6 APPROACHES TO MONITORING COMPLEX TIBCO-CENTRIC APPLICATIONS

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About SL

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6 Approaches to Monitoring Complex TIBCO-Centric Applications

As Many Companies Adopt Hybrid and Cloud Strategies

they must continue to support their legacy applications which are running on older infrastructure. This can squeeze IT Operations and Support teams which are tasked with doing more with fewer and fewer resources.

In the TIBCO world, integration middleware is rapidly evolving moving from running in traditional on-premise systems to hybrid applications or even running entirely in the Cloud. As companies architect for these environments, they are using new TIBCO products and services are also changing evolving into such as TIBCO BusinessWorks[™] Container Edition, TIBCO FTL[®], and TIBCO Cloud[™] Integration (TCI).

Ask yourself - how can I best to monitor and manage both the older and newer platforms efficiently?



This document will review the most common methods for monitoring TIBCO environments and show why adopting an end-to-end monitoring platform to monitor on-premise, hybrid, or cloud applications and the supporting infrastructure is the best solution.

Common Monitoring Approaches for TIBCO Environments

Several approaches are used for monitoring TIBCO environments. Each has its advantages and ideal use cases. The most common methods are:

TIBCO Administration Tools
TIBCO Hawk [®]
TIBCO [®] RTView [®] Standalone Monitors
Application Performance Management (APM) Tools
Custom Built and Maintained Monitors

RTView Enterprise End-to-End Monitor

1 TIBCO Administration Tools

Runtime monitoring is only one of many tasks that middleware admin consoles are designed to perform, so the monitoring capability in these tools is limited.

TIBCO users will always require admin tools to manage their environments. However, users often struggle with a multiple admin tool approach for monitoring complex environments.

Admin tools are typically technology-specific and require users to manually work through each environment to look at individual instances to understand overall system health. It is challenging to understand the interplay between the different technologies during application run-time, therefore, understanding the business impact of one technology on another in real-time is almost impossible. Many administrators report that, upon receipt of an application alert, it can take upwards of 4 hours just to identify which component is failing and have no way of detecting if the failure is part of a larger pattern. Administration tools generally do not provide access to historical information which can complicate troubleshooting since errors and issues can be transient and difficult to troubleshoot after the fact.

The different tools also generate separate event and status information for each component.

For high-performance business-critical applications, the vast amount of TIBCO runtime health and status data that are generated is challenging to comprehend using an administration tool.

2 TIBCO HAWK[®]



TIBCO Hawk is TIBCO's legacy monitoring solution and is broadly used within TIBCO's core integration customer base.

It has been TIBCO's primary monitoring solution for monitoring on-premise, distributed applications, and systems for years.

It has proven to be very reliable and highly scalable with some implementations consisting of tens of thousands of rule-based agents.

However, TIBCO Hawk does have some limitations

- Users can only access a few minutes of historical data, making it difficult to troubleshoot issues after they have occurred.
- The TIBCO Hawk interface does not lend itself to comparative analysis between engines, servers, and agents. Users must drill down to one engine or process individually which can be cumbersome.
- Hawk does not aggregate metrics across domains or environments which can be limiting to users wishing to gain a better high level understanding of how their environments are performing.

TIBCO® RTVIEW® STAND ALONE 3 **MONITORS**



TIBCO RTView Standalone Monitors feature pre-built displays and pre-configured alerts

Since no programming is required, the monitors can be downloaded, configured and quickly deployed. These applications have been broadly used within the TIBCO customer base for several years and are licensed through TIBCO.

RTView Standalone Monitors complement Hawk in several ways. Users can:

- Develop custom displays driven by Hawk metrics and alerts using TIBCO RTView Standard Monitor (SL RTView Core)
- Archive Hawk metrics and alerts to relational and NoSOL databases
- Create displays that blend data from Hawk and other data sources such as SQL

TIBCO resells RTView monitors for:

- TIBCO RTView Monitor for EMS[™]
- TIBCO RTView Monitor for BusinessWorks[™]
- TIBCO RTView Monitor for BusinessEvents[®]
- TIBCO RTView Monitor for ActiveSpaces [™] •

4 Application Performance Mgmt. Tools

APM tools are sometimes used for monitoring TIBCO middleware environments from the primary perspective of monitoring a transaction.

APM tools can be beneficial for the right use cases, such as:

- finding and debugging issues in transaction flows
- creating transaction profiles
- providing application-centric performance views
- identifying code-based bottlenecks

However, APM tools have limitations when used to monitor TIBCO environments:



APM tools are not designed for service-level monitoring.	They provide an external look at the JVM and not deep visibility into the TIBCO middleware running inside the JVM. This is a material limitation because most TIBCO BusinessWorks problems occur at the activity level and not at the JVM level.	APM tools often have limitations around monitoring C-based applications such as TIBCO EMS [™] and TIBCO ActiveSpaces [®] . Moreover, APM tools are unable to monitor EMS queues.
APM tools require the installation and maintenance of proprietary agents on every machine.	Maintenance costs will be higher since every product update and upgrade requires users to update every agent.	An APM tool can tell you where a transaction failed but not why since they have no transactional visibility into the entire TIBCO domain.

5 Custom-Built & Maintained Monitors

TIBCO Messaging subscriptions include an Open-source integration with InfluxDB

Users are able to access TIBCO performance metrics stored in InfluxDB with dashboarding tools, such as Grafana, to create custom monitoring applications.

Advantages include the ability to completely customize the monitoring applications, often leveraging templates and examples to simplify development. This approach works well for some organizations who prefer to build vs. buy their monitoring.

The time to build a custom monitor and ongoing expense of maintaining it, including modification and testing to every update of the middleware, must be weighed with the benefits of licensing a commercially-supported solution.

Internally-developed monitoring solutions are often dependent on one or two employees. It can be difficult to maintain a custom-built system when employees supporting the monitor are reassigned or leave. Custom-built tools can be cost-effective but require time to build and resources to maintain







Becoming More Proactive with 6 Effective Middleware Monitoring

As middleware layers become more complex, small problems can guickly turn into big ones.

It is essential for support teams to be proactive with real-time monitoring and effective alerting to evolve beyond reactive incident management. One global retail bank we work with cited war room meetings often involving more than 30 attendees and one meeting in the previous year lasting more than 24 hours! They felt acute pain which they blamed on being stuck in a reactive mode.

Proactivity requires:

- Centralized monitoring and alerting to minimize the lag time associated with navigating through different monitoring applications, alerting systems, and log files.
- Application and middleware support teams knowing exactly where in the middleware stack to address issues.

This requires specialized middleware-focused monitors.

Also, resources in one technology area need to be associated with the dependent resources in the other technology areas for impact analysis to take place.

General enterprise monitoring solutions do not meet these requirements and can result in significant time delays and communication problems.

TIBCO middleware and support teams can proactively reduce Sev 1 & 2 incidents and lower MTTR with the proper middleware-focused monitoring tools

6 Benefits from Proactive Middleware Monitoring are Well Documented

Reduction in Severity 1 and 2 incidents as reported by a major U.S. bank at the TIBCO NOW conference in 2016.



Benefits from Proactive Middleware 6 Monitoring are Well Documented

Elimination of Severity 1 incidents as reported by a major U.S. insurance company at the TIBCO NOW conference in 2019.

One of the largest personal lines insurance companies in the U.S. has a large TIBCO footprint supporting more than 5000 applications.

The integration environment is mainly TIBCO EMS, TIBCO BW, and Kafka.

After implementing RTView, they achieved the following results:

- Reduced Severity 1 incidents due to performance and throughput issues from an average of 2 per year to 0 since implementing RTView with a conservative cost savings of \$8,000,000/year
- **Reduced annual trouble tickets by over 90%** from 30,000 to 400.

"After implementing RTView, it felt like we had been blind and just got our sight back.

"RTView continues to be a beacon for our support staff to proactively identify issues before they are impactful"

6

RTView[®] Enterprise: End to end Middleware Monitoring for TIBCO-centric Applications



Figure: View the health of the entire middleware environment in a single display

RTView Enterprise Edition is used by many companies to monitor their custom and complex middleware environments more efficiently.

It is designed from the ground up to focus on middleware tiers and is often the monitoring application of choice for TIBCO middleware and support teams.

RTView Enterprise enables users to not only monitor the health and performance of a wide range of technologies but also to correlate the technologies that support a business service or application and quickly identify the actual cause of problems.

RTView Enterprise is designed for TIBCO middleware and support teams that require:

Consolidated Monitoring	More Powerful Diagnostic Tools	Historical Performance Information	Cross-Technology Correlations	Centralized Alerting Across the TIBCO Environment

6 Out-of Box Monitoring and Alerting

RTView Enterprise uses Solution Packages for gathering metrics and data from specific technologies.

These pre-packaged plug-in solutions include data adapters, internal memory caches, a rules engine, and a data historian and can access data via real-time asynchronous or query-based polling. Data is stored locally in internal memory caches to improve performance and persisted to a local data historian at configurable intervals.

Each Solution Package includes **pre-built displays and pre-configured alerts,** so no programming is required. During the configuration step, a simple configuration UI is used to connect each solution package to the each environment.

Figure: Solution Package summary views present the most crucial performance KPIs in addition to an abundant amount of historical performance information.



SL extends functionality for TIBCO RTView monitors with:

- Additional non-TIBCO solution packages
- Business service and dependency views
- Custom flow diagrams

6 Consolidated Middleware Monitoring

A wide variety of Solution Packages is available for TIBCO technologies including:

TIBCO TIBCO TIBC TIBCO **BusinessWorks** BusinessEvents FTL EMS TIBCO TIBC TIBCO TIBCO ActiveSpaces Adapters Hawk ActiveMatrix

SL supports a number of open source and commercial software from a number of vendors:



Many companies that have licensed TIBCO RTView from TIBCO have also worked directly with SL to provide additional capability to extend the breadth of their TIBCO and non-TIBCO middleware monitoring. SL licenses RTView Enterprise Edition direct in these situations and also provides display and alert customization capability and supporting services.

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6 Better Understanding through Historical Context

RTView intelligently caches data in-memory for instant access and can be stored persistently for long-term capacity analysis.

Time-series trend charts easily differentiate between transient spikes and slow-growth trends so users can respond appropriately. Users can even troubleshoot problems after the incident is resolved.



Effective troubleshooting requires rich historical information to identify transient issues and understand if a high metric value is a trend or a spike.

6

Understanding Large, Complex Systems by Creating Logical Groupings



Figure: This heatmap provides a real-time health view of a system consisting of thousands of middleware components in logical business-oriented groupings

Groupings may be configured around business units, data centers, geography or any other logical entity.

When support teams have this knowledge, they are able to prioritize incident response more effectively.

Using the service model, uses are able to better understand large, complex systems by creating logical business or operational groupings of middleware and the infrastructure.

6 Understanding How Components Can Impact a Business Service

RTView Enterprise uses the service model to correlate the different components that make up a business service or application.

Figure: This history heatmap shows the health of the components making up a business service over a two day period. It shows a correlation between a problem BW Engine and high CPU usage for a VMware host.



Using history heatmap views, users can correlate the key performance metrics of different components across an entire service to understand the root of a problem.

For example, a business service may be impacted by a slow performing component that is caused by an adjacent component in the service. History Heatmaps also show the stress levels, over time, for each of the resources required to support an application. This allows administrators to intelligently allocate resources (such as memory or CPU) to those devices that are under stress. How can a user effectively troubleshoot a BusinessWorks issue without understanding the health of its upstream service dependencies?

6 Support across Multiple Environments including Hybrid and Cloud

Just as TIBCO can be deployed on-premise, in public and private clouds and containers, so can RTView Enterprise. RTView supports on-premise, hybrid, and cloud-only deployments.



Figure: Distributed architecture. RTView data servers collect and process monitoring data locally and pass relevant information to the central RTView server layer only when needed.

RTView uses a distributed architecture where the data server layer is architected to collect and locally process monitoring data from any number of middleware and infrastructure sources. Source data is accessed agentlessly via API, stored in caches for fast access, aggregated, normalized and then made available to the metadata layer. Subsequently, relevant information is passed up to the RTView server layer where service-model integration and display logic is applied so that data can be viewed in a number of advanced visualizations, tailored by role or domain.

RTView's distributed data caches can be accessed from RTView Enterprise for consolidated visibility while customer data remains securely behind their firewalls providing an extra level of data security.

RTView Enterprise can enable organizations to monitor heterogeneous cloud platforms in addition to their on-premise environments. In this way, RTView can reduce the business risk of lifting and shifting workloads to the cloud.

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6 Centralized Real-Time Alerting and Notifications

With **RTView Enterprise Edition**

Users can centralize and aggregate monitoring information gathered from TIBCO EMS, BusinessWorks, and BusinessEvents Solution Packages and other technologies or tools such as TIBCO Hawk in a single alert view.

Centralized alert management can provide tangible benefits to the business because it allows users to detect patterns in anomalies and to correlate issues across the environment.

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Support Teams and individual users can filter and view only the alerts they care about to minimize information overload. Filters can isolate all alerts of a certain condition (for example pending messages or for a particular resource, BE server and for a specific Business service or application. Centralized alert management can provide tangible benefits to the business because it allows users to detect patterns in anomalies and to correlate issues across the environment.

No TIBCO support team wants to receive alerts from multiple tools and platforms— in different formats, with varied content — at once. Centralized alerting will often provide an improved MTTR for issue resolution because there are fewer redundant alerts.

Tailor Information to Different Audiences with Custom Displays 6

Complement your out-of-box displays with custom displays - no programming

Business owners often require information about the health and availability of their applications and services. Unfortunately, they must usually rely on Operations and Support teams for this when they would **prefer self-service access to the information**.

- Organize and present information to users in the context of the application
- Share information with other groups in the organization, such as business users and support teams
- Align your IT monitoring assets with the needs of the business



Business owners are often tasked with contacting several Technology owners and acting as the communications hub when solving Sev 1 and 2 issues. This can add to longer resolution times increased confusion.

6 Integration with Other Monitors and Systems

Organizations often standardize on different monitoring and incident management platforms.

RTView plays well with these systems and can import data, such as host information to provide a better end-to-end understanding of the larger environment.



Figure: TIBCO BW performance data can be exported from RTView to other monitoring tools such as Splunk.

Users can also export RTView metrics and alerts to other third-party monitoring systems such as HP OpenView, IBM Tivoli, Nagios and Splunk via a REST interface or SNMP trap.

About SL

SL is the market leader in middleware and application monitoring solutions and is used by some of the largest banks, telecoms, energy, and transportation companies in the world.

The company has deep expertise in monitoring and management of custom, distributed applications running in heterogeneous middleware environments on-premise, in hybrid, or cloud environments.

SL is owned by Partner One Capital, a private equity fund with \$17B in net assets.

SL's customer support engineers have an average tenure of more than 15 years at the company. The team has a reputation for being one of the most responsive and knowledgeable companies in the industry.

Customer Case Studies

Ask an Expert

Free Trial

View the Interactive Product Demo

RTView[®] Enterprise – Product Demo

Non-intrusive app and service visibility with a unique emphasis on microservices, messaging middleware, process orchestration, and container infrastructure



