

KEY CONSIDERATIONS FOR BUILDING CLOUD MONITORING

Monitoring for the cloud is defined by real time analytics-driven alerting and dashboarding on high resolution custom metrics; the ability to scale to thousands or tens of thousands of sources, e.g. EC2 instances, Docker containers, or scale-out services; and self-service access by development and operations teams in a collaborative but decentralized manner.

Enterprises that want to modernize their monitoring face a choice: should they build it themselves, typically leveraging multiple open source projects, or should they make use of a commercial solution?

The decision often hinges on several factors:

- The scale of the operation that needs monitored
- The extent to which microservices and elastic, scale-out architectures are embraced
- The availability of dedicated time and resources a business has to a ‘build’ effort
- The organization’s time-to-value requirements

Today’s cloud applications are diverse and distributed, often built on scale-out, elastic infrastructure and supported by dynamic, interdependent services. Organizations with these environments and an urgent need to improve on their monitoring and alerting should carefully consider the time, cost, and resource commitments involved with building their own monitoring solution.

Monitoring Today May Not Work Tomorrow

It is not difficult to find open source monitoring projects with some capabilities that sound similar to those offered by commercial vendors. By and large, these projects were built before the era of microservices and containers, and many organizations have found it difficult to retrofit these tools to meet the monitoring and alerting needs of very dynamic, scale-out environments. The emergence of highly ephemeral, elastic container architectures can wreak havoc on traditional time-series databases, and many have underestimated the impact of these platform disruptions.

Furthermore, high-quality alerts based on sophisticated analytics and dynamic alert thresholds are critical when operating in these dynamic, large-scale environments. While organizations end up having to invest significant software development to build out the alerting engines, most never get past the point of fundamental analytics or static alert thresholds.

Key Considerations

- The flat namespace practice of Graphite and the like is easy to understand and use at small scale. SignalFx uses a multi-dimensional data model that makes it easy to find, filter, and aggregate the metrics you want to

chart or alert on, in a way that scales.

- When monitoring cloud applications requires analyzing data from hundreds to thousands of web services, the ability to spot trends and find patterns by calculating aggregations and other analytics on high cardinality metrics in real time is critical. SignalFx applies analytics and evaluates alert conditions against data as it arrives in real time.
- Containerized infrastructures typically display high churn rates. A metadata store that is capable to handle these rates is required to quickly transform, filter, group, or aggregate raw metrics into useful insight.
- Separate tools, one for visualization and another for alerting, introduces yet another tool to learn and manage. SignalFx's fully integrated, scalable, and powerful streaming analytics technology for time-series metrics is designed to alert within seconds of a more meaningful pattern emerging.

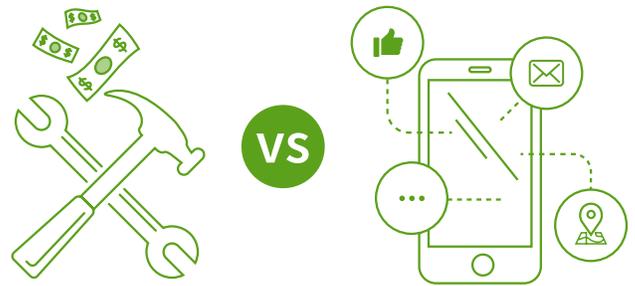
Upfront and Incremental Infrastructure Costs

Due to the nature and quantity of the data being ingested and stored, today's monitoring solutions tend to consume a significant amount of infrastructure, especially storage. It is possible to make some compromises to lower storage costs, such as the time period to keep high resolution data and the responsiveness of the UI when large quantities of data are used in chart. However, users of the solution tend to be unhappy with those tradeoffs.

High availability and disaster recovery should be key considerations as no one wants to miss a critical alert because the underlying infrastructure failed or experienced an outage. This typically multiplies costs by at least double, depending on the configuration.

Key Considerations:

- The initial infrastructure costs include compute,



networking, storage and backup, high availability, redundancy and failover considerations.

- In addition, when users complain that queries in the system take too much time, affecting the timeliness of alerting and the mean time to problem isolation, it is common to add incremental spend – often unbudgeted – on high-end hardware to improve performance.

Ongoing Operational Costs and Complexity

While some engineering organizations have the resources necessary to stand up homegrown monitoring systems, the domain-specific skills and expertise in scaling and growing these open source projects are increasingly more difficult to hire and retain. Employee turnover impacts the rollout schedule and pace of development to build out capabilities based on increased user demand.

Key Considerations:

- Many underestimate the ongoing operational cost required to scale and maintain reliability, availability, security and quality as the service becomes mission critical to end-users.
- While many can hire a sizable team of engineers, those teams often end up focusing exclusively on operational issues as opposed to feature development.
- None of them have enough resources to spend time educating and evangelizing a more modern approach to instrumentation/monitoring across

their end-user teams because they are spending so much time on internal operational issues.

Maintain the Pace of Feature Development

Even assuming the current architectural and feature gap can be bridged within an acceptable period of time, there will be ongoing demands placed on an in-house development team to update and improve their homegrown solution over time.

Leveraging open source projects can help address demands, but their pace of advancement is usually slower than commercial solutions. For vendors like SignalFx, it is their full-time focus to improve the product and to build on (and contribute back to) open source where advantageous. The very nature of open source projects is a reliance on part-time, after-hours contributions, and it is not uncommon to have those contributions split across many rival projects that can individually gain development momentum, then cede it to the next thing to come along.

Key Considerations:

- As new versions of existing technologies come out, or as new (mostly open source) components are adopted, there is a high cost to not only instrumenting them to get the right metrics, but also updating the dashboards accordingly and making sure that the alerting is still appropriate.

- The cost of adding new features is significant. SignalFx delivers new features on a weekly basis and publically announced over a hundred new features in one year alone.

Gain Rapid Time to Value with SignalFx

As organizations transition to the cloud, they need monitoring that both scales and evolved with their needs. SignalFx was built specifically for today's elastic, scale-out environments that rely on deeper operational insights that enable proactive, powerful alerting. With SignalFx, users across the organization can focused on addressing business-critical priorities, not dealing with the time, resources, and complexities of building a cloud monitoring solution.

SignalFx was designed for today's microservices and container-based environments that rely on visibility for every layer of the application stack and context for every alert. Get started with out-of-the content and alert templates for custom applications, third party services, and cloud infrastructure and easily customize to your use case without needing to learn yet another query language.

With SignalFx, reduce the competing demands that keep operations and infrastructure teams from ensuring your cloud applications perform at the highest possible level all the time.

About SignalFx

SignalFx is the leader in monitoring & operational intelligence for the cloud. By delivering real-time visibility into every component of cloud applications, SignalFx ensures organizations deliver upon the business promise of digital transformation. We provide the operational intelligence required for today's elastic architectures through monitoring specifically designed for microservices and containers, powerful and proactive alerting that delivers the operational intelligence to manage cloud apps, and a solution ready for enterprise deployment at scale. SignalFx is used by enterprises across industries including Acquia, HubSpot, Kayak, and Yelp. SignalFx is backed by Andreessen Horowitz and Charles River Ventures.