Overview
Our customer – a leading global interactive entertainment software company – had an existing online platform that provided limited services such as identity management for a limited number of its game titles. It wanted to roll out a new system scalable enough to support all of its games and add centralized support for additional services such as micro-transaction ecommerce and game license key management. Tavant developed a suite of backend services together with the customer that addressed these needs, with modern REST-based APIs to ease adoption by all of the game studios. These services now support over 100 million game players across most of the company’s game titles.

Customer
The customer is one of the world’s leading video game and interactive entertainment companies. It develops, publishes and distributes games for consoles, personal computers, mobile devices and web browsers. It has studios located across the globe and sells its products in more than 75 countries.

Business Context
The customer had multiple requirements. First, its existing platform supported a limited number of game titles, was based on old technologies, used inconsistent APIs, and provided limited ecommerce services. It wanted to support digital sales of downloadable games, micro-content, virtual currencies, and subscriptions. It wanted to do this with a greater variety of payment methods important to gamers such as PayPal and cash cards. The customer wanted this platform to be built on top of a centralized user account management system to allow video game players to use the same account across various game titles and Web portals with a uniform view of their game personas and digital wallet. Additionally, it wanted the system to be scalable and robust, and provide high performance even while processing heavy request loads.

Second, the customer was using a legacy system to generate game license keys, and it was sending them across the network unsecured over email and file servers. The entire process was manual and resulted in a turnaround time as long as 2 days for a request to be processed. The customer could not adequately control access to the license keys nor maintain an audit trail.

Finally, the customer needed a centralized game license activation portal that could accept these keys from game players. The system was expected to enable users to activate digital downloads and redeem retail cards and gift codes.
Solution
Tavant co-developed a suite of platform services to address the customer’s business concerns. A Service-Oriented Architecture (SOA) along with the agile methodology helped to gradually replace the customer’s infrastructure with a new system that now serves over a hundred million accounts.

The system was designed to be the customer’s global platform across all game titles. It consists of a set of RESTful services that are easily integrated with the games and other systems. It provides high performance cross-platform and cross-product access for consoles, websites and mobile apps.

The platform suite includes the following components:

ECommerce System
The Ecommerce system provides support for transactions on digital assets such as full games and virtual goods:

- Micro-transactions
- Subscriptions
- Multiple international real currencies
- Multiple game-specific virtual currencies
- Numerous payment methods including credit cards, debit cards, PayPal, and game-oriented cash cards
- Payment gateway integration
- ERP system integration
- Data warehouse integration

Identity and Entitlement Management System
The Identity and Entitlement Management System establishes a unique cross-platform global identity for each player, permitting other services to track the player across all of his/her interactions with the company. Equally important, it also provides authorization checks for content in a centralized place.

The key information this service stores includes:

- Core identity information such as email address, phone, password, and date of birth
- Fine-grained entitlements for the games and content to which each user is authorized (e.g., for individual virtual goods)
- Game personas for each title (so that a user can have different names in each community)
- Terms of service acknowledgment
- Opt-in marketing preferences

License Key Management System
The License Key Management System provides a fast, reliable and secure way to generate and distribute un-forgeable game codes. This system is capable of generating over a million codes in less than five minutes. It also provides a set of RESTful services for seamless integration with online stores, websites, and games, enabling them to perform tasks such as checking on code consumption and dynamically generating new codes. It also integrates with the SecuROM product activation solution, if required by any game title.

The system has multi-level security, including LDAP authentication and role-based access control with configurable permissions for restricting users’ ability to generate, retrieve, and edit codes. This allows distributed administration in which different individuals have rights over codes for different game titles. The system adds further security layers through IP level filtering to limit the networks from which users and systems can connect.

The system was designed to scale and continues to support high-performance despite having over a billion codes in its database.

License Activation Portal
The License Activation Portal is an external web application that allows players to download/activate a game purchased online as well as redeem game codes, cash cards and gift codes.
The application is integrated with Omniture for Web analytics and can easily be skinned and embedded into game-specific web sites, taking on their look and feel. It is localized, supporting as many as 26 different languages. The system also supports country-level filtering based on IP addresses for enabling/restricting access to specific game titles.

The system also supports keys generated by the legacy application, ensuring that players who purchased codes in the past can redeem them without trouble.

**Highlights**

**Overall**
- Centralized services that support all games and devices while tracking individual player identity
- Scalable architecture currently handling over 100 million unique game players
- Reuse of code enabling rapid launch of new online games while saving on development and operating costs
- Centralized enforcement of security and corporate policies
- RESTful APIs permitting easy integration with games and other systems

**Ecommerce System**
- Micro-transactions on downloadable content and virtual goods
- Recurring billing for subscription-based products
- Digital wallet supporting multiple real and virtual currencies

**Identity and Entitlement Management System**
- Common identity platform for customers who own multiple products, enabling a rich 360 degree view of the customer across all titles
- Integration with other identity systems such as Xbox LIVE and PlayStation Network.

**License Key Management System**
- Over a billion codes generated and served
- Request turnaround time reduced from over 2 days to a few minutes
- Auditing of code request and retrieval
- Role-based access to codes for distributed administration of game titles
- Dynamic code generation for the web store
- Support for legacy keys and codes

**License Activation Portal**
- Skinnable and embeddable within game-specific web sites
- Single interface for users to activate and download a game and redeem cash card and gifting codes
- Country/locale-specific access for game titles
- Multi-language support

**Tools & Technologies**

We used a variety of Java-based and web technologies in this platform, including:
- Spring
- AOP
- Hibernate
- Struts
- REST
- JMX
- JMeter
- Selenium
- TestNG, EasyMock
- Maven, Ant
About Tavant

Tavant Technologies is a specialized IT solutions and services provider of choice for customers across the world. We leverage our unrivaled capabilities and domain insights to provide impactful, game changing results for our customers every time, without exception. We are known for our engineering excellence, passionate employees, and long-lasting customer relationships. Founded in 2000, we are headquartered in Santa Clara, California and service customers across North America, Europe, and Asia-Pacific.

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