RADIATA

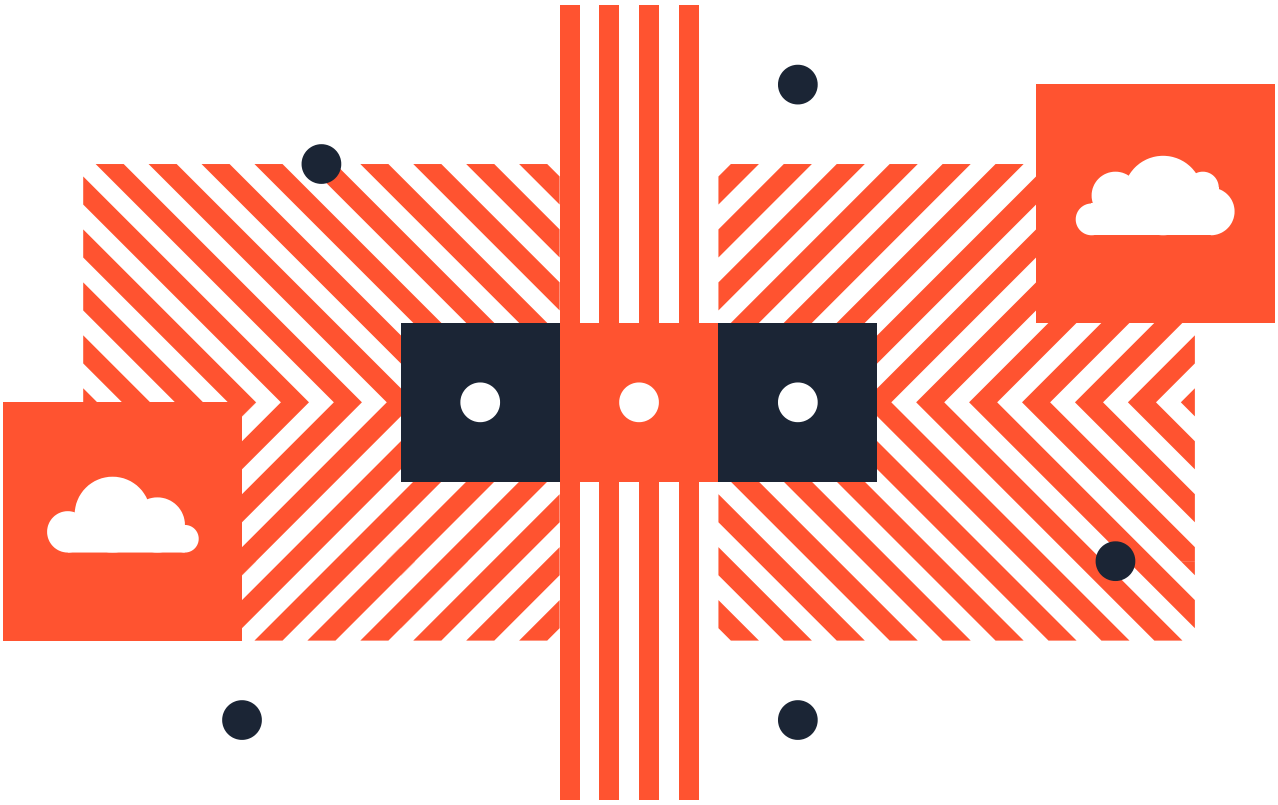
Cloud vs. Colocation vs. On-Prem: Making the Right Infrastructure Decision

Table of contents

Introduction

Most IT leaders today are not choosing between cloud, colocation, or on-premises infrastructure in isolation. They are trying to understand which mix will serve their performance needs, security requirements, and long-term budget. What was once a binary choice is now a layered strategy.

This article is not about advocating for one model over another. Instead, it lays out how to evaluate them side by side and where each makes the most sense depending on business goals and technical priorities.



How to Approach the Decision

Start with what matters most to your organisation. If speed and scalability outweigh everything else, the cloud has clear advantages. If data sovereignty or regulatory control are top concerns, on-premises or colocation may be more appropriate. Some businesses need all three, especially those operating in regulated industries with global customer bases.

Here is a simplified comparison:

	Cloud	Colocation	On-Prem
Ownership	None	Partial (hardware only)	Full
Cost Model	Usage-based	Fixed recurring fee	High upfront plus maintenance
Speed to Deploy	Fast	Moderate	Slow
Security Control	Shared	Dedicated hardware, shared facility	Full internal control
Compliance Support	Varies by provider	High (certified facilities)	Must be maintained internally
Scalability	Dynamic	Within facility limits	Requires new investment

Use Cases and Industry Considerations

Finance and Legal

These sectors need to know exactly where their data resides and who has access. Many lean on colocation for regulatory compliance while keeping sensitive systems in-house. Cloud is used, but selectively, often for analytics or customer engagement platforms.

Healthcare

Patient data regulations demand strict safeguards. Some hospitals choose colocation for electronic health record systems while using cloud services for research or AI-powered diagnostics.

Retail and SaaS

Rapid traffic spikes, global reach, and customer-facing apps make cloud the natural fit. Most modern software companies are cloud-native, but many integrate colocation or on-prem environments for legacy tools or database performance.

Manufacturing and Energy

Operational systems are often latency-sensitive. In these cases, on-prem infrastructure or edge deployments offer better control. Cloud still plays a role, particularly for analytics and monitoring.

Hybrid Infrastructure Is Now the Norm

Few companies rely on a single model. Hybrid infrastructure is the default for most mid-sized and enterprise-level organisations.

This could mean running customer apps in the cloud, keeping financial systems in colocation, and handling access control or physical security with on-premises infrastructure. Others use cloud for test environments and burst capacity while retaining production systems in dedicated hardware.

A hybrid strategy allows flexibility. It also introduces complexity, so orchestration and cost visibility become critical.

RADIATA

What Total Cost of Ownership Looks Like

Costs vary significantly depending on scale, but here is a rough outline over a five-year span:

	TCO Outlook	Main Factors
Cloud	Low to high depending on usage	Compute hours, storage, egress, premium tools
Colocation	Predictable, moderate	Rack space, power, bandwidth, support
On-Prem	Highest due to capital and staffing	Hardware, maintenance, power, IT salaries

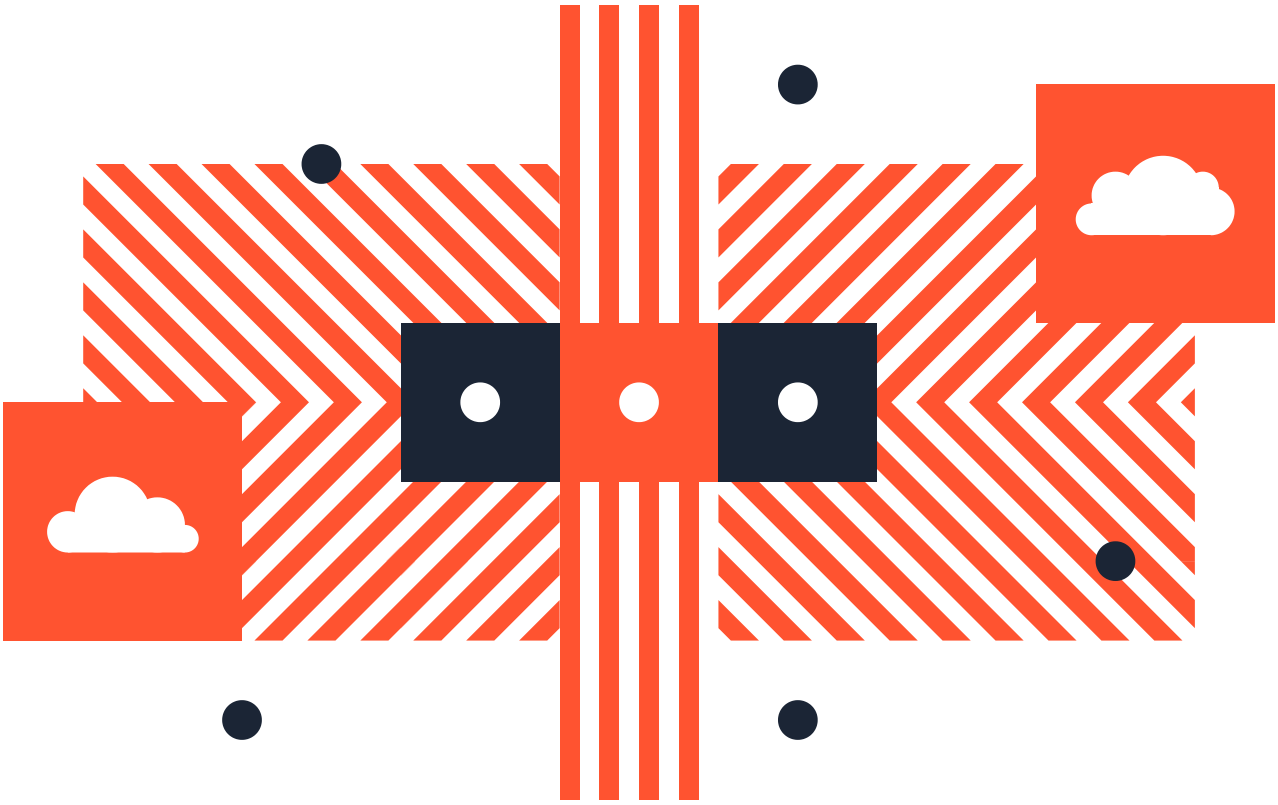
Cloud is often assumed to be cheaper, but this depends heavily on workload optimisation.

Colocation offers long-term predictability with lower cost than on-prem, though it still requires managing your own equipment.

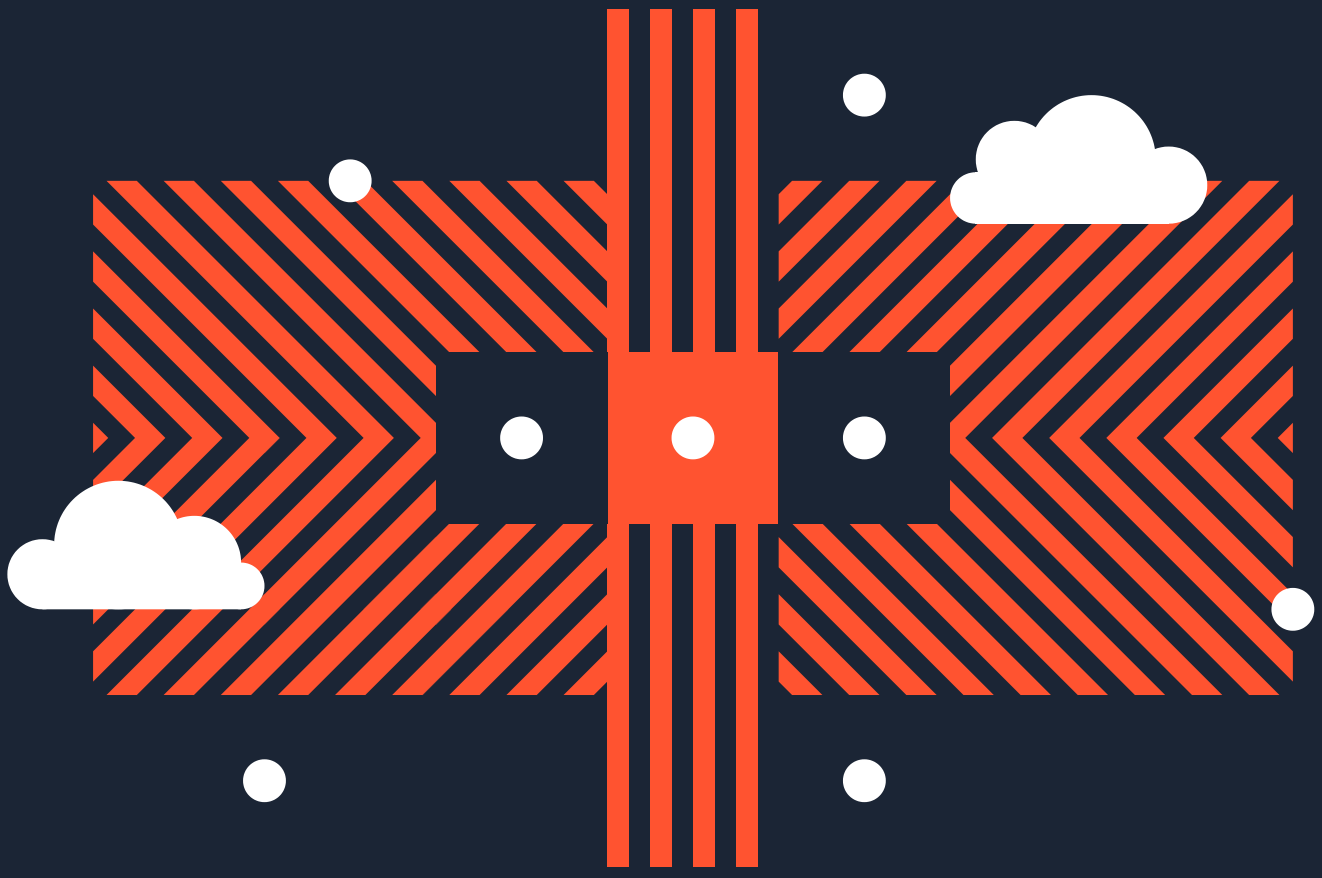
On-premises remains the most expensive option but offers full control.

Conclusion

Infrastructure decisions are no longer about choosing one path. They are about creating the right blend. Cloud provides flexibility and speed, colocation supports compliance and performance, and on-prem delivers the most control.
The right mix depends on your applications, budget tolerance, and compliance environment. What matters most is that the decision is deliberate. In the end, choosing infrastructure should serve your business not the other way around.



RADIATA



“Lorem ipsum dolor sit amet consectetur adipiscing elit.”