

## Case Study:

# IT Performance is Paramount for a Large Healthcare Provider Network

Nonstop Digital Connectivity is Vital for the Organization's Ability to Provide Modern Healthcare



## Benefits

- **High-Precision Monitoring at 100Gbps**  
Lossless observability and delivery of data to performance tools with timestamps and packet data enriched with port IDs greatly helps the customer assure maximum performance and exceptional experiences
- **Real-Time KPI and Traffic Analytics**  
The ability to see KPIs, traffic analytics results, and the status of all of their hundreds of links in real-time helped to remove bottlenecks to maximize throughput
- **Maximizing Performance & ROI**  
Because the IT team can efficiently manage and maximize performance, they are able to put more effort into delivering new services that improve the organization's operations and patient's wellness
- **Assure a Strong Cybersecurity Posture**  
Reliable delivery of network data to security solutions ensures maximum effectiveness

"With so much at stake, we couldn't settle for anything less than a best-in-class solution. With cPacket, we have a full suite of advanced solutions that does it all and scales as new tools get added. We now have the power to manage our networks more efficiently and with less cost, which has been the biggest payoff for us."

- Senior IT Engineer

## Customer

The customer is among the largest healthcare provider networks in America<sup>i</sup>. It provides inpatient and outpatient care plus administers health insurance benefit programs. It has a global presence, employs roughly 100,000 people, and operates approximately 750 facilities, 40 of which are hospitals.

The organization's IT infrastructure has 2 primary data centers plus smaller branch data centers. The network core runs at 100Gbps and has over 1,000 ports to provide needed connectivity for its digital operations.

## Challenges

Maintaining adequate performance amid expanding digital services and increased network traffic is a top priority and challenge. The organization's IT infrastructure is critical to the organization's operations, growth, and the wellness of the patients it serves, so access and performance are paramount as is a strong security posture. Monitoring and visibility into all services and infrastructure key performance indicators is a necessity to effectively assure performance, high-quality end-user experiences, security, and IT efficiency.

Disruption, digital transformation, and increasing use of artificial intelligence are prevalent in the industry and for this organization. The organization therefore continuously and rapidly innovates to deliver new digital-based solutions to remain agile, competitive, and successful. The organization's services must be available nonstop, so connectivity disruptions pose catastrophic risks to operations and to patient outcomes. The organization is therefore reliant on its IT infrastructure and the efficiency of its IT team.

Care, wellness, and interactions with healthcare providers are changing quickly due to the increasing use of robotics, telemedicine/telehealth (that uses video conferencing), mobile phones, Internet of Medical Things (IoMT), and Automatic Identification and Data Capture (AIDC)<sup>ii</sup>. The IT network also provides inpatient access to WiFi, way-finding and other real-time location services, and other systems to run its operations. The biggest consumer of bandwidth is the Radiology Information System and related Digital Imaging and Communications in Medicine and a Picture Archiving and Communications System that frequently floods the network when transferring large files. These and other use cases consume significant network bandwidth, that at times overwhelms and jams the network, which is unacceptable.

Data breaches and service disruptions are costly and have many other intolerable consequences, so maintaining a strong cybersecurity posture is also a priority<sup>iii</sup>. Cybercriminals know the consequences of service disruptions, so they target healthcare organizations with performance degrading or paralyzing malware and demand a fee to disable or remove the malware (aka "ransomware"). It is also necessary for the organization to secure personal health information in compliance with regulatory mandates such as the Health Insurance Portability and Accountability Act (HIPAA) that requires such information to be protected and not disclosed without a patient's consent.

## Solution

The customer's network visibility and business objectives are fully met using the cPacket Networks Intelligent Observability Platform. cPacket's platform was chosen in a competitive evaluation because it was the only fully integrated solution from the TAP to the analytics that offered the most simplicity for seamless visibility, scalability, and unified management of the entire fabric.

Performance is paramount for the organization's IT operations, so observation and reporting of key performance indicators (KPIs) are the primary requirements. cPacket's platform was chosen because it is the only monitoring fabric that meets these requirements:

- Monitor a growing network with over 1,000 network ports; 80% of which operate at 100Gbps
- Lossless packet acquisition at 100Gbps plus aggregate, timestamp, and tag packet data with the source port
- Packet slicing to reduce monitored packet volume plus flexible filtering to avoid tool oversubscription
- Offer capture-to-disk that can ingest at 100Gbps and have multiple petabytes of storage capacity
- Process packets for rightsizing by slicing, stripping, and filtering packets prior to replication and delivery
- Dashboards that show KPIs, traffic analytics results, and the status of all their hundreds of links
- Support an existing high number of network ports and scale in a straightforward manner to accommodate growth
- Offer different network packet brokers to implement their monitoring fabric as a two-tier topology
- Have centralized and unified management of the entire monitoring fabric

The cPacket solution also excelled versus the competition because it is:

- More cost-efficient; both the acquisition cost and ongoing total cost of ownership were lower
- More compact; it consumes 1/3 of the rack space versus another vendor's solution

The customer's NetOps team chose cPacket Networks to improve their visibility and to manage the availability and performance of their IT infrastructure and the many services that it provides. The ability to direct any network traffic feed from the ingress port to a specific egress port and corresponding tool using the network packet brokers made it easy and quick to integrate their monitoring fabric with their performance management tools. The real-time KPIs and visualized traffic analytics provided by the standard dashboards enabled them to tune the network to accommodate the needs of their PACS without blocking all the other necessary network traffic, as did the ability to search for any link to see real-time activity at layers 2 through 7.

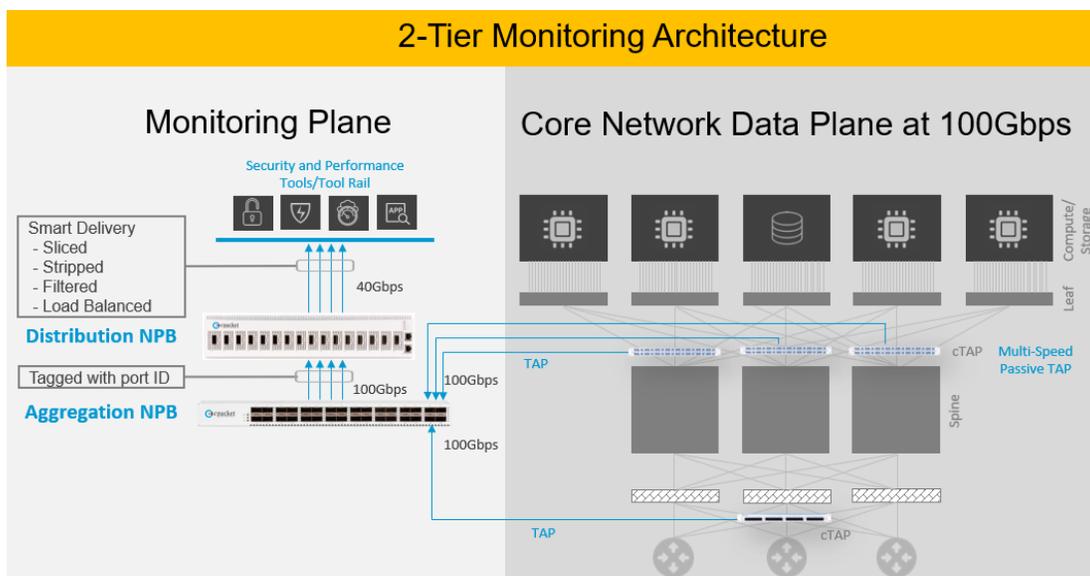


Figure 1: Monitoring Architecture Diagram

## Platform Components Deployed

**[cClear® Analytics Engine](#)** – The user interface gives the customer the ability to view and interact with dashboards and the administration console. The customizable dashboards convey status, KPIs, analytics results, and actionable network intelligence. The administration console provides unified management of the entire monitoring fabric.

**[cVu® Series Network Packet Brokers](#)** – Over 50 network packet brokers (NPB) are used in a two-tier architecture (as shown in Figure 1). Packets are acquired and aggregated from “tapped” strategic vantage points using high port density NPBs for rack space and cost efficiency. Packets are processed and distributed, using cVu 3240NG NPBs.

**[cStor® Series Packet Capture Appliances](#)** – Packets are captured, retained, and analyzed giving the customer an understanding of historical performance. The historical record also gives them understandings of patterns and trends that aid performance tuning, troubleshooting, and capacity planning. In the event of a security breach the historical record will also be useful for forensic analysis, incident response, and complying with mandated notification requirements and report requests from regulatory agencies.

**[cTap Test Access Points](#)** – Network packets are passively and transparently mirrored from the customer’s strategic vantage points to network packet brokers.

## Results

Using the cPacket Intelligent Observability Platform, the customer gained the visibility and efficiency needed to accomplish their primary objective – to maximize throughput and hence the overall performance of their vast IT network amid constantly expanding utilization by having a continuous detailed understanding of IT resource utilization, network traffic, and the causes of throughput bottlenecks.

Detailed visibility into their 100Gbps core network greatly helps the IT team minimize the occurrences, consequences, and costs of poor experiences and service disruptions due to performance or security events as the organization continuously expands its IT infrastructure to provide modern healthcare and wellness to more communities and patients.

The organization is also able to keep up with the rapid pace of digital transformation to provide new innovative connected services, convenience, and wellness to its patients.

cPacket Networks has become a trusted vendor and valuable advisor to the entire IT operations team and to the broader organization, so the footprint of the visibility solution and its uses are continually expanding.

## About cPacket Networks

[cPacket Networks](#), de-risks IT I&O through network-aware service and security assurance across hybrid and multi-cloud environments. Our AIOps-ready Intelligent Observability Platform provides single-pane-of-glass analytics and provides the deep network visibility required for today’s complex IT environments. cPacket enables Fortune 500 organizations around the world to keep their business running. cPacket solutions are fully reliable, tightly integrated, and consistently simple. Our cutting-edge technology enables network, application, and security teams to proactively identify issues before negatively impacting the business. The result: increased service agility, enhanced experience assurance, and faster transactional velocity. Learn more at [www.cpacket.com](http://www.cpacket.com).

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<sup>i</sup> [100 of the largest hospitals and health systems in America | 2020 \(December 22nd, 2020\)](#)

<sup>ii</sup> In a [report published in April of 2021](#), McKinsey states “the shift to digital channels is happening at the speed of a decade in days.”

<sup>iii</sup> The highest cost per exfiltrated record is in the healthcare industry, with an [average cost of \\$429/record](#).