ClearView Reporting Framework

Reporting Process   (Diagram 1)

The ClearView Reporting framework is an integral piece of the ClearView dashboard, enabling the system to sift through and report on large amounts of data with relative ease. The performance of the reporting engine is derived through a combination of database warehousing and optimization techniques coupled with the ClearView business tier algorithms running on the web server.

Data Warehouse   (Diagram 1.1)

ClearView stores summary records of all reportable data in the data warehouse. This information is partitioned by a customer identifier located as the first attribute in the primary key of each table. In this way, the data is segmented and sorted based on the tenant, providing a level of separation for both security and performance.

Data Access - Stored Procedure   (Diagram 1.2)

All access to the data warehouse runs through a collection of stored procedures. These procedures centralize points of entry for security and contribute to performance and scalability. Because each procedure requires the unique customer identifier in order to return any data, errors in the business or presentation layers of the application cannot leak data for a different tenant. Additionally, these procedures create discrete points for optimization. Even a slight performance gain in one of the core procedures can produce significant benefits.

Business Tier – Web Server   (Diagram 1.3)

The web server application acts as the single point of contact for all data requests and was developed in such a way as to boost performance of the database through lazy-loading (only pulling the data when needed) and then running the data through a series of transformations based on metric definitions and performance objectives to create the final report. This process offloads a significant portion of processing to the web server, and leverages the strengths of both the database and web servers to create the reports.
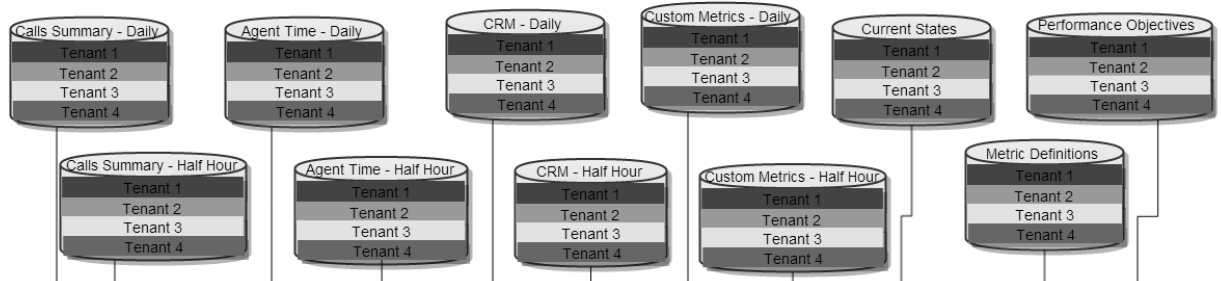
User Interface – Web Browser   (Diagram 1.4)

ClearView runs in all the major modern web browsers (i.e. IE 8+, Mozilla, Chrome, and Safari), and takes advantage of JavaScript and AJAX to create a responsive, application-like user experience. The dashboard shell is all that pulls through with the initial page load, and then all modules load asynchronously through AJAX web service calls. This combination of traditional HTML and web services allows the system to only pull the information needed when needed while staying responsive to the end user.
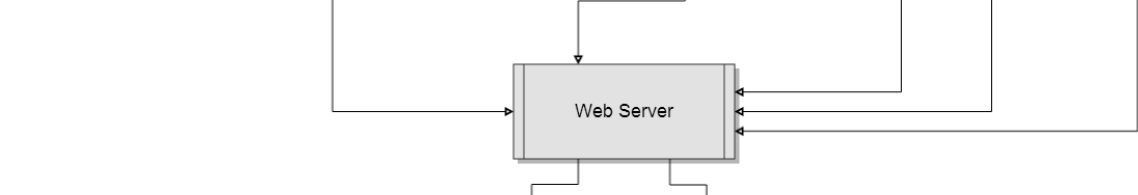
ClearView Reporting System

1.1 Data Warehourse Summary Tables

Calls Summary - Daily
Tenant 1
Tenant 2
Tenant 3
Tenant 4

Agent Time - Daily
Tenant 1
Tenant 2
Tenant 3
Tenant 4

CRM - Daily
Tenant 1
Tenant 2
Tenant 3
Tenant 4

Custom Metrics - Daily
Tenant 1
Tenant 2
Tenant 3
Tenant 4

Current States
Tenant 1
Tenant 2
Tenant 3
Tenant 4

Performance Objectives
Tenant 1
Tenant 2
Tenant 3
Tenant 4

Calls Summary - Half Hour
Tenant 1
Tenant 2
Tenant 3
Tenant 4

Agent Time - Half Hour
Tenant 1
Tenant 2
Tenant 3
Tenant 4

CRM - Half Hour
Tenant 1
Tenant 2
Tenant 3
Tenant 4

Custom Metrics - Half Hour
Tenant 1
Tenant 2
Tenant 3
Tenant 4

Metric Definitions
Tenant 1
Tenant 2
Tenant 3
Tenant 4

1.2 Stored Procedure Calls

GetCallMetricData

GetCustomMetricData

GetCurrentStateData

GetPerformanceObjectives

GetMetricDefinitions

1.3 Web Server / Business Tier

Web Server

1.4 UI - Web Browser

Page Load

AJAX Call

Web Browser