EQUINIX

Solution Brief
Medical/Healthcare

Equinix revolutionizes healthcare data management with secure medical imaging solution

Overcoming data growth challenges, enabling global collaboration and advancing AI in healthcare

Introduction

In the midst of the ongoing COVID-19 pandemic, healthcare organizations grapple with an unprecedented surge in data across medical imaging, digital health records and research. This data boom strains existing IT systems, demanding secure storage, efficient management and seamless sharing.

Traditional methods like PACS and VNAs have limitations. Equinix steps in with a groundbreaking solution on Platform Equinix®, empowering research institutions with secure global data querying and direct cloud access. This enables precise disease prediction models and personalized healthcare.

This solution brief explores medical data challenges and Equinix's innovative solutions poised to transform healthcare data management and research.

Challenges in modern medical imaging

Medical imaging grapples with formidable challenges. Traditional Picture Archiving and Communications Systems (PACS) lack a unified access point, requiring multiple logins for diverse specialties. Dependency on proprietary DICOM viewers further complicates the process.

Data migration presents hurdles as PACS systems differ across vendors, using unique private tags. The Vendor Neutral Archive (VNA) seeks to standardize image storage, offering compatibility with all PACS providers. While it streamlines data exchange, broader IT infrastructure issues persist.

The medical imaging sector faces escalating demands for secure data sharing, robust security measures, workflow automation and extended data retention. Researchers need seamless access to diverse databases for precision medicine and multi-ethnic studies, necessitating secure cross-regional data exchange.

Global demand for radiology services strains resources, while data retention policies intensify storage challenges due to burgeoning data volumes and regional compliance mandates. Equinix is at the forefront, addressing these challenges with innovative solutions in medical imaging and data management.

Transforming medical imaging and research with Platform Equinix

The field of medical imaging is experiencing remarkable annual growth, and the ability to efficiently share and query these vast datasets forms the bedrock for population health planning and precision health initiatives. With a global presence spanning over 70 locations, Platform Equinix plays a pivotal role in facilitating secure connectivity to global research institutions. This not only enhances research efforts but also instills confidence in cross-regional data analysis, fostering meaningful research insights.

Equinix's private connectivity extends to a diverse range of genomics and imaging applications hosted in public cloud environments, making these critical resources easily accessible to the medical research community. As the future unfolds, the collaborative efforts between Equinix and research institutions promise to redefine the landscape of medical imaging and healthcare research, driving the pursuit of knowledge and improved patient care.

Revolutionary solutions by Equinix

Solution 1: Federating medical images using Equinix Fabric®

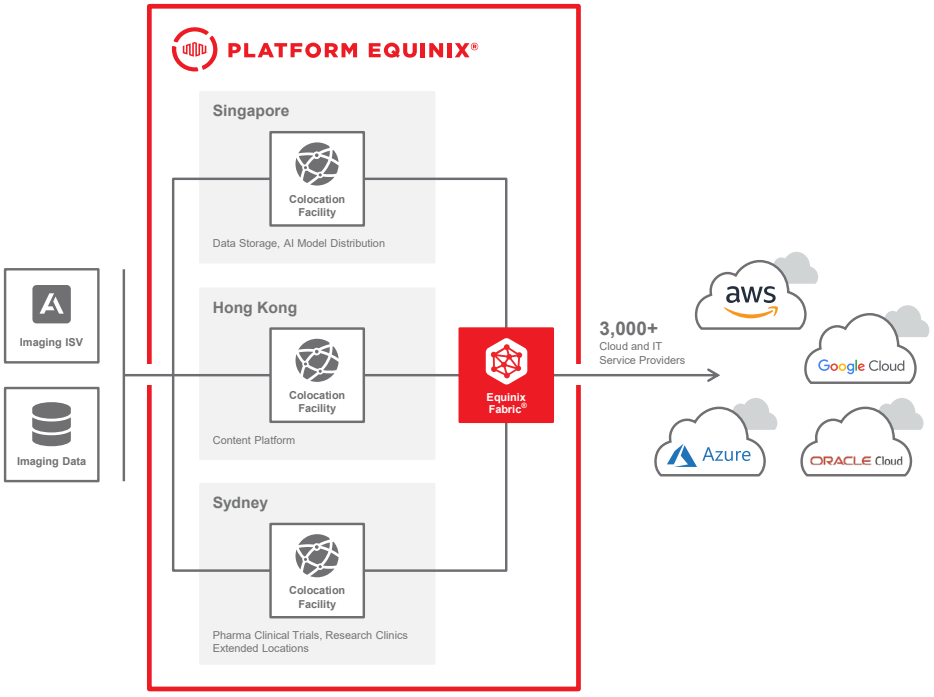
Equinix offers a groundbreaking solution for medical researchers and institutions seeking to share and analyze medical imaging data securely and efficiently. At the heart of this solution is Equinix Fabric, a powerful backbone network. Researchers can utilize Equinix Fabric to share or query medical imaging datasets among global institutions, benefiting from a secure, private and low-latency connection. This network operates within Platform Equinix, with medical imaging data securely stored in Equinix's colocation facilities.

Equinix's extensive global footprint provides a means to connect research institutions worldwide. This interconnectedness promotes international collaboration and expedites research discovery. Importantly, Equinix Fabric ensures that data remains within its jurisdiction, thus enabling compliance with regulatory requirements. Moreover, this solution goes beyond enabling connectivity among research institutions. It offers direct, secure and private connections to over 3,000 cloud and IT service providers, empowering researchers to run medical imaging workloads efficiently in cloud environments.

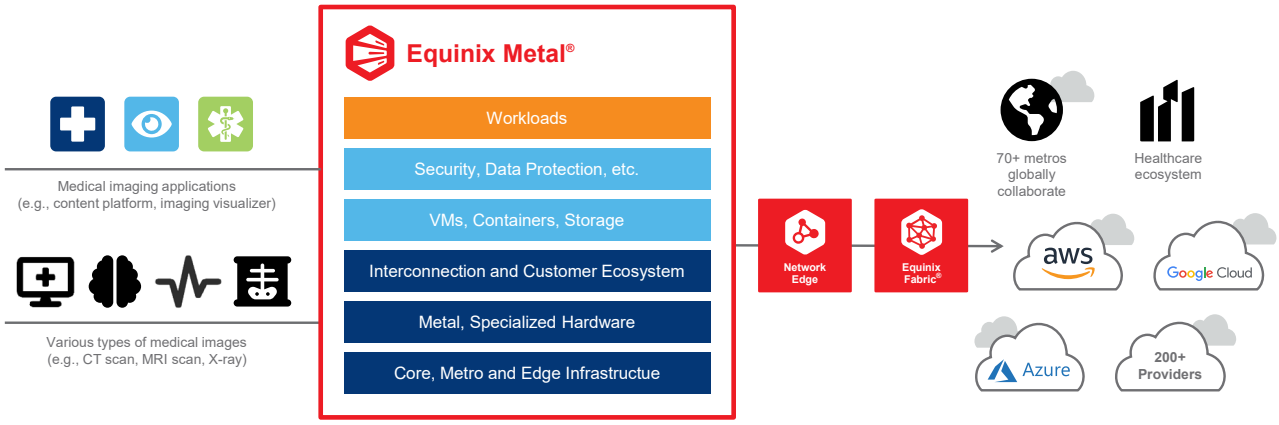
Solution 2: Developing machine learning/AI algorithms with Equinix Metal®

In addition to addressing the needs of medical research institutions, Equinix provides a forward-thinking solution for AI and machine learning developers. Researchers have the option to store medical images within Equinix Metal, a versatile Bare Metal as a Service platform. Equinix Metal offers on-demand storage and computation services, presenting an ideal environment for processing medical imaging data. It also supports the installation of various medical imaging applications and Vendor Neutral Archives (VNAs). What makes Equinix Metal especially valuable for medical image storage is its dedicated instances, which ensure the utmost data privacy and security.

Furthermore, researchers can connect Equinix Metal instances to the broader healthcare ecosystem within Equinix. This integration is facilitated through Network Edge, a virtual device that can function as a router or firewall, offering enhanced connectivity for medical data within healthcare systems. For AI and machine learning development, private connectivity to cloud and IT service providers is enabled, making it easier for developers to access cloud resources securely and efficiently.



Medical images colocated within Equinix can be federated to global research institutions and cloud & IT service providers via Equinix Fabric.



Equinix Metal offers secure storage and computation of medical images. It also offers connectivity to Equinix's global healthcare ecosystem and cloud resources, facilitated through Network Edge.

These two innovative solutions from Equinix address the unique requirements of medical researchers and AI developers while prioritizing data security and compliance with regulations.

Benefits

Enhanced global collaboration
Equinix Fabric facilitates seamless sharing and querying of medical datasets among global institutions, supporting international collaborations and accelerating research discovery.

Data privacy and compliance
Equinix's innovative approach ensures data remains within its jurisdiction, guaranteeing compliance with regulatory requirements. This prioritizes data visiting over traditional data sharing, safeguarding sensitive patient information.

Broad connectivity
Equinix Fabric offers connectivity to over 3,000 cloud and IT service providers, enabling secure and private access to cloud environments. Researchers can efficiently run medical imaging workloads with ease.

Flexible storage options
Researchers have the flexibility to choose between Equinix colocation facilities and Equinix Metal for medical image storage. Equinix Metal provides on-demand storage and computation services, accommodating preferred VNAs and medical imaging applications.

Global reach
Equinix's global footprint ensures that research institutions worldwide can benefit from Equinix solutions. This extensive network supports global research collaborations and cross-border data access.

Streamlined research
Equinix solutions streamline the research process, allowing researchers to focus on their work rather than grappling with data access and management challenges. This expedites research outcomes and enhances productivity.

Security and low latency
Equinix Fabric offers secure and low-latency connectivity, ensuring that data transmission is fast and reliable, vital for medical imaging workloads and research collaborations.

Dedicated instance for data privacy
Equinix Metal's dedicated instance ensures a high level of data privacy, which is crucial for medical image storage and the protection of sensitive healthcare information.

Future-ready infrastructure
Equinix's innovative solutions position research institutions for the future, enabling advancements in artificial intelligence and machine learning applications for improved disease prediction models and personalized healthcare.

Cost-efficiency
Equinix's solutions reduce the complexity and costs associated with traditional data center relocations, providing an economical approach to healthcare data management and global collaboration.

Use case

Children's Cancer Institute (CCI) – A global collaboration for pediatric cancer research

In Australia, the Children's Cancer Institute (CCI) is pioneering a critical mission—putting an end to childhood cancer, a disease that tragically claims the lives of an average of three children and adolescents every week. To achieve this ambitious goal, CCI has embarked on a collaborative journey with global institutions, driven by the shared vision of saving young lives.

In a strategic partnership with Equinix and Optus, CCI is revolutionizing the way data is shared, integrated and utilized in the fight against pediatric cancer. This innovative solution offers faster, more cost-effective and exceptionally secure methods for sharing critical information with collaborators spanning the globe.

By harnessing cutting-edge technology and the advanced infrastructure provided by Equinix, CCI aims to unlock new insights, accelerate research outcomes and ultimately make significant strides in pediatric cancer research. This collaborative effort represents a beacon of hope for children and families affected by this devastating disease, fostering a global community committed to turning the tide against childhood cancer.

Future outlook

Unlocking the future of radiomics with Equinix

Radiomics, a scientific approach leveraging artificial intelligence to glean insights from medical imaging data, is poised for significant growth and innovation.

Equinix's partnership with research institutions equips them with essential IT infrastructure for the federating of medical imaging data and the development of artificial intelligence and machine learning engines. These capabilities are pivotal for the advancement of radiomics analysis, which heavily relies on AI algorithms to construct predictive models and assemble substantial datasets for population and ethnic studies.

Platform Equinix, with its secure and private connectivity, offers global healthcare players the means to query and aggregate medical imaging datasets on a worldwide scale. This fosters quantitative analysis of these datasets using artificial intelligence and machine learning, expediting research outcomes. Moreover, it paves the way for researchers to create more accurate predictive models for disease diagnosis and treatment response evaluation in the future. This collaboration with Equinix heralds a new era in radiomics research, empowering researchers with the tools they need to drive groundbreaking discoveries and advancements in healthcare.

Ready to get started?

To explore more Equinix healthcare solutions, visit:

Equinix.hk/solutions/healthcare

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