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Next-gen visualization technology: Expanding server-side to cardiology and across the enterprise – Sponsor Supplied Content

By Bill Lacy, Vice President, Medical Informatics, FUJIFILM Medical Systems USA, Inc.

November 15, 2019 -- Synapse 7X is a convergence of Fujifilm's server-side technology and it was designed to cover all the different areas of diagnostic visualization, as well as overall enterprise viewing. Synapse 7X promises to be a game changer for healthcare providers.

It's our next-generation visualization platform -- a complete server-side solution for visualization in all clinical areas. Our initial focus with Synapse 7X is on the convergence of radiology and cardiology, including digital mammography.

Roots and wings

Synapse 7X is the robust enterprise imaging viewer platform that Fujifilm has been leading up to since the release of our initial server-side imaging, zero-client Synapse 5 technology in 2016. We rolled out Synapse 5 with radiology and planned a phased approach. However, being early innovators, Fujifilm knew that the market was not yet ready in all areas to support pure zero viewing from an IT environment and network perspective.



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Over the last few years, we introduced Synapse 5 to select environments that were ready for zero viewing.

The technology continues to mature, and now with the introduction of hybrid tools we are ready to introduce it across all imaging service lines.

Health systems can now enjoy zero-viewer server-side technology where ready, and step into other areas where their IT environment is still evolving. It is this evolution that most significantly has allowed us to converge cardiology and radiology on the same viewer -- Synapse 7X.

From a toolset perspective, Fujifilm's long-term goal is to provide the richest possible visualization layer for an enterprise imaging viewer solution, adapting to the specific user. Synapse 7X is a big step in that direction with the convergence of radiology and cardiology, as they are two very different imaging solutions, with some crossover benefits but also some unique requirements. A technology that brings those two disciplines together accounts for approximately 70% to 80% of all the imaging done in a health system -- a giant leap toward creating a single enterprise visualization capability.

Clinical and IT benefits of an integrated and enabled system

Cardiac care is a specialty that currently treats more than 92 million Americans. Synapse 7X was designed to address clinical challenges that our customers -- top-rated hospitals in the nation for cardiovascular care -- told us they face every day. These include the need to streamline patient imaging, gain access to imaging on a single platform, and enhance the ability for collaborative care, for example.

Synapse 7X provides speedy access to patient images and data, which means clinicians have more information to make decisions. Patients can receive quicker care, which drives better outcomes.

Essentially, Synapse 7X eliminates silos and the need to manage multiple systems. Most health systems have a

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dedicated cardiology PACS and reporting system that is separate from the radiology PACS and reporting system. They also often have a separate solution for their digital mammography workstations.

While there are ways to integrate these systems and have some information flow back and forth, they're uniquely different technologies, and that limits physicians in terms of how much information they can truly share, as well as their ability to take advantage of the viewing tools sets on both sides.

For example, cardiologists looking at a chest imaging study may not have the same tools that the radiologist has in PACS, or the access to other important clinical and historical data. Conversely, the radiologist may not be able to see the motion studies, with important measurement and data analysis information, from cardiology in the same way they would in a cardiology viewer. Breaking down those walls with a single, powerful viewer offers huge clinical benefits.

Digital mammography brought many new visualization challenges, like a unique viewing and reporting workflow, specific needs for large digital breast tomosynthesis studies, and multimodality viewing requirements. The industry moved to specialty workstations, a costly and disintegrated approach.

Synapse 7X also addresses this challenge, as server-side offers the optimal way to view these large datasets fast and standardize digital mammography on the same integrated radiology platform, while eliminating yet another costly silo.

Synapse 7X is a robust technology -- uniquely enabled and integrated.

For example, 3D natively opens in Synapse 7X -- it's built into the platform and is natively part of the physician's workflow. Because 7X is server-side, it allows for the advanced visualization technologies on the one platform.

Fujifilm has extended its radiology server-side viewer to cardiology -- eliminating the need for any third party-solutions -- and brings that same common interface to radiology and cardiology with 3D. It extends to both environments with full functionality.

In addition, the 7X platform is enabled for AI. When Fujifilm introduces Synapse 7X to the market it will be prepared to take advantage of all the use cases we've built out and manage AI results -- as opposed to having to add additional components to the system. In fact, Fujifilm's software will be one of the first systems that is fully enabled to use AI results and use cases in the worklist in the viewer or in communications tools within the system.

Presently, we're doing testing and research to expand upon the AI use cases and results. The intention is to continue to learn more from early-adopter clinical users of Synapse 7X down the line.

The big advantage of AI moving forward is to improve the technology for physicians. We now have the opportunity because AI really needs to operate on the server-side to be fast and efficient, and within an AI-enabled viewer so as to not obstruct workflow.

And, having a server-side visualization capability means that we can run AI with it in the backend at the data center and users will not be impacted negatively from a performance perspective or speed. That's the key to marrying server-side visualization with AI.

While clinical benefits are a top priority of Synapse 7X, there are also obvious benefits from management and IT perspectives. With 7X, an organization's IT group is managing one system. Essentially, customers will be scaling one server-side system that ultimately can manage all of their imaging areas.

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North Memorial Hospital: Pilot activity for cath lab

While Synapse 7X has yet to be used in a clinical setting, North Memorial Hospital (NMH) is the first U.S. customer using Fujifilm server-side technology for both cardiology and radiology.

It began with a need in the cath lab. NMH was eager to streamline its patient imaging and reporting systems, combining them into a single-vendor solution. The consolidation of all diagnostic cardiology images and data would allow the cardiologists to work more efficiently by having all relevant information on one platform at the time of reporting.

Synapse Cardiology PACS is Fujifilm's next-generation server-side rendering solution designed specifically to help streamline image review and reporting across cardiovascular modalities. When NMH realized the potential, the two organizations collaborated to fully customize the product so it would meet the health system's specific needs.

Fujifilm has leveraged the investment and advancements made with Synapse Radiology PACS and has applied its expertise to cardiology, bringing robust toolsets to a common PACS platform, which is being realized by NMH cardiologists and radiologists. Fujifilm's investments into PACS development are providing healthcare organizations, such as NMH, the workflows to enhance image management and reporting across multiple modalities, allowing for a more complete patient record and a more comprehensive care plan -- a road map that fully aligned with NMH's short-term goals.

While our server-side Synapse Cardiology PACS addressed North Memorial's need in the cath lab, when our Synapse 7X visualization solution comes to market it will be primed to support all areas of cardiology such as echocardiography and nuclear medicine, for example. Fujifilm is currently planning pilot projects of 7X in these areas of cardiology in real-world

clinical settings.

IT professionals and clinicians interested in learning more about Synapse 7X are invited to see the technology in action at the Fujifilm booth #4111 at RSNA 2019.

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