The Challenges of the Flat World

The emergence of the "Flat World," as discussed by Tom Friedman, raises new challenges for traditional manufacturers. In order to navigate the Flat World, enterprises must find new ways of achieving interoperability and collaboration between multiple physical locations as well as multiple technological and information systems to optimize efficiency and speed.

Real time access to information within a single common view enables a more effective way to achieve vertical and horizontal interoperability and collaboration across the manufacturing enterprise. Leaders in manufacturing, process control and automation require the ability to monitor and correlate data and data’s relationships from different sources in a real-time environment with the highest level of precision. Through this ability, streaming event data can be correlated to provide predictive alarms and intelligence to solve problems before they occur.

Traditional databases and legacy platforms don’t provide manufacturers with the level of precision and speed required in the Flat World. Companies are turning to Independent Software Vendors (ISVs) for a solution that will protect their long term investments and that can adapt to the Flat World’s ever-changing demands all while maintaining superior performance and reliability. Objectivity’s flagship product, Objectivity/DB, is a proven object data persistence technology that helps ISVs build a high performance application platform faster and eliminates database administration costs as a customer issue.

The Benefits of Objectivity/DB

Objectivity/DB can handle the highest level of data complexity, whether
the complexity lies in the types of data, disparate data sources, inter-relationships between data, sheer data volume, or a combination of all of the above. This ability largely stems from a unique distributed architecture and through the storing and processing of data within complex models.

As an object database management system (ODBMS), Objectivity/DB stores information as objects and any number of arbitrary structures can be created on top of those data objects. This hierarchical architecture allows the developer to dynamically create and modify class definitions and object instances through dynamic space schemas.

Additionally, since Objectivity/DB stores related objects physically near to one another, as opposed to rows and columns of tables, the end user has real-time access to actionable knowledge. Logically related objects are accessed together, avoiding costly JOINs, and greatly reducing data processing time. This direct native object access allows the system to do more processing with less hardware. However, if more hardware is needed, either to increase processing or storage capabilities, Objectivity/DB’s unique distributed architecture allows the enterprise to incrementally grow rather than replace expensive resources by adding machines to the database configuration.

The distributed architecture unique to Objectivity/DB involves the use of a Federation – a collection of metadata, catalogues and databases. High availability can be achieved through the use of one or more Autonomous Partitions. Each Autonomous Partition includes a copy of the Federation and one or more underlying databases permitting each partition to continue operating independently should there be an unforeseen network interruption, such as a cyber-attack or a break in the system. End users continue to use the data in real-time and in its true form while engineers bring the broken part of the system back online. The distributed architecture and Autonomous Partitions provide 24x7 reliability and safe-guards for continuous operation.

Objectivity/DB is extremely flexible and allows for objects created in any supported language to be accessed by any other supported language. Similarly, Objectivity/DB can run on any combination of supported hardware and operating system platforms. Therefore, legacy machines and platforms with older languages can be preserved regardless of other upgrades. Likewise, ISVs and their customers can future-proof their data management system with Objectivity since newly emerging languages will be able to speak to older languages as well.
Complex Data Management in the Flat World: 
Creating Interoperability & Collaboration

Our Customers Use Technology as a Competitive Advantage
Many leaders in manufacturing, process control and automation -- such as Emerson Process Management, Metso Automation and Siemens Building Technologies -- are currently benefiting from Objectivity/DB’s unique offerings.

Powering NEC’s MES around the World
One of Objectivity’s customers, NEC, developed its manufacturing control system on the Objectivity/DB platform. NEC selected the Objectivity/DB platform because of its ability to represent and maintain complex relationships and maintain consistently high performance under high intensity read and update transactions. Objectivity/DB's reliability and dependability makes it possible for NEC to operate on a 24x7 basis, increasing productivity and accelerating time-to-market to achieve a significant competitive advantage and increased market share.

Conclusion
In today’s Flat World, the ability to integrate, process and act on complex data translates to a competitive advantage. Objectivity/DB has been proven to outperform other database solutions by 1,000 times, ingesting data faster and processing it with greater speed and precision. Its object-oriented architecture cuts development effort by up to 35% compared to relational databases while allowing faster time to market and minimizing the need for continued database administration as a customer concern. Objectivity/DB enables those in manufacturing process control and automation to monitor system functioning, analyze performance and respond to problems before they occur by identifying anomalies and by providing real-time intelligence for predictive analysis and decision support. Objectivity/DB makes it possible for leaders in manufacturing, process control and automation to raise the bar on what performance is possible.

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