

Econ 4.0

BY RAJU CHELLAM



Data centre demand: Boom or gloom?

Here is a corporate anecdote: The DR (disaster recovery) team celebrated the success of their backup test, with full restoration from the remote site in under three hours, well ahead of their four-hour target. Champagne flowed at the celebration dinner. Four days later, the chief technology officer asked: "Did anyone switch production back to the primary site?"

Silence. They had been running the company on the DR site the whole time. No one noticed because everything ran faster and better. The solution was simple. The tech team quietly renamed the DR site as "Primary DC" while the original data centre (DC) facility was unceremoniously downgraded to "Legacy Backup". Problem solved.

If that anecdote made you wonder, these statistics should make you ponder: Compute power is becoming one of this decade's most vital resources, driven by non-stop artificial intelligence (AI) workloads in global DCs. McKinsey estimates that meeting demand by 2030 will require US\$6.7 trillion (RM27.2 trillion) in DC investments — US\$5.2 trillion for AI-capable facilities and US\$1.5 trillion for traditional IT.

"The stakes are high. Overinvesting in DC infrastructure risks stranding assets, while underinvesting means falling behind," says the global consulting firm.

THE BOOM

Meanwhile, in Asia-Pacific except Japan, the total installed IT power capacity is set to reach 142.6GW by 2029, up from about 52.8GW in 2024, growing at a compound annual growth rate (CAGR) of 22% during the period. That estimate comes from International Data Corp (IDC).

"Demand for AI, cloud and other digital services is rising fast, pushing hyperscalers, cloud service providers and digital service operators to expand at record speed," IDC reports. "Major construction and expansion projects across Malaysia, India, Japan and Southeast Asia are also fuelling growth. These new and upgraded facilities are reshaping the region's digital infrastructure as operators work to deliver high-density, scalable and AI-ready DCs that can meet next-generation compute needs."

Malaysia has 46 DCs and is one of the fastest-growing DC markets in Southeast Asia, driven by hyperscale cloud expansion, AI workloads and spillover demand from Singapore. Another 48 DCs are planned across Johor, Kedah, Penang, Perak, Selangor and Sarawak, according to Research and Markets.

"These upcoming DCs will contribute approximately 3GW in the coming years, bringing the total capacity to around 4GW," the firm notes. "The upcoming rack capacity is eight times more than that existing in Malaysia currently. Selangor and Johor alone account for 400MW of power capacity in

Malaysia's existing DC market."

What is fuelling the rush to build DCs locally instead of consolidating workloads on regional or global clouds? Deglobalisation and geopatriation. "That's the relocation of workloads and applications from global cloud hyperscalers to regional or national alternatives due to geopolitical uncertainty," says Jeffrey Hewitt, a Gartner vice-president. "Geopatriation is an extension of a previous trend called nationalism versus globalism."

THE GLOOM

Geopatriation goes beyond the cloud. It encompasses data, operational and technical sovereignty. It empowers infrastructure and ops teams to reduce geopolitical risks and address specific sovereignty requirements. It also enables companies to support and increase the independence of domestic economies.

Can companies meet the demand for DCs that comply with data sovereignty regulations as well as huge AI workloads? Unlikely currently. "To meet this demand, companies across the compute power value chain must strike a balance between deploying capital quickly and do so prudently," McKinsey advises. "To improve the odds that their DC investments will provide strong returns, companies can tackle projects in stages, assessing ROI (return on investment) at each step. Still, a lack of clarity about future demand makes precise investment calculations difficult."

The complexity is enormous and the compute power value chain is complex, from the real estate developers that build DCs and the utilities that power them to the semiconductor firms that produce chips for the cloud service providers that host trillions of terabytes of data.

"Leaders across this value chain know that they must invest in compute power to accelerate AI growth," McKinsey notes. "But their challenge is formidable: deciding how much capital to allocate to which projects, all while remaining uncertain of how AI's future growth will impact compute power demand."

Another complication? Sustainability and energy efficiency. These are emerging as critical priorities, with cloud service providers investing in renewable energy, advanced cooling and green building practices to address rising energy consumption and carbon emissions. As the market grows, tech suppliers need to deliver scalable, sustainable and AI-optimised solutions to capture new opportunities, especially in Asia.

"The region's DC market is rapidly evolving with cloud and AI driving growth, but rising energy use and emissions demand urgent action," says Mikhail Jaura, a senior IDC research analyst. "Tech suppliers must focus on sustainability and scalable, efficient infrastructure to stay competitive. This shift will shape the next phase of DC growth in the region and

set new standards for scale, efficiency and environmental responsibility."

TIPS TO THRIVE

Here are 10 tips — in alphabetical order — for DC players in Asia-Pacific to thrive in 2026:

- **Accelerate deployment through modular, prefabricated DC architectures.** The Asia-Pacific prefabricated and modular DC market was valued at US\$673 million in 2024 and is projected to grow at a CAGR of 12.5% to cross US\$2 billion by 2034. Prefab solutions can shorten deployment cycles, maintain high reliability and improve power-usage effectiveness (PUE), making them ideal for cloud deployments.
- **Adopt advanced cooling and energy-efficiency technologies.** AI workloads and high-density racks are driving unprecedented heat loads, making next-gen cooling mandatory. DC deployments can integrate liquid cooling, immersion cooling and heat-recovery systems alongside AI-enabled optimisation engines to improve efficiency, support national net zero initiatives and integrate renewables like solar and wind.
- **Boost talent pipelines.** Asean continues to face a shortage of skilled DC professionals, particularly in electrical engineering, cloud operations, advanced cooling and AI infrastructure management. With the region's DC market expected to grow at a CAGR of 20% until 2028, the talent gap is widening. Companies need to set up talent academies, apprenticeship programmes, cross-border skill exchanges and university partnerships to ensure a sustainable workforce pipeline.
- **Build for sovereignty.** Governments are tightening regulations around data residency, sovereignty and cross-border data flows. Operators must respond by developing sovereign cloud zones, localised key management systems and operator-controlled compute stacks designed to meet sector-specific compliance requirements. Gartner forecasts that 65% of governments will implement tech-sovereignty rules by 2028, requiring sovereignty-ready DCs for government workloads and regulated industries.
- **Compliance-as-a-service (CaaS) is ideal for fragmented regulatory landscapes.** With Asean's regulatory regimes becoming increasingly diverse and complex, operators can differentiate by offering CaaS. This includes embedded compliance frameworks, automated policy enforcement, audit facilitation and monitoring tools for data residency and sectoral regulations. Such services could help enterprises navigate sovereignty requirements efficiently, reduce operational friction and bolster trust.
- **Create strategic partnerships with hyperscalers and carrier-neutral network hubs.** Asean is currently 60% to 70% underpenetrated in DC supply compared to mature markets such as the US, China, Japan and South Korea, creating significant room for investment. Co-location with cloud regions, subsea cable landing points and edge-compute sites will improve utilisation rates and accelerate ecosystem growth.
- **Deploy AI-optimised infrastructure.** AI is projected to increase Asia's DC power demand by 165% by 2030, underscoring the need for AI-specific designs that support GPU clusters, high-density racks and specialised fabrics optimised for training and inferencing workloads. Operators should provide clear migration paths for tenants moving from CPU-centric architectures to GPU-accelerated environments, ensuring facilities remain relevant amid rapidly rising AI requirements.
- **Develop hybrid and multi-cloud integration services.** Companies are accelerating hybrid transformations as AI, cloud and on-premise workloads converge. DC operators can add value by offering interconnect-rich ecosystems, cloud on-ramps and orchestration platforms that simplify workload placement across diverse compute environments. These can reduce operational complexity and increase customer stickiness as workloads become more distributed and latency-sensitive.
- **Enable cyber-physical resilience.** Geopolitical shifts and rising sovereignty concerns mean that resilience is now a baseline expectation. Operators should move beyond conventional security into zero-trust architectures, predictive threat analytics, micro-segmentation and advanced physical-site protection. As the region gains prominence in global AI and cloud supply chains, sovereign and hyperscale customers will demand world-class, certified and validated resilience capabilities.
- **Energise long-term, renewable power deals.** Power availability is one of the region's biggest constraints. Innovative energy strategies — including long-term power purchase agreements with solar, wind and hydro providers, as well as investments in on-site storage, battery systems and hydrogen-ready tech — will become critical. Asean markets remain cost-competitive, with DC construction costs 20% below the global average and power costs 20% to 30% lower, making renewable-anchored models economically viable.

Since we started with a corporate anecdote, let's end with another: During a major outage, the company discovered its DR docs were a year out of date. While the C-suite yelled at the IT department, John from operations calmly pulled out his personal notebook, complete with hand-drawn diagrams, and single-handedly saved the day. Management immediately demanded everything be moved to a new cloud-based documentation system. John complied ... and quietly kept updating his notebook.

Six months later, another outage hit. Everyone rushed to the cloud portal — only to realise that the portal lived on the same cloud that was down. John reappeared with his trusty notebook like an analogue superhero. When the CEO asked why he still maintained it, John said, "I've worked here 20 years." The aftermath: John got a raise, a fireproof safe for the notebook and a new name for the backup generator: The John.

Raju Chellam is editor-in-chief of AI Ethics and Governance Body of Knowledge and chair of Cloud & Data Standards at the IT Standards Committee in Singapore