



Stacking Up the Benefits of Migrating Your Database to the Cloud

The 451 Take

Database workloads are shifting to the cloud. While cloud and hosted environments account for 45% of the primary deployment locations for data and analytics workloads today, that proportion is expected to increase to 72% in 2020, according to 451 Research's Voice of the Enterprise: Cloud, Hosting & Managed Services Workloads & Key Projects 2020 survey.

Not all enterprises have adopted cloud computing for their database workloads with the same vigor, however. Many enterprises are cautious about migrating database workloads to the cloud because the operational database holds the enterprise's most important data, and they are rightly averse to any potential threats that might impact the organization. Additionally, in the early years of their development, many cloud database services did not necessarily replicate the breadth and depth of functionality that could be found in on-premises databases.

While cost savings is one of the potential advantages of cloud services and is often near the top of the list of considerations in evaluating databases, enterprises rarely purchase based on a single characteristic. According to 451 Research Voice of the Enterprise survey data from 1H 2020, the top five selection criteria for data platforms are reliability (42%), security (40%), performance (36%), cost (32%), and scalability (31%). Database choices are predominantly made based on a combination of these key characteristics.

At the end of the day, however, enterprises not only want the same functionality that they have on-premises, but also the added benefits that come with running database workloads in the cloud. While this may be a big ask, it is quite attainable when enterprises choose database technologies that have been architected specifically to take advantage of cloud environments. Data from 451 Research's Voice of the Enterprise: Data & Analytics, Data Platforms 1H 2020 survey (see figure below) reveals that IT professionals cite a lack of skilled workers (42%), organizational challenges (41%), and budget limitations (39%) as the primary reasons that data platform and analytics initiatives fail.

Barriers to Successful Data and Analytics Initiatives

Source: Voice of the Enterprise: Data & Analytics, Data Platforms, 1H 2020

Base: Data analytics initiatives had some failures or were mostly/very unsuccessful (n=157)



Migrating database workloads to the cloud has the potential to not only address the issues of failed data platform initiatives but also to support – and in many ways enhance – the key database characteristics that enterprises favor. Scalability, for example, can be a challenge for on-premises deployments because it requires significant overprovisioning to handle data growth and user concurrency. With a DBaaS offering in the cloud, enterprises can automatically scale (up or down) based on actual demand.



Business Impact

EFFICIENT USE OF RESOURCES. A benefit of using a database-as-a-service (DBaaS) is that the computing environment is managed by the cloud service provider – including hardware provisioning, networking, software updates and patches, as well as monitoring and general database management, including automating backups. As such, IT resources can be redeployed to address more strategic initiatives.

OPTIMIZE COSTS. Data from 451 Research indicates that for 48% of surveyed enterprises, the primary reason for using public cloud is cost savings, while 58% expect to realize a return on public cloud spending in months or less. Cloud does not just lower costs, though; it's about the effective use of that money. On-premises systems require overprovisioning of hardware that can lead to sunk hardware costs, while DBaaS workloads can automatically be expanded or contracted – improving resource utilization while lowering operational overheads.

INCREASE RELIABILITY AND AVAILABILITY. In a cloud environment, distributed, scale-out systems can readily accommodate node failure – even up to half of the nodes going down – while still maintaining data availability, giving enterprises great confidence when running mission-critical applications. Additionally, the use of multiple cloud regions and availability zones, or even multiple cloud providers as well as on-premises infrastructure, can alleviate disaster-recovery concerns.

FASTER TIME TO IMPLEMENT AND INNOVATE. Because enterprises do not need to procure hardware in advance, they have much greater flexibility over their database environment and can provision clusters much faster for a variety of workloads and scenarios.

HANDLE UNPREDICTABLE WORKLOADS. Cloud-based, distributed database systems are specifically designed to handle unpredictable system load, particularly when the requirement is to drive web-based applications. While monolithic on-premises systems can be quite powerful, they have limits when the load exceeds the system's capacity.

Looking Ahead

As enterprises realize that DBaaS can deliver not only the same functionality delivered by on-premises database deployments but also additional benefits, then migrating to the cloud becomes much more enticing. Just as there are a host of methods to migrate an enterprise data platform (lift and shift, refactor, rearchitect, etc.), so there are associated drawbacks and benefits, depending on the method chosen. Enterprises will find, however, that cloud-native DBaaS offerings provide a greater range of benefits, including reduced operational overheads, as well as a path for long-term growth.

At a high level, cloud-native is an application development and deployment approach that fully exploits the capabilities of cloud computing infrastructure, including containers, microservices, container orchestration, service meshes and serverless technologies. At an architectural level, cloud-native abstracts the underlying infrastructure (e.g., storage and compute). It is precisely these abstraction benefits that are driving enterprises to adopt cloud-native technologies because they reduce administrative overhead, increase resiliency, enable automated scaling and elasticity, and accelerate application development and deployment.

DataStax

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