



ENTERPRISE IMAGING WHITEPAPER

Imaging Without Boundaries

A PACS alone does not solve an enterprise imaging problem.

FROM PIXEL TO POINT OF CARE

Executive Summary

Modern diagnostic imaging technologies improve radiologist workflows, diagnostic performance, and image quality. These investments help, and in many organizations, they are working as intended.

But better radiology technology does not solve the enterprise imaging problem. Across most health systems, imaging still sits in disconnected systems, divided by department, facility, or specialty. Clinicians lose time searching for prior studies and relevant images from other specialties, modalities, and across sites. Care teams leave the EHR to chase down images, and each newly acquired hospital adds yet another PACS that works locally but increases fragmentation across the enterprise. That structural gap slows clinical decision-making, creates friction for care teams, complicates governance, and makes every future change, from AI adoption to cloud migration to M&A integration, harder than it should be. This is not a single-system problem; it is the natural outcome of how imaging environments have evolved.

Mach7 addresses this fragmentation at the enterprise level. By unifying imaging data, coordinating workflows, and enabling consistent access across the enterprise, Mach7 allows organizations to extend their existing investments without disruption. The result is an imaging environment that is connected, scalable, and built to evolve.

The Reality of Modern Imaging Environments

Most healthcare organizations operate in environments shaped by a combination of long-standing infrastructure, more recent platform investments, and years of custom development and workarounds. Radiology as a specialty is often ahead of the game, where targeted platform investment has produced measurable improvements in diagnostic speed and workflow efficiency.

The problem is what happens outside that optimized environment. Imaging data remains tied to departments, facilities, or legacy systems. A cardiologist may struggle to retrieve a prior CT from radiology. An ED physician may have to leave the EHR to locate outside imaging. Staff may rely on phone calls, manual transfers, or point-to-point integrations to move studies where they need to go.

As imaging strategies mature, the priority shifts from optimizing individual systems to coordinating them across care settings. That challenge becomes more urgent as imaging expands beyond radiology into cardiology, pathology, ophthalmology, clinical research, and other specialties. Strong systems operating within silos are not enough. Enterprise imaging requires coordination across the full care environment.

Building on Your Diagnostic Investment

Organizations invest in imaging platforms to solve defined challenges: improving productivity, consolidating workflows, or modernizing infrastructure. In doing so, an irony emerges that often reveals the bigger challenge: increased fragmentation across data, workflows, and access. Across health systems, the pattern is consistent: strong diagnostic environments paired with persistent fragmentation at the enterprise level. The issue is not

whether individual systems work; it is whether they work together. The missing piece is a unifying foundation beneath them.

As such, enterprise imaging must meet a distinct set of requirements: imaging data must be accessible across departments, workflows must extend beyond a single specialty, and infrastructure must support continuous change without repeated disruption.

03 · AN ENTERPRISE IMAGING FOUNDATION

Decoupling Data and Applications

Mach7 provides a framework designed to operate across and alongside existing systems. At the center of this approach is the separation of imaging data and workflow management from the applications that use them. Systems that are already performing well continue to operate within their areas of strength, while a shared foundation governs how images are stored, routed, and accessed across the organization. This model treats coexistence as a deliberate design strategy, not a compromise. Organizations can protect and extend existing investments while establishing a scalable and cohesive enterprise imaging environment.

EXISTING APPLICATIONS & VIEWERS · CONTINUE TO OPERATE

Radiology PACS · Cardiology · Pathology · Enterprise Viewer · EHR

MACH7 ENTERPRISE IMAGING FOUNDATION

Unified Data Management · Workflow Orchestration

Imaging data and workflow, decoupled from the applications above

STORAGE · GOVERNED INDEPENDENTLY OF ANY SINGLE SYSTEM

On-Premises · Cloud

Mach7 separates imaging data and workflow from the applications that use them, so existing systems keep working over a shared foundation.

A System-Agnostic Framework That Connects Imaging Data

In many environments, imaging data is tightly coupled to the systems that generate or manage it, limiting flexibility and making integration difficult. Mach7 separates data from applications, ensuring that imaging content remains accessible and governed independently of any single system. This allows organizations to integrate multiple platforms into a unified environment while maintaining full control over their data. As systems evolve, through expansion, modernization, or consolidation, the underlying data foundation remains stable. Technology decisions are no longer constrained by past choices, and enterprise imaging becomes sustainable over time.

04 · WORKFLOW AS THE CONNECTION LAYER

Enterprise Workflow as the Connection Layer

Data alone is not enough. Workflows must also operate across systems. In most environments, workflows are embedded within individual platforms, limiting their reach. Mach7 provides a centralized orchestration layer that manages how imaging studies move across systems, departments, and care settings. This includes:

- Rules-based routing with scheduled queries
- Lifecycle management
- HL7 order and result integration with clinical systems

With coordinated workflows, imaging becomes more accessible, reliable, and scalable. New technologies, such as artificial intelligence, can also be incorporated in a controlled and coordinated way, enabling broader enterprise value.

Working Alongside Modern Imaging Platforms

Healthcare organizations rely on diagnostic platforms, particularly within radiology. These systems are highly optimized for image interpretation and play a critical role in care delivery. Mach7 is designed to complement these platforms. Existing platforms continue to deliver value within their domains, while a shared foundation connects data, workflows, and access throughout the healthcare ecosystem. This approach allows organizations to extend the value of what they already have while creating long-term flexibility. As needs continue to evolve, imaging environments can adapt without requiring wholesale system replacement.

05 · REALISTIC SCENARIOS

Realistic Scenarios in Enterprise Imaging, and How to Approach Them

Across health systems, several common patterns highlight the need for a connected imaging strategy.

1 PACS modernization does not go beyond radiology

A new PACS delivers improvements in radiology workflow, image quality, and diagnostic performance, but it does not fully address cross-departmental access, enterprise data governance, or workflows beyond radiology. A cardiologist requesting a prior chest CT or a surgeon needing pre-operative imaging from another facility encounters the same fragmentation regardless of how capable the radiology PACS is.

SOLUTION

Mach7 extends the PACS investment by providing the enterprise layer that clinicians are missing, so the right imaging is available at the point of care, without manual intervention or workflow interruption.

2 Disconnected multi-system and multi-facility environments

Organizations operating across multiple facilities often manage several imaging platforms. While each system may function well independently, coordination across them is limited. Without a shared data layer,

image exchange across locations typically depends on physical media or point-to-point integrations, both of which fail under the demands of a distributed health system. A patient presenting at one facility for urgent care with relevant prior imaging from a sister site may face delays simply because those images cannot be retrieved quickly enough to inform the clinical decision.

SOLUTION

Mach7 provides a common foundation for data management and workflow orchestration, so imaging acquired at any facility is accessible to any authorized clinician, without requiring each location to use the same platform or staff to make phone calls to locate images.

3 Incompatible multi-PACS after mergers

Health systems expanding through acquisition frequently inherit multiple imaging environments with differing platforms and workflows. A health system that has acquired three community hospitals, each running a different PACS, faces an immediate challenge. Clinicians at each site cannot easily access imaging from the others, and replacing all three platforms simultaneously is neither practical nor financially viable.

SOLUTION

Mach7 resolves this by consolidating imaging data at the enterprise level and normalizing workflows across facilities, so sites can operate in a coordinated way without requiring any of them to abandon its existing platform.

4 Imaging locked outside the EHR

Clinicians increasingly expect imaging to be available directly within the EHR. A hospitalist reviewing overnight admissions, an ED physician assessing a trauma patient, or a primary care provider following up on a specialist referral should not need to leave their workflow to find a relevant study.

SOLUTION

Imaging that is consolidated and indexed once is far easier to surface where clinicians work than imaging scattered across departmental systems, and that is the part a foundation addresses. The integration itself is worth pinning down rather than assuming. Ask which EHR integration method a vendor supports, whether it is covered by a published conformance or integration statement, and what the clinician's workflow actually looks like. Mach7 publishes its conformance and integration statements openly, without a login, for exactly this reason.

5 Viewer access without the foundation

Enterprise viewers have expanded imaging visibility across care settings, but increased access alone does not address the underlying data and workflow challenges. In many organizations, viewer capabilities have outpaced the underlying infrastructure. Images are accessible across more places, but the data governance, routing logic, and lifecycle management that support them have not kept pace.

SOLUTION

Mach7 provides the necessary foundation: consistent data governance, reliable study routing, and scalability to ensure that what clinicians can see is complete, current, and correctly managed as access expands.

6 Imaging access lost during downtime

System downtime, planned or unplanned, can interrupt imaging access and delay care.

SOLUTION

Continuity is a requirement to specify, not a feature to assume. The structural question is whether your imaging data and its index are governed independently of any single application, or whether they live inside the system most likely to be unavailable. Mach7 separates the data layer from the applications above it, which is the precondition for continuity. What continuity you actually achieve depends on how your environment is designed and configured, so make it an explicit line item in your requirements and in your testing, and get your vendors on record about behavior during both planned and unplanned downtime.

7 AI that cannot scale across the enterprise

Imaging AI tools are being deployed rapidly, but most are implemented at the point-of-reading level, tied to a specific PACS or modality, applied inconsistently, and difficult to operationalize across the broader enterprise. A health system might have a chest X-ray triage algorithm running at one facility, a stroke detection tool at another, and a different worklist prioritization model in a third.

SOLUTION

An enterprise foundation is the right place to solve this, and it is worth being precise about what to require of one. Ask how studies are routed today, on what rules, and what it takes to add a destination. Ask how results return to the systems clinicians already work in. Ask what has to change when one tool is swapped for another. Mach7's role is the layer underneath: rules-based routing with scheduled queries, HL7 in and out with order reconciliation, and a vendor-neutral store with no proprietary internal format, so adopting a tool is a configuration decision rather than a rebuild. Mach7 can route a study to an AI algorithm, take the result back, and act on it inside enterprise workflow. Mach7 does not read images or make clinical decisions; the algorithm and the clinician do that. Set those requirements before you choose the algorithm.

8 Cloud migration locked to vendors

Cloud migration in imaging is rarely a single-step event. Most organizations move incrementally, maintaining on-premises infrastructure for some workloads while shifting others to cloud environments. Without a vendor-neutral data layer, those migrations become tightly coupled to individual platform vendors, constrained by their timelines, platforms, and cloud partnerships.

SOLUTION

Mach7 decouples data management from application infrastructure, allowing organizations to migrate storage, compute, and access in a phased and controlled manner. Imaging content remains accessible throughout the transition, and future infrastructure decisions are not locked in by past platform choices.

06 · CAPABILITY CONTRAST

What a PACS does well, and what a foundation adds

WHAT A DIAGNOSTIC PACS DOES WELL	WHAT AN ENTERPRISE IMAGING FOUNDATION ADDS
Image interpretation and diagnostic performance	+ Cross-department and cross-site access
Radiology workflow optimization	+ Enterprise data governance and ownership
Departmental image management	+ Workflow orchestration across systems
High-performance reading tools	+ Imaging consolidated once and available to clinical systems
	+ Data and index governed independently of any single application
	+ Phased cloud migration on a vendor-neutral data layer

07 · IMAGING WITHOUT BOUNDARIES

Conclusion

Imaging without boundaries means removing the barriers between systems, specialties, and care settings. A strong diagnostic platform and a robust enterprise imaging foundation serve distinct but complementary roles. The challenge is not choosing the right system; it is ensuring that systems operate as part of a coherent whole.

Imaging without boundaries reflects a shift in perspective, from managing systems individually to enabling them collectively. Rather than replacing what works, the goal is to connect what exists into something greater. Diagnostic platforms will continue to evolve. Mach7 ensures they evolve together.

About Mach7

Mach7 Technologies provides enterprise imaging: a vendor-neutral archive (VNA), the Communication Workflow Engine (CWE), the eUnity enterprise viewer, AI enablement, and Flamingo as the next offering. To learn more about how Mach7 supports enterprise imaging across complex healthcare environments, visit mach7t.com. Conformance and integration statements are published openly at mach7t.com/conformance-statements.