AIOps is Helping Break Down DevOps Silos at KPN

We recently caught up with Arnold Hoogerwerf, Chief Product Owner Software Tooling at KPN to learn more about how artificial intelligence for IT operations (AIOps) is impacting the future of IT ops at this leading Dutch telecommunications company.

In the Q and A below, Arnold shared with us how AIOps is helping breakdown DevOps silos and providing insight into the business process as a whole. KPN deals with such large volumes of digital data that humans are hardly capable anymore to analyze it without the help of technology. This is where AI and machine learning come into play by helping analyze huge amounts of current and historical data, not only from the affected environment but also from related environments. AIOps helps drill down to the probable cause of the problem much faster than most humans. In a perfect world it could even warn for an event that normally would turn into a problem.

Why traditional approaches to IT ops monitoring aren't working anymore?

We are moving into the era of DevOps, in which "Dev" means "fail fast" and "Ops" means "fail never." For this reason, we have a tremendous need for data since we are afraid we are going to fail if we don't know all the facts. In fact, we generate so much data today that humans are no longer capable of analyzing it without the help of technology.

Yet, we need to be careful of this relentless focus on data and statistics. Everything might become a statistic. In fact, that's already the case. You get search results, news, offers and so on, based on what everyone else with the same characteristics search for, read or buy. In IT ops this could be dangerous. Is a computer very busy because it's running a specific job or is it under attack? You probably need more data to tell the difference and now you're caught in a vicious circle.

In my opinion, data is not valuable. Data is fact, information is different data combined, knowledge is what you do with data, and wisdom is knowledge combined with experience and intuition. Wisdom is what we need. Could AI learn to be wise? And if so, what would become of us?

What monitoring and analytics capabilities do you need to pursue an AI and machine learning initiative?

Here are five important capabilities:

1. A monitoring and analytics environment should be able to contain one type of data, but be able to store a vast amount of data to predict the future from history.
2. It should be able to contain and integrate a multitude of different data that can be correlated to solve issues and problems.
3. It should be able to contain and integrate online and offline data. Many processes contain both IT and manual labor—for instance, the engineer fixing the Internet connection at the customer's home, or the delivery of a package to the customer.
4. The monitoring and analytics environment should be able to understand unstructured data—like spoken language or a screenshot of an error on a mobile phone—and should be able to combine that with structured data to analyze where things went wrong.
5. Finally, AI should be able to tell us where we can improve the process, even if nothing is wrong.

How can AI and machine learning help increase automation across your toolchain?

AI and machine learning help us analyze data faster and more accurately. Continuous improvement is implicit and it makes the whole chain more robust by always looking at the total picture. The result is two-fold:

1. We need less people to do the proper analyses, whether it is analyzing operational failures or accurate customer advice for instance.
2. AI or machine learning processes could automatically kick off automatic remediation processes, reply to customers questions, etc., reducing the need for human activity.

How can AI and machine learning reduce operational complexity?

Currently we have a lot of operational data in a plethora of tools and organizational silos. Anomalies detected in one environment are hardly ever correlated to a possible cause in another environment. And the opposite is true too; every silo/environment could show no anomaly—all flags are green so to speak—but the business process could still fault.

By combining raw data from all these different tools and environments, it would be possible to breakdown the silos and look at the business process as a whole. Complexity as such will not be reduced, but the way to deal with this complexity will improve tremendously.

How can AI and machine learning enable faster remediation to problems?

An incident is usually pretty straightforward, and the answer to the solution is always close at hand. AI and machine learning should be able to help prevent incidents or remediate them automatically.

A problem on the other hand is more complex (and more expensive). The actual cause of the problem could not be present or visible at first glance in the data derived from the operational tools. It usually takes days of deep investigation to find out what went wrong and why. With AI and machine learning we get extra help in the sense that it can analyze huge amounts of current and historical data, not only from the affected environment but also from related environments. It helps to drill down to the probable cause of the problem much faster than most humans. In a perfect world it could even warn for an event that normally would turn into a problem.

How can AI and machine learning help improve user experience?

User experience is difficult to pinpoint, but a no-failure, fast and customer-tailored service is definitely part of it. Here are a couple of examples of how KPN is working with AI and machine learning to deliver a fast and customer-tailored service:

- We've been using AI and machine learning in the customer service process since 2017, and today, we are using these technologies in one of our applications. This application analyzes patterns of customer behavior to come up with the best possible advice or look at current service outages to learn how to solve them quickly. This application is still in a closed environment where it is "trained" with real-life scenarios and outages.
- We organize hackathons, and one of the outcomes was a neural network that scans contract documents in our business market to come up with the best possible renewal offer.

We also closely cooperate with and invest in fundamental research at two universities in the area of AI and quantum computing.

How does the organizational structure evolve with the impact of AI and machine learning?

This is a tough question to answer because our organization is evolving and changing in so many different ways because of technology and market influences that it is hard to say what the impact of one technology would be on that change. But this emerging field is certainly very important to us. In fact, so much so that we have a separate division for data and analytics that also incorporates AI and machine learning.

Personally, I think the impact will be that we will employ fewer people and that a lot of the people that we will employ will have to be more knowledgeable. AI and machine learning will take over more of the simpler administrative and customer service tasks, and people will focus on the more complex tasks or developing the proper algorithms and models.

Where do you recommend others start their journey?

Since AIOps is a fast-evolving area I think that it would be a good idea to have a least a group in the company that really dives into this. Look at what really drives your business and think about how AI and machine learning could support that. And then experiment.

Arnold Hoogerwerf, Chief Product Owner Software Tooling, KPN

Arnold is currently Chief Product Owner at KPN, which is a leading supplier of ICT services, ranging from prepaid call services, Internet and IoT, to interactive HD television in the Netherlands. At KPN he is concerned with simplifying the software tooling landscape, software tooling strategy and governance, and responsible for the software cost savings program. Recently, he also became responsible for the KPN ICT Policy. The KPN ICT Policy defines the ground rules for all ICT activities within KPN (including affiliates), in order to have a secure, effective and efficient ICT environment in line with the KPN strategy. His educational and work background gives him wide experience and knowledge in various fields of expertise, ranging from HR and ICT, to finance and telecom, management and coaching, operations and strategy, development and innovation, facilitation and co-creation.

Get more insights on how CA can help guide you in your **AIOps** journey.

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