

# Splunk Helps Telecommunications Provider Enhance Visibility into Quality of Service (QoS) Metrics to Improve Customer Experience: An EMA ROI Story

## Introduction

Periodically, Enterprise Management Associates (EMA) conducts Return on Investment (ROI) studies on enterprise management products that demonstrate above-average customer value. Splunk ([www.splunk.com](http://www.splunk.com) NASDAQ: SPLK) is distinctive in that multiple Splunk customers have provided impressive ROI stories documenting Splunk's value proposition in support of application management, network management, and security.

This EMA Return on Investment Case Study profiles a large and growing Telecommunications provider offering a wide variety of data, voice, and managed services to individuals, governments, and businesses of all sizes. The company operates in the United States and select international locations.

### HIGHLIGHTS

**splunk** >

Vendor name: Splunk

Product area: QoS / Business Analytics

Product name: Splunk® Enterprise™

Product version: 4.3

Customer domain: Telecommunications

## Vendor and Product Description: Splunk

*"... Splunk turns machine data into real-time visibility, insight and intelligence. Splunk Enterprise is the platform for machine data. It's the easy, fast and resilient way to collect, analyze and secure the massive streams of machine data generated by all your IT systems and technology infrastructure.*

*Troubleshoot problems and investigate security incidents in minutes (not hours or days). Monitor your end-to-end infrastructure to avoid service degradation or outages. Gain real-time visibility and critical insights into customer experience, transactions and behavior. Make your data accessible, usable and valuable to everyone."*

*"With over 4,800 customers added since its founding in 2004, Splunk 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. Splunk's most recent release, Splunk 5, adds enterprise class high availability and strengthens support for Hadoop (Splunk Hadoop Connect and Splunk App for HadoopOps) and big data."*

## Interviewee

**Principal Architect, Performance Engineering, Telecommunications Company**

<sup>1</sup> Downloaded from [www.splunk.com/product](http://www.splunk.com/product) on 10/31/2012

<sup>2</sup> Description provided by Splunk Marketing

## Problem Scenario

The Performance Engineering team is part of a larger Network organization which crosses domains including Voice over IP and Video over IP applications, as well as Ethernet and IP technologies. The team's Principal Architect sums it up by saying, "At the end of the day, my team is responsible for managing a broad range of applications and services, all of which are delivered over the network."

The team has breadth and depth of knowledge covering applications and networks, as well as an in-depth understanding of the requirements of the business. Three key concepts and goals drive their core enterprise management strategy:

- To monitor and understand service delivery end-to-end (horizontal integration)
- To support rapid fault isolation and remediation through an integrated view of services and network/platform data (vertical or 'cross-layer' integration).
- Capitalize on and leverage the data from these systems and infrastructure to support innovation and next generation services.

Achieving these goals is not always easy, particularly in modern telecommunications environments in which service delivery relies on multiple technology silos supporting massive infrastructure scale, heterogeneity, and complexity. This company was experiencing the same fundamental paradox confronting many engineering organizations-- while personnel and tools silos are necessary from a support perspective, the information generated within each silo must be assimilated and correlated to support the delivery of the end-to-end service to ensure a superior customer experience.

The team was also faced with the requirement to balance diverse responsibilities with limited resources. On the one hand, they support day-to-day service delivery to existing customers. On the other, they participate in the development of the next generation of products and services to support an evolving company and industry vertical.

This company has successfully transitioned from being a traditional telephone provider to becoming a provider of data-driven services in a remarkably short time. It is also experiencing a period of massive growth through acquisition. This impacts the entire business, but particularly technology services groups, which are responsible for evolving and maintaining applications for a changing business climate and customer base.

## Acquisition Story

Within this dynamic environment, the network and application management team needed a way to federate machine data from multiple silo tools and logs. The objective was to quantify and track Quality of Service (QoS) metrics for the services delivered. Rather than attempting to deploy a central management platform, the team took the route of aggregating and assimilating data streams from existing platforms.

In selecting a product, they had very specific requirements. They needed a product that could combine data and operational intelligence from a wide variety of sources and silos, and do so in near real time. They needed support for "intelligent parsing" which would enable them to do content-based searching and monitoring for particular devices, messages, or users, for example. They were also looking for a product that supported analysis and reporting, as well as problem triage and root cause analysis.

They started with a tactical, limited, relatively simple use case-- to pull in Syslog and similar log data from network devices such as routers. As they evaluated available tools, Splunk proved to be the best all-around option out of any tested.

## Outcomes

### Hard ROI:

- **Replacement for in-house programming:** “A key breakthrough came when we were having trouble adapting our row-oriented Oracle database to dynamic data streams. We were in the process of developing our own Java Graphical User Interface (GUI) to access Oracle. It took considerable time and effort, and we had to do additional Java development for each new view. We were using Splunk to prototype this project, but finally realized that, in many instances, the prototypes were better than what we were developing. Our use of Splunk took off from there.”

*Outcome: Redeployed two FTE's (two programmer/analysts with loaded annual costs totaling approximately \$210,000) from development to other Operational areas; a third Java developer (loaded costs totaling approximately \$105,000 annually) left the company and was not replaced. Estimated savings due to staffing optimizations: \$315K annually.*

- **Cost avoidance based on “capping” growth of Oracle licensing requirements:** Prior to deploying Splunk software and particularly as they moved toward capturing additional data streams, they were facing new requirements for additional Oracle instances/licenses. By using Splunk instead, they have effectively avoided the need to expand Oracle licensing. They use Splunk to analyze dynamic data streams in real time and Oracle to process more static data and data structures.

*Outcome: By accommodating most new data requirements with Splunk, they have been able to effectively cap Oracle growth and even “reclaim some headroom on Oracle”. Estimated minimum savings on Oracle licensing: \$40K annually.*

- **Cost avoidance based on insourcing load testing from SaaS provider:** This company was spending hundreds of thousands of dollars annually on SaaS-based performance and availability testing, as well as load testing for capacity management. They have eliminated using an outside provider and are now performing this capability with Splunk.

*Outcome: Using lab resources and information generated from the VoIP system into Splunk, they were able to bring the load testing operation for the voice infrastructure in-house. Estimated savings on testing costs: \$200K annually.*

### Soft ROI:

- **Achieved original objective of federating/correlating data across sources:** The network and application management team was able to meet its original Quality of Service measurement objectives. “Splunk’s flexibility has been extraordinarily important. We have found that it plays well with and integrates a wide variety of tools.”
- **Problem avoidance via proactive management and improved response time when problems DO occur:**
  - “Splunk has allowed us to take a far more proactive stance in terms of operational support. Prior to Splunk, the default model was that customers were opening tickets—in effect, they were the primary alarming mechanism for quality issues. However by implementing QoS in conjunction with Splunk, we have been able to proactively identify service delivery issues.”
  - “By notifying us of emerging issues with enriched data to identify probable cause, Splunk dramatically improved response time when problems DO exist. The improved timeliness and efficiency of our VoIP monitoring has been dramatic.”
- **Extends the value proposition of existing tools:** According to the interviewee, the number one source of ROI is probably the most difficult to quantify. “We have made efficiency gains in operational support. One of our key challenges is that, being a large company, we have an accretion of products based on multiple acquisitions. Splunk has enabled us to evolve from the “swivel chair” method of management—basically monitoring our environment by signing on to one tool after another.”

In other words, the ability to integrate disparate data streams has significantly improved efficiency, timeliness of response, and remediation capabilities.

- **Easier assimilation of acquired companies and assets:** Because of Splunk’s low barriers to entry (Splunk can be downloaded free of charge at: [www.splunk.com/download](http://www.splunk.com/download)), the Performance Engineering team often finds “fellow Splunkers” and Splunk instances within acquired companies. They are in the process of establishing peering and integration between Splunk instances which gives them immediate access to data across linked Splunk systems.

## Hard and Soft ROI Summary

Hard ROI	Before	After	Annualized Savings
Two Programmer/ Analyst FTEs reallocated by eliminating in-house programming necessary to assimilate data and metrics from multiple systems.	\$105,000 (fully loaded \$75,000 <sup>3</sup> salary + 40% overhead) * 2 personnel = \$210,000 annually.	\$0: Headcount reallocated to other business initiatives.	Ongoing savings of \$210,000 annually.
One Java programmer left company, not replaced.	\$105,000 (fully loaded \$75,000 <sup>4</sup> salary + 40% overhead) = \$105,000 annually.	\$0	Ongoing savings of \$105,000 annually.
Cost avoidance from load-testing in-house versus on SaaS platform.	\$200,000 (estimated minimum) per year paid to SaaS provider.	\$0: Used resources in-house and Splunk analytics/reporting.	Ongoing savings of \$200,000 annually.
Cost avoidance based on eliminating need for additional Oracle Database licenses.	Achieving Quality of Service measurement objectives would have required additional Oracle investments.	Savings vary according to Oracle licensing terms. A conservative EMA estimate is a range from \$30-50k.	\$40,000
<b>Total Quantifiable Hard ROI</b>			<b>Year 1 savings: \$555,000</b>
Soft ROI	Before	After	Benefits
Achieved original objective of federating/correlating data from heterogeneous tools to monitor/manage QoS.		Centralized data federation providing a basis for current and future support and reporting requirements.	End-to-end visibility across their infrastructure and new visibility to support innovation and next-generation services.
Improved operational support, faster problem detection.	Customers detected issues, opened “trouble tickets.”	They often identify service delivery issues before they impact customers.	Improved levels of service, improved customer satisfaction.
Faster problem remediation, MTTR.	Monitoring/management of VoIP and other services required significant levels of support resources.	Consolidation and correlation of data and metrics simplified and accelerated root cause analysis.	“Dramatically improved response time when problems DO exist. The improved timeliness and efficiency of our VoIP monitoring has been dramatic.”
Extends value proposition of acquired technologies and toolsets.	Each acquired company had its own set of tools, which may or may not integrate with other owned assets; required “swivel chair” management.	Splunk’s ability to integrate data across disparate systems makes it possible to centrally collect and manage data, regardless of the source.	Splunk acts as “integrator” across existing systems. This extends value proposition of existing tools.
Soft ROI	Before	After	Benefits
Easier assimilation of new companies.	Often, minimal commonality of products and toolsets with newly acquired companies.	Many acquired companies now have Splunk in-house.  Peering and integration between Splunk instances centralizes access to data from linked systems.	Enables enterprise-wide reporting of operational metrics.
911 reporting/SLAs.	Difficult to monitor actual service levels for SLA reporting.	Monitoring SLAs for current 911 services, testing next generation 911 service.	Splunk monitoring was key element in providing this service. Ensures SLAs for critical public service.

Table 1: Hard and Soft ROI

<sup>3</sup> “Industry average downloaded 11/06/2012 from: [http://www.glassdoor.com/Salaries/analyst-salary-SRCH\\_KO0,7.htm](http://www.glassdoor.com/Salaries/analyst-salary-SRCH_KO0,7.htm)

<sup>4</sup> Ibid.

## Quotes and Observations

*“Splunk is an extremely flexible tool that allows for rapid development from initial data parsing to presentation. Its flexibility plays very well and integrates well with other tools and platforms, where it acts as “glue” that allows us to develop both horizontal and vertical, top down and bottom up views.”*

Principal Architect, Performance Engineering, Telecommunications Company

### **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](http://www.enterprisemanagement.com) or [blogs.enterprisemanagement.com](http://blogs.enterprisemanagement.com). You can also follow EMA on [Twitter](#) or [Facebook](#). 2601.012513