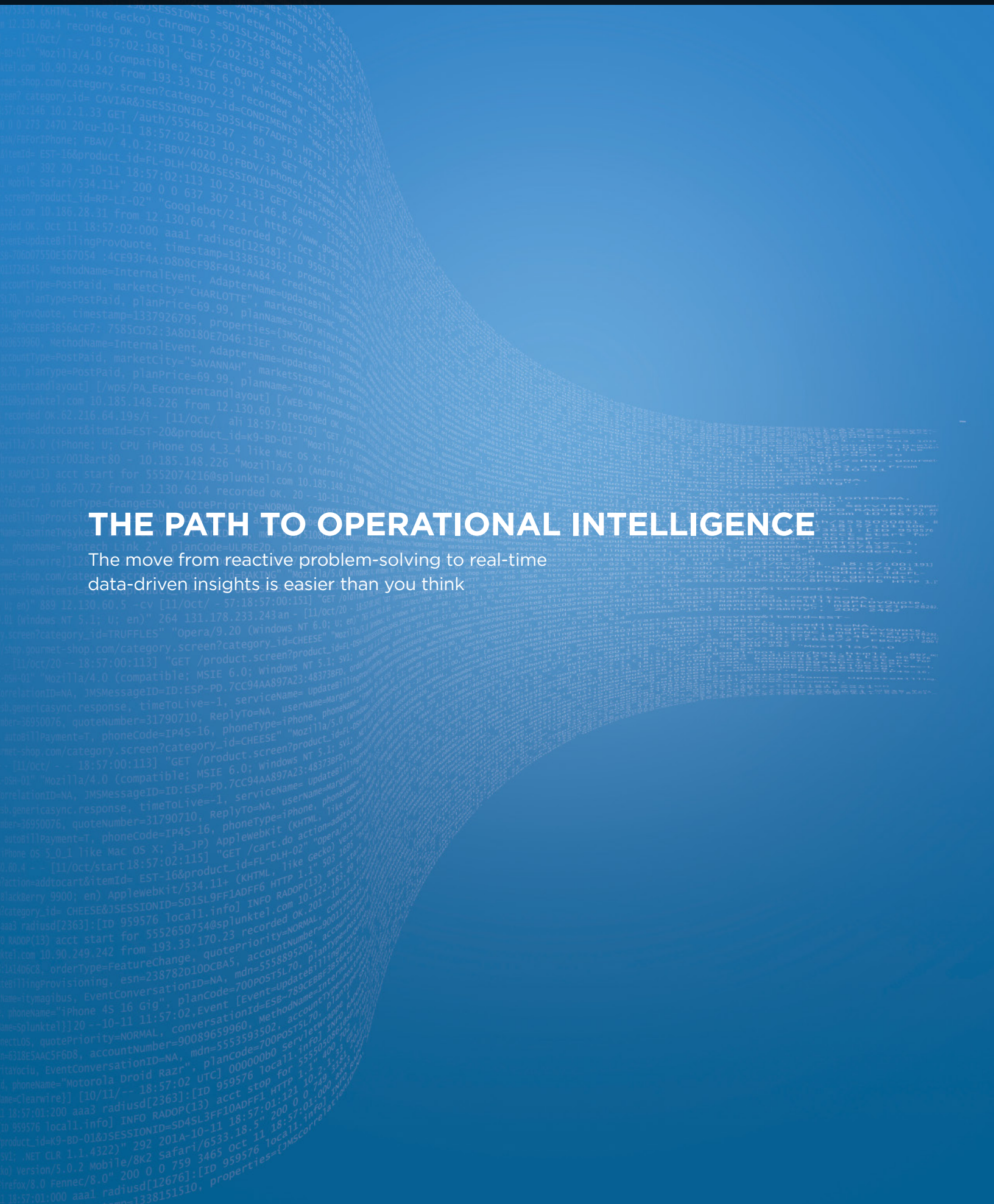
splunk>

WHITE PAPER

THE PATH TO OPERATIONAL INTELLIGENCE

The move from reactive problem-solving to real-time data-driven insights is easier than you think



Digital Business Means Managing Complexity

Complexity is now a way of life for IT. It faces a rapidly growing and evolving set of digital footprints it must monitor, manage and troubleshoot. At the same time, the consequences for IT failures have never been higher. Most surveys place the cost of downtime for a large company between $100,000 per hour to $500,000 per hour.[1]

As IT scrambles to come up to speed on evolving technologies, many digital businesses are now generating hundreds of terabytes of data per day, a mix of routine system logs, customer transactions and application metrics. It's now also left with escalating volumes of data at its disposal. While this abundance of data can be daunting, it presents organizations with valuable intelligence.

In the right hands and with the proper tools, this wealth of data can be harnessed to solve problems, isolate performance bottlenecks and identify issues. Big operational data paired with sophisticated analysis software is the key to preventing problems, not just reacting to them, which ultimately improves the customer experience and reveals new business opportunities. Turning big data noise into valuable IT and business information follows what Splunk calls the path to Operational Intelligence (Figure 1).

It's a road more companies are traveling, but the path needn't be hard. Better still, the journey itself is rewarding, with incremental benefits, including improved operational efficiency and more strategic decision making along the way.

The Current Situation Is Harder Than It Has to Be

IT complexity creeps up on most organizations, often going unnoticed until it creates a crisis. But with the growing adoption of virtualization, cloud, mobile and containerization technologies, front-line IT staff struggle to keep up. Problems go unnoticed or incidents take longer to resolve and often end up as recurring headaches.

The current state of IT operations is reactive, catching problems after they've snowballed into business disruptions. Worse still, problem resolution is laborious—data isn't shared, complex interactions between infrastructure and app components can't be captured and subtle interactions between systems go unnoticed.

IT's natural response to work overload is to deploy monitoring tools, but if systems management and troubleshooting remain siloed, the result is often a bunch of point tools, each monitoring a piece of the overall business nervous system. It's a classic case of the elephant in the room where each organization only sees a portion of the whole, meaning problems spanning multiple applications and infrastructure silos still can't be systematically diagnosed and solved holistically.

But it doesn't have to be this way. It's far better to take a comprehensive approach to operational automation. This is done by first integrating data from all sources into an easily searchable repository that can evolve from a troubleshooting tool, to a proactive monitoring

Figure 1: With Splunk, you can transform machine data into real-time Operational Intelligence.

and alerting platform and ultimately, an integrated intelligence system providing end-to-end operational visibility. The payoff is significant.

Splunk customers have been known to cut mean-time-to-resolution from a few days to a few minutes. Others have cut incident response times 70 percent to 80 percent. Here's how they did it—and your roadmap to Operational Intelligence.

Search and Investigation

The path to Operational Intelligence begins with data aggregation. Collecting and indexing all operational and application data (including logs, wire data, mobile data and metrics) provides visibility across complex interactions between different systems and correlates seemingly unrelated events.

Splunk software can use data from any piece of equipment or application, whether on-premises or in the cloud, and file-based storage records data in its raw, unfiltered format—avoiding relational database overhead.

The benefits of a comprehensive, consolidated operational monitoring strategy flows directly into IT's bottom line. For example, after installing Splunk software, the grocery chain Safeway eliminated 27 separate monitoring tools, and QTS, a managed services provider, saved $575,000 per year through retiring redundant and unnecessary tools.

Moving From Searching to Proactive Monitoring

Manual searching of consolidated operational data is a vast improvement over the status quo of siloed ad hoc troubleshooting, but the logical next step is proactive monitoring: programmatically searching for anomalous events and deriving aggregate measures based on multiple events or queries. Two important features are the ability to define triggers for certain data values or events and the combination of several measures into a composite metric—for example, the aggregate delay between a web server displaying an order page and when the transaction is recorded in a database server.

Many organizations begin by performing manual searches, filters and analyses, but these can also be aggregated and summarized on performance dashboards tailored to different constituencies: IT support, app developers, IT management and line of business management. Dashboards provide a quick view on overall system health, problem areas and end-user ramifications. Splunk users can harness these features immediately with little setup and no programming required.

As your applications and infrastructure changes, Splunk supports those changes because it can collect, index and analyze your machine data. Splunk Apps and Add-Ons make it even easier to start analyze new data sources.

End-to-End Operational Visibility

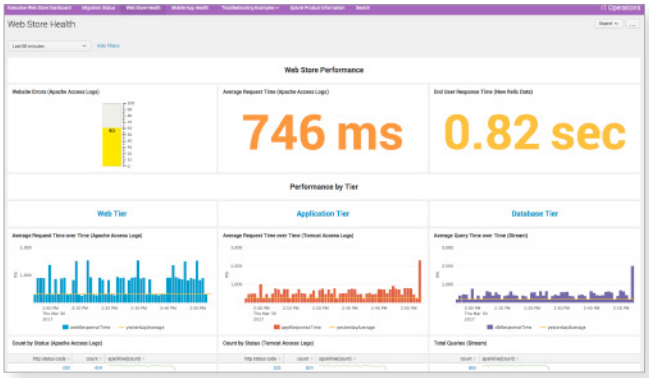


Figure 2: Data from several different data sources are presented in one dashboard.

So far we've described reports and dashboards for specific elements of IT infrastructure or applications; however, an Operational Intelligence platform can be used much more broadly. The next stage of the Operational Intelligence journey moves from monitoring infrastructure to providing a service-level

view of IT. By measuring and correlating the activity from all the systems comprising a business process or end-user service, an Operational Intelligence platform exposes the complex factors affecting their performance. But successfully executing the strategy requires breaking down the silos between infrastructure and applications.

For example, Splunk IT Service Intelligence, a monitoring and analytics solution built on the Splunk platform, provides service-level visibility into the health and key performance indicators of services relevant to IT and the business.

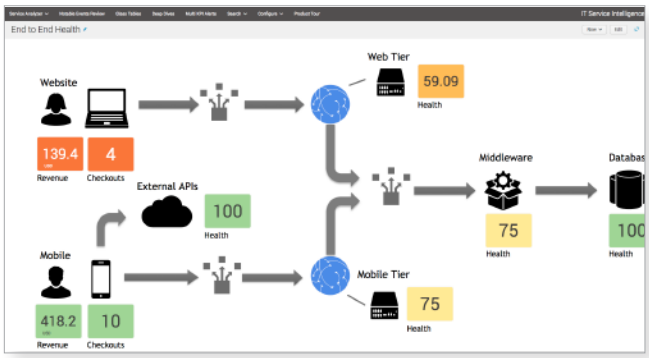


Figure 3: End-to-end view of a critical business transaction

Comprehensive, system-wide visibility of relevant business metrics can deliver service intelligence using machine data to define, map and provide deep insight into service health and performance.

End-to-end Operational Intelligence can help blur the lines of IT and the businesses and deliver much desired business-IT alignment.

Operational Intelligence for Business Insights

The ultimate goal of any big data system is to transform millions of pieces of mundane data into evidence-based business insights. Applied to Operational Intelligence, this means combining the same data, software and analysis techniques used to improve day-to-day IT operations with business-specific information like customer records (CRM), sales transactions and supply chain information (ERP) to provide deeper insight into strategic business initiatives, investment opportunities and new product and service roadmaps.

IT operational data and real-time user and usage analysis can identify your most valuable customers, segment a product's most popular features by user demographic, expose where, when and how customers use or consume your product, highlight problem areas and yield insights toward changes that will improve customer satisfaction, stickiness and loyalty.

Operational Intelligence is a critical input in answering questions like:

- What new product features should be prioritized?
- What is the performance of individual stores?
- Where should new stores be located?
- What is the sales mix in different locations and with different customer segments?
- What are the most effective sales promotions and ad campaigns?

For example, Domino's uses Splunk software to visualize business sales trends across locations with metrics like orders per minute, numbers of transactions per store, most popular menu items, coupon usage and even the most common mobile devices used to place orders. These insights enable more targeted, timely and lucrative promotions. They even empower marketing teams to analyze the success of campaigns in real time, enabling on-the-spot creation of one-off promotions to exploit time-sensitive events or regional trends, without waiting 24 hours to 48 hours for a batch data warehouse report to arrive.

Operational Intelligence Benefits Start with IT, End with the Business

Comprehensive, end-to-end Operational Intelligence improves IT performance and effectiveness by providing an integrated view of the status and performance of IT infrastructure, services and business applications. The foundation of successful Operational Intelligence is data collection and indexing. This approach transforms machine data from a hodgepodge of disconnected and often unused machine data into a valuable resource for analytics software that can highlight important usage trends, system inefficiencies and opportunities for process and business improvements, such as marketing campaigns and improving product/service enhancements. More significant benefits accrue as organizations build more automation, sophistication and business analytics into the system.

Technology trends like webscale IT, cloud and microservices, along with the looming data explosion from the Internet of Things (IoT), make comprehensive Operational Intelligence a business imperative. Aggregating device and application data is critical to improve business efficiency and customer service.

In summary, achieving Operational Intelligence isn't as hard as you think when you have a platform to manage your machine data. In the right hands and with the proper tools, gaining real-time data insights result in improved operational efficiency, more strategic decision making and a huge competitive edge.

"Application Downtime According to IDC, Gartner and Others," StatusCast, March 13, 2015, http://www.statuscast.com/application-downtime-according-to-idc-gartner-and-others/

Learn more at www.splunk.com/it-operations.