Fundtech offers a Global Payments Solution on IBM Power Systems

IBM Redbooks Solution Guide

Transaction banking has become increasingly competitive, with greater focus on fee-for-service revenue, shortened development cycles, pressure to reduce operating costs, and rapid response to industry initiatives. At the same time, clients have become more demanding, requiring greater customization of services and fees, and a simplified user experience that requires less training and produces fewer costly errors. The answer to these challenges lies in implementing a payment hub. Mass payments, including consumer and business low-value payments (such as ACH or SEPA transactions) that are typically processed in very large quantities, typically require a highly scalable system.

IBM® and Fundtech have partnered to provide such a solution, called Global PAYplus Services Platform™ (GPP-SP) 4.0. GPP-SP represents a collection of rules-driven payment services designed to allow the orchestration of end-to-end payment processing, data management, and integration across all channels through back-office systems and clearing and settlement systems, using industry standard interfaces. It runs on IBM Power® Systems supported by AIX®, Oracle Java, and Microsoft SQL Server.

Figure 1. GPP-SP can be used by any size bank

Did you know?

The payment landscape is changing faster than ever. Increasing regulation, rapidly advancing technology, and growing customer expectations are reshaping the way banks and financial institutions deliver their payment capabilities to the market. Faced with the need to generate new revenue in an environment where the costs are rising due to the need to respond to regulations and to introduce new products just to maintain competitive parity, banks and financial institutions demand payment platforms which are:

- Global – reflecting the increasingly global nature of today's business
- Real time – reflecting current and emerging trends of mobile and other immediate payments
- Responsive to change – allowing for the introduction of new products and regulatory mandates in radically compressed time frames
- Cost-efficient – collapsing legacy silos by concurrently processing multiple disparate payment types and leveraging the existing strategic assets via rapid and seamless integration; and, utilizing leading HW/infrastructure products in an optimal way
- Future proof – using standards, tools, and approaches that ensure that the scalable platform will remain current and will evolve with the times over its operating life span

This kind of platform is now known as the "Payment Services Hub." Leading financial institutions use Fundtech's Payment Hub running on IBM POWER Systems™ to meet the current market demands and lay the foundation for future initiatives.

Business value

The Fundtech Global PAYplus-Services Platform (GPP-SP) solution is a payments platform that is used by many of the world's largest global and domestic banks. A centralized high-performance payment hub developed using service-oriented architecture (SOA) allows the bank to offer their customers new levels of business and functional payment service capabilities on an affordable processing platform.

Payment operations reap the benefits of flexibility and speed of a business-centric IT approach through a set of linked, reusable business tasks or services while reducing overall hardware and software complexity and cost.

GPP-SP combines the agility of SOA with the flexibility of a rules-based system. The rules engine is designed to work in a global environment using the language of business users. Rules can be applied without the need for additional programming. By eliminating the need to re-code, users can save time and money while significantly improving their time-to-market for new products.

In addition, GPP-SP offers customers the flexibility to adapt to change. GPP-SP users can add a new feature to a product simply by changing a rule. In the past, adding such an enhancement would have taken many months.

Its SOA architecture and its strict adherence to industry standards make the integration of GPP-SP with a firm's existing technology infrastructure faster, easier, and more predictable. It also enables a firm to reuse components across their enterprise, improving speed-to-market of new products while improving return on investment.

Solution overview

Fundtech's Global PAYplus–Services Platform is a shared service framework that includes payments, cash and liquidity management, financial messaging, and the financial supply chain, as illustrated in Figure 2.
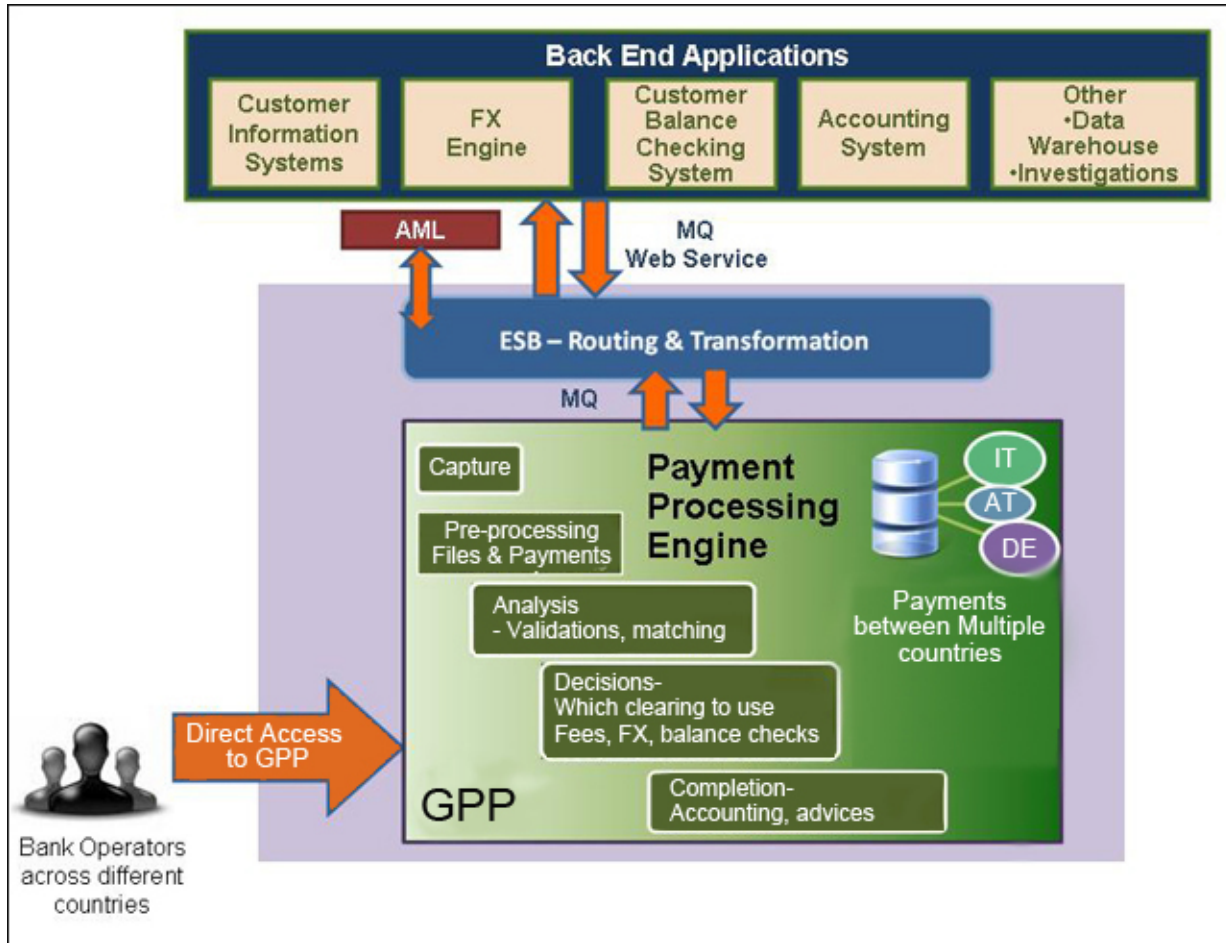

Figure 2. GPP-SP solution overview

This Payment Services Hub allows you to transform your payments business into a powerful competitive advantage. GPP-SP captures, manages, and processes all bank payments in a local and international environment, and enables banks to offer a wider range of payment services more efficiently, all with higher automation and more global reach than competitive products. GPP-SP represents a collection of rules-driven payment services designed to orchestrate end-to-end payment processing, data management, and integration across all channels, through back-office systems and clearing and settlement systems, using industry standard interfaces.

It operates as a single consolidated payments solution offering services that facilitate the execution of different payment types: high value/ high care payments, mass payments, SEPA payments, UK Faster Payments, and others with a common payments infrastructure, processes and procedures to simplify operations and reduce operating expenses.

The highlights of Fundtech's GPP-SP solution include:

- **Rules-driven payment workflow management**. GPP-SP uControl rules engine allows business professionals to drive new payment services from inception to market in real time with no IT intervention.

- **Flexibility**. Using GPP-SP existing and emerging payment channels and interfaces (for example, partner transactions, mobile, and business application monitoring) can be easily integrated with the solution's service component architecture, providing a consistent and streamlined payment management environment.

- **Superior orchestration**. Orchestration is based on a two-tier approach: coarse grained and fine grained service orchestration.

- **Standards and cross-vendor interoperability**. GPP-SP offers standards compliance and cross-vendor interoperability. The solution offers native support for ISO 20022, XML messaging, SOA, and industry-standard Enterprise Service Bus (ESBs).

- **SEPA compliance**.

These elements, in combination with GPP-SP's web services provided on a single code base, provide a customizable payment management solution. GPP-SP delivers performance, scalability, and reliability on a SOA-compliant platform.

GPP-SP also has an extensive suite of SOA services that can be deployed according to an institution's strategic business and technology plan:

- Payments functionality deployed as SOA services can be pre-configured or individually composed. GPP-SP is a payment application, not a tool kit.

- Services can be reused by other applications within the institution, adding new capabilities and extending the useful life of the existing applications.

- Creation of new business processes with a suite of services speeds up time-to-market by virtually eliminating development time.

Fundtech's GPP-SP solution works well with IBM POWER Systems and DS8000® Storage units. The IBM Power Systems family is comprised of a comprehensive series of servers, systems software and solutions featuring the latest IBM POWER7+™ processor technology. Designed as the ultimate system for compute intensive workloads and ideally suited for big data and business analytics as well as cloud environments, Power provides capabilities to gain real-time business insight and competitive advantage within a secure, flexible and scalable environment.

The companies that bring you the solution

IBM and Fundtech have combined forces as business partners to bring you this banking solution.

Fundtech

Fundtech offers comprehensive transaction banking solutions to banks and corporations of all sizes around the world. The firm's customers can benefit from lower operating costs and an enhanced end-user experience through integrated and feature-rich solutions. Founded in 1993, Fundtech was acquired in 2011 by GTCR, a Chicago-based private equity firm. For more information, visit: www.fundtech.com

IBM

The IBM Banking Industry Framework supports a smarter way of performing business operations through integrated systems and analytics that help you streamline and accelerate your business performance.

Built on the IBM service-oriented architecture (SOA) platform and using open standards that allow it to easily integrate with other systems, the framework provides advanced information management, analytics, automation, and integration of processes among business functions.

Solution architecture

Figure 3 shows a sample solution architecture. This setup was used to test performance and results were excellent. Users can configure their own systems according to the volume of their transactions and their performance requirements.
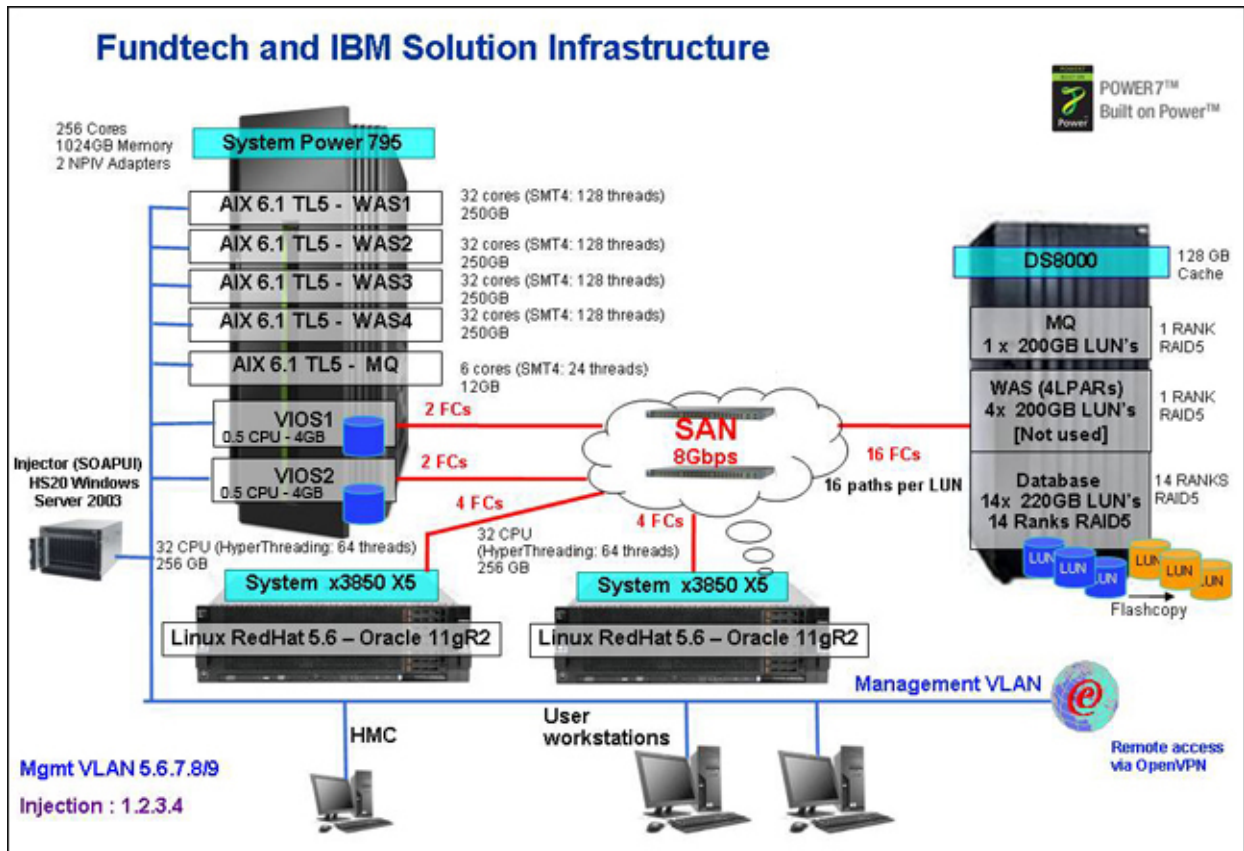

Figure 3. A sample solution architecture, configured for performance

Configuration details

Table 1 lists the units, hardware, and operating systems in the sample configuration used for the performance benchmark testing.

Table 1. Platform specifications

Platform	Description	Hosted servers/Units	Specifications
IBM Power® 7 795 256 Cores 1024 GB RAM SMT4 (Simultaneous Multi-Threading) 2 NPIV Adapters	Application Server for Transaction Processing and Database Applications	WAS1-4	For each server: 32 Cores 250 GB RAM AIX 6.1 TL5
		MQ	6 Cores 12 GB RAM AIX 6.1 TL5
		VIOS2	4 GB RAM CPU 0.5
		VIOS2	4 GB RAM CPU 0.5
IBM System Storage® DS8100 128 GB Cache	Database Storage	WAS1-4	For each server: 1 LUN 200 GB 1 RAID5 Rank
		MQ	1 LUN 200 GB 1 RAID5 Rank
		Database	14 LUNs, 220 GB each 14 RAID5 Ranks
IBM System x3850 X5 HyperThreading No virtualization	SQL Database Server		32 Cores 256 GB RAM Red Hat Linux 5.6 64 bit Oracle RAC 11.2.1 RAC SGA - 40 GB/PGA - 5 GB
IBM System x3850 X5 HyperThreading No virtualization	SQL Database Server		32 Cores 256 GB RAM Red Hat Linux 5.6 64 bit Oracle RAC 11.2.1 RAC SGA - 40 GB/PGA - 5 GB
IBM HS20	Payment Message Injector		Microsoft Windows Server 2003 SoapUI
Hardware Management Console (HMC)	System Access		
Workstation	System Access		
GPP-SP	Payment Services Hub	WAS1-4	Version 4.0.BM36.441

Usage scenario - throughput test

IBM and Fundtech conducted a mass payments test for a large Tier 1 global bank. The GPP-SP solution running on an IBM system was put through a series of rigorous tests to demonstrate that its individual and mass payment capabilities could meet and exceed current, as well as future, bank and market performance targets. Goals for the test were set as follows:

- Process in one hour 25% of the expected future peak day volume of the mass payment volume in EMEA

- Process in four hours 100% of peak day volume (20MM) of the mass payment volume in EMEA

- Process 100K volume of files in the local language in under ten minutes

- Process jumbo files – 1MM file from a customer in under one hour

- Scalability – linear TPS measurements (constant TPS/core) when scaling the number of cores

- Demonstrate high availability and stability over time

- Demonstrate mass processing with interfaces delays and without delays

The performance test used some scenarios from real life, as listed in Table 2.

Table 2. Transaction types

Type	Messages
Single Payment	Real-Time Gross Settlement (RTGS) India Electronic Fund Transfer (INEFT) Trans-European Automated Real-time Gross settlement Express Transfer System (Target2) Clearing House Automated Payment System (CHAPS) China National High-Value Payment System (CNHVPS)
Mass Payment	SEPA Direct Debit (SDD) SEPA Credit Transfer (SCT) Banks Automated Clearing System (BACS) China National Bulk-Entry Payment System (CNBEPS)

Summary of results

In the test, Fundtech's GPP-SP was able to process 20 million payments in under two hours. In variations of the test, GPP-SP processed double and even triple the volumes within the target time frames. The results demonstrate that GPP-SP running on an IBM software and hardware stack is able to far exceed this large bank's current and future performance targets for processing mass payments. This solution demonstrates that GPP-SP is a high performance system capable of processing the volumes required by mass payments with acceptable latency and no residual effects.

GPP-SP running on the IBM platform has thus:

- Successfully passed all functional tests.

- Successfully processed large files of up to 1MM transactions.

- Demonstrated near linear scalability with stable performance in small (32 cores), medium (64 cores) and large (128 cores) application server configurations.

- Collected TPS/Core statistics to allow for capacity planning. The CPU utilization was 70% on average.

These results demonstrate the technical feasibility of aligning a large bank's payments processing infrastructure with the industry trends of consolidation and harmonization. It is also provides an example of how Fundtech's highly scalable modern GPP-SP payment solution can be used by banks around the world. Other examples include SEPA in Europe and multiple payments initiatives in Asia.

Detailed results are in a paper titled "Global PAYplus Performance Benchmark Test." It can be found at: http://www.fundtech.com/library/white-papers/

Supported platforms

The GPP-SP solution runs on IBM AIX 5.3 on the IBM System p® platform.

Ordering information

Send an email to sales@fundtech.com or see:
http://www.fundtech.com/contact/.

Related information

For more information, see the following documents:

- IBM Offering Information page
  http://www-304.ibm.com/partnerworld/gsd/solutiondetails.do?&solution=43968&lc=en

- IBM Global Solutions Directory:
  http://www-304.ibm.com/partnerworld/gsd/search.do

  From this page, you can search for Fundtech and for specific solutions such as Global PAYplus and GPP-SP.

The team who wrote this guide

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