



## IOT INSIGHTS REPORT:

# Application Management and DaaS

with **Tushar Sachdev**, Executive Vice President and Chief Technology Officer,  
and **William Sandoval**, Vice President and General Manager Location-Based Services

**Tushar Sachdev** serves as Chief Technology Officer, where he oversees current technology and sets KORE's future technology vision, strategy, and roadmap. Tushar has more than 20 years of experience in technology and product development at companies including Mastek, Infosys, and PRGX-- where he served as Chief Information Officer. Tushar has developed SaaS-based software platforms and data analytics capabilities to serve more than 300 customers worldwide, including thousands of suppliers. Prior to PRGX, Tushar was client relationship owner for Fortune 500 clients in the retail, manufacturing, utilities, end-of-life care, and oil & gas industries. Tushar has established himself as a thought leader in Data Management by successfully leading complex business transformation programs resulting in clear market differentiation from competitors. In 2017, Tushar was named CIO of the Year by the Georgia CIO Leadership Association.

**William Sandoval** has a rich history of developing and implementing successful IoT strategies for many well-known global companies including Ingersoll Rand, Honeywell, and Philips Lighting. His deep Product Management experience spans many core competencies such as analysis of market trends, competitive strategy, geographic expansion, voice of customer and user experience, product profitability, and business case development.

### Q1: We're here today to talk about IoT solutions. What role does the application layer play in the IoT ecosystem?

**TUSHAR:**

The application management layer is the heart of an IoT solution. It is the glue that allows you to make operational decisions and better manage your business. If you are implementing a fleet management solution, applications will tell you where your vehicles are, provide insight on your driver behavior, report on fuel efficiency, and more. With an industrial application that monitors generators, applications can report performance data and recommend preventive maintenance.

**WILLIAM:**

The application management layer is the most critical layer. This is partially because it is the element that most business users interact with. If you look at this from a stack perspective, it starts with a device which sends data into the cloud, but users rarely interact with that layer. It is the applications which provide visibility into data, information, and enable actions to improve business operations. IoT applications can either make or break a business. Without application management, users cannot visualize and understand the information.

**Q2: Can you briefly describe what is meant by application management?****WILLIAM:**

Application management in the context of an IoT deployment is the layer above the devices and the data. It is the computational area where business users interact with the devices and data. Application management means being able to retrieve the data, process it, manage it, and convert it into usable information that organizations use to make decisions or initiate processes.

With the growing number of IoT devices generating an increasing amount of data, a lot can be done with that data. These applications require the right technology to manage them properly, and more importantly, to be able to manage the output that comes from these applications.

**TUSHAR:**

In the IoT ecosystem, the application consists of decision support techniques that enable organizations to assess what is happening with a device and then take action. For example, a car may have physical devices attached to sensors that collect information such as its speed and location. In an industrial application, you might measure the temperature of equipment, and then regulate the temperature through an actuator.

So now you can assess what is going on with that physical thing in the car or the industrial equipment, and then make a decision. Depending on the use case, the decision may be made in the ERP system, saying "okay, we will change an ordering mechanism, or we'll regulate the inventory in a particular way." Or it can be a decision which is fed back to the actuator which will act on the piece of equipment saying "I think it's about time you changed the temperature threshold from A to B."

**Q3: What are the emerging approaches for application development?****WILLIAM:**

The application management layer is not just about management, but the ability to create business solutions. One trend we are seeing is that the market is shifting from one-size-fits-all applications, to applications that are specific to each vertical and use case. Customers come to us with very specific needs, which require custom, sophisticated application design and implementation.

**TUSHAR:**

If you look at application management, it all starts with a use case or a challenge definition. If the definition of the challenge is clear, then ready-made, purpose-built applications in the market will solve the problem. Fleet tracking, for example, is a very well-defined use case with clear challenges, solutions, and metrics, with purpose-built applications.

In some industries, however, the use case and value are clear, but the metrics are not. One example is the business of tracking human donor organs – a very unique use case. If you just need to track the delivery location, the best approach is to use APIs available from the application management platform to provide the latitude and longitude through GPS technology. However, if you need to monitor the health of the organ in transit, you need to build a very use case specific application.

**WILLIAM:**

There are tools available now to make it easier for someone to build applications on top of a foundational piece like GPS. It is similar to when websites first started appearing. Back then, in order to build a website, you had to go to a specialist or a company that actually knew how to build websites. Now anyone can go into Best Buy or download Dreamweaver online and create a website with some very sophisticated tools.

Similarly, in application management, there will continue to be the need for sophisticated application design and implementation, but tools are now becoming more available for organizations that want to create a specific type of application for their industry and their customers.

**Q3: How can IoT organizations integrate new IoT solutions into their existing platforms, applications and back-office systems?****TUSHAR:**

It depends on the use-case, but open architecture and APIs are key to integrating IoT solutions with existing systems. In some cases, it is as simple as providing a feed from a sensor into an end system. In other scenarios, such as a ticketing system, computations may be required. For example, a refrigerator in the field may be reporting temperature and pressure anomalies. Computations determine that the temperature is below a certain threshold, which triggers a ticket. Purpose-built applications, such as a fleet management application, might require integrations with an ERP system to perform computations and deliver business insights.

**Q4: How can an open-architecture approach accelerate the development of new and proprietary applications?****TUSHAR:**

With an open, API-based architecture, you can plug into other purpose-built applications and create solutions for unique use cases. If you want to track your fleet and you want to know where your drivers are, it's simple – you build an application and you're done with it. This becomes more challenging when businesses want to track different things, such as pets or human organs.

Industrial IoT applications are a good example of where downstream data needs can vary, necessitating an open architecture that allows for plugging in purpose-built applications on top of the platform. An open architecture will always be more beneficial than a monolithic application built on top of the sensor data.

**Q5: What are the challenges for organizations who set out to build their own applications? How can experienced IoT partners alleviate those challenges?****TUSHAR:**

As organizations plan an IoT project, there are often many aspects that are not considered in advance which creates challenges. Building a proof-of-concept (POC) version is valuable, but it is not enough. You need to understand the maturity of the devices and you need to understand how to integrate these devices in a seamless way. In addition, these devices will have new versions of software deployed and there will be new generations of the devices themselves. Then the application architecture itself needs to be flexible, modular, and built with an API-based architecture to be able to build robust applications.

This is where experienced IoT partners can add a great deal of value. A fleet business or a manufacturer should not be burdened with the nuances of IoT. They want to focus on their own business. They want innovation, and they are asking questions such as "how do I improve my manufacturing process?" or "how do I increase the fuel efficiency of my fleet?" They want to run their business better, and too often they get lost into the world of dealing with different hardware, configurations, data feeds, payloads, and connectivity options. These complexities can be more efficiently and effectively handled by an experienced IoT solutions provider.

**WILLIAM:**

One of the biggest challenges we see every day is that most organizations begin IoT projects with just an idea. To Tushar's point, moving from an idea or POC to an actual implementation and commercialization of a product, solution, or service is extremely difficult. This is especially true on the application side, where there are a lot of details that most companies do not think through completely. They do not always have the internal expertise to go from an idea to an actual market-ready product requirement. Over the years, we have put processes in place to help them develop applications they really need and remove the complexities of IoT.

We recommend starting with a stage-gate process, first understand the idea and the business challenge you are trying to solve. In most cases, organizations are thinking of a solution, but they have not defined the problem. Next, informed by the market requirements and challenges, then develop product requirements and begin development.

**Q6: You've both referenced the data derived from IoT solutions. What are the types of IoT data that can help organizations improve business outcomes?**

In IoT use cases, there are several useful downstream data sets, such as the temperature or location examples we discussed earlier. However, it is important to understand the scale of this data. A vehicle may have 50 to 100 or more sensor inputs. Multiply that by 50,000 trucks within a fleet, and the volume rises considerably.

**TUSHAR:**

Can something go wrong here? Yes. And that's where the value of the metadata – the data about the data – becomes useful. Metadata provides insights to determine if all of the devices are connected correctly and a greater understanding of device behaviors. For example, how many packets of information are being sent each day and each hour, and is there a change in the trend? Or how many times does a session get established, and how many times does a device log in and log out? Metadata provide business value in many areas.

**Q7: According to studies, however, the data generated from IoT solutions remains largely unused. What are the primary reasons that businesses aren't fully leveraging the data?****TUSHAR:**

In many cases, it is because the organization does not have a solutions approach to IoT. As we noted earlier, building the entire end-to-end IoT strategy in advance is critical. For example, a use case to improve fleet fuel efficiency is incomplete if the downstream applications are not ready to make adjustments into the ERP system. Or, in an industrial use case, capturing temperature and pressure information is only useful if the maintenance system is ready to accept the inputs from this new source. So, unless the end-to-end use case is determined and the broadest business case built into the organization, the IoT data may be wasted.

**WILLIAM:**

Many organizations still perceive data to be in the technical realm, as opposed to looking at data from the business information realm. Due to inexperience building end-to-end IoT solutions, many organizations do not know how to transform data into business information. Many are collecting data without considering how to analyze it, which tools are needed to process it, and more importantly, if the organization has the knowledge and the right people to perform these operations.

**Q8: Could you provide examples of how organizations have gained greater business value by better utilizing their collected data?****TUSHAR:**

Just look around and you will find examples in our daily lives. Progressive Insurance was the first to put a device in cars and track locations and driver behavior, utilizing IoT data for tangible business value.

In the healthcare industry, a sleep apnea device sends a very small amount of data every day just to check if the device was switched on and off, monitoring device usage, and nothing else. This informs physicians whether the patient is regularly using the device and monitoring themselves correctly. It also helps health insurance companies figure out if there is a problem, and potential liabilities if the machine was not used.

With metadata, organizations can monitor the behavior of IoT devices. For example, if an IoT thermostat is sending a lot more data than average, then there is either a problem with the thermostat itself, or the device has been breached.

**Q9: Lastly, what should organizations look for in an IoT partner for application management and DaaS?****TUSHAR:**

From a data perspective, a strong IoT partner should be able to build a robust streaming analytics engine, built on an open scalable, modular architecture. The engine should enable organizations to monitor data, provide services on the data, and deliver insights from metadata.

**WILLIAM:**

Experience is one of the most important factors when selecting a partner. A strong partner should also provide end-to-end strategic guidance, helping organizations create long-term solutions that maximize IoT investments and transform business performance.

**Reach out to KORE today to learn how we  
can simplify the complexity of IoT for your business.**

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