Sayantek Q&A: Building vision AI solutions at the edge

We recently sat down with Murali Singamsetty, co-founder and CEO of Sayantek, to discuss the nature of building AI solutions at the edge and to get his perspective on upcoming developments in edge computing. Sayantek provides a low-code platform for building software applications at the edge.

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Introduction

Edge computing is a key enabler for application developers, particularly in real-time analytics and IoT use cases. IT can enhance user experience for existing applications (e.g., by reducing lag and jitter) and enable differentiation of their offering in the market. STL Partners have recently published a report looking at how developers can capitalize on these developments.

One promising application of edge computing is in the artificial intelligence (AI) domain. Devices would be able to make autonomous decisions in milliseconds without needing to connect to the cloud by processing AI algorithms locally on the device or on a server nearer to the device. AI solutions for the edge improve the speed and security of data processing and associated decision-making, all while improving user experience and lowering costs.

We sat down with Murali Singamsetty, co-founder and CEO of Sayantek, to discuss the nature of building AI solutions for the edge and to get his perspective on upcoming developments in edge computing.

What are the current use cases for Sayantek's technology?

When we looked at the various market opportunities, we identified that video processing at the edge is the use case with the biggest growth potential, at least for the industrial sector. Computer vision can really benefit from edge processing and the ability to automate and scale.

We're currently focusing on two operational use cases. The first is personal safety – for instance, PPE compliance monitoring, geofencing, and detection of hazards like fires or chemical leaks. The second is food safety – monitoring temperature and other environmental conditions during production and packaging to reduce food spoilage. Both types of operations are currently very costly – food safety incidents in the US alone cost 7 billion USD – but there hasn't been much technology penetration in these industries. Most companies still carry out these inspection processes manually, but because they're trying to carry them out at scale and because these operations require specialised training and skills, they become very susceptible to human error. Automating with computer vision can realise significant efficiency improvements in these domains.

Can you tell me about one use case in a bit more detail?

Let's take an example of using computer vision from the oil and gas industry: detecting and monitoring flares. To comply with regulations (e.g. EPA), the flare stack needs to be monitored during the drilling process. Collect these video feeds and sending them to the cloud to process in real time is not cost-effective or scalable in its performance. Instead, what you want is to process the videos at the edge and then collect the insights – the state of the flare stack and the composition of the various gases produced, for example – to send to the cloud, at which point you can do visualisations or alert the operator if necessary. This can be implemented with an architecture where you integrate two carefully designed systems, one for the cloud and one for the edge. By using Sayantek technology, you can implement everything as a single scalable dataflow.

Who are Sayantek's primary customers?

Sayantek uses low code programming – which aims to enable edge applications to be used even by smaller enterprises, with a smaller technical team. We hope to empower developers, IT knowledge workers, and non-IT subject matter experts equally to put together solutions themselves. Low-code means employees in these enterprises can now directly create applications themselves using the pre-built templates and drag-and-drop components, which means that off-the-shelf application development no longer requires having a team of software developers. That is a cost saving that can be realised by both small and large enterprises.

What are some of the key challenges that you've experienced or that you anticipate experiencing with delivering AI at the edge?

The challenge with building AI solutions really starts with understanding the problem. To understand the problem, it's important to do prototyping and instrumentation, some data, see where the bottlenecks are in their current processes, and think about how these issues can be addressed using machine learning and AI.

In some use cases, like the PPE example mentioned earlier, machine vision applications can be readily developed with models that are openly available, and thus have value propositions that are easily communicable. However, some larger enterprises might be looking for solutions that are very specific to their environment and processes. There aren't many off-the-shelf tools that they can use, and third-party IT solution providers don't necessarily have the domain expertise to develop these solutions.

What is the biggest challenge facing the edge industry today?

The edge is very fragmented. There are many legacy systems, especially in industrial IoT, and you often see a mix of standard and proprietary interfaces. On top of these varying standards and connectivity options, you've got variations in environments and systems from customer to customer. This creates a lot of complexity and fragmentation that is extremely challenging to deal with.

We found that most of the platforms are cloud-centric, where the edge is just an enablement layer, onboarding devices and sensors but then shepherding all that data to the cloud. To avoid having to deal with this complexity, early software platforms that implemented IoT tended to address the common aspects of IoT, which were easily done in the cloud. However, we realised that there is a need for a flexible edge platform that can horizontally scale from industry vertical to industry vertical, that can bring all these fragmented pieces together and perform a variety of IoT functions like onboarding, data collection, pre-processing, and aggregation, and then shepherd the final usable data or insight to the cloud.

How does 5G impact edge computing?

I think that 5G and other advances in network technologies will provide more avenues for integrating IoT into the network. I see network technologies driving the evolution and adoption of automation in every type of business and bringing more relevance to edge native applications or application infrastructures.

There's a lot of excitement among telecoms operators about edge computing – where do you think the opportunities for telcos lie?

The telecoms industry tends to look at edge as an infrastructure layer to develop, basically trying to mimic the cloud environment at the mobile edge; there's a lot of focus on latency and how edge will help address latency issues. But that only applies to a handful of use cases. For the vast majority of edge native applications, the key challenge is dealing with the complexity that comes with being so close to on-prem systems.

Telecoms operators should look at how to simplify things for the customer. Cloud has an advantage here because there are common standards and approaches that work for many industries. It doesn't have as much complexity as the edge does. Infrastructure-as-a-Service is a highly scalable proposition for the cloud but not so much for the edge. For edge, you really need to bring in Platform-as-a-Service – that aspect of hiding the complexities of the edge and being able to provide tools to develop applications.

Many thanks to Murali Singamsetty and Sanjay Wanzakhade from Sayantek for this interview:

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