

# Splunk® at Trade Me

Optimizing User Experience in a Multi-channel Environment



“Splunk is an easy sell to the business because we are getting so much value out of it. At an operational level it’s helping us prevent problems. For the business, we’re now delivering business intelligence that provides clear advantages.”

**Matt van Deventer**  
Head of Infrastructure  
*Trade Me*

## OVERVIEW

### INDUSTRY

- Online marketplace and classified advertising

### SPLUNK USE CASES

- Business analytics
- Customer experience analytics
- Digital analytics
- IT operations
- Application management

### BUSINESS IMPACT

- Provide real-time insights into user behavior
- Multi-channel analytics and deeper understanding of customer browsing behavior
- Improved user engagement and customer loyalty
- Online platform optimization
- Enrich machine data with structured data for actionable insights
- Enable real-time insight into site performance
- Deliver business intelligence for non-technical users
- Monitor bidding activities by listings, users
- Balance site development efforts based on user preference
- Provide single pane-of-glass view of machine and production data

## The Business

Trade Me is New Zealand’s leading online marketplace and classified advertising site. Founded in 1999, Trade Me provides nearly 3.5 million registered members with a secure and efficient transactional platform for the sale of new and used goods, real estate, employment, motor vehicles, health and life insurance comparison, accommodation and online dating.

Headquartered in Wellington, Trade Me also has offices in Auckland and Christchurch, and more than 350 employees.

## Challenges

The Trade Me site serves more than 1.5 billion pages every month in support of up to three million listings. Each day, the site is viewed by more than 700,000 unique visitors, with over 100,000 logged on at any given moment. At peak, upwards of 70 images are uploaded to the site and 10,000 images are served every second by Trade Me’s Varnish image caching servers from a 60-million-image database. Prior to the Splunk deployment, the timely identification of image caching malfunctions was nearly impossible for Trade Me.

In addition, the constantly evolving Trade Me platform requires multiple updates and changes every day—up to 70 per week. Analyzing the impact of these site changes was extremely difficult and time-consuming using homegrown tools.

At the same time, the site’s infrastructure team was looking for a better solution than writing custom scripts to gain real-time insights into the vast amount of clickstream and log data generated by millions of page requests. Trade Me’s infrastructure specialists wanted to have real-time visibility into syslog and other log data, and to correlate and add context to this data using information from Trade Me’s production databases.

## Enter Splunk

In early 2012, Trade Me experimented with a free copy of Splunk Enterprise in its search for a way to gain greater insight into syslog databases and save time over legacy methods. Before Splunk, the team used Kiwi Syslog Daemon software to aggregate syslogs into databases and then developed custom scripts to search for unusual events and issue email alerts.

“We had two syslog servers and a lot of very cumbersome and complex rules we had created to alert people when bad things happened,” says Trade Me’s head of infrastructure, Matt van Deventer. “Eventually, it got so complicated and error-prone that we had to make a change. Splunk Enterprise gives us the ability to quickly ingest all of our syslog data and show us activity in a nice GUI, allowing us to easily search and alert in real time.”

The Trade Me team quickly discovered it had barely scratched the surface in terms of Splunk Enterprise functionality and business value. The company purchased a Splunk Enterprise license immediately after the syslog replacement project and today indexes more than 100 gigabytes of logs and other data daily.

## O V E R V I E W

## DATA SOURCES

- Web logs from 50 million page views
- API mobile logs
- Server logs from data centers and other IT infrastructure
- Application logs for iPhone, iPad, Android, Windows 8, etc.
- Listing, customer data lookup from MS SQL Server databases via Splunk DB Connect

## APPLICATIONS

- Splunk DB Connect
- Splunk App for VMware
- Splunk on Splunk (S.oS)
- Splunk Add-on for LDAP
- Splunk App for Unix and Linux (\*Nix)

## Breakthroughs

Soon after its syslog success, Trade Me used Splunk Enterprise to improve its user experience by identifying the source of image serving problems that arose following a change in the firm's data storage backend. Before Splunk, it was extremely difficult and time-consuming to pin down where in the stack the problems were occurring, leading to a suboptimal user experience during changes to the site.

"We threw all of our image access logs, web logs and anything else related to the photo serving system into Splunk Enterprise," said van Deventer. "We created several dashboards that gave us a real-time view into problems and allowed us to quickly drill down and solve those problems before they had an impact on our members."

Splunk Enterprise enables Trade Me to create meaningful dashboards for system monitoring and alerting in a matter of hours, rather than the weeks or months it used to take.

Historically, it had been very difficult for Trade Me to take clickstream data from its websites and combine it with data from a relational database to gain a deeper understanding of customer behavior, bidding activities, popularity of listings and more. All these mash-ups happen in real time, which provides business users with actionable insights to increase revenue and user engagement. Trade Me now uses the Splunk DB Connect application to associate and integrate unstructured data from web logs, syslogs and access logs with structured data from the firm's Microsoft SQL Server relational databases. Key values contained in Trade Me's unstructured machine data are used to reference related business data contained in the SQL databases, providing the firm with meaningful context and business insight.

A recent example of this new capability was the use of Splunk Enterprise and Splunk DB Connect to provide the Trade Me Jobs team with a dashboard blending log information with database lookups. It took less than an hour to create the dashboard and begin providing key metrics in real time including numbers for listings, job applicants and visits. "It's those kinds of services that the business really values," van Deventer said.

"Splunk provides us with a single pane-of-glass view into our machine data and production data, giving us context for site events and site performance," notes van Deventer. "It has been amazing to be able to push out new site features, for instance, and be able to watch their impact in real time, rather than wait for reporting databases to become available hours or days later."

Trade Me is leading from the front on multi-channel analytics and has been an early adopter for providing shopping platform choices to its customers. Business analyst and IT teams analyze the overall impact of mobile devices on customer behavior and revenues. The firm issued its first API then an iPhone app in 2010, followed by native apps for Android, tablets and other devices. Today, mobile access accounts for nearly 50 percent of site sessions—more than 100 million API calls per week.

API logs and other log information is indexed in Splunk Enterprise and linked via Splunk DB Connect to provide the infrastructure team and select business users with a unified view of member activity across platforms and devices. For instance, the team is able to see when a member searches car listings on their desktop, moves a listing to a "watch list" using an iPhone, and bids on and wins the car using an Android tablet. This database linkage enables Trade Me to determine which mobile apps are used the most, when they are used and which site features attract the most attention from mobile users. This information helps improve user experience across multiple channels and increase user loyalty.

## Free Download

[Download Splunk](#) for free. You'll get a Splunk Enterprise license for 60 days and you can index up to 500 megabytes of data per day. After 60 days, or anytime before then, you can convert to a perpetual Free license or purchase an Enterprise license by contacting [sales@splunk.com](mailto:sales@splunk.com).