

IBM Direct to Consumer Solution on Oracle Cloud Infrastructure



Intelligent cloud applications that deliver value for high-performance computational processing

Highlights

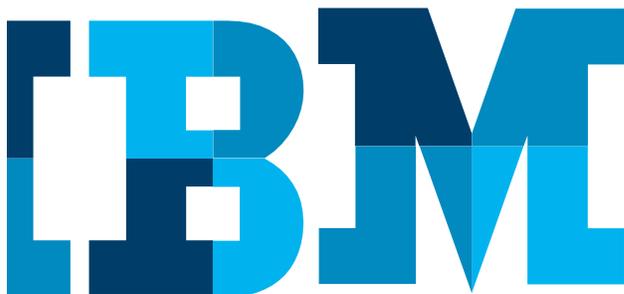
- Why Oracle Bare Metal?
 - Oracle Cloud Infrastructure – direct to consumer solution in industry
 - DTC Solution – Underlying infrastructure
-

The cloud presents an entirely new set of value propositions for enterprise computing environments, offering a myriad of benefits that include application scalability, improved economies of scale and reduced costs. Such benefit realizations enable companies to promote their vision of the truly dynamic data center and further a new level of agility and nimbleness that is unfathomable with the traditional silo-computing model.

Today, when it comes to cloud choices, organizations can choose between traditional clouds with Virtual Machines (VM) that are easy to use but require abstract disk, memory and CPU and come with a sizeable performance penalty, or Bare Metal Cloud, which allows users to custom-design hardware dedicated to their applications and helps provide greater performance than traditional VM clouds.

However, security continues to be a concern. The possibility of breaking regulatory compliance in a multitenant environment and experiencing lower performance associated with VMs were the main reasons for security-sensitive organizations to be originally reluctant to move their data to the cloud. Dedicated server offerings from cloud providers such as Oracle Cloud Infrastructure were launched to help address these concerns.

Oracle offers industry-first, fully dedicated Bare Metal Servers on a software-defined network, combining the power of Bare Metal Servers with a secure, isolated virtualized cloud network. Bare Metal Compute Service provides unrivaled raw performance, including servers with multimillion input/output operations per second (IOPS) and very low latency; this environment is ideal for running I/O intensive web applications, the most demanding big data workloads and Oracle Database.



IBM Global Business Services

Executive Summary

Oracle Bare metal instances help ensure strong isolation with dedicated physical server access, providing visibility and control of customer applications that demand stringent compliance and regulatory requirements. Next-generation infrastructure also allows companies the ability to run Bare Metal servers side-by-side with any class of system—from VMs to engineered systems.

Why Oracle Bare Metal?

Oracle Cloud Infrastructure Services combine the elasticity and utility of public cloud with the granular control, security and predictability of on-premise infrastructure to deliver what customers need today: high-performance, high availability and cost-effective infrastructure services.

Reliability and high availability

Fully independent infrastructure for availability domains within a region helps maximize solution availability. Bare Metal is deployed in regions and inside each region are at least three fault-independent Availability Domains. Each Availability Domain contains an independent data center with power generator, cooling equipment and network connectivity. This helps enable organizations to build high-availability, high-durability applications in the cloud without sacrificing performance.

High performance

Bare Metal Servers without a hypervisor deliver uncompromising and consistent performance with the latest generation non-volatile memory express (NVMe) SSDs, offering millions of IOPS, ideal for I/O-intensive application deployment. High bandwidth network interconnect provides less than 100µs latency between any two hosts within an Availability Domain, and less than one millisecond between Availability Domains in a region.

Flexibility and security

Flexibility is a key benefit of Cloud Infrastructure Services. It gives complete control over cloud resources, so you can setup and customize based on your requirements. You have direct physical access to the resources when compared to typical cloud offerings, where physical resources are hidden behind the hypervisor layer.

Cloud Infrastructure Services have a single-tenant solution: it provides isolation, which can be an important compliance requirement for some organizations. This solution allows security-sensitive organizations the ability to move their workload to the public cloud to help ensure that they conform to regulatory compliance requirements. Cloud Infrastructure Services is the first cloud platform to take network and block I/O virtualization out of the software stack and put it in the network.

Leading hardware for a modern architecture

While Cloud Infrastructure Services uses the latest compute capabilities, NVMe storage helps enable as much as four million IOPS with each Bare Metal instance within a modern architecture. The combination of these architectures provides uncompromised security and better performance.

Oracle Cloud Infrastructure – direct to consumer solution in industry

Direct-to-consumer (DTC) solution from IBM incorporates cognitive technologies, along with social and predictive analytics to provide a high-end, productive artificial intelligence powered solution for product consumers. IBM's proof of concept of this solution targeted wine manufacturers and distributors in the U.S., who are under pressure to go direct to their consumers. However, the solution can be extended to any consumer packaging manufacturer and distributor that engage in a DTC strategy.

IBM Global Business Services

Executive Summary

This solution provides a 360-degree view of the brand profile, including the competitive landscape, thereby helping enable consumers make informed decisions concerning their buying preferences. This 360-degree view is comprised of social demographic features, sentiment analysis of fellow consumers on social media, and financial information regarding the product in the competitive space.

The direct-to-consumer street pricing solution allows for the fully automated crawling of data from major retail chains, then provides near real-time pricing analysis, which helps for increased business intelligence and insight into the competition.

Due to greater business insight regarding competitive pricing and how competitors are positioned within the market, this solution enables organizations to better position their products in the marketplace. In addition, this benefit can help increase revenue potential by allowing clients to gain an understanding of potential opportunity areas that allow for gains in market share by repositioning their current or future selection of offerings.

As the performance and reliability of the solution is key, Oracle Cloud Infrastructure is an obvious choice. The solution is a hybrid cloud offering which incorporates IBM® Watson™ APIs from IBM SoftLayer, Business Intelligence Cloud Services (BICS) for Oracle PaaS, Oracle IaaS for Bare Metal connecting to on-premise applications.

The application landscape and architecture underneath the solution revolves around a high-performance compute environment, which helps give the ability to provision storage, compute and integrate flexible virtual network overlays into the Oracle Cloud Infrastructure platform.

DTC Solution – Underlying infrastructure

The overall solution caters to four main areas.

A. Data sourcing from the retailer websites

Data sourcing from the retailer websites primarily depends on custom Python programs—in scraping, processing and extracting relevant information from the highly unstructured advertisement data on the retailer websites. These unstructured data sources are in the form of text and images. For this scenario, a set of custom Python programs have been developed to scrape and extract semi-structured insights (wherever possible) for further annotations. Custom optical character recognition (OCR) programs have been developed to process the image and extract the relevant text for further annotations and insights.

B. Repository for source data and processed insights – Oracle DB

Scraped data from the retailer websites are maintained in the staging tables in the Oracle Database and are further accessed by cognitive components of the solution for further annotation and insight generation.

Authentic data, obtained from the U.S. Federal Government on registered wineries and their wine brands, are consolidated and maintained as master look-up tables and dictionaries. These tables are key validation points for the final annotations and insights based on which strategic decisions on offers, and deals can be made to influence the buying preferences of consumers. However, this solution can be used by any beverage or CPG manufacturer that offers a catalogue of brands.

C. Annotating the content to business insights to help influence buying preferences – The Watson Way

Watson Content Analytics Studio is the heart of the Watson Explorer Analytical component that is a rules-based decision making system that employs Natural Language Processing techniques. These techniques, along with custom Unstructured Information Management Architecture (UIMA) annotators are used to unravel the business insights about the wine brands on a competitive landscape.

DTC is a cognitive solution that works in conjunction with other cognitive tools. Together, these tools create the Cognitive Suite. One tool in the suite, IBM SPSS®, achieves the objectives of this solution through probabilistic modeling and machine learning thereby enhancing the value of this solution. One benefit of Watson Explorer Analytical is its ability to annotate highly unstructured content and gather business insights that would potentially influence consumers' buying preferences. Watson Explorer Analytical annotations are custom-made and pattern-based rules that are domain-specific.

The heterogeneity of information that is provided in different retailer websites plays a key role in making the Watson Explorer Analytical solution interesting and valuable at the same time. Some of the parameters whose values are to be extracted for the final insights are implicit in some of the retailer websites and hence additional annotators have to be developed to harness the essential insights.

The key annotated parameters are maintained across the disparate sources thereby helping ensure reusability and consistency.

D. Visualization to demonstrate the value of DTC solution

Visualization is the key for the successful demonstration of a cognitive solution's value. This can be achieved with dashboard reports that are developed by using two reporting tools: IBM Cognos® and Oracle BICS.

Various reports developed and embedded analytics not only provide information around the consumer products in the market, it also provides business insight. These reports help create a holistic understanding of the consumer segments and their buying preferences provide insight into unexplored opportunities.

Insights into advertising campaigns

The Watson Street Price Analyzer provides near real-time insights into weekly advertising campaigns of national and regional retailers, every day low price offerings of discounters and consumer sentiment towards major alcohol brands. Bubble charts are a good option to study the discount variants across the retailers and across geographical locations. The size of the bubble can be used as a metric to denote the variation in discounts. For example, smaller bubbles depict the fact that discounts are more uniform. These charts are equipped with drill-down and aggregation facilities so that the average street price of wines offered in each city can also be obtained.

Street prices fluctuations

A simple bar chart could help study the average discount from markup price for each of the popular wine brands across retailers. An example of insight could include which geographic location are the base prices and the corresponding street prices, varying between retailers. Another example could show the locations that offer the identical base price as well as significantly larger discounts to tap the market and opportunity.

How campaigns can be personalized and ROI increased

Historical data suggests that some of the retailers offer consistent discounts across all cities. No location specific targeted campaigns are performed. When looking at the household data for cities, each city has a different composition of population; therefore, there is a huge opportunity to help increase the return on investment (ROI) through personalized and targeted campaigns. The significant data variations are in the demographic makeup of each city and DTC solution clearly aids in tapping this unexplored market, which is location-sensitive and can help in tailoring personalized campaigns.

Beware of in-store prices – sometimes they are economical For some of the popular wine brands, historical data has shown that in-store prices have been categorically lower than the online retailer street price. Our solution highlights these key insights that can aid retailer in underplaying the marketing messages on these brands.

Some of the applications being used in the DTC solution are highly resource intensive; Oracle Cloud Infrastructure is the best suited solution for such requirements. Oracle Bare Metal Servers without a hypervisor deliver uncompromising and consistent performance and are ideal for I/O intensive application deployment. Due to the abstraction layer, virtualization consumes some of the system hardware resources, this is not the case for Bare Metal. Bare Metal is best suited for critical workloads, which need dedicated servers with full computing capacity. This infrastructure uses high-performance computational processing without compromising security and also brings flexibility in solution design and deployment.

Deploying the DTC solution in Oracle Cloud Infrastructure is easy and delivers impressive performance and very low latency response times. These requirements are important to many organizations as it enables them to offer a comprehensive solution, which helps them to build globally responsive and intelligent cloud applications that deliver real-time value.



© Copyright IBM Corporation 2017

IBM Corporation Route
100
Somers, NY 10589

Document No. ORW03042-USEN-00

Produced in the United States of America September
2017

IBM, the IBM logo, ibm.com, Cognos, SPSS and Watson are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

This document is current as of the initial date of publication and may be changed by IBM at any time. Not all offerings are available in every country in which IBM operates.

The performance data discussed herein is presented as derived under specific operating conditions. Actual results may vary. THE INFORMATION IN THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT. IBM products are warranted according to the terms and conditions of the agreements under which they are provided.

The client is responsible for ensuring compliance with laws and regulations applicable to it. IBM does not provide legal advice or represent or warrant that its services or products will ensure that the client is in compliance with any law or regulation.



Please Recycle
