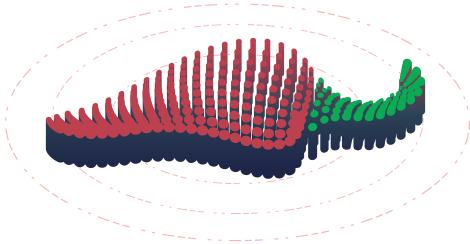


Optimize Data Analytics in Finance

Enable finance and big data success through DevOps and Platform Ops collaboration



Observability and the Secret Sauce

Observability is an integral aspect of managing your finance and big data systems, but don't confuse that with monitoring, which only tells you when something went wrong.

Observability tells you why something went wrong. It is a term from control theory that helps determine how well a system is functioning. You can't control the output of a system if you can't observe what is happening inside. More observable details mean better control.

Pepperdata instruments every node with a PepAgent that enables Pepperdata to continuously collect and correlate hundreds of real-time operational metrics: host-level CPU, RAM, disk I/O, and network metrics as well as job, task, queue, workflow, and user.

The PepAgent is the secret sauce that allows you to quickly diagnose application and infrastructure problems, automatically tune resources, and schedule jobs. It provides everything you need for holistic enterprise-wide big data platform observability and control.

[See this page](#) for more about the Pepperdata secret sauce.

[Watch this](#) to understand why observability is vital in today's big data world.

Mitigate Big Data Bottlenecks of Progress

Financial services organizations are challenged to deliver effective big data and digital strategies at two levels. On one hand, each line of business needs to address their unique operational requirements and client expectations. On the other hand, overarching business opportunities and regulatory scrutiny require all business units to respond together like a well-oiled collective machine.

For example, building overall customer loyalty and eking out new revenue opportunities in banking often comes from personalizing the banking experience of each retail, commercial, and corporate customer.

This is a cross-functional initiative because the personalized customer experience requires multiple functional aspects to be integrated. Examples include transaction data to understand past behaviors, market value of the products being promoted, analytics to determine the best product fit, and streaming point-of-service data to react to customer behaviors in real time. Platform Ops is the steward of the enterprise data analytics and finance technology stack, but each functional aspect is owned by disparate DevOps teams.

Competing priorities for group resources managed by Platform Ops often lead to bottlenecks that hinder the progress of an individual business line, resulting in a shadow IT response to get the job done themselves. Over time, it becomes unmanageable and very expensive to implement effective and holistic solutions across the enterprise.

A key to mitigating bottlenecks of progress is to enable productive working relationships in which each team can collaborate and advise each other using a common toolset.

Operational Collaboration

Meaningful collaboration across DevOps and Platform Ops teams requires an entire ecosystem of integrated tools. This brief describes how both DevOps and Platform Ops benefit from the Pepperdata suite of Big Data Performance software.

The next page considers a common finance and big data scenario of slow market data feeds. Market data is shared across a range of applications, so any delay, especially as it relates to algorithmic trading, will negatively affect trading performance.

Answers Delivered

Immediate answers to key questions are what operational teams need to troubleshoot, identify, and address critical issues. Below are just a few that would be time and resource-intensive exercises without the observability of Pepperdata.

For Platform Ops

- Which sets of trading apps are blowing up the cluster and which team manages them?
- What drives are about to die and which groups might be affected?
- How can I get more performance out of the system for the risk team?
- Which trading desks are our most expensive users?

For DevOps

- Why are a set of apps running slow and how can we optimize them?
- Can we open up more capacity to handle the market spikes we are expecting?
- Is the platform the problem or the market risk workloads?
- Can I enable real-time health alerts across our portfolio of market feeds?

Global Bank Controls Costs While Enhancing Existing Big Data Infrastructure

A leading Fortune 100 multinational investment bank leverages Pepperdata Application Spotlight and Capacity Optimizer, which controlled doubling year-on-year costs and now continually enhances the performance of their existing big data infrastructure. This reduced infrastructure costs by 30%, equivalent to hundreds of new nodes and associated IT resource spend.

30%

Reduced infrastructure spend, equivalent to hundreds of nodes and associated IT resource spend.

Read "[Pepperdata Helps Fortune 100 Financial Services Giant Gain Control Over Their Runaway Data Infrastructure Spend](#)" for more details on this customer's success.

The Platform Ops Perspective

Pepperdata enables Platform Ops to proactively work with and assist DevOps across the enterprise. **Platform Spotlight** provides a full 360° view of infrastructure and resource utilization which leverages real-time and historical data to alert of disruptive events, but also evaluate growth trends so that the Platform Ops team can accurately forecast resource needs.

Real-time and historical data enables Platform Ops to compare market data job runs over time to understand actual or potential performance issues across each job phase. Armed with this information, they can reach out to any and all affected DevOps owners to help prepare for and rectify issues.

Diving deeper, **Application Spotlight** enables Platform Ops to provide DevOps with details on specific data feed incidents within the context of the entire cluster and make job-specific recommendations.

Every application queries market data in a different way, so getting insightful information on performance and execution is critical. **Query Spotlight** provides a single dashboard that enables Platform Ops to remediate issues as they arise and assist DevOps with root cause analysis.

Platform Ops teams provide the foundation on which developers thrive. With **Capacity Optimizer**, they can ensure the stability and efficiency of big data clusters, avoid hardware overspend, and reduce time spent on capacity planning. This work enables developers to run more jobs faster, access additional cluster capacity, and spend less time in backlog queues.

Real-time market analytics requires scalable, real-time, high-throughput, low latency data streams for which Apache Kafka is the standard. **Streaming Spotlight** provides Platform Ops with detailed, near real-time visibility into Kafka cluster metrics, broker health, topics, and partitions in a single dashboard. This assures DevOps that their apps are running at optimal efficiency and will be notified of SLA delay and resolution.

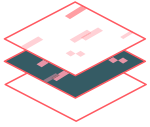
The DevOps Perspective

The integrated toolset described above is the same one used by DevOps so that communications with Platform Ops is guaranteed to refer to the same version of the truth. For example, **Platform Spotlight** lets DevOps automatically detect bottlenecks and provide Platform Ops with the needed information on duration, failure conditions, and resource usage that is consistent with their view.

To ensure that their algos are performing as they should across the streaming ecosystem, DevOps leverage **Application Spotlight** and **Streaming Spotlight** to search applications running on the Kafka cluster, compare current and previous runs, and visualize for root cause failure analysis and performance tuning. **Query Spotlight** enables them to rapidly ascertain if related market data queries have plan problems and get actionable recommendations to speed resolution.

The Pepperdata Product Suite

The Pepperdata product suite enables collaboration between the Platform Ops and DevOps teams to mitigate big data bottlenecks and improve performance. See below for more information on each:



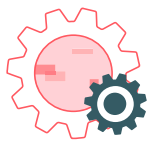
Platform Spotlight

provides a full 360° view of your infrastructure and resource utilization.



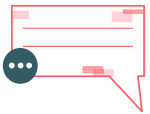
Application Spotlight

provides a 360° view of all your applications, so you can gauge performance in the context of the entire cluster.



Capacity Optimizer

enables you to continuously improve the capacity utilization of clusters without manual tuning or intervention.



Query Spotlight

makes it easy for the teams to understand the performance characteristics of queries and workloads in relation to infrastructure-wide issues that impact them.



Streaming Spotlight

provides powerful Kafka performance monitoring to deliver in-depth metrics while providing deep visibility between brokers, topics, and their throughputs.

Chargeback: Track Usage and Cost and Assess Trends

An important part of collaboration is ensuring that each department across the enterprise is paying for their fair share of multi-tenant big data deployments. Pepperdata provides a comprehensive chargeback feature that enables Platform Ops to clearly see how much capacity each user or workload requires and allocate costs back to the appropriate departments and DevOps teams. With an accurate and real-time chargeback model, ROI can be better measured and the time spent rectifying end-of-month surprises is decreased. [Learn more](#) about how you can more effectively track usage and cost while assessing trends.

Pay for the Right Data at the Right Temperature

The results of any good chargeback model will uncover who is consuming what data and how often. This helps to gauge “data temperature.” Hot data is accessed most often while cold data is seldom used, and warm data is the range in between. Accordingly, hot data needs fast storage solutions that tend to be more expensive than the slower storage solutions that are a better fit for cold data. The difference between hot and cold is straightforward. The challenge comes in determining the storage access and economics for data that runs warm or cool depending on market conditions. Pepperdata continuously collects and correlates hundreds of real-time operational metrics that provide the granularity needed to pay for the right data at the right temperature. [Get started](#) reviewing your data temperature today.

Big Data Success

As it pertains to big data in banking, an improved working relationship between Platform Ops and DevOps through holistic enterprise-wide **observability** means better performing applications, faster speed to market, the ability to address problems before they become an issue, and faster adaptation to changing market conditions. Since any application could represent either a new revenue stream or a source of reputational risk, it is important that the underlying technology platform, their operators, and each line of business work together like a well-oiled collective machine.

Unlike solutions that require manual, time-consuming application-by-application tuning, Pepperdata automatically scales system resources while providing a detailed and correlated understanding of each application using hundreds of real-time application and infrastructure metrics on premises and in the cloud. Companies like Expedia and Royal Bank of Canada depend on Pepperdata to deliver big data success.

About Pepperdata

Pepperdata provides analytics performance management that guarantees SLAs and reliability for your infrastructure and apps.

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