SYBASE®
An SAP Company

Sybase® IQ 15.4 Advanced Analytics for Big Data

PRODUCT DATASHEET

Sybase IQ built on proven PlexQ™ Technology uses the three-tier architecture shown in Figure 1:

- **Base-tier:** Database Management System (DBMS), this is our biggest differentiator, it is a Shared Everything MPP Analytic DBMS Engine.
- **Second-tier:** The analytics application services layer providing C++ and Java In-database APIs and enabling integration and federation with external data sources; including four methods of Hadoop integration.
- **Top-tier:** The Sybase IQ ecosystem, which consists of our strong and diverse partners and certified ISV applications.

Sybase IQ 15.4 is revolutionizing "Big Data Analytics" breaking down silos of data analysis and integrating it into enterprise analytic processes. Sybase IQ offers a single DBMS platform to analyze different data — structured, semi-structured, unstructured — using a variety of algorithms. Sybase IQ 15.4 expands these capabilities with the introduction of a native MapReduce API, comprehensive and flexible Hadoop integration, Predictive Model Markup Language (PMML) support, and an expanded library of statistical and data mining algorithms that leverage the power of distributed query processing across a Massively Parallel Processing grid based on Sybase IQ's PlexQ technology.

New APIs enable application vendors and enterprise developers to quickly and safely implement proprietary algorithms that can run in-database, delivering greater than 10x performance acceleration over existing approaches. Additionally, significant improvements have been made for text data compression and bulk data loading interfaces.

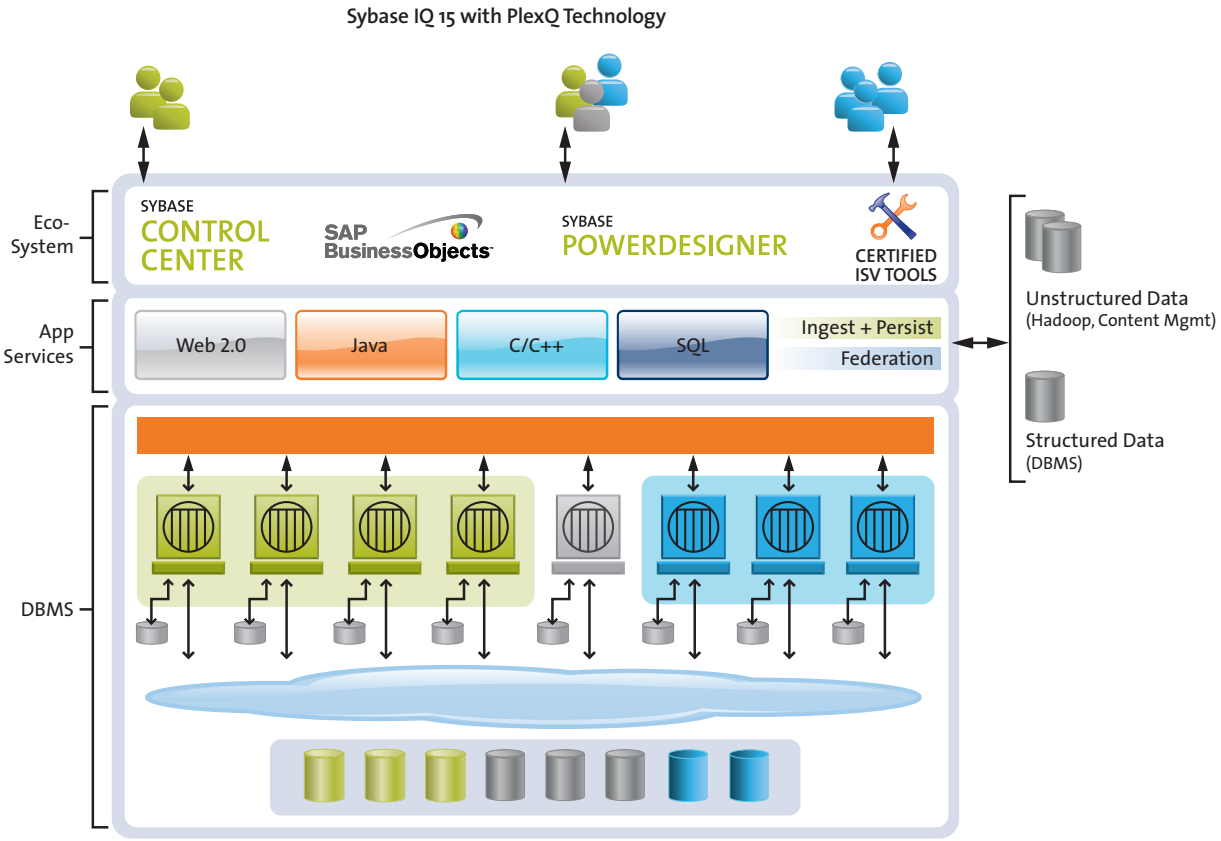

Figure 1: Sybase IQ's 3-tier architecture based on PlexQ Technology

Last year, Sybase IQ introduced PlexQ technology which redefined enterprise-wide business analytics by introducing a shared everything architecture that easily supports multiple styles of complex analytics involving massive data sets, massive numbers of concurrent users and unique workflows. Unlike other MPP solutions, Sybase IQ's PlexQ grid technology dynamically is able to manage analytics workloads across an easily expandable set of compute and storage resources dedicated to different groups and processes, making it simpler and more cost-effective to support growing volumes of data and rapidly growing user communities.

Sybase IQ 15.4 builds on this PlexQ technology to transform Big Data into actionable intelligence for everyone, putting the power of Big Data analytics easily within reach of the users and business processes throughout the entire enterprise.

SYBASE IQ 15.4 INTRODUCES THE FOLLOWING KEY CAPABILITIES:

Data Management Enhancements

A number of enhancements improve the data management, deployment, and maintainability of a Sybase IQ installation.

- **Faster bulk loading:** Bulk load data inserts into Sybase through ODBC and JDBC interfaces enabling more scalable applications, with orders of magnitude improvement in load performance.
- **Better text compression:** Better compression of VARCHAR, VARBINARY, CHAR and BINARY delivers a more efficient and cost effective way to deploy high performance text analytics applications, with significant improvements in compression rates.

Application Services

A series of APIs and tools to build advanced analytic algorithms that run in-database and leverage massively parallel processing through a PlexQ grid.

- **Table Parameterized User Defined Function (UDF) API enabling Native Map Reduce:** An application programming interface native to Sybase IQ that allows application programmers to build and deploy C++ libraries inside a Sybase IQ database server. Use these APIs to implement proprietary algorithms or packaged library of algorithms securely inside Sybase IQ to return results 10Xs faster by executing close to data stored in a Sybase IQ database server. This framework allows development and deployment of MapReduce programs in Sybase IQ to analyze very large data sets covering structured, semi-structured, and unstructured data formats. The C++ Map and Reduce algorithms are called via standard SQL and automatically distributed and parallelized across the PlexQ grid by Sybase IQ's powerful query engine.
- **Hadoop Integration and Federation:** Integrate results from a Hadoop-based analysis with queries running in Sybase IQ. Sybase is the ONLY vendor that offers 4 different techniques to integrate Hadoop data and analysis within standard SQL queries (Client-side Federation, ETL Processing, Data Federation and Query Federation) with an analytics database. Leverage Hadoop to identify relevant data points from massive sets of structured and unstructured data, and then integrate those relevant data points from Hadoop into Sybase IQ for analysis with transactional data and result sets from other data sources.
- **Predictive Model Markup Language (PMML) support:** Through a certified plug-in from Zementis, automate the execution of analytic models defined using industry standard language that are created in tools like SAS, SPSS, "R", and other popular predictive workbench products. Leverage popular analytic tools to build predictive models, automate execution of predictive models deployed in Sybase IQ, and use industry standard language to avoid vendor lock-in.
- **"R" Integration:** Use R, the popular open source statistical tool, to query Sybase IQ databases using an RJDBC interface. Furthermore, you can execute R libraries from Sybase IQ as a function call within SQL queries and return result sets.

In-database Analytics Library

- **Updated in-database statistical and data mining library (DBLytix from Fuzzy Logix):** A library of advanced analytic, statistical, and data mining algorithms that run inside Sybase IQ. Updates in version 15.4 enable the library to leverage the MapReduce API in some data mining algorithms for massively parallel processing and also include several new functions such as Support Vector Machines, Neural Networks, and Adaptive Boosting.

Expanded Eco-system

Sybase IQ also fits well into the complete end-to-end solution for Big Data Analytics. Important tooling and complementary Partner products help with this:

- **Sybase PowerDesigner® 16.1 Reference Architecture Generator:** Enables quick time to value by generating optimized hardware configurations when implementing a Sybase IQ data warehouse or data mart.
- **Sybase Control Center (SCC):** Improvements include a number of administration features, such as procedure, function, UDF (Table, TPF, and Java EE), and Text index. Eases the administration of heavily used features in SCC, and eases the deployment of built-in, external and text in-database analytics. A new SQL execution window is also included that allows for easy to test ad-hoc SQL routines.
- **SAP® BusinessObjects™ Certified:** Sybase IQ 15.4 is certified to work with SAP BusinessObjects Business Intelligence Platform 4.0 and SAP BusinessObjects Data Services 4.0 to provide a rich end-to-end Business Analytics framework.
- **Partner-based Solutions:** Sybase IQ has several new solutions based on partnerships with Solix, KXEN, Quest, BMMSoft, Zementis, and Fuzzy Logix, allowing Sybase IQ to offer premium solutions to a wide range of needs.

These new capabilities leverage PlexQ intelligent analytics grid technology to perform large-scale analytics on one enterprise-class analytics data platform. With Sybase IQ you can turn massive data into actionable intelligence.

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