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Monitoring the Coupa Cloud Platform to Keep Business Spend Tracking Efficient & Fast for Their Customers

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Overview

Coupa Software needed to create a custom DevOps Monitoring solution to support their 100% uptime goal for their leading spend management cloud platform, to gain visibility into performance, and to deliver on their promise for value-as- a-service to their growing global customer base. Maintaining a highly-available, secure and scalable service was critical for Coupa to remain a leader in its category, particularly since enterprises are increasingly seeking Procure-to-Pay platforms that enable employees to buy what they need quickly, cost-effectively, and securely. Coupa uses InfluxData to derive operational metrics of its spend management platform and benefits from the entire InfluxEnterprise (Telegraf, InfluxDB, Kapacitor, Chronograf) to unify and streamline its enhanced monitoring framework.

The result: Coupa's best practices of using InfluxData helped it achieve a consistent track record of delivering close to 100% uptime SLA across 13 major product releases and 5 major product module offerings, as well as solving Coupa's data accessibility, aggregation, and retention challenges.

Operational metrics are collected via Telegraf, stored in InfluxDB, and analyzed by Kapacitor. Coupa uses Grafana for visualization and has created a custom alerting framework. This has become the foundation to the path of building a system that is self-healing and can provide predictive analytics key to accurate forecasting.

About

Coupa Software (NASDAQ:COUP) is the cloud platform for business spend. It delivers "Value as a Service" by helping its customers maximize spend under management, achieve cost savings and drive profitability. Coupa provides a unified spend management platform that connects hundreds of organizations representing the Americas, EMEA, and APAC with millions of suppliers globally. The platform provides visibility into and control over how companies spend money. Customers have used the Coupa platform to bring billions of dollars in cumulative spend under management.

Coupa has reinvented spend management software to create value for customers around the globe. Born in the cloud, this modern spend-management platform accelerates business by unifying processes across all the ways employees spend money. These processes cover travel & expense, procurement, invoicing, and related source-to-settle areas. Using the Coupa Open Business Network, the platform has connected more than 3 million suppliers and delivers a powerful solution for businesses committed to controlling their spend.

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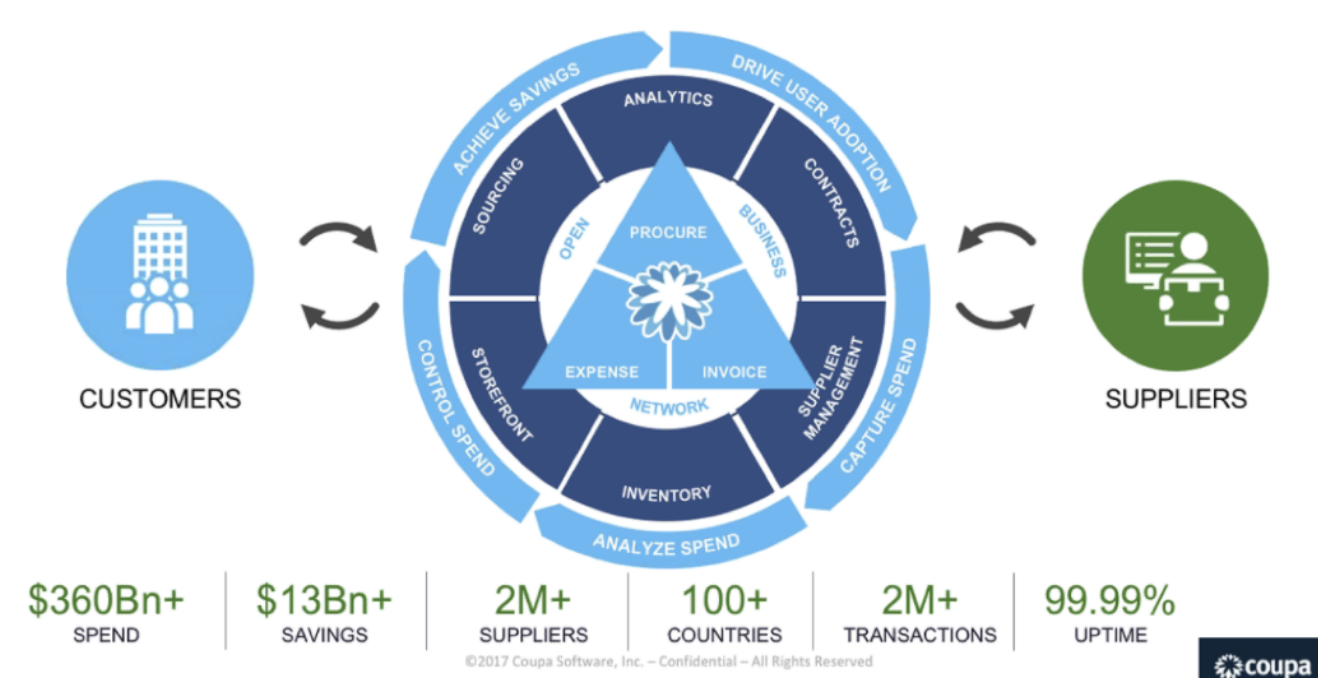
InfluxDB Cloud is materially helping us out in some key areas —providing improved visibility across areas where we previously couldn't see, and allowing us to do proactive anomaly detection, and proactively identify and fix issues before customers find them."

Sanket Naik, VP of Cloud Operations and Security

The business problem

Coupa has customers around the world with global support and delivery centers. It processes a high transaction volume on a daily basis and is constantly looking to provide near 100% uptime. When Coupa's technical team examined its monitoring technology landscape in 2016, they realized that they needed to refactor their approach to meet their target success metrics and deliver on Coupa's no.1 core value: **Ensuring customer success**. Their current technology prevented them from meeting that goal.

The monitoring solution in place was composed of disparate systems across the stack, was dated, and did not provide real-time visibility, therefore forcing their Customer Service agents to reactively respond to customer issues. They had (monitoring) data expiring too quickly and were unable to see trending patterns, perform correlations between different systems, or easily create views into the situation. Coupa wanted to turn that around and be proactive and prescriptive. And they wanted their operations team to be enablers, not gatekeepers. To do this, they needed a monitoring framework that would provide:

- Scalability to accommodate data and usage volume growth
- High availability to maintain near 100% uptime for reliable performance
- Cost-effectiveness to allow long-term data retention policies
- Visibility into platform performance to enable proactive monitoring

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Since we are trying to deliver a high level of uptime, we also wanted to make sure that the system was scalable and highly available."
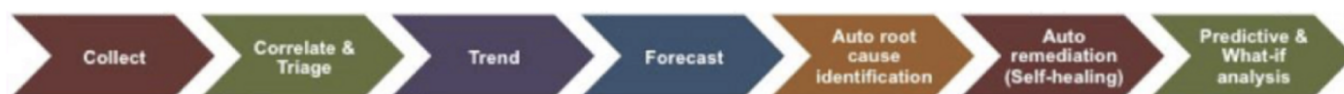
Sanket Naik, VP of Cloud Operations and Security

Technical journey

To solve the business problem, Coupa had to solve key challenges presented by its monitoring architecture. They had multiple disparate point solutions for system monitoring, application performance monitoring (APM) and business process monitoring (BPM). Their existing solution for system monitoring using RightScale had severe limitations: capability to create aggregate visualizations was limited, data retention policies related to historical metrics were too restrictive to allow them to build trend analysis, and metrics were locked in SaaS data stores and not accessible for analysis. Collecting additional metrics (to empower as many teams as possible) and creating new monitors was too time-consuming. Furthermore, due to these limitations, capacity planning and forecasting were complex and manual.

Following their research, the Coupa team developed their **Monitoring Maturity Model** as an evolution model for what they wanted their monitoring framework to achieve.

COUPA'S MONITORING MATURITY MODEL

Collect → Correlate & Triage → Trend → Forecast → Auto root cause identification → Auto remediation (Self-healing) → Predictive & What-if analysis

Then they evaluated over 8 monitoring alternatives, among them InfluxData, against these key selection criteria, to develop a prototype:

- Improve observability for operations, developers, support, and business functions
- Deliver a near real-time pipeline
- Make it extremely simple to capture events
- Provide long-term retention of metrics
- Provide powerful search and visualization
- Provide a unified system for logs, metrics, monitoring and other events
- Provide high availability, scalability and performance

In just 4 weeks, rather than the projected 2 months, Coupa was able to go beyond building a proof-of-concept with InfluxData, and was able to create a working prototype that was kept simple and iterated upon often: they used Telegraf to collect data, a single InfluxDB node to store data, Grafana to visualize data, and Kapacitor to analyze data.

When the prototype was rolled out to a group of operation engineers and developers, key benefits emerged: Telegraf plugins provided 10x as many metrics compared to Coupa's legacy solution, and they now had high resolution of metric data, easy-to-create use case specific dashboards, and major improvements with capacity planning.

Coupa then incorporated the prototype learnings and rolled out a more polished version with key enterprise type features like Single Sign On and High Availability, replacing the open-source edition of InfluxData with InfluxEnterprise, which powers their 2nd generation monitoring solution today.

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Using TICK and Grafana has helped us accelerate the whole monitoring maturity model at much faster velocity than I expected."

Sanket Naik, VP of Cloud Operations and Security
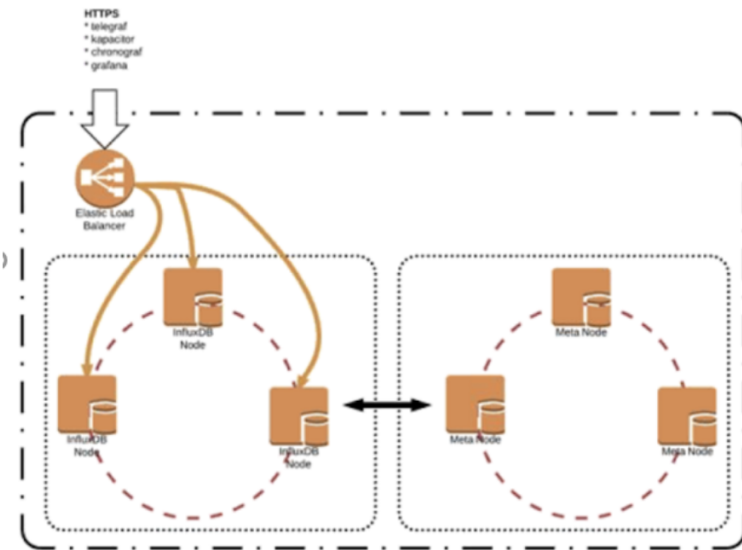
What's next for Coupa

Coupa is planning to expand use of InfluxData to:

- Build predictive analysis to observe patterns and enable forecasts
- Trigger automation such as auto-scaling and auto-remediation based on Kapacitor events
- Use Chronograf to create Kapacitor TICK scripts to enable more self-service
- Enrich metrics and dashboards with annotations and markers
- Introduce conditional alert routing based on host state
- Develop traceability to follow an event across services through the system
- Expose KPI-based metrics with customers by enhancing status dashboards

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We are getting good mileage in a short time period from our investment in TICK and Grafana."

Hans Gustavson, Senior Director, Site Reliability Engineering

Results

InfluxData helped Coupa unify its previously disparate systems and meet its target success metrics. Using InfluxData, Coupa gained real-time visibility into previously inaccessible metrics and events; proactive anomaly detection across transaction and customer heatmaps; and insights into performance variation. Coupa now has deep insight into application performance, in terms of both trends and hotspots. Advantages gained include:

- Significant performance improvements, resulting in a much more satisfying user experience where users don't have to wait for data to be rendered
- The ability to overlay applications, platform and system metrics, enabling new data correlations
- The addition of roadmap items by the Development team to start using TICK (builds, application errors, security events)
- Pursuit of more advanced use cases using various algorithms and models now that the basic use case was solved
- Extending the solution to more Coupa teams

Powered by InfluxData, Coupa today is the most comprehensive, usable spend management platform based on an open-network concept (it provides analytics across all the companies that use its products). Users can analyze spend against their own data, benchmark spend against others in the community, find additional savings through contract negotiations with suppliers, check feedback on suppliers, and do group orders to find discounts. Transactions are implemented very quickly, so Coupa also provides exceptional time to value. Coupa customers are scaling procurement, driving measurable savings, and gaining visibility and control over spend.

Coupa cloud application solutions provide security, scalability and flexibility, and with 99.99%+ uptime and 10 regional data centers, Coupa delivers world-class performance and reliability. Every module in its suite of financial applications is pre-integrated for seamless data sharing and cross-platform visibility. Using InfluxData, Coupa is enabling its customers to spend smarter and save money by delivering the world's most innovative, easy-to-use, fastest to implement and cost-effective spend management technology.

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When there's a hotspot, we can now proactively solve it before customers find it. With InfluxData, we have gained not just a backend monitoring tool. We can help our customers become more successful. That's the big win for us."

Sanket Naik, VP of Cloud Operations and Security

About InfluxData

InfluxData is the creator of InfluxDB, the leading time series platform. We empower developers and organizations, such as Cisco, IBM, Lego, Siemens, and Tesla, to build transformative IoT, analytics and monitoring applications. Our technology is purpose-built to handle the massive volumes of time-stamped data produced by sensors, applications and computer infrastructure. Easy to start and scale, InfluxDB gives developers time to focus on the features and functionalities that give their apps a competitive edge. InfluxData is headquartered in San Francisco, with a workforce distributed throughout the U.S. and across Europe. For more information, visit influxdata.com and follow us @InfluxDB.

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