

Bringing the IoT to ERP: One Stop Shopping for Global Shop Solutions



Challenge

The emergence of the internet of things (IoT) has changed the face of manufacturing. Inexpensive IoT-enabled devices are replacing expensive PLC-based devices throughout the ecosystem. To meet customer demands for IoT-enabled options, Global Shop Solutions needed a lightweight, embedded database solution that could interact efficiently with the Actian Zen database at the heart of its ERP solution.

Solution

Global Shop Solutions found the serverless solution it needed in the very solution it was already using: Actian Zen. Actian Zen Core edition operates as a lightweight, serverless database that interacts seamlessly with Actian Zen Edge, Enterprise, and Cloud editions, ensuring that Global Shop Solutions can deliver a powerfully integrated, high-performance ERP solution.

Outcome

Because all editions of Actian Zen rely on the same data models, IoT and shop floor devices with Actian Zen Core embedded can easily share data with any other edition of Actian Zen—without the need for middleware to facilitate ETL. And because Actian Zen offers both transactional and relational interfaces, the Global Shop Solutions ERP system offers both high performance transaction support as well as the opportunity for deep analytical insight through standard SQL queries.

Case Study

“With the evolution of the Zen architecture, we can now deploy a small footprint/IoT-enabled database that can run in a serverless mode with just client libraries. That opens up whole new opportunities for customers to put inexpensive IoT-enabled devices into settings that used to require expensive PLC devices.”

*- Chris Okamuro, Vice President and Chief Technology Officer,
Global Shop Solutions*

The Internet of Things (IoT) is transforming manufacturing in ways not seen since the emergence of automation on the shop floor itself. Indeed, the transformation enabled by the ability to monitor and manage equipment remotely is itself being transformed by the emergence of intelligent technologies that can do far more than older PLC-based technologies could ever do—and at a fraction of the cost. The control and monitoring features of a PLC device costing \$2,000 just a few years ago can now be delivered by an IoT-enabled device costing less than \$50.

That transformation poses opportunities for a firm like Global Shop Solutions, which has been providing a very popular ERP solution to customers in the manufacturing world for more than 40 years. To accommodate the demand for inexpensive IoT-enabled sensors and shop floor controllers, Global Shop Solutions needed a serverless database that it could embed within these inexpensive devices to store and process information. While a tool such as SQLite could meet the need for a small-footprint serverless database capable of collecting data, sharing the data in SQLite with any server-based database—including the Actian Zen database upon which the Global Shop Solutions ERP system has always relied—would require a middleware layer to transform the SQLite data into a format that another database could ingest.

When Global Shop Solutions officials got a glimpse of Actian Zen Core edition, though, a serverless version of the same Actian Zen database that supports the Global Shop Solutions ERP system, they could see precisely the embedded solution they needed to meet evolving customer demands.

A history of transactional excellence

Global Shop Solutions is no stranger to Actian Zen. The company has been using the database since the mid-2000s, when it was known as Pervasive SQL. The Global Shop Solutions ERP modules gained the ability to interact efficiently with the database through the high performance Btrieve API, while users gained richer, more flexible ways of analyzing and reporting on the data in the ERP system using standard SQL queries. Now known as Actian Zen, this high-performance database that offers both transactional and relational access has continued to beat at the heart of the Global Shop Solutions ERP system ever since.

“For Global Shop Solutions, having relational access as well as direct transactional access into other application components through ODBC and ADO.net was important,” says Chris Okamuro, Vice President and Chief

About Global Shop Solutions

We simplify your manufacturing.™ Global Shop Solutions ERP software provides the applications needed to deliver a quality part on time, every time from quote to cash and everything in between including shop management, scheduling, inventory, accounting, quality control, CRM and 25 more. Available in the cloud or on premise, our manufacturing customers benefit from real-time inventory accuracy, improved on-time delivery, lower administrative costs, increased sales and improved customer service. Headquarters in The Woodlands, Texas includes a state-of-the-art R&D facility and Global Shop Solutions training center. Through its offices in the U.S., Mexico, Indonesia, Singapore, Australia, New Zealand and the United Kingdom, the company supports thousands of manufacturing facilities in over 25 countries and nearly 30 industries.

Technology Officer at Global Shop Solutions. “We could rely in a single database platform to provide the full range of functionality that customers demanded.”

A high-performance resource for ERP

As it was then, so it is now. With customers looking to extend their manufacturing infrastructures using inexpensive IoT devices, Global Shop Solutions needed a way forward. And, again, Actian Zen showed the way.

Because Actian Zen Core edition uses the same security models, data types, and data formats as the server-based edition of Actian Zen already supporting the Global Shop Solutions ERP system, moving data securely between an IoT device and the Global Shop Solutions ERP system requires no ETL and no middleware. Not only does that eliminate the need for Global Shop Solutions to create and manage an entire infrastructure layer, but it eliminates what could become a processing bottleneck in a customer’s manufacturing environment. No matter how efficiently a middleware layer can perform those ETL operations when transforming data from one database format to another, those operations impose a quantifiable processing overhead. Depending on the volume of data moving through a manufacturer’s IoT environment—and that volume appears only to be increasing—the potential for a bottleneck at the point of ETL increases in lockstep, which in turn increases the likelihood that the performance of an ERP system relying on such ETL processes will eventually be compromised.

For an ERP provider like Global Shop Solutions, whose customers range in size from \$10m to \$1B in revenue, such complications need to be avoided. Some Global Shop Solutions customers have understaffed IT teams, so Global Shop Solutions needed a platform whose performance did not require the ongoing attention of a DBA—which, again, made Actian Zen an ideal solution.

“One of the things that’s helped us for years is the light-weight management aspect of Actian Zen,” says Okamuro. “Particularly for our smaller customers, that has always been an attractive feature of our ERP solution. They really need a no on-site management database.”

Delivering ongoing benefits

Going forward, the opportunities enabled by the power and flexibility of Actian Zen are manifold for Global Shop Solutions. A Raspberry Pi device or embedded sensor can run Actian Zen Core for local data capture and processing. It could pass extracts or even whole data sets up to a local edge server running Actian Zen Edge edition—or on to a centralized system in a datacenter or the cloud running Actian Zen Enterprise or Actian Zen Cloud edition. At any level, Actian Zen provides powerful services for high performance transaction processing and analytics, ensuring Global Shop Solutions customers with an open path for evolving their operations and gaining deeper insights.

“We’re now looking at new ways that customers can generate value from the data they can collect,” says Okamuro. “We’re using OpenML and Tensor to interact with the data in Actian Zen to develop new insights and find new ways to make people’s jobs easier. With all the data that we can capture in Actian Zen, that could lead to ML training sets that enable firms to deliver greater value, higher quality, even more realistic forecasts, which is very important to our customers.”



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