



# Cloud Infrastructure and the Game of Tradeoffs

Winning complexity, performance, and control battles with SoftIron HyperCloud



## Executive summary

Today, “the vast majority of enterprises favour a hybrid cloud approach,” according to IDC.<sup>1</sup> And although most organisations rely on some type of hybrid cloud in one form or another and cloud remains the “future” of computing, hybrid infrastructures are full of frustrating complexity, performance, control, and resiliency tradeoffs. The need for better approaches at the edge only adds to the difficulties. Increasingly, technology leadership is wrestling with questions about data repatriation and sovereignty while struggling to find the specialised IT skills needed to manage complex infrastructure operations. The problem is that virtually every new solution that comes to market isn’t better—it’s just complicated in a different way.

Our call to arms at SoftIron has been to finally set organisations free from some of the biggest hybrid and cloud infrastructure tradeoffs by introducing a radical new approach. This white paper explores the significant tradeoffs with current infrastructure approaches and introduces SoftIron HyperCloud, a fully turnkey, totally integrated and supported intelligent cloud fabric of hardware and software that allows you to effortlessly deploy your own cloud independent of any public or private cloud provider. HyperCloud enables low-touch cloud operations and provides the highest level of resiliency without requiring hyperscale or the need for highly skilled operators to keep it running. And it frees you to build the hybrid and/or multi-cloud strategy that meets your objectives, with the kind of reliability, availability, elasticity, and serviceability previously reserved for hyperscale cloud builders. We realise these are some big claims, so let’s revisit the state of today’s common “cloudscapes” and dig into how HyperCloud stands apart.

## Four main approaches to cloud

In the popular fantasy television series, Game of Thrones, four main houses fight for control of seven kingdoms. In the cloud world, four main approaches, each full of many vendor “houses,” are battling for supremacy in enterprise environments. And in both cases, it’s often a complex and messy fight with many surprising twists. Complexity and plot twists are a lot of fun when you want to be entertained. But not so much when you are trying to answer difficult questions like:

- » What’s the best way to enable application teams to deliver quickly and efficiently?
- » How do I plan with limited access to skills as we grow?
- » How do I best use public cloud for its reach and elasticity?
- » How do I maintain compliance and security across an increasingly complex IT landscape?
- » How do I integrate the performance needs of a growing “edge” into the broader IT strategy?



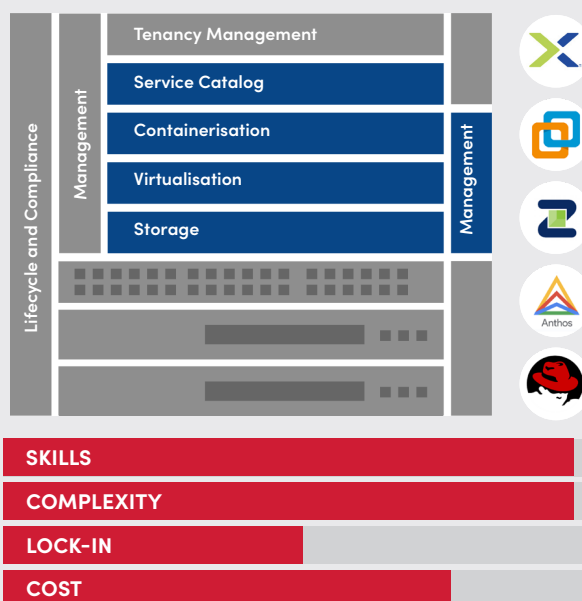
## A quick look at each of the four primary hybrid cloud models reveals a host of tradeoffs in each case and reasons why these questions are so difficult to answer.

The vendors in each category tell auspicious stories about the flexibility, efficiency, scalability, and cost-savings to be gained from whatever form of private

or cloud hybrid cloud infrastructure they sell. But in all cases the reality is more nuanced; most approaches include gaps filled by costly professional services engagements. In those cases, technologies that are often, at best, loosely tied together require high levels of skill to configure and run. When vendors do conquer much or most of the complexity, high costs and vendor lock-in are always lurking in the shadows.

### Software defined infrastructure vendors

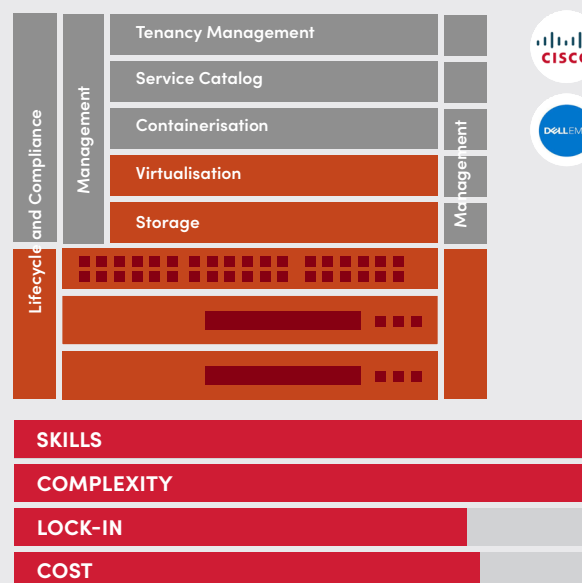
The biggest promise of the software defined infrastructure (SDI) approach is freedom from vendor lock-in and cost savings. However, it also presents formidable integration and orchestration challenges. In Game of Thrones, the character LittleFinger notes that “Chaos isn’t a pit. Chaos is a ladder,” and many would argue the same holds true for complexity, but mindset is key. After all, the SDI vendors only handle the software layers, including service catalogue, containerisation, virtualisation, storage, and management. When it comes to integrating from the virtualisation layers down into the hardware, you’re on your own unless you hire out. But large deployments take protracted professional services engagements, and then you still need to manage the infrastructure, which typically involves multiple management interfaces, a host of support contracts, and support from a highly skilled team. On the upside, you get to choose your own hardware, but generally only from a list of compatible options. What’s more, this approach assumes the hardware is generic and there’s little additional value to be gained from specialisation, which inevitably leads to inefficiencies in deployment and operation.



*SDI approaches help reduce costs and minimise vendor lock in, but not without significant orchestration and management challenges.*

### Integrated infrastructures

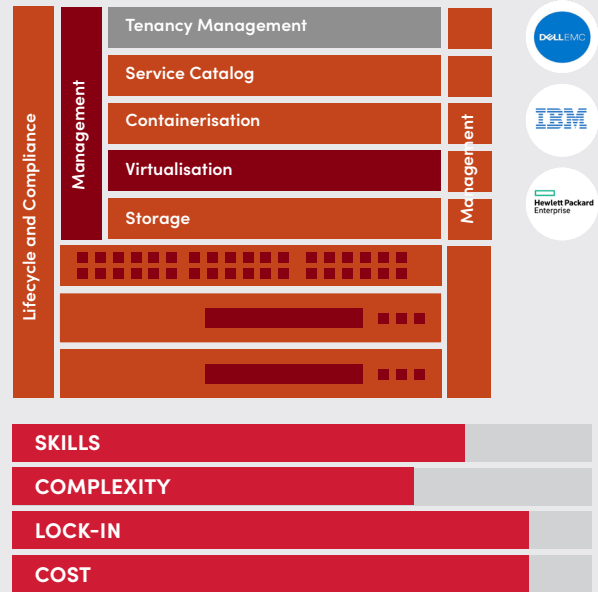
In cloud environments, different roads often lead to similar challenges. With integrated infrastructure offerings, vendors focus on delivering hardware and some form of (usually primitive) automation tooling. Standard configurations and support models lend to the appeal of integrated offerings. Ultimately, what they provide, however, is a feature-rich package of semi-independently operating hardware and software with separate management interfaces for provisioning and lifecycle management tasks. They often rely on proprietary or open source technologies for features above the physical infrastructure layer. And that means that in addition to paying a complex and costly licensing “tax” to run cloud environments, you’re once again dealing with multiple vendors for support. And you’re still not getting all the way to cloud because you lack the multi-tenant self-service experience.



*While Integrated infrastructure approaches simplify hardware-related considerations, they don’t solve all of the higher-level problems needed to deliver a full cloud self-service experience.*

## Edge-to-cloud offerings

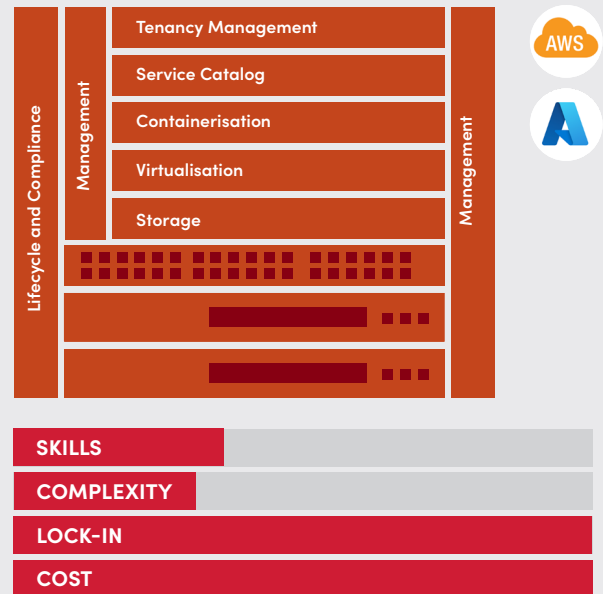
Today, several traditional vendors are offering seemingly “turnkey” clouds that begin to chip away at the complexity-related challenges in the previous two approaches. And while on the surface it looks like they are providing all the key layers, under the covers it’s another story. Once again, their capabilities only go so far up the stack so proprietary or open source technologies—and the added costs and considerations—are a critical part of the story. As is the lack of a true cloud multi-tenant self-service experience.



*Popular edge-to-cloud offerings may help reduce complexity, but they cost more and still don’t deliver a true cloud multi-tenant self-service experience.*

## Public cloud extensions on premises

Of all the current options on the market, only two of the major public cloud vendors have broken through the integration challenges to provide full on-prem cloud experiences. In each case, however, with greatly reduced complexity and skills requirements come significant costs and flexibility tradeoffs. Not only do public cloud vendors charge a premium for their usability and convenience, but they force you into their hardware and cloud ecosystems so you can forget about natively using other cloud vendor resources. Moreover, relying on a cloud-based control plane complicates provisioning and security considerations.



*Turnkey public cloud extensions solve the complexity challenge, but you have to pay a premium to be locked into their ecosystem.*

At the end of the day, with each of the current approaches, organisations need to focus on top considerations around cost, performance, control, or resilience to notch wins. Yet with complex multi-vendor solutions heavy maintenance burdens often stifle innovation and the ability to deliver real value; a full 84% of IT operators agree that they could bring more value to the organisation if they spent less time on routine

tasks.<sup>2</sup> Not to mention that all the semi-independent components and layers contribute to a potentially brittle security posture. Public cloud extensions, on the other hand, are a hard sell for the nearly 50% of IT departments struggling to control cloud costs.<sup>3</sup> Clearly, for many use cases there are significantly more potential benefits to squeeze out of hybrid approaches.

# Challenges at the core and edge loom large

Comparisons of common models aside, evolving demands are spurring many organisations to rethink how they deploy compute resources and rely on cloud. For example, data-intensive apps like AI and industrial IoT-based analytics need nearby, highly scalable infrastructure. And processing needs at the edge are growing rapidly, with analysts projecting that enterprises will generate and process upwards of 75% of their data outside data centres by 2025.<sup>4</sup>

While edge deployments may be essential for overcoming bandwidth and latency challenges, they introduce a host of new considerations for IT teams. For example, an edge location may have limited space and power resources; once power requirements exceed available on-site capacity you simply can't add more infrastructure without incurring more costs to drop in a new circuit, which has its own capital outlay considerations. Some "edges" will also be co-location facilities in third party data centres where you pay more when you need more power and have limited "intelligent hands" support options. In either case, an architecture that can be easily deployed and maintained is ideal.

Physical distances between edge locations and data centres also complicate troubleshooting, security updates, and routine maintenance at the edge. Even if you have resources with enough knowledge to work with all the different layers in the infrastructure stack, sending them to off-site locations may not be feasible or cost effective. And whoever is on site at an edge location may need to rely on overstretched key resources at the main data centre for help completing routine tasks. Depending on the approach you choose, it's easy to envision how these intertwined factors can lead to snowballing ownership costs.

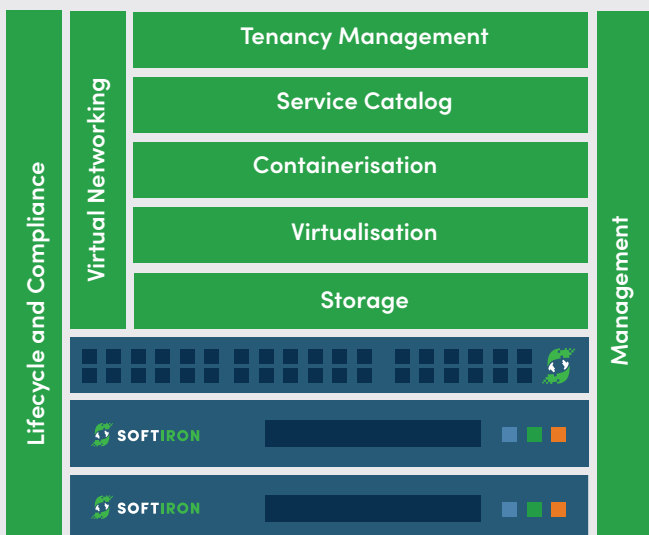
Supply chain fragility and growing political instability are also spurring many organisations to reconsider the very meaning of resiliency in service delivery. Many see potential security- and delivery-disruption-related risks from the global supply chain as a growing liability and they are seeking ways to minimise those risks.

Ultimately, what enterprises need to maximise benefits from hybrid approaches at the core and edge is the ability to escape vendor lock-in and select the right cloud for the right job. That means a sovereign cloud when governance, risk, and compliance are the top priority; industry clouds when performance is key; and the ability to easily tap into public cloud resources when cost is the main consideration. And they need a way to tap into each option without all the complexity, costs, and power and space challenges of existing solutions.

## Rise of HyperCloud

With HyperCloud, SoftIron is introducing a radically different approach to cloud that provides unprecedented flexibility, manageability, and control. HyperCloud is a fully turnkey, totally integrated and supported "intelligent cloud fabric". Our innovative technology strategy relies on flexible, distinct building blocks of compute, networking, and storage resources that together form an infinitely scalable solution. It even provides a public-cloud-like user experience—and the ability to easily burst to multiple public clouds when needed—without locking you into their management consoles.

When it comes to configuration and management, HyperCloud changes the game by eliminating the need for multiple siloed hardware and software layers and armies of highly skilled operators to keep them running. HyperCloud works out of the box, delivering secure multi-tenancy for low-touch, automated, and resilient operations at the core and the edge that any IT generalist can manage and expand.



# HyperCloud Intelligent Cloud Fabric™

The first fully turnkey,  
totally integrated and  
supported, technology  
for building clouds.

## Designed, not assembled for control, usability, and efficiency

As with all our products, SoftIron designed HyperCloud from the ground up, so it doesn't rely on generic hardware sub-assemblies or pre-compiled code. When we set out to create an intelligent cloud fabric, our goal was to dramatically reduce the complexity of operating a resilient, multi-site hybrid cloud. We achieved that goal by developing stateless building blocks that are holistically designed and pre-integrated for assimilation by our distributed cloud orchestration control plane. These building blocks make adding more storage and/or compute resources a simple plug-and-play exercise. And because HyperCloud is functionally complete, there is no need to manage independent resource components as separate entities

HyperCloud includes a rich ecosystem of services, including virtual machines, apps, and containers, that radically simplify building, consuming, and growing private and hybrid cloud deployments. Virtually any user can deploy solutions independent of public cloud providers in a fraction of the time needed today. When you want to use public cloud resources, the HyperCloud control plane gives you the freedom to provision multiple public cloud resources rather than locking yourself into one vendor. And HyperCloud is fully resilient with a very low power footprint—and actual physical footprint—compared to DIY solutions. It even automates lifecycle management, eliminating the need to plan and execute low-level changes.

### HyperCloud use case examples

Turnkey cloud delivery accelerates strategic objectives across a host of use cases, including:

- » Distributed edge computing
- » Multi-edge hybrid infrastructure
- » Managed service provider platforms
- » Infrastructure as a service deployments



## Gain the strategic upper hand for key initiatives

The ability to bring easy cloud to the enterprise is transformative when it comes to addressing key strategic IT challenges. With HyperCloud, users can provision both private and public resources from the same management interface, enabling them to easily run applications where it makes the most sense and to use public clouds as a light utility as they were intended.

### Streamline distributed edge computing

HyperCloud reduces space, power and management related challenges, helping to significantly reduce colocation costs and opening new possibilities at the edge. Unlike DIY options, HyperCloud provides a fully integrated, easy-to-manage cloud in as little as 8U. And because our appliances are designed to be highly efficient, you can deliver a fully functioning cloud environment running on less than 2KW of power. Moreover, the ability to federate clouds means application owners can centrally manage their application lifecycle but deploy seamlessly across any number of sites with consistency. It all adds up to significant deployment flexibility and a lower total cost of ownership.

### Simplify public cloud repatriation

Between the economic outlook and rapidly increasing cloud expenditures, many enterprises are waking up from the public cloud honeymoon. HyperCloud enables you to provide the consumption experience of a cloud but with private infrastructure—both for IT consumers and operators. IT generalists can build and operate highly sophisticated hybrid and/or multi-cloud strategies that are custom fit for their use cases with the level of reliability, availability, elasticity and serviceability previously available only to hyperscale cloud builders with specialist skills and access to large engineering teams. Best of all, you can provide that consumption experience at a drastically reduced cost but still aligned with the monthly cash outflow model that makes the most sense for your business. Data centre space isn't a factor in our low-power, purpose-built appliances have a minimal footprint.

### Supercharge IT transformation

HyperCloud enables your organisation to provide a hybrid cloud experience to IT consumers with a fraction of the time and a fraction of the complexity than was

previously possible. That means if you're looking to provide more strategic value to the business through self-service and agility, HyperCloud lets you do that with minimal investment in headcount and training. It also provides a much simpler alternative to DIY that are subject to frequent price increases and growing professional services agreements. And because it starts as a cloud instead of parts, your generalists can run it, freeing more skilled team members to focus on value-added tasks.

## Simplicity is here

Generally speaking, the potential of cloud computing models to lower operating costs while increasing flexibility and resiliency is indisputable. In practice, however, most common approaches to cloud are still full of painful strategic compromises or concessions to vendors.

With HyperCloud, which underpins drastically simplified private cloud consumption, it is now possible to leave the complexity versus cost battles behind and pivot toward a brighter future.

## Ready to deploy and scale cloud environments on your turf and terms?

Learn more at [softiron.com/hypercloud](https://softiron.com/hypercloud), or watch our 25min Demo On Demand at [softiron.ltd/HyperCloudDemoOnDemand](https://softiron.ltd/HyperCloudDemoOnDemand)

### About SoftIron

Our blueprint is radical. Taking complete control over the design and manufacture of platforms optimised to transform IT infrastructure, our highly integrated products reduce space and energy footprints while delivering extraordinary performance. Challenging traditional IT manufacturing and organisational strategy, we've developed a model that enables us to create a more resilient and connected business for the customers we serve. A commitment to openness, transparency, and simplicity helps address emerging multi-faceted threats while eliminating the vendor "lock-in" so common elsewhere.

#### Sources

1. *Hybrid Cloud: An Inevitability for Most Enterprises*, IDC, October 2021.
2. *The State of IT Infrastructure Management*, INAP, November 2019.
3. *Complex cloud architecture is finally causing budgetary pain*, *InfoWorld*, August 2022.
4. *The promise of edge computing comes down to data*, *MIT Sloan School of Management*, June 2022.



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