A Guide to

Continuous DevOps Improvements

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01 Introduction

As we assess software development across organizations, it becomes evident that some organizations are doing better than others. DORA's State of DevOps research program sheds light on how industry leaders perform better on key metrics. While DORA's reports are exhaustive and provide insights into how DevOps practitioners can improve performance, many organizations continue to struggle with the basics of DevOps adoption.

▸ In a survey by Progress, **73%** of the organizations admitted that they were behind in achieving their DevOps

▸ DevSecOps goals; **71%** identified culture as the biggest barrier to DevOps.

Remember the CALMS framework (Culture, Automation, Lean, Measurement, Sharing) for DevOps

adoption? Perhaps, it's time to revisit the framework and evaluate areas for improvement. However, organizations find themselves stuck in conversations around tools, while failing to address the most important aspect of DevOps transformation, which involves cultural change.

The common symptoms are departmental silos, unnecessary bureaucracy, slow approval cycles, and rampant finger-pointing. New tools can't solve anything until teams evaluate their cultural readiness for DevOps and make continuous improvements to increase collaboration, accountability, and transparency. In this whitepaper, we will discuss how organizations can improve observability across different stages of the DevOps lifecycle and gain insights to make timely changes.

Challenges with The
Ever-Evolving DevOps Toolchain

As we take stock of the current state of software development across organizations, we can see that some organizations are doing better than others. DORA's State of DevOps research program sheds light on how industry leaders perform better on key metrics and guides to improve DevOps practices. While DORA's reports are exhaustive and provide insights into how DevOps practitioners can improve performance, many organizations continue to struggle with the basics of DevOps adoption, even today.
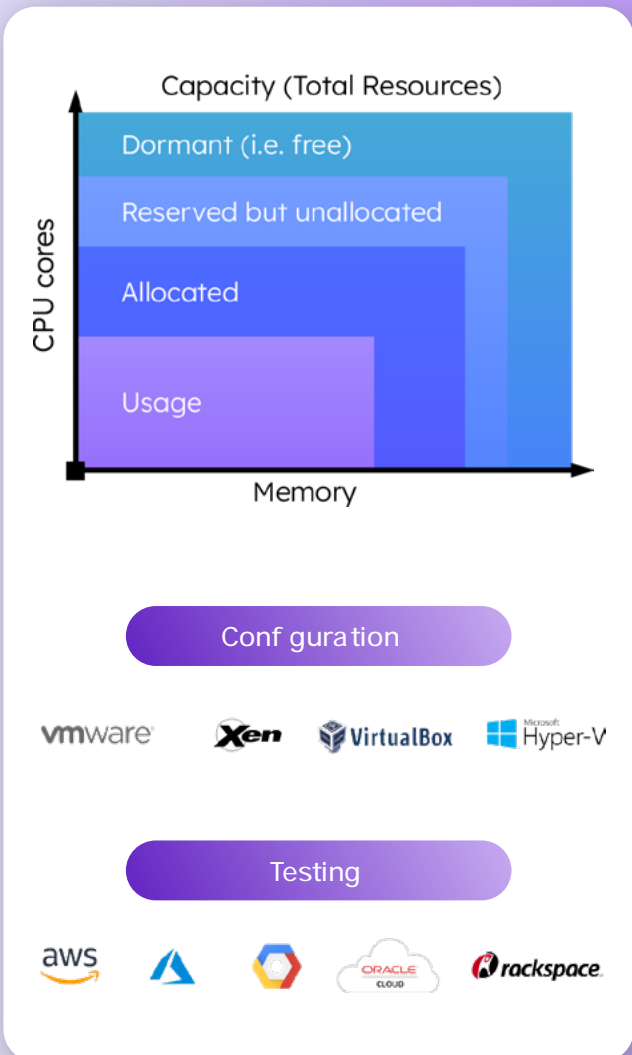
01

Foundational Tools

While, in theory, it's possible to adopt a DevOps culture without cloud and virtualization, it's practically impossible as organizations scale. DevOps practices rely heavily on automation and agility, which require dedicated software to manage multiple networks and servers. While virtualization is key to meeting fluctuating demand at scale, most organizations struggle to optimize their cloud resources and spending.

**Challenge:** Cloud Cost Optimization

Agile Planning Tools

02

The Planning Stage

While, in theory, it's possible to adopt a DevOps culture without cloud and virtualization, it's practically impossible as organizations scale. DevOps practices rely heavily on automation and agility, which require dedicated software to manage multiple networks and servers. While virtualization is key to meeting fluctuating demand at scale, most organizations struggle to optimize their cloud resources and spending.

Challenge: Agile Planning and Backlog Visibility

Conf guration
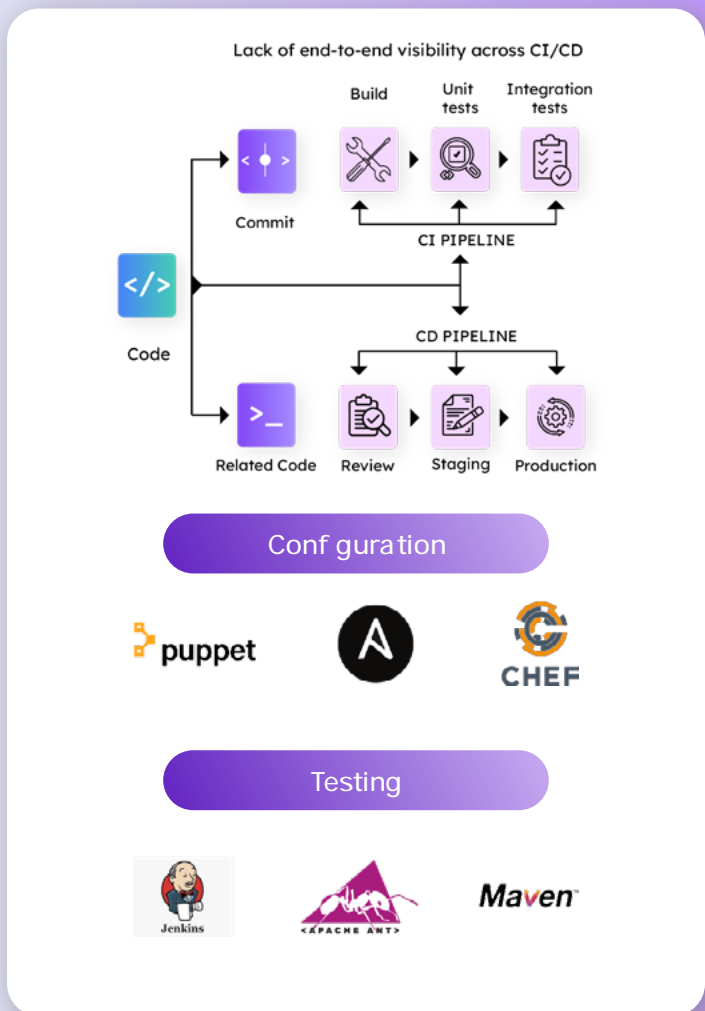
Testing

03

Implementation & Deployment

Configuration tools, container platforms, and automated testing have transformed software development, allowing organizations to get better returns from their cloud investments. Tools like Puppet, Chef, and Ansible and practices like infrastructure as code enable seamless configuration and provisioning, leading to more consistent, reliable, and stable deployments. However, organizations often lack visibility into their modern, cloud-native setups. Keeping track of builds, test results, test automation, ephemeral container logs, IaC scripts, etc., becomes increasingly complex with scale.

Challenge: CI/CD and Infra as Code Monitoring
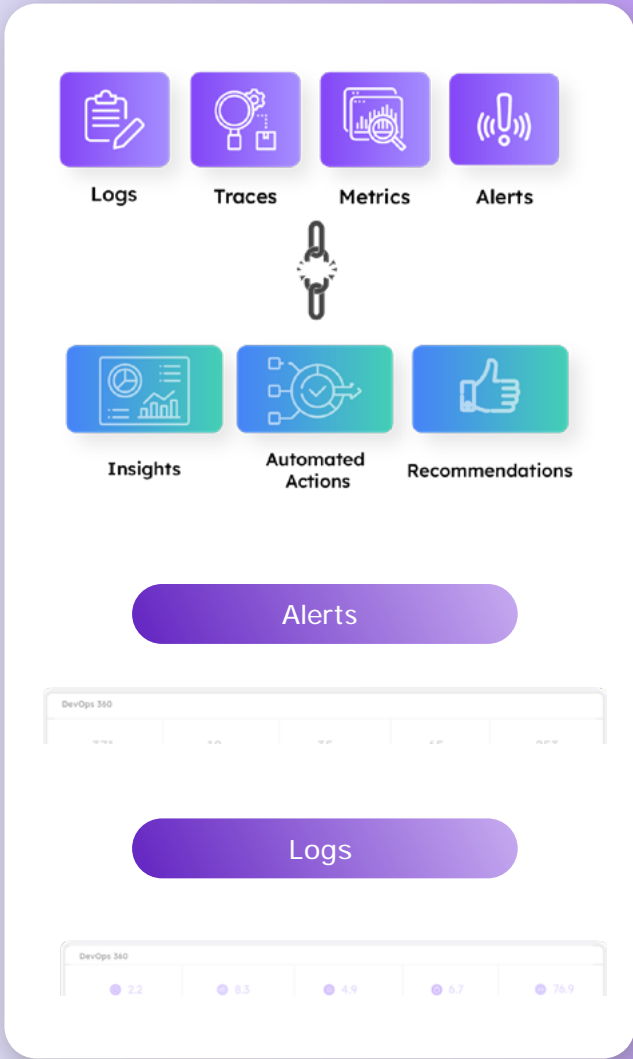
04

Maintenance & Operations

DevOps teams need to be on their toes to identify and resolve issues in production. Automated logging and alerting are crucial for tracking application performance issues in real time. However, in large-scale setups, it is not easy to analyze logs, metrics, and traces and gather actionable intelligence. Organizations often lose crucial hours in making sense of their text logs or tracing a vulnerability to the associated files, author, and lines of code. Such delays often lead to poor end-user experience, performance issues, and data breaches and can also cause significant reputational and financial losses.

Challenge: Operations Monitoring

Agile Metrics

Work Items Completed (%), Sprint Success Rate (%), Average Sprint Velocity

DORA Metrics

Work Items Completed (%), Sprint Success Rate (%), Average Sprint Velocity

Infrastructure Metrics

Infra Pipeline Success Rate (%), S/W Configuration Pipeline Success Rate (%), Infra Pipeline Runs

Operations Metrics

CI Platform Availability (%), Incident SLA (%), Total Azure Cost ($)*, Cloud Security Score

DevOps 360

In the last section, we briefly discussed how organizations face obstacles at different stages in the DevOps lifecycle. Gathr works with global organizations to solve such common challenges with DevOps 360, which is a unified DevOps monitoring solution. The solution easily integrates with DevOps tools, allowing easy analysis of data and automation of certain actions. We will describe how the solution works and helps organizations continuously improve DevOps.

The solution offers a unified view of planning, development, and operations stages in the DevOps lifecycle collecting data from different tools, including Jira, GitHub, Jenkins, SonarQube, Azure DevOps, and more. Organizations can customize the solution as per their DevOps setup, using Gathr's out-of-the-box connectors for gathering and analyzing the data from their toolchain. The connectors can be configured in a few simple clicks. You don't need to spend time in complex data preparation and ETL (extract, transform, load) operations, as the connectors allow native integration with tools and support contextual data fetching, which essentially means picking only useful data as per your need.

*As we mentioned earlier, it is possible to integrate tools as per your setup and monitor operations across AWS, Google Cloud Platform, and Oracle Cloud as needed. You can drill down to individual stages in the DevOps from this summary dashboard to analyze and troubleshoot issues.

Agile Metrics Monitoring

DORA's metrics, viz. deployment frequency (DF), mean lead time for changes (MLT), mean time to recovery/restore (MTTR), and change failure rate (CFR), are the industry standard for assessing DevOps performance and have a strong correlation with DevOps success; i.e., industry leaders or those who have a successful DevOps perform well on these metrics. Gathr allows you to track and analyze these metrics easily using the build & deployment trends and lead time analysis dashboards. These dashboards make it easy to correlate build and deployment timelines to perform root cause analysis for failed deployments. Further, the dashboards offer easy visibility into the

flow of work. You can get the distribution of work items by different states (in progress, design, inactive, etc.) to detect any potential productivity issues. You can monitor the journey of work items with a Gantt chart and drill down to work item details individually for further analysis and troubleshooting. It is useful to note here that Gathr gives you the flexibility to modify or add metrics as per your monitoring needs. You can add new definitions and thresholds using Excel-like formulas.

DORA Metrics Monitoring
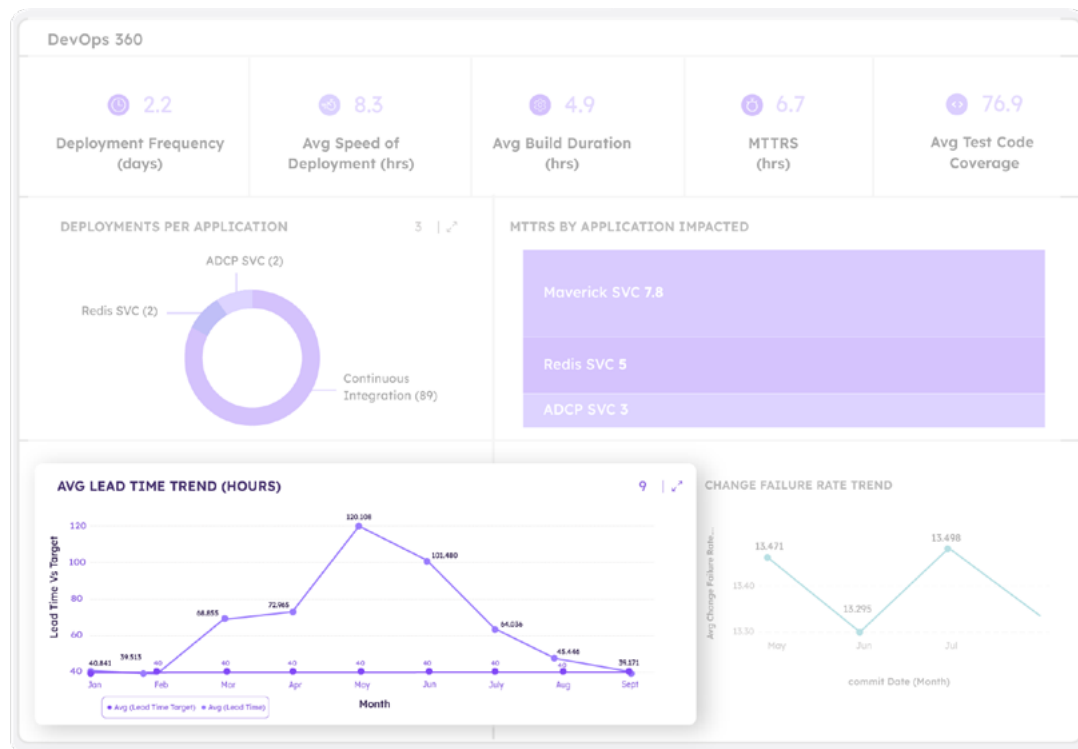
The solution offers four different dashboards to track Agile planning and progress; these include Backlog Analysis, Sprint Analysis, Current Sprint Analysis, and Sprint Velocity. With the backlog analysis dashboard, you can easily track your projects' progress by visualizing key metrics such as epic status (completed vs. incomplete) and feature level completion. You can also easily understand the work distribution across bugs, features, issues, and more and identify any bottlenecks or productivity issues. The sprint analysis dashboard helps you drill down to the root cause of potential issues. It allows you to quickly gauge sprint risks, monitor active vs. closed, and completed vs. spilled-over work items. The different charts help you sense the flow of work in the organization and assess which stages are leading to bottlenecks (e.g., design, testing, etc.). The current sprint analysis is another useful dashboard for troubleshooting and root cause analysis. It helps you get down to assignees and individual work item details. Finally, the sprint velocity dashboard helps you gauge velocity by team, sprint, and project across your enterprise.
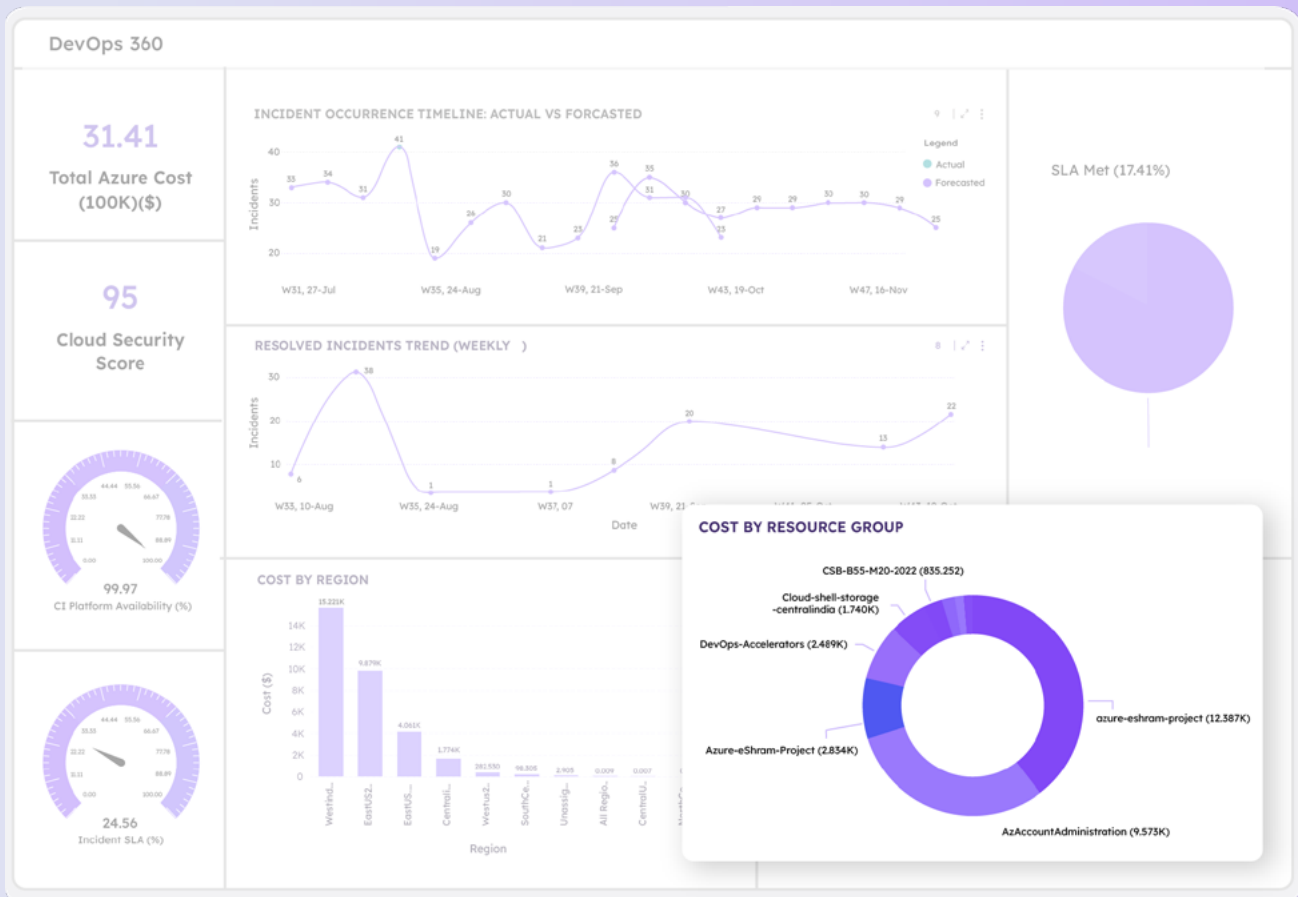
Infrastructure Monitoring

Today, most enterprises with mature DevOps operations rely on Infrastructure as Code (IaC) pipelines to provision resources on the cloud. While automating the infrastructure provisioning has its benefits, organizations lack visibility into their IaC pipeline success/failure rates and other execution details. Also, it's not easy to monitor and track cloud resources and assess if the IaC scripts are leading to optimal provisioning, as developers often rely on tribal knowledge to size instances. DevOps 360 removes all such visibility issues by collecting data from tools like Ansible Tower and Terraform Cloud and presenting actionable insights. Its Terraform Summary

dashboard offers a high-level view of IaC pipelines with the ability to drill down to script execution details such as top errors across clusters, plan and apply phase durations, and more for debugging and optimization purposes. Similarly, with the Ansible Summary dashboard, you can track the total number of jobs, their average execution time, top job error messages, and the top 5 jobs with high and low execution times. It is possible to gain visibility into the quality of IaC scripts or integrate other commercial/open-source IaC tools to expand the scope of infrastructure monitoring in Gathr.

DORA Metrics Monitoring

DevOps 360 makes it easier to monitor your CI servers and cloud platform with easy visibility into health, performance, and availability metrics. You can track the availability of Jenkins and Sonar over a timeline chart and detect and investigate the causes of downtime. It also offers easy visibility into your Kubernetes cluster memory, availability, and CPU usage. An incident management dashboard highlights incidents with a word cloud and helps you get a quick overview of SLAs, open vs. closed incident status, severity distribution, and more. Further, it offers visibility into your cloud costs. You can monitor costs by region, service, resource group, and product. By monitoring budgeted vs. actual costs, you can track whether cost overruns are within acceptable limits or require optimization. You can monitor tagged and untagged costs and take necessary actions to improve tag hygiene. The solution also gives you an update on cloud security, helping you track open SSH security groups, aging keys, the number of users with multi-factor authentication disabled, and more. It also offers a consolidated security score based on multiple security parameters.
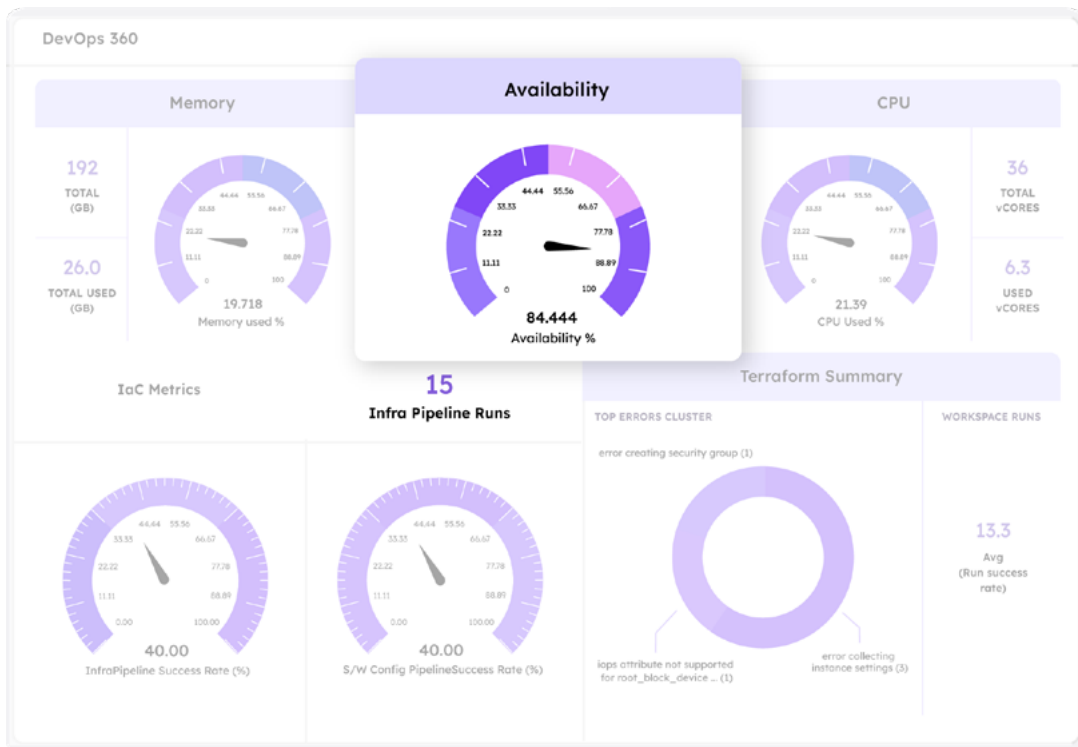
Benefits of DevOps 360

Gathr enables continuous monitoring and optimization, which has the potential to yield drastic improvements in your team's performance, in terms of both velocity and stability, within a span of six months to a year.

50x
more frequent code deployments

100x
faster lead time between committing and deploying

3x
ower change failure rate

400x
faster recovery from incidents

Using Gathr's out-of-the-box solution, one of our clients achieved an average of USD 50K in monthly savings in cloud costs. To learn more about the DevOps 360 solution, please sign up for a free demo.

Gathr is a zero-code platform for data at scale. The platform offers a unified experience to build ML-powered "data to outcome" applications – spanning data collection, transformation, insights, predictions, and recommendations. It offers enterprise-grade capabilities for ingestion, ETL, CDC, machine learning, analytics, process automation, DevOps, DataOps, MLOps, FinOps, and more. With a drag-and-drop UI, 300+ built-in connectors, 300+ built-in transformations, and 100+ out-of-the-box solution templates, anyone can build production-ready applications in minutes, regardless of their skill levels. Gathr enables seamless collaboration between data engineers, data scientists, ops engineers, business analysts, and business users, helping them launch innovative solutions to the market faster than ever before. Moreover, being a cloud-native, open, extensible, and interoperable platform, Gathr offers much-needed flexibility and agility in the ever-evolving technology industry

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Schedule a demo   Free 14-day trial