virtana | Case Study

UTHealth drives business continuity and operational efficiency with Virtana

ABOUT

Industry
Healthcare

Headquarters
Houston, TX, USA

OBJECTIVE

Overcome lack of infrastructure visibility and reduce or eliminate outages.

RESULTS

Comprehensive insight into metro cluster performance discrepancies before they become outages

ABOUT UT Health Houston

The University of Texas Health Science Center at Houston (UTHealth), primarily a graduate education university, educates the largest number of healthcare professionals in Texas. Created in 1972 by the UT System Board of Regents, UTHealth is part of the Texas Medical Center. UTHealth includes the schools of dentistry, biomedical informatics, medicine, nursing, public health, and the graduate school of biomedical sciences. UTHealth is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award certificate, bachelor's, master's, doctoral and professional degrees. Three UTHealth faculty practices treat patients in a variety of Houstonarea clinics: UT Physicians, UT Dentists, and UT Health Services

The school offers graduate education leading to proficiency in the skills needed for public health careers. The main campus in Houston offers four degree programs. The regional campuses provide master's and doctoral-level education to individuals in areas geographically distanced from Houston. This allows faculty and students to target public health issues relevant to the communities in which they are located.

UTHealth® Houston

THE CHALLENGE:

A highly-distributed environment containing sensitive information that requires ready availability at all times

The principal challenge in the environment was the lack of infrastructure visibility. Every status element in the highly-dense converged IT environment was manually collected. Collecting disparate spreadsheets and logs from hosts and then manually correlating them with storage systems proved a lengthy and staff-intensive operation. This process would take days and weeks to implement, eliminating any possibility of real-time visibility into their systems. UTHealth achieves business advantage through uninterrupted business applications and medical health records efficiency. The core strategy is to provide a highly available data center environment to all business and healthcare applications to ensure company, customer, and medical access to key information systems during regular and critical environmental occurrences.

The converged FCoE to native fibre channel data paths must work seamlessly and efficiently across data centers under heavy virtualized stress and with thousands of multi-tenant users. As the organization grows, UTHealth aims to optimize and consolidate data center resources and apply automated IT performance and health monitoring to address the dynamic and challenging medical personnel and student-body application use cases, and protect it from failures or outages that could cause serious damage to the organization. This means achieving a careful balance of business continuity and operational efficiency.

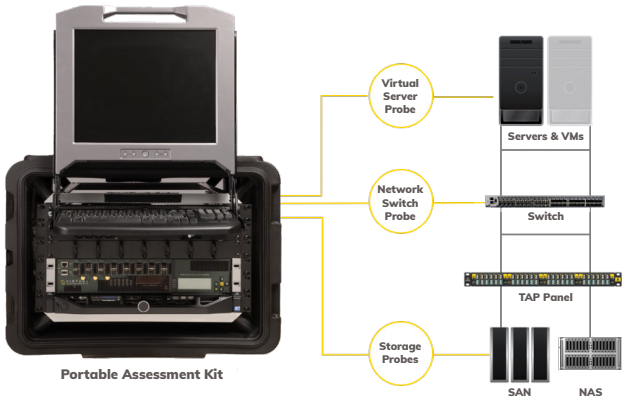
GETTING STARTED:

Infrastructure Performance Assessment

UTHealth asked questions that many organizations are looking for answers to: “We have too much to try and manage to do without automation. What is our baseline? Where are we?“

UTHealth started by assessing their existing IT environment with an Infrastructure Performance Assessment service from Virtana to:

1. Select the right storage technologies and products.
2. Optimize configurations; Reduce overprovisioning.
3. Mitigate deployment risks.
4. Safeguard consolidation or migration projects.
5. Implement a change validation process for production SLAs.



Challenges impacting performance:

Complex, increasingly hybrid application infrastructure
Virtualized environments lack visibility into storage performance
Difficult to predict availability and performance issues
Understanding the risks of migrations, upgrades and new deployment
Predicting how the application will perform in the cloud

Figure 1: An IPA provides all the instrumentation and visibility for an initial health check

THE SOLUTION:

The right set of tools to give UTHealth comprehensive visibility into their infrastructure

UTHealth struggled for months to understand inconsistent performance levels at each data center. Specific applications and processes would run normally in their Citrix ADC environment in one data center and then would experience massive delays of up to 10x in the other data center with the same underlying infrastructure. The IPA determined that a Converged Network Adapter (CNA) mismatch was the fault. I/O delays inside the cards produced a load-balancing mismatch across the data centers affecting application performance.

The IPA analysis also found significant inconsistencies between data centers. Health checks on multi-pathing, VM health, and storage fabrics helped IT to have visibility and optimize their infrastructure to meet the demands of their users.

Storage resources and network gear are the easiest to blame for performance issues. By deploying Virtana Infrastructure Monitoring (Infrastructure Monitoring), UTHealth received fact-based answers and eliminated red herrings during IT problem root-cause assessments.

THE RESULTS:

Immediate visibility into performance changes and data driven insights that reduce MTTR

The biggest value UTHealth gained from Virtana Infrastructure Monitoring was the ability to see what was happening in realtime throughout its entire infrastructure. Virtana Infrastructure Monitoring's applied analytics helps UTHealth to focus on issues that matter most and on critical metrics, proactively alerting IT to a SAN link anomaly before it goes down.

UTHealth also achieved comprehensive insight and identified major ongoing performance issues during normal operations. They reduced risks of major infrastructure changes through rapid visibility into performance implications of changes, identified serious data center sync discrepancies and remediated issues, and optimized storage network through end-to-end insight into performance and utilization.

UTHealth is now armed to demonstrate to stakeholders (primarily DBAs) what was happening at each layer of I/O traffic and show the entire round trip. Insights into what each layer is doing while providing visualizations and correlations of what else is happening either at the application, DB, or at the converged side of the infrastructure, greatly accelerated their consultative IT troubleshooting processes.

UTHealth is now leveraging Virtana's Trend Matcher Analytics to make data-driven decisions that reduce MTTR. Future deployments by UTHealth include using Virtana to gain greater visibility into the converged infrastructure architecture natively.