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Intelligent Automation through Crowdsourcing + AIOps

By: [Travis Ewert](#), [Tim Masse](#)

Most network operators are drowning in data. It arrives 24/7/365 via a multiplicity of often disparate systems and sources from across the enterprise. Amid this deluge, how do network operators sort through the clutter and create a user experience that integrates the most sophisticated data collection and holistic intelligence gathering techniques? How do they use measurement techniques and analytics to sharpen the tools in their toolset?

In an ideal scenario, network operators can customize which data and algorithms to use—and then take definitive action. The process removes the vagaries of the human element by detecting and resolving issues before they affect customers, ultimately improving the customer experience.

But it's no easy task. To get there, enterprises and small businesses alike are relying on crowdsourcing more than ever; it's no longer just the province of start-ups and tech-minded companies. For a quick primer, crowdsourcing is the practice of obtaining information or data by enlisting the services of many people and networked resources. The value in crowdsourcing is that the knowledge gleaned from combining these disparate sources is greater than the sum of its parts.

Crowdsourcing can be used to cast an even wider net. The ability to gather intelligence from a universe of individually monitored networks and the collected data from their millions and



millions of network ports and services would be tremendously valuable. How can network operations leaders access the collective results and learnings from those operators deploying and managing the largest networks on the planet, as well as those suppliers involved with building and supporting the same?



Figure 1: The power of crowdsourcing

Bridging the gap

Crowdsourcing approaches would help network operators to gain the intelligence to better detect and resolve issues before the network or service breaks. This presents a huge advantage. Consider a scenario in which a community of network operators of all sizes and market segments collects and develops vast quantities of data and analytics. Their largest suppliers would do (and offer) the same. All this would contribute to the proposed crowdsourcing.

Enabling this level of introspection is AIOps (shorthand for artificial intelligence for IT operations). AIOps platforms, per Gartner, “utilize big data, modern machine learning and other advanced analytics technologies to directly and indirectly enhance IT operations (monitoring, automation and service desk functions) with proactive, personal and dynamic insight.” AIOps platforms then enable the concurrent use of multiple data sources, data collection methods, analytical (real-time and deep) technologies and presentation technologies. Desired outcomes include automation-driven insights that yield continuous improvements and fixes or, alternatively, continuous integration and deployment (CI/CD) for core IT functions. As a result, the better the AIOps tooling an operator has to make the data ‘actionable,’ the better the opportunity for predicting and resolving issues ahead of time—or to ‘fix it fast’ if an issue occurs.

As in nearly every case when it comes to autonomous networking within the enterprise, AIOps is dependent on data as the fundamental requirement to success: the more meaningful and accurate the data you have access to, the better your analytics-driven automation becomes. In this case, network operators are leveraging access to diverse and meaningful data (through crowdsourcing) as the input to their AIOps frameworks. The result is an industry-differentiated approach to improve the customer experience.

Picking out the proverbial needle in the haystack to decide whether a data-driven decision is neutral or potentially damaging to uninterrupted operations remains an omnipresent challenge. Using the crowdsourcing + AIOps model, network operators are gifted with the ability to observe and correlate the data to what really matters: decisioning that is considered immediately 'actionable' and automates answers and remediation or fixes back to the network operator. See Figure 2.

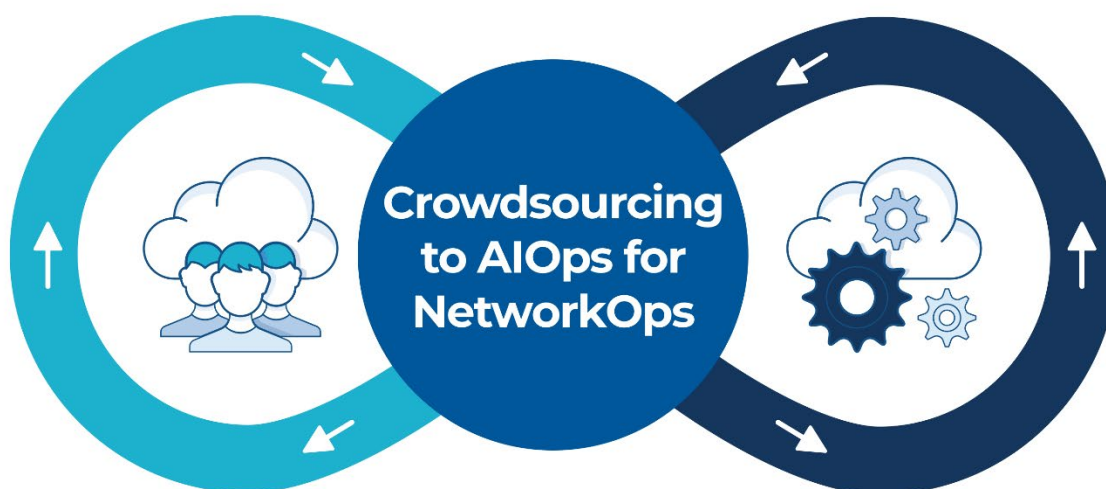


Figure 2: The Crowdsourcing + AIOps Model

The new NetworkOps workflow

Within network operator environments today, most network operating center (NOC) technicians are still 'eyes on glass' watching alarms, logs, and other consoles, waiting for something to malfunction. In this way, operators are relying on an otherwise proven methodology their predecessors used: base-level alarming and active polling that takes an 'are you there?' based approach to network and service assurance visibility. Additionally, the life of the NOC tech has been further complicated, as they are expected to manage brownfield networks with legacy infrastructure and greenfield networks with the latest next-generation technologies. The result is that NOCs (and their operators, of course) respond reactively, waiting and watching for something to break (hopefully before the customer sees the issue first), by directly accessing

network elements or disparate network or element management systems—and hoping they can restore service in a timely fashion.

Imagine an alternative narrative to constant ‘eyes on glass’ and a reactive approach to network health—intelligent automation through crowdsourcing + AIOps—where all critical data is collected and analyzed for real-time or trending (predicted) action. (See Figure 3 on next page)

This ‘actionability’ needs to be defined upfront by the operator according to their network and customer SLAs. This is required for both real-time failures and proactive or predictive responses. It is accomplished with advanced analytics that can be operator or even end-customer defined. These analytics need to be baselined against the original service intent (golden configuration), against performance, and done so at original development of the service or a change thereafter.

The objective is to get eyeballs off the screen and move away from watching alarm lists, system log data and multiple disparate NMS. In essence, it is getting humans away from looking at events; if you know what you’re looking for, you can automate it. Further, the more advanced the data and related AIOps algorithms, the more that can be detected, analyzed, and possibly auto-resolved before a human needs to do something. When fed with the best data, this model yields a NetworkOps workflow that reflects intelligent automation that is ‘telling’ network technicians what happened, what needs to be done and where (for those issues not already automatically remediated). In other words, when you adopt a proactive methodology for your network environment, there is only upside.



Figure 3: Intelligent Automation through Crowdsourcing + AIOps

The case for proactive service assurance

The confluence of intelligent automation and NetworkOps workflow not only results in better insight and actionability, but also a more consistent and proportional response from network operators on behalf of their organization and, in turn, the customers they serve. Here's how:

Amplifies proactive vs. reactive handling: Identifying an acute problem before it becomes chronic and interrupts workflows nearly always results in a better outcome for everyone: internal resources, stakeholders, and customers alike.

Drives down the cost of credits paid out from missed SLAs. Customers expect you to meet the SLAs they've paid for. If you miss that target—in most cases just once—they not only begin to question your ability to deliver against them but also whether they made the right choice to partner with your organization in the first place.

Creates a less stressful work environment. Having NOC personnel plugged into your network, taking its pulse, and adapting quickly and uniformly to changes as required results in a less-anxious, less-pressurized workplace for them—and you.

Improves the customer experience. This is the goal of everything we do—whether we're in the front office crunching numbers or sitting in the NOC and keeping an eye on our customers' environments. If the customer knows they can depend on us, the rest typically falls into place.

To reiterate, as more proactive issues can be resolved prior to a service interruption, the number of reactive issues trends downward. This allows for controlled maintenance work that is meaningful while resulting in fewer outages, less overtime and improved customer satisfaction.

Looking forward: the future's new operating model

So, how will NetworkOps evolve over the next decade to improve the customer experience? Ultimately, this combination of crowdsourcing + AIOps will enable network operators to have at their disposal the best and most meaningful data, utilizing the best practices for resolving proactive and reactive troubles, as leveraged by their AIOps automation frameworks. The result gets human hands off the keyboard and human eyes off the glass—and preserves the integrity, quality, and reliability of the expected customer experience.

It's also likely to save the sanity of network operators everywhere.