Seamless Payments Redefined: A Case Study in Modernizing Payment Gateway Systems

ORGANIZATION

Our client is a global workplace safety company that provides innovative, slip-resistant footwear to help businesses protect employees from workplace injuries. Their products are used in over 15,000 organizations across 100,000+ locations worldwide. As part of their long-term strategy, they set out to modernize their IT infrastructure to improve performance, security, and scalability.

CHALLENGE

Despite their leadership in safety, the organization faced critical challenges with its outdated payment system, which negatively impacted both back-end operations and customer experience. Key issues included:

- **Payment Card Validation**: The system lacked real-time account verification, allowing invalid payment cards to be saved during customer account creation.
- **Limited Integration**: Payments relied solely on batch processing via SSH File Transfer Protocol (SFTP), without support for real-time gateway integration.
- **Partial Authorization Handling**: The system was incapable of processing partial authorizations or deposits for split orders, creating inefficiencies in order management.
- **Data Security Non-Compliance**:
    - Payment card account numbers were stored in plain text, breaching sensitive data protection standards.
    - Although the client application was secured with HTTPS, sensitive payment information was transmitted without encryption, exposing data to potential security risks.
- **Manual Payment Reversals**: Order cancellations and returns required manual processing for payment reversals, leading to operational delays.
- **Authorization Limitations**: Payment authorizations were only completed during shipping, combining authorization and deposit in a single transaction, and delaying order validation.

TECHNICAL SOLUTION

XTIVIA conducted a comprehensive analysis of the client's requirements and application architecture, designing a modernized payment gateway service that addressed all pain points. Key highlights of the solution include:

1. **Enhanced Integration Capabilities**:
    - Developed support for both real-time and batch integrations with payment gateway systems.
    - Implemented flexible operations to facilitate complex payment functionalities, such as partial authorizations and deposits.

2. **Secure Tokenization:**
   - Payment card information was tokenized, ensuring that sensitive data was stored securely.
   - Tokens were valid only within the customer-organization-payment gateway ecosystem, making detokenization impossible by unauthorized entities.

3. **End-to-End Encryption**:
   - Implemented advanced page-level encryption, securing sensitive payment data from the moment it was entered in the customer order page through the entire transaction lifecycle.

4. **Streamlined Payment Processes**:
   - Introduced real-time account verification to validate payment card status before saving.
   - Enabled real-time payment authorization during the order process, allowing quicker validation and improved order accuracy.

5. **Operational Efficiency**:
   - Automated payment reversals for cancellations and returns, drastically reducing manual intervention and operational delays.

Logical Architecture Diagram - SDK and it's Components
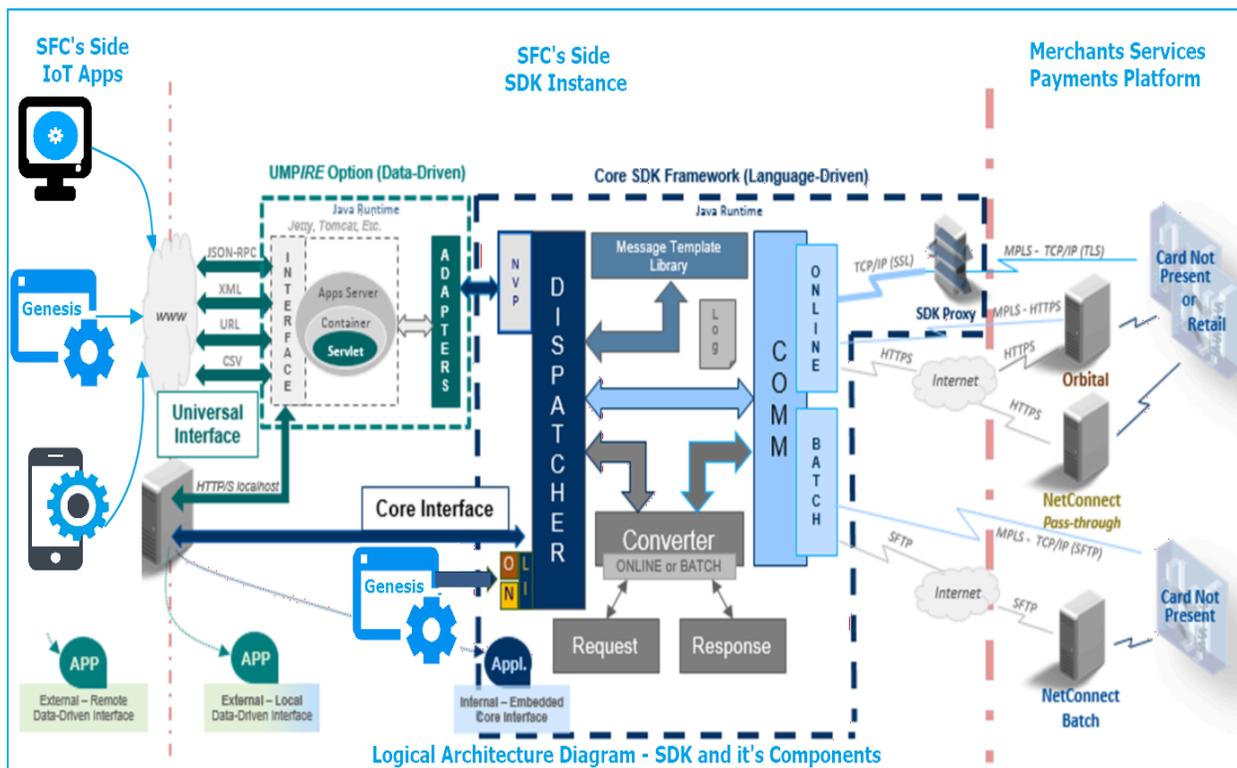
BUSINESS RESULT

XTIVIA's solution transformed the client's payment system, delivering tangible business benefits:

1. **Enhanced Customer Experience**: Real-time payment verification reduced order cancellations due to payment rejections, improving customer trust and satisfaction.
2. **Compliance and Security**: Full encryption of sensitive data and tokenization ensured PCI compliance, protecting the organization from data breaches and regulatory penalties.
3. **Operational Efficiency**: Automated processes streamlined split order payments and payment reversals, significantly reducing administrative overhead.
4. **Scalability and Flexibility**: The modernized system, with its robust integration capabilities, positioned the organization to handle future payment processing requirements seamlessly.

KEYWORDS

Payment gateway integration, Real-time authorization, Batch processing optimization, Payment card tokenization, PCI DSS compliance, End-to-end encryption, Partial authorization processing, Sensitive data security, Order lifecycle automation, Scalable payment systems, Chase Paymentech, Java, webMethods, Spectrum SDK, REST, Microservices

SOFTWARE

Java1.8, Web Methods 9.12, Chase PaymenTech Spectrum SDK 6.0.5, Safetech Page Encryption & Tokenization Framework, Junit, REST API, Swagger

ABOUT XTIVIA

At XTIVIA, we've provided IT solutions and consulting services for over 30 years. We offer a wide range of services, including technology assessments, IT service and asset management, software development, data analytics, cloud migration, DevSecOps, ERP, and enterprise content management. Our team of experts is dedicated to each discipline, ensuring that our clients receive the best possible service. We've partnered with industry leaders to bring our clients the latest solutions. Through strategic acquisitions, we've acquired talented people who are experts in their industries, passionate about what they do, and committed to providing exceptional service to our clients. Whether you need to improve your IT infrastructure or implement new software solutions, XTIVIA is here to help you achieve your business goals. Contact us today to learn more about our services.XTIVIA has offices in Colorado, New York, New Jersey, Texas, Virginia, and India. www.xtivia.com