CUBRO
NETWORK VISIBILITY

ENHANCING NETWORK VISIBILITY AT A LEADING AMERICAN UNIVERSITY

CASE STUDY

07/2023

Industry » Enterprise

Overview of the University

The prestigious institution of higher learning ranks among the top 25 universities in the United States, according to reputable surveys such as U.S. News and Forbes. The leading university attracts over 15,000 ambitious students pursuing both undergraduate and graduate degrees.

The esteemed academic community comprises more than 1,500 accomplished faculty members who provide guidance and mentorship across a diverse range of disciplines. The University's vast expanse, spanning over 1000+ acres and encompassing more than 100+ buildings, reflects the size and scale of its extensive network infrastructure.

Challenges due to network upgrade

The university made significant upgrades to its network infrastructure. These upgrades include transitioning their campus backbone to faster speeds of 100G and 400G, as well as the installation of new Wi-Fi infrastructure. Transitioning to higher speeds introduced several business and operational challenges.

Network Capacity and Scalability: Ensuring the network infrastructure can handle increased traffic volumes and accommodate growing users and devices.

Network Congestion: Managing and optimizing the network to prevent bottlenecks and maintain smooth data flow.

Campus Security: Upgrading to higher network speeds may introduce new vulnerabilities in the network infrastructure and therefore it is crucial to implement robust security measures.

Equipment Compatibility: Ensuring compatibility between new high-speed equipment and existing infrastructure, potentially requiring replacements or upgrades.

Network Monitoring and Analysis: Adapting monitoring tools and techniques to handle higher speeds and provide accurate insights into network performance.

Cost Considerations: Allocating funds for equipment upgrades, monitoring solutions, training, and ongoing maintenance and support.

In order to ensure effective campus security, analytics, and network management, the University sought a comprehensive visibility architecture that could overcome these challenges.

Technical Solution from Cubro

Cubro offered a comprehensive technical solution tailored to the needs of the University addressing the challenges of security, analytics and network management. The solution comprised several layers of functionality.

Layer 1: Physical Tapping for 100% Traffic Copy

The foundation of the project was **Network TAPs**. The University has a large campus with many buildings, and therefore the network is built with Single Mode fiber optics.

Layer 2-4: Traffic Aggregation for Efficient Port Utilization

Since there were still many 10G connections still in use, the University was able to use Cubro's unique combined **TAP / Breakout Box** that consolidates two 10G (Rx and Tx) ports into a single 40G MTP connection that can then connect to a high speed PSM4 transceiver.

These TAPs provide an exact copy of all the traffic on the fiber optic link. This traffic is then routed to one of Cubro's family of Packet brokers for aggregation, filtering, and other grooming services before the resulting packet streams are sent (or load-balanced) to the variety of tools in the operations center.

Three models of Packet Brokers were used in the design:

The **EXA48200 Packet Broker** provides low-cost aggregation for up to 48 10G ports with 2 100G uplinks.

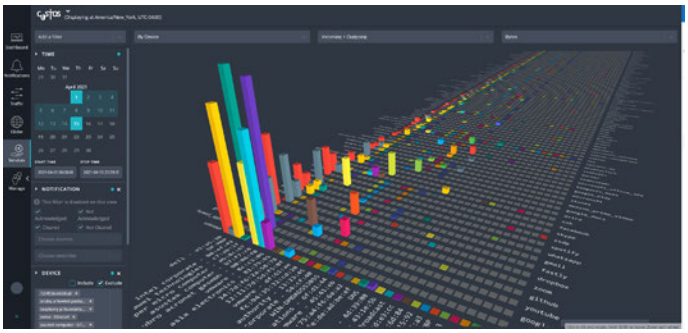
The **C32 Packet Broker** provides low-cost aggregation for up to 32 100G ports or 64 10G ports plus 16 100G ports.

Layer 4-7: Application filtering based on Cubro DPI

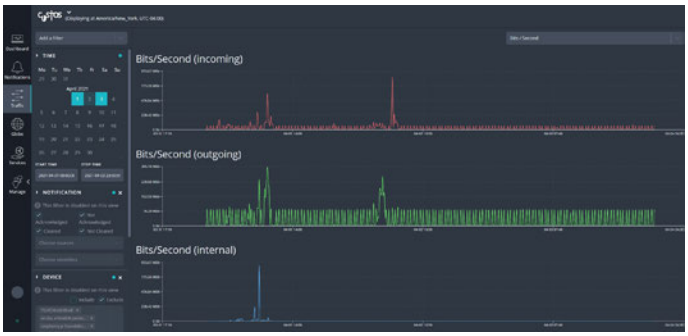
The **Omnia120 Packet Broker** connects the groomed traffic to various tools, as well as providing the Deep Packet Inspection, and Meta-data generation.

The Deep Packet Inspection capabilities of the Omnia120 allows the University to set up filters based on applications: such as YouTube, Netflix, WhatsApp, etc. instead of needing to enter complex IP addresses and port numbers.

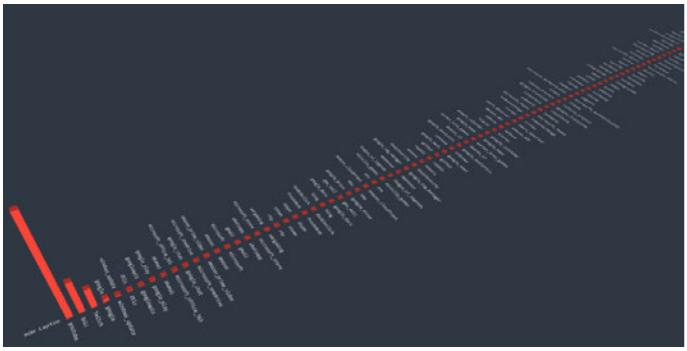
Cubro's powerful Custos GUI provides the unprecedented insights on the applications and devices on the network.



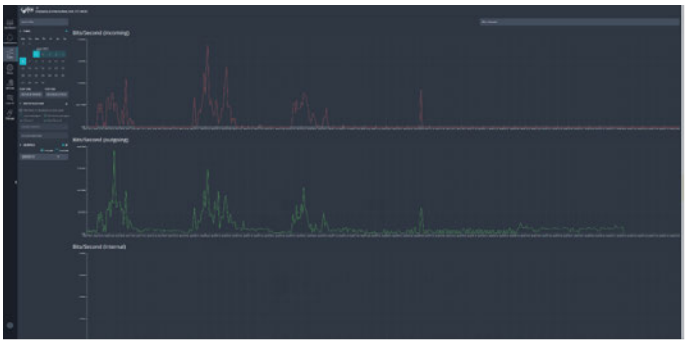
Total overview



Total live traffic



Selected timeframe application per user



Live traffic for specific application (YouTube)

Leveraging technical partnerships

Our customer's interest in acquiring a Visibility solution was brought to our attention by one of our technology partners: Witfoo. Witfoo is a cybersecurity company that produces next generation Security Information and Event Management (SIEM) and other security tools.

Witfoo executives had built up strong trusted relations with the university's CISO and cybersecurity team which allowed Cubro to quickly gain credibility and assess requirements.

Through a series of discussions with our customer's staff, Cubro was able to make a compelling technical proposal, with industry leading technology, at an attractive price point.

Delivering on a large scale project

Executing on a project of this scope in the vast geography of the United States can present various challenges. However, the dedicated efforts of the Cubro Americas team ensured that all necessary groundwork was meticulously completed, ultimately leading to the successful closure of the deal.

University procurements typically require the involvement of a trusted reseller. In the case of our esteemed client, they had previously relied on Trace3 as their chosen reseller for much of their IT technology needs. As a reseller, Trace3 maintains partnerships with a diverse range of technology vendors through its distributor, TD Synnex.

TD Synnex, a leading global technology distributor, manages a vast ecosystem comprising over 1,500 best-in-class technology vendors. Cubro has recently become one of TD Synnex's strategic procurement technology vendors, establishing agreements for the United States, Canada, and Latin America.

Through this partnership, customers benefit from a seamless delivery of Cubro products and solutions, ensuring a streamlined procurement process.

The logistical and sales management expertise of Cubro played a pivotal role in ensuring the timely delivery of all products required for the project. Furthermore, our excellent technical support team provided comprehensive initial orientation training on the usage and management of Cubro products. This enabled the University's team to efficiently design and implement the necessary policies and configurations to meet their initial tool requirements.

Cubro and Witfoo will continue to investigate adding additional security tools to the configuration. For example, the Witfoo Precinct solution is able to ingest compressed meta-data from the Omnia120 platform to greatly enhance the security protection in the dynamic campus network.

Summary

These are the key benefits of Cubro's solution:

Comprehensive Network Visibility: Cubro's visibility infrastructure, including network TAPs and packet brokers, ensured the university had a clear and accurate view of their network traffic. This enhanced visibility allowed for efficient monitoring, analysis, and troubleshooting, ultimately improving network performance and security.

Seamless Transition to Higher Speeds: With the university transitioning to faster speeds of 100G and 400G, Cubro's solution facilitated the smooth integration of high-speed equipment with the existing infrastructure. The combined TAP/Breakout Box solution provided a practical and efficient way to consolidate connections, ensuring compatibility and minimizing disruptions during the upgrade.

Advanced Traffic Management and Filtering: Cubro's packet brokers, specifically the Omnia120, offered deep packet inspection capabilities and metadata generation. This enabled the university to implement application-based filtering and gain detailed insights into network traffic. The powerful Custos GUI provided unprecedented visibility into applications and devices on the network, allowing for more effective network management and security.

Trusted Technical Partnership: Through our partnership with Witfoo, we were able to provide solution that met the university's specific requirements, leveraging industry-leading technology while remaining cost-effective.

Streamlined Procurement and Support: Cubro's partnership with Trace3, a trusted reseller, and TD Synnex, a global technology distributor, facilitated a seamless procurement process. The logistical expertise of Cubro's team ensured timely delivery of products, while our excellent technical support team provided initial orientation training and ongoing assistance, empowering the university's staff to effectively utilize and manage the Cubro solution.