EIGHT PREDICTIONS ON HOW TECHNOLOGY WILL CONTINUE TO CHANGE OUR LIVES

Prediction 1: Cloud Will Be Everywhere

The days of all cloud capabilities being centralized in data centers are beginning to disappear. You can find cloud-based applications helping to boost the performance of ships out at sea, aircraft traversing the sky, and in our cars and homes. Access to the compute and storage of the cloud is spreading out of dense data centers and reaching into rural communities, remote wilderness, and even near-earth orbit. Practically speaking, the cloud is going everywhere.

By removing latency, and conducting more of the compute on the device at the edge of the network, we are beginning to overcome the one limitation that still faces all technology on earth, the speed of light. Those operations that require very low latency - from autonomous driving, to natural speech processing and translation, and the active management of vital infrastructure - no longer need to conduct round trips from remote corners of the earth to a central server. Tasks can now start to happen where the results are needed most.

As the cloud extends out of centralized locations and into the environments that we live and work in every day, what we will increasingly see is the same software that runs in the cloud will run close to you, and that will lead to improvements in all aspects of our lives.

Prediction 2: The Internet of Machine Learning

We are seeing a data explosion. Today, we generate more data in one hour than was created during all of 2000 and more data will be created in the next three years than was created over the past 30. ML has historically been a computationally heavy workload that's incapable of running anywhere but on the most powerful hardware.

However, with advancements in software and silicon, this will begin to change. Using a combination of AWS technologies, we'll see hardware and software working together at the edge to have a bigger impact than ever. By moving towards the edge, what we will see in the coming year is an acceleration of the adoption of ML models across industries and government. In manufacturing, we will see ML embedded on production lines, able to spot production anomalies in real time. In agriculture, ML models will help farmers manage precious resources, such as soil and water, more intelligently.

As ML continues to expand, we will also see an explosion in machine-to-machine (M2M) connections. In 2018, only 33% of connections on the internet were M2M according to Cisco's annual internet report. If you have an Echo, any smart home gadget, or are following how cars and trucks are quickly evolving, you can already see what's coming - a proliferation of sensors and devices connected to the cloud and each other. In 2021, we will see M2M hitting 50% of all connections and ramping higher from there.

Prediction 3: Pictures, Video, Audio Will Speak More Than Words

In 2020, as we entered into the depths of lockdown, we increasingly communicated via audio, video, and images. As a result, the amount of text we consume on our screens is being reduced as we make much more use of multimedia to communicate. On the average day on Twitter, 80% of messages contain some kind of image or video, or are just an image or video. Over the summer, Twitter began to roll out audio tweets for iOS users, further acknowledging the trend. Some of this has been enabled by the reduction in the cost and ability to store data in the cloud.

Companies who want to stay relevant to their customers need to be keenly aware of these changing habits, rather than relying on keyboard, mouse, or other mechanical ways of asking customers to interact with their products and services. When it comes to building relationships and transacting with a brand, customers want to do what is natural, so companies should explore this move away from the keyboard and towards more natural user interfaces.

In 2021, the use of audio, video, and images will continue to replace written text in everything from social platforms to business operations, and cloud technologies will play a significant role in meeting that demand.

Prediction 4: Technology Will Transform Our Physical Worlds As Much As Our Digital Worlds

In 2020 we were introduced to social distancing. As we spaced ourselves out, it gave us all the chance to take stock and rethink how our cities live, breathe, and flow. Many of the places we live and work have been built on decades-old assumptions that don't hold up anymore or don't perform well in a pandemic. With the help of advanced data analytics, 2021 is the year when we will start to figure out how to better design our cities to give us the advantages of social distancing, without feeling so distant. Using advanced data analytics technologies and ML, cities will be able to analyze foot traffic to understand how pedestrians move around, whether that is filing into a stadium, out of a grocery store, or onto a subway platform.

Another physical transformation we will see is less social and more financial - the rapidly vanishing need for cash in our pockets. One of the biggest changes from the pandemic has been the rise of cashless payments. In some bars and restaurants around the world, cash is forbidden. As a result, we have seen the dramatic rise in new online payment platforms whose businesses are built in the cloud, and whose underlying encryption and ledger systems - blockchain is one example - are cloud-based as well. Those options will only proliferate as the world increasingly accelerates to digital technologies that replace antiquated, centuries-old approaches.

Prediction 5: Remote Learning Earns Its Place In Education

With COVID-19, education was forced to go through a rapid reinvention, almost more than any other industry. Technology, and access to it, has played a huge role in children's education during this pandemic. This year is when we're going to prove that remote learning can work and may be a better option for some, and that it can have a positive, and more persistent role in education.

The pandemic we have witnessed last year forced us to adapt. Having remote schooling (and working) options widely available at any time means that kids can stay home when they are sick, but still get their education and not fall behind classmates. Remote classes give school systems and students the flexibility to respond to unforeseen events, whether pandemics, natural disasters, or man-made calamities to keep the learning going.

Prediction 6: Small Businesses Will Race To The Cloud, and Southeast Asia and Sub-Saharan Africa Will Lead The Way

In 2021 and beyond, we're going to see a massive shift in small businesses beginning to make use of advanced cloud technology to reach their customers and we're going to see an explosion of higher-level technologies and service providers that will cater to these small businesses. It will be helping small business to do everything from spinning up a chatbot to help with answering frequently asked questions, to getting a dead-simple CRM system in place and running within minutes. Small businesses get the benefits of sophisticated architectures and applications without having to invest in the time and expense of building it themselves.

In sub-Saharan Africa, 90 percent of all companies are small businesses, which make up 40 percent of GDP, and account for $700 billion in the economy. In Southeast Asian countries, small and micro businesses account for 99 percent of businesses in several key sectors, most notably tourism and handicrafts. Online penetration in these countries is already among the highest in the world so going online allows small and micro businesses to reach beyond their communities and stay trading even when their worlds are shutting down around them. As these small businesses bring their unique perspectives and often craft goods to the world, expect them to begin to leapfrog a lot of the business practices we see in more established countries.

These countries are not burdened with legacy technology or legacy thinking about what is possible for them, so the sky is the limit.

Asian Institute of Digital Transformation

Prediction 7: Quantum Computing Starts To Bloom

Something we have seen again and again in the past is if you can democratize the most advanced, most complex technology and make it affordable, available, and understandable to as many people as possible, great things happen. Take Amazon Braket as an example, a fully managed quantum computing service that helps researchers and developers get started with the technology to accelerate research and discovery. Before 2020, you needed to be one of the world's most advanced research institutes or richest companies to have access to quantum computing hardware. With Amazon Braket, anyone can now use quantum machines for as little as $0.30.

In the next decade or so, we will see quantum computing transform areas such as chemical engineering, material science, drug discovery, financial portfolio optimization, machine learning, and more. With the goal of making advanced cloud technologies affordable and available to everyone, 2021 will be the year the quantum computer starts to bloom.

Prediction 8: The Final Frontier...

For technology to fulfill its potential to help everyone around the world to live a better life, we shouldn't go out and around the world as much as we should go up and above it. In 2019, Amazon introduced AWS Ground Station that lets you control satellite communications, process data, and scale your operations without having to worry about building or managing your own ground station infrastructure. In 2021 and beyond, it is predicted that space will be the area where we will see some of the greatest advancements when it comes to cloud technologies.

We're already seeing that the ability to access and process satellite data is helping researchers to track glacial recession, maritime agencies protect vulnerable marine reserves, and agronomists better predict food supply. Startups are looking to make space the home for a new breed of fast, secure networks. By making access to space affordable and accessible to every developer, we are seeing the innovations that come back down to earth and can help us all to grow and prosper.

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