

# Support 2.0: An Optimized Product Support System Exploiting Master Data, Data Warehousing and Web 2.0 Technologies

Martin Oberhofer, Albert Maier

IBM Deutschland Research & Development GmbH  
Schönaicherstrasse 220  
71032 Böblingen  
{martino, amaier}@de.ibm.com

**Abstract:** The proposed system integrates traditional and Web 2.0 based product support systems and uses master data management, data warehousing and text analytics functionality to send problem records to the person most capable to solve it, let it be an in-house technical support engineer or another customer in a Peer-to-Peer system. The demo system has been implemented by 3 students in the context of an Extreme Blue Project [EBP].

## 1 Introduction

There are several fundamentally different approaches to product support. The most common approach is to have a dedicated support staff and a multi-tier support process. A first tier support is usually staffed with people who are not very technical; the last tier is typically staffed with very skilled technical engineers – often members of product development. There might be service level agreements to obey, e.g. problem resolution and maximum response times might be guaranteed. We will hence-forth call this the “traditional support”. Other popular approaches are online self support (e.g. via FAQs) and Peer-to-Peer support (e.g. via forums or wikis). We will hence-forth call this “online support”. With such an “online support” there is no guarantee for a customer that his problem will be solved in a certain time, if at all. On the other hand, other customers who already solved this problem could provide solutions very quickly. This can increase customer satisfaction and is cost effective at the same time. Many companies today have both infrastructures – however, they are not integrated.

We are proposing a new product support system that combines the best of traditional and online support approaches. The basic idea is to have a single entry point for problem records and to implement a distribution algorithm that decides where to route a record (e.g. to a forum versus a customer relationship management system), when to escalate it (from a peer-to-peer system to the traditional support system), and where to publish problem resolutions. Assessments of the value of proposed problem resolutions and an incentive system for contributors are also part of the system.

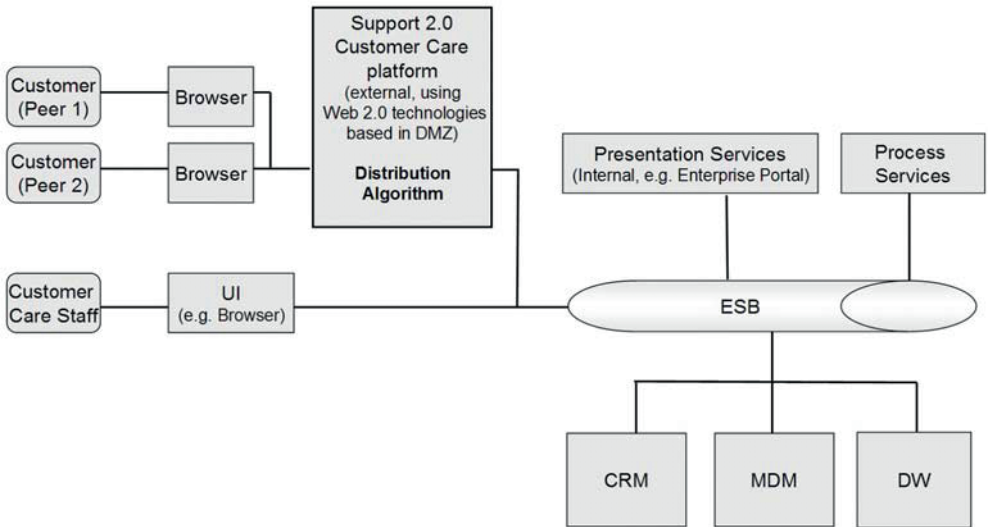


Figure 1: System Architecture

This distribution algorithm is using services from various information management systems. This includes

- a data warehouse for getting information such as customer profitability (this can influence at which point in time a support engineer will start working at a customer problem record and how much time/money he will be able to spend)
- a master data management system that guarantees high quality customer and product data (e.g. it prevents customer duplicates) and keeps information such as customer privacy and preferences settings
- a text search system for federated search over all systems storing problem record solutions (forums, wikis, blogs, customer relationship management system), and
- a text analytics system for matching key words in the problem message to themes (a classification that allows peers and support engineers to specify what kind of problem records they are interested in and able to help with)

The main advantages of such a system above the current state of the art are manifold including the potential for significant cost savings (without compromising service level agreements), faster average response times and higher average solution quality, and an increased customer satisfaction and loyalty.

## 2 System Architecture and Demo Scenario

Figure 1 shows the overall architecture of the system. There are three critical systems:

- A Customer Relationship Management (CRM) System [Lin01]: This system is used for customer care processes like complaint support processing whenever a customer reports a problem. This system represents the traditional support.
- A Master Data Management (MDM) System [DHM+8]: This system is used to manage customer and product master data with high quality efficiently. It provides data to the CRM System and the Support 2.0 Customer Care platform. It furthermore manages the peer status, and privacy and preference settings for all participants of the Support 2.0 Customer Care platform.
- The Support 2.0 Customer Care platform: This is an online platform used by end customers as part of our new method supporting new interaction paradigms in customer support. It includes the distribution algorithm, a forum infrastructure and Web 2.0 capabilities (blogs, wikis, etc.), an infrastructure to rate peers and offer incentives, a search engine for integrated search across all content sources (forums, CRM system, ...), and a monitoring component for checking problem expiry thresholds used for guaranteeing service level agreements.

Figure 2 is sketching the problem record distribution algorithm. Rectangles with round corners represent the problem message respectively information added to it, diamonds represent processing steps, rectangles with corners represent specific input information for the respective processing step.

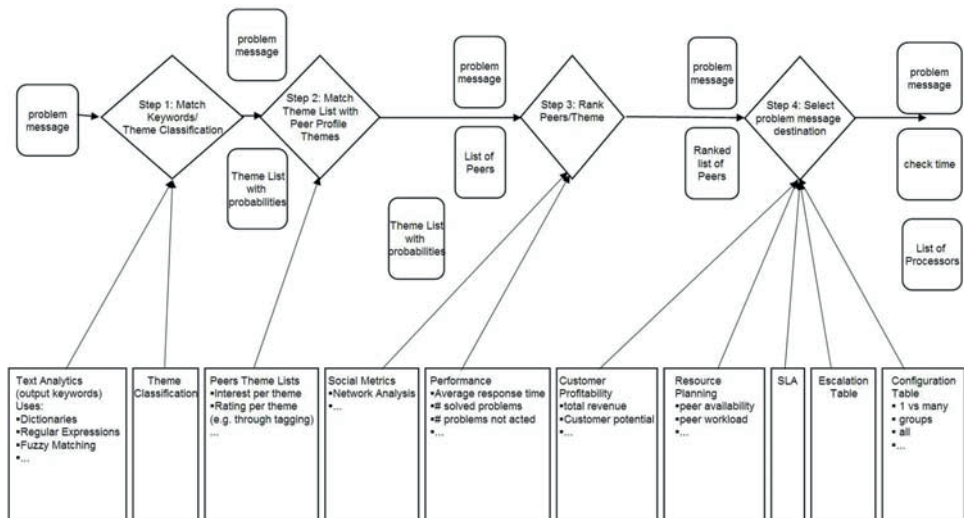


Figure 2: Distribution Algorithm

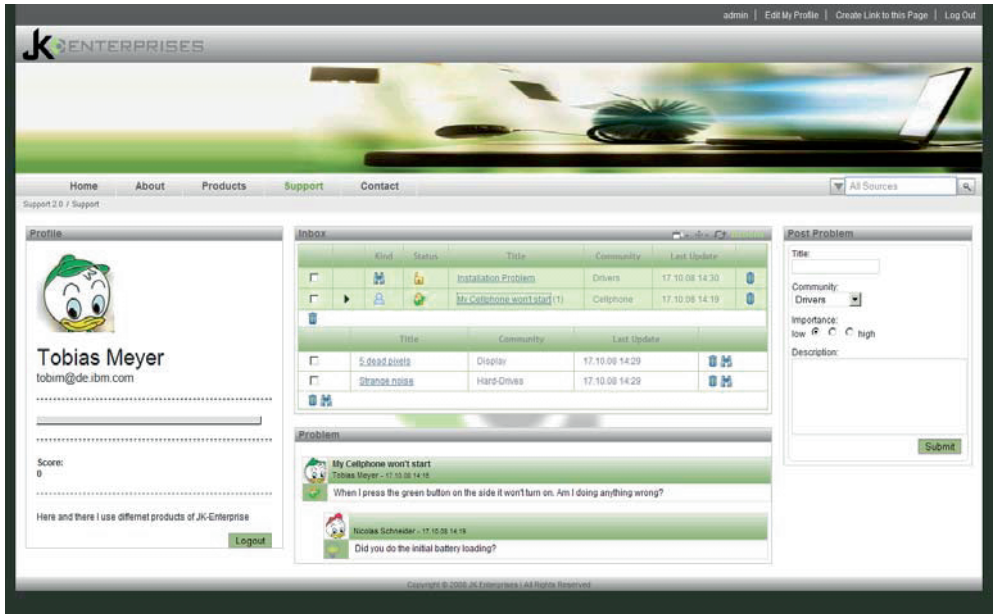


Figure 3: Sample Demo Screen

The algorithm starts when a problem message is received. The text analytics system extracts keywords and checks them against a theme classification. The resulting theme list is matched against peer profiles. Taking into consideration social network metrics and performance metrics, a ranked list of peers is determined. The next step is to determine which peer(s) should get this problem message (peer includes in-house technical support engineers). This decision takes into account input parameters like customer profitability, service level agreements, and resource planning information.

In the demo, the user will be able to use different roles such as problem searcher, peer answering a problem, and technical support engineer to explore the various steps of this new support process. The demo user can therefore post a problem, answer a problem, and rate an answer. The entry point for issuing a problem record is a portal based UI (see figure 3). We will show the system at work, and explain the architecture, the distribution algorithm and the underlying products and technologies.

## References

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