Internal Audit Product Development

The Client is an enterprise Governance, Risk & Compliance (GRC) solution provider that enables businesses around the world to quickly achieve the bottom line benefits of governance, enterprise wide risk management and compliance, and couples this with performance management. Also, considered as a leading GRC vendor by Gartner Research and Forrester Research. Its customer base includes more than 250 customers; most of which are Fortune 500 companies.

Problem Statement

Individual functions and departments responsible for specific risks, regulations and compliance activities with their own independent GRC responsibilities are commonplace. Departments that operate in silos tend to impair GRC effectiveness by contributing to duplication of efforts, inconsistent processes, miscommunication, and redundant efforts on the part of audit and compliance professionals.

The client was facing the following problems. There was a need

- To provide common view of GRC data consistently across different departments
- For a single library of processes, risks and controls
- To provide holistic view of GRC data
- For advanced, configurable workflow capabilities and an audit trail that that tracks details of activities
- For a comprehensive internal audit functionality across other GRC disciplines

Considering the market drivers, the client delegated the responsibility of building next generation integrated GRC platform that brings together the multiple disciplines of GRC to e-Zest, including internal audit, risk and compliance groups into single solution architecture. The client's existing GRC platform was built on legacy technologies which they wanted to reengineer using next generation technologies with an architectural vision of providing integrated Governance, Risk and Compliance (iGRC) Solution.

The Internal Audit was built as the first product in the integrated GRC product suite, which would help organizations meet their objectives by providing assurances that risk management is effective, governance policies and procedures are operating effectively, controls are designed adequately, the control environment is appropriate and enforced by management.

OUR VISION

Project Brief

The client's legacy GRC platform lacked internal audit capabilities. Considering this, we decided to first build an internal audit solution which could work with the existing GRC platform and which could be easily integrated with next generation integrated GRC platforms based on the new solution architecture.

The Internal Audit product was built with the objective of helping companies in the management of a wide range of audit-related activities, data and processes.

Internal Audit provided flexibility to support end-to-end functionality for managing the complete audit lifecycle.

Business Drivers

The following key business drivers were considered while coming up with the Internal Auditarchitecture model

- Time to market needs of Internal Audit product
- Ability to integrate with legacy Enterprise Risk Management(ERM) framework and ability to integrate with next generation integrated GRC platform
- Need to support fast and responsive user interface with desktop-like feel for application access
- Need to support application access in offline scenarios
- Need to support multiple service interfaces for integration with existing products

Key Features

Some of the key modules in the product are as follows:

Audit Planning:

This module allows the creation of well-defined audit objectives and scope tied to quality, compliance and risk management processes. Auditors can organize an audit in a logical structure and hierarchy. Evaluations and tasks that need to be performed for executing the audit can also be defined. Audits can be scheduled periodically or triggered on an ad-hoc basis for specific needs.

Audit Execution:

The Internal Audit product enables auditors to record qualitative or quantitative findings along with detailed observations and recommendations in predefined formats. A unique offline capabilityprovided by the Audit smart client allows auditors to enter audit findings at remote field sites and synchronizethe data with the main central database. Audit managers can track the status of the audit and measure the progress against milestones to ensure timely execution. Time tracking capability captures thetimespent in auditing for optimal resource utilization.

Audit Review:

This module covers audit findings, observation reports and auditors recommendations for review and subsequent actions. This module provides response review capabilities with the options to initiate remedial actions for undesirable variations. In addition, it provides comprehensive capabilities for compiling audit reports. It provides complete visibility into the audit process with easy status tracking.

Application Interfacing:

Audit findings, new entities or key risks identified during audit process are exposed to legacy Assessment solution and other applications in product family depending on the integration requirements.

Some of the key features provided by Internal Audit product are outlined below:

- Compliance to Internal Audit Standards
- Successful association of information with the objective of prioritizing control activities for the audit plan and collectively using information manually entered from external sources such as legacy Risk Assessment Solution.
- Flexibility in the entity association process
- Provide support for
    - Top-down strategic planning approach
    - Bottom up process and activity planning approach
- Support for checklists, test plans, physical inspections, validations and self-assessments
- Flexibility and ease of use in the resource scheduling and management process
- Flexibility and ease of use for the field work process and review, conflict resolution process

Technical Architecture

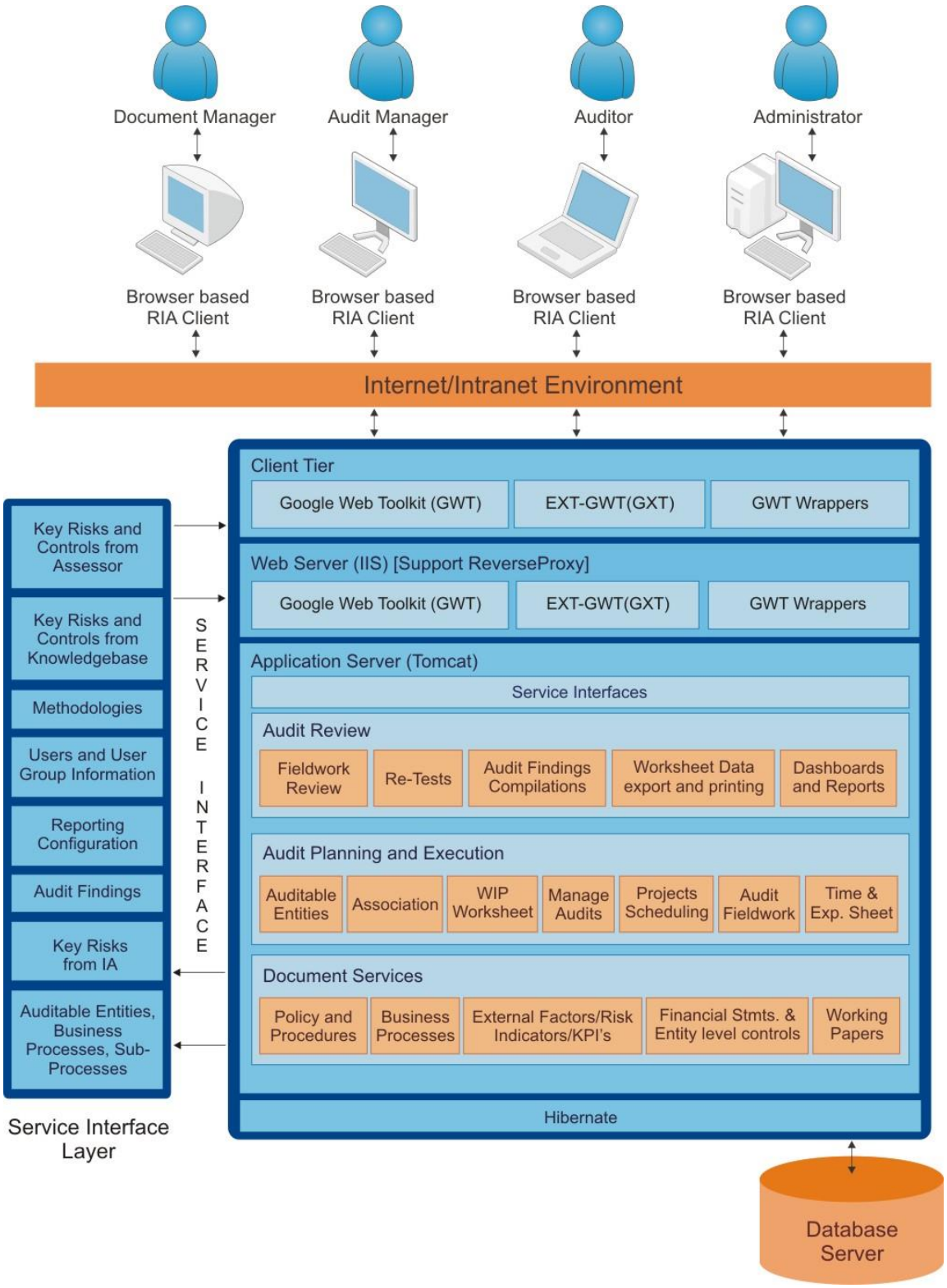
The Internal audit architecture uses heterogeneous styles with major focus on data abstraction and object oriented organization of entities in the system.

In the internal audit architecture

- Data and their associated operations are encapsulated into an abstract data type (object).
- Objects and connectors operate through methods.
- Objects are responsible for maintaining the integrity of a resource and the representation of the object is hidden from other objects.

A Layered system style is used for the organizing system hierarchically with each layer providing service to the layer above it and serving as a client to the layer below. Layers are abstracted from each other so as to minimize the impact of modifications in one layer on another layer. Connectors are define d by the protocols that determine how layers will interact.

The Internal Audit has distributed system architecture with a client-server model where the server provides services to the clients. The clients know the identity of the server and access it through a remote procedure call.



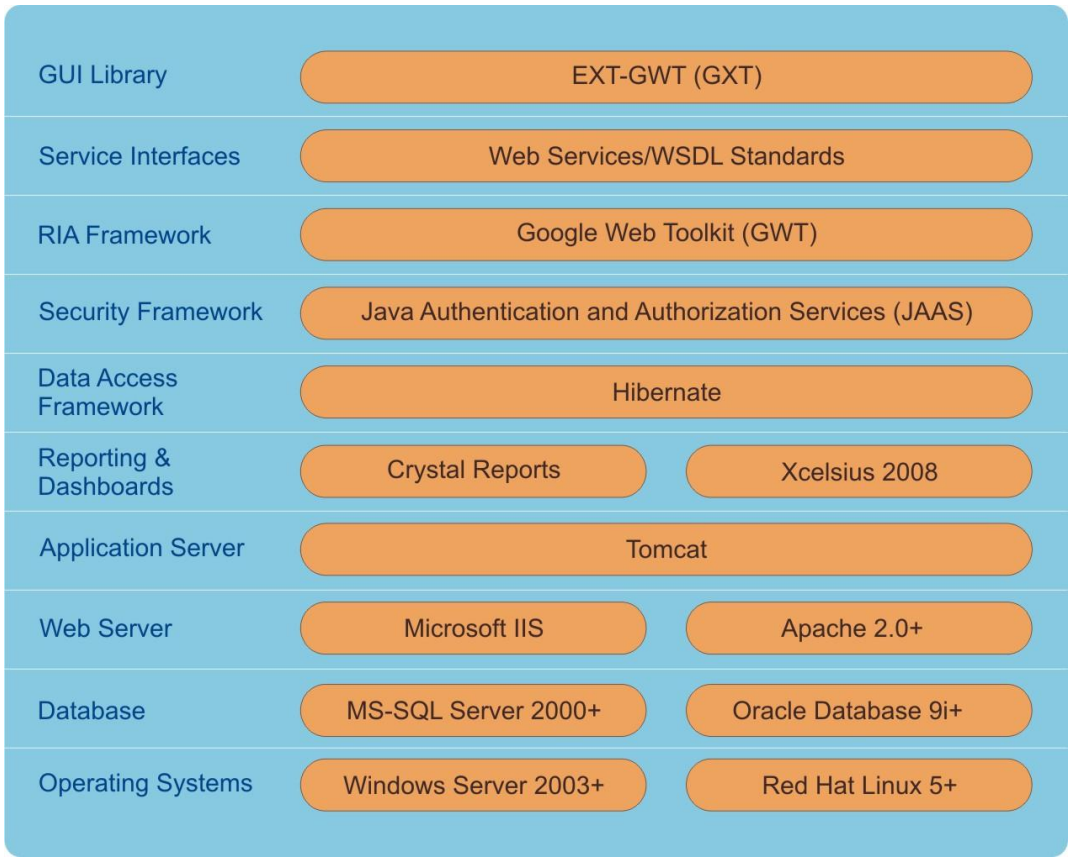
Some of the key architectural patterns considered for the internal audit application architectural modeling are enlisted as follows

- Model-View-Controller (MVC) at different architectural layers
- Reactor for decoupling of events from its processing
- Layered architecture supporting decomposition of services such that most interactions occur only between neighboring layers

- Information aggregation for supporting aggregation of data from multiple sources and presenting it across multiple channels
- Use of a front-end integration pattern for personalization and single sign on capabilities
- Back-end integration pattern for integrating databases and subsystems
- Run time patterns for managing performance, capacity, scalability, and availability requirements

With this architectural approach, the Google Web Toolkit (GWT) is used for the presentation layer. EXT-GWT third-party propriety licensed library from EXT is used for rapid development of presentation layer. With EXT-GWT widgets and panels' library, we have provided desktop like user experience with the advantages of zero-deployment and cross-browser compatibility to internal audit application users.

The Business layer is written using Pojo's. Hibernate is used in object relational mapping layer for providing database independence with support for multiple databases. The Internal Audit technology stack is provided below



Project Engineering Lifecycle

- Onsite knowledge was done by our Business Analyst and System Architect Team
- Product business requirements were then drafted in detail and a working product prototype was prepared in GWT during the onsite phase
- Product development was done completely from offshore location with bi-monthly customer and e-Zest visits to the e-Zest offshore delivery center at Pune, India and to the client's location

- Multi-location delivery model, where three teams working together in integration with the client's onsite team, client's offshore team in Hyderabad and e-Zest team in Pune to achieve market driven iGRC product milestone release timelines
- Followed weekly build process with use of Cruise Control for automating build process across iGRC product suite codebase
- Regular architecture and code reviews for each milestone delivery. Used CheckStyle forensuring code quality
- Used automated and manual testing tools depending on project needs

Bottom Line

e-Zest was able to provide the client with an integrated GRC solution with the internal audit product.The product was

- Built on next generation technology and was flexible and user friendly
- Provided a simple and comprehensive way to manage a wide range of audit related activities, data and processes
- Was compliant with internal audit standards

This greatly helped improve efficiency and save time and effort. The e-Zest team demonstratedstrength in building enterprise product platform using Rich Internet Applications (RIA) technologies suchasGWT. While finalizing the product roadmap we demonstrated domain expertise in Governance, Risk and Compliance management domain. Enterprise Audit planning and scheduling features provided in the product proved very competitive in the market and product was responsible for global recognition and many industry awards.