

Cricket Communications Turns to Splunk for Assuring Automated Service Management

Introduction

Over its many years of service to the IT community, ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) analysts have found that Return on Investment (ROI) studies are most useful when presented on a case study basis and when the products profiled have delivered clear and measurable improvements. Such is the case with Splunk – a company that offers a management product which has been applied in a wide range of managed environment settings for an equally wide range of operational management purposes, and has left a trail of delighted customers along the way.

Splunk ... has left a trail
of delighted customers

In this EMA ROI case study, wireless communications provider Cricket Communications is profiled to illustrate an example of how Splunk's solutions delivered measurable operational efficiencies that far exceeded the cost of deployment.

Product: Splunk

"Splunk ... provide(s) Google-like search capabilities for ... IT infrastructure (log) data. Users ... (utilize) Splunk to index, search and report across all of their IT data to troubleshoot issues, find root causes, investigate security incidents and report on findings. ... Splunk lets (companies) harness their IT data to gain the insights needed to innovate and make informed decisions. (They) compare real-time data against historical trend/baseline/KPI data, enabling them to respond quickly and effectively to emerging conditions. ... We call this delivering Operational Intelligence."

Interviewee

Title: Director of Application Operations, Cricket Communications

Role: Manages team that provides all internal, back-office functions in support of the organization's mobile services communications business. This includes systems and infrastructure that provide CRM, ERP, and billing, covering all customer-facing front end Web sites for accepting orders through to the back-end applications for provisioning new services and providing customer care/support. Importantly, this encompasses monitoring of both applications that are internally-developed as well as those provided by third-party vendor suppliers.

Company

Cricket Wireless, based in San Diego, California, is a provider of "no signed contracts, no limits" mobile cellular phone services including voice, text, broadband, and data across the U.S. As of mid-2011, Cricket Communications, a business unit of Leap Wireless International, serves more than 5.4 million customers.

¹ Downloaded August 5, 2011, from: <http://www.splunk.com/product>

Problem Scenario

Cricket Communications has been contending with tremendous demand for its trademark services and keeping up with huge loads in processing of new customer subscriber requests. With over 5 million subscribers to date and growth rates of 10-20% annually, Cricket Communications' order processing regularly handles 3,000 new subscriber requests per hour – about 50 activations per minute.

In order to keep up with this level of activity, Cricket Communications has made substantial investments in automating its order processing systems and workflows, taking new subscriber requests, setting up customer accounts and provisioning services in a completely touch-less fashion. This has improved scale while substantially eliminating the manually introduced errors that slowed service activation processes and required time-intensive troubleshooting, intervention, and remediation. The downside risk of this highly automated approach is that all of the applications and systems need to work together flawlessly to keep the flow of orders going. If any part or subsystem experiences a failure or degradation, the whole system can quickly come to a grinding halt.

Cricket Communications' application architecture is complex, and utilizes a combination of internally developed and externally sourced applications, across a mixed virtualized and dedicated computing infrastructure. This has been important for building in redundancy and fault tolerance from an infrastructure perspective, but adds new difficulty when trying to monitor and troubleshoot issues.

“We use 40 VMs (Virtual Machines) to run our CRM application, combined with six or seven additional systems dedicated to running the middleware. It's no longer the traditional hard infrastructure where the problems often lie – the challenges are increasingly up in the application layer.”

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Cricket Communications utilizes an Apache-based Web site and a homegrown CRM (Customer Relationship Management) application, coupled with third-party applications for middleware, billing and rating, and PoS (Point of Sale) support. The billing system also has a provisioning engine as part of its order management subsystem, which activates services as orders flow through. “All of the systems generate log files – we get terabytes of log data on a monthly basis.”

Before deploying Splunk, the Cricket Communications team had difficulty seeing and understanding system degradations and failures. “We had all this data but no way to graph it or visualize it. We were often shooting in the dark when it came to trying to figure out which system was to blame when things went wrong.”

Splunk Procurement

Cricket Communications made an initial investment of about \$100k USD in the Splunk solution in 2009, then doubled that in early 2011. Since this was within the existing range of the management tools budget, no specific business case was written for the initial purchase, and with the observed value experienced in the first year of use the expansion went forward on pure consensus.

Outcomes

“When we brought in Splunk, we started putting log data into time charts and dashboards using specific key pairs. We monitored the third-party vendors for both availability and performance, and looked at each API for errors and response times. We were also able to start looking at trends in activations and other business metrics, such as payments and features being used, mostly looking for anomalies in activity.”

“The results have been phenomenal. It has been a lifesaver, helping to rapidly reveal which systems are working and which ones are not. Just as importantly, we want to know if the problems are with our systems or one of those provided by a third-party vendor. For example, we recently had a case where our billing vendor made a change over the weekend, and suddenly they were erroring out 100% of their calls. We saw this immediately using Splunk and were able to get it sorted out with the vendor before order volumes picked back up during normal business hours.

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“Now we are using proactive triggers to send alerts from Splunk into our event management system (BMC), but most of the time we’re on the issue before it ever gets handled there.”

“We’re also using Splunk in our development environments, so we can better understand what is going wrong with any of our own applications before or after they’ve been put in production. We now have over one hundred Splunk users, and most of them are developers and pre-production QA test engineers.”

The Applications Operations team calculates that with Splunk in place, they have reduced outage frequency by about 15%, translating into an annual positive revenue protection impact of \$1,200,000. The team also gained new operational efficiencies using Splunk and as a result was able to reassign one Full Time Employee (an approximate savings of \$100,000) to other tasks.

Based on their projected savings, Cricket Communications will exceed 6x returns on their Splunk investment (\$1,300,000 savings versus \$200,000 total license costs) with additional ROI expected every year going forward.

Hard and Soft ROI Summary

Hard ROI	After Splunk	Annual Savings
Avoided Downtime	+15% annually (projected based on observations YTD 2011)	\$1,200,000
FTE Staff Savings	\$100,000 annually (standard loaded rate for an IT administrator)	\$100,000
Total Hard ROI		\$1,300,000
Soft ROI	After Splunk	Benefits
Vendor Management	Splunk has allowed rapid recognition and understanding of where problems lie - with Cricket Communications' applications or those provided by third parties	Shortens problem identification time, accelerating MTTR (mean time to repair) and creating a record that can be used for future relationship negotiations
BI (Business Intelligence)	API calls being monitored represent discrete steps in the customer activation process, so Splunk dashboards have become a quasi-BI system revealing process status/flow as well as which products and services are being chosen by customers	Direct visibility into business transactions and subscriber selections, by product and by geography, allowing informed product and service planning and profitability analysis
Improved Application Quality	Once Cricket Communications' application developers realized how much valuable information the Splunk system could provide, they adopted it for use in the pre-production test environment.	Fewer problems are being found for the first time in production, where they risk impacting live business processes and transactions, and resulting in less total downtime
Reduced Customer Churn	Rapid and accurate service activation is the essential first step in Cricket Communications' relationship with their subscriber customers - Splunk is helping assure these systems are fast and reliable.	High initial levels of customer satisfaction, getting customers off on the right foot with Cricket Communications

Quotes and Observations

“Not only does Splunk do what it says it can do, it does even more than that. The flexibility of the system has been huge. (It’s been) a really refreshing experience compared to other management tools.”

“We built a dashboard showing real-time activations for our CIO. He shared it with our COO, who was able to recognize an outage. He noticed that order flow was unusually low for the time of day, and called operations to check it out. Sure enough, we had a problem.”

“The visibility we get with Splunk into the transactions going between our systems is tremendous. I can’t imagine life without it.”

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](#).

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