

REPORT REPRINT

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Aventra IRON is ClearDB's new abstracted in-memory workload accelerator

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ClearDB customers have been using Aventra IRON as an integrated feature of the firm's DBaaS. It has been abstracted and is now being offered as a stand-alone workload accelerator.

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ClearDB developed Aventura IRON in order to scale its database-as-a-service business (rather than re-writing services or adding more clusters). Indeed, ClearDB customers have been using Aventura IRON as an integrated feature of the firm's DBaaS. It has been abstracted and is now being offered as a stand-alone accelerator for on-premises or cloud workloads running on bare metal, or IaaS.

THE 451 TAKE

ClearDB has a new, important and differentiated approach for in-memory caching. Remaining questions include whether (and when) Aventura IRON will become more valuable than the DBaaS offering that spawned it, and whether it will attract investors to the prospect of spinning a differentiated take on in-memory caching into a crowded market.

CONTEXT

Plano, Texas-based ClearDB was founded as SuccessBricks in January 2010 by serial entrepreneur Cashton Coleman, formerly of Salon.com, Feedster, Zend Technologies and Baylor University. ClearDB came out with a DBaaS in December 2010, and it launched its current model of high-availability MySQL services in November 2011. Coleman and several private investors bootstrapped the business, but in February 2016 ClearDB raised \$500,000 of debt financing to accelerate expansion. It claims over 250,000 users of its service. The vast majority of them are paying customers. Not all pay directly – some obtain the company's database services as part of their agreement with a cloud provider, such as Microsoft (via Azure). In such instances, ClearDB is paid royalties. It has some 20 staff and says it is cash-flow positive; we estimate revenue to be less than \$5m.

TECHNOLOGY

Aventura IRON accelerates the speed of I/O, but is independent of application, database or infrastructure. The company says implementation does not require any change to program code or operating system code, which is its major selling point. It marries RAM and SSD, offers block-level consistency and supports ACID (atomicity, consistency, isolation, durability) transactions. ClearDB characterizes this as unified memory and tiered storage with universal persistence – used to accelerate Oracle database performance by a factor of four. With other approaches, such as Redis, developers have to write code. With Aventura IRON, none is required – it sits at the storage level.

A SaaS company can upload the software onto one or all of its VMs or host machines. Once installed, the SaaS application running on that host or VM is pointed at the Unified Memory Volume Store that was created by Aventura IRON, and ClearDB's software does the rest. The Volume is established via configuration settings during Aventura IRON installation. Customers are relocating data that would otherwise be stored on spinning disk to a dedicated, unified region of storage combining RAM and SSD – the Unified Volume. The Linux kernel accesses this directly rather than having to go to the entire stack and to spinning disks, thereby improving I/O performance. Basic Linux administration skills are sufficient for deploying and configuring the software. Aventura IRON runs in AWS today, and will run in Azure and Google in the future. Customers install the software on their target systems and require two SSD disks of equal size with enough storage to contain a Unified Memory Volume and at least 4GB RAM.

There are two ways Aventura IRON can be used: either on-premises/private cloud or on any public cloud since the technology is delivered in an RPM or Debian file format and will work with any cloud infrastructure with the right memory/SSD configuration. In the case of AWS, (with support for Azure and Google to follow), users fire up their Aventura IRON VM running on Linux-based EC2 and migrate existing workloads to it (and close down existing VMs). Aventura IRON-enabled AMIs automate AWS Elastic Block store for EC2 instances replicated across Availability Zones. Aventura IRON is priced to be ~15-20% of achievable infrastructure cost savings; it is charged as a subscription or customers pay for the EC2 instance type and Aventura IRON-enabled AMI hours consumed – with no setup for minimum fee.

BUSINESS PROBLEM

All companies try to lower infrastructure cost in order to maximize profitability or direct opex spending to research and development. ClearDB believes that fast-rising cloud and private compute costs are often preventing the acceleration of top-line growth, and require owners to pay a high cost of capital to fund the necessary infrastructure acquisition/consumption. It says Aventura IRON enables companies to sweat their assets or their instances by doing between five and eight times the amount of work on the same asset. This translates into opex savings of 20-50%.

ClearDB claims the ROI for Aventura IRON can be more than 400%. For cloud customers, payback on an annual subscription is said to be less than three months, and less than 10 days on a monthly subscription. Verification of savings can be examined by comparing the CSP bill before and after Aventura IRON implementation. However, in order to achieve savings, ClearDB says the customer will need to consolidate workloads and turn down instances that are no longer needed.

ClearDB says the technology has been used to improve performance of its own MySQLaaS business in scale with over 40,000 operational databases. Other use cases that are currently entering proofs of concept include Cassandra DB and elastic search. The persona of a target customer is any business that processes data. It's in the process of publishing two reference use cases, and ClearDB has documented its own use case in the accompanying white paper.

BUSINESS MODEL

ClearDB owns the customer relationship in direct sales to end customers. In the case of a partner-resell relationship, the partner owns the end customer relationship. A SaaS customer would procure via direct purchase or through a partner, but would continue to own the relationship with all end customers.

The target audience includes:

- CEO – Forecasted revenue and cost by product, service, customer and sales pipeline. Top-line growth and margin.
- CFO – Forecasted revenue and cost by customer, department, P&L, opex and COGS, as well as detailed reports for cost-optimization opportunities.
- CTO/VP DevOps – Forecasted cost and performance by product, service, environment, role and owner, as well as detailed reports for performance optimization opportunities.
- VP product management – Forecasted revenue, cost and performance by product, service and customer.

The go-to-market strategy for Aventura IRON is initially focused on direct sales and development of its website – this is a new and as-yet commercially unproven technology. Its direct sales approach is focused on early adopters, vetting the license and savings model, and refining the sales cycle.

It says it sees opportunities for Aventura IRON to be integrated in its partners' cloud offerings. At this point, it does not directly take advantage of inputs from third-party APM/CMDB tools or APIs from cloud consumption management and optimization firms. However, one area of focus is cloud management tools and its CloudCheckr relationship. Partners that provide visibility and insight into cloud infrastructure could extend their own tools to take action and solve performance or cost issues, remediating using ClearDB.

COMPETITION

ClearDB's closest DBaaS competitor is AWS RDS, which offers the choice of several databases, including MySQL, as well as AWS's own cloud database, Aurora. Aventura IRON is aimed at a different target though. Firms operating here include ScaleArc, Azul Systems, GigaSpaces, ScaleOut Software, Terracotta, GridGain Systems, Pivotal, Plexistor, ScaleMP, DataCore and Redis. Tangosol was acquired by Oracle, DataSynapse by Progress Software and GemStone Systems by GemTalk (via VMware). Most don't have an accompanying database, and many are interconnect-dependent ClearDB notes.

SWOT ANALYSIS

STRENGTHS

Until now only available as an integrated part of its DBaaS, ClearDB is offering Aventura IRON as a separate in-memory application-performance accelerator for any workload, and does not require any changes in program or OS code. As well as improving workload stability, Aventura IRON may also reduce the need for virtualization licenses by enabling customers to reduce VM sizes.

WEAKNESSES

Many large enterprises are still hesitant to put their data in the cloud, and the cost of moving data sets to the cloud can be prohibitive. The DBaaS market has yet to light up in the enterprise.

OPPORTUNITIES

Aventura IRON is engineered for 'heavy' applications, but also accelerates general-purpose applications. It reduces workload latency and removes performance variability by marrying RAM and SSD, relocating data that otherwise would run on spinning disks to a volume running on a region that takes advantage of both of these much faster technologies.

THREATS

Many enterprises are using in-memory technologies to come to grips with rising data volumes, concurrency needs and analytics management, but they are often seen as complex, costly and risky. ClearDB believes Aventura IRON overcomes this, but faces a mature market with incumbents large and small. Market education will be a key success factor.