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Transforming intuition into knowledge through cloud analytics and Big Data technologies

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Summary

The social and economic challenges of the coming years will have a close relationship with data. Our ability to find the best data sources, analyze its value and take advantage of the results will be one of the key factors that allow us to create a new generation of products and services. In many sectors data will allow this new generation to have a feature that until now has not been attainable: end user could have personalized products and services.

Memento adopts this vision and offers sectorial solutions based on advanced analytics with interesting real-time counterparts.

Abstract

Introduction

The social and economic challenges of the coming years will have a close relationship with data. Our ability to find the best data sources, analyze its value and take advantage of the results will be one of the key factors that allow us to create a new generation of products and services. In many sectors data will allow this new generation to have a feature that until now has not been attainable: end user could have personalized products and services.

So far, the data analytics capabilities of most companies allow, in the best case, to make business decisions based on data from the most relevant customer segments. Currently Big Data techniques minimize the problems that introduce complexity and volume of the analysis allowing deal with previously unattainable goals, as a detailed analysis of the individual needs of each client.

With Big Data technologies, not only the volume, but also the diversity of the data passed to the background. This flexibility opens up the possibility of integrating multiple data sources within the same analysis, significantly improving the richness and value of the conclusions. This opens the possibility of using the many sources of open data available on the www. In this scenario, the interest in using and create open data has grown strongly in the last year generating a really interesting and valuable catalog.

Real-time analytics play a critical role in an increasing number of business areas. Their symbiosis with Big Data technologies can create valuable services joining the power of analytics with the ability of real-time architectures to generate value at the right time.

So far, the main sources of data were companies. However, in recent years has emerged a rich new source of data: the M2M. This technology makes the citizen and even the simplest objects (in the field of Internet Of Things) in potential data generators.

The value that can emerge from the integration of all these data sources is immense. In relevant areas such as eHealth or Smart Cities, possibilities grow exponentially. We have ahead years in which we will have a huge range of new products and services do not explored yet.

Proposal

Memento enters this scenario as a platform for integration services and advanced data analysis. Big Data technologies are abstracted by a layer of middleware services and technologies that integrate data sources, do the analysis, extract the value in an intuitive way and integrate the results on the most suitable way.

Memento is designed keeping in mind the fact that every sector of business and each client has its own identity as far as it analyzes, integrates data and interprets the results of a particular form. For this reason we have created a modular architecture that allows the segmentation of functionality without losing the synergies and common modules of different sectors. This allows us to offer specialized solutions without losing the agility of integration. Real-time analytics module is also part of the core platform, providing actionable insights that can be easily integrated.

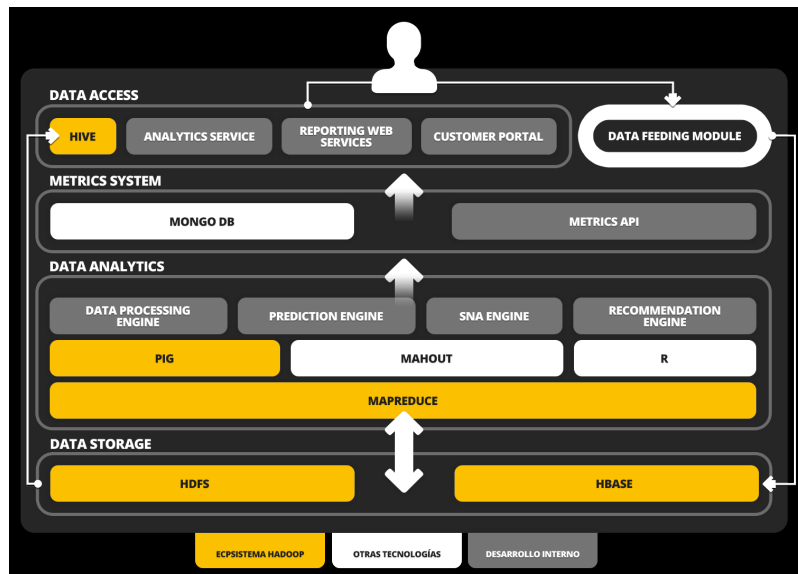
Memento architecture was developed in order to easily integrate any data source, including Open Data and M2M, and any method of analysis. This allows us to be aligned with the major challenges of the coming years in terms of analysis and data mining.

In this scenario, the key is to collaborate with organizations specialized in technology and data analysis across sectors or areas of knowledge. Therefore Memento collaborates with many academic and research institutions that allow us to develop the best methods to extract the maximum value of Data.

Current state

The platform is currently serving customers from different areas providing services of data integration, advanced and real-time analytics and results visualization in the fields of behavior-based recommendations and predictive analytics.

The architecture is defined so that its development is fast and reliable and maximizes reuse. It is outlined in the following figure



Future developments

The next objectives in our roadmap are:

- Develop Open Data services
 - Integration of data in order to be used in any analysis or directly by customer
 - Publication of data that can be used by the community
- Develop M2M data services
 - Providing structured Storage and SQL access
 - Developing custom analytics
 - Creating SDKs multi-device to consume and publish M2M data
- Develop eHealth data services
 - Providing structured Storage and SQL access
 - Developing custom analytics
- Develop real-time analytics services
 - Developing data services that allow real-time decision making
- Create cross-sector services: M2M + eHealth = mHealth
 - Developing data services that allow create business models around mHealth

About the authors

Ignacio Marrero Hervás is M.Sc in Astrophysics from *Universidad de Granada*

Current position: Project Director of Big Data solutions at *Factory Holding Company 25 (U-Tad)*

Previous positions

Solution Architect in Cloud Computing Services & Big Data at *Factory Holding Company 25 (U-Tad)* (2011)

Senior IT Consultant & Big Data architect at *Ecija Soluciones* (2010)

Senior Java/J2EE architect & Project Manager at *Oesia* (2009-2010)

Software Technical Lead at *Telefonica I+D* (2000 – 2009)

PhD student & Data Scientist at *Andalusian Institute of Astrophysics* (1994 – 2000)

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Previous Positions:

IT Architect (Research and Technology) at *Universidad Internacional de La Rioja* (2012)

Enterprise Solutions Architect (Cloud Computing & Big Data) at *IBM* (2008-2012)

IT Architect of Enterprise Java and SOA solutions (new product development) at *IBM Software* (1995-2008)

Technical Lead in Artificial Intelligence (Machine Translation) at *IBM Research – Universidad Autónoma de Madrid* (1987-1995)

Fernando Pérez García is B.Sc in Computer Science from *Universidad Pontificia de Salamanca*

Current Positions at *Factory Holding Company 25 (U-Tad)*

Technical Definition and Management of R&D projects

Technical Manager: SOCAM (Sistema Operativo de Código Abierto Multi-dispositivo)

Technical Manager: Information Analysis from Big Data graphs

Previous Positions

IBM IT Architect (Data Management) at *IBM Spain* (1998 – 2011)

Technical Lead in Enterprise Information Management (IBM GBS Business Analytics & Optimization) at *IBM Spain* (1998 – 2011)

Consulting Engineer (Data Management and Data Warehouse) at *RETESA, S.A.* (1997)