Freeform Dynamics in association with Fsas Technologies a Fujitsu company

Making server infrastructure decisions when the future is hard to predict

Why adaptability matters more than getting the forecast right

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Every server infrastructure decision is in part a bet on the future - how demands will grow, which technologies will matter, and where to commit resources. For years the ground was stable enough to plan with reasonable confidence. Lately it isn't. Digital sovereignty, energy constraints, supply chain disruption, shifting workloads, a moving AI picture and volatile prices are all in play at once, with no sign of settling. So what does that mean for server infrastructure strategy and procurement?

KEY TAKEAWAYS

- **Volatility and uncertainty have become a permanent backdrop**
  The disruptions shaping business and IT no longer arrive as one-off events with recovery time in between. They come faster than you can absorb them, and every significant decision now has to be made against that reality.
- **Infrastructure adaptability is now an operational imperative**
  Against this backdrop, designing your environment to absorb change is no longer just a convenience that might save time and money later. It has become a necessity, and that includes your server infrastructure.
- **Five principles form the basis of a coherent response**
  Technical and architectural adaptability, a balanced sovereignty-aware vendor strategy, financial and commercial flexibility, efficiency and headroom by design, and supply and delivery resilience. Taken together, they help you respond holistically rather than patching problems one at a time.
- **Judgment always beats purism and dogma**
  Principles guide, they don't dictate. Applied as rigid rules they can do more harm than good, so prioritize by genuine exposure and make the pragmatic trade-offs that real-world constraints demand.
- **Adaptability is a shared responsibility**
  It only delivers when the right stakeholders are involved, and when infrastructure teams get the freedom, and the executive backing, to spend a little more time or money when it counts.

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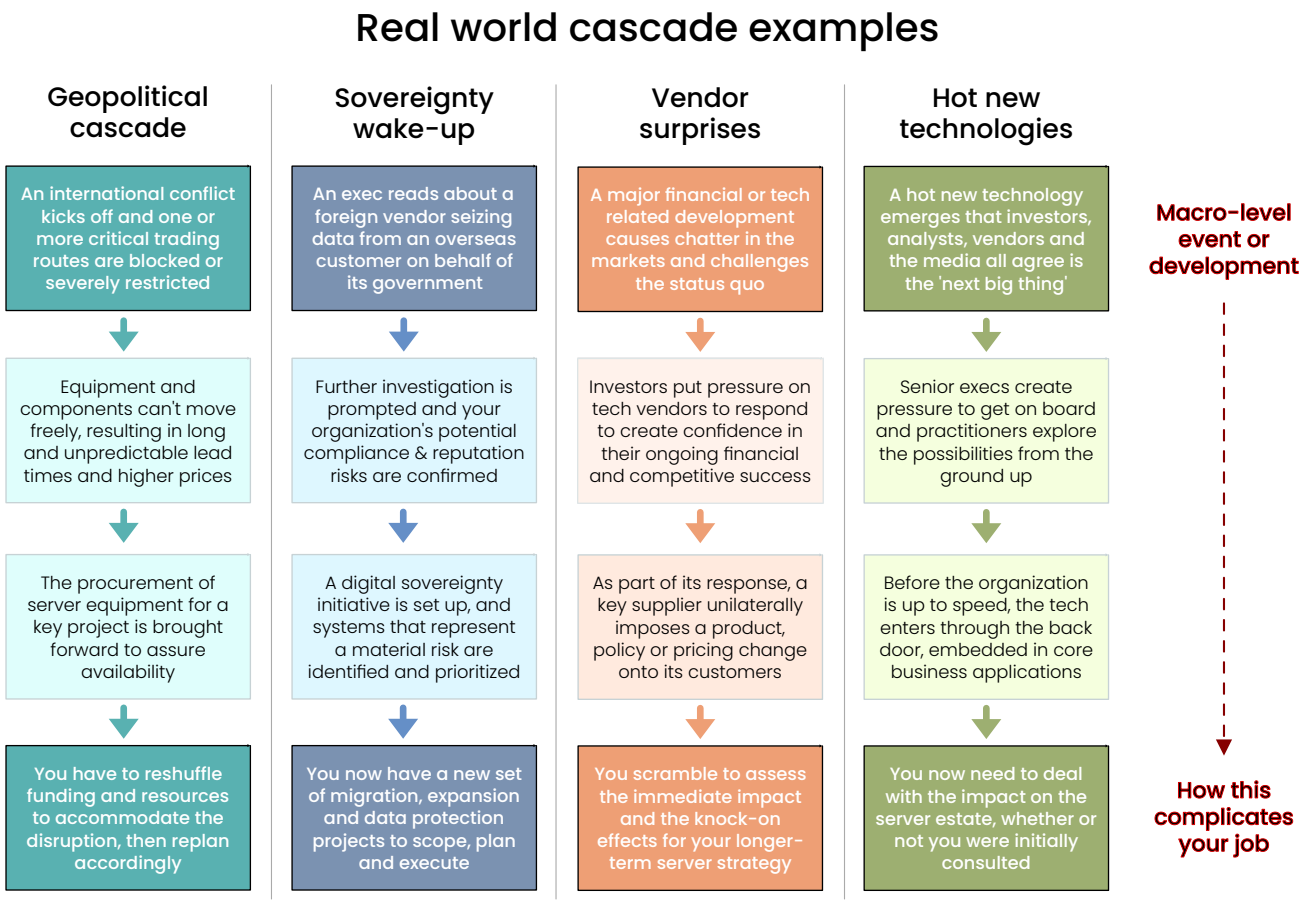
Introduction

If you're involved in shaping server infrastructure strategy or making the buying decisions in this area, the odds are that you're finding it harder to pin down requirements and put plans together that survive more than a few weeks or months. As part of this, you might also be seeing a frequent need to revisit even relatively recent decisions that seemed sensible at the time, but no longer fit because things have since changed in ways that you could never have foreseen.

The truth is that the world has changed profoundly, in particular over the last few years. Geopolitical and economic disruptions now seem to be coming thicker, faster and less predictably than ever. Together with some huge shifts in the way the technology industry operates, which go far beyond what we've historically been used to, this has created a persistently volatile environment for enterprise IT teams.

Connecting the dots

But none of the developments, shifts and dynamics exist in isolation. Everything is connected, either directly or indirectly, which means macro-level events can have knock-on effects that cascade right down to front-line IT level. Here are some examples:



The point is that so many of the things we hear on the news or read in the technology press might look far removed from the world of server infrastructure, but they do impact - possibly in ways that can jump out with little notice, and unpredictable consequences.

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Seeing the whole board

The chains of events we were just looking at are only examples. If we zoom out and look at the picture overall, the sheer number of forces that act and interact in different ways really illustrates the complex, volatile and unpredictable nature of today's environment.

We won't walk through all of the elements on this picture as you'll probably recognize most of them, and will undoubtedly be able to add others that we've missed. If you want an interesting intellectual challenge, try plotting the steps from any of the forces and factors shown to an impact on server-related decisions. This soon focuses the mind.

A quick aside on AI

Many pundits now speak as if AI is front and center in every IT infrastructure discussion. Infrastructure teams themselves, however, tend to take a broader view across many different workload types. And when considering AI, it's usually less about building dedicated high-scale environments to support huge transformative AI solutions, and more about providing support for AI extensions to familiar applications, or AI functions incorporated into application updates by vendors, whether wanted or not. The latter is another example of factors beyond your control that impact your server infrastructure.

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The adaptability imperative

If you were to take away one message from our discussion so far, it's that there are many forces directly or indirectly influencing server infrastructure decisions, and you can't control most of them. What you can do, though, is ensure your environment is adaptable enough for you to absorb shocks, roll with the changes, and deal with new stakeholder and regulatory expectations as easily as possible. Here are five suggestions to help, and we make no apologies for covering some familiar ground - just consider it a reminder as we know it's hard for stretched IT teams to stand back and consider every angle.

1 Technical and architectural adaptability

This is going to sound obvious, but wherever possible, adopt or build server platforms that are open, standards-based and modular, allowing you to easily reconfigure, extend or swap out elements of the estate as requirements change. We're highlighting this basic principle as we come across so many systems that were originally, and arbitrarily, built around a piece of proprietary infrastructure that has constrained every decision since for no good reason.

Of course some solutions either need or can significantly benefit from tightly coupled proprietary stacks - e.g. VDI, HPC, AI, modern ERP and other specialist workload types - but when you go down this route, make sure you do so consciously for the right reasons. Even then, still favor options that allow you to reconfigure, substitute and extend where possible.

2 A balanced, sovereignty-aware vendor strategy

Digital sovereignty is about independence, minimizing the degree to which others have access to or control over your systems and data. The main risks we are looking to manage are vendor lock-in and foreign government over-reach. These are both about ceding control to entities that may leverage their power to serve their own interests at the expense of yours. With lock-in, for example, it's not just about prohibitive switching costs, but also the ability of vendors to impose unfavorable new pricing and/or terms onto you unilaterally. With foreign governments, the risk is of them directing vendors (over which they have jurisdiction) to divulge data they hold on your behalf, or even block access into what you regard as your own systems - typically in the name of 'national security'.

Such risks need to be taken seriously nowadays when selecting or reviewing vendors. If exposure is identified, you may just need some additional data protection or other measures, but for critical or sensitive systems, switching to a regional supplier may prevent regulatory or reputational impacts. But it's entirely context dependent. In the case of server infrastructure, for example, you might focus on bundled management and patching software, which often includes remote access. The decision then revolves around the vendor's home jurisdiction.

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3 Financial and commercial flexibility

The requirement here is to remove financial blocks and constraints. This might be by eliminating high upfront infrastructure costs for new projects, enabling smooth growth of existing systems, or dealing with exceptional requirements such as adding capacity to repatriate an application from the cloud. We then have situations in which resources are released, e.g. when an application is retired or a speculative AI or other project stalls or fails to grow as expected.

Managing such shifts in demand - up, down, or just different - can be hard when you are relying on a Capex-centric or traditional leasing approach. This is where consumption-based models come in, within which you install equipment on-premises but then only pay for what you use. This allows you to absorb new and changing demands, and with the right contract you will also be able to bring in newer or larger equipment, and retire the old, without a capital write-off. Services like this can significantly enhance adaptability and responsiveness.

4 Efficiency and headroom by design

Data center power and cooling have always been a key consideration when making infrastructure investments because it's hard for facility upgrades to keep pace with server and storage demands. And the problem is now even more acute - not least because of the need to support new application architectures in areas such as advanced analytics, large-scale data lakes, in-memory databases, data streaming, IoT and, obviously, various forms of AI and machine learning. All of these lead to increases in equipment density, heat and power draw.

Against this background, building in enough headroom is critical to prevent facility limitations constraining your ability to adapt. Together with more stringent carbon monitoring and reporting requirements, this means that when investing in server infrastructure, energy efficiency is now a genuine first-order requirement.

5 Supply and delivery resilience

After struggling to get hold of equipment during the Covid-19 pandemic, living through the numerous global supply chain crises since, and currently witnessing how geopolitics and international conflicts can disrupt manufacturing in the flow of goods, shortages and price volatility have now become a persistent fact of life.

An adaptable server architecture of the type mentioned earlier helps by allowing you to substitute components from different sources, and the more you can plan for this proactively, the better. If digital sovereignty is important to you, make sure your alternative sources are located in your region. Regional manufacturers with a strong partner channel are particularly relevant here.

As we can see, much of the above revolves around suppliers and how you engage with them. Some don't make this easy, but let's take a look at a real world supplier that does.

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Example of a real-world solution

We're going to use Fsas Technologies, a Fujitsu company and sponsor of this paper, as an example of a vendor that has designed its server portfolio and associated engagement model to help customers build adaptable infrastructure. Please note that this is for illustrative purposes only and should not be taken as a supplier or solution recommendation by Freeform Dynamics.

That said, Fsas Technologies is a particularly useful company to look at as its core server product lines are manufactured and assembled in Japan and Europe - two neutral locations, at least for European customers who are arguably the most demanding when it comes to assuring digital sovereignty. If you are located elsewhere, the same sovereignty principles will apply when exploring vendors in your region.

Fsas Technologies' server portfolio

The core of the range is the PRIMERGY server line, spanning everything from compact systems for small sites and edge locations, rack servers for core business and more demanding workloads, plus GPU-native systems for AI, HPC, data science and VDI. To address needs that fall outside this, Fsas Technologies also offers partner solutions, most notably through a close alliance with Supermicro, whose equipment it delivers under Fsas Technologies support and commercial options via the same channel partners.

No single server line covers every workload equally well, so Fsas Technologies keeps PRIMERGY focused on mainstream enterprise computing and offers a made in Japan range for HPC, data-intensive workloads, AI and where sovereignty matters. It turns to Supermicro for customers with specialized workloads requiring tailored solutions.

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Assessing the fit

In the table below, we have distilled the spirit of the Fsas Technologies response to each of the principles outlined earlier. Rest assured that behind every one of our summaries sits a considerably less tidy pile of slides, documents and enthusiastic narrative.

Principle/imperative	*What Fsas Technologies told us*
1. Technical and architectural adaptability	The PRIMERGY range spans tower, rack and workload-optimized systems, so infrastructure can be right-sized for the job in hand and reconfigured within one coherent family as needs change, rather than being locked to a single shape. The systems use standard architecture and are designed to fit into existing, mixed-vendor environments, so they can be introduced alongside what is already in place rather than requiring a fresh start.
2. A balanced, sovereignty-aware vendor strategy	Core product lines are developed and manufactured in neutral jurisdictions. Where a specialized need brings in partner equipment, the customer contracts with and is supported by Fsas Technologies rather than the second vendor, so extending capability does not add direct exposure to another supplier's jurisdiction or terms.
3. Financial and commercial flexibility	Alongside conventional purchase, Fsas Technologies offers a payment-over-time model, letting equipment sit on-premises while paid for through periodic installments over an agreed term. This removes the need for upfront capital outlay, giving organizations financial and operational flexibility to scale infrastructure as workloads change. Covering the whole portfolio, equipment can be upgraded or repurposed without tying up capital, keeping technical change affordable as well as possible.
4. Efficiency and headroom by design	Fsas Technologies positions energy efficiency as a core design goal, citing its engineering heritage and long alignment with green-IT standards. The breadth of the range lets systems be sized with headroom rather than forced into a single form factor. Looking further ahead, Fsas Technologies points to FUJITSU-MONAKA, its Arm-based processor program, as a sign of intent to push performance per watt harder for demanding needs.
5. Supply and delivery resilience	As a single-source vendor, Fsas Technologies is the accountable party across the whole product, support and services lifecycle, giving one relationship to manage rather than several to coordinate when conditions tighten. The breadth of its own and partner ranges gives alternatives if a particular line comes under pressure, whether through products built in multiple regions for source flexibility, or made in a single trusted location for resilience and clarity.

Using Fsas Technologies as an example, vendors can potentially offer a lot to help with your adaptability agenda. So what else do you need to think about?

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Final thoughts

Over the years, global crises have always created fallout for enterprise IT, but in the past there was usually a recovery period. The difference today is that we're no longer dealing with one-off events. The disruptions are now coming thick and fast, and before you've caught your breath from any one difficult situation, more emerge and add to the overall challenge. To all intents and purposes, it's reached the point where volatility, disruption and uncertainty have become a permanent backdrop to everything. From an IT perspective, this means infrastructure adaptability moves from being a convenience to an operational necessity, including for your server environment.

The five adaptability principles we've put forward in this paper pull together a range of good practices with which most experienced IT professionals will be familiar, even if they're not always applying them consistently. But in pulling them together, we weren't just looking to provide some reminders, it was to encourage you to think about adaptability holistically, so you can mount a more coherent response to the problem. That said, we would caution against regarding any set of principles or rules as binding.

Judgment always beats purism and dogma

The nature of today's marketing, media and social media landscape is that causes often come to the fore in isolation, with context and nuance often taking a backseat. Good examples at the time of writing are the sustainability and digital sovereignty movements, and, of course, the AI advocates and AI skeptics (though there are many others). While all of these contribute valid points to the broader discussion, they often come across as advocating purism or dogma - two things that generally don't survive contact with the complex and often messy world of enterprise IT.

The real world demands trade-offs and compromises. The systems most exposed to significant sovereignty risk, for example, are often the very ones that are hardest to do anything about because they are deeply embedded. At the other end of the spectrum, the easiest applications to address are often the ones that make the least difference to your overall exposure. Whether it’s adaptability, sovereignty, sustainability, AI or any other broad-ranging initiative, purist and absolutist thinking will undermine your ability to make good business decisions. What you need is well-informed and well-considered judgment.

A shared responsibility

And on the topic of judgment, inclusivity is critical. If you make a call at the server infrastructure level, remember that impacts ripple up and across, as well as down. All relevant stakeholders need to be involved, or at least considered, whether it’s application, database and middleware specialists, the security, network, and storage teams, or business, finance and risk/compliance leaders.

And with those final thoughts, we wish you luck with your own adaptability efforts.

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About Fsas Technologies

Fsas Technologies is a leading global provider of data center infrastructure and advanced computing solutions, operating as a wholly owned subsidiary of the Fujitsu Group. Formed on 1 April 2024 by consolidating Fujitsu's server and storage business units, the company focus is on "sovereign" and secure AI, specifically designed for European regulatory and data privacy needs.

For more information, please visit: https://eu.fsastech.com/eu/.

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