CeADAR – Centre for Applied Data Analytics Research

Enterprise Ireland Data Analytics Technology Centre

Intelligent Analytic Interfaces: Passive Analytics - Technical Specification

Document Type:	Technical Specification
Project Title:	CeADAR
DDN Theme:	1 – Intelligent Analytics Interfaces
Theme Leader:	Brian Mac Namee (DIT)
DDN Sub-Theme:	1.4 – Passive Analytics
Authors:	Robert Ross
Document Version:	1.0
Date of Delivery to ISG:	29th May 2013
Number of pages:	4

ABSTRACT

In this report we provide a brief Technical Specification of the CeADAR Passive Analytics theme prototype. This prototype addresses Contact Centre Optimisation through Customer History Analytics.

Contents

1   Description of Industry Needs

As the voice and sometimes face of a company, Contact Centre Agents must deal with customer inquiries efficiently and professionally. Pressures on agents include throughput-based service level goals as well as the need to ensure top-quality service and sales experiences to customers at every point. Maintaining this quality and efficiency requires the provision of key customer history data to agents during calls without requiring agents to engage in time consuming searches across interfaces. Unfortunately the provision of such customer and case histories to the agent is far from a trivial task. Customer history summarisation is made difficult not only by enterprise-wide information integration challenges, but also by the computationally demanding task of determining the most relevant information that can be provided to the agent in bite size chunks.

While application integration and CRM technologies can provide an accessible view across information sources, current solutions often rely on hard-coded rules that present limited information to agents and typically leave it to the operative to determine which pieces of information are most useful in addressing the case at hand (see the CeADAR State of the Art in Passive Analytics report). Given that a process of manually reviewing history can never be optimal in a throughput-oriented environment, in this work theme an analytics-driven solution that addresses the key problem of information summarisation for presentation to agents is being developed. Specifically, the prototype solution should provide Contact Centre Agents with a concise review of customer history and other relevant information points (e.g. weather events that might affect deliveries) to provide an optimal service experience.

2   System(s) Involved

This project aims to integrate with and make use of data from Customer Relationship Management systems as used in sales and service contact centres. The project has been based in part on collaboration with Dell. However, due to Data Governance considerations it will not be feasible at this point to integrate directly with Dell's deployed CRM applications, or to make use of Dell's own data directly. In light of this we have acquired sample CRM data that is indicative of the data we aim to model, plus we plan to generate simulated data sets where necessary. The proposed solution is also based on interviews with eBay customer service agents.

3   Approach

The key issue handled by this prototype is to filter key background data to provide Contact Centre Agents with the most relevant information for assisting the customer. This information will be generated at run-time and customised to each specific customer and case, based on all available information to hand. Unlike products like KANA which attempt to make use of Information Retrieval technology to provide suggested solutions to individual text-based queries, this prototype will focus on summarising structured and unstructured customer histories and filtering the key information for the user.

Based on discussions with Dell we see this process as a task of automatically refining the vast quantities of available customer information through the three key filters of:

- customer history
- the product or products under discussion
- the customer service contract

Deployment of the analytics driven assistance tool will be dependent in part on learning appropriate rules and clusterings that feed the assistance recommender. Rather than train based on feedback from Contact Centre Agents, we have opted for a semi-automatic learning system that can be used by IT and Contact Centre management to bootstrap and supervise the assistance provided. Our primary reason for this was feedback from industry partners who indicated that gathering accurate feedback from Contact Centre Agents is not always feasible in a high throughput environment.
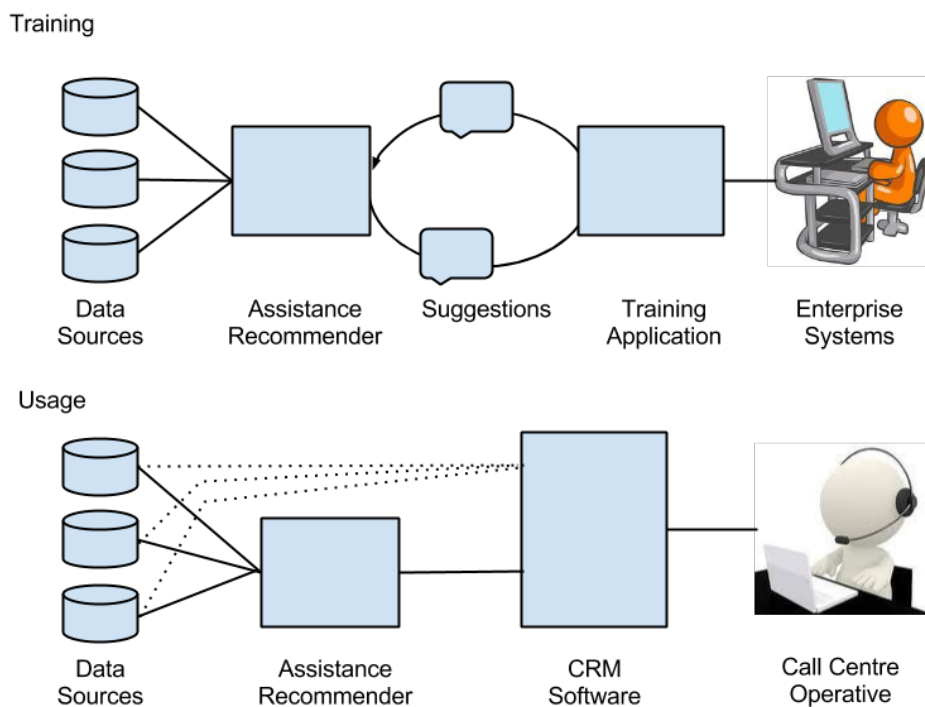

Figure 1: The high-level architecture of the proposed system.

Figure 1 outlines the training and usage models for the Assistance Recommender. During training the assistance recommender is customised by Enterprise Systems or IT personnel through the use of a training application which augments the models used in the assistance recommender. Once trained, or partially trained, the assistance recommender can then be integrated alongside CRM software to provide key insights from individual customer histories. The initial prototype is based on case records which include semi-structured free text such as emails as well as structured information.

Our immediate development is focusing on the application of recommendation techniques to dynamically select the most relevant information items that can be provided to agents. Selection is based on the relative importance of particular information types, as well as contexts such as the customer service contract. Selected summary items are to be provided in 'screen pop' style information bursts alongside traditional summary information. Subsequent development may make use of unstructured information analytics and will address the issue of summarising the most relevant case history and communication records.