



Software Performance Systems, Inc.

CASE STUDY

# Revenue Accounting and Management (RAM) System

## Situation

There are approximately 360 different types of statutory and non-statutory fees for the U.S. Patent and Trademark Office’s (USPTO) products and services. The USPTO Cash Receipts/Deposit Account system, operating on PTO’s UNISYS mainframe, provided automated support for fee recording, but no longer conformed to Federal requirements for automated financial systems. The aging system was inadequately documented, difficult to maintain, and impossible to substantially improve. The USPTO needed a system that could adapt to evolving business needs, scale to match a steadily growing volume of patent and trademark applications, and accept a variety of online payment methods. The Office of the Chief Information Officer had adopted new enterprise development tools and established a rigorous Life Cycle Management (LCM) system development methodology. USPTO identified RAM as the first enterprise system to be migrated from the UNISYS mainframe, and the first to be developed using LCM.

## SPS – Problem Solved.

SPS was selected to pioneer application of the LCM and migrate the RAM system using the Information Engineering Facility (IEF, now

called Advantage Gen) I-CASE tool. SPS later extended RAM to provide the first USPTO system support enabling USPTO customers to purchase and pay for USPTO products and services over the Internet. The RAM system now supports more than 800 USPTO Campus Users for fee collection of Patent and Trademark application goods and services and a multitude of the general public for online fee collection and account maintenance. The system processes in excess of 15,000 transactions daily and revenue in excess of \$1B per year. Payment posting latency was reduced from weeks to minutes enabling RAM to self-fund through increased interest from earlier deposits. SPS has provided RAM development and maintenance support for nearly a decade, to include end-user training and business procedures documentation, as well as dedicated production support for the Office of Finance users.

## Methodology

SPS developed and maintained the RAM system using the USPTO LCM methodology. RAM was the first USPTO development project to exercise the underlying LCM development processes. RAM was also the first system to be successfully migrated from the legacy A-16 mainframe, and the first system to be developed using the IEF (Advantage Gen) I-CASE tool, which USPTO selected as a preferred enterprise development tool. The RAM system development effort, therefore, was not just a successful system migration, but also led the way for LCM adoption and insertion of IEF/Advantage Gen technology throughout the patent office.

SPS facilitated the creation of a RAM Advocates Group, providing USPTO Users an avenue for driving development of system



## CASE FACTS

### Sector

Federal Government

### Organization

USPTO - Office of Finance

### Customer Profile

Ensures fee payments are recorded and deposited. Provides audited financial statements and other financial management reports.

### Business Challenge

The aging Cash Receipts and Deposit Accounts (CRDA) system was not user friendly, was difficult to maintain, and rarely met financial reconciliation expectations.

### Solution

SPS migrated the system to a user friendly, maintainable, and extensible architecture to resolve accounting data integrity issues, increase productivity, and provide enhanced functionality.

### Client Benefits

- Decreases rework.
- Ensures user privileges are appropriate and integrity of the data is high.
- Makes year-end closing of the books a simpler and efficient process.

capabilities, ensuring project objectives supported increases in user productivity, and validating ease of use and effectiveness of RAM displays.

Using web services, SPS extended the RAM system to the Internet to provide secure, online fee payment and account maintenance to the general public. RAM was one of the first Commerce systems to offer payment of goods and services online. SPS developers worked closely with the Department of Treasury to ensure Treasury guidelines for secure electronic commerce were met or exceeded.

Through 27 interfaces, RAM interacts with other USPTO Automated Information Systems, ancillary fee collection services, and external Patent and Trademark organizations around the world. The RAM interface architecture and design facilitates cross servicing of multiple users to establish interfaces that reduce functional redundancy across the system.

SPS emphasized component-based development techniques to lower costs, shorten schedules, and reduce risk. The J2EE-based RAM Payment Server provides web services to handle e-business transactions for other USPTO Internet applications.

## Lessons Learned

- Frequently changing fee schedules and patent-related statutory guidance caused us to increase time to design an

easily maintained fee subsystem and carefully separate business rule logic from software code.

- Although the LCM formally addresses transition from development to production, we found that additional rigor and planning was required to coordinate and synchronize with the many interfacing systems.
- Interface design and maintenance, dependent upon external systems, was taking longer and longer to do. SPS implemented Apache AXIS SOAP messaging software to decouple RAM from the interfacing systems.

***“Your efforts on the Revenue and Accounting Management System led to a quality system delivered on time and within budget and [have] helped PTO achieve clean financial audits”***

*—Dennis Shaw, CIO, Smithsonian Institution (former CIO, USPTO)*

## Results

The advent of RAM prepared the USPTO Office of Finance organization to effectively handle the ever-increasing workload of Patent and Trademark fee processing and management. In September 2001, the RAM system was awarded the *Government Agency Awards for Excellence in Information Technology*, presented to USPTO by Government Computer News, Washington Technology, and FOSE.

Since the deployment of RAM in 1997, USPTO revenue has grown to more than one billion dollars each fiscal year, all of which is processed through the RAM system. USPTO has received unqualified audit opinions from the Inspector General every year since the RAM system has been in production.

## ABOUT SPS

Software Performance Systems, Inc. (SPS), a small business based in Northern Virginia, is a privately held information technology services provider. Established in 1995, SPS specializes in the design and integration of large web-based solutions for Federal, State, and Local Governments and commercial clients worldwide. SPS has been honored with many national awards, including: #10 ranking in the Computerworld Top 100 Best Places to Work in IT, Deloitte's Virginia Technology Fast 50 and North America Technology Fast 500, and as a SBA Exporter of the Year. More importantly, SPS solutions helped our clients win prestigious awards, including the Grace Hopper Federal Government Technology Leadership Award, the E-Gov Pioneer Award, the Excellence.gov Grand Prize Award, and the Government IT Agency Award for Excellence in Government. **SPS...proven over time.**

## CONTACT INFORMATION



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