

## Our services

- ✓ Outsourcing of software development, testing and support.
- ✓ Customization and modernization of third-party solutions in client's current use.
- ✓ Consulting: assessment of solutions offered by third-parties.
- ✓ Integration: analysis, design, development and implementation of solutions aimed for interoperability of client's current systems developed at different times by various vendors.

## Our history

SoftWarm+ was founded in 1992. The very first project, that kick started the company and inspired its name, was development, deployment and support of computerized heat supplied accounting system for city governments' fuel and energy complex. During that stretch we also developed and shipped solutions in accounting and human resources areas to a number of commercial and state-owned companies.

Since 2004 SoftWarm+ works closely with Fourth Dimension Software ([www.4ds.com](http://www.4ds.com)), a leading provider of technology solutions to the global tour and packaged travel industry. Our team members participate in customization of FDS' travel software to the needs of large tour-operators in Europe and USA and integrate it

with their current systems. Within this collaboration our specialists designed and developed a unified interface to GDS/CRS and Payment Gateways and deployed its implementations, improved interoperability of the system by implementing API granting access to its features, supported distributed multi-platform system 24/7.

## Technologies we use

- JAVA, C++, C, NonStop COBOL, NonStop SQL/MP, SQL, MySQL;
- SOAP, XML, XSL, XSL-FO, REST, JSON;
- Servlet API, Spring Framework, SpringBoot, Microservices;
- PHP, JavaScript, jQuery, GWT, HTML, CSS;
- WordPress, Drupal, Joomla;
- Tomcat, Apache, Nginx.

## Project management

TargetProcess, Bugzilla, JIRA, BaseCamp, SmartSheet, TestTrack.

## Source control

GIT, SVN, VSS.

## Outline of projects

Our team members conducted and participated in many projects of various type and complexity. They're exposed to a wide set of technologies related to development of client-server applications from small to enterprise grade systems. The result solutions are deployed to production (many in HA configurations) processing hundreds requests per minute and creating bookings for thousands of happy end-customers per month. Below is a quick outline of projects related to server-side programming, various APIs and user interfaces.

### *B2B middleware web services*

#### **GDS/CRSes and Payment Gateways unified connector service**

Key technologies: **JAVA, Servlet API, JAXB, JAXP, JNI, SOAP, XML, XSD.**

This web service acts as a translator between the core system running on HP NonStop machine and external GDS/CRSes and online payment gateways. It provides a framework that allows streamlining new integrations in an easy and cost-effective way. In terms of GDS/CRSes, it helps the core system to process scheduled, charter and net-rate flights, hotel booking, car rentals, etc. managed in external systems as its own inventory. The same is true for payments, with the help of this web service and a corresponding integration, the core system is able to make payment transactions (authorize, void, charge, etc.) actually executed through external systems.

Based on this framework the following integrations have been implemented and went live:

<i>Flight sales</i>	<i>Hotel bookings</i>	<i>Car rent and transfers</i>	<i>Tours, Activities, Cruises, Insurance</i>	<i>Payment gateways</i>
Amadeus	GTA	Enterprise	GlobusTours	Authorize.NET
Galileo	HotelBeds	Alamo	CosmosTours	ATOS
AerLingus	DOTW	Hertz	MongramsVaction	PlugAndPay
Sabre	Travco	GTA	AvalonCruising	Moneris
FareLogix	BedsOnline	HotelBeds	GTA	UsaEPay
Gabriel	Jacob		IsaTravelOnline	
Marmara	JumboOnline			

### **Document production service**

Key technologies: **JAVA, Servlet API, JAXB, JAXP, SOAP, XML, XSD, XSLT, XSL, XSL-FO, HTML, CSS, PDF.**

As the content-rich document creation could be more easily implemented on PC side than on HP NonStop machine, the subsystems collect all required data and send it to a middleware web service. This web service is responsible for producing of the actual content-rich files and interacting with several external systems in order to deliver the files via email, by fax, or print on the paper and get mailed.

### Package search API

Key technologies: **JAVA, Servlet API, JAXB, JAXP, SOAP, XML, XSD.**

The service loads data from the core system on HP NonStop machine and serves it to the clients (B2B/B2C web applications) via simple and straight forward API. It holds millions of package offers in a proprietary state-of-the-art in-memory cache and returns monthly data depending on the various search criteria (gateway, number of travellers, duration of the stay, currency, origin of sale, etc.) in a split second.

### Booking flow API

Key technologies: **JAVA, Servlet API, JAXB, JAXP, SOAP, XML, OTA, XSD, XSL, XSLT.**

A web service that exposes basic operations of the booking flow (quote, book, add-ons search, update, etc.) of the core system running on HP NonStop machine. It's used by external integrations (B2B/B2C web applications) and by in-house tools as well. At a later stage the service has been extended so that in addition to proprietary XML format messages, it could process those of OTA-standard as well. That's achieved with the help of XSL templates applied to requests and responses by servlet's filters. The service has been deployed in Active/Active HA configuration and processes hundreds requests per minute during the peak times.

### Advanced booking flow API

Key technologies: **JAVA, Spring, Microservices, SpringBoot, JSON, XML.**

A web service that publishes advanced features (including dynamic packaging) of the core system running on HP NonStop machine. It's intended to be used by external integrations (B2C/B2B web applications) that aim to offer maximum flexibility and extended set of products to their customers.

### Front-end applications

#### RIA client for a computerized reservation system

Key technologies: **GWT, HTML, CSS, JavaScript.**

This full-fledged UI grants users with access to all system's features and facilities depending on their profile. Agents are able to create/modify/cancel reservations, apply payments, operations team can add/modify/delete vendors/services data, amend product's prices and conditions, support personnel will generate reports, access logs and statistics, etc. Deployed to production and supported operations of several tour operators with hundreds of travel agents.

#### B2C package booking portal

Key technologies: **PHP, HTML, CSS, JavaScript, jQuery, WordPress.**

A Web application serving as a reference implementation of a portal utilizing Package search API and Booking flow API. End-customers can either book a basic package in a few clicks or customize their travel by choosing from a wide range of flights sourced from GDS, updating their hotel/room type from a number of predefined options, selecting a desired rental car type, and adding optional tours. Deployed to production and acted as a major sales channel to several travel brands serving thousands of end-customers per month.

## **B2C travel documents portal**

Key technologies: **PHP, HTML, CSS, JavaScript, jQuery, WordPress.**

A Web application providing end-customers with access to their travel documents (itineraries, flight e-tickets, hotel and transfer vouchers, museum admissions, etc. ) anytime, anywhere, from any device. Documents could be downloaded, printed, or sent by email separately, one by one, or bundled together in just one file.

## **HP NonStop (Tandem) programming**

### **Travel documents subsystem**

Key technologies: **NonStop Cobol, NonStop SQL/MP.**

A subsystem that enables the core system running on HP NonStop machine to produce and deliver content-rich (HTML, PDF, etc.) documents for travelers based on flexible rule-based scheduling schemes. Each document is bound to a particular booking or item, so there's just one message to the *Document production service* (see its description in the *B2B middleware web services* section). A document's meta-data along with the history of users' actions are recorded in the core's DB on HP NonStop machine while its content is produced and hosted on the web service' side running on PC.

### **Vendor advising subsystem**

Key technologies: **NonStop Cobol, NonStop SQL/MP.**

The subsystem allowing the core system running on HP NonStop machine to produce and deliver content-rich (HTML, XLS, etc.) documents for vendor advising (rooming list, inventory replenishment, etc.) based on flexible rule-based scheduling schemes. Each document is bound to a particular service/vendor throughout all bookings, so the message sent to a web service could be quite big and thus is sent by chunks. A document's meta-data along with the history of users' actions are recorded in the core's DB on HP NonStop machine while its content is hosted on the web service' side running on PC.

### **Reservation export feature**

Key technologies: **NonStop Cobol, NonStop SQL/MP.**

Implementation of this feature enabled the core system running on HP NonStop machine to export bookings data to third party applications for accounting and BI purposes. The connection could be made directly or via an optional middleware web service that translates the core's message to an external system's parlance. The systems that were integrated in this way are: **Gestour, NFDocService, Traacs, RIU.**