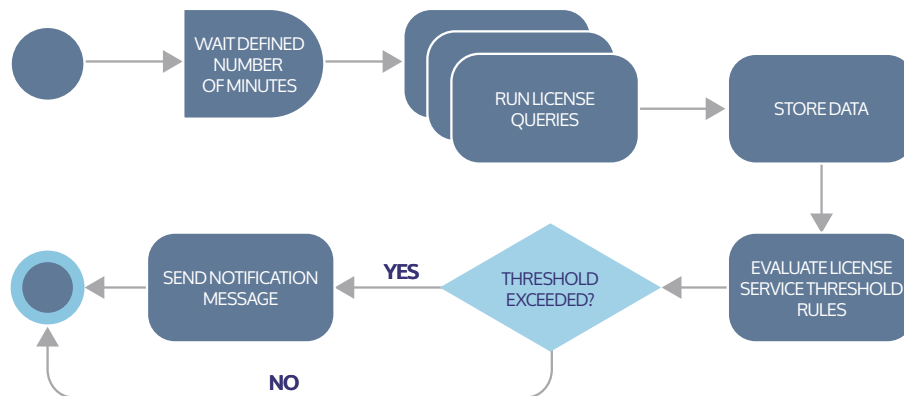
## USE CASE: REAL-TIME CAPACITY MONITORING AND PREDICTIVE MANAGEMENT

With insidious cyber threats, maintenance of a highly mature security posture with an always-ready security infrastructure is mandatory within an SD-WAN environment. The company needed to ensure that the licensed pool for its virtual firewalls and any related components was never exceeded and that network capacity constraints never resulted in security exposure across their worldwide network.

Implementation of VIA enabled polling, analysis, and closed-loop intelligent action to be taken to sustain an effective security infrastructure. VIA implements automated action based on the situation, defined logical rules, and intelligence based on prior events. VIA can also develop the analytic modeling to predict future capacity constraints and define the associated network capacity augmentation requirements.

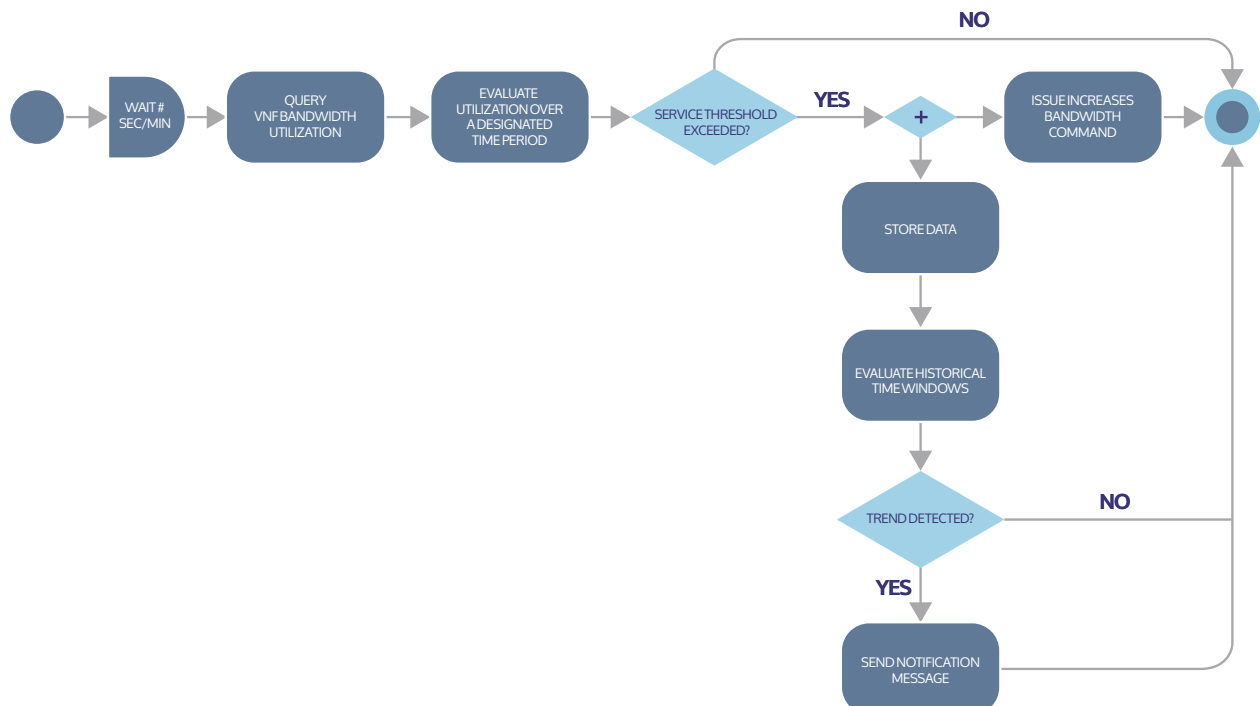
### ***Situation: Security license pool notification***

A poller periodically wakes up and polls the licensing data stores associated with the virtual firewalls and any licensed components. The data is captured and cached for use by VIA to check if acceptable levels of the respective license pool are exceeded. If the license pool has reached or exceeded this threshold a notification message is sent for action to be taken to increase the license pool.



### Situation: Capacity utilization monitoring with automated action

Polling of the bandwidth of the Virtual Network Firewalls (VNF) occurs to ensure that the bandwidth service level designations are not exceeded. If the bandwidth threshold is exceeded over a predetermined time period, the bandwidth is increased. An analytical model based on utilization is also developed to predict when capacity augmentation will be needed and a notification message for action is sent.



## VIA, A NEXT GENERATION AIOps APPLICATION

Implementing VIA AIOps increases efficiency, lowers cost, and most importantly improves the customer experience through higher availability and better performing applications and infrastructure. Unlike application performance monitoring tools or other AIOps applications, VIA excels at handling multiple types and sources of data (signal) at scale and in real-time time. It provides the analytic capabilities to support multi-layer correlation and resolution from the infrastructure to the application and service layer. IT operations depends on the productivity of cross functional teams and VIA provides full-stack visibility, actionable insights, and real-time active response to achieve transformational change.

### Vitria's VIA AIOps templates deliver:

- **Real-Time** operational visibility of end-to-end processes.
- **Proactive** problem prevention through predictive analytics, machine learning and artificial intelligence.
- **Automatic** restorative response where feasible and enables rapid intervention through notification where automation is not yet effective.
- **More effective** predictive maintenance that extends asset life, improves operational efficiency, and prevents downtime.
- **End-to-end** service incident management support.
- **Automation** and closed-loop actions.



VIA's capabilities enable improved network performance, enhance staff efficiency and reduce cost. [Contact Vitria for more information or a demonstration.](#)

## ABOUT VIA AIOps

**VIA AIOps is a next generation AIOps application that enables intelligent automation across all layers of service delivery to improve the customer experience and optimize operations.** VIA AIOps provides total ecosystem observability, and explanatory AI to increase confidence in automation. VIA AIOps delivers noise reduction, correlation, and intelligent automation across operational silos to enhance customer experience and reduce operational cost by enabling more rapid issue detection, mitigation and resolution.

