

# 5 CLOUD TRENDS TO WATCH

2020 was a banner year for the cloud, and the momentum is accelerating

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2020 was an incredibly difficult year, but there's no denying that it inadvertently proved the cloud model. Companies already in the cloud benefited tremendously, while those that were not pushed ahead as fast as they could. Movement to the cloud is only going to accelerate in 2021, driven by five key trends:

## 1. Customer experience comes into focus

Snowflake's blockbuster IPO showed the world that it's not all about technology—it's about the customer experience you provide to your users. Techies like me love to be able to configure a product to our heart's delight,

but that's not always the right thing for organizations.

As a result, we are starting to see more emphasis on platform. Customers don't necessarily want to be in the business of integrating a lot of best-fit pieces—at the end of the day, they want ease of use, ease of maintenance, and a user experience that makes them eager to do more with the technology, rather than spend time gluing it all together.

## 2. On-premises isn't going anywhere

It's clear that growth will come from the cloud—not on-premises—but not everything is going to move to the cloud just yet. There are a number of cases where it makes sense to stay on-premises, like IoT, because it's cost-prohibitive to move such massive amounts of data. But hybrid models have become a really important component strategy for everybody, and with that comes a brand new space, which

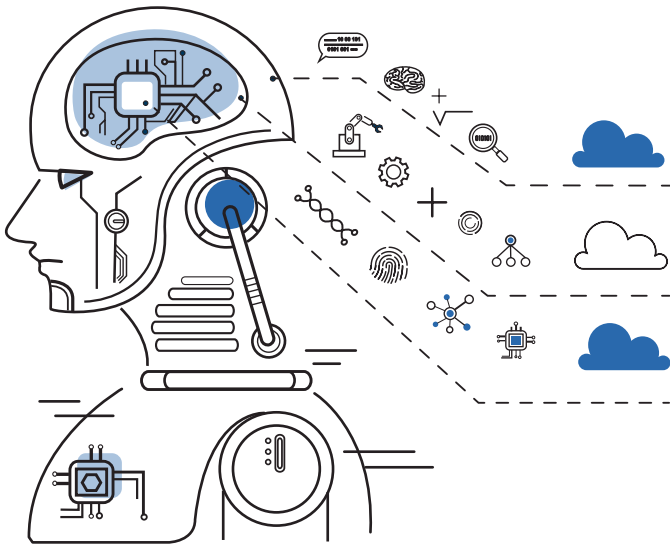
is data orchestration and data ops.

This doesn't just mean hybrid cloud, but also multicloud. How do I build my future-state architecture if the data moves between different places? You need end-to-end orchestration of the data pipeline.

### 3. More emphasis on data governance

[The California Privacy Rights Act \(CPRA\)](#) was passed in November 2020. This more-stringent data privacy regulation aligns more closely to the European Union's GDPR. It's becoming the blueprint for the other 49 states to be more sensitive about protecting people's private data. And it's not just the United States—other countries are also enacting laws that prohibit data from leaving their borders, so I'm very interested in how quickly the cloud scales globally to handle data privacy regulations.

This trend is potentially the most important, because cloud providers have not put as much effort into data governance as they probably should. Fortunately, we have some really good, credible, and independent companies that have started to corral this space of data governance. Right now, though, there are too many products and too many players, so there's a lot of confusion.



### 4. AI and machine learning continue to accelerate, especially in the cloud

Machine learning and AI have become far more accepted, and I see new developments with automation. But with increased focus on data governance, there is now a lot of emphasis on things like explainable AI. How

can I build my machine-learning models but still ensure that I am doing responsible, ethical AI?

We also can't ignore the fact that AI and machine learning benefit the most from the cloud. If I have a mission critical, real-time, low-latency application requirement, I may not want to move to the cloud right away because I have dedicated hardware. It may be over-provisioned and I may be paying too much for it, but it's mission critical. But when I'm doing machine learning, I'm still exploring for new insights. I don't know how long it will take. I don't know if I will need 100 CPUs, 20 GPUs, or maybe a field programmable gate array. I will likely need a lot of resources, but for a very short amount of time. I definitely need an environment that can elastically scale up or down. So AI and machine learning products are actually best suited to leverage the elasticity and scalability that we get from the cloud.

### 5. Open source software keeps rising

Open source software is now considered to be secure and enterprise-ready, and we are starting to see a lot of growth there. Many options like PostgreSQL and its extensions like geospatial and time series are now state of the art. They give you familiar open standards that you can change if you want to move to something else. Many organizations I've spoken to now embrace policies to employ open source first, commercial next—and this shift of mindset is relatively new.

Finally I've also noticed that all the vendors are increasingly focused on how data is delivered to end users. For example, being able to view data through a knowledge graph when you are using machine learning and other technologies is relatively new. We are also beginning to see the goal of reducing copies of data being realized. This also supports the data minimization requirements of the EU GDPR. Instead of replicating data and creating more data silos, we are finding ways to control who sees what data through dynamic access control. Sharing data in a secure and governed manner without making copies is, to me, where Data-as-a-Service comes to life. Newer data sharing platforms are helping create secure and governed data exchanges and marketplaces.



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