



hp zero latency
enterprise

from application
integration to zero
latency enterprise

an overview
from hp

zero latency?

Maintaining the disparate, sometimes duplicate, databases owned by each application in the enterprise poses numerous problems. For example, suppose one department in a financial institution makes a loan to a corporate client, another allows that client to execute equity trades, and yet a third completes its payment request. The amount of money extended to that client can exceed the client's total line of credit because all transactions are completed without up-to-the-second, integrated information from the three databases. Then, if the client cannot cover its obligations, the financial institution is exposed to risk and, in most cases, does not become aware of the financial outcome until the end of the day. Similarly, if an e-store application doesn't know that a customer just purchased an item from the catalog, the store loses an opportunity to cross-sell a complementary item or, worse, offers the newly purchased item at a discounted price.

Many companies have adopted *enterprise application integration* (EAI) as a strategy to cope with similar problems by synchronizing the dozens or hundreds of applications in the enterprise. And it has succeeded famously, saving businesses billions of dollars.

enterprise application integration pitfalls

EAI is a valuable strategy for improving customer service, gaining supply chain efficiencies, and averting fraud—so long as all the applications are cooperative. One drawback to EAI is that the very act of integration makes applications interdependent and thus vulnerable to failure. If one application goes down, the rest can topple like dominoes. For example, consider a telecommunications company that has just integrated its scheduling and call center applications. When all goes well, call center representatives can accurately report the availability of DSL equipment to customers. But, if the scheduling application goes down, a product could be back-ordered for months, and the representative would not know: a recipe for loss of customer loyalty.

The same fate befalls a retailer that integrates its credit authorization and customer-facing applications. As long as all applications remain available, the company can detect returns transactions that present a high likelihood of fraud, and perhaps request a second form of identification. But as soon as one application goes offline—through software failure, hardware failure, or operator error—a window opens for fraud.

Also, EAI does not ensure that all of the individual databases scattered across the enterprise are synchronized, other than immediately after a batch update—a problem underscored by well-publicized incidents in the brokerage and online auction communities.

data integration to the rescue

IT departments can preserve their investments in EAI while overcoming its limitations by supplementing it with data integration. With the addition of an operational data store (ODS)—an enterprisewide data cache—if one application goes offline, the other applications still have access to its data, through the ODS. Caching data in a central repository loosens application dependencies without breaking integration bonds. In other words, it provides “breathing room” so that faults that occur in one application don’t necessarily cascade over the entire enterprise.

The benefits of all applications having access to complete, consolidated information are tremendous. Furthermore, when a company supercharges EAI with a customer-aware, real-time ODS, it can transform itself into a *zero latency enterprise*, with the ability to detect an event or state and respond to it instantly with the appropriate action. With this zero latency enterprise (ZLE) data store, companies can

- Improve service by giving all applications an up-to-the-second, unified customer view
- Obtain a real-time view of the business for profitability analysis, supply chain management, and business forecasting
- Gain the ability to detect and avert fraud while it happens—not hours, days, or weeks later

The concept is “business at the speed of *now*,” and companies embracing it are winning customers and gaining unprecedented supply chain efficiencies.

hp zero latency enterprise framework

The HP ZLE framework combines the strengths of application and data integration to create a seamless, enterprisewide solution for real-time information and action. A business that becomes a zero latency enterprise is empowered to see, know, and act *now*:

- Gather and process information continuously, in real time, without delay
- Make that information available immediately across the enterprise so that business processes and applications can take advantage of real-time information
- Leverage the knowledge gained from real-time information to manage the business, serve the customer, and solve critical business challenges

HP offers complete ZLE solutions for the retail, telecommunications, and finance industries. All include HP platforms, patent-pending software technology, and business applications from leading independent software vendors (ISVs) that have been ZLE enabled to take advantage of real-time data.

ZLE data store serves as a communal memory

A ZLE data store is a high-performance database platform for managing data from any application in the enterprise. Unlike traditional operational data stores, it maintains state data, which is current value information such as a customer’s current account balance, as well as event data, which is detailed, transaction-level data such as call detail records (CDRs), credit card transactions, and so on.

In a zero latency enterprise, the role of the ZLE data store is to keep databases and application data stores synchronized so that an update of any one application also updates applications downstream. This real-time updating of applications gives companies an up-to-the-second, unified customer view that enables them to provide

superior service at every customer touchpoint. It also feeds data mining applications. With data that's up to the second instead of days or weeks old, data mining yields better conclusions about which customers are good candidates for a particular offer, what characteristics determine fraudulent transactions, and so on.

The technology behind the complete customer view in the ZLE data store is HP's patent-pending Customer Manager software. It consolidates, synchronizes, and "de-duplicates" data from all customer-facing databases in the enterprise—even, for example, if a customer address has been misspelled. To do this, Customer Manager leverages a variety of leading partner applications.

EAI hub serves as "instant messenger"

Businesses that become zero latency enterprises leverage their investments in EAI. The role of EAI within the zero latency enterprise is to transmit information between applications and the ZLE data store. For example, in a telecommunications company, EAI technology sends each new CDR to the ZLE data store in real time. If the business rules determine that the call appears to be fraudulent—for example, it's the second international call made within minutes by a customer who has never made even one—then EAI technology instructs another application to alert a human agent to call the customer. All events happen in real time, so the fraudulent call can be averted as it happens, saving money and pleasing a customer.

real-world solutions

Confronted with growing numbers of applications, IT managers face burgeoning challenges that cannot be solved with EAI alone. In the HP ZLE framework, application and data integration join forces to help IT meet business goals.

top IT challenges and how the ZLE framework solves them

IT challenge

Legacy systems don't communicate effectively with new systems; IT acquired during mergers and acquisitions is incompatible with existing systems.

Each line of business is an IT island, unable to share information with other parts of the enterprise.

Retrieving customer records and merging them with transaction history and business data are costly and slow, so valuable information is not exploited.

Everyone and everything must wait until transaction and data processing are completed before holistic decisions about relevant customer offerings can be made.

hp ZLE framework

Integrate application data stores into an enterprisewide data cache, or ZLE data store. The ZLE data store, in turn, is made available to the extended enterprise.

Bridge the islands using a combination of EAI and a shared ZLE data store. Not only are applications more reliable, but also they deliver more value because they can access a broader base of information to support decisions.

Insert all transactions into the customer-centric ZLE data store the instant they occur. People and applications can refer to the complete, up-to-the-second transaction history to make personalized cross-selling and up-selling offers and to detect suspicious transactions.

Replace batch updates with continuous, up-to-the-second updates of the ZLE data store. Every customer-related event or state change is available instantly to all applications in the enterprise.

business rules and beyond

Another element of the ZLE framework is transaction management, which involves a centralized rules service. Using a graphical interface, the company writes business rules so that any event can trigger an action. For example, a retailer might write the following rule to make special offers to customers: "If customer owns a house, has a pool, has recently purchased children's swim wear, and it is spring, then offer a child's pool toy."

Some companies already have business rules, but there is a different set for each application: point of sale (POS), e-store, call center, and so on. By consolidating all business rules, a company can interact with its customers consistently, across all channels.

In the ZLE framework, transaction management is more than just business rules. Business rules are applied via the HP Interaction Manager. Patent-pending software, the Interaction Manager instantly captures every customer interaction, from every customer touch point, and transmits it to the rules engine; transmits the rules engine's recommendation back to the touch point; and then inserts the transaction, offer, and response into the ZLE data store. Closing the loop means the rules get smarter with every interaction. What makes the Interaction Manager unique is its highly parallel insertions, which allow it, for example, to capture 50,000 telephone company CDRs per second.

hp, the zero latency enterprise trailblazer

Proposed by Gartner in 1999, the *zero latency enterprise* represented a concept, a vision for the future. Compaq, now part of HP, alone recognized the technology ingredients that would transform the zero latency vision into reality and set to the task. That same year, then-Compaq unveiled a full-scale demonstration of a zero latency enterprise, the world's first. Today, HP has capitalized on its head start and continues to outpace all other vendors in terms of architecture, partnerships with ISVs, and understanding of the impact of the zero latency enterprise on finance, retail, and telecommunications. *Only HP delivers full-scale ZLE solutions today.*

HP offers four distinct advantages as a ZLE vendor. First is its experience with enterprise environments. HP combines more than 60 years of experience integrating the most complex and demanding computer environments.

Second, HP platforms deliver the capability to handle mixed workloads in environments that require unsurpassed scalability and availability. When companies consolidate all their application data, the platform itself becomes mission critical. "Five nines" availability is not sufficient; only continuous availability satisfies the demands of global businesses that never close. In the HP ZLE framework, the EAI and ZLE data store reside on the highly scalable HP NonStop™ server, which delivers the parallel performance, scalability, and availability requisite for business-critical operations.

Third, only HP has developed the software tools that translate the ZLE vision into reality. For example, the HP Interaction Manager enables businesses to respond to events and states in real time with intelligent action, and the HP Customer Manager enables the creation of a single, unified customer view shared by all applications in the enterprise. Both are patent-pending technologies based on standards.

Fourth, HP provides complete life-cycle services to plan and implement a ZLE solution that is tailored to the unique needs of the company and that leverages its technology

investments. For proof of concept, many organizations begin with the HP QuickStart for ZLE program to create a tactical solution for a single business initiative, typically in three months or less.

see, know, act now

EAI plays a key role in enterprise IT strategies. Used alone, however, it creates new problems even while it solves others. The solution is to supplement application integration with data integration and transaction management. With this combination of technologies, businesses gain

- The power to process information and transactions while applications run against that data
- Very large scale storage, real-time retrieval, and immediate action on information
- A single up-to-the-second view of the business and its customers
- The ability to process, distribute, and act on information now

Only HP can deliver proven ZLE solutions today. To view an online demonstration of a live zero latency enterprise, visit the virtual tour website at http://xods.atc-compaq.com/61_virtual_tour.html.

For more information, go to www.hp.com/go/zle.

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