

Sybase® CEP

PRODUCT DATASHEET



SYBASE CEP – KEY FEATURES

- Native C/C++ engine for ultra-low latency
- SDKs for C/C++, C#, Java, Perl & Python
- Powerful and expressive SQL-like event processing language
- Optimized for Sybase RAP – The Trading Edition
- Scalable, extensible real-time analytics
- Advanced pattern matching
- Dynamic queries
- Shared windows
- Event data management
- True multi-stream determinism
- High-performance data caching and data access
- Enterprise-class clustering & HA
- Automated persistence
- Guaranteed delivery
- Multi-policy windows
- Nested XML event support
- Comprehensive development studio
- SSL, LDAP, PAM and others

Businesses thrive on their ability to quickly extract intelligence from data. With data volumes and speeds exploding at unprecedented rates, however, new pressures are challenging companies to analyze data faster and deeper than ever before. The time it takes to analyze and act upon events may make the difference between profitability and staggering losses, even when measured in milliseconds. Therefore the latencies that get introduced by applications that store data before analyzing it can result in critical and costly missed opportunities.

These issues—exponential growth in data volumes, unprecedented data velocities, and the inadequacies of conventional application development—are therefore prompting fundamental changes in the way applications are developed. Firms need a new application infrastructure that provides the ability to:

- Analyze multiple streams of events continuously, in real time, before events are stored
- Correlate events across multiple streams and discover new, relevant conditions
- Respond to discovered conditions within milliseconds (or less)
- Synthesize content-rich streams and distribute them to downstream systems, desktops and event stores
- Quickly leverage historical insight into new models for streaming analytics
- Leverage existing application development skills to deliver new applications quickly
- Scale to handle the massive volumes of streaming data while maintaining low latency
- Deliver reliable, always-on, deployments that protect the business through all variety of peaks and valleys

SYBASE CEP

Sybase offers an integrated complex events processing (CEP) platform built from the ground up to analyze streams of information at input rates of approximately a million messages per second and with latencies measured in milliseconds or less. Sybase CEP unites in-memory, transactional and historical data with streaming analytics to identify patterns that constitute significant business conditions. At that point, Sybase CEP will act directly, send instructions to action-taking systems, or make decision-makers aware of the condition and the context they require to act.

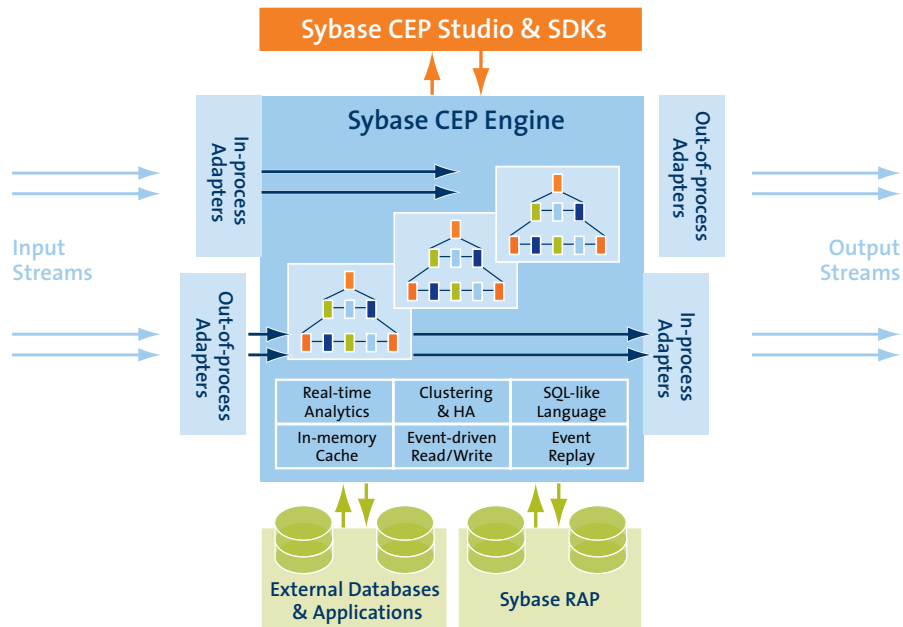
Sybase CEP consists of the following key components:

- **CEP Engine:** The CEP Engine continuously processes incoming data streams against queries expressed in a SQL-like Continuous Computation Language (CCL).
- **Adapters:** Adapters integrate the CEP Engine with the surrounding environment.
- **SDKs:** SDKs are provided in C/C++, C#, Java, Perl and Python for building custom adapters and clients.
- **CEP Studio:** Developers and administrators use CEP Studio to develop, debug, deploy and monitor CEP applications.

SUPPORTED OPERATING SYSTEM AND HARDWARE²:

- RedHat Enterprise Linux 4 on AMD – 64 BIT
- RedHat Enterprise Linux 4 on Intel – 64 BIT
- Solaris 10 on AMD – 64 BIT
- Solaris 10 on SPARC – 64 BIT
- SuSE Linux 10 on AMD – 64 BIT

² Please check the Sybase website for the latest list of supported operating system and hardware



Sybase CEP provides several key features for supporting continuous real-time analytics.

1 Native C/C++ architecture supports high throughput & low latency

The low-latency Sybase CEP platform allows firms to react more quickly to changing business conditions and competitor strategies. Sybase CEP was built from the ground up to offer the lowest possible latency and the highest possible throughput. Unlike some competitors, the Sybase CEP engine is entirely implemented in C/C++. The software supports deployment of off-the-shelf and custom C/C++ adapters “in-process” within the CEP Engine to maximize performance.

2 On-the-fly adjustments give decision makers control

Decision makers can change how they interact with Sybase CEP on-the-fly in order to react to changing business needs outside the traditional application lifecycle. Decision makers have the ability to tap into the event stream to see just the data they need to make critical decisions. Predefined views into streaming data are available for decision makers’ queries and decision makers can inject new, dynamic queries into the CEP Engine as business conditions change. Other features allow decision makers to establish custom filters on their stream subscriptions, e.g. a trader may filter a stream down to just the instruments they are working with that day. Combination query-and-subscribe requests provide an immediate picture of where things are along with a subscription to ongoing updates.

3 Easy extensibility and integration

The ease of integration and range of options available with Sybase CEP ensures quick implementations and full event-enabling of any legacy system. Sybase CEP is easily extended by developers and easily integrated into existing technology infrastructures. It provides out-of-the-box integration with a rich set of input sources, systems of record, applications, messaging infrastructures, databases and networking protocols. SDKs for development of custom adapters are available and customers can supplement the native analytics with their own native C/C++ analytic libraries. Client applications support anything from simple SQL queries via the Sybase CEP ODBC driver to sophisticated stream processing in C/C++, C# and Java clients.

4 Scale-up and scale-out

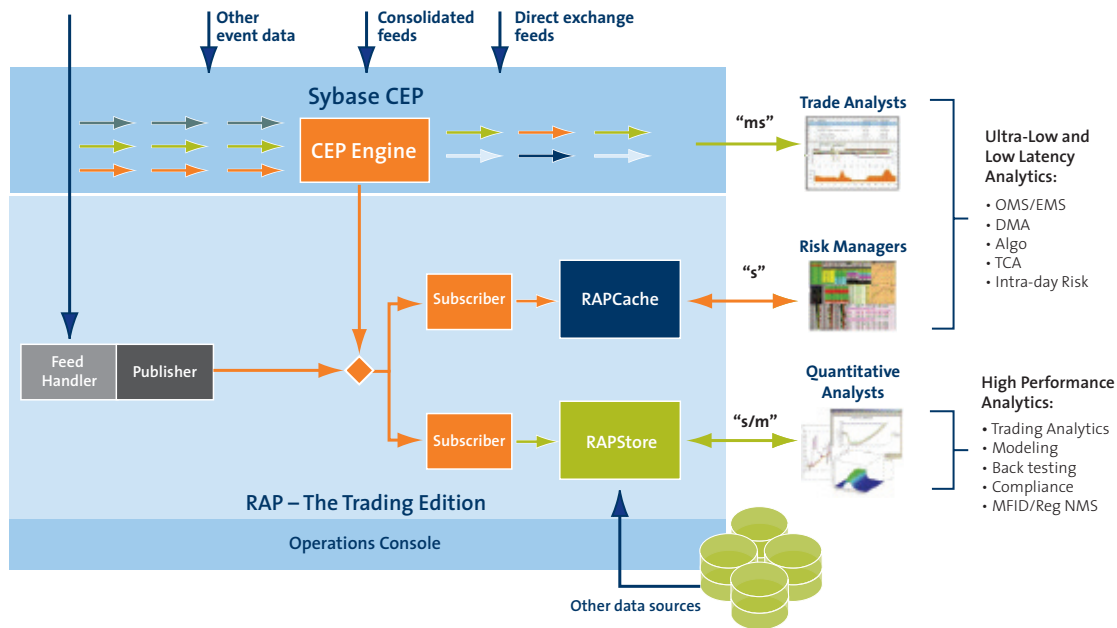
Continuous analytic applications are business-critical and they demand a clustered enterprise-class infrastructure like Sybase CEP that provides for both highly-available and highly-scalable deployments. Sybase CEP harnesses the full power of modern multi-core, multi-threaded and hyper-threaded 64-bit machines into clusters for scalable stream processing. Sybase CEP is easily configurable to meet a firm's particular HA requirements: fully-redundant mirrored configurations are supported as are clustered N+M active/passive configurations. Critical HA features such as guaranteed delivery and persistence are provided as well.

5 Intuitive and approachable event processing language

Firms can rely on a large pool of developers with the requisite skill sets for event processing, because Sybase CEP employs the very SQL-like Continuous Computation Language (CCL) to define complex stream processing and analytics. Developers familiar with SQL will immediately feel comfortable with the approach, thus Sybase CEP developers are quickly-productive, leading to fast implementations and lower ongoing application maintenance costs.

6 Single integrated platform for dealing with data at different latencies

Using Sybase CEP in conjunction with RAP – The Trading Edition provides a common platform for end-to-end development of the most challenging data-intensive applications, thereby accelerating the capital markets application development lifecycle.



Sybase RAP enables capital markets firms to make better trading and portfolio decisions with less risk through timelier, more comprehensive market insight. Sybase CEP supports tapping into high volume event streams and simultaneously publishing output to both real-time and historical RAP databases. Working with RAP Store and their preferred analytic libraries, analysts can quickly explore theories and algorithms for maximizing business advantage. Models for exploiting the theories can be then be coded into a Sybase CEP module and quickly back-tested against historical data in RAP Store. The event replay features support replay of multiple event streams at any speed: an exact reproduction of the original timing, slowed down for debugging, or replayed at many times the normal speed to quickly back-test against years and years of data. True multi-stream determinism ensures repeatable results from algorithms and provides exact event ordering.

BENEFITS

Analyze and act upon high-velocity event streams before your competitors

Customize a CEP platform to meet the unique needs of your business

Implement CEP applications quickly by leveraging a large pool of accessible development skills

Provide high availability and disaster recovery for your CEP applications out-of-the-box

Easily scale-out to meet increasing data volumes and velocities

Scale-up to harness the most from modern 64-bit hardware

Efficient, intuitive processing of streaming hierarchical XML data (e.g. FIX, FpML and custom XML) without pre-processing

Provide decision makers with flexibility to quickly adjust to new business conditions

Single, consolidated offering for market data analytics and event data management at all latencies

FEATURES

- Native C/C++ engine offers ultra-low latency stream processing and high throughput
- In-process C/C++ adapters and C/C++ UDFs reduce latency
- Extensive off-the-shelf adapters
- Comprehensive SDKs, including C/C++, C#, Java, Perl & Python
- Broad standards support, including ODBC, JDBC, JMS and others
- Extensible UDFs and plugins
- The industry's most SQL-like stream processing language
- Comprehensive and highly-intuitive language extensions for streams
- Easily-configurable enterprise-grade clustering
- Hot-hot mirrored environment support
- Configurable cluster node configurations with N+M flexibility
- Guaranteed delivery and state persistence to ensure no event is lost
- Low-latency publish-subscribe architecture enables scaling out across clusters
- Flexible deployments support distribution of stream processing across cluster nodes
- Built from the ground-up for stream processing on modern multi-core, multi-threaded and hyper-threaded 64-bit hardware
- Native XML datatype
- Rich built-in functions for XML parsing, access, generation, and shredding
- Standards support including XPATH and SQL/XML
- Shared windows offer multiple views of streaming data for easy access
- Subscriptions with filters allow decision makers to subscribe to just the events they need to see
- Dynamic queries offer agile adjustment to new business conditions
- Query-and-subscribe requests retrieve immediate results and subscribe to ongoing updates
- Sybase CEP is integrated with and optimized for RAP – The Trading Edition
- Provides high-speed analysis of market data prior to storage
- Stores raw, cleansed and/or enriched market data streams in real-time intra-day and historical stores
- Advanced data compression reduces costs for maintenance of data for compliance with current and looming regulatory requirements
- Maintain petabytes of market and internal data online and provide linear query scalability to analysts throughout the enterprise
- Event capture and replay speeds development of better algorithms