

e-Travel Uses Splunk To Build a Seamless Online Travel Experience: An EMA ROI Story

Executive Summary

ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) authors Return on Investment (ROI) Case Studies covering enterprise management products that demonstrate above-average customer value.

This EMA ROI Case Study profiles how the Splunk Enterprise solution is implemented at e-Travel SA, an online travel agency in Europe. It details the innovative ways e-Travel uses Splunk to improve operational efficiency as well as overall customer satisfaction and experience with its online travel properties.

Founded in 2004, Splunk provides a combination of capabilities for data collection, indexing, search and analysis that gives organizations the flexibility for a better understanding of its operational data. The Splunk Enterprise product is a software-based solution installed and readily extended on commodity hardware. Splunk Enterprise can collect machine-generated data from a wide variety of sources. Splunk is distinctive in that multiple customers have provided impressive case studies regarding ROI.

e-Travel SA provides travel services such as airfare, hotel and transportation booking services around the globe, specifically focusing on Central and South-Eastern Europe. With customers in 14 markets focusing on Russia, Greece, Cyprus, Romania and Bulgaria, e-Travel SA has several online properties including www.trip.ru, www.airtickets24.com and www.pamediakopes.gr.

This EMA ROI Case Study documents the tangible financial impact of e-Travel's implementation of Splunk Enterprise. It also details the value of the Splunk solution in terms of softer benefits to the e-Travel SA organization in general and its Information Technology team in particular.

Splunk

Background

With over 6,000 customers since its founding in 2004, Splunk (<http://www.splunk.com> NASDAQ: SPLK) has won a considerable following among information technology (IT) organizations that are often highly vocal about the distinctive flexibility Splunk software provides for operational intelligence.

Specifically, Splunk Enterprise software provides a combination of capabilities for data collection, indexing, search and analysis that gives organizations substantial freedom to better understand its operational data. Splunk software is simple to install and scales easily. Splunk Enterprise can collect machine-generated data from a wide variety of sources. The software's indexing and search capabilities free organizations from much of the overhead of competing approaches that require costly and time-consuming normalization and rationalization of data before it can be made useful.

HIGHLIGHTS

splunk >

Vendor name: Splunk Inc.

Product area: Application Performance Management



Customer name: e-Travel

Customer domain: Online Travel Agency

Product name: Splunk® Enterprise™

Product version: Splunk 5.0.2

Product Description

The Splunk platform is centered on a Splunk server, with user access enabled via a Web console. This architecture can be extended across multiple datacenters and Splunk servers, with role-based access controls that facilitate tailoring of reports and analysis to individual users and restrict access to sensitive information when required. Extensibility is further supported by Splunk forwarders, essentially lightweight software agents that broaden the range of data the Splunk platform can collect and transmit to Splunk servers.

Splunk Enterprise's flexibility and ease of deployment have resulted in an annual growth rate in the high double digits according to the company. Splunk is currently in use by a majority of Fortune 100 companies. In the second quarter of 2011, Splunk was granted U.S. Patent No. 7937344 for organizing and interpreting machine data through the use of a "machine data web."

The Splunk 5 release adds enterprise class high availability and strengthens support for Hadoop (Splunk Hadoop Connect and Splunk App for HadoopOps). Splunk recently added DB Connect, an app that allows its customers to enrich machine data with business context from data located in relational databases.

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e-Travel SA

Background

e-Travel SA (e-Travel) is a top-10 European online travel agency (OTA), operating leading sites across Eastern and Southern Europe. The majority of its business comes from Russia, where the trip.ru brand is among the top players. It additionally serves 14 European markets including Greece, Cyprus, Romania, Poland, Bulgaria, Ukraine and Croatia. The company began as a start-up in Greece in 2005 and has since grown to over 100 employees.

e-Travel is the owner and operator of various online properties including:

- www.trip.ru
- www.pamediakopes.gr
- www.airtickets24.com
- www.fantasticgreece.com
- www.avion.ro
- www.trip.ua
- www.trip.bg

Interviewed Implementation Team

e-Travel utilizes Splunk across many of its operational IT teams. Use cases where Splunk Enterprise is implemented at e-Travel include:

- Coordination of the collection of application log files for error and performance monitoring
- Real-time downtime prevention and root cause analysis
- Reimbursement cases from travel inventory partners
- Digital intelligence to better understand site usage and end-user experience
- Real-time marketing optimization

As an OTA, e-Travel relies on its IT organization to carry a pivotal role in the operations of the company. The implementation team interviewed for this EMA ROI Case Study consisted of members of the e-Travel IT and Product Development teams. These teams are responsible for the design and implementation of new products and services for the e-Travel online properties such as www.trip.ru and www.pamediakopes.gr to improve customer experience and online purchasing habits.

Team members interviewed were:

- Team Leader, Information Technology
- Director, Product Development

These team members are directly responsible for large segments of operational infrastructure. They have accountability for operational uptime as well as strategic product development duties.

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Splunk at e-Travel

Error and Performance Monitoring

Errors in the online platform for an online travel agency represent a major issue. When the platform does not perform the anticipated tasks associated with product presentation and/or customer purchase, the core travel customers can, and often do, move to competitors. Detecting and correcting these issues in a relatively short amount of time is most important to OTAs.

Up until 2010, e-Travel used manual processes to accomplish error and performance monitoring on the operational systems associated with its online properties. This was a time consuming process. Developers needed to utilize manual connectivity to remote systems and perform searches on available log files via standard UNIX operating system tools. Not only was this a reactive effort, the process could take as long as an hour to perform a single search.

During the timeframe of 2009-2010, e-Travel's IT teams also used another tool to assist with error monitoring. This third-party product would often crash when multiple system errors occurred. These crashes forced the e-Travel IT team back to a manual UNIX-based error detection process. In addition, due to the tool system crash, the information promised from the third-party application would be lost since the application was no longer collecting information from the remote systems. This information loss would again extend the time and effort required to manage error detection and resolution.

Business Measurement and Strategic Management

As the purchasing habits of the European traveler have shifted toward using online travel options, having visibility into the performance of its online properties and customer habits is important to the e-Travel Executive Management team, especially with increased competition.

To better tackle the strategic and operational challenges of its market, the e-Travel team required additional visibility into the following areas:

- Marketing strategy decision contribution
- Infrastructure performance
- Customer experience monitoring
- Ability to extract statistical data on user behavior
- Strategic decisions in online platform development

Prior to the implementation of Splunk, the visibility of these metrics was based on historical information derived from platform performance and not associated with the real-time information coming from the e-Travel properties themselves.

Product Acquisition Story

As e-Travel introduced Splunk into its environment, the monitoring and management of online properties became more efficient and proactive. Prior to Splunk, manual processes using standard UNIX and third-party tools were the standard to pull information from across approximately 30-40 remote systems. It took approximately one hour to detect and identify a single error with this manual process.

With the Splunk environment, the time for error detection was reduced dramatically, which allowed the e-Travel IT teams to think more proactively and strategically with the management of the company's online properties. Non-technical teams from the e-Travel Marketing team and Finance organization received Splunk training, which provided the opportunity to grow Splunk beyond a "log search" or "technology" tool to being a source of operational intelligence across the organization.

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From 2010 until now, the e-Travel IT teams have doubled their data collection efforts in terms of overall size. In the next year, it is anticipated that this will grow by another 50% for a threefold increase in an approximately 40-month timeframe.

Successes

Tangible Return on Investment

Support Issues (time to locate series of errors)

Prior to the implementation of Splunk to monitor the operational processes associated with the e-Travel online properties, it would take the IT teams approximately four hours to identify and determine the root cause of each of the error-related incidents. These errors could stem from various areas of technical operational issues and business process-related incidents. With the average hourly cost of an IT resource to support these issues being €15 per hour, the annual cost of error detection was approximately €125,000.

| | Before | After |
|--|----------|---------|
| Incidents per week | 40 | 40 |
| Man-hours per incident | 4 | 0,5 |
| Weeks | 52 | 52 |
| Average hourly compensation for IT staff | €15 | €15 |
| Support costs | €124.800 | €15.600 |

Following the implementation of Splunk's real-time data collection and analytics environment, the time required to identify errors and the root causes has dropped by nearly 90%. Now, error identification and root cause analysis take only 30 minutes per incident. Using the same hourly rate, the current cost of error detection has dropped to nearly €15,000 per year.

Downtime Prevention / Errors in Release

Before Splunk, the e-Travel online properties experienced approximately four hours of downtime per week. With the average missed revenue opportunity being €50.000 per hour, this represented a weekly loss of potential revenue around €200.000 and an annual revenue opportunity loss in excess of €10.000.000.

| | Before | After |
|----------------------------|-------------|------------|
| Cost per incident per hour | €50.000 | €50.000 |
| Hours of downtime per week | 4 | 0,5 |
| Weeks | 52 | 52 |
| Annual missed revenue | €10.400.000 | €1.300.000 |

The ability to target product development efforts via information from its Splunk repository improved areas where online property downtime issues were most costly or critical paths for revenue generation. e-Travel has reduced downtime with its online properties from four hours per week to just half an hour per week. The corresponding reduction in potential missed revenue is comparable. The nearly 90% downtime reduction has increased potential revenue generation at e-Travel by over €9.000.000.

Reimbursement Cases from Global Distribution Systems

A portion of the core business of an OTA consists of working with Global Distribution Systems (GDS)¹ for various elements of the travel experience. Reimbursement discrepancies can occur due to data corruption, business process failures or contract fulfillment issues. Prior to the implementation of Splunk, there was no easy way to query and utilize the e-Travel systems of record to dispute misallocated payments from GDS supply partners.

| | Before | After |
|--------------------------|--------|---------|
| GDS Events per month | - | 58 |
| Value per GDS event | € 92 | € 92 |
| Months | 12 | 12 |
| Annual recovered revenue | €- | €64.032 |

e-Travel can now utilize the Splunk environment to compare information between its operational systems and GDS reimbursements. On average, there are approximately 60 issues per month between e-Travel and its partners. These issues have a typical value of just under €100. This new ability to review supplier agreements and payments leads to nearly €65.000 annually in reimbursements to be paid.

Intangible Benefits

Targeted Product Development; Improved Customer Experience

Prior to using Splunk, e-Travel's Product Development teams used a traditional approach to new products and features for its online properties. Product Managers would develop new products, deploy them, and test to see adoption and performance with customers. While this is an industry best practice, markets such as online travel require a more efficient approach to product development.

With Splunk, e-Travel now has the ability to include data driven information on user behavior and customer preferences into new product and product feature decisions. Using this information, the e-Travel Product Development team is able to target and prioritize product development by analyzing

¹ http://en.wikipedia.org/wiki/Global_Distribution_System

customer behavior and experience. Information on where customers find the easiest navigation or search path is now available by taking operational system data and putting it in the context of customer business processes. This enhances the ability of the Product Development team members to utilize their resources and to focus their efforts directly on customer experience.

Conversion Rate

Customer conversion rate is one of the most important aspects of an e-commerce application. With a time sensitive inventory and trend-driven business model, online travel agencies are particularly keen on the constant improvement of conversion rate among its customers. One of the key aspects of improving these customer conversion rates is to monitor and analyze the purchasing decisions of customers. It is important to capitalize on areas where customers make purchases. It is equally important to understand areas of an online property where customers do not make purchases.

By using the data gathered on customer purchasing behavior from its Splunk repository, e-Travel is able to improve conversion rates. By monitoring customer purchasing paths and habits in real time, e-Travel Marketing team members can identify travel purchase trends for external exposure via specific marketing campaigns. Product Development team members can identify segments of a purchase path where customers abandon a transaction and improve internal processes. These improvements increase revenue-per-customer-visit, which leads to improved operational margins for e-Travel overall.

Strategic Management and Chronological Data Monitoring

The above uses of application data from the e-Travel online properties focus on tactical and operational use cases. In the online travel industry, there is a need to manage the business on a strategic level as well. “Backward” focused strategic metrics depict a lot about how the company *performed last quarter* but do not show how the organization is *performing today*. One of the key components to this type of forward-looking strategic dashboards is a reliable source of real-time data in the context of the business.

Using information from the Splunk application, e-Travel IT teams now supply the CxO suite with a level of continuous operational-based data. The information has been transformed from application data into business information, which flows into a series of company-wide dashboards and key performance indicators (KPIs). The e-Travel Executive Management team can now understand the real-time pulse of each of the online properties and prioritize strategic decisions to expand the business.

Return on Investment Summary

| Tangible Return on Investment | | | |
|--|---|--|---|
| | Before | After | Savings |
| Time to locate errors | 40 incidents per week * 4 man-hours per incident * 52 weeks * €15 per hour rate = €124.000 Total | 40 incidents per week * 0,5 man-hours per incident * 52 weeks * €15 per hour rate = €15.600 Total | €109.200 in reduced labor commitment per year |
| Downtime prevention via reduction in errors per release | €50.000 per hour per incident * Four (4) one hour incidents per week * 52 weeks = €10.400.000 Total | €50.000 per hour per incident * One (1) 30 min incident per week * 52 weeks = €1.300.000 Total | €9.100.000 in reduced system downtime per year |
| Reimbursement cases from Global Distribution Systems (GDS) | N/A – No ability to log events and track issues with GDS partners | 58 events per month * €92 per event * 12 months = €64.032 Total | €64.032 in reimbursements from GDS partners |
| Total Quantifiable Return on Investment | | | €9.273.232 |

| Tangible Return on Investment | | | |
|--|---|---|--|
| | Before | After | Impact |
| Targeted product development and customer experience | Reactive to customer dynamics with online property product development and enhancement | Direct connection between customer preference and strategic product development | Improved application customer experience. Enhanced prioritization of product development efforts. |
| Conversion rate | Historical view of customer buying process with purchase transactions | Real-time awareness of customer booking process and ability to make strategic adjustments | Enhanced conversion rate and improvement of customer margins |
| Strategic management and chronological data monitoring | Lack of forward looking dashboards and reporting information. Lack of continuous, real-time information on business performance. | Creation of dashboards with technical and business KPIs based on real-time operational data | Management and technical scorecards. Easier to evaluate the importance of issues. |

EMA Perspective

In the rapidly-changing environment of the online travel industry, proactive organizations have the opportunity to establish and maintain a competitive business edge. These organizations develop this competitive advantage by leveraging operational application information better, faster and more strategically than their competitors. Based on how well an OTA manages its financial business transactions and the underlying customer behavioral data available via its online properties, there is the prospect of improving the customer experience and capturing a greater “share of wallet” with customers.

In this highly competitive market, e-Travel is proactively utilizing operational data from internal application sources to build its competitive advantage. e-Travel benefits from one of the fastest growing online travel communities in the world² by concentrating on the central and southern European regions. Since 2009, travel customers all across Europe have focused on the value provided to them via online marketplaces vs. the traditional travel providers³. Russia, a key e-Travel market, represents one of the fastest growing markets⁴. With multiple online properties for airfare, hotel and other travel elements, e-Travel is well positioned to capitalize on this transitional market.

Next, Splunk allows e-Travel to correlate customer habits and preferences with new product development and deployment. By looking beyond purchase transactions, e-Travel has the ability to understand how customers make purchase decisions as well as which products are appealing to them. With this information, e-Travel develops a tighter customer bond, improves revenue and expands margins.

In the rapidly-changing environment of the online travel industry, proactive organizations have the opportunity to establish and maintain a competitive business edge. These organizations develop this competitive advantage by leveraging operational application information better, faster and more strategically than their competitors.

² “Priceline Can Fuel Upside By Making Further Inroads In Europe”, Forbes.com, April 1, 2013,

<http://www.forbes.com/sites/greatspeculations/2013/04/01/priceline-can-fuel-upside-by-making-further-inroads-in-europe/>

³ “Kayak focuses on Europe before joining Priceline”, MSN Money, March 15, 2013,

<http://money.msn.com/top-stocks/post.aspx?post=a7647e5e-2581-4e2a-b1a9-1ece33be6b9d>

⁴ “Regional Overview Europe”, European Travel Commission,

<http://www.newmediatrendwatch.com/regional-overview/103-europe?start=2>

Finally, e-Travel is tapping Splunk to manage its business beyond technical operations and product development. Using Splunk to develop information and data analysis for business-based performance KPIs, e-Travel links operational application system data with core business activities. Utilizing online property information allows e-Travel the ability to prioritize management decisions in real time.

e-Travel's implementation of Splunk is an example of how to build business advantage in a highly competitive environment. Using Splunk software to gain insight into its operational application data enables e-Travel to mitigate threats to its core business and grow both operational and business agility. In addition, e-Travel uses Splunk to leverage market opportunities and customer behavior information in real time, helping the company make operational and strategic information decisions in a fashion that cannot be matched using manual, point-in-time processes.

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Customer Quotes

“ In a blink of an eye, the development team can detect errors and anomalies and process complex, heavy queries in seconds. Using other platforms, this would be unrealistic. ”

“ Splunk can raise flags on the spot and enables real-time problem detection and decision making. ”

About EMA

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help its clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals and IT vendors at www.enterprisemanagement.com or blogs.enterprisemanagement.com. You can also follow EMA on [Twitter](#) or [Facebook](#). 2756.092713