B2B – SOCIAL MEDIA ANALYTICS AND LIFE CYCLE MANAGEMENT

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Problem Statement

EMC offers a number of core technology products, solutions, and services to a list of diverse customers. These services and solutions could be Storage, Cloud, Virtualization, BigData, or Data Protection to name a few. Currently, customer sentiment and feedback is collected through direct channel for interactions like feedback survey, Executive Briefing Centers (EBC) and inviting them to various shows that EMC hosts. In business today, customers are engaging more with social media and blogs to express their views, needs, and pain points. Hence, social media analytics has become a potent instrument to understand the attitudes and preferences of customers across a diverse range of online sources. Businesses today are employing tools to gain insight to the wisdom of their consumers through the help of social media, leveraging the flood of information available in the online platforms along with analytics that can channel this information into actionable strategies.

Proposed Solution

We will discuss a framework of tools and resources to listen to relevant online social media activity and perform intelligent analytics on the collected data to convert the insights into actionable product and process strategies. This will attract more customers, improve products, drives sales, builds strong brand loyalty, and improves Total Customer Experience (TCE) (buying, deploying, using, and servicing). The social media and platforms where it is running are constantly evolving and the proposed tool will be flexible enough to accommodate the ever-changing needs. The proposed framework will have a unified GUI which helps customize and streamline Social Media listening and perform massive real time data ingestion, manages the Big Data, performs various analytics using MapReduce, suggests actionable recommendations, and manages the lifecycle of the actionable items from day of inception until its implementation in the product/process.

Online social media represent a radical shift in how information is produced, transferred, and consumed. User generated content in the form of blog posts, comments, and tweets establish a connection between producers and consumers of information. Tracking the pulse of the social media outlets enables companies to gain feedback and insight to how to improve and market products better. For consumers, the abundance of information and opinions from diverse sources helps them tap into the wisdom of its users to aid in making more informed decisions.

The proposed framework will have the following 5 stages of process.

1. **Data Capture**
2. **Analytics**
3. **Present the Findings**
4. **Recommend Actionable Strategy**
5. **Life Cycle Management of Recommend Action Items**

Data Capture

The data capture stage enables identifying conversations on social media platforms related to its activities and interests. This is done by collecting massive amounts of relevant data across hundreds or thousands of social media sources using news feeds, APIs, or by crawling. The capture stage must balance the need for finding information from a wide range of source with focusing on sources that are most relevant and authoritative to assist in more refined understanding.

Relevant Social Media content data comes in many forms, including:

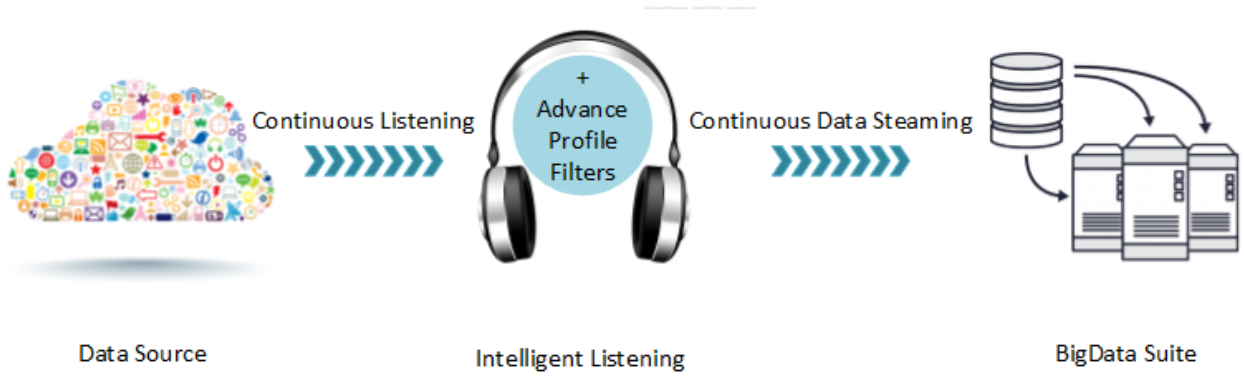
- Blogs
- Micro-blog.
- Social Networking Sites
- Wikis
- News
- Product review Websites
- Tech Forums
- Multimedia Sharing
- Internal Feedback Sites
- Sales / Marketing data
- Surveys conducted by Partner / Broker / Agent /Advisor, etc.

In addition to the above data sources, B2B can leverage specific lead generation sources such as:

- **Conference Mining**: Annual conferences like EMC World, VMware World, etc. will be among the richest times to mine for sales opportunities. The various sponsors and partners create event hashtags that would be tweeted, re-tweeted, and commented on by many customers, enthusiasts, and potential customers.
- **Customer's Customer**: Maintaining a list of a customer's customer will help to selectively listen to the social media to gather indirect feedback about the solution and products EMC sold to other B2B customers.

The framework will use advance **Profile Filters** to selectively listen to various data sources from the above data source categories. The data source will be related to EMC products and solutions as well as competitor's products. Ideal profile filters would be an extensible, allowing manual updating to listen to a new relevant data source. The tool keeps a list of hashtags or keywords for searching relevant content from the data sources. These collected data consists of structured, unstructured, and semi-structured data. All the collected data would be stored in a HDFS store (Hadoop Distributed File System) to perform advanced analytics.

Social media analytics using this lifecycle framework focus primarily on EMC's products/services and their customers. Social media analytics also provide a business with value by helping it understand its environment, suppliers, competitors, and overall business trends – in addition to its own customers and products – to stay competitive.



Analytics

B2B Companies leverage data-driven strategies to innovate, compete, and capture value. The knowledge from the Data Captured should lead to the creation of new service offerings and inspire the design of future products or improve the process in place. Analytics can substantially improve decision-making, minimize risks, and unearth valuable insights and relationships that would otherwise remain hidden. Better analytics empowers the decision making capability to accurately query and analyze the opinions shared by their organization's customers, suppliers, stakeholders, shareholders, and employees.

There are broadly four types of big data analysis that really help business to make better decisions.

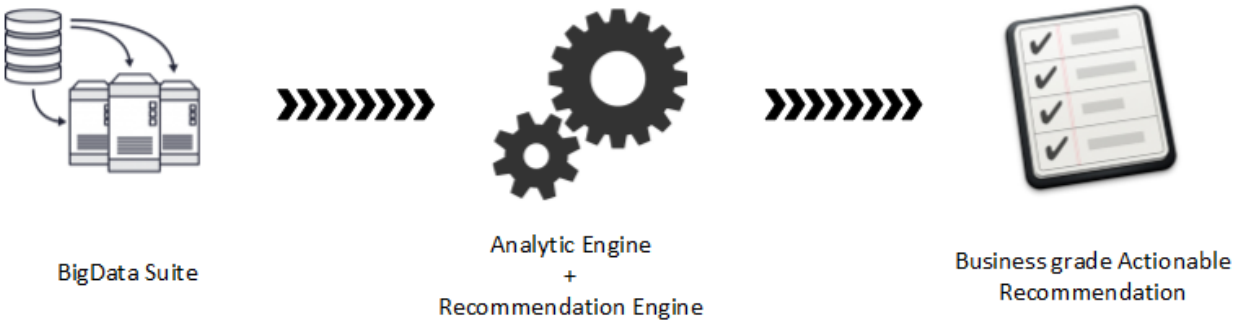
- **Prescriptive** – This type of analysis reveals what actions should be taken. This is the most valuable kind of analysis and usually results in rules and recommendations for next steps.
- **Predictive** – An analysis of likely scenarios of what might happen. The deliverables are usually a predictive forecast, e.g. customer buying patterns, adoption rates, etc.
- **Diagnostic** – A look at past performance to determine what happened and why. The result of the analysis is often an analytic dashboard.
- **Descriptive** – A look at what is happening now based on incoming data. This is the most real time data and can be considered for knowing the trend analysis and pulse of the market/customers.

These complex analytics leverage computational linguistics, natural language processing, and other methods of text analytics to automatically extract user sentiments or opinions from text sources at any level of granularity.

For example:

- Customer analytics examine customer conversations to identify trends, gaps, and capture sentiments.
- Consumption analytics track consumption of products and services; determining areas leading or lagging in adoption or the use of product features.

The framework is equipped with intelligence to perform the periodic cleanup of dirty data or noisy data from HDFS store which doesn't add value/drive decisions on the analysis phase.



Present the Findings

The ultimate aim of big data analytics is to deduce high value outputs that can help the business optimize and innovate. This information can be presented as statistical graphics, plots, and information graphics, in dashboards and reports, and accessed via on-demand queries. The results from the analytics will be summarized, correlated, evaluated, and presented in an easy to understand format.

The tool has a tab for analytics which display data visualization conveying information in a simple and universal manner. Even when the data is very large, patterns can be spotted quickly and easily, enabling interpretations and conclusions to be easily made.

Recommend Actionable Strategy

The insight and inferences from the analytics phase is presented as recommendations or actionable items. Pre-built complex analytical queries use workload distribution of MapReduce algorithms to process the massive data and generate a recommendation. The results of analyzing the usage, buying, customer usability patterns, incoming rate of customer appreciation or dissatisfaction, the buzz around competitor's products and services, adoption rate of technology, and insight into customer needs versus the solution available are converted into action items. This process is made more efficient by the use of the NoSQL database and in-memory analytics.

The value of the solution depends on the business value of the resulting recommendations. The recommendation could be

- A new feature recommendation for the existing product.
- Adding more value to an already existing product feature.
- Engaging customers/Partners using Social Media.
- Streamlining the marketing process.
- Leads for improving TCE.
- Building brand loyalty.
- Data-driven ideas for business process improvement.
- New packaging ideas for an end-to-end solution from federated product lines.
- Customer retention strategy.

Lifecycle Management of Recommend Action Items

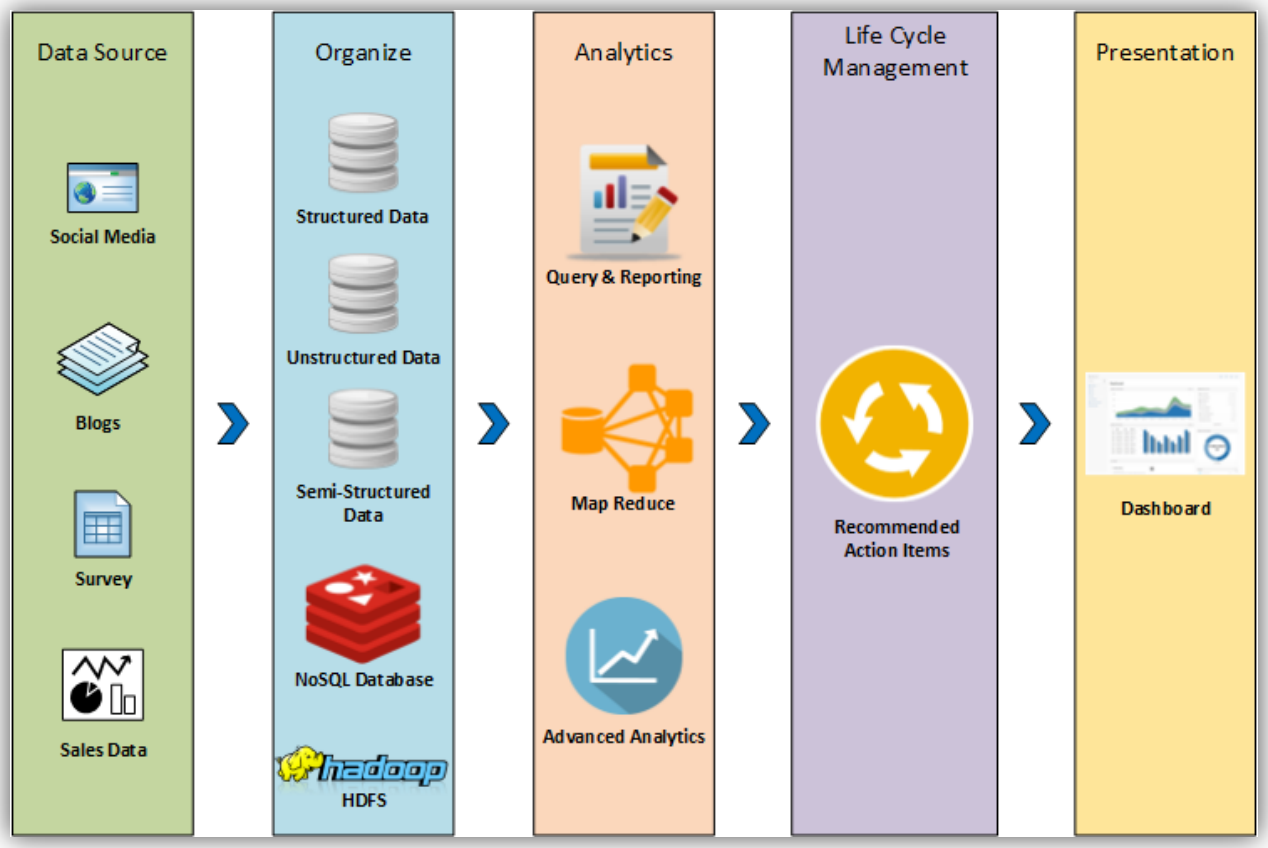
Benefits of implementing the recommendations are many to the business. Some advantages are:

- Focused Customer Engagement
- Sales improvement
- Accurate product forecasts
- Measurable ROI
- Better insight for gap analysis
- Data-driven business decisions

Hence it is essential for the business that the 'recommended' action from the previous phase is acted upon. The solution proposes to implement lifecycle management of these action items. The following steps are proposed.

1. The recommended action items are listed in the order of its business value (based on the ranking/relevancy of the keywords in the action item).
2. Each action item is attributed with a 'state' label (new, assigned, in progress, closed) which changes from time to time indicating its progress. By default, the state of an incoming recommendation would be 'new'.
3. Each action item is forwarded to an admin/group based on its category as and when it appears in this dashboard.
4. The action item is then scrutinized for it business values, revenue generation, relevancy for customers, and engineering feasibility by a triage team consisting of product and project management and the engineering division.
5. The team decides the priority (immediate or can defer) and accepts or rejects the recommendation upon mutual agreement.
6. Services records are created for the identified action items.
7. The accepted recommendation action item is put into assigned state and moved to different stages of the process in its journey until the recommendation is fully implemented or rejected.

Solution Flow Diagram



Data Source Data source constitutes the various sources such as blogs, social media, forums, feedback data, sales, and marketing data from where the data comes. The framework listens to these data sources for relevant data.

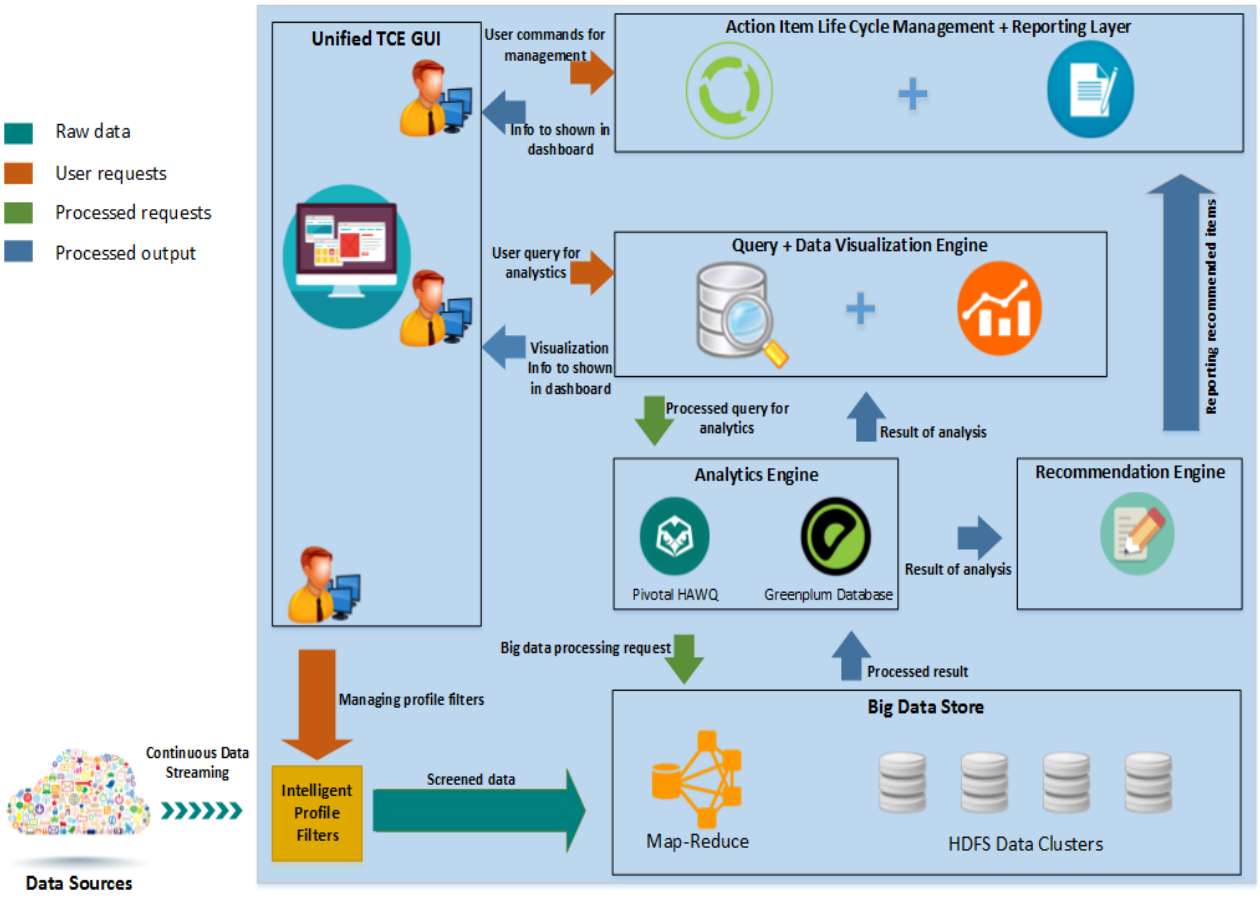
Organize The data collected from listening is made available to the HDFS system and split among its cluster of nodes for further processing.

Analytics This layer is an algorithm-rich layer where various algorithms are applied to the big data so that accurate and high value inferences and pattern recognition can be made.

Lifecycle Management Action items from the analytical/recommendation phase are managed through a lifecycle management system so that the recommended action items are acted upon and implemented.

Presentation Presentation Layer consists of the unified GUI where the Profile filters can be managed, analytical query can be issued, complex data can be visualized, and lifecycle management of the recommended action items are managed.

Solution Architecture Diagram



Benefits

- Unified framework for identifying and bridging the gap of B2B business by pulling the most impactful and relevant social media activity.
- Real time data ingestion ensures agile process for up-to-date analytics.
- User Defined 'Profile Filters' determines where to listen at the time of impactful activity.
- Recommendation from analytics is fed back to the product or process for better business and TCE.
- Data visualization helps to easily interpret the patterns from a huge amount of complex data.
- Lifecycle management of the recommended action ensures that the relevant teams have looked upon/acted upon the action items.
- Constant product improvement.
- One-stop GUI/Dashboard to manage the solution.