

Splunk Helps Cars.com Drive Revenue Generation and Cost Reduction: 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 by Cars.com, a leading website for vehicle shopping. It details the innovative ways Cars.com uses Splunk to find new revenue generation and cost containment opportunities within its machine-generated, application performance data.

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 their 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.

Cars.com is an award-winning online destination for car shoppers that offers information from consumers and experts to help buyers formulate opinions on what to buy, where to buy and how much to pay for a car. Visited by approximately 12 million unique visitors each month, Cars.com also serves more than 17,000 local new and used car member dealerships throughout North America.

This EMA ROI Case Study documents the tangible financial impact in terms of ROI. It also details the value of the Splunk Enterprise solution in terms of softer benefits to the Cars.com organization in general and its Application Management team in particular.

Splunk

Background

With over 4,400 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 their 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: Cars.com

Customer domain: Online Vehicle Sales

Product name: Splunk® Enterprise™

Product version: 4.3

Product Description

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

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

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The company has recently augmented its offerings with a hosted version of the technology, Splunk Storm. Splunk offers Splunk Storm as an elastic, multi-tenant service, able to monitor both Cloud-based and on-premises environments as well as leverage the power and extensibility of Cloud computing for data analysis.

Cars.com

Background

Cars.com (<http://www.cars.com/>) was launched in 1998 and is an award-winning online destination for car shoppers that offers information from consumers and experts to help buyers formulate opinions on what to buy, where to buy and how much to pay for a car. Visited by approximately 12 million unique visitors each month, Cars.com also serves more than 17,000 local new and used car member dealerships throughout North America, as well as automotive manufacturers and other advertisers on its site.

Cars.com is a division of Classified Ventures, LLC™. Other Cars.com properties include NewCars.com® and PickupTrucks.com™. Classified Ventures, LLC, is owned by five leading media companies: A.H. Belo, Gannett Co. Inc., The McClatchy Co., Tribune Co. and The Washington Post Co.

Implementation Team

The implementation team interviewed for this EMA ROI Case Study was the Cars.com Application Management team. This team serves cross-functional roles within the Cars.com IT organization. The roles interviewed were:

- Director, Technical Operations and Quality Assurance
- Technical Operations Manager
- Enterprise Architect
- Application Administrator

This team is responsible for the management and planning of the technical application environment(s). This includes the operational monitoring of the environment, tactical management of the platforms and strategic planning for future growth.

Splunk at Cars.com

Problem Scenario

The consumer is at the heart of all business interactions at Cars.com. Car shoppers come to the website to search for information, advice and prices on vehicles. These search results are the basis for the Cars.com revenue streams below:

- Vehicle sales for private-party vehicle sellers through the Sell It Yourself product
- Brand and inventory exposure and consumer engagement opportunities for member dealerships
- Exposure for local and national advertisers

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The foundation supporting this business model is the Cars.com technical environment. This technical environment serves up research and comparison resources, pricing tools, expert automotive content, consumer vehicle and dealership reviews, dealer profile pages and locations, as well as inventory search results and vehicle information pages, which include detailed specifications and photographs. As Cars.com strives to create a superior customer experience for users of the site, performance and loading speed are especially important due to the number of competitors in its space and the high expectations of the Internet-based consumer.

The Cars.com Application Management team maintains this highly distributed, technical environment. As part of their duties, members of the team are responsible for the application data collection, monitoring and analysis. The team sought to simplify this data acquisition task, a complicated process of obtaining, compressing and moving data from the production application environment to a common environment. Since developers are not permitted access to production environments, requests for data and logs tended to be ad hoc in nature. Complicating matters is the fact that restoring archived server log data for analysis and troubleshooting was a time-consuming process.

Product Acquisition Story

In the fall of 2011, Cars.com began looking for a solution to enhance data acquisition and reporting capabilities. The volume of ad hoc requests and challenges in collecting Cars.com application logs consumed a great deal of resources of the Application Management team. According to the team, up to eight man-hours per week were spent on manual data acquisition, diverting staff from their core focus.

To begin the evaluation process, Cars.com acquired a Splunk Enterprise 1GB daily license. This was placed on a RHEL 5.5, dual core 1.5 GHz, and 2 GB of RAM VM server, which is managed as part of the overall Cars.com application environment. It took less than one day to fully deploy Splunk from the start of the initial implementation.

The initial use case for Splunk at Cars.com was to ensure the quality of its users' experience via the search results and vehicle detail page views. Automated web data extraction (web scraping) and spidering search (bot traffic) can impact the performance and the quality of usage information of a website. For Cars.com, site usage information data provides internal stakeholders, dealer partners and advertisers with valuable information about consumer activity on the site, making it a valuable sales and support tool.

Splunk Enterprise was implemented to automate and standardize the collection, monitoring and analysis of application log files and make this data available across the organization. The Splunk App for

Web Intelligence features pre-built reports that support the identification of web scraping and bot traffic. Real-time dashboards, driven by the Splunk product, increase visibility into site traffic and usage patterns at Cars.com.

As of June 2012, the Splunk Enterprise environment at Cars.com collects more than 750 million queries per month. These queries are available to approximately 100 developers across 13 application groups for both technical and business-driven analysis, troubleshooting and decision making.

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Successes

Tangible Return on Investment

Among the use cases tackled by the Cars.com Application Management team was related to performance management. As with most organizations that invest in advertising during the National Football League's Super Bowl, Cars.com needed to ensure that its environment could stand up to the user load and customer experience expectations associated with the national exposure.

In the past, Cars.com used aggregate statistics to gauge the overall performance of its environment. With Splunk Enterprise, Cars.com was able to look at the detailed performance statistics of its application environment showing the impact of individual components on average statistical performance. This operational insight immediately allowed Cars.com to reduce the overall number of servers by removing underperforming systems. It also saved Cars.com on time spent for physical server administration and overall systems administration headcount.

By removing the need to purchase additional server hardware, Cars.com was able to realize a savings of nearly \$160,000. This significant capital expenditure can now be used in other areas of the organization to improve competitive advantage.

"Non" Replaced Servers	8
Value per Server	\$20,000
Capital Cost Savings	\$160,000
Weekly Man-hours	5
Loaded Hourly Rate	\$125
Weekly Headcount Savings	\$625
Annual Headcount Savings	\$32,500
Total Savings	\$192,500
Splunk Licensing Cost	\$100,000
Return on Investment	192%

The Application Management team was also able to reduce the amount of time spent on data collection activities. Prior to Splunk, the team spent up to 8 man-hours per week on manual data collection for various purposes and teams. This amounted to 400+ man-hours annually. This operational expense, or 'headcount' savings, can be devoted to more directional system and application management tasks.

Transferred Weekly Man-hours	8
Loaded Hourly Rate	\$125
Weekly Headcount Savings	\$1,000
Annual Headcount Savings	\$52,000

Intangible Benefits

In addition to the tangible ROI benefits, often it is the intangible benefits of an IT project that foster grass-roots adoption and buy-in across the enterprise. Deploying Splunk has resulted in a number of intangible benefits for Cars.com.

First is improved customer experience for the Cars.com user community. Jakob Nielsen, noted web user experience expert, says that one tenth of a second is the limit for most users to wait for a webpage to return results.¹

When you consider the fact that nearly 90% of consumers² made a switch of service providers following a poor customer experience, a strong case can be built that intangible benefits from customer experience are linked to the bottom line.

Second, while the re-allocation of server hardware to save budget provided tangible ROI for Cars.com, that particular use case also provided improved site performance. The performance gain translated into a better customer experience for vehicle shoppers, arguably the most important stakeholders in Cars.com. Coupled with the national exposure of a Super Bowl advertising campaign, this improved site performance has enabled Cars.com to build competitive branding and performance advantages over other websites.

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Return on Investment Summary

Tangible Return on Investment			
	Before	After	Savings
Re-Allocated Server Hardware		8 non replaced servers x \$20,000 per server + 5 man hours saved x \$125 loaded rate / hour x 52 weeks =	\$192,500
Operational Expense Savings		8 man hours saved x \$125 loaded rate / hour x 52 weeks =	\$52,000
Total Quantifiable Return on Investment			\$244,500

EMA Perspective

The disciplined approach of the Cars.com team shows how the linking of IT projects to the top and bottom lines of the income statement can win additional funding and support within the CxO suite. Rather than using a technology solution to search for a business problem, the Cars.com team sought specific and attainable business uses for Splunk software and executed on those analytical initiatives. Any one of the use cases above would have garnered significant ROI. Overall, Cars.com estimates a return on investment ranging from 200% to as much as 400%.

The Splunk Enterprise solution has enabled the Cars.com team to be proactive in its application management within its technical environment. Prior to the Splunk implementation, collection of data was difficult and sporadic. Since the Splunk implementation, real-time access to detailed information has become easily available. This has enabled the Cars.com Application Management team and other teams to quickly iterate through its analysis rather than wait on data collection and worry about data quality.

¹ Nielsen, Jakob, "Website Response Times", Jakob Nielsen's Alertbox, June 21, 2010, <http://www.useit.com/alertbox/response-times.html>

² "2011 Customer Experience Impact Report", RightNow, http://www.rightnow.com/files/analyst-reports/RightNow_Customer_Experience_Impact_Report_North_America_2011.pdf

Splunk Enterprise offers attributes that all Application Management platforms should strive for: quick time to value and ease of use. By providing break-even timeframes within a month of implementation, Splunk obtained support companywide at Cars.com.

In general, tangible benefits of break-even measured in less than six (6) months and ROI over 200% make the case not only for initial outlays for software products like Splunk, but for the expansion of capital investment as those software implementations mature. This financial performance gains stakeholder buy-in from the finance organization and the CFO. Also by improving the day-to-day operations of operational support teams, software implementations win operational champions with the lines of business, IT Departments and the CIO. Splunk has a long track record of gaining these operational champions throughout their implementations.³

With these types of stakeholders, initiatives to expand the software deployments are met with enthusiasm rather than skepticism. When considering the implementation and the significant benefits accrued at organizations like Cars.com, the future of Splunk bears watching not just for Application Management, but also for future revenue enhancement and cost containment.

In general, tangible benefits of break-even measured in less than six (6) months and ROI over 200% make the case not only for initial outlays for software products like Splunk, but for the expansion of capital investment as those software implementations mature.

³ "Customer Success", splunk.com, http://www.splunk.com/view/customer-case-studies/SP-CAAABB2#case_study

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](#). 2568.102412