TIBCO®

Data Insights = Successful DevOps using TIBCO LogLogic

Benefits of data-driven DevOps flow directly to the bottom line—improving the business through greater efficiency and developer productivity, faster application delivery, lower costs, higher customer satisfaction, and greater revenue.

The key to a successful DevOps feedback loop is software metrics.

Businesses must release and refine new software and services faster than ever—with agile, iterative, software development and delivery.

The faster you can release your software, the more successful you will be. Releasing faster usually equates to smaller more manageable releases that come out more frequently and have an automated pipeline for development, test, and release. Breaking the releases into smaller projects allows more focused test automation and generally a faster release cycle because the updates are more clearly defined and the edges more clearly seen.

Frequent, smaller updates empower developers to rapidly try new features and limit the risk of breaking something critical.

Noting that velocity is still a key metric for DevOps success, in 2017, high-performing DevOps teams deployed 46 times faster, enjoyed 440 times faster lead time for changes, recovered on average 96 times faster, and suffered 5 times fewer change failures. These organizations were more than twice as likely to benefit from higher quality and quantity of products and services, better operating efficiency, and higher customer satisfaction, among other business impact goals.[1]

DEVOPS, THE REALITY

A CULTURE, A MOVEMENT, A PHILOSOPHY

It's a firm handshake between development and operations that emphasizes a shift in mindset, better collaboration, and tighter integration. It unites agile, continuous delivery, automation, and much more—to help development and operations teams be more efficient, innovate faster, and deliver higher value to businesses and customers.

SUCCESSFUL DEVOPS TEAMS

- 46 times more code deployments
- 440 times faster release cycles
- 96 times faster downtime MTTR
- 5 times fewer change failures

. . . than other teams.

DevOps introduces agile development methods into software-defined infrastructure and operations. DevOps teams focus on standardizing development environments and automating delivery processes to improve delivery predictability, efficiency, security, and maintainability. The DevOps ideals provide developers more control of the production environment and a better understanding of the production infrastructure. DevOps encourages empowering teams with the autonomy to build, validate, deliver, and support their own applications. With DevOps, nothing gets "thrown over the wall."

It is about constant iteration. Code is defined, tested, deployed, monitored, and measured. When problems are encountered, the code is modified, and the process starts again. Rinse and repeat.

The key to a successful DevOps feedback loop is software metrics—the measurement and analysis of usage, performance, and errors. The flexible nature of centralized data-insight platforms to ingest and report on any type of data makes them well-suited to DevOps processes.

TOOLS THAT BLUR VISIBILITY & HAMPER AGILITY

Complexity is the enemy of agility. A typical DevOps process includes eight major steps with different tools used in each (Figure 1). Because these tools are often open source or point products, there's little to no integration between them, creating overlaps and inefficiencies that blur visibility of the overall process and hamper agility.

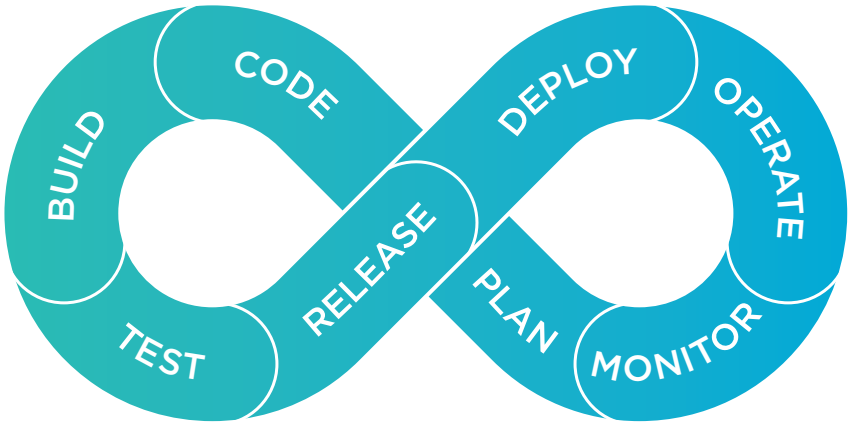

Figure 1: Major steps of a typical DevOps process.

The infinity symbol is a common depiction of the stages of DevOps; it nicely illustrates the two intertwined processes. The left side deals with the software development and the testing cycle (dev), and the right represents the deployment and operations cycle (ops). Each step in the cycle needs distinct tools, where a dozen or more tools are commonly used in each cycle.

This abundance of product choices is great for developers and operations teams, because each team can choose products that suit its needs and preferences. But the resulting melting pot is a nightmare for project managers, DevOps leads, and business execs. A mix of DevOps systems, each creating data silos, hides visibility into the overall process chain.

PROBLEM AND SOLUTION

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The key to a successful DevOps feedback loop is software metrics—the measurement and analysis of usage, performance, and errors. The flexible nature of a centralized data-insight platform to ingest and report on any type of data (LogLogic Log Management Intelligence) makes it well-suited to DevOps processes.

This means you are flying blind, which in the DevOps world means there's no way to tell if "fixes" solve the root problem or just provide a temporary patch.

If you are lacking the full insight into the entire DevOps pipeline, you can't confirm app quality, performance, and security. For example, antivirus software can identify a virus or spyware, but without a means of tracking its origin, the virus can still spread.

Disjointed DevOps pipelines result in multiple, time-consuming handoffs throughout the delivery process. A disconnected delivery workflow means impaired collaboration (with cross-departmental gaps by teams using different terminologies and having different viewpoints on the overall project). Together, the friction in communication and information sharing undermines trust and cooperation and runs counter to the core premise of DevOps. The result is poor quality, which can lead to customer dissatisfaction and churn.

DEVOPS DONE RIGHT

Done right, DevOps leads to a virtuous cycle of greater productivity across development and IT, greater agility in bringing new experiences to market, and greater impact on the business.

However, without a central platform to provide data-driven feedback, DevOps is unlikely to be successful. The only way organizations can avoid this pitfall is to use data to measure, report, and demonstrate the success of DevOps, while using data-driven insights to optimize and improve it over time.

Agile companies are tuned into customer needs. Being tuned in requires a data-driven platform that provides constant feedback to help all areas of an organization: IT, app developers, line of business execs, security teams, auditors, and others. By providing fact-based insights and decision support, a DevOps data platform enables businesses to move swiftly to embrace good ideas and eliminate bad ones.

CONTINUOUS INSIGHT

To do this correctly, DevOps requires data, tools, and processes that provide all stakeholders with continuous insights into the DevOps workflow necessary to run business units, application development, and IT operations. Machine data provides the raw materials for these insights and decisions, and used properly, delivers many benefits (Table 1).

BENEFIT	IMPACT ON THE BUSINESS
Better decision-making	Machine data uncovers a single version of the truth. All parties—IT ops, dev, and line of business—have the same view from information correlated across the development and delivery chain.
Easier access to data	Business stakeholders can measure the effect of ideas and releases on customer experience, revenue, retention, and other metrics.

Enhanced security and compliance	Security and audit teams can assure compliance through visibility into pre-production environments and QA testing for code compliance, vulnerabilities, and various attack vectors.
Improved uptime	IT ops teams are engaged earlier by collaborating with development teams on the measurements to prevent and minimize production service disruptions and outages.
Faster development time	Developers iterate faster with less risk by using insights gleaned throughout the app development and delivery process. They can demonstrably see how their apps run in production and if the latest updates caused production problems.

Table 1. Benefits of Using Machine Data for DevOps Data Insights

In practice, successfully coupling DevOps with comprehensive, data-driven insights provides three key benefits: faster application delivery, better application quality, and better business quality.

FASTER APPLICATION DELIVERY

Achieving agility and customer satisfaction requires DevOps teams to have four key capabilities:

- *Monitoring:* Every component of the DevOps build and delivery workflow must be instrumented with the data collected into a central repository for further analysis. Without data, it's impossible to understand and remediate app delivery issues.
- *Iteration:* Code fixes and improvements must be rapidly identified, triaged, and developed using data correlated from throughout the tool chain to provide deeper application insights.
- *Collaboration:* Rapid delivery requires that DevOps teams are on the same page, use the same data, and take action based on the same measurements.
- *Optimization:* DevOps managers must constantly strive to improve the process by making fact-based decisions. Process optimization requires data-driven answers to questions such as:
  - How long did it take to go from development to deployment?
  - How long is each phase of our delivery pipeline?
  - How much time do teams spend writing, testing, and reviewing code?
  - Which development teams are the most productive?

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With the TIBCO LogLogic machine data platform, you enable your DevOps teams to break down data silos and provide insights across the entire DevOps pipeline.

BETTER APP QUALITY WITH REAL-TIME INSIGHTS

Machine data from across the DevOps tool chain provides information that enables proactive response to issues early in the development and testing cycle. With machine data, developers and operations teams can see and fix problems before customers and users experience the frustration of broken features and crashing apps. This type of proactive response requires a centralized data insight platform that DevOps teams can use as a single source of truth that is comparable to the way source code control systems empower developers to consolidate and share work results.

Instrumenting and analyzing the entire DevOps process can provide actual performance, usage, and error data critical to improving both the end product and overall process. A common data platform enables information to be correlated across tools and infrastructure and can proactively alert to problems. For example, correlating data from code checks with performance monitoring systems can reveal problems before users file bug reports.

Consolidating data from throughout the DevOps delivery cycle requires a platform that can ingest data in real time from across tools used in the eight-phase cycle described earlier. Development tools are constantly changing, and so is the data.

Data is the raw material of DevOps measurement, but it must come from objective metrics that can quantify whether code meets functional and operational specs and quality SLAs. Using a common data repository to analyze the entire DevOps process can help achieve:

- Quantifiable measurement of code review and resolution times
- A single data repository for bug analysis and project tracking tools
- Consistent, measurable, and trackable benchmarks for bug rates across development teams and code releases
- Increased visibility of test and software quality assurance metrics that allow problems to be identified before production release
- Tighter integration of security into the development process, or what is increasingly known as DevSecOps. By gathering applications and security intelligence analysis early in a build cycle, development teams can deliver more secure and compliant code by spotting and eliminating vulnerabilities early. A common DevOps data insight platform means that security audit data is collected and easily available in one place. The net result of real-time, data-driven insights from the application build pipeline enables security teams to communicate, alert, and avert new potential threats before applications are deployed.

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BETTER BUSINESS RESULTS

Organizations that expand use of a comprehensive data platform like the LogLogic® platform from its traditional role in IT operations to DevOps can expect:

- As opposed to a delay of hours or days as when using ad hoc reporting, real-time visibility of usage, performance, reliability, errors, and security incidents for new applications releases

LOGLOGIC FOR DEVOPS

Expect:

- Dramatically lower mean time to resolution
- 70% faster production
- 40% faster pre-production problem resolution
- Real-time visibility of usage, performance, reliability, errors, security
- Greater efficiency, with teams able to focus on meeting business needs, not monitoring tool maintenance

- Dramatically lower MTTR, up to 70 percent faster production, and 40 percent faster pre-production problem resolution
- Greater efficiency through automated data ingestion and analysis. Developers and operations teams can focus on meeting business needs and not wasting time on building and maintaining monitoring tools

Ensuring DevOps teams stay aligned with business requires a continuous delivery process with frequent releases that are measured and correlated with actual business results. A DevOps data insight platform can ingest business-relevant data from a variety of sources in the cloud or on premises. Consolidated, universal data indexing and correlation not only provide visibility into the delivery status of key features, they help draw connections between DevOps activity and relevant customer and business metrics.

Fact-driven DevOps improves the customer experience by delivering better performing and more useful code. Better code means happier customers, and happier customers are more loyal. Using data from across the DevOps-build pipeline means customer satisfaction can be directly tied to code releases by analyzing metrics like application usage and sales. Other common DevOps-related business metrics include:

- The rate of customer sign ups, downloads, and revenue changes
- Peaks and troughs associated with product releases
- Changes in customer engagement and sell through or cart abandonment

DATA-DRIVEN INSIGHTS

Success in the digital world requires agility. This is achieved through an efficient DevOps release process, and data driving insights to get the most out of a DevOps program.

DevOps practitioners must continuously improve responsiveness, collaboration, security, and regulatory compliance—all of which directly enhance business reputation and customer satisfaction. Yet, adopting DevOps comes with many challenges that are often the result of complex processes and tool chains. Business execs, IT leaders, and development teams must understand not only the benefits of DevOps, but how to successfully achieve them.

The secret to DevOps success is quantified validation. The adage “If you can’t measure it, you can’t improve it” still applies, and a centralized data insight platform provides the ideal system for measurement and evaluation.

1 https://puppet.com/resources/whitepaper/state-of-devops-report

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