Hybrid Infrastructure Management

Assure the performance, health and utilization of the infrastructure that supports your critical applications

Solutions Overview
An App-centric World

Applications are driving your business. You can’t afford performance slowdowns. You can’t live with downtime. Over-provisioning IT infrastructure is not a viable solution as it is expensive, wasteful and costly to maintain. At the same time, you know IT war rooms are a symptom of inadequate monitoring solutions that lack holistic visibility and prevent proactive problem resolution.

IT architects don’t have a simple, proven method of determining the optimal infrastructure required to support various application workloads. They don’t have a uniform way to understand how the underlying physical and virtualized infrastructure is performing once it is deployed, let alone how your business-critical applications are being impacted. You need a full-stack hybrid infrastructure management solution that provides an authoritative understanding of performance, health and utilization of the infrastructure from the on-premise data center to the public cloud. It must understand the behavior of host VMs, the switching network, and all storage arrays— from the perspective of the application.

Virtual Instruments: Assuring Application Availability and Performance

Virtual Instruments vastly simplifies hybrid IT infrastructure management, while offering comprehensive infrastructure monitoring and workload performance analytics. VirtualWisdom® provides AI-based app-centric analytics (AIOps) that enable IT teams to guarantee performance-based service level agreements (SLAs) and evolve from reactive troubleshooting to proactive performance optimization, assuring the highest availability and performance of mission critical applications for the world’s most demanding customers. WorkloadWisdom® complements VirtualWisdom by empowering storage engineers and architects to optimize costs and assure storage infrastructure performance in the planning stage of new deployments, whether on-premise or in the cloud.

App-centric Hybrid Infrastructure Management

VirtualWisdom is built on the WisdomAI analytics foundation, the industry’s leading AIOps offering for app-centric Hybrid Infrastructure Management. The platform adapts and scales to the constant changes in infrastructure state and complexity, providing dynamic real-time insights into the health, capacity, and utilization of the end-to-end infrastructure, from virtual server to storage. Virtual Instruments’ machine-learning-based analytics empower IT Operations managers to deliver on the complex requirements of a diverse set of applications—across physical, virtual and cloud environments.

VirtualWisdom intelligently correlates and analyzes an unmatched breadth and depth of data with a vendor-independent AI-based approach. It then translates that data into answers and actionable insights that enable IT teams to quickly resolve problems and to proactively optimize the performance of the infrastructure that supports your critical applications. In addition, the metrics collected by VirtualWisdom can be saved as a workload profile report and transferred to WorkloadWisdom.
WorkloadWisdom enables you to simulate production workloads and test what-if scenarios. It is comprised of workload analysis, workload modeling and workload generation capabilities. These provide unparalleled insight into the relationship between workload behavior and networked storage performance. WorkloadWisdom enables intelligent storage purchasing and deployment decisions, providing the essential data to cut storage costs by 30% or more and confidently evolve your infrastructure with the most innovative storage technologies.

Customer Challenges Addressed

Virtual Instruments helps you address these critical challenges:

• Managing exponentially increasing scale and complexity in both applications and infrastructure.
• Proactively identifying and resolving performance and availability issues collaboratively across IT domains.
• Assessing cost/performance effectiveness of next generation infrastructure, including cloud-based services, to transform your IT/business relationship.
• Assuring optimal performance and 24x7x365 availability of hybrid data center infrastructure, while driving down costs.
• Providing a view of the infrastructure that is relevant to both application and infrastructure owners that can be used as a basis for SLAs & performance management.
• Proactively balancing workload requirements with infrastructure resources to optimize utilization and assure performance.

Prevent Problems—Avoid the War Room!

Hybrid Infrastructure Management from Virtual Instruments provides a holistic view of how the existing multivendor infrastructure is servicing the applications. Its key value is the ability to proactively identify, resolve and ultimately avoid problems, combined with the ability to more intelligently deploy infrastructure resources based on performance requirements. Virtual Instruments’ unique solutions solve four key problems for IT organizations:
“IT Infrastructure Monitoring has moved toward holistic monitoring and away from domain-specific monitoring. I&O leaders are benefiting from a refreshed ability to reduce the number of tools needed to monitor multiple operational areas.”

Gartner Market Guide for ITIM Tools, June 2017
Virtual Instruments’ Unique Approach

1. **Full stack, application-centric view of your infrastructure**
   We help you to understand physical and virtual infrastructure interrelationships, to map applications to the underlying shared infrastructure across servers/VMs, networks and storage—from the data center to the cloud.

2. **Highly granular, heterogenous, agentless monitoring**
   You can non-intrusively track every transaction and I/O request to see how application and infrastructure changes affect performance.

3. **Massive ingest capability of both machine and wire data**
   We uniquely capture continuous, real-time wire and machine data metrics via comprehensive instrumentation across all infrastructure elements with unsurpassed data ingest capabilities.

4. **Cross-silo correlation and machine-learning-based analytics**
   VirtualWisdom AI-based analytics correlate and analyze wire and machine data in the context of the application to help you proactively find and resolve performance issues and optimize utilization before your users ever experience a problem.

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Application Performance Management (APM) Solutions Are Not Enough

APM solutions focus on behavior of the application and its supporting runtime environments and components of the operating system. APM solutions tell a customer if the application is working well and if not, leads them to the problem causality if the problem is in the code or run-time environment. APMs cannot “see” how your infrastructure is affecting your applications. They cannot identify the root causes of the vast majority of infrastructure-related problems.

By comparison, VirtualWisdom is an app-centric Infrastructure Performance Management (IPM) platform that focuses on performance and availability management of the end-to-end hybrid data center infrastructure, from the application client to the storage array. VirtualWisdom identifies where an application lives within the infrastructure. VirtualWisdom, through advanced analytics, can quickly tell an IT manager if the infrastructure is working well and if it isn’t, leads them to the cause of the problem and facilitates optimization opportunities, so that they can proactively remove bottlenecks and guarantee the performance of the application.
Only when APM, NPM (Network Performance Management) and app-centric IPM solutions are deployed together can you assure the performance and availability of your applications across the end-to-end infrastructure.

Virtual Instruments complements and enhances your current management platforms with:

- **A comprehensive application-centric view of the entire open-systems stack**
  Visualize the infrastructure in the context of the applications. Find problems undetectable by software-only monitoring alternatives that only poll the infrastructure every few minutes.

- **Definitive insights**
  View continuous real-time, unbiased monitoring that is highly accurate and detailed.

- **Precise root cause analysis and resolution recommendations**
  Quickly resolve application performance issues related to the infrastructure by leveraging our guided investigations.

- **AI-based analytics**
  Identify emergent issues before they impact end user response times.

- **Identification of systemic latency issues**
  Determine if configuration changes are affecting application and infrastructure performance.

- **Heterogeneous and vendor-agnostic infrastructure support**
  See the relationships of all hosts, VMs, network components, SAN and NAS storage arrays, storage switches and hyperconverged/SDS.

**How to Engage with VI**

Virtual Instruments has several engagement options, depending on your needs. Call us to discuss the best approach for you. After an initial meeting to understand your applications and infrastructure challenges, we can conduct a meaningful onsite or remote demonstration of our capabilities.

- **Conduct an Infrastructure Performance Assessment (IPA):** The IPA service includes delivery of best practices, baseline reporting, advanced analysis and alert investigation. In many cases, this service is delivered in direct support of migration and consolidation projects. This service is typically delivered as a stand-alone solution that is inclusive of a targeted deployment of the VirtualWisdom platform for a fixed period of time.

- **When critical problems start, deploy our Emergency Troubleshooting Service (SOS).** If you’ve got a current performance issue or outage of a mission-critical application, and you’re struggling to
“With the help of VirtualWisdom, we were able to transform our data center into a modern data center with the agility needed to say yes to the business with confidence. Virtual Instruments has been integral to that transformation.”

PayPal
identify the root cause, we can deploy a service to immediately identify business-impacting issues and recommend fixes to quickly restore service levels.

- Utilize our **Performance Testing and Validation Service** when you need to evaluate new networked storage products. WorkloadWisdom-based professional service teams offer the most comprehensive storage performance load testing service in the industry. Using your in-house testing lab or a testing facility at one of your technology partners, we provide a variety of critical services including product benchmarking, performance profiling, workload modeling, change validation, and vendor-agnostic proofs of concept (POCs).

- Leverage workload analytics and simulation to determine which applications to migrate to the cloud, and the optimal cloud service provider configuration with our **Cloud Migration Readiness Service**.

### Virtual Instruments Business Value

**Increase Revenue**

- Eliminate business impact of performance slowdowns & outages.
- Drive more business transactions via higher performance & better service levels.

**Accelerate Innovation & Business Agility**

- Accelerate new business application and infrastructure deployments.
- **De-risk digital transformation initiatives**

**Reduce CapEx**

- Increase storage tiering and oversubscription. Deliver higher utilization across all tiers.
- Increase storage & switch port consolidation; drive higher VM density.

**Reduce OpEx**

- Improve Root Cause analysis and MTTR. Reduce staff troubleshooting times by 80%+.
- Reduce maintenance and subscription fees by increasing infrastructure utilization.

Close the Door on Your War Room - for Good!