Enterprises Turn to Hybrid Operational and Analytical Processing for OLTP Workloads

The 451 Take

Leveraging data has long been recognized as a primary need for many enterprises, but this need to better utilize data has come into sharper focus in recent years as enterprises seek to become more data-driven. While many enterprises want to be data-driven, it's often a question of how. They face many barriers including complex environments that may include multiple transactional and analytical systems. These systems are often managed separately, which means that not only are multiple people required to manage the systems, but also the data is siloed. Connectors and ETL processes may move data from transactional systems to analytic databases, but that adds complexity. Moreover, analytic databases, which feed the data-driven efforts within enterprises, can create access challenges as well.

More enterprises are turning to hybrid operational and analytic processing (HOAP) to become data-driven. Transactional systems (OLTP) and analytic systems (OLAP) are the two most common workload types that enterprises deploy today. HOAP systems effectively blend them, enabling transactional and analytical workloads within the same system, and research reveals this is a fast-growing market.

451 Research data (see figure) shows that hybrid workloads accounted for 15.7% of total incremental database revenue in 2018, compared with 53.6% for OLTP workloads, and 30.7% for OLAP workloads. By 2022, however, it is estimated that HOAP workloads will account for 26.9% (a CAGR of 13%) of incremental database revenue, compared with 42.2% for OLTP and 30.9% for OLAP. Reflected in real revenue dollars, the incremental HOAP revenue in 2018 was forecasted at $735m and is expected to increase to $1.4bn in 2022.

2018-2022 Incremental Revenue

Source: 451 Research's Market Monitor

Year	OLAP	HOAP	OLTP
2018	30.7%	15.7%	53.6%
2022	30.9%	26.9%	42.2%

69.3% (2018)

69.1% (2022)
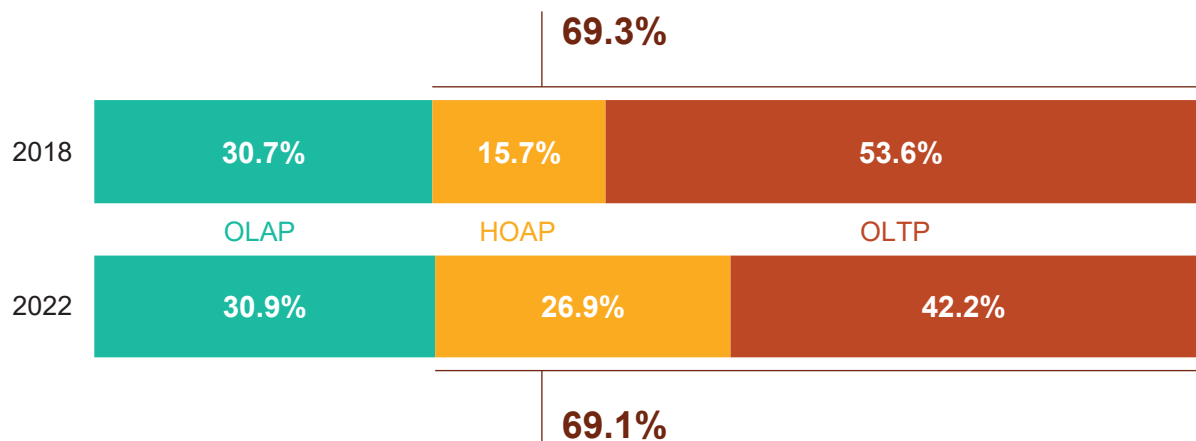
Hybrid processing continues to see broad adoption among many enterprises. The appeal of systems that are capable of hybrid processing goes beyond the efficiency of fewer systems to maintain; it's also the ability to do real-time analytics on incoming transactions. In an era when enterprises are expected to be more data-driven, systems that enable analytics where it was previously not available are certainly welcome news – and certainly beneficial to organizations to enable real-time decision-making.

Business Impact

NEW SCENARIOS NOT PREVIOUSLY CONSIDERED. Modern hybrid systems have become much more so-phisticated in recent years because of advancements in database technologies, storage architecture and hardware that often include splitting compute and storage and isolating workloads. With these advances, enterprises are bet-ter able to optimize the database for specific workloads.

LOWER OVERALL COSTS. With fewer physical systems to maintain, hybrid systems may also require fewer in-house resources. In environments where transactional and analytical systems are separate, individuals often specialize in one or the other. With hybrid systems, individuals with skills in both transactional and analytical pro-cessing can be leveraged. Fewer systems also mean reduced datacenter costs, storage costs (cloud object storage), software fees, software support and reduced cloud services.

OPEN SOURCE SOFTWARE. Where proprietary offerings have traditionally ruled for hybrid systems, recent innovations with open source software give enterprises additional options when deploying hybrid systems. These offerings often come with enterprise-grade features and a large community of users and, in many cases, support ANSI SQL so enterprises can leverage existing skills and resources.

CONVERGED SYSTEMS. Hybrid operational and analytical processing means having a single system, which leads to reduced time for ETL processing, decreased complexity associated with enabling real-time event-driven use cases, and not having to move data from one system to the other. These benefits become even more important for cloud-based systems such as cloud data warehouses because they greatly streamline data access and data sharing.

ABILITY TO MAKE BETTER, MORE TIMELY DECISIONS. One of the fundamental benefits of hybrid systems is the ability to carry out real-time analytics on operational data that can be used to identify events from business applications before the data is transformed and loaded into a data warehouse or data mart. Analytic processes that might normally take hours or days are reduced to seconds or minutes.

Looking Ahead

As enterprises become more comfortable with hybrid operational and analytic processing, they will begin to discover new workloads and scenarios in which to leverage hybrid processing. Much of this progress can be attributed to advancements in database technologies, which have been specifically designed and architected for hybrid processing – splitting compute and storage, and isolating workloads such that enterprises can more effectively store data in row or columnar format based on the workload.

Enterprises historically have had to manually combine transactional and analytic systems to achieve hybrid processing. However, modern hybrid systems already come architected and optimized for blended workloads. A highly optimized environment for carrying out real-time data analysis is one overarching benefit of modern hybrid systems; others are reduced costs, greater data access and fewer overall systems to manage because data is not siloed.

Enterprises can and should expect more as they mature along the HOAP spectrum. Enterprises are now looking not only to run hybrid processing on-premises but also in the cloud – seamlessly moving between environments. Cloud opens a host of additional opportunities for enterprises, especially for HOAP workloads. Given the architectures of modern hybrid systems, workloads can easily be managed across various cloud platforms, but workloads may also span on-premises and cloud for hybrid environments, giving enterprises all the benefits of hybrid wherever they want it.

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