DATA SHEET

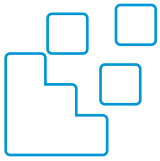
The Automation Journey: Destination-the Elusive Self-Healing Network

VIA AIOps

The journey to automate network operations is difficult with many obstacles, but taking the journey is critical to arriving at the future destination – the self-healing network. Charlotte Patrick, analyst, and advisor to telecommunication companies shared her perspective with Andrew Colby, Vice President, VIA AIOps. Andrew Colby explains the vital role of AIOps and specifically VIA AIOps in achieving the level of automation required to experience the self-healing network.

Charlotte Patrick is an analyst and frequent speaker on the topic of self-healing networks. For her current research on the financial value of automation she interviewed several IT leaders and vendors serving the telecommunications industry. What she found was that telcos perform *random acts* of *automation* but most lack a big picture strategy for automation. She shares some other relevant findings with Vitria.

Telco IT provided colorful anecdotes about their automation journeys. Some referred to their efforts as 'byzantine and unusable.' Others were not as critical but all commented on the significant technical and organizational complexities which hamper deployment.



Fragmentation

Difficulty of managing multiple vendors

Inconsistent data quality

Broken legacy processes

Patrick explains "Simplifying the complexity of automation, particularly in the network, requires a significant amount of industry collaboration and a dedicated effort to overcome some of the issues when there is an absence of integration between multiple vendors."

What's Behind the Focus on Automation?

For organizations with vision and tenacity there is significant value to be harvested from investments in automation. Automation is often cited by executive teams developing strategies for achieving financial goals. Many of Patrick's interviews referred to 5G implementations as examples of how automation can improve operations. Patrick sums up their perspective: "It's clear that the automation built into the design of 5G is enabling rapid optimization of network resources to accommodate fluctuations in demand and the ability to scale."

Businesses in many industries see that automation creates efficiencies within large teams. Automation enables headcount reductions and frees up resources needed to launch new revenue producing services. Finally, automation is an important lever for improving the customer experience and thereby both reducing churn and increasing the potential for sales of new services. These gains will come from both improving network resilience, reliability, and sustainability and creating new, more automated service orchestrations.

In the shadow of positive outcomes, why are telcos holding back on implementing more automation?

Barriers to Implementing More Automation

Making roadmap decisions for automation projects is complex because there are so many options. Management teams must agree on how to set priorities, select, and communicate the decisions, and finally coordinate resources across multiple operational teams. This is a complex exercise especially when stakeholders often express different expectations from the spend on network resources.

Telco network teams are measured on their ability to minimally maintain the quality of the customer experience and many are incented on their ability to improve the experience based on requirements defined by different stakeholders. For example, marketing and sales may be hyper-focused on service speed while the CFO is hyper-focused on cost savings. The network team is forced to negotiate the differences and rely on automation to address both sets of requirements.

Several telcos and vendors commented that payback periods on large scale automation projects can be long, requiring 80% completion of the total effort before realizing just 20% of the return on investment. Some telcos are further along in their automation journey with the easiest automations completed. The next stages of the automation journey are more challenging, time consuming and potentially more expensive. Patrick suggests that doing more requires a solid foundation including mature processes, new technologies, and organizational maturity. Some organizations expressed fear about the negative impact of automation on downstream processes. Adopting machine learning and operationalizing more advanced algorithms can accelerate these later stages of automation and potentially overcome concerns about the negative impacts of automation.

Core to Patrick's advisory service is her ability to assist telcos in tracking the cumulative financial value of automation investments over time. The full value of automation projects may take years to realize maximum value. Putting this into perspective, automating small, tedious tasks like switching servers on and off will offer immediate savings, but greater financial value is realized upstream when the automation is transforming services to benefit the customer.

Advanced Automation Enables the Self-Healing Network

For telcos self-healing networks would simplify network operations and bulletproof the network against failures, providing recovery of service level agreements in real time or near real time. This is especially important when telcos are delivering new services. The progress being made to develop and train LLMs provides a potential path for performing cross domain, *cross process automations required by self-healing networks - without downstream impact on the customer experience.*

Generative multi-agent systems consist of multiple decision making agents which interact in a shared environment to achieve common or conflicting goals. VIA uses multiple statistical and AI techniques including anomaly detection, various distance calculations, vector stores and generative AI to achieve goals of incident identification, symptom and root cause identification and recommended fix generations. VIA interacts with the environment, training on the data it finds. VIA is making progress to develop and train LLMs to provide a potential path for performing cross domain, cross process automations required by self-healing networks. This automation impacts the downstream customer experience.

Self- healing networks potentially offer a range of functionality from diagnostic to preemptive identification of issues followed by the creation of prescriptive actions to instruct the orchestrators. Self-healing sits at the pinnacle of the automation journey. The object lesson is to begin the automation journey and take advantage of platforms and solutions that harness the power of AI to automate tasks and digitally transform services provided by the NOC.

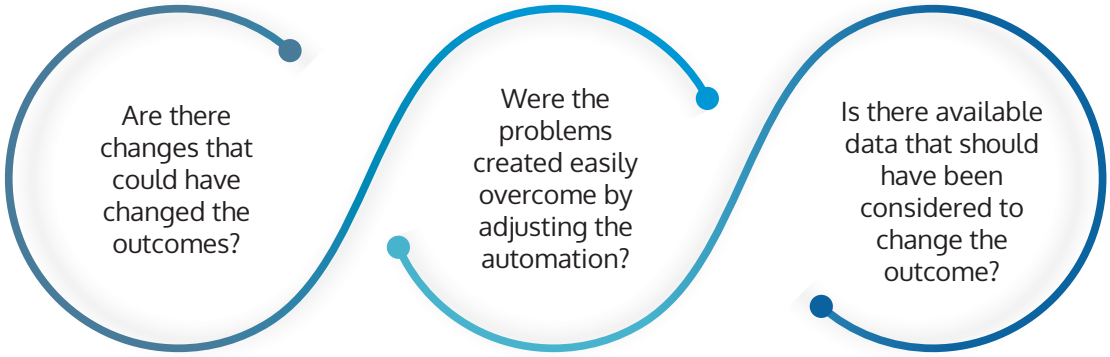
Patrick shares that some organizations are of the opinion that self-healing networks are a "nice idea" but are a long way away from being mainstream. Patrick's advisory services enable organizations to quantify the financial value of automation and that automation that leverages AI/ML and generative AI will result in more robust automations. Organizations discover that generative AI may enable them to meet quality of service goals and ensure the viability of increasingly complex networks

Implementing Advanced Automations

- Create a transformative roadmap. Go beyond standard, simple automation. Start small in new areas applying basic automation to repetitive back office processes, use mature, simple tools.
- Let the teams learn from multiple automations so they can learn what good looks like and learn from the experience what they will do when moving to more complex implementations.
- Examine existing automations and investigate both upstream and downstream issues arising from the automation to develop a full and accurate picture and then identify and prioritize the *next set* of automations.
- Develop a closed loop decisioning processes. Measure projects against a range of goals which include near term savings as well as big picture corporate goals and industry mandates, like self-healing.
- Create a robust feedback loop to track impact and compare projects

Resolving Conflicts

The results of some automation projects may present negative downstream implications for future projects that are under consideration. Resolving these conflicts is important and requires inspection. Patrick advises that you ask these questions:



Game changing automation requires managed pilots followed by conflict resolution.

The Vitria Point of View on Automation

We believe that the network is a superpower for successful enterprises - especially telcos. Reach, speed, efficiency, flexibility, standardization, reliability are critical and can be achieved with good design and good automated operations. The design enables telcos to leverage the latest innovations in hardware and software like containerization, cloudification and serverless operations. Design helps telcos leverage the latest capabilities in CPU and GPU processing to drive down costs and be efficient. Adopting standards enables the rapid implementation of leading edge technologies. Standards for 5G, wireline, SSD WAN contribute to flexibility. Standards drive highly desirable compatibility while simplifying complexity.

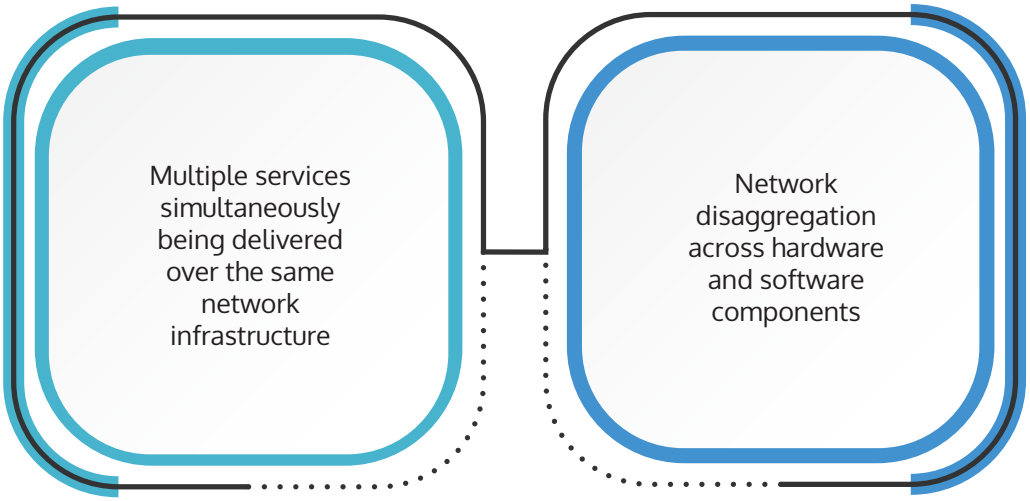
The other component – automated operations – is the foundation of effective and efficient network operations. This is where AIOps, specifically VIA AIOps by Vitria, makes a big contribution. VIA automates the collection and refinement of data from the service delivery network and transforms the data into insights proven to deliver financial value.

VIA AIOPs combines both the human intelligence of skilled network operators with the machine intelligence delivered by VIA's algorithms and software. VIA delivers insights – expected and unexpected – which are used to automate more tasks and manage them faster even in diverse and complex network designs.

How is VIA different from fault management tools?

There are significant differences between AIOps and legacy fault management, performance management and OSS tools. Consider the significant human dimension of network operations which is represented by a high concentration of skilled engineers operating complex networks. Insights provided by VIA AIOps offer reliable ways to correct faults the first time they are seen and then prompts the action to be taken again, under similar conditions.

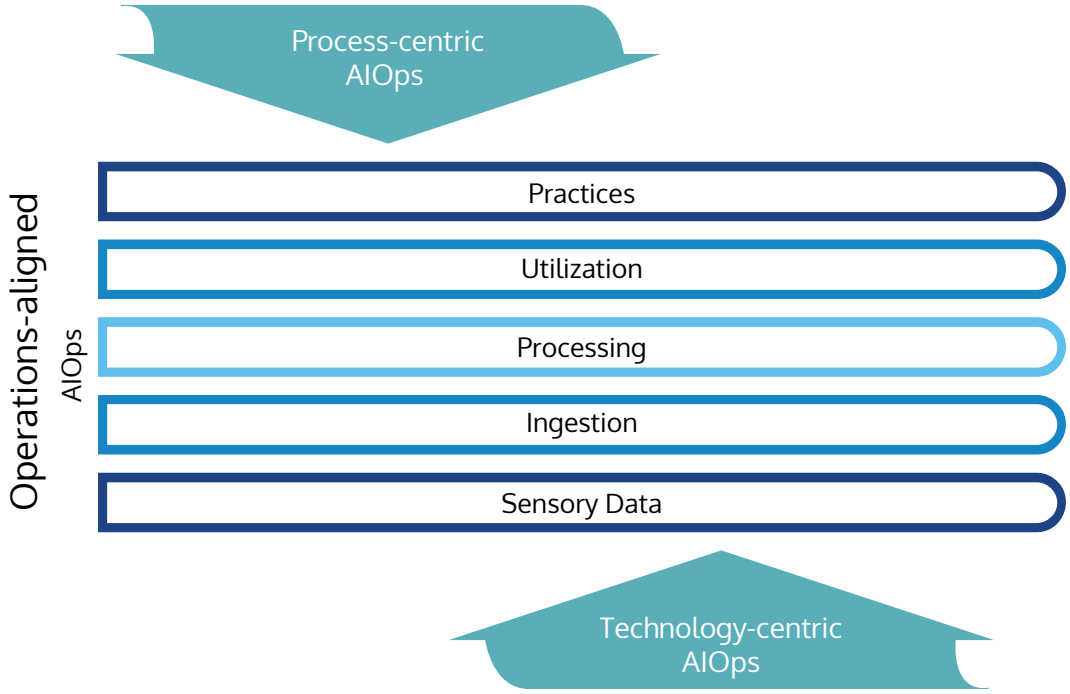
Another advantage of VIA AIOps is that it reliably identifies, prioritizes, and differentiates symptoms from root causes in the network. There are historically two factors that increase the difficulty of identifying root cause:



For root cause failures VIA can assess the impact of automating response and correction on services. Understanding which service is being impacted is critical to resolution. Trusted automation requires knowledge of how a fault is impacting service and which populations are specifically affected.

Three Dimension of AIOps

VIA AIOps delivers this automation in a low code, no code environment. There are three dimensions that explain deployment considerations. VIA adds value in all three dimensions.



1. Technology centric AIOps relies on monitoring technologies as its foundation. Here the focus is the data itself – moving from ingestion, interpretation, enrichment and finally presenting the insights so operations can act.
2. Outcome centric AIOps incorporates how the data will be used in support of the business and how the data will drive decisions.
3. The operational alignment provides a reference architecture to focus on each tier of functionality horizontally, across a plane.

Approaching AIOps by combining these three dimensions enables an organization to identify useful data from all devices including performance measures, telemetry, and fault reports. VIA transforms raw data into meaningful signals for a big picture view of the service experience. The business value of process centric AIOps is delivered through use case and policy creation. Taking this approach delivers benefits and enables coordination of responsibility and actions to users across the organization. This three tier approach provides transformative capabilities that increase the financial value of the automation.

There are many use cases that benefit from implementing VIA for AIOps. One striking example is maintenance intelligence. Here operations receive insights about how planned network changes are impacting populations of subscribers. When a planned maintenance activity results in unexpected impact to the service experience, the operations team is notified. Notification includes the impacted location and subscriber population. With minimal effort, operations can determine the best fix agent and prescribe the required actions to quickly resolve the issue.

Summary

VIA AIOps provides the number one capability your subscribers want – they want you to communicate to them that something is broken and being addressed instead of them sending a digital SOS to let you know that something is wrong. VIA provides a critical lever to transform network operations. VIA provides the ability to discriminate symptoms from root causes and prescribes next steps that include a combination of manual actions and automated actions all based on impact to subscriber populations.

About VIA AIOps

VIA AIOps delivers the process automation capabilities to shorten the incident lifecycle and improve the overall service experience. VIA's total ecosystem observability, internet-scale noise reduction, machine learning based anomaly detection, and cross silo correlation transforms and optimizes operational practices. The result is lower costs, superior customer experience, and augmented intelligence to support a more efficient and effective operational staff.