

Teradata Relationship Manager

Version 6 Technical Architecture

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Teradata Relationship Manager

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Overview

This white paper presents a description of the architecture for Teradata® Relationship Manager – Version 6. It describes various aspects of the architecture, how organizations can benefit from these, and how it supports integration with other elements of the enterprise.¹

Organizations are concerned with various costs of their enterprise, including hardware, software, enterprise applications and support. By deploying on standard hardware, software, and J2EE Application Servers, Teradata Relationship Manager Version 6 reduces *Total Cost of Ownership*.

As an Organization grows, or more Enterprise Users need to access a solution, it must scale. Teradata Relationship Manager Version 6 is optimized for the Teradata Warehouse, with complex and expensive operations performed directly in the database, to leverage the scalability of Teradata. Teradata Relationship Manager Version 6 can be deployed across multiple servers, leveraging the *scalability* offered by J2EE Application Server clustering.

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Powerful features are only useful if they are easily accessible. Teradata Relationship Manager Version 6 has a *browser-based user interface* that is designed to allow more users to get the value they need from the solution. Both occasional and power users are supported, with a guided approach for the casual user.

All entities in Teradata Relationship Manager Version 6 are *reusable objects*. For example, once a campaign developer has constructed a segment representing a set of customers, this can be used multiple times, or easily cloned and edited. The same is true for all the parts of a marketing program. Finding these objects is easy too, with built in *powerful search capabilities*.

Organizations are interested in tracking and managing changes that impact their operations. Teradata Relationship Manager Version 6 has adopted a single and consistent approach to the *management of objects*, such as Marketing Programs and Segment Plans. This allows common objects to be reused, while avoiding any unintentional impact to live campaigns.

By supporting both a fine-grained functional permission based *security model*, together with J2EE users and roles, Organizations can easily adjust which users have access to what functions. By adding a folder object based security, different workgroups can manage sets of objects that are not accessible to someone

outside the workgroup. Teradata Relationship Manager Version 6 can also integrate with an LDAP-compliant Directory to support existing Enterprise security solutions.

Teradata Relationship Manager Version 6 allows an organization to report on application configuration, errors and exceptions, job status and history, system resources, as well as providing capabilities for *remote management and support*.

Organizations are interested in integrating solutions to solve business problems. Teradata Relationship Manager Version 6 supports custom adapters to deliver leads from campaigns to external systems. It also supports *web services*.

Product Descriptions

Teradata Relationship Manager Version 6

The newest release of Teradata's industry-leading CRM solution, Teradata Relationship Manager Version 6, provides all the power of previous Teradata CRM releases but adds more than 100 new features that leverage the browser interface familiar to millions of users. It also adds innovative functionalities that bring those users completely new capabilities. Teradata Relationship Manager Version 6 unleashes the power of the Teradata Database and drives enhanced business productivity with access to the information that leading

companies need in order to deliver personalized customer service for loyal, profitable relationships.

Teradata Database

Teradata Relationship Manager Version 6 is built for leveraging the Teradata Warehouse. As the industry's premier data warehousing platform the Teradata Warehouse allows Enterprises to harness the benefits of keeping all their Enterprise data in one place, so there's no question of making important decisions on inconsistent data. We call it the "Single View of the Data".

For the Teradata Relationship Manager Version 6 user this means that the customer insight derived from the analytics is based on the definitive copy of the enterprise's data. Because Teradata affords linear scalability of the warehouse, this copy of the data can be very rich, containing a large historical trail, so that the Teradata Relationship Manager user can truly explore all of the customer's past, captured in one place, from the beginning of the interaction with the customer, and at rich level of detail.

This level of detail can make the difference between knowing that a wireless customer sent five multi-media mail messages versus knowing the size of these messages, to whom they went, and whether they contained just images, or both music and images. Knowing that the customer really

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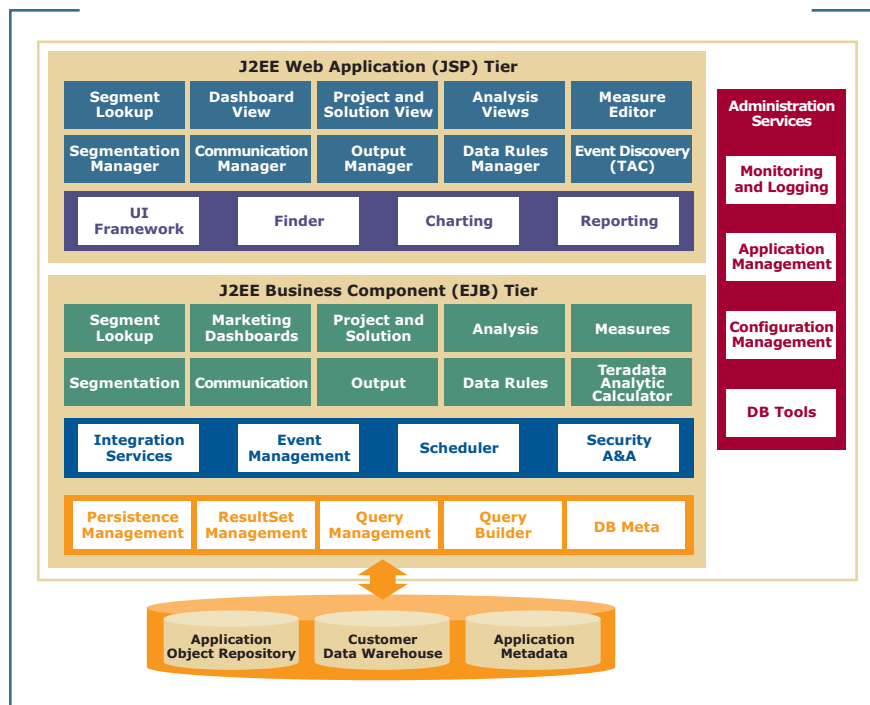
likes to share music (on different days, across months, to many users) may mean the customer would entertain offers of music downloads or podcasts.

What if the number of customers increases? The warehouse can be expanded to ensure linear scalability hence allowing Teradata Relationship Manager Version 6 users not to get bogged down because of a larger database – Teradata fundamentals of linear scalability directly come into play here.

Teradata Application Platform V1.2

Teradata Application Platform is the centerpiece of a new effort by Teradata to dramatically increase the business value we deliver to our customers by helping you deliver more decisioning power to more business and technical users more quickly. The key idea is to build reusable analytical components based on Teradata that can be used as part of new applications, or extensions to existing applications, or used to improve decision-making when embedded in workflows. The program includes not only the base Teradata Application Platform, but also a library of reusable components – built by your IT groups, our Teradata application engineering groups, Teradata professional services, and third party application developers and system integrators.

Teradata Relationship Manager Version 6 is built as a set of Teradata Application Platform solutions and analytic components that leverage the core services delivered by Teradata Application Platform.



These components are deployed in the Teradata Application Platform user interface framework, together with other Teradata Application Platform components built by various groups. This provides a single simplified user interface with many powerful features available to all components, and gives the opportunity for application components to interact.

An example of how Teradata Application Platform components can be integrated is the use of the Teradata Analytic Calculator, which is built as an independent Teradata Application Platform component, to provide scoring functionality for Teradata Relationship Manager Version 6. Teradata Analytic Calculator is addressable by marketing users, as an integrated

component of Version 6, in the same way as any other Version 6 component, and is used to develop formulas and business rules for complex event detection.

Technical Features

Hardware and Software Platforms

Teradata Relationship Manager Version 6 is a multi-tier J2EE application, with a thin client browser tier, web tier and application tier on the J2EE application server hosting the presentation and business logic, and the database tier on the Teradata Warehouse. It can be deployed on standard hardware, and operating systems such as Microsoft® Windows®, IBM® AIX®, Sun® Solaris™ and Red Hat® Linux®.

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Many large organizations already have a J2EE application server infrastructure with deployment and support groups in place. By working on this existing infrastructure, Teradata Relationship Manager Version 6 doesn't require any exceptions to be made to an organization's enterprise architecture, or for additional support groups to be funded.

Teradata Relationship Manager Version 6 can be deployed on standard J2EE application servers, such as JBoss®, IBM® WebSphere®, BEA® WebLogic and SAP® NetWeaver. This avoids vendor lock-in, with organizations free to switch from one application server to another.

The Teradata Relationship Manager Version 6 platform reduces Total Cost of Ownership by minimizing both upfront investment and running costs, over a solution that requires a dedicated environment that is different from the organization's standard deployment platform.

Scalability

Teradata Relationship Manager Version 6 has a data model built from the ground up on the Teradata Warehouse. It leverages such features as Primary Partition Index, and Vertical Partitioning to optimize distribution of data, and access performance. This combined with the design approach of doing as much of the complex

analytics and data manipulation as possible right in the database, allows Teradata Relationship Manager Version 6 to benefit most from the world-class scalability of Teradata.

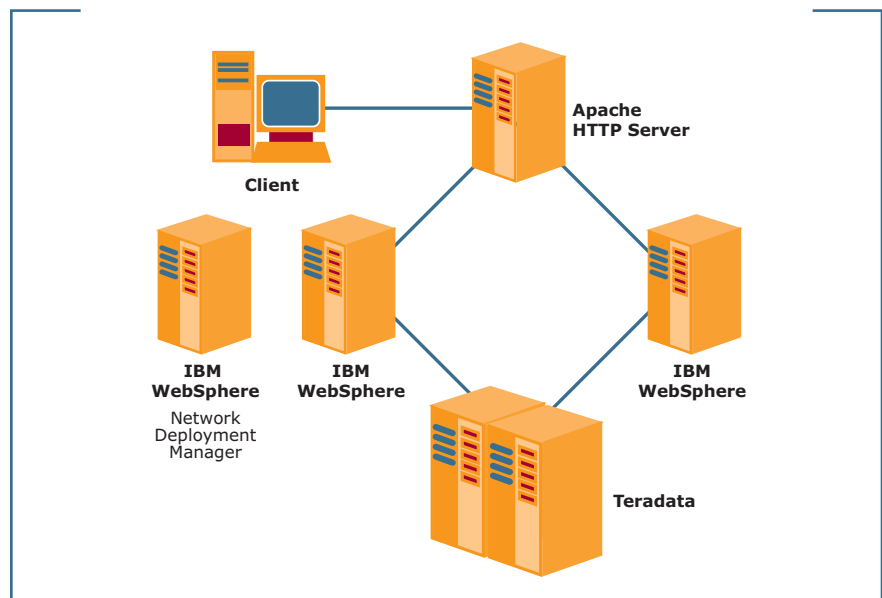
Processing Engines are a set of processes running on the application server and in the Teradata Database that are responsible for all the "heavy lifting", such as realizing segment plans, performing analytics and output operations and executing communications. Each process is broken down into smaller unit level operations that are executed in a configurable sequence.

This functionality provides a consistent way for all processing to be done, as well as for logging, and parallel execution, again leveraging a core capability of the

Teradata Database. Defining which tasks need to execute as part of a process job can be done through XML.

As well as supporting scalability of the workload by leveraging the Teradata Database, it is important to support a growing user base, or increased usage of the application from the existing user base. Teradata Relationship Manager Version 6 can do both of these by supporting deployments across multiple J2EE Application Servers by leveraging J2EE Clustering.

A J2EE Cluster is a group of J2EE Application Servers working together to provide all the services of J2EE as if it were a single entity. By using a load balancer, the user requests to Teradata Relationship Manager Version 6 can be distributed automatically



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across multiple servers, and as the organization experiences increased usage, more servers can easily be added to the cluster.

By leveraging the Teradata Database, and J2EE Clustering, Teradata Relationship Manager Version 6 offers very flexible scalability.

User Interface

Teradata Relationship Manager Version 6 provides a browser interface familiar to millions of users. By deploying on the Teradata Application Platform Framework in J2EE, Teradata Relationship Manager Version 6 will have the same capabilities and consistent look-and-feel as other Teradata Application Platform applications and that will be familiar to anyone

who has used a browser to access the web, such as login, menus and search.

Teradata's design team worked with Cooper Interactive, an external consulting company specializing in the creation of breakthrough interactive products. They interviewed several people at different organizations with existing CRM solutions, and focused on key roles (sometimes referred to as personas) that are common across organizations such as campaign developer, marketing manager, and marketing analyst.

Feedback from these interviews was incorporated into the design for Teradata Relationship Manager Version 6 addressing such areas as usability, efficiency, process and collaboration, and consistency.

The user interface is goal oriented, allowing users to more easily get their work done.

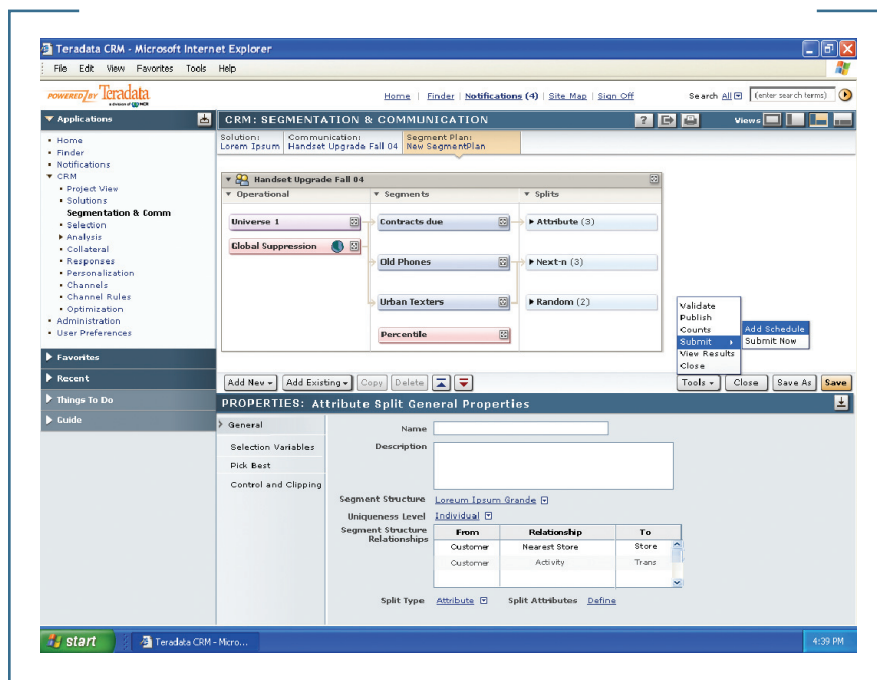
While a lot of new features provide more capability for the advanced user, even the most casual user can now be productive through functionality that is tailored to each user's business needs.

Object Management

All business entities within Teradata Relationship Manager Version 6, such as Communications, Segment Plans, Steps and Messages, are standard objects with a consistent set of identification attributes and common behaviors. This allows for a consistent approach to managing changes and tracking operational impact.

Objects have a standard lifecycle that allows for their construction in a draft state, followed by a published state when production is ready, and a closed state once no longer to be used. Teradata Relationship Manager Version 6 seamlessly manages these states together with the different versions of an object as it is changed.

In this way a library of objects representing different parts of an organization and the business problems they are trying to solve can be managed. Experimental changes can easily be made without risk of accidentally impacting production campaigns, and entities can be rolled back as appropriate to an old state.



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Different groups can work on different objects, in any order. This allows someone such as a campaign developer to pick and choose between the best in class objects in the organization when constructing marketing programs. This reuse also increases productivity by allowing users to build on objects that have already been created, rather than having to create them from scratch.

Finding objects that you or someone else previously worked on is simple, with powerful search capabilities in the Finder component.

Security

Teradata Relationship Manager Version 6 provides fine-grained functional security permissions to control access to each feature of the application. These security permissions are implemented using the Teradata Application Platform Security Subsystem, providing for a common security model across Teradata Application Platform Components. The Teradata Application Platform Security Subsystem is based on the J2EE Application Server security model of Users and Roles.

Users and Roles can be created by the organization in the J2EE Application Server, or maintained, typically as Users and Groups, in an external LDAP-compliant Directory, such as Microsoft ActiveDirectory. In this way, authentication to use Teradata Relationship Manager

Version 6 can use the same credentials as an enterprise user gives to log into other applications in their organization.

Permissions can be assigned to Roles within the Teradata Application Platform framework allowing organizations to define groups consistent with their workgroups and business practices, rather than being forced into artificial groups.

Supportability

Teradata Relationship Manager Version 6 has been designed as a robust and manageable solution with features to facilitate improved installation and migration, problem diagnosis and defect repair.

An Implementation and Migration Utility is provided with Teradata Relationship Manager Version 6 to manage new installations, and upgrades of existing installations from earlier Teradata CRM Solutions. This manages the installation or upgrade of the data model, as well as the software. Each of the Teradata Application Platform components that make up Teradata Relationship Manager Version 6 can be upgraded independently if necessary.

A Supportability Utility is provided with Teradata Relationship Manager Version 6 that supplies on-demand configuration reporting with information about the machine configuration, application server configuration, and Teradata Relationship Manager Version 6 configuration. This is

implemented using an Mbean, from the Sun standard, JMX (Java Management eXtensions), for integrating applications with existing network management solutions.

Reports are also available for informational and error messages. These are logged in a consistent way through the Teradata Application Platform framework and fed into the Teradata Database. This is done asynchronously using JMS (Java Messaging Service) so as not to negatively impact the performance of the application. It allows an organization to leverage any Teradata Utility to analyze the behavior of the Teradata Relationship Manager Version 6 application.

Enterprise Integration

Teradata Relationship Manager Version 6 supports integration with enterprise architectures in several ways. One way already mentioned is how it deploys on standard hardware and software that is already part of most organizations' enterprise architectures.

Also, as addressed in Security, it can integrate through the J2EE Application Server with an LDAP-compliant Directory such as Microsoft Active Directory®. And, as addressed in Supportability, it can integrate through the J2EE Application Server with an existing management infrastructure and tools such as IBM Tivoli®.

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Teradata Relationship Manager Version 6 Architecture supports exposing business functionality through Web Services. For example, Customer Channel Applications, such as Point of Sale Applications, can call a web service to request communications for a customer perhaps identified by a loyalty card. Since these interfaces are web services, they can be called from any platform, such as .NET.

The componentized design also simplifies the development of new, custom interfaces, allowing new web services to be added more easily to support specific requirements.

Conclusion

Teradata Relationship Manager Version 6 improves upon prior releases of Teradata's industry-leading CRM solution in several ways.

- > Adds more than 100 New Features
- > Increases Scalability through leverage of the Teradata Database and J2EE Clustering
- > Increases Usability with a web-based user interface that is goal oriented
- > Provides Consistent Object Paradigm with Powerful Search Capabilities
- > Supports Fine-grained Security which can integrate with an LDAP-compliant Directory
- > Increases Manageability with improved Supportability Features and leverage of JMX
- > Simplifies Integration by supporting standard hardware, software, and web services

¹ This white paper describes the entire Teradata Relationship Manager v6 product functionality set. The majority of these features will be available in the initial General Customer Availability (GCA) release and others will be available in subsequent releases. Please contact your Teradata Representative for further information.

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