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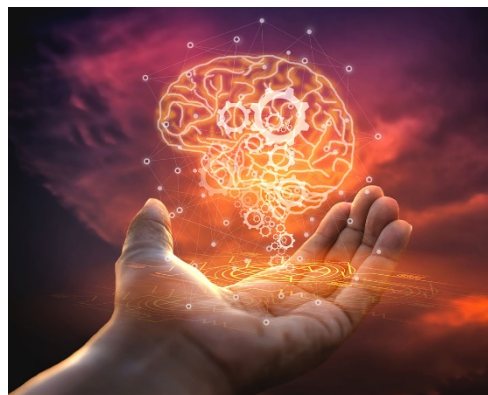
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Intelligent Broadband Operations

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Think back to the last time you had to call your Internet service provider. Were you delighted by the experience? Or did the experience leave you wanting to cancel your service, just so you never had to go through the process or speak to them again? The smart money is on the latter.

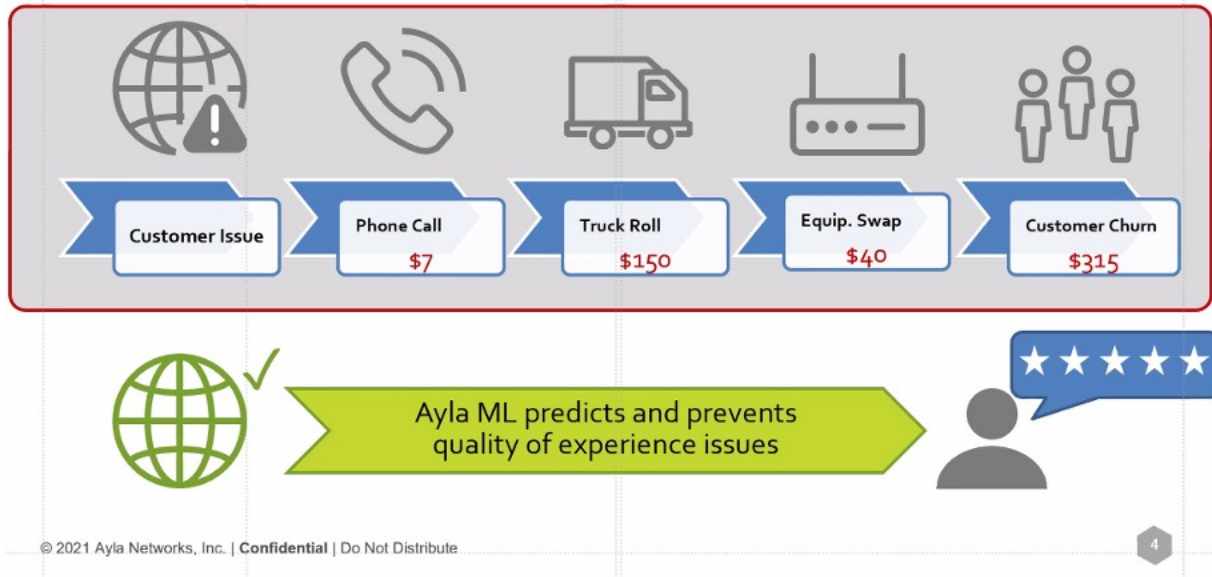
Unfortunately, we have only grown more dependent on connectivity and the devices it connects in our homes. The last 10 years has seen an explosion in the growth of the Internet of Things (IoT), in three distinct phases. In the first phase, previously unconnected devices and assets were connected to the cloud, and hardware innovation accelerated with the creation of new chips and modules to support Wi-Fi, cellular and other evolving standards. The second phase brought about device management, app-based control of connected devices, and evolutions to device and data management. Now, the third phase is all about leveraging device data to harness actionable insights to create specific business outcomes, such as better operational efficiency and improved customer experience (CX). This explosion of connected devices, volume of data, and complexity has made the role of service providers more critical than ever.



To add to this, the pandemic created an accelerated global shift to digital transformation; as how we work, learn, and live moved online. The result? The stakes and costs are even higher for service providers, underscoring the importance to more efficiently provide better CX.

The reality is that the cost of CX failure is high. From support calls to device swaps, truck rolls to related CAPEX and OPEX, service providers can spend more than \$500 per subscriber when dealing with a persistent service issue. Figure 1 (below) tallies up the costs, and it can add up.

Use Case: Reduce Customer Support Costs and Churn



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Figure 1 – The Cost of Poor CX
[click to enlarge](#)

Service and support costs can surpass millions annually. Yet many service providers are still doing a poor job at CX. They are using outdated technology with a lack of visibility into devices and network problems. Moreover, they're still struggling to move away from an old utility mindset and culture. This is what you face when you call with a problem. And you're going to keep encountering it until something changes.

The time for a modern, analytics-powered approach to the persistent CX problem is now. The key to transforming CX and reducing operating costs lies in tapping into data to drive a new approach with a value proposition anchored in real business outcomes. These include reducing those support calls, device swaps, truck rolls, and related costs—equating to millions of dollars in savings per year. How? Let's take a closer look.

Predictive CX

Enabling next-generation, predictive, and proactive CX is ultimately about making broadband operations smarter. It starts with data and ends with tangible business outcomes. It allows service providers to identify network anomalies and performance problems and offer prescriptive solutions before customers can report a problem—and even remediate issues before they know there was a problem in the first place.

This is Ayla Networks' approach, and it's what sets us apart. With the right combination of our technology and our industry expertise, we collect and transform data via a predictive analytics model that enables detection, prediction, and resolution of highly persistent problems that frequently affect CX.

Making predictive analytics work in a service provider environment requires deep domain expertise that comes from an understanding of how home network devices work at a deep technical level. Combining artificial intelligence (AI) and IoT can be a game-changer, but only if you have the right domain expertise so that humans can design and train unsupervised models for a high level of accuracy and effectiveness.

At Ayla, we've intentionally hired for this crucial domain and technical expertise, bringing together a team with over 80 person-years of combined experience from top-tier service providers and suppliers. Our team truly understands how these devices work as well as how networks function and how they are architected. This is the human expertise that goes into building our predictive models—an augmented human layer of intelligence overlaying the AI—because AI is only as good as the programmer who builds it. We pair our data scientists with domain experts for every facet of our team, including our product experts, solution engineers, architects, and customer-facing talent.

The result is a modern, data-centric approach to delivering superior CX. When you're able to get to the root cause, have better visibility and take automated, closed-loop actions, you can provide a superior level of assurance to the customer and minimize or eliminate the kind of disruption that generates those angry, and costly, phone calls.

A new approach

To explain how the Ayla Networks approach differs, let's look at the old way of doing things. In the old days, circa the early 2000s, the [TR-069](#) standard leveraged ACS systems, developed to push software and firmware updates down to set-top boxes. The TR-069 protocol enables remote and safe configuration of home network devices and other customer premise equipment (CPE). This legacy system is still being used today, and it has become a data collection point, and many service providers are running ACS and other systems on on-premises servers. This is problematic for many reasons, among them lack of visibility and control. Yet it's the way they're handling broadband operations, even though it's rife with pitfalls.

By contrast, Ayla has developed a modern data pipeline system that makes it easy to collect, ingest and analyze device data from CPE or elsewhere in the network. It's a unique, highly scalable data model that overcomes the key challenges of the IoT—the variety, volume, and velocity of the data coming in from a vast number of connected devices. This is the first step in the differentiation of data management. The second is the building of highly predictive machine learning-based models developed by data scientists and domain experts, as noted above. Developing effective models for IoT is dependent on a deep understanding of device data enabling us to extract meaningful data intelligence. The third, once these predictive models are deployed, is managing the lifecycle of the model. Because model predictions can taper off over time, you need to factor in new variables and update algorithms to continue to perform at the highest level, an approach that treats AI and machine learning as a managed service.

This is the heart of our cloud-native, cloud-centric, AI-powered approach. What it enables for a service provider is transformative. It's the difference between attempting to be reactive to an

irate customer—requiring a truck roll and device swap—and being able to predict the customer issue(s) with enough time to schedule an off-peak reset that supports superior CX.

Service providers that can leverage device data for superior CX and intelligent broadband operations are poised to win. There is huge value too—to the tune of millions of dollars per year. As an example, large Tier-1 service providers that is delivering home broadband services to millions of subscribers can spend over \$500 million each year on customer care. As explained in the opening, poor CX escalates quickly, impacting efficiency and ultimately the bottom line. Implementing our approach can generate significant return on investment (ROI), growing from \$15 to 20 million in savings in the first year, to a cumulative expected \$100 million in year five. And while this is a Tier-1 example, the same cost savings (five to 20 percent) applies to service providers of all sizes.

Changing the game with AI for IoT

With explosive IoT and data proliferation, the imperative for a predictive model significantly increases. Today the focus may be on the home network—modems, set-top boxes, gateways, and other CPE. These problems manifest themselves in Wi-Fi service degradation through slow browse, and router reset (or modem reset). These problems are real, common, and persistent. They ultimately affect your customers' experience and your bottom line. But that's just today.

The number of connected devices is only going up. This will expand the potential problem zone to include other connected devices, like customers' Nest thermostats, Ring doorbells, security systems, smart appliances, and wearables. Beyond these, connectivity and the associated challenges for service providers will extend to the network core. CSPs and ISPs need to move out of the past and into the future, and human expertise with AI for IoT is the game-changer enabling this key shift.

Intelligent broadband operations

In the old days, you never knew when something was going wrong. You had no real visibility into the home network, until you received a call from an unhappy customer. Now, service providers can be much more proactive by predicting when there are customer-facing issues—and fixing them before they become support issues or cause churn. CSPs can and must do better—and it's worth doing, to the tune of tens of millions of dollars per year.

But it can't be done with yesterday's tools and infrastructure. Success requires a new, cloud-native, data-centric approach that delivers more value by creating better business outcomes like superior CX, higher retention, and lower costs. Achieving these is only possible through intelligent broadband operations, and Ayla Networks makes it possible. [Learn more](#) about our solutions for Internet service providers.