Microsoft Windows 10, Citrix AppDNA, and Lakeside SysTrack

The industry leading application compatibility software along with the industry leading end user success platform enables customers to seamlessly adopt, manage, and succeed with Windows 10.
Introduction
The release of Windows 10 in July 2015 triggers many CIOs and IT professionals to think about an upgrade and adoption strategy.

While the previous Microsoft desktop operating systems still have a number of years of official support ahead of them, Windows 10 offers a number of compelling features and capabilities that justifies an upgrade sooner rather than later. A select subset of those are:

• Universal applications that work seamlessly and consistently on mobile phones, tablets, laptops, and traditional PCs
• Better integrated security features
• The new Edge browser
• The return of the start menu

While the upgrade process promises to be easier compared to previous desktop operating system releases, organizations still need to watch out for factors that can negatively impact the user experience and perception of the Windows 10 rollout. Among those are the need to evaluate application compatibility and the need to identify and remediate application crashes and hangs, resource bottlenecks on desktops and backend systems, and architectures that drive unfavorable system dependencies.

This whitepaper discusses how the winning combination of Citrix AppDNA and Lakeside SysTrack is essential to organizations in order to provide the smoothest possible adoption and on-going operation of Windows 10.

Product Overview
Citrix AppDNA
The Citrix AppDNA application management software combines insight about application portfolios with highly accurate application testing, compatibility and remediation. Enterprises can now discover, automate, model and manage applications for migrations, new virtualization technology deployments and daily application management. Automating the application migration process saves enterprises time, labor and cost while reducing risk. Desktop transformations can be completed on time, within budget and with less end user disruption.

AppDNA software helps enterprises both design an implementation approach and accelerate XenDesktop and XenApp deployments. AppDNA software clearly outlines application issues and uniquely integrates with Microsoft System Center Configuration Manager® and Active Directory® to show the effect of application issues on users, workgroups and devices.

Lakeside SysTrack
SysTrack is the leading big data for end user computing platform in the industry. Its award-winning and patented architecture allows organizations to collect thousands of data points every few seconds on traditional PCs, laptops, virtual desktops, XenApp servers, terminal servers, and infrastructure components for deep analytics. SysTrack also builds and maintains a historical record of system usage and factors that are impacting the user experience.

SysTrack's data enables organizations to plan, guide, and manage the entire systems lifecycle for any end user computing project.
**The software and systems management lifecycle**

Regardless of the specific implementation methodology that is applied, most organizations follow the high level pattern of Assessment, Implementation, and Management.

![Diagram of software and systems management lifecycle](image)

**Figure 1 - Common implementation methodology**

While Microsoft has invested heavily into making Windows 10 upgrades easier than any other desktop operating system adoption in the past, forward looking IT organizations are well advised to perform an initial assessment of the existing systems. This is advisable for two main reasons:

1. **Existing systems may already** (prior to the Windows 10 rollout) **encounter situations** that negatively impact the end user experience. These can be resource bottlenecks, ill-behaving and crashing applications, as well as unforeseen systems dependencies in the background. Often times, these issues go unnoticed and remain unreported by users. However, if they are not addressed prior or during the Windows 10 adoption, the user base is likely to associate any adverse effects on their user experience with the Windows 10 project. In order to run a productive migration and good perception of the IT organization, it is imperative that existing factors impacting the user experience are identified and addressed.

2. **While most applications** that are running on Windows 7 and Windows 8.x are expected to be compatible with Windows 10, there will be exceptions. These can be outdated third-party applications from independent software vendors or in-house developed applications in the organization. Rather than taking the “simple” approach of trial and failure, IT organizations are well advised to run their application estate through compatibility testing using AppDNA. AppDNA performs deep analysis of the internal structure of the application and the dependencies on components in the operating system. Any characteristics that could potentially pose a compatibility challenge are flagged and described in detail so that the dependencies can be resolved or the application can be adopted to work with Windows 10. The level of information in AppDNA is detailed enough to enable IT architects and software developers to resolve potential compatibility challenges.

AppDNA and SysTrack are technically integrated so that the applications discovered in SysTrack can be imported into the AppDNA work list, analyzed, and the results can easily be imported back into SysTrack to indicate the readiness for entire operating system images.
Continuous Assessment

Many IT organizations and consultants view the assessment as a one-time exercise in the beginning of an implementation cycle. However, this approach is somewhat short-sighted.

In order to maintain a great user experience and to achieve a significant reduction in help desk tickets and issue resolutions forward thinking IT organizations view the assessment as an on-going activity. User behavior and applications change on a daily basis and a Dev-Ops approach is therefore warranted.

It is therefore imperative that SysTrack is used for operational monitoring and management of the running, post-implementation Windows 10 environment.

By the same token, applications change and new ones are introduced almost on a weekly basis and should be evaluated for compatibility with the environment by AppDNA before they are introduced.

Through an analogy with the airline industry, it becomes immediately apparent that this approach is sensible. Pilots don’t turn off the myriad of gauges, monitors, and cockpit alerts right after the plane has taken off, but are continuously monitoring all aspects of the aircraft and the flight right until the plane has reached the gate and the systems are shut off completely after landing.

Key AppDNA Capabilities
Discover application issues with sophisticated testing

Eliminate the manual application testing process and dramatically reduce the cost of application preparation. Without the need to install the application, execute it, or manually test it, AppDNA software performs static analysis on applications in just minutes. Against a collection of EXE, MSI or any installation format, the AppDNA software collects more than 68,000 data points about the application, the “DNA” that drives application behavior. The compatibility of applications is simultaneously tested against a single platform (Windows 10) or multiple platforms (Windows 10, Windows Server 2012 R2 and virtualization technologies). By testing against the enterprise's own Windows operating system images results are customized to the organization’s particular set of business applications, OS images and virtualized environments.
Model application outcomes to determine the best plan of action

Multiple options for application remediation are provided. Choose the remediation option that best fits the organization. Application remediation complexity is clearly indicated through red (difficult), amber (moderate) and green (easy) application test results, highlighting applications with issues and those that are ready to go. Determine if an application should be deployed physically, virtually or both.

The impact of changes is modeled in project timeline, staff numbers, staff cost or the number of applications deployed. Manage application issues and project timelines to best align staff, budget and resources.

Automate application remediation and packaging processes

The AppDNA software automatically creates MSI files that are ready to hand off to commercial packaging teams. The virtual application packages that are also automatically created are ready to deploy via App-V. By uniquely “invoking” the App-V Sequencer for App-V virtualization, the virtual packages created are reliable and ready for deployment.

In one tool, AppDNA software supports testing and remediation for both physical and virtual application deployment.

![Figure 3 - Before and After summary in AppDNA](image)

Manage ongoing application evolution after launch of the migration or virtualization project

Change is inevitable – new applications, patches, service packs, and projects appear on a regular basis in any IT organization. It is therefore important to know the risk before making any changes to the applications or the OS. Organizations benefit by using AppDNA to continuously manage changes.

Key SysTrack Capabilities

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.

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.

Organizations can automate critical remediation steps by automatically executing scripts and other actions to correct the problem.
This leads to much shorter resolution times, increased worker productivity, and happier employees.

**Network and Systems Dependencies**

Organizations are expected to adopt more and more cloud-based applications, Desktops as a Service and the Citrix Workspace Cloud. 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.

Figure 8 - Datacenter Visualizer showing application network dependencies

**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 9 - User Health Summary and Trends

Figure 10 - 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 11 - Health impact over time for an individual system
Hardware Refresh Cycles
SysTrack enables organizations 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.
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.

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.

Single Pane of Glass
Through SysTrack’s ability to integrate seamlessly with third party data sources, 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.
SysTrack dashboards can be easily built and integrated with third party data sources by customers, analysts, system integrators, and reseller partners.

**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.
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.

**Conclusion**

Windows 10 is an exciting new end user computing operating system that is expected to find wide adoption in the consumer and corporate worlds. Successful IT organizations take a dev-ops management approach throughout the entire lifecycle of windows 10, from the initial pre-deployment assessment to the retirement several years in the future. Lakeside SysTrack and Citrix AppDNA are two essential tools in this approach and help IT organizations make the most of their investment in Windows 10.

Citrix AppDNA is available as part of the Platinum Editions of XenApp and XenDesktop.

Lakeside SysTrack is available from a variety of partners and resellers. Visit [www.lakesidesoftware.com](http://www.lakesidesoftware.com) for more information.