Connecting market data strategy to real-time data in the cloud

Today, demand for cloud-based market data is growing rapidly. Some financial services firms are focusing on these individual use cases at the moment, while others are making use of a real-time data service, delivered via the cloud, within the core of their overall market data strategy. Now, there are exciting new options available to deliver real-time data to firms the way they want it, where they want it.

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Moving market data to the cloud

Nearly 60% of financial executives involved in market data said they expect to gain operational benefits from moving more market data to the cloud, according to a survey conducted by the A-Team with LSEG. Market data use cases for data in the cloud are rapidly emerging within the front, middle and back offices of trading teams. Today, some 18% of survey respondents say their trading organisations have migrated market data to the cloud to a great, or the greatest possible extent. Another 43% say they their adoption is to a 'satisfactory' or 'limited' extent.

Why are so many firms seeking to transition to the cloud for their market data? The cloud offers many advantages and opportunities across the front, middle and back office, including the ability to:

– **Reduce costs** – The total cost of ownership (TCO) of data delivered via the cloud is significantly lower than data stored on premises. Expenses such as physical data centres, heating/power/cooling, network and server hardware, as well as the human resources needed to run those facilities, can be redeployed elsewhere

– **Increase agility** – Firms have instant access to the data they need, wherever they need it. They are also able to ramp analytics capabilities – and spending – up and down to suit the needs of the business

– **Connect the front, middle and back offices** – Having a single golden source of market data in the cloud enables the trading operation, from end to end, to engage with the same data at the same time

– **Boost digital transformation** – Automation of processes and analytics is on most firms' to do list and trusted data in the cloud can accelerate those programmes by simplifying data management

– **Shift from CapEx to OpEx** – Moving to a cloud-based subscription model for market data can enable firms to spend from a different budget, which can change the way these costs are perceived internally

– **Improve data security and operational resilience** – The large cloud providers put more resources into cybersecurity, data integrity and resilience than financial firms could ever dream of doing for on-premises data centres

– **Engage with innovation** – Working with high-quality market data in the cloud enables firms to accelerate their artificial intelligence and machine learning programmes, much quicker than is possible with legacy data infrastructure

The advantages of working with market data in the cloud have been driving, and are going to continue to drive, cloud adoption for several years. At the earliest stages, LSEG recognised this, and has a track record of working with clients and third parties to provide innovative market data solutions in the cloud. Today, innovative new capabilities are supporting the way firms engage with the cloud, across a wide spectrum.

Enabling cloud-based market data

Firms want to work with trusted market data in the cloud – data that has already been collected, cleansed and normalised. However, market data strategies differ from firm to firm, and can depend on factors such as business model, legacy technology, resources and data management approach. LSEG is committed to providing market data, and related data sets such as reference data and tick history, where and when it's needed.

LSEG gives firms access to a wide range of global market data and analytics in the cloud. For example, we provide access to more than 90 million instruments and data sets, with 40 billion market data updates delivered every day. This wealth of data powers firms' workflow-critical applications, enabling them to:

– Support industry-standard analytics and calculations

– Streamline regulatory reporting requirements

– Enable trade surveillance and transaction cost analysis

– Power trading systems (PMS, OMS, EMS) and risk systems

– Optimise data management to support innovation projects

Our delivery platform contains a wide range of trusted data sources, making it easier to see relationships and perform analyses with the LSEG natural language processing (NLP) engine and Intelligent Tagging capabilities. In addition, it enables financial firms to reduce data management resources and costs, by leveraging a common data model, comprehensive financial instrument identifiers and symbology mapping tools.

For example, firms are able to simplify their data mapping and navigation processes across all of our data. The Symbology API is a request/response service that ensures a single data experience, making it easier for the front, middle and back office to access, distribute and build applications utilising both LSEG and third-party data. The Symbology API also enables firms to:

– Streamline data discovery with identifier-to-identifier navigation

– Retrieve quickly – for any instruments – all available identifiers, with round-trip concordance response

– Map together a single point of access to data with identifiers to their corresponding LSEG identifiers

– Navigate between start and end point identifiers within a hierarchical entity structure, at both the same level (i.e., ISIN to CUSIP) or different levels (i.e., RIC to LEI)

– Ensure a cross-asset class approach and seamlessly connect with third-party data

The Symbology API is just one of the powerful features of our delivery platform. For firms that want to pivot their data strategies towards the cloud, we are creating powerful ways for them to maximise the benefits of doing so.

Content	Capabilities
Data experience and discovery	**Data management enrichment and analytics**
Singular access point to the LSEG data catalogue with a consistent data model	Matching and symbology-enabled aggregation of LSEG and third-party data
API playground and developer's portal to test APIs, send requests and review documentation	Comprehensive identification across entity types with universal identifier and NLP engine

Content	Capabilities
Data experience and discovery	**Data management enrichment and analytics**
Cloud-based Jupyter codebooks for Python scripting, designed for rapid development	Single API with flexibility to parameterised analytics

Delivering data with Real-Time – Optimized

LSEG offers Real-Time – Optimized, an all-trade, quote-conflated solution delivered in the cloud. Real-Time – Optimized supports a wide range of use cases, including the rapid application development needs of cloud-native and cloud-adopting firms. It also supports the shift of complex market data estates to the cloud, making those moves easier and less risky, and allowing firms to migrate as quickly or slowly as they need.

LSEG has a long track record of delivering market data in the cloud, and Real-Time – Optimized builds on that history of innovation and robust data governance. With a single LSEG ID, a financial firm is able to engage with all of the data we hold. Real-Time – Optimized has expanded data capacity as well, with up to 500,000 items per ID. And of course, with Real-Time – Optimized, users can engage with the LSEG Symbology API discussed above.

Both regulatory and business requirements around operational resilience for market data are continuing to evolve as a result of the Covid-19 pandemic and coming rule changes. Real-Time – Optimized meets and exceeds those needs, with extra layers of resiliency, redundancy and capacity baked in. In addition, the service was created with cloud best practises in mind, and offers a range of industry standard programming language options.

To meet the demands of different use cases, there are a range of ways firms can connect with Real-Time – Optimized. Firms with lighter-weight application requirements are able to use WebSocket to connect and start pulling data quickly and easily, with just a few lines of code.

For firms with more demanding workload needs, the Real-Time SDK offers a selection of APIs that can be applied to different use cases, and which support a variety of levels of programming sophistication. The free-to-register LSEG Developer's website highlights the possibilities, based on the type of business challenges involved.

In fact, Real-Time – Optimized APIs support a wide variety of cloud providers, including the current largest cloud service providers: Amazon Web Services, Microsoft Azure and Google Cloud. The agility this provides is important for firms, for both today and in the future, as firms' cloud strategies evolve. For example, today firms use a range of cloud providers to run their artificial intelligence and machine learning models, and this is a trend that is likely to continue. Being able to support a range of cloud providers also enables firms to reduce the concentration risk that can emerge by working with a very small number of providers.

Cloud providers used to run AI/ML models

Which, if any, cloud providers do you use to run models?

Base: all respondents (423)

Azure	Amazon	IBM	Google	Private/hybrid	None
42%	42%	36%	35%	25%	4%
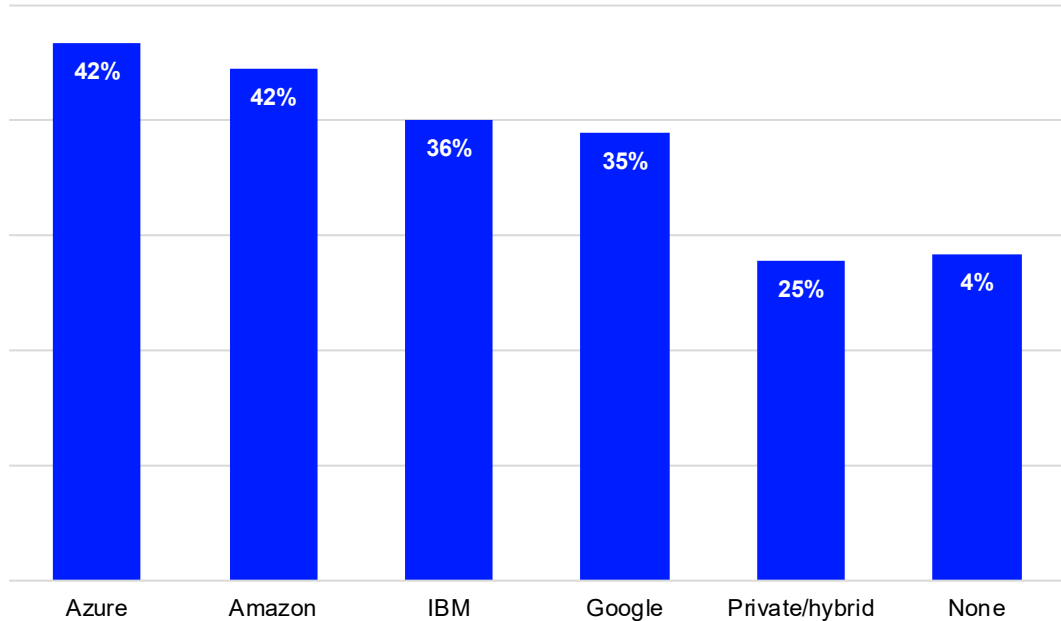
Source: AI/ML survey, August 2020.

Moving into the future

The cloud is an important part of market data strategy for many firms, today and for the future. However, for some organisations the transition to the cloud may not be right for some use cases or technology stacks just yet, or else the transition needs to happen in stages.

For that reason, Real-Time – Optimized supports legacy LSEG APIs in the cloud, through the use of a simple Legacy Protocol Converter process. For customers who require the ability to manage and interact with that data at scale on their own premises, LSEG Real-Time – Optimized can be delivered through the LSEG Real-Time Distribution System, too. LSEG remains committed to supporting each client's own individual market data strategic journey.

At the same time, LSEG will continue to evolve Real-Time – Optimized. This will enable the service to support emerging use cases and requirements as they evolve out of the financial services industry. For example, as a result of more demanding workload requirements at some firms, LSEG launched new connectivity offerings, to complement the AWS Direct Connect and AWS Private Link services launched for Real-Time – Optimized in 2020. With these offerings, firm location or data delivery needs, whether on-premise or off-premise, or in any cloud provider, will not matter. Firms will receive robust, secure, resilient and commercially competitive connectivity to Real-Time – Optimized, as well as to all other LSEG market data services.

Over the last couple of years, LSEG has added new points of presence for users to connect to by launching the service from Ohio, Tokyo and Frankfurt, complementing our existing locations in Virginia, Dublin and Singapore.

There is no question that market data in the cloud is going to continue to increase in importance over the next few years, as the front, middle and back offices of firms develop new use cases and migrate their existing market data estate. The use of real-time data in pricing and market analytics is evolving at a rapid rate, as well as the use of this data in risk applications. LSEG continues to add new content sets to support clients' real-time and analytics use cases. In addition, the technology that supports market data in the cloud will continue to evolve. LSEG supports financial firms by developing future-proofed services such as Real-Time – Optimized, as well as through ongoing innovation in governance, technology and resilience.

LSEG Real-Time: Value proposition		Capabilities
Comprehensive coverage Access more than 90 million instruments and exclusive data sets	**Global reach** Includes over 500 exchanges and 1,000's OTC markets	**API** Supports JSON, WebSocket, C++ and Java SDKs
All asset classes Exclusive content for FX, credit, rates and warrants	**Quality of service** Various update frequencies available	**Standard data model** With data concordance and normalisation with reference and tick data
Consumption Supports up to 500,000 RICs per ID, meeting most requirements	**MiFID II compliant** Meet MiFID II reporting requirements	**Discoverable data** Standardised data and symbology normalisation

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