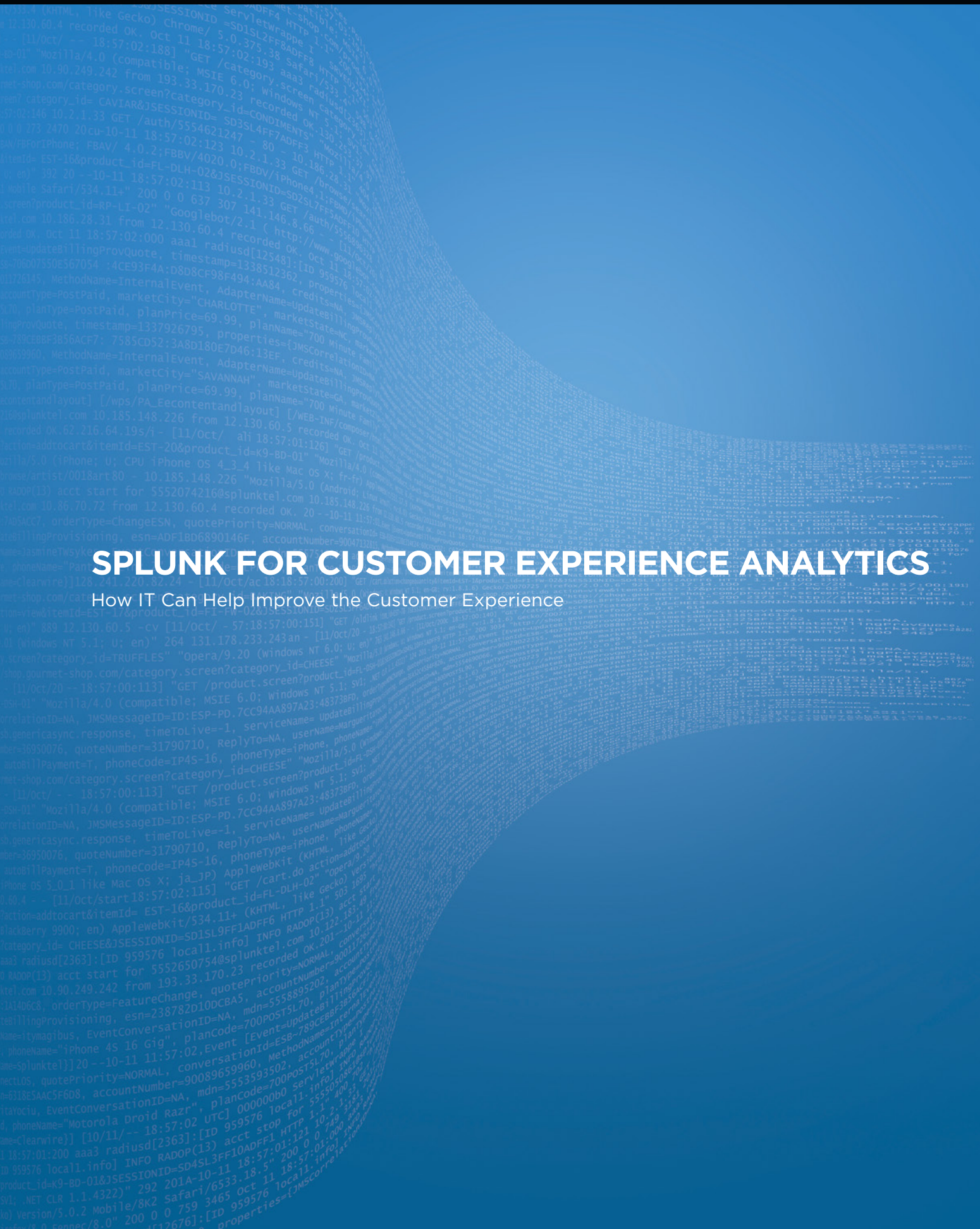# SPLUNK FOR CUSTOMER EXPERIENCE ANALYTICS

How IT Can Help Improve the Customer Experience

Introduction

As sophisticated IT organizations look to deliver a competitive advantage for their business, they're stepping beyond using machine data just for troubleshooting and monitoring to proactively supporting key business initiatives—such as improving the customer experience.

John Lewis, one of the leading retailers in the UK, is a great example of how an organization gained meaningful business insights for improving its customer experience from machine data—and its story is detailed in this guide.

What Is Customer Experience Analytics?

Your company's success often depends on how customers interact with your organization online and across the various business processes, whether it is via the web, a mobile device, or a combination of the two. Customers visit and interact with your company's online properties to research your business and purchase your products. If your website or mobile app goes down or provides a suboptimal experience, customers will abandon immediately—leading to revenue loss and reduced customer loyalty.

Customer experience analytics is the analysis of customer behavior and the identification of opportunities to increase a customer's engagement or conversion across end-to-end business processes. With customer experience analytics, your company's business and IT teams can uncover key insights on how and when customers use your website or mobile

app. This helps you understand the customer journey, engage customers on mobile apps, accelerate response time for online systems, improve the business process and more.

By creating these insights, you can help the business:

- Better understand and optimize the buyer's journey across multiple channels
- Discover user experience bottlenecks
- Gain a deep understanding of customer transactions and usage
- Understand business processes and optimize them in real time
- Optimize revenue by reducing shopping cart abandonment and improving user engagement

Traditional customer experience analytics solutions, either off-the-shelf or built in-house, can be hard to use: they often only provide data across a single channel, do not correlate business data with operational performance data, and cannot provide both real-time and granular views of customer behavior.

Getting Started with Customer Experience Analytics

Many customers already use Splunk today for application delivery and IT operations. It is often the same indexed machine data that can deliver insights to drive a better customer experience. Splunk apps such as Splunk DB Connect provide additional capabilities to enable this use case.

Here is how Splunk can be applied in this use case:

Typical Data Sources

| Data Type	Where to Find It	What It Can Tell You
Application Logs	Local log files, log4j, log4net, Weblogic, WebSphere, JBoss, .NET, PHP	User activity, fraud detection, application performance
Business Process Logs	Business process management logs	Customer activity across channels, purchases, account changes, trouble reports
Call Detail Records	Call detail records (CDRs), charging data records, event data records logged by telecoms and network switches	Billing, revenue assurance, customer assurance, partner settlements, marketing intelligence
Clickstream Data	Web server, routers, proxy servers, ad servers	Usability analysis, digital marketing and general research
Message Queues	JMS, RabbitMQ and AquaLogic	Issues in complex applications and the backbone of logging architectures for applications
Web Access Logs	Web access logs report every request processed by web server	Web analytics reports for marketing
Mobile	SDKs embedded in mobile apps, application and server application logs	Mobile app usage, mobile app crashes, performance, latency, troubleshooting (stack trace) intelligence
Wire Data	DNS lookups and records, protocol level information including headers, content and flow records	Performance and availability of applications, end-user experiences, incident investigations, networks, threat detection, monitoring and compliance

Using Splunk for Business Process Analytics: An Example

Enrich machine-generated data by adding structured data from relational databases. This includes customer data, product/SKU data and invoicing/billing data.

## Using Splunk for Customer Experience Analysis

1) Finding Page View Errors

- **What to look for:** HTTP status codes such as "503"
- **Why?** An increase in error codes could negatively impact the business and customer experience
- **Example search:** … `status=503 | timechart count`
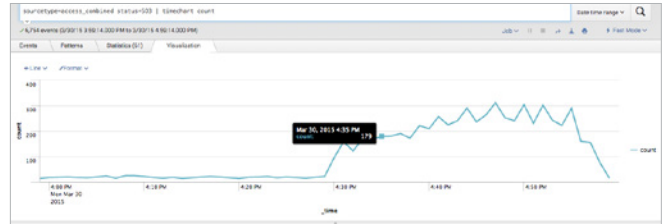
2) Monitoring Successful Page Renders

- **What to look for:** HTTP status codes such as 200
- **Why?** A decrease in successful page renders could negatively impact the business and customer experience
- **Example search:** ...`status=200 | timechart count | trendline sma5(count) as trend`
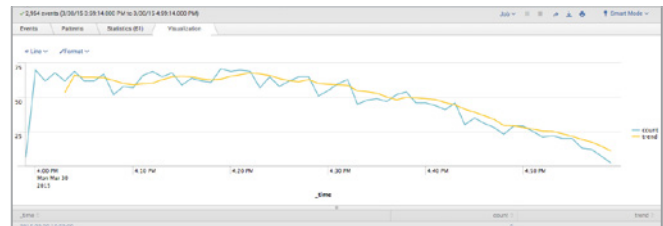
3) Monitoring Transactions

- **What to look for:** combination of an action field such as "purchase" and unsuccessful HTTP status codes
- **Why?** Incomplete transactions could signify performance issues and have an impact on the business
- **Example search:** ...`(action=purchase OR action=addtocart) status!=200 | timechart count`
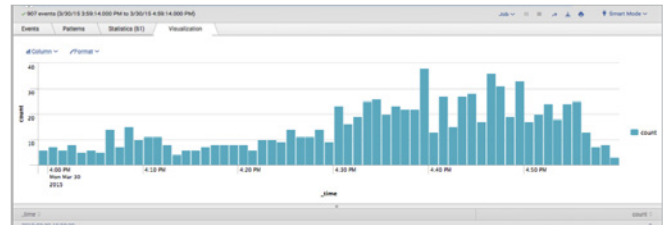
4) Enriching Apache Log data with Lookups

- **What to look for:** sources of information such as a .csv file or database, using Splunk DB Connect, can add more context to the data
- **Why?** Combining product or customer to logs can reveal real-time business insights
- **Example fields to look up:** price, product, customer value or segment

5) Chart Business Trends Using Newly Added Fields #1

- **What to look for:** changes in revenue
- **Why?** Customers unable to complete transactions could result in lost revenue
- **Example search:** ...`(action=purchase OR action=addtocart) status=200 | timechart sum(price) as revenue`
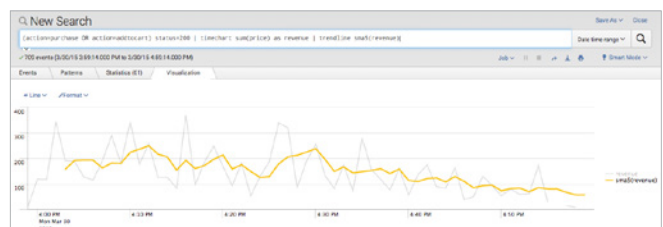
6) Identify Affected Customer Segment

- **What to look for:** affected "high-value" customers

- **Why?** Marketing and support teams can prioritize necessary actions to high-value customers in real time

- **Example search:** `...status!=200 | stats count by customer_value`
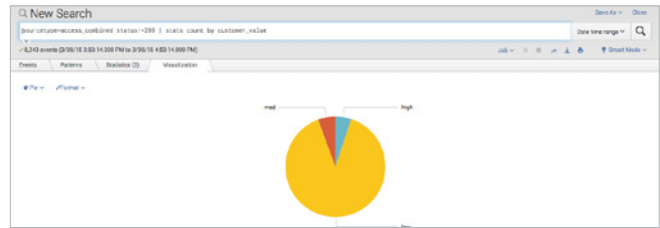
7) Take Action for Affected Customers

- Use a chart drilldown to generate a list of affected customers, then issue action by clicking "Export" (below the search bar in the top right)
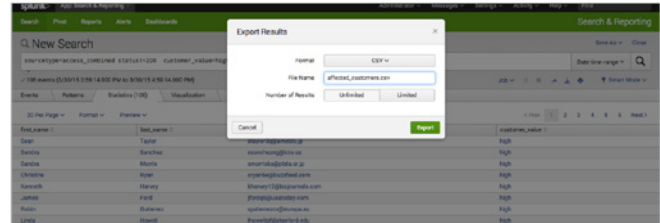
Customer Spotlight: John Lewis

Starting Out: Splunk for IT Operations

John Lewis, the UK's largest departme nt store, initially used the Splunk platform to get operational visibility across its IT infrastructure. By collecting machine data from e-commerce, application, web server and middleware logs, the chain was able to troubleshoot IT issues, conduct root-cause analysis, monitor systems and proactively detect and correct anomalies.

Enter Splunk for Customer Experience Analytics

The John Lewis IT team realized that getting business insights into the company's new e-commerce platform was as easy as supplementing its Splunk deployment with a few more data sources. The team complemented existing IT data with sources—like weblogs, application logs and transaction logs—and was quickly on its way.

The Customer's Journey

Using customer experience analytics, John Lewis gained a new understanding of how customers behave on johnlewis.com. Empowered by this awareness, the retailer streamlined the online experience. Customers can now find items easier and check out faster—creating an enhanced, more fulfilling online experience.

Optimizing Business Processes

John Lewis now captures revenue by monitoring drop-offs and payment failures. The Splunk platform issues alerts when failure rates exceed a threshold, enabling staff to determine the root cause. For example, an alert was triggered when customers were not rerouted to the company's website from a third-party payment provider. John Lewis staff corrected the issue, maintained the customer experience and avoided further revenue loss.

Summary

The machine data being used for IT troubleshooting and application management contains meaningful insights that can help improve the customer experience—an activity that can lead to a stronger ROI. Using this getting started guide, you can get started analyzing your customers' experience and business processes.

Next Steps

Watch our Splunk for Customer Experience: "Getting Started" video.

Read the John Lewis customer success story.

Learn more about Splunk DB Connect and the Splunk App for Stream.

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