Rocket® software

Modernization Across Infrastructure and Applications: Four pragmatic paths for hybrid enterprises

Executive summary

Enterprise modernization is no longer a single initiative with a single destination. It is a continuous effort to reduce risk, control cost, and increase agility across a hybrid reality: steadily reduce technical debt in mission-critical systems, adopt fast-moving cloud services, and effectively leverage business platforms — all operating side by side.

In this environment, the central challenge for infrastructure and IT leaders is not simply moving workloads. It is putting information into motion — ensuring critical data and unstructured content can be governed, accessed, integrated, and acted on wherever applications and agentic services run.

Hybrid architectures should not be viewed as a forced choice between cloud and mainframe. Instead, hybrid is a flexible modernization strategy tailored to your organization's risk tolerance, cost pressures, compliance needs, and architectural reality.

This whitepaper outlines four pragmatic mainframe modernization paths that organizations can adopt — individually or in combination — to modernize infrastructure and applications while efficiently managing long-lived unstructured content. These paths help enterprises modernize without forcing a one-size-fits-all migration:

- Modernize in place.
- Stream data off.
- Replatform applications.
- Replace applications entirely.

Across these paths, Rocket Software — through Rocket® ContentEdge™ — helps organizations modernize confidently by serving as the durable custodian of record for critical documents and unstructured data. With open architecture, integration across enterprise platforms, and a cloud-native approach for cost efficiency, Rocket Software enables progress without disrupting mission-critical operations — today and tomorrow.

The modernization imperative: Navigating data volume & complexity

Modern enterprises generate and retain information at unprecedented scale. The real issue is not simply volume — it is complexity. Information lives across multiple environments and systems, including the mainframe, distributed platforms, cloud services, and packaged applications. Increasingly, success depends on the ability to connect these environments to deliver outcomes quickly and safely to people, systems, and AI agents.

At the center of this challenge is unstructured content — documents, statements, notices, policies, claims, images, logs, and customer communications. This content often has long retention requirements and must remain accessible for audits, customer service, compliance, and business continuity. It is also frequently tied to mission-critical processes that cannot tolerate downtime.

The mainframe remains crucial in this landscape, not as a legacy obstacle, but as a stable, powerful platform for many of the world's most important workloads. Modernization does not require abandoning the mainframe. It requires modernizing how information is governed, accessed, and integrated across environments — so the organization can innovate without increasing operational risk.

In practical terms, modernization is about putting information into motion: securely accessing what is needed, when it is needed, across hybrid environments — without breaking mission-critical systems.

Current challenges in mission critical infrastructure

Infrastructure teams face pressure from multiple directions at once.

01

Cost pressure & capacity growth

Storage and compute demand continue to expand as enterprises retain more data for longer periods, support more applications, and respond to new analytics and AI initiatives. Even when total budgets increase, infrastructure leaders are expected to deliver more capacity and performance while controlling cost.

02

Data gravity & lock in

Long lived unstructured content creates data gravity. Content such as mortgages, insurance policies, claims, and regulated communications must be stored and accessed for decades. When that information becomes deeply embedded in a platform or silo, the cost and risk of moving it increase dramatically.

03

Risk & business continuity

Modernization projects compete with the reality that core business operations cannot be disrupted. Full application rewrites can introduce significant risk: long timelines, uncertain outcomes, skills constraints, and the possibility of operational instability. For many organizations, “big bang” modernization is not just undesirable — it is not feasible.

04

Fragmentation across ecosystems

Enterprises do not operate in a single stack. Mainframes run alongside cloud native services. Business platforms — such as ERP systems and industry solutions (for example, claims and policy platforms) — become central to operations. Without a consistent way to govern and mobilize content across these systems, organizations risk duplicating data, creating compliance exposure, and slowing transformation.

These challenges point to a clear conclusion: modernization must be pragmatic, path based, and aligned to constraints, not driven by a one size fits all mandate.

Four pragmatic paths to application & infrastructure modernization

Every application and every modernization initiative has different constraints and goals. The right approach depends on timelines, compliance needs, architecture, resources, skills, and risk tolerance. The four paths below reflect how many enterprises modernize in the real world, balancing progress with stability.

Path 1 | Modernize in place

What it is:

Keep data and applications on the mainframe while extracting more value through improved access, governance, integration, and operational efficiency.

When it fits:

This path is ideal for organizations that expect core workloads to remain on the mainframe for the foreseeable future and need to reduce risk while improving agility. It also fits enterprises with strict compliance, audit, or timing constraints that make large scale migration impractical.

What success looks like:

- Better access to content without disrupting core systems.
- Stronger governance and controls over long lived content.
- Improved hybrid integration to enable adjacent modernization programs, such as AI ready data.

For many organizations, modernizing in place is the safest way to create momentum — delivering measurable improvements while preserving business continuity.

Path 2 | Stream data off

What it is:

Leave applications unchanged while securely streaming content off platform to reduce mainframe storage dependency and cost.

When it fits:

This path is often chosen when storage pressure is immediate and the organization wants fast wins without changing application logic. It is also a strong foundation for longer term transformation.

Core philosophy:

Create once; manage for decades off the mainframe.

By moving long lived content off platform while maintaining access and governance, organizations can reduce storage growth pressure and improve flexibility. Importantly, streaming often becomes the first modernization milestone — delivering cost relief while laying groundwork for future modernization (including replatforming or replacement).

Path 3 | Replatform applications

What it is:

Move legacy applications (for example, COBOL workloads) to cloud environments such as Amazon Web Services® (AWS®) while preserving core logic with minimum risk — without a wholesale rewrite.

When it fits:

This path is for organizations seeking infrastructure cost reduction or faster infrastructure change, but that cannot justify the risk, cost, and duration of full rewrites.

Why it works:

- Reduces infrastructure constraints while preserving business logic.
- Leverages existing team expertise.
- Often pairs naturally with streaming approaches for content and output.

Replatforming allows organizations to modernize in steps — moving workloads while keeping information governed and accessible across the transition.

Path 4 | Replace applications entirely

What it is:

Transition from legacy applications to industry platforms or net new builds — while ensuring historical content remains accessible, governed, and integrated.

When it fits:

Organizations choose to replace legacy business applications when modernization includes functional transformation: adopting an industry solution, standardizing platforms, or rebuilding for new digital experiences.

The key challenge:

Replacement initiatives often slow down or fail when teams attempt to migrate every historical document and piece of content into the new platform. That creates a large migration "blast radius" that increases risk and delays value.

A pragmatic approach:

Preserve and expose historical content through open APIs and integration — so the new ecosystem can access what it needs without requiring an all at once migration of decades of content. This approach limits the scale of the migration project while enabling modernization momentum.

Unifying fragmented ecosystems & unstructured content

Regardless of the path, modern enterprises must address one reality: operating across fragmented ecosystems is the norm. The question is whether that fragmentation becomes a barrier or a managed, governed, integrated fabric.

A unified technology approach is needed to connect mainframe, distributed, cloud, and packaged applications so that content can be discovered, accessed, governed, and used effectively. Content federation plays a critical role here, minimizing the number of user experience and API touchpoints while providing control and compliance.

When information silos are broken down responsibly, organizations benefit:

- Improved operational performance through faster access to information.
- Stronger internal controls and governance.
- Better support for regulatory requirements.
- Enable agentic workflows and automation.

This is where modernization shifts from "moving workloads" to enabling the enterprise to innovate continuously—without losing control of the content that powers mission critical processes.

Empowering your journey with Rocket® ContentEdge™

Modernization is rarely a straight line. Many organizations pursue multiple paths at once — streaming content off in one area, replatforming workloads in another, and adopting new platforms elsewhere.

Rocket Software supports this reality by serving as the durable custodian of record for critical documents and unstructured data — providing a fast, low risk route to modernization progress.

With ContentEdge, organizations can:

- Support multiple modernization paths simultaneously.
- Integrate with enterprise platforms such as ERPs and industry systems.
- Leverage open architecture and APIs to connect ecosystems.
- Adopt a cloud native approach for cost efficiency and continuity.

Just as importantly, Rocket Software recognizes the responsibility that comes with mission critical IT. Modernization is executed step by step — helping teams achieve near term wins while building toward long term transformation.

Conclusion: Driving innovation with confidence

The modernization choices you make today determine how effectively your organization innovates tomorrow. Whether your priority is cost control, risk reduction, agility, platform transformation, or all of the above, the most successful organizations choose pragmatic paths that fit their constraints and evolve over time.

A flexible modernization strategy delivers practical benefits:

- Reduced dependency and cost pressure.
- Improved accessibility and usability of critical content.
- Strong governance across hybrid environments.
- A foundation for AI driven capabilities and actionable insights.

The most effective approach often starts with the fastest wins — building momentum without disruption. With Rocket Software and ContentEdge, enterprises can modernize confidently, connect their ecosystems, and turn information into a strategic asset. Modernization. Without Disruption.™

About Rocket Software

Rocket Software is a global technology leader in modernization and a partner of choice that empowers the world's leading businesses on their modernization journeys, spanning core systems to the cloud. Trusted by over 12,500 customers and 750 partners, and with more than 3,200 global employees, Rocket Software enables customers to maximize their data, applications, and infrastructure to deliver critical services that power our modern world. Rocket Software is a privately held U.S. corporation headquartered in the Boston area with centers of excellence strategically located throughout North America, Europe, Asia and Australia. Rocket Software is a portfolio company of Bain Capital Private Equity.

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