



To succeed in business it is necessary to make others see things as you see them.

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SOA and Business Process
Business Intelligence
Mobility Solutions
Custom Development Solutions

Game Engine Development

Abstract

Gateway designed and developed a complete distributed and scalable gaming portal & a game engine to host third party games for a Tokyo based client. In addition, Gateway also developed and integrated slot games for the client.



Case Study

Client Profile

The client is a leading trade and business development company headquartered in Tokyo, Japan. Client represents a group of companies in Japan that are focused on various industries including Environment, Biotechnology, Information Technology and Financial Services.

Business Need

When client identified online gaming as the next opportunity for growth, they set out to design and build an excellent gaming platform that can host third party games.

In addition, as an initial start up, also wished to have 3 Reel and 5 Reel slot game.

Solution

Based on the complex nature of the project, Gateway suggested and did a detailed requirement understanding phase to determine the requirements more thoroughly that helped in defining a proper execution and investment plan to undertake the project.

Gateway proposed to use MSMQ based architecture and designed a distributed, scalable architecture that was a combination of Service Oriented Architecture (SOA) and Event Driven Architecture (EDA) in order to make system;

- Robust
- Maximum Up time
- Reject unauthorized users and control malicious attacks
- Able to add new functionality without significant difficulty
- Able to modify existing functionality without significant difficulty

- Easy to use and easy to understand new functionalities

Gateway developed & provided a completely distributed and scalable game portal, which provides a platform for different games. The portal exposes the standards, which is to be followed by a game development company in order to produce portal compatible games.



Figure: Illustrates category wise game listing on game portal

Game Engine was developed with following core components:

- **Pre-validation Engine:** An assembly responsible for validating the prerequisites for player to play a game or register a tournament. Prerequisites are set by administrator of portal for a particular game or tournament.
- **Portal Game Engine:** Set of two web services:
 - PAID Games Web Services
 - FREE Game Web Services

The core game engine facilitates communication between Portal and Game by exposing different web methods and interchanging the information of different events such as game initialization, game Intermediate and game end event.



Case Study

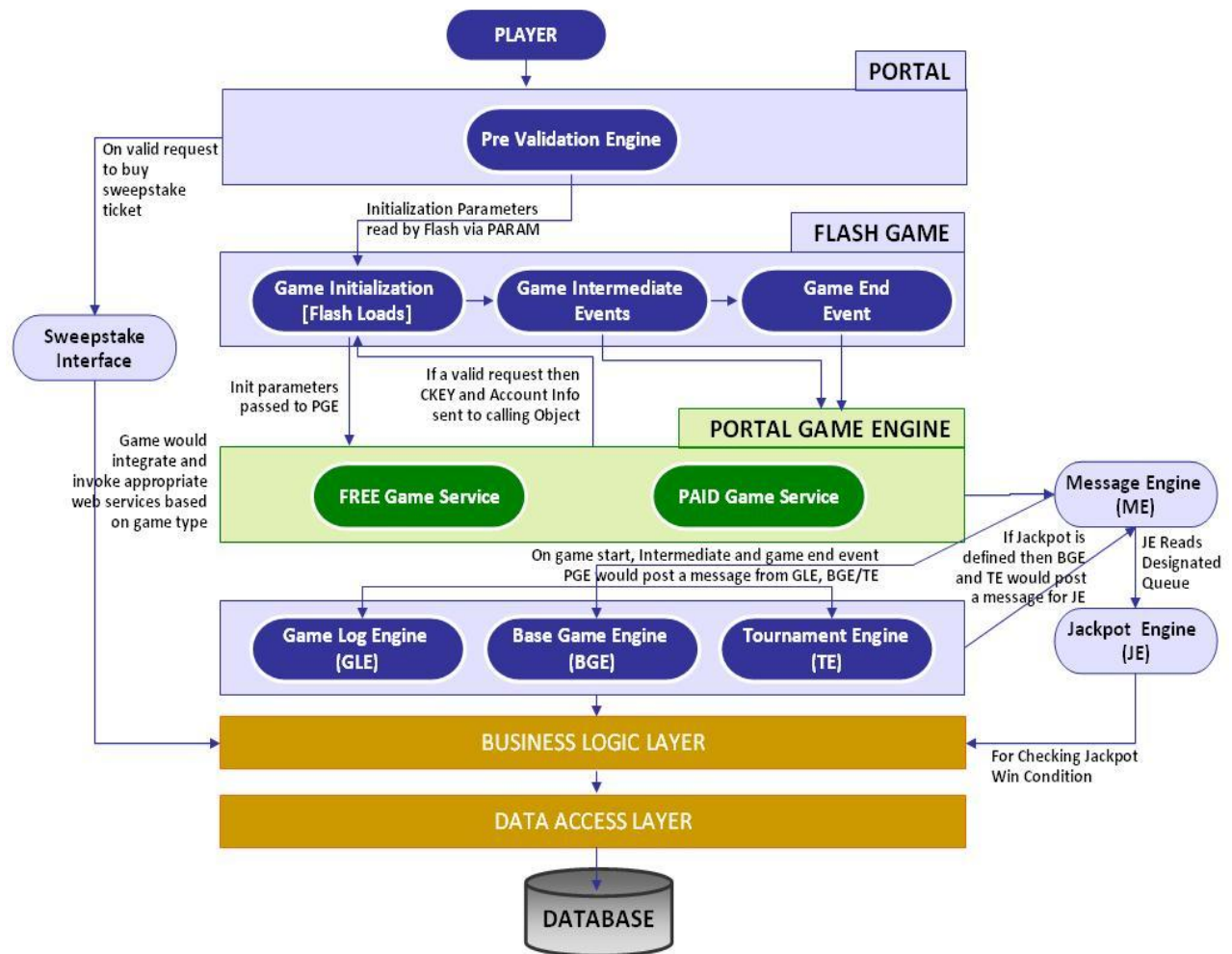


Figure: Illustrates system architecture

- **Base Game Engine:** A daemon process logic to handle the messages that are composed & sent by Portal Game Engine for a single game. It is also responsible for making a game result entry in the database, which is displayed on portal leader board.
- **Messaging System:** It is a MSMQ server, which holds dedicated queues for individual engines and having a set of class library to facilitated message composing, parsing, and encrypting, sending, receiving, setting permission on queues/messages.
- **Game Log Engine:** It is a daemon process, which is mainly responsible to maintain game log. It supports bulk insertion.
- **Tournament Engine:** It is a wrapper of games that are played between some specific numbers of players. The engine is responsible for managing all activities related to Tournament. It schedules and manages two types of tournaments:
 - Closed Tournaments
 - Open Tournaments



Case Study

- **Base Game Engine:** It is a daemon process that responsible for the handling jackpots in the system. It decides valid participants for a jackpot based on pre-defined criteria (set from the administration panel at the time of jackpot creation) and selects a winner based on the criteria set.
- **Sweep-Stake Engine:** Sweepstakes are the lotteries that a player can buy using the public site sacrificing "Portal Points" accumulated.
- Web services to facilitate the integration of third party games developed in Java, Flash, ActiveX, PHP, .NET, JavaScript or any other technology which supports web services/SOAP
- A generic engine to manage scores for various single player, multiplayer games
- A tournament game engine which allows users to configure, open as well as close tournaments having single/N tier architectures
- Development of Jackpot Engine, Sweepstake engine, leader board engine

Challenges

A tight schedule and a complex features set meant Gateway faced a daunting task, that presented the following challenges:

- To provide desktop like rich UI experience while using the web application
- Development of a completely distributed and scalable technical architecture
- Quick Response time, Internationalization to be supported
- A generic portal which can host single player or multiplayer games

Technology

- .NET 2.0 (ASP.NET, C#)
- Java Script
- XML
- AJAX
- MS SQL 2005
- MSMQ 3.0, FLASH
- Microsoft Atlas 1.0

Gateway TechnoLabs defines designs and delivers IT-enabled business solutions that help Global 2000 companies win in a flat world. These solutions focus on providing strategic differentiation and operational superiority to clients. Gateway creates these solutions for its clients by leveraging its domain and business expertise along with a complete range of services

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