

If the Oracle deal goes through, TikTok could face a process that experts say is incredibly complex, costly, and uncommon for any business: Switching from one cloud to another

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Safra Catz speaks in 2017. REUTERS/Joshua Roberts

- **President Donald Trump has approved a proposed deal between Oracle and Walmart and the video sharing app TikTok. Although the details are still unclear, TikTok would likely need to move its operations from Amazon Web Services and Google Cloud onto Oracle's cloud.**
- **It won't be easy: Experts say that switching clouds completely is uncommon because of how complicated and costly it can be.**
- **When switching clouds, a company faces a host of challenges like egress charges, possible service lapses, and the need to retrain its workers. Experts delve into the issues, as well as what the process could look like in action.**
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President Donald Trump gave his blessing to [a proposed deal](#) between Oracle and Walmart for the US operations of popular video sharing app TikTok in September, and [although details of the deal are unclear](#) and it [could still be blocked](#), it could have interesting IT implications if it does pass muster:

A TikTok deal could entail a massive — and highly complex — move to Oracle's cloud.

Right now, TikTok uses both Amazon Web Services and Google Cloud, according to reporting from [the Information](#), with AWS as its main provider and a three-year, \$800 million agreement signed with Google in 2019.

While it's still unclear how TikTok's cloud strategy will play out, it will likely have to move much of its data from AWS and Google Cloud to Oracle if the deal goes through.

Completely switching cloud platforms is rare, mainly because it's a complicated and costly process, according to experts.

"We don't see that very often at all," Forrester VP and principal analyst Dave Bartoletti told Business Insider. All of the "hyperscale" public cloud providers now have hundreds of interwoven services, offering customers all they could need, he said: "You'd have to make a very strong case for your application on why you'd want to jump ship."

In this situation, that "strong case" would come directly from the US government. Here's why experts say that TikTok's process of moving onto Oracle's cloud would be difficult and expensive — and what it could look like in action:

The many costs and challenges associated with switching clouds

There are multiple reasons why switching cloud platforms can be expensive and difficult.

"One of the challenges that companies run into when they move from cloud to cloud is you're moving from one competitor to another, so you're going to get a certain amount of pushback," IT sourcing expert at consultancy UpperEdge, Greg Hall, told Business Insider.

When a company chooses a cloud platform it usually signs multi-year agreements that include "egress charges," meaning, the fees that the customer has to pay if it decides to break contract early. That being said, because the US government is pushing TikTok to move to Oracle, it's unclear whether the government would take steps to waive those charges, Forrester's Bartoletti said.

Beyond being bound contractually, a customer may be technologically bound, too. When a company uses cloud services they're often trying to strike a balance between portability and optimal use: Taking advantage of interlocking cloud services can help a customer's application run more efficiently and cut down on costs, but, on the flip side, create a sense of getting "locked in."

"The lock-in challenges are, the more you use any cloud the way it was designed and to get the full benefit out of it at the lowest cost, the more you're locked in," Craig Lowery, vice president analyst at Gartner, told Business Insider. "It's unavoidable."



While President Donald Trump has been the one to target Chinese-based TikTok, Democratic nominee Joe Biden's campaign has steered clear of the platform. Jaap Arriens/NurPhoto via Getty Images

Read more: *Bringing TikTok to the Oracle Cloud would be a huge win for the database giant, but experts say that the real challenge in taking on Amazon will be getting large enterprises to sign on*

Because lock-in makes it difficult to switch clouds, TikTok may have to deal with commitments to multiple platforms during the transition process. Even so, that migration could still lead to service interruptions or delays.

"It's pretty demanding," Deloitte VP of cloud business development, Luis Benavides, told Business Insider. "Any TikTok user is not going to be very happy if the environment goes down or it's not available."

TikTok employees will also have to adjust to the new cloud, too: Engineers will have to re-train, development teams must adapt to their new tools and services for building applications, and the operations teams must learn to operate new infrastructure. TikTok will also have to reestablish security processes, as the security and compliance team would need to re-certify TikTok's application for Oracle's cloud.

"The more you use the special features of the cloud, the more skills you have to understand those special features," Lowery said. "If you move to a cloud where those features don't exist, then those skills are worthless. You have to get new skills."

With all this change, TikTok may need to hire new workers that are specifically certified in Oracle skills, or consider outsourcing a team of specialists who have skill sets for multiple clouds to take on this task.

What the actual moving process would look like

To kick off this process, TikTok and Oracle will likely need to do an assessment on TikTok's code and put together a migrations team. Then, they will address the code adjustments that need to be made and work on setting up and testing cloud environments.

Meanwhile TikTok engineers will need to learn the ins-and-outs of Oracle's cloud, most likely using Oracle's tools that were specifically created for making migrations to its cloud easier.

"A good deal has to do with understanding and making sure you have all of your documentation up-to-date with your environment, what your structures look like, making sure you have a plan as it relates to your data strategies and what you're working with, in this case," said UpperEdge's Hall.

When moving from one cloud to another, an application must first be broken down into its various components, like its databases, infrastructure features, storage features, and other services it uses, Forrester's Bartoletti says.

The engineers would also have to see if the app uses any services that are only available in one cloud. For example, if TikTok moves off Google Cloud, the team would evaluate if it's using any Google Cloud-exclusive services it would lose when moved to Oracle.

"Since we don't know anything about TikTok's architecture, we have no idea what databases they use, if it's contained in a virtual machine, and don't know if it leverages native services for a public cloud," Bartoletti said.

Once the team decomposes these components, then it would design a migration plan and evaluate if the application needs to be refactored in any way to take advantage of the new cloud. For example, TikTok may need to refactor the tools it uses with AWS or Google Cloud, meaning it will change its code for those specific tools and find an alternative Oracle tool.

After that, the team will work with the new cloud provider on how to move the data. The team would then stage a test migration, which can be a lengthy process. If the test passes, it will start moving all its data.

The difficulty of moving the application depends on how it's built. For example, if it's built inside containers or virtual machines and doesn't integrate with many cloud-specific components, the migration will be easier, experts say. However, an application with many features specific to one cloud will be more complex.

Generally, consumer applications like TikTok are more complicated, Bartoletti said, as they may require multiple data sources and multiple databases.

"There's a lot of integration and refactoring work to be done," he said. "Some of the main challenges would be the cost of re-engineering and how much time for developers to reconnect applications to native services in the new cloud."

What TikTok would lose and gain



Zoom founder Eric Yuan reacts at the Nasdaq opening bell ceremony on April 18, 2019 in New York City. The video-conferencing software company announced its IPO priced at \$36 per share, at an estimated value of \$9.2 billion. Kena Betancur/Getty Images

While Oracle is the [fastest accelerating cloud](#), it's also considered a niche cloud, according to Gartner, which may make moving onto Oracle tricky as it may not have many of the features one can find in AWS, Microsoft Azure, or Google Cloud, Lowery says.

"What that means is it doesn't have the same degree of vision or execution that we believe our end users are looking for in the cloud," Lowery said. "Based on that research, it's clear to see there are things you can do in AWS or Azure or Google with greater vision or greater execution. There are things you can do that don't exist in Oracle Cloud Infrastructure."

Moving off of Google Cloud and AWS also means losing some of their specific advantages.

For example, Google Cloud comes with features for search and advertising that customers can take advantage of. Many Google Cloud customers also use its BigQuery data warehousing service. If TikTok uses those services heavily and now has to move off Google Cloud, the company may have a hard time finding a replacement.

Still, this could be a major opportunity for Oracle, says Jeff Davis, chief commercial officer for Oracle Business at Deloitte. One of its [latest customer wins](#), Zoom, was able to move onto Oracle relatively quickly, he points out.

"Oracle is known for reliability, scalability, and security," Davis told Business Insider. "Those are the things Oracle is really known for. When TikTok goes to the Oracle Cloud, what they're going to find is the very same industrial strength as we've seen with Zoom. They've been able to very quickly add capacity for Zoom."

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