# UiPath Test Cloud for Epic Applications:

## Strengthening quality, resilience, and trust in healthcare delivery



UiPath

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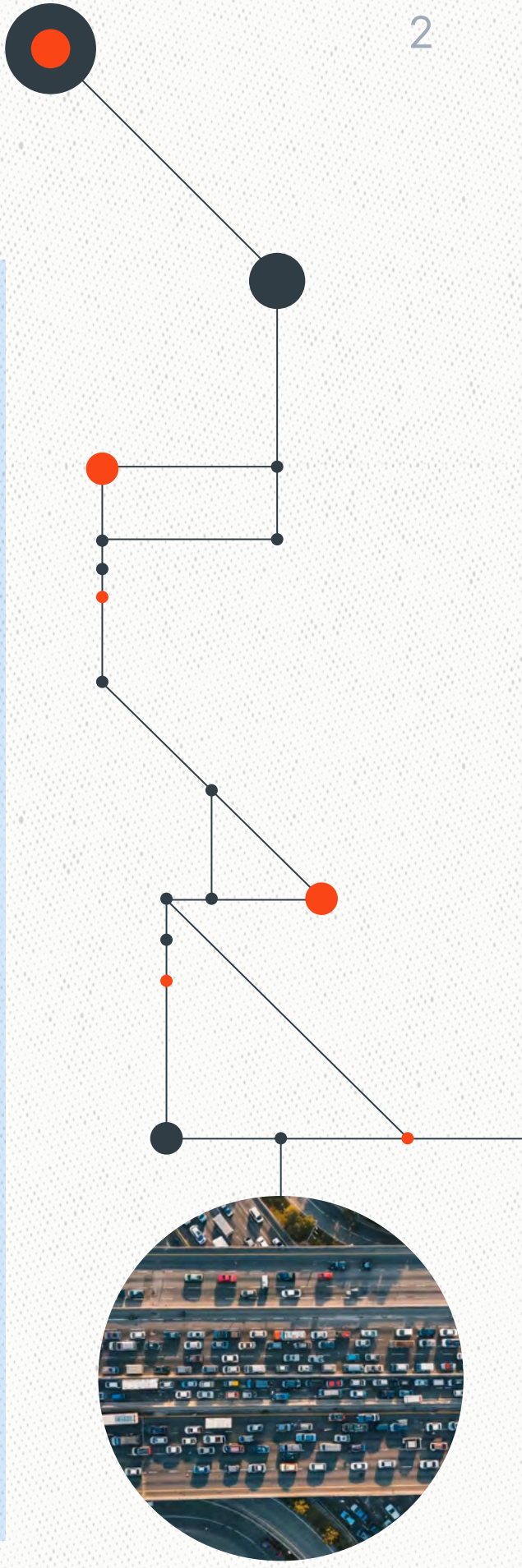


# Why testing Epic systems has become a strategic healthcare issue

Epic sits at the operational heart of modern healthcare organizations. It supports clinical documentation, medication management, scheduling, revenue cycle operations, interoperability, and patient engagement. For many health systems, Epic is not just software; it is the digital backbone of care delivery.

At the same time, healthcare organizations are navigating rising digital complexity and increasing regulatory expectations. Interoperability mandates continue to evolve under the 21st Century Cures Act. Standards such as HL7® FHIR® are reshaping data exchange. HIPAA and state-level privacy laws demand rigorous control over protected health information (PHI).

Meanwhile, health systems are modernizing infrastructure, expanding telehealth, adopting cloud services, and integrating with partners across the care continuum. Epic environments are updated frequently, customized extensively, and tightly integrated with laboratory, pharmacy, imaging, billing, and third-party systems.

## In this environment, software quality is no longer an internal IT concern

A defect in scheduling logic can delay care.

An integration failure can disrupt clinical decision-making.

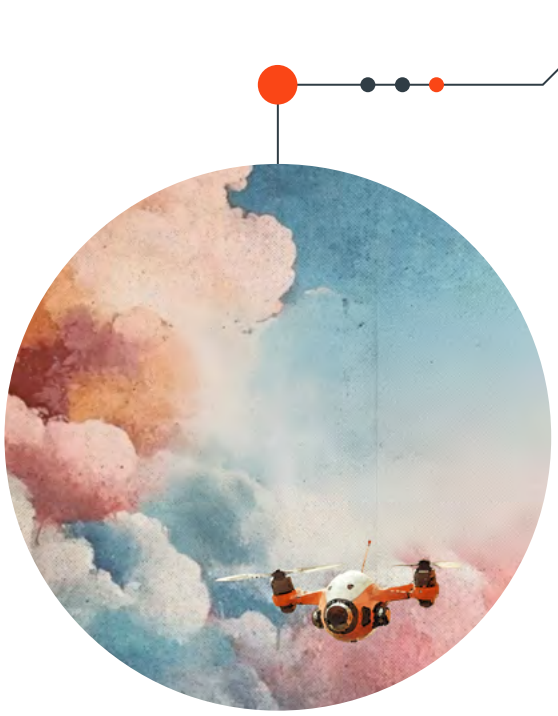
A billing workflow error can impact revenue integrity.

Testing now directly influences patient safety, clinician productivity, financial stability, and regulatory posture.

Yet many healthcare organizations still rely on manual testing processes or fragile automation frameworks that struggle to keep pace with Epic's scale and complexity. As release cycles accelerate, the tension grows between the need for rapid innovation and the obligation to maintain reliability and compliance.

Testing Epic systems has become a strategic healthcare issue.

And it requires a new approach, one that combines governance, automation, and AI-driven intelligence to continuously validate quality across the entire application landscape.



# The limits of traditional test automation in Epic environments

Traditional test automation is built around predefined scripts.

Engineers identify selectors, define expected outcomes, and execute those scripts as part of release cycles. Compared to manual testing, this approach improves efficiency. But in complex, constantly evolving Epic environments, it exposes structural weaknesses.

**Epic systems are:**

- Frequently updated
- Heavily customized
- Often delivered through Citrix or other virtual desktop environments

User interfaces shift. Fields move. Labels change. Virtualization layers add abstraction between the automation tool and the application.

Even small interface adjustments can cause brittle scripts to fail.

## The result?

Quality assurance teams spend valuable time repairing automation instead of expanding coverage. Regression suites become unreliable. High-risk workflows revert to manual validation.

Release velocity slows. Confidence drops. Exposure to late-stage defects increases.

In environments where Epic underpins patient care, revenue, and compliance, that risk is not theoretical.

## It's operational

A different approach is required, one that blends automation with adaptive intelligence, while preserving rigorous human oversight.



# Agentic testing: AI assistance with human accountability

Agentic testing introduces AI-driven capabilities across the testing lifecycle.

**Instead of relying solely on static scripts, AI can assist with:**

- Generating and expanding test cases
- Identifying workflows impacted by system changes
- Analyzing failure patterns
- Recommending updates when application elements shift

This does not remove humans from the process.

In regulated healthcare environments, autonomy must be governed.

Within UiPath Test Cloud, AI-assisted capabilities operate under structured human supervision. Test engineers review and approve generated test cases. They validate recommended updates. They retain full accountability for what is executed and promoted into release of pipelines.



Role-based access controls, centralized management, and full traceability ensure that quality remains measurable and auditable.

This human-in-the-loop model is essential in healthcare, where change control and compliance are foundational.

The objective is not to replace clinical or technical judgment. It is to augment it.

Reduce manual effort. Increase coverage. Strengthen resilience. Maintain governance.

## And ultimately, protect the systems that protect patients

# Core testing challenges in epic-centric healthcare organizations



Epic environments don't fail because teams lack effort. They fail because of complexity compounds.

Below are the three structural testing challenges most healthcare organizations face.

## 1. Interface complexity and virtualized delivery

Epic Applications are deeply configurable and frequently accessed through Citrix or other virtual desktop environments.

That combination introduces volatility.

Traditional automation tools depend on static selectors and fixed object identifiers. When screen layouts shift, even slightly those scripts break. Virtualization layers add another abstraction point between the automation tool and the user interface, increasing fragility.

The impact isn't just technical.

Frequent script failures:

- Erode confidence in automation
- Increase maintenance overhead
- Shift QA effort from expansion to repair

Over time, teams narrow test scope to stay within release timelines. Coverage stagnates. Risk accumulates quietly.

## 2. End-to-end process and integration risk

Epic rarely operates in isolation.

It exchanges data with:

- Laboratory systems
- Imaging platforms
- Pharmacy management systems
- Revenue cycle and payer portals
- External provider networks

Standards such as HL7 and FHIR enable interoperability, but they do not eliminate integration complexity.

Testing modules in isolation create blind spots across real-world patient journeys.

A medication order may:

1. Originate in a clinical module
2. Route through pharmacy verification
3. Trigger billing logic
4. Generate downstream data exchange events

If testing does not validate the full end-to-end workflow, defects may only surface after deployment, when they affect clinicians, patients, or revenue operations.

## 3. Sensitive data and test data constraints

Epic systems manage protected health information (PHI) and other highly sensitive clinical data.

Access to production-like datasets is tightly controlled for good reason. But this creates testing friction.

Manual data creation, cloning, and masking processes are:

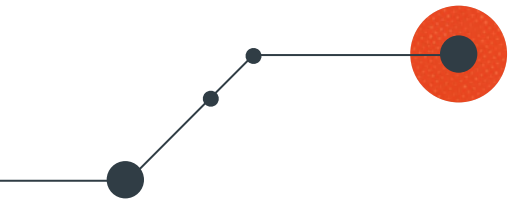
- Labor-intensive
- Slow
- Prone to human error

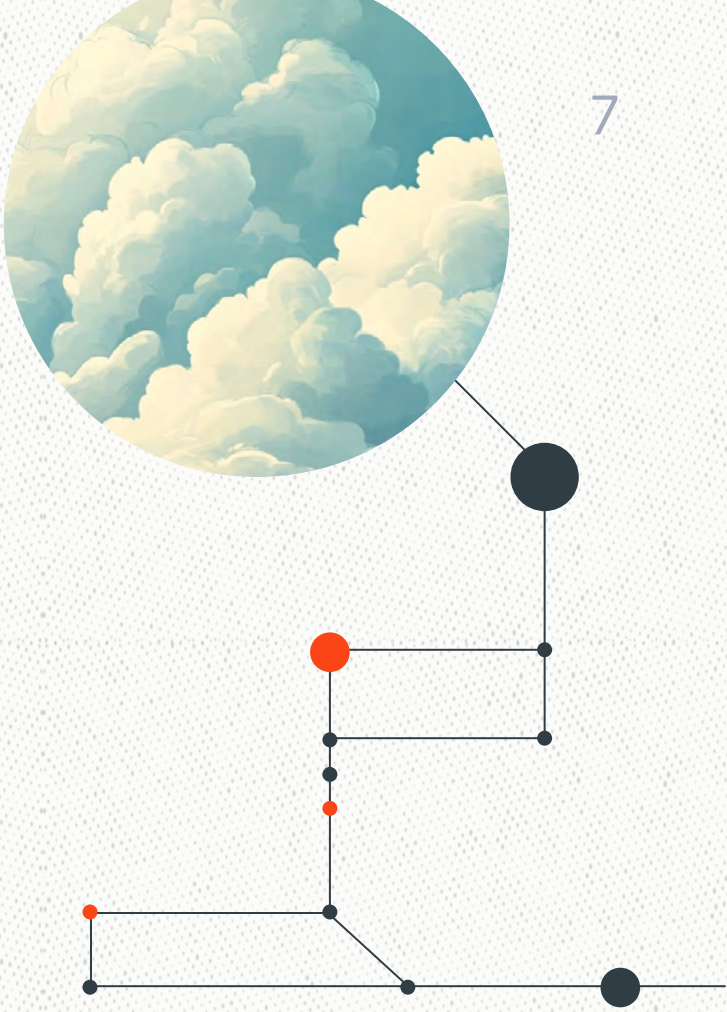
Without realistic, compliant test data, it becomes difficult to validate complex scenarios such as:

- Patient transfers across facilities
- Insurance adjustments and denials
- Multi-step clinical workflows
- Cross-department handoffs

Testing without representative data reduces confidence. Testing with uncontrolled data increases risk.

Neither is acceptable in regulated healthcare environments.





# A unified, governed approach with UiPath Test Cloud

Epic environments demand more than automation. They require visibility, governance, and resilience across the entire application landscape.

UiPath Test Cloud provides a centralized, cloud-based platform to design, execute, and govern testing across user interfaces, APIs, and integrated workflows—including complex Epic-centric ecosystems.

It enables healthcare organizations to move from fragmented testing practices to coordinated, enterprise-grade quality management.

# Resilient automation for virtualized interfaces

Epic deployments frequently run through Citrix or other virtual desktop environments. Traditional selector-based automation struggles in these environments, especially when UI properties or layouts shift.

Test Cloud incorporates computer vision and multi-anchor targeting to improve automation resilience in virtualized interfaces.

Instead of relying on a single static selector, automation can reference multiple attributes and visual context. When updates or configuration changes occur, scripts are less likely to fail.

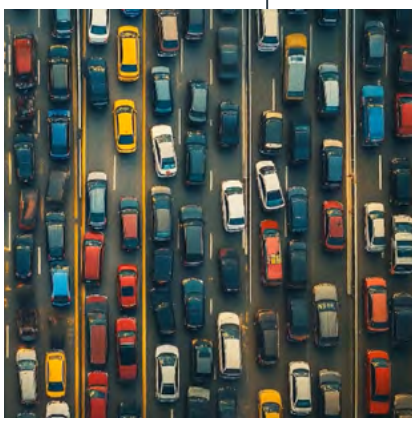
And when elements do change, AI-assisted self-healing capabilities can suggest updates.

Importantly:

## Test engineers review and approve suggested changes before execution

This preserves accountability while reducing manual repair effort, allowing teams to focus on expanding coverage rather than fixing brittle scripts.

# End-to-end validation across systems



UiPath Test Cloud supports testing across UI, API, and workflow layers, enabling coordinated validation of Epic-driven processes that span multiple systems. Integration with CI/CD pipelines allows regression suites to execute consistently as part of defined release processes.

AI-assisted change impact analysis can help identify which workflows are likely to be affected by updates, supporting risk-based prioritization. Test gap analysis highlights areas with limited coverage, allowing teams to make informed decisions about where to expand automation.

This approach helps organizations move from siloed component testing to more comprehensive validation aligned with real-world clinical and administrative journeys.

# Governed test data management

UiPath Test Cloud supports synthetic and managed test data generation to help teams create representative datasets without exposing real patient information.

AI-assisted data creation can accelerate scenario generation, while customizable data models allow alignment with healthcare standards and internal governance policies.

Automated provisioning and lifecycle management reduce manual effort and improve repeatability.

No platform replaces regulatory responsibility. But UiPath Test Cloud supports controlled, traceable test data practices consistent with HIPAA-aligned governance models, helping organizations balance realism with compliance.



# Why this approach works in healthcare

1. First, it reduces the maintenance burden in highly customized systems. Resilient automation and AI-assisted update suggestions help limit the cycle of brittle script repair that often undermines traditional frameworks.

2. Second, it improves visibility and governance. Centralized test management and role-based controls support traceability and audit readiness during internal reviews or external assessments.

3. Third, it enables risk-informed prioritization. By supporting end-to-end workflows and change impact analysis, Test Cloud gives teams the visibility needed to prioritize scenarios that may affect patient care processes, revenue integrity, and interoperability.

4. Finally, it supports scalable regression as complexity grows. Cloud-based orchestration and execution reduce the need for large, dedicated on-premises test environments while enabling expanded coverage.

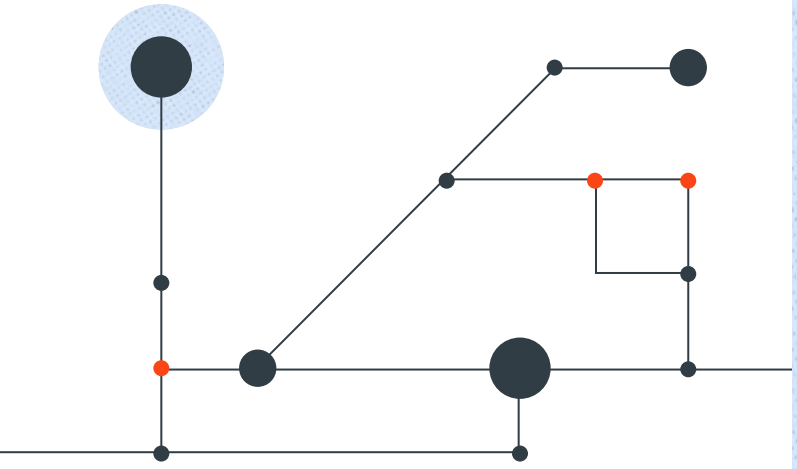
# Illustrative enterprise patterns

In highly regulated industries such as financial services and banking, organizations have used UiPath Test Cloud to centralize test governance, accelerate regression cycles, and reduce manual effort in complex, integrated environments.

While healthcare presents unique clinical considerations, the underlying challenges, data sensitivity, integration of breadth, and regulatory oversight, are comparable.

These organizations report improved visibility into release readiness, more consistent quality gates within CI/CD pipelines, and reduced reliance on manual testing for critical workflows. The pattern is consistent: AI-assisted acceleration combined with structured human oversight.

Healthcare organizations pursuing similar modernization initiatives can apply these principles within Epic-centric environments, adapting governance models to clinical and regulatory requirements.



# The measurable impact of UiPath Test Cloud

Modernizing testing in Epic-centric environments is not just about technical improvement. It produces measurable operational and financial impacts.

Based on **IDC research**, and customer results, organizations using Test Cloud report:

**$4M**
**average annual savings and**

**529%**
**ROI over 3 years**

**62%**
**faster test execution**

**~50%**
**reduction in manual testing effort**

**90%+**
**automation coverage**

**6x**
**faster release cycles**

While results vary by organization, the pattern is clear: AI-assisted, governed testing materially improves both release velocity and production stability.

# What these metrics mean for healthcare

In Epic-centric healthcare environments, these improvements translate into meaningful operational advantages.

# Faster, more predictable releases

Doubling feature throughput does not simply accelerate IT delivery. It enables:

- Faster configuration updates
- More responsive interoperability enhancements
- Reduced backlog pressure on clinical IT teams

In a healthcare context, predictable release cycles improve coordination across clinical, operational, and revenue stakeholders.

# Strategic implications for healthcare leaders

Healthcare executives and IT leaders face a dual mandate: accelerate digital transformation while safeguarding patient safety and regulatory compliance. As Epic environments expand in scope and integration depth, traditional testing models become increasingly strained.

A governed, agent-assisted testing platform offers a path forward. By embedding AI assistance within controlled workflows, organizations can expand coverage, shorten regression cycles, and strengthen confidence in release decisions, without relinquishing oversight.

Testing evolves from a reactive checkpoint into a continuous assurance capability aligned with clinical, operational, and compliance priorities.



# Building confidence into the digital backbone of care

Epic systems power the most critical workflows in modern healthcare, from clinical documentation to revenue cycle management to interoperability across the care continuum.

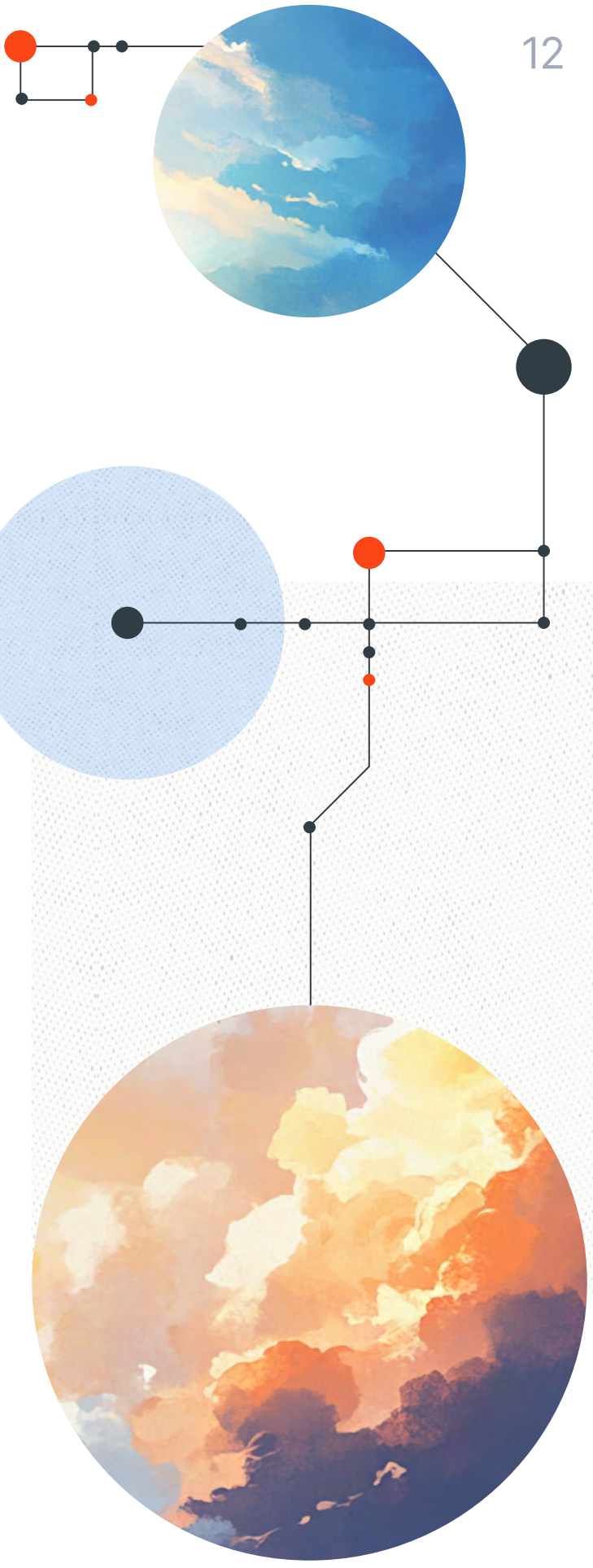
As digital complexity accelerates and regulatory expectations evolve, quality engineering must advance with equal discipline.

UiPath Test Cloud delivers a unified, cloud-based platform that combines resilient automation, AI-assisted capabilities, and governed workflows. In Epic-centric environments, it helps healthcare organizations:

- Reduce maintenance burden in highly customized systems
- Validate end-to-end clinical and administrative processes
- Strengthen governance and traceability
- Manage test data responsibly in regulated environments

## This is not an automation for its own sake. It is disciplined acceleration

Agentic testing augments human expertise, enabling healthcare organizations to innovate faster while protecting the reliability, privacy, and trust that patient care requires.



# Move from reactive testing to resilient, governed quality

## Discover how UiPath Test Cloud can strengthen your Epic environment and accelerate innovation with confidence.



# About UiPath

UiPath develops AI technology that mirrors human intelligence with ever-increasing sophistication, transforming how businesses operate, innovate, and compete. The UiPath Platform™ accelerates the shift toward a new era of agentic automation—one where agents, robots, people, and models integrate seamlessly to drive autonomy and smarter decision-making. Powered by the UiPath Platform™, UiPath Test Cloud augments testers with enterprise-ready, production-grade, test automation for 190+ technologies and AI agents for agentic testing—the next evolution of software testing.

**Explore UiPath Test Cloud**

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