

Lakeside SysTrack and the Citrix Workspace Suite

The industry leading end user success platform enables and supports the adoption of, migration to, and management of the Citrix Workspace Suite.

Lakeside
SysTrack.

SysTrack provides a painless way to adopt, proactively monitor, support, secure, continuously assess Citrix Workspaces - from virtual desktops and apps in the datacenter to physical endpoints with locally installed apps and cloud data services.

“Citrix Ready makes it easier for customers to select the most suitable virtualization infrastructure products for their specific needs.

SysTrack’s unique ability to identify all applications and use cases, including personal apps and unauthorized file sharing services, helps IT leaders to establish, scope, and manage the implementation of Citrix Workspace Suite technologies throughout the entire project lifecycle.

Siddharth Rabindran,
Sr. Manager, Citrix Ready

SysTrack empowers Citrix workspace suite management teams to maximize visibility, optimize the user experience, mitigate risk, minimize cost, automate operational tasks, and support the business in making better decisions.

IT executives are under constant pressure to cost-effectively manage complex IT systems. SysTrack enables organizations to delight their employees and system users by delivering a high degree of system performance, application availability, and the most secure and productive end user computing and Citrix environment.

By employing a data-driven approach to IT management organizations can focus on what matters most and gain real-time actionable insights into application and desktop utilization. Save time and money by automating complex, resource-intensive troubleshooting and user support scenarios and free up resources to focus on more strategic initiatives.

- Easy Citrix migrations and Workspace Suite Adoption
- Proactive Citrix Management
- Lower IT Cost
- Increase Security
- Better Compliance
- Full Citrix and 3rd party data integration
- Better workplace design and happier employees

SysTrack Overview

Built on groundbreaking DataMine™ technology, Lakeside Software transforms the way that enterprises deploy, manage, secure, improve, and report on the end user experience by coupling the world’s most lightweight agent with a robust data analysis engine to instantly grant complete visibility and control to administrators without impacting the end user experience.

SysTrack builds upon the Citrix management and monitoring capabilities by adding deep insights into the user sessions, VDI images, XenApp session hosts, end points, application servers, and Citrix infrastructure components to provide complete and end-to-end visibility into all of the components and systems that make up the end user computing environment.

Citrix Workspace Suite Adoption

IT organizations and the world's most forward thinking partners and systems integrators typically start a Citrix project by assessing and analyzing the existing end user environment to determine the use cases (which users leverage which applications from which locations and with what resource requirements) and then design the Citrix architecture based on the users' actually observed needs.

SysTrack's unique ability to identify all applications, including personal and unauthorized file sharing services, helps IT leaders to establish and scope the implementation of Citrix ShareFile for all cloud data needs. SysTrack's ability to lock out and block the execution of unwanted data synchronization technologies promotes data security and discourages the use of other cloud data services. SysTrack can do that in the entire Citrix deployment as well as on the physical desktops and laptops.

Post implementation, SysTrack allows organizations to continuously assess the entire Citrix and end user computing environment and enables organizations to determine and trend user health, optimize incidence response, automate IT tasks, promote security, and optimize the assets in the environment.



Figure 1 - Common Implementation Methodology

Citrix Workspace Cloud adoption

One of the most exciting announcements coming from Citrix in the last 12 months has been Citrix Workspace Cloud, which enables organizations to deploy the Citrix Workspace Suite control pane into the Azure cloud and then choose which services are delivered from public, hybrid, or private cloud environments.

SysTrack and its datacenter visualizer provides tremendous value to organizations who need to determine which specific workloads have network or backend resource dependencies that would potentially make an off-premises hosting challenging. This overcomes one of the major implementation hurdles for public and hybrid clouds in the industry.

Application	Average Daily Connections	Top 10 Ports	Direction	Average In	Average Out	Average Bandwidth
Microsoft Office Word	2	2595	Outbound	0	273.893	0.335
Microsoft Office Excel	1	80	Inbound	4.099	0	0.075
Microsoft Office PowerPoint	3	443	Inbound	0	0	0
Microsoft Office Outlook	37	443, 80	Inbound	197.991	0	0.71
Microsoft Office Access	1	443	Inbound	4.320	0	30.001
Microsoft Office OneNote	1	443	Inbound	3.005	0	1.357
Microsoft Office Publisher	1	4001	Inbound	0	0	0
Microsoft Office Visio	84	309, 32111	Inbound/Outbound	0	0	0.015
Microsoft Office Wordpad	4	80, 443	Inbound	29.344	0	0.921
Microsoft Office Project	440	8008, 443, 80, 32111, 3389	Inbound/Outbound	0	0	8.206
Microsoft Office SharePoint Workspace	20471	443, 18443, 8009, 1433, 80	Inbound/Outbound	0	0	0.002
Microsoft Office InfoPath	5	4001	Outbound	0	75.875	0.233
Microsoft Office Word 2013	5	80, 443	Inbound	16.018	0	0.201
Microsoft Office Word 2010	2	135, 1026, 49135, 49157, 49158	Inbound	1.184	0	0.036

Figure 2 – Datacenter Visualizer showing application network dependencies

Proactive Citrix Management

Granular Black Box Data Recording means never having to reproduce an issue again.

SysTrack enables organizations to proactively manage the entire end-user computing infrastructure – including physical and virtual desktops, laptops, server, terminal servers and Citrix, Microsoft, and VMware environments.

SysTrack negates the need to reproduce reported issues. The Black Box Data Recorder allows support staff to look at any point in time over the previous 30 days to determine the exact system and user session state.

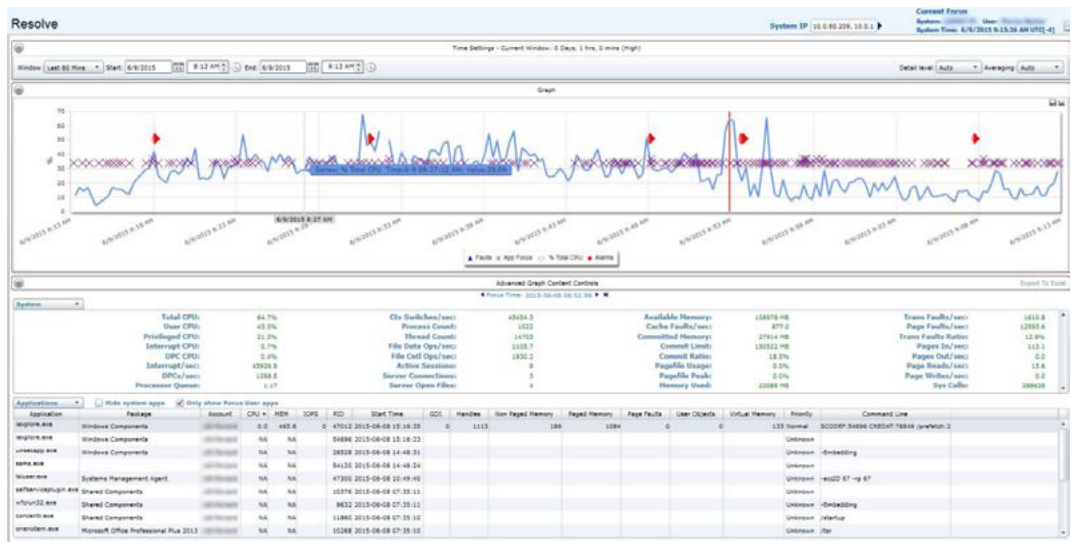


Figure 3 – Black Box Data Recorder

By leveraging pre-configured and fully customizable alarm and alert conditions, IT can quickly be alerted about adverse conditions and quickly resolve the issues through our deep analysis and troubleshooting tools.

Scope	Severity	Score	Systems	Incidents	Class	Type	Item
		504.0	39	114	System	Operational	Computer
		267.3	5	148	System	Processor Queue Length	Computer
		203.0	11	175	System	Processor Queue Length	Computer
		149.2	6	49	System	% Total CPU	Computer
		148.3	5	91	System	Thread Count	Computer
		148.1	8	16	System	Page Fault Rate	Computer
		139.1	12	112	System	Page Fault Rate	Computer
		130.0	16	114	Disk	% Fragmented I/O	Logical Disk
		129.7	6	6	System	Page Input Rate	Computer
		101.4	5	5	System	Thread Count	Computer

Figure 4 - Alarm Summary by Type

Computers experiencing selected alarm Copy Grid to Clipboard

System	Incidents	Severity	Class	Type	Item	Instance	Sample	Active	Oldest Start (UTC)	Recent Start (UTC)
...	20		System	% Total CPU	Computer		99.7 %	<input type="checkbox"/>	2015-05-21 20:49:39	2015-05-21 14:30:10
...	17		System	% Total CPU	Computer		112.0 %	<input type="checkbox"/>	2015-05-22 02:51:52	2015-06-04 03:14:42
...	5		System	% Total CPU	Computer		99.7 %	<input type="checkbox"/>	2015-05-22 01:00:36	2015-06-04 01:06:13
...	5		System	% Total CPU	Computer		104.6 %	<input checked="" type="checkbox"/>	2015-04-28 22:02:50	2015-05-26 08:03:46
...	1		System	% Total CPU	Computer		98.4 %	<input type="checkbox"/>	2015-05-27 16:39:33	2015-05-27 16:39:33
...	1		System	% Total CPU	Computer		104.4 %	<input type="checkbox"/>	2015-05-25 21:10:44	2015-05-25 21:10:44

Figure 5 - Alarm Details

Organizations can automate critical remediation steps by automatically executing scripts and other actions to correct the problem.

On Alarm Start On Alarm End

First failure: Take no action ▼

Second failure: Take no action ▼

Subsequent failures: Take no action ▼

Reset failure count after hours with no alarms

Reboot Options Run Script Options

Run Script From

Redistribution directory

Specified directory

Script to run when failures occur: Browse...

Script Mode

Batch Interactive

Script time limit: seconds.

A value of zero indicates that there is no script time limit.

Run As

System

Console User (Do not run if no console user)

Figure 6 - Alarm Action Configuration

This leads to much shorter resolution times, increased worker productivity, and happier employees.

Lower IT Cost and right-size hardware and software investments

SysTrack can help organizations to dramatically lower the cost, complexity and management overhead associated with IT systems across a wide variety of systems.

On-going End User Support

SysTrack helps IT provide quality end user support by identifying trends in the user health score that includes each system and each Citrix session.



Figure 7 - User Health Summary and Trends

Broad areas of system bottlenecks and choke points can be quickly identified:

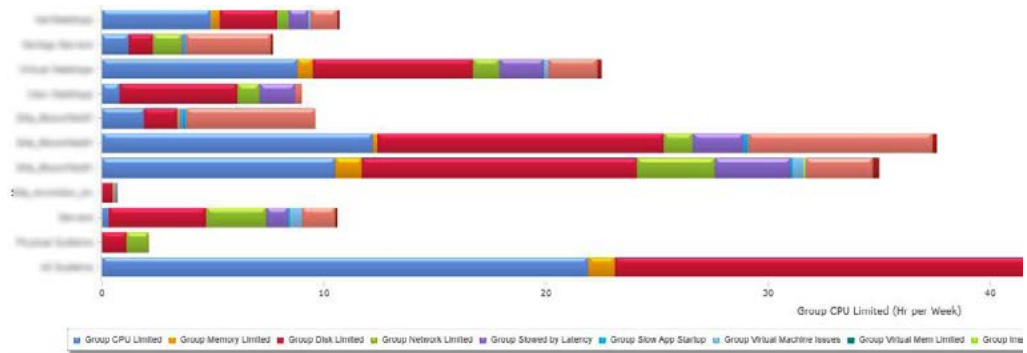


Figure 8 - Productivity impact in hours per week by group and bottleneck

Support staff can quickly drill into groups and individual systems for rapid root cause analysis and remediation.

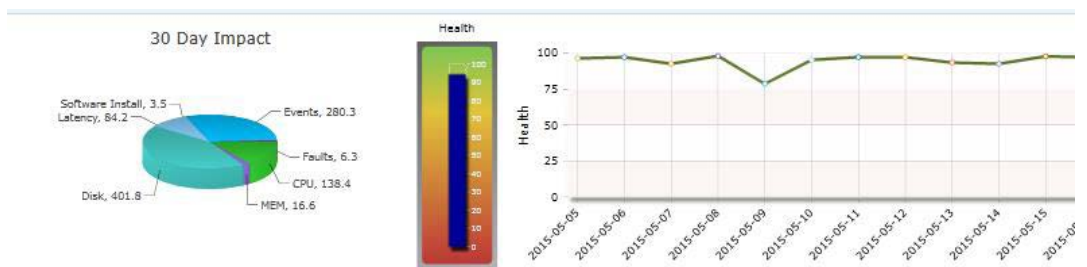


Figure 9 - Health Impact over time for an individual system

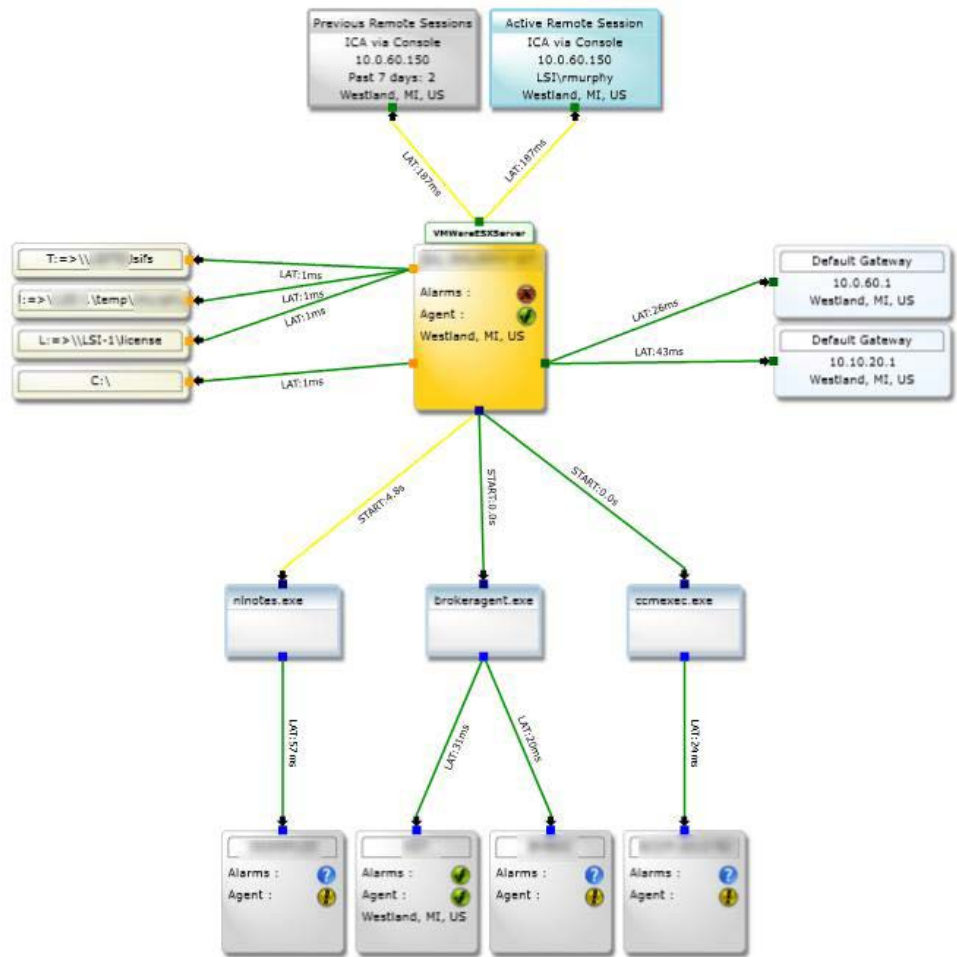


Figure 10 - System Dependencies

Hardware Refresh Cycles

SysTrack enables organization to focus their hardware refresh budgets on systems and use cases that truly benefit from an upgrade. Rather than replacing systems every three years, organizations can focus on targeted upgrades, for example in the areas of memory, solid state drives, or GPUs in order to make the most of their refresh budgets. Users can be directed to the optimal Citrix XenApp and XenDesktop session hosts based on their individual needs without excessive over allocation of resources.

Right-Sizing Next Generation Systems

Whether it is a migration to the latest version of Windows, the adoption of the Citrix Workspace Suite, or simply a PC refresh, SysTrack can help organizations accurately size and scale the future environment based on actual user needs and requirements.

Full Name *	User	Login Time	CPU Avg Logged In	Mem Avg Logged In	IOPS Avg Logged In	Num Systems	Num Packages	Location
...	...	1R 4 hr/wk	92 (1%)	503 MB	7 (5%)	7	14	
...	...	0.8 hr/wk	472 (0%)	712 MB	9 (0%)	1	11	
...	...	25.8 hr/wk	143 (2%)	825 MB	9 (6%)	1	8	
...	...	26.7 hr/wk	268 (3%)	847 MB	7 (5%)	1	13	
...	...	58.5 hr/wk	260 (3%)	1174 MB	14 (0%)	2	21	Ann Arbor
...	...	0.7 hr/wk	116 (1%)	381 MB	7 (5%)	1	6	
...	...	9.3 hr/wk	124 (2%)	759 MB	7 (5%)	2	16	
...	...	105 hr/wk	737 (9%)	2290 MB	16 (11%)	1	17	
...	...	87.4 hr/wk	1918 (24%)	4240 MB	13 (9%)	1	19	

Figure 11 - People Dataset

Successful Software Audits and Software Rationalization

Knowing which software packages are actually being used and being able to correlate usage with license entitlement systems, helps CIOs make the most out of their software licenses and enterprise license agreements. The Citrix Workspace Suite offers an amazing opportunity to build a broad enterprise application store and SysTrack establishes a detailed system of record with actual software launches and potential licensing implications.



Figure 12 - User Count and License Limits

Better End Point and Citrix Security

Finding a security solution that serves the needs of both EUC and security teams can be a daunting task. With Lakeside's focus over the last 18 years exclusively on end user computing, our customers have driven us to evolve our product's capabilities to enable them to provide a more people-centric security solution that holds protection and productivity in equal regard

Granular Real Time and Historical End Point Visibility

Security operations teams gain both real-time and historical visibility through continuous online and offline recording of every endpoint and virtual desktop in the end user computing environment. Our APIs makes it easy to extend this visibility to any SIEM.

Audit User, Application, and Device Activity

SysTrack helps identify risky and potentially vulnerable assets at a moment's notice. SysTrack identifies non-compliant users, devices, OS, applications, and documents, and correlates that information with threat scoring algorithms to create a triage for a more rapid IT response.

Identify and Track Suspicious Binaries

Security operations teams can rely on SysTrack to quickly identify untrusted or unknown applications and processes that execute for the very first time in their enterprise end user computing environment, including desktops, laptops, PCs, virtual desktops, servers, and terminal servers.

EXEC_NAME	SYSTEM_COUNT	FIRST_SEEN
1515.0.exe	1	2015-06-03 11:14:27
1615.0.exe	7	2015-06-03 13:28:35
1542.0.exe	1	2015-06-03 15:52:12
1629.0.exe	6	2015-06-03 22:50:05
1603.0.exe	1	2015-06-04 04:53:03
1696.0.exe	1	2015-06-04 08:22:19

Figure 13 - New Processes first seen in the estate in selected time frame

Audit User Accounts

IT security teams can quickly identify user account risks

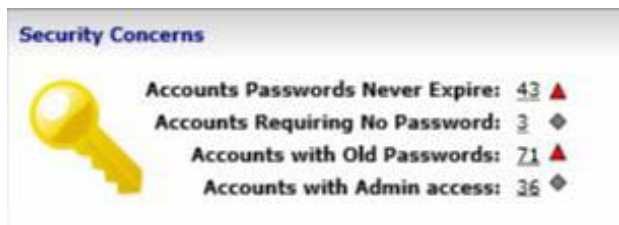


Figure 14 - Enterprise Visualizer Security Concerns

Compliance and Software Audits

Policy controls support continuous enforcement of configuration baselines; report, remediate and confirm remediation of non-compliant endpoints in real time; and ensure a verified real-time view of all endpoints. We deliver meaningful, audit-ready information on the health and security of endpoints regardless of location, operating system, connection (including wired computers or intermittently connected mobile laptops), or applications installed. SysTrack helps consolidate and unify the compliance life cycle, reducing endpoint configuration and remediation times. Most importantly, SysTrack enables security teams to establish trust in the EUC environment by auditing operating system and software state to ensure proper versions and patch levels.

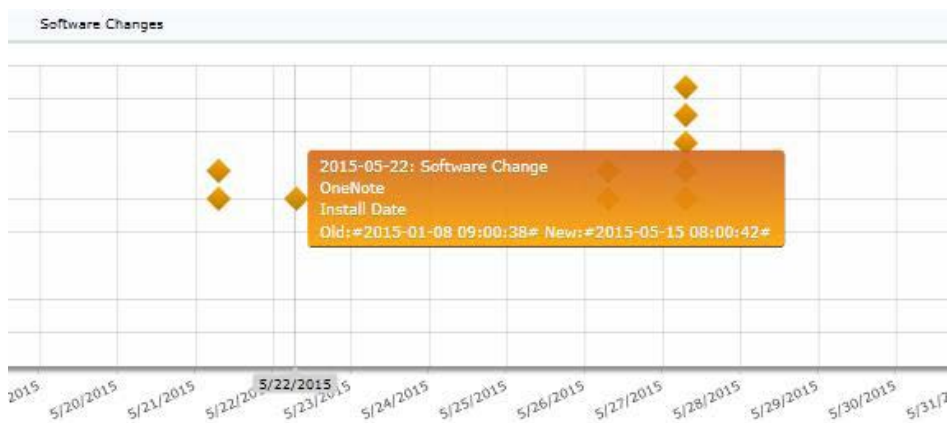


Figure 15 - Software Change Audit

Single Pane of Glass

Through SysTrack's ability to integrate seamlessly with third party data sources and the Citrix Director and Monitoring Service, IT organizations and business leaders can enjoy a true single pane of glass management and reporting interface. Lakeside Software builds, manages, and releases many dashboard and reporting templates, upon which organizations can easily expand.

Machine Failure Details For Selected Date			
System	FailureStartDate	FailureEndDate	Error
	2015-05-22 07:22:51	2015-05-22 07:24:51	Unregistered
	2015-05-22 07:26:51	2015-05-22 07:28:51	Unregistered
	2015-05-22 07:30:51	2015-05-22 07:32:51	Unregistered
	2015-05-22 07:34:51	2015-05-22 07:36:51	Unregistered
	2015-05-22 07:38:52	2015-05-22 07:40:52	Unregistered
	2015-05-22 07:42:52	2015-05-22 07:44:52	Unregistered
	2015-05-22 07:46:52	2015-05-22 07:48:52	Unregistered
	2015-05-22 07:50:52	2015-05-22 07:52:52	Unregistered
	2015-05-22 07:54:52	2015-05-22 07:56:52	Unregistered
	2015-05-22 07:58:52	2015-05-22 08:00:52	Unregistered
	2015-05-22 06:58:50	2015-05-22 07:00:50	Unregistered
	2015-05-22 07:02:50	2015-05-22 07:04:50	Unregistered
	2015-05-22 07:06:50	2015-05-22 07:08:50	Unregistered
	2015-05-22 07:10:50	2015-05-22 07:12:50	Unregistered
	2015-05-22 07:14:51	2015-05-22 07:16:51	Unregistered
	2015-05-22 07:18:51	2015-05-22 07:20:51	Unregistered
	2015-05-22 07:20:42	2015-05-27 10:10:50	Unregistered

Figure 16 - Example SysTrack dashboard with integration to Citrix XenDesktop Director

SysTrack dashboards can be easily built and integrated with third party data sources by customers, analysts, system integrators, and reseller partners.

Maximize the investment in Citrix Director and EdgeSight

Rather than adding yet another management tool, SysTrack allows organizations to maximize their investment in existing management and monitoring solutions like Citrix Director and EdgeSight. Through data integration these tools and by providing open APIs, SysTrack can consolidate and correlate data, allowing organizations to determine the best approach to maximize their investment in the management space.

Built on the world's most scalable distributed data architecture

SysTrack is built on Lakeside Software's patented DataMine™ technology, which leverages a highly distributed data model.

Light-weight software agents are deployed to monitored systems and gather up to 10,000 data points every 15 seconds. This is completely transparent to the end user and the agent does not require user interaction, reboots, or feature kernel components that could potentially destabilize a system.

Once per day, a summary of the collected data is sent to a central master server, where it is stored on a SQL Server backend for further analysis and processing. Alarm states and system state summary data are transmitted to the master server in real time. Overall, the network uses about 100 kB per day per system.

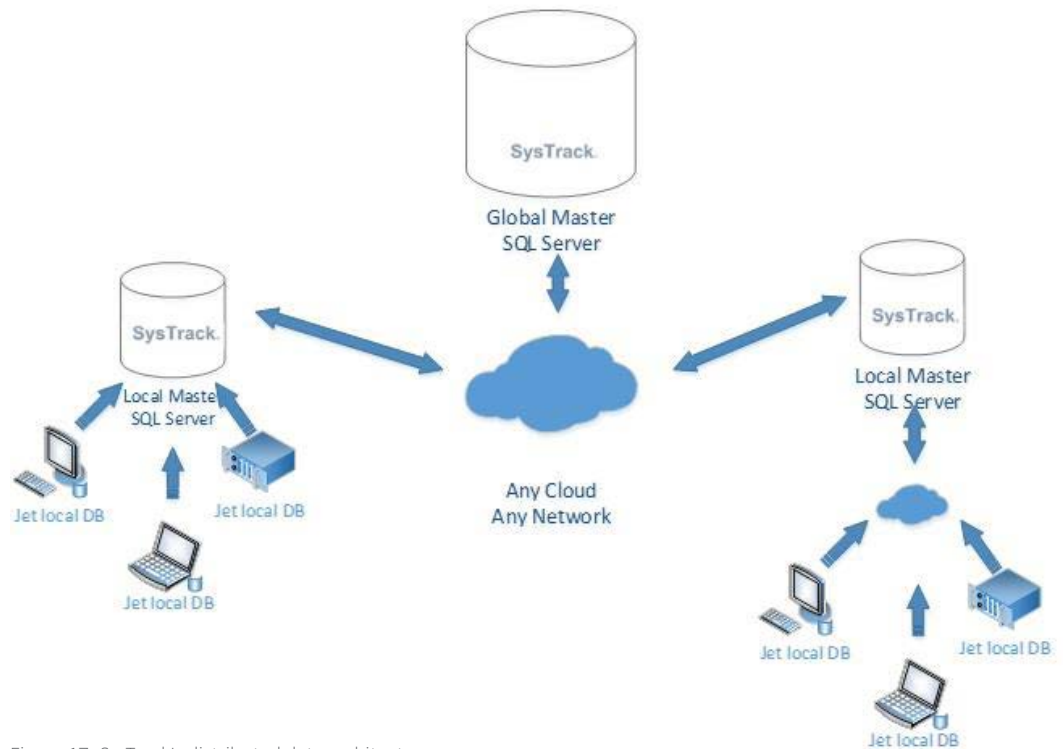


Figure 17- SysTrack's distributed data architecture

Multiple master servers can be interconnected in a tree-like architecture allowing for truly global deployments where SysTrack always keeps track of where particular data resides and at what level of granularity.

Data are collected regardless of whether a system is online or offline and the DataMine technology allows the master to simply catch up when it is next connected.

SysTrack's largest production deployments feature well over 300,000 concurrently monitored systems and collect well over 100,000,000 data points per second.

Keeping the most granular data available for up to 30 days means never having to replicate a user issue in order to perform root cause analysis.

Conclusion

One success platform for all of your end user monitoring and management needs.

Despite the fact that most IT organizations spend about half of their budget on end-user computing, there is rarely a comprehensive system of record in place. SysTrack provides that central data repository and its extensive analysis and reporting capabilities help IT leaders and business executives to provide the best end user experience at the lowest cost.



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About Citrix Ready

Citrix Ready identifies recommended solutions that are trusted to enhance the Citrix Delivery Center infrastructure. All products featured in Citrix Ready have completed verification testing, thereby providing confidence in joint solution compatibility. Leveraging its industry leading alliances and partner eco-system, Citrix Ready showcases select trusted solutions designed to meet a variety of business needs. Through the online catalog and Citrix Ready branding program, you can easily find and build a trusted infrastructure. Citrix Ready not only demonstrates current mutual product compatibility, but through continued industry relationships also ensures future interoperability. Learn more at www.citrix.com/ready.

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