Gateway to IoT Innovation:
The $10 Trillion IoT Opportunity

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The Internet of Things (IoT) market is at a pivotal point. It constitutes a tremendous opportunity for network and service providers, with some market forecasters predicting a more than 300 percent increase in connected devices coming online between now and 2030. That equates to nearly 30 million devices and a $10 trillion market size encompassing many industry verticals. But the question remains whether network service providers will seize the IoT opportunity to move up the value chain by providing more value and helping their customers transform.

There's a similar historical comparison between the current IoT market and past smartphone opportunity. The advent of 4G and the smartphone added intelligence to the device, upon which other services could be layered. Service providers at the time were focused on providing as many connectivity services and data plans as they could. And it was a good business for a while. But then the network, connectivity and services became commoditized leading to high rates of churn and fierce competition. In the end, even though the service providers owned the network, connectivity and direct-customer relationships, the lion's share of the smartphone opportunity was snatched by third-party application and data-service providers, while they were left holding the bag on the multi-year network cost and customer care side of the equation.

Now with IoT, network service providers are again presented with a monumental opportunity to ascend the innovation stack. Similar to the smartphone model, the IoT business model for service providers currently centers around the device connectivity, data plan, and the SIM card. This is a significant opportunity today, but it's already a highly competitive commodity business. However, their customer relationships give them an advantage, and many service providers are looking for ways to provide more business value to their customers, who are also looking to receive more value from their service provider. It's an opportunity ripe for the taking, and one where everyone wins.

The Intelligent IoT Enterprise Opportunity

Enterprise adoption of connected devices is accelerating at a rapid rate, and business operations are becoming increasingly digitized. Enterprises today are also becoming increasingly distributed, with users, endpoints, and applications spread across various locations and cloud environments. Managing the complexity and making operational decisions is becoming more challenging as a result. These enterprises, particularly Small-to-Medium Businesses (SMBs), are looking for tools and expertise to help them transform and harness the potential of IoT.

IoT devices and sensors provide a wealth of data that can be used to deliver business insights and make better, more informed operational decisions. It also can be used to provide greater intelligence and unlock the power of AI analytics and automation. This is where the real opportunity lies for service providers, to provide powerful tools that simplify the complexity of IoT and provide more business value to their customers.

The value of IoT resides in its ability to link the physical and digital worlds. Tens of millions of connected devices and sensors are collecting data across a multitude of different industries. Whether it's a factory, farm, a store, or retail establishment — IoT represents real things that collect important, even critical, business information. These data can have a significant impact to operations, costs, and even regulatory or legal implications. But to date, it has largely been up to the end user to figure out how to collect, analyze, and make use of this business-critical information.

Pipeline had the opportunity to explore this topic with the Chief Technology Officer of RAD, Sharon Rozov, who has been tracking this trend for the last decade. RAD offers carrier-grade IoT solutions and has been helping its customers transform to better serve their enterprise customers for over 40 years.

"Take a small grocery store for example," Rozov told *Pipeline*. "Today's IoT solutions offer actuators with sensors that can monitor changes in temperature, humidity, and even refrigerator door sensors to track state an abnormal movement. CSPs are looking to harness the devices, data, and sensors to create tailored IoT solutions to help these SMBs. Grocery store owners don't want and can't handle the complexity of designing and deploying the underlying network and compute solution, and this is a real opportunity for service providers to provide more value to their SMB customers." Rozov went on to add RAD is working with service providers to build tailored industry IoT solutions that help eliminate technical complexity and provide store owners with access to their device data anytime and anywhere. But that's really just the beginning.

The larger opportunity lies in the ability to replicate success across industry verticals. By leveraging their customer relationships, they can create tailored IoT industry-specific use cases that would apply to large swaths of customer segments. They can then leverage their other customer relationships in the same industry to duplicate the success with minimal effort.

"Service providers have long-standing relationships with their customers and are very good at replicating success," Rozov noted. "With each implementation the solution gets better, incorporates collective customer value, and becomes easier to implement."

The connectivity layer represents the smallest and most competitive piece of the IoT pie, where cost and customer experience are the primary differentiators. Providing the connectivity may be the opportunity today, but to capitalize on IoT growth and innovation service providers will need to become a trusted technology partner and provide more strategic value to their customers to help them succeed. Technology providers like RAD are helping service providers understand their customers' unique needs to build industry-specific services that can help them go well beyond just providing them with the SIM, data plan, and connectivity service.

"Small and medium businesses typically don't have the wealth of resources or IT expertise that larger enterprises have to be able to transform," Rozov stated. "Service providers can strengthen their existing customer relationships and provide more value by better understanding their customers, building innovative industry platforms that help simplify and streamline IoT transformation." The only question is, how?

Key Components of Intelligent IoT

At the heart of the opportunity for network service providers lies the fact that IoT is making the shift to intelligent IoT, with IoT gateways playing an integral role. IoT gateways provide the mechanism to collect, analyze, and present IoT data — at the edge, in the cloud, or both, depending on the use case. Similar to the smartphone opportunity above, the IoT gateway opens the door to Intelligent IoT by enabling applications that can extend service providers' value proposition.

At the IoT far edge, gateways can host a range of applications and perform edge-compute functions that provide SMBs and enterprises with keen business insights, analytics, and automation. These applications can optimize networks, improve resiliency and performance, and improve cybersecurity.

"Going back to the grocery store example, if a store owner is collecting video footage and doesn't want to send large amounts of video data in real time over the network, they could use motion detection and edge computing capabilities at the IoT edge to analyze the footage and only send the video to the cloud when motion was detected, saving cost and improving bandwidth usage," Rozov added.

IoT sensors have small footprints with limited operating systems that make them prone to cyberattacks. IoT sensors also stand alone in a network without a human user that can recognize malware and other familiar cybersecurity risks. IoT gateways like those from RAD enable leading cybersecurity applications such as threat and anomaly detection to be distributed on the edge of the IoT network to detect and mitigate threats in real-time so that they don't propagate across the rest of the network, organization, or beyond. Getting this wrong can have a crippling impact on a business, and the risk is very real. In 2016 we witnessed this when as many as 100,000 remote video cameras and DVRs with poor security were turned into botnet drones to conduct a massive DDoS attack against DNS provider Dyn, bringing down an estimated 1,200 domains, including Amazon, Etsy, GitHub, Paypal, Shopify, Twitter, and the New York Times.

In addition, intelligent IoT gateways provide the foundation for artificial intelligence (AI) analytics and automation. By leveraging the gateway to transfer data to the public cloud, AI and analytics can be applied. This information can then be provided to the IoT platform where it can be distilled into relevant business insights on an IoT dashboard that customers can access from anywhere at any time to make better business decisions.

The IoT ecosystem is broad and complex and can exceed the SMB, enterprise, and even the service provider's expertise. This is where technology providers like RAD come in. RAD is combining the IoT sensors, gateways, platforms, applications, and dashboards into a holistic, intelligent IoT platform for service providers with zero-touch installation and tools to easily customize the platform for different industry use cases.

"At RAD, we're bringing all the pieces together for service providers to provide an end-to-end IoT solution," Rozov commented. "We're combining all the relevant components — such as the sensors, gateways, and dashboards — and gift wrapping them for new SMB use cases."

Intelligent IoT platform providers like RAD provide the foundation on which innovative applications can be built. A transition to a cohesive, outcome-based model also allows telcos to prioritize cybersecurity, flexibility, and resiliency as part of their IoT offering. This provides network service providers the means to ascend the value chain, capitalize on both the enterprise and services growth in IoT, while forging enduring customer relationships

Gateway to IoT Innovation and Growth

As the demand for connectivity services continues to decline and becomes increasingly commoditized, network providers must ascend the innovation stack to remain relevant. As we saw with the smartphone opportunity, competing in the commodity connectivity business is a costly, hotly contested zero-sum game. The surge in IoT devices and evolution to intelligent IoT presents an opportunity for IoT service providers to ascend the value chain and deliver more value that strengthens existing customer relationships. If network providers can capitalize on intelligent IoT by building a portfolio of rich applications and services on top of their network infrastructure, they will be able to provide highly reliable, scalable, and efficient solutions that cater to diverse industry needs. These services will drive significant value for both enterprise and SMB customers.

The enterprise-service opportunity is very real, and $10 trillion is too big of an opportunity to ignore. By taking advantage of the right intelligent IoT platform, providers can seize the opportunity and prevent a repeat of the missed smartphone opportunity. More importantly, they can shift back to innovation and growth by beginning to offer truly differentiated services their customers value and depend on

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