AN INTRODUCTION TO SELF-DRIVING NETWORKS

Remember when we had to explain what the cloud is? This small innocent-sounding word caused an awful lot of confusion for businesses and even individuals when it first started getting tossed around. When asked what it was and why it was important, oftentimes it was described as warehouses full of whirring and humming servers spread out over the world. Finally, a wise person simply said, "the cloud is someone else's computer you can store your information on" - making its value clear and helping to push enterprises towards their digital transformation journeys.

The cloud brought with it data mobility and drastically advanced ways enterprises could automate workflows, allowing for the development of important technologies like machine learning and artificial intelligence. Now, these technologies and advancements are everywhere and have truly changed the world in a small amount of time. But what happens when all the manual processes finally get automated, the machines learn everything needed to handle our daily tasks, and AI knows what we need before we do?

Automation Gives Way to Autonomy

Advances in artificial intelligence, machine learning, and intent-based networking have brought us to a threshold where these technologies are combined with automation. This threshold is where IT teams can go far beyond automating tasks and truly lead enterprises into a fully self-driving and autonomous network. Those words self-driving and autonomous sound a lot more troublesome to explain to stakeholders than the cloud.

IT teams far and wide have been focusing on automation for their enterprises to save time and money by using technology to monitor, control and/or operate any process or function with accuracy and efficiency without human intervention. The next evolutionary step in networking is creating one that is able to configure, monitor, and maintain itself independently. These autonomous systems are using technology that enriches automated systems with sensors, artificial intelligence, and analytical capabilities so that they could make independent decisions based on the data they collect.

Taking Cues from the Auto Industry

Self-driving and autonomous are both words more frequently heard from Elon Musk as he describes his ambitions to create a fleet of driverless robotaxis and long-distance freight trucks. Musk sees a not so distant future of driverless cars and transport trucks chauffeuring people and goods from place to place just by giving a simple command. It's here in the auto industry which is expected to be one of the biggest beneficiaries of autonomous technologies where we find the best analogy of the differences between a network that is autonomous and one that is automated.

The Parallels of Parking

Car manufacturers have always been in a race to create and implement new features that take some of the guesswork out of basic tasks for the modern driver by using automation. For example, some people are not comfortable with parallel parking. At least enough people are uncomfortable with it that engineers spent a lot of time developing a way to make it easier. By using parallel parking assist systems, the process of aligning the vehicle properly before backing into the desired space and making two opposite cuts of the wheel before (hopefully) coming to stop perfectly in between two other vehicles. These repetitive actions that take place in every parallel parking instance are no longer the responsibility of drivers, possibly to their relief, yet drivers still must find the parking spot and decide when the car executes the command.

In the Elon Musk version of this example, once vehicles become completely autonomous, drivers tell the car where they want to go and by utilizing automated sets of rules through sensors and cameras. The car handles everything from the time the engine starts until the time the vehicle locates a parking spot, parallel parking itself in front of your favorite restaurant. A self-driving car understands all the rules, speed limits, and congestion points, completing the tasks with these in mind.

Similarly, an autonomous network can be thought of as a self-driving network that will take the heavy lifting out of the hands of IT staff. It will self-configure, monitor, manage, correct, defend, and analyze with little human intervention. It will be predictive and adaptive to its environment, optimizing and personalizing the experience for the end-user and for the situation. The autonomous network is a powerful, transformational paradigm, ensuring that the operation of the network is aligned with the goals of the business. This changes the role of the network from a tactical resource that often gets in the way to a strategic resource driving innovation.

People Still Needed

IT teams need not worry about automating themselves out of the picture. The self-driving network will only free these teams from repetitive chores. While the network filters out the normal and

predictable activities, IT will spend less time troubleshooting performance issues and more time focusing on strategic work and innovation. This is good news for enterprises because these engineers will be in high demand, analyzing and interpreting the never-ending deluge of incoming data. Even though some mundane work will inevitably be handed off, technology has a habit of creating more jobs than it eliminates. The business world will always need people to oversee the network and design and monitor the new generation of systems and tools. We'll need people who understand how the network works to teach the artificial intelligence itself, while providing oversight and algorithmic tweaking.

Who Needs It?

Carmakers are not the only industries currently utilizing self-driving networks, although it does appear they have the most to gain from it. At present, enterprises in sectors such as manufacturing, mining, and utilities have been especially effective at using autonomous technologies to achieve greater efficiency, safety, and sustainability. Before rushing headlong into implementing autonomous technologies, it is important that organizations first evaluate available solutions to understand where and how they can be implemented within their existing networks and how they can be beneficial to the future of their business.

The technology tsunami will continue to transform every aspect of work and life. The convergence of people, technologies, data, devices, and ever-expanding networks will create immense opportunities for organizations that can be agile and customer-centric, using actionable insights across the organization. The businesses that will succeed and win over the next five to ten years are already well on their way to implementing self-driving networks and autonomous technologies, helping them save money on operating costs while devoting more time for innovation from their technology professionals.