

APIs form the basis for new applications built to consume data and routines from multiple organisations in order to offer federated solutions to banking customers.

API-based open banking services will require developers to access not just single but multiple APIs, and to combine this with data that is not available from APIs, but exists in a database or data warehouse. The development of such frameworks requires individual chunks of data from different API calls to be invoked and persisted to a staging area before the data can be joined, cleaned, massaged and consumed. This requires memory and processing power by deploying the appropriate hardware and unification software.

3) IN-MEMORY DATA INTEGRATION

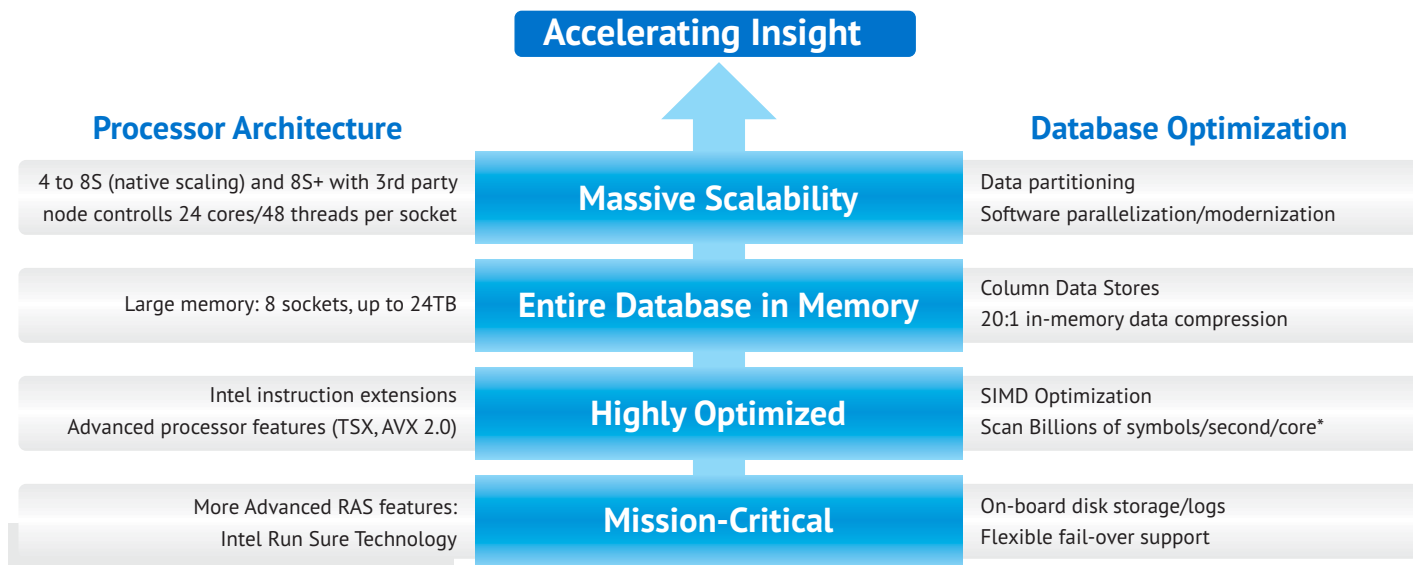
While traditional methods of data integration can be used to integrate data across multiple APIs and data sources, new in-memory technologies have revolutionised the speed and scale at which this can be done.

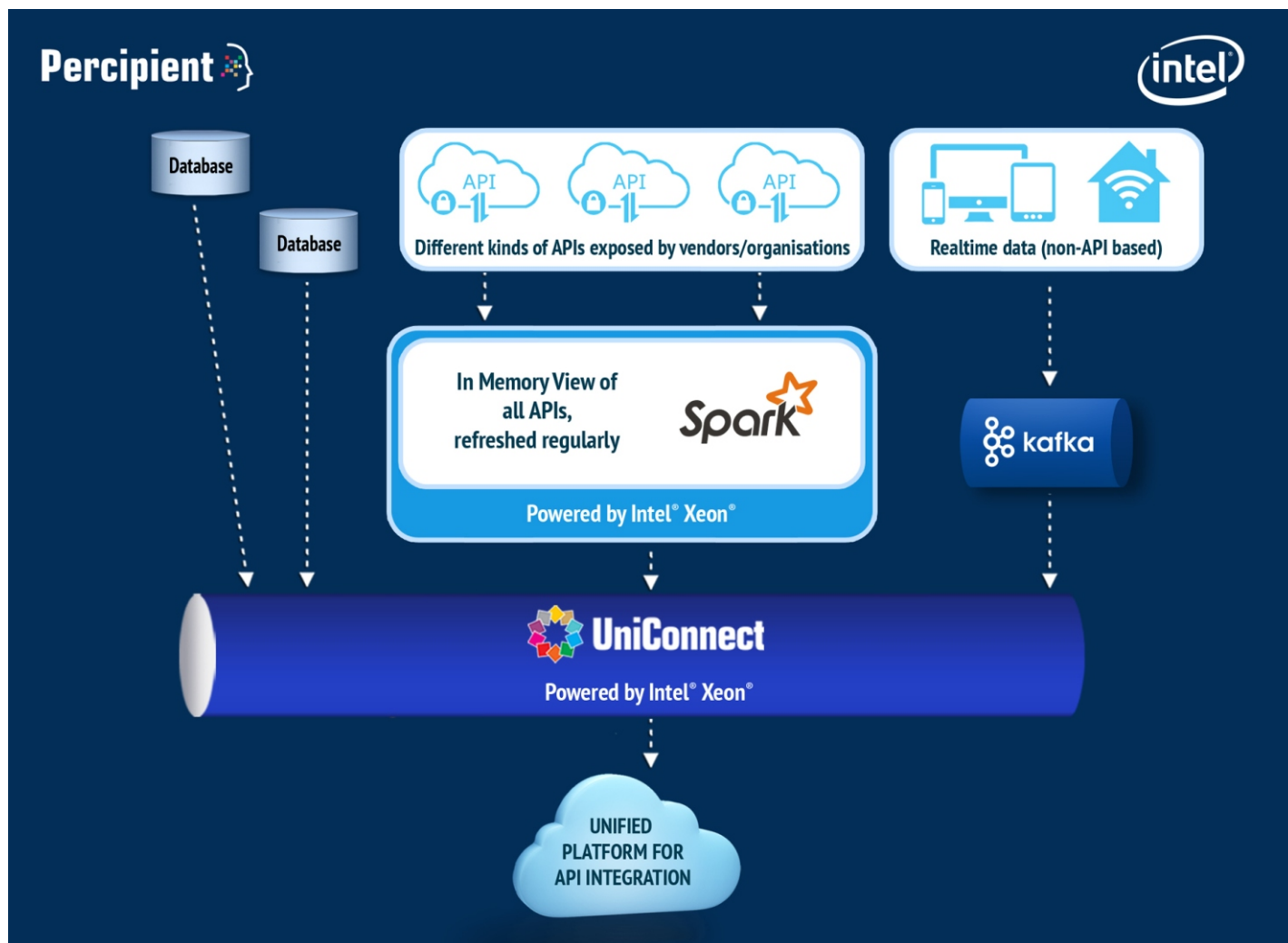
In terms of hardware, the ability to offer increased memory capacity enables entire API datasets to be analysed directly in high-performance, low-latency memory rather than traditional disk-based storage. The Intel® Xeon® processor E7 v4 family, for example, supports up to 24TB memory for large scale workloads, more cores and 60 MB last level cache for high performance virtualization, and advanced cache/memory monitoring and allocation technologies.

The processor is able to access data in-memory or RAM about 1300 times faster than it is able to reach data on long-term storage. This ability to analyze large datasets in-memory brings down time to insight and decision making to mere nanoseconds.

In terms of software, Percipient's UniConnect platform offers in-memory processing capabilities to integrate and manage data across multiple APIs and other sources. This not only means low latency and flexibility when querying large datasets, but also eliminates the replication and storage of data in many different places. This addresses many security issues faced by disk-based integration systems.

In-Memory Computing Software Optimization





4) APPROACH & ARCHITECTURE (Unified API Access or Unified API XS)

The following diagram represents a high-level architecture of the Unified API XS technology stack, which leverages on Percipient's UniConnect data unification platform, Intel's unique processor capabilities, and leading open source data management software such as Apache Spark.

The top layer shows the API types compatible with the **Unified API XS** solution. These can be simple APIs, SOA (Service Oriented Architecture) based APIs or JSON request/response APIs. Spark is used to pull the APIs and store in cached RDDs (Resilient Distributed Datasets – the in-memory objects in Spark), or DataFrames (modified RDDs).

It is also possible to **combine** unified data from APIs with other disparate data sources. Real time data that has not been exposed as an API, for example from an online review, can be integrated using Kafka open source technology.

As shown on the left side of the diagram, data from existing databases can be similarly integrated. The UniConnect layer is capable of unifying both in-memory RDDs, Kafka streams and databases in order to provide a single view for users to manage, query and consume data across its entire ecosystem.

Percipient's in-memory parallel processing feature, coupled with the Intel® Xeon®E7-8800/4800 v4 families with Intel NVMe SSDs, offers all the required compute and advanced caching capabilities required to run the Unified API XS solution. This integrated stack provides financial services providers with ease of

Unified API XS

deployment, ultra-fast performance and the scalability needed for a host of analytics and business applications.

UniConnect has the performance, world class reliability and scale-up ability to handle any workload.

About the Percipient UniConnect platform:

The UniConnect 2.2 platform is designed to integrate highly diverse data with maximum efficiency. The platform, comprised of proprietary and open source elements, offers push down, in memory, parallel processing and SQL-based capabilities. These allow organisations to implement flexible, high speed and scalable data analytics and data applications while overcoming universal data challenges such as cost and complexity. The UniConnect platform helps organisations ensure that they are future-proofed for the enormous opportunities that big data can bring.

About Intel® Xeon® processors:

The Intel® Xeon® processor E7-8800/4800 v4 families offer robust performance, advanced reliability, hardware enhanced security and industry-leading memory capacity of up to 24TB in an eight-socket system, allowing massive datasets to be stored completely in memory, rather than on hard drives, thus accelerating time to insight and decision-making. They are optimal for scale-up platforms, delivering large in-memory computing for real-time analytics as well as data-intensive workloads. While the Memory performance mode provides higher I/O and bandwidth, the lockstep mode provides higher data reliability. Additionally an integrated I/O controller and support for direct storage to-cache data transfers help to increase performance for data-demanding applications.

About Percipient

Percipient is a data technology company founded in December 2014 and headquartered in Singapore. The Percipient team is based in Singapore, India and U.S.A. More information about Percipient can be found at <http://www.percipientcx.com/>

About Intel

Intel (NASDAQ: INTC) expands the boundaries of technology to make the most amazing experiences possible. Information about Intel can be found at newsroom.intel.com and intel.com.

