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Analysis Report on Computing Power Center Service Providers in Southeast Asia

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Cloud Computing and Digitalization Research Institute of the China Academy of Information and Communications Technology

Copyright Statement

Foreword

At present, computing power has become a core productive force of the digital economy and a strategic high ground in global industrial competition. The large-scale commercialization of generative artificial intelligence has triggered explosive demand for high-performance computing capacity. Leveraging its advantageous strategic location, substantial digital economy foundation, and steadily improving industrial support policies, Southeast Asia has emerged as a key global destination for investment in the computing power sector. By 2026, the market size of computing power center services in key Southeast Asian regions is expected to surpass the USD 10 billion threshold, with industry growth significantly outpacing the global average. Market opportunities coexist with challenges such as resource constraints and complex compliance requirements.

This report focuses on the core computing power markets in Southeast Asia. It offers a systematic review of the industry landscape and regional characteristics, delivers an in-depth analysis of competitive dynamics in selected national markets, and provides a comprehensive assessment of industry opportunities and challenges. It also proposes a framework for assessing service provider competitiveness and presents a panoramic profile of leading players. Looking ahead, the report explores future industry trends and recommendations. For further discussion or inquiries, please contact the report team at: dceco@caict.ac.cn.

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I. Introduction

The Southeast Asia computing power center market is entering a crucial stage of rapid growth and structural transformation. The market for computing power center services in key regions reached USD 8.7 billion in 2025 and is expected to surpass USD 10 billion by 2026, with a compound annual growth rate (CAGR) higher than the global average. The growth is primarily driven by data localization policies, large-scale expansion of the digital economy, and increased demand for cloud services boosted by accelerated digital transformation in businesses. Meanwhile, the widespread adoption of artificial intelligence (AI) applications is prompting upgrades in computing power infrastructure towards high-performance graphics processing unit (GPU) clusters and green and energy-efficient computing.

The Southeast Asia market landscape is evolving into a multi-polar structure, with countries adopting differentiated roles based on their resource endowments and policy orientations. As an international hub with stringent green standards, Singapore focuses on high-end, value-added computing power services, and enforces capacity limits and energy efficiency requirements. Malaysia is developing a large regional computing power hub by capitalizing on its cost and location advantages while absorbing overflow demand from Singapore. Indonesia, driven by substantial domestic demand and data sovereignty regulations, has established a localized computing power market. Thailand, Vietnam, and the Philippines are actively capturing the incremental market of AI and edge computing through tax incentives and infrastructure upgrades. At present, this sector features a diverse competitive ecosystem including global hyperscale cloud providers, international neutral host providers, and local operators and technology firms. Chinese vendors, notably Huawei Cloud, have increased their regional investments and become important players in this ecosystem.

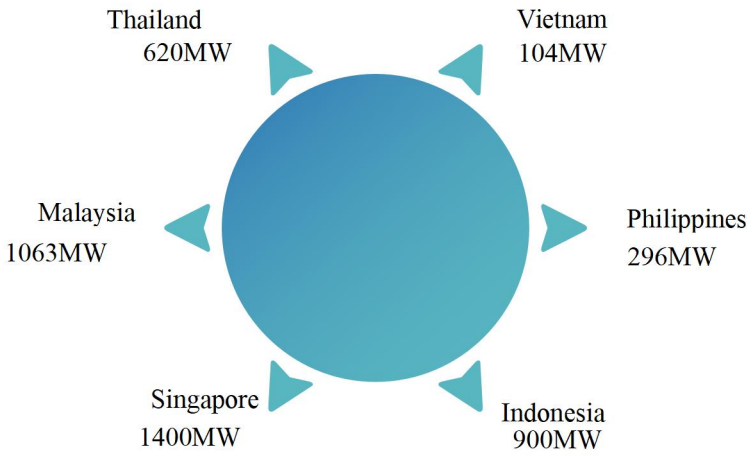
The sector faces challenges such as limited resources, complex compliance requirements, structural talent shortages, and supply chain volatility. Therefore, green and low-carbon computing, AI computing upgrades, talent development and ecosystem collaboration become central to future development. Looking forward, the Southeast Asia computing power market is expected to advance towards green and intensive development, edge computing collaboration, and regional policy coordination. It is advised that companies going global adopt a tiered and differentiated strategy, adhere to compliance requirements, strengthen green design and talent development, and focus on AI computing enhancement and ecosystem collaboration to seize long-term opportunities in the regional computing power sector.

II. Overview of Industry Development

(i) Market Size and Growth Drivers

1. Status quo of computing power center market

The computing power center market in key Southeast Asian regions is undergoing significant structural growth and transformation. By 2025, the market for computing power center services is expected to reach USD 8.7 billion, with total infrastructure capacity exceeding 4.4 GW.[1] In terms of distribution, Singapore, Malaysia, and Indonesia form the regional core of computing power, collectively accounting for around 70% of Southeast Asia's capacity. Singapore leads with over 1.4 GW, followed by Malaysia and Indonesia with 1,063 MW and 900 MW, respectively. Thailand, Vietnam, and the Philippines are emerging as fast-growing nodes, projected to have capacities of 620 MW, 104 MW, and 296 MW in 2025, respectively.[2] There are currently more than 200 major regional computing power centers, and total capacity is anticipated to surpass 10 GW by 2030, growing at an average annual rate close to 20%.[3]



Source: CAICT.

Figure 1 Computing power scale in key Southeast Asia regions, 2025

The market has developed a diverse competitive ecosystem led by global hyperscale cloud providers, international neutral host providers, and local companies. Chinese vendors, notably Huawei Cloud, are actively participating in the regional market evolution. Huawei Cloud has steadily increased its cloud infrastructure investments in Southeast Asia, focusing on supporting local core digital transformation initiatives through its integrated "Cloud+AI+5G" technology stack and channel strengths. This

[1] Indicator data for Southeast Asia computing power centers in 2025 cover six countries: Singapore, Malaysia, Indonesia, Thailand, the Philippines, and Vietnam.

[2] The computing power scale for the six countries in 2025 is calculated based on different scenarios. The computing power scale of Singapore is derived from government releases. The computing power scales of Thailand, Malaysia, and Indonesia are estimated using official 2024 statistics, of which the estimate for Thailand is based on 2025 investment amounts, and the estimates for Malaysia and Indonesia are based on historical average annual growth rates. The computing power scales of Vietnam and the Philippines are calculated based on the established capacity disclosed by their enterprises.

[3] The number of computing power centers is estimated based on market research conducted in each country. The total computing power capacity in 2030 is projected based on the recent industry development trends across the region.

approach has enriched technological pathways and competitive dimensions within the Southeast Asia computing power industry ecosystem.

2. Analysis of computing power demand drivers

The booming digital economy and a massive user base have fueled the explosive growth in computing power demand across Southeast Asia. The Internet user base keeps increasing owning to easier Internet access and widespread use of terminal devices. According to the Southeast Asia Country Investment Guides released by the Ministry of Commerce of China, the Internet penetration rate in major Southeast Asian countries surpassed 90% by 2025, supporting a large active digital population.

Industry trends monitored by Bain & Company show that the continuous expansion of scenarios such as e-commerce, online media, and digital financial services is steadily pushing the regional digital economy towards a total merchandise transaction target of US$300 billion. Combined with demand from traditional Internet applications, this creates a superimposed effect, enhancing both the scale and quality of computing power market in Southeast Asia.

The wave of enterprise digital transformation has further amplified the demand for computing power support. Driven by the digital economy, enterprises of all types are actively embracing cloud migration, pushing computing power demand to evolve from basic storage to high-end needs such as complex data processing and intelligent analysis. According to statistics from the Ministry of Commerce, 95.1% of small and medium-sized enterprises (SMEs) in Singapore adopted at least one digital technology in 2024. The rise of emerging digital scenarios has further generated diversified incremental demand for computing power, while tools including generative AI are driving enterprise computing power needs to advance from basic storage to real-time data processing and intelligent analysis at an advanced level.

Technological innovation has provided strong momentum for the development of computing power industry. The explosive popularity of consumer AI applications continues to boost demand for high-performance GPU clusters. Applications like Perplexity have secured 10 million monthly active users. Enterprise-level AI data needs are growing rapidly. Next-generation AI applications in sectors such as manufacturing, transport, and logistics require powerful computing resources and low-latency networks to ensure real-time operation. Meanwhile, data capacity demand in Southeast Asia has surged, greatly exceeding the capabilities of existing infrastructure.

(ii) Regional Development Characteristics

1. Country-specific foundation

(1) Policies

Table 1 Computing power industry policies in Southeast Asian countries

Country	Policies	Keywords
Singapore	Smart Nation 2.0	To build a digital society by harnessing technologies to promote urban digital transformation, enhance digital infrastructure resilience, and strengthen cross-border digital cooperation.
	Green Data Center Roadmap	To enhance energy efficiency of data centers at the hardware and software levels; and accelerate the integration of green energy in data centers to support the expansion of capacity.
Malaysia	Digital Economy Blueprint	To become a regional leader in the digital economy and achieve inclusive, responsible, and sustainable socio-economic development.
	Digital Ecosystem Acceleration Scheme	To build a Southeast Asian hub for computing power centers, attract investment from sustainable computing power centers, and promote the use of renewable energy by providing low carbon energy sources.
	Green Lane Pathway	To provide fast-track power approval and supply for large computing power centers.
Indonesia	White Paper on National Strategy for Development of Indonesia's Digital Economy 2030	To advance digital transformation, improve the quality of digital infrastructure, and optimize the layout of computing edge
	Omnibus Law on Job Creation	To provide specific tax incentives for investments in computing power centers
Thailand	EEC initiative under the Thailand 4.0 strategy	To build Thailand into a digital hub within the Association of South East Asian Nations (ASEAN) and a core destination for computing power center investments
	Investment Promotion Act	To introduce differentiated tax incentives and enable 100% ownership
	Thailand FastPass Mechanism	To reform permit approval and other key procedures, with the goal of increasing the permit approval efficiency by 20% to 50%
Philippines	Philippine Development Plan 2023–2028	To modernize digital infrastructure
	Corporate Recovery and Tax Incentives for Enterprises to Maximize Opportunities for Reinvigorating the Economy	To implement tax incentives and fast-track approvals
Vietnam	National Computing Power Center Data Strategy	To build the national computing power center
	Digital Infrastructure Strategy (2025–2030)	To develop and attract investment for data infrastructure
	Law on Digital Technology Industry	Tax incentives

Source: CAICT.

Singapore's policies emphasize total capacity management, mandatory green development, safety and compliance, while addressing land and energy constraints and promoting innovation in energy efficiency. Malaysia's policies aim to build a Southeast Asian computing power hub cluster and attract investment by streamlining

approval procedures and offering tax incentives. Indonesia's policies focus on attracting investment through special economic zones and developing balanced infrastructure nationwide, which integrate digital infrastructure into overarching development planning and provide fiscal incentives like tax breaks within these zones. Thailand's policies are centered on building an ASEAN digital hub and drawing foreign investment through varied tax incentives and expedited approval procedures. Philippines' policies seek to address infrastructure shortcomings, while Vietnam's policies highlight top-level strategic guidance and substantial tax incentives, encouraging the localization of computing power centers.

(2) Resources

Singapore sets a model for digital infrastructure in Southeast Asia. It boasts the highest density of submarine fiber optic cables, comprehensive 5G network coverage, and a highly stable power system, solidifying its role as the regional central hub. However, severe shortages of land and water resources have led computing power centers to adopt highly intensive layouts and integrate water-saving technologies such as closed-loop cooling and NEWater recycling. Regarding talent, Singapore attracts top-notch digital and engineering professionals in the region, yet labor costs remain high.

Malaysia has successfully established itself as a crucial cost-effective destination for handling overflow foreign demand, thanks to its strategic location linking East and West, access to over 20 international submarine cables, reliable power grids, relatively abundant water resources, and competitive land prices. Nevertheless, diminishing land and electricity resources could constrain future growth. Malaysia benefits from a strong English education system and a large engineering workforce, resulting in lower labor costs compared to Singapore, which makes it a key source of regional operational talent.

Indonesia serves as a key node for several international submarine cables, which ensures its global connectivity. However, challenges persist with grid stability and coverage, including regional power supply gaps. Its distinctive potential is underpinned by abundant green energy resources such as geothermal and solar power, offering the possibility of direct green energy supply and environmental, social, and governance (ESG) investments in the future. Moreover, Indonesia's vast land, plentiful water resources, and low costs make it ideal for mega-scale computing power parks. In terms of talent, Indonesia has a large young digital population and a substantial pool of junior technical workers, but there is a serious shortage of high-end computing power center architects and AI engineers.

In Thailand, digital infrastructure keeps improving, with upgraded access to fiber optic networks and international submarine cables; however, electricity and network costs remain relatively high in the region. Vietnam's core competitiveness lies in its cost-effective investment and operational expenses within ASEAN, combined with favorable location and network connectivity. It is rapidly responding to the demand for computing power driven by the surge in AI and cloud computing. The Philippines

is still in the catching-up stage, with relatively weak international network connectivity and broadband quality. Nevertheless, the market has begun to show initial growth momentum, underpinned by government support and SME digitization.

Table 2 Scoring scale for computing power industry foundation in Southeast Asian countries

Country/region	Power supply guarantee capability	Computing power talent supply capacity	Computing power infrastructure completeness	Industrial policy support	Maturity of industrial chain support	Overall score for industry foundation
Singapore	4	4.5	4.5	4.5	4.5	4.4
Malaysia	4.5	4	4	4	4	4.1
Indonesia	3	3.5	3.5	3.5	4	3.5
Thailand	3	4	3	3.5	3	3.3
Philippines	3	3	3	3	3	3
Vietnam	3	3	3	3	3	3

Source: CAICT

Note: All assessments are based on the qualitative descriptions and quantitative data presented in this report. The score is given on a 5-point scale, with 5 being the highest. The overall score for industry foundation is determined by weighting five indicators, namely, power supply guarantee capability, computing power talent supply capacity, computing power infrastructure completeness, industrial policy support, and maturity of industrial chain support, with each contributing 20% to the total score.

2. Regional characteristics

Singapore is oriented to hub-based, high-end, and concentrated development, and continues to advance the enhancement of high-density green computing power. Its strategy focuses on delivering high value-added services such as cross-border data processing and consolidating its position as the primary hub for Asia-Pacific cross-regional computing power interconnectivity by engaging in and leading the harmonization of international regulations. Due to hard constraints in land and electricity resources, computing power centers in Singapore exhibit a highly intensive layout, mainly clustered in key areas such as Jurong and Changi, which are close to international submarine cable landing stations. To overcome local physical space limitations, the government actively pursues a cross-market collaboration strategy, including developing the Johor-Singapore Special Economic Zone, to expand regional cooperation opportunities and effectively alleviate local deployment pressures.

In Malaysia, the computing power center industry has undergone a strategic shift from passively absorbing spillover demand to proactively developing an ecosystem. Initially, its central role was to handle the overflow of computing power needs from Singapore. Thanks to its geographic proximity to Singapore, which enables millisecond-level low latency, and its network advantage of being close to international submarine cable landing points, Johor has quickly risen into one of the fastest-growing regional markets for computing power centers, hosting over 70% of the national capacity. At present, Malaysia’s strategic focus has shifted towards

actively building a comprehensive AI and cloud computing ecosystem. Under this new framework, Johor will continue to strengthen its position as a core hub for cross-border collaboration and cost-effective scaling. Cyberjaya, recognized as a national multimedia super corridor and federal technology center, is evolving into a key growth node for green technology innovation and the AI industry.

Indonesia represents a typical localized computing power market driven by domestic demand. With a large population of nearly 280 million and a high rate of mobile Internet penetration, Indonesia has substantial demand for local data and computing power, which prompts national policies and industrial layouts to prioritize domestic needs. In this context, leveraging mandatory data sovereignty regulations and its dense fiber networks along with submarine cable landing points, Jakarta accommodates core nodes supporting national capacity, accounting for over 80% of Indonesia's total capacity. However, due to resource saturation in Jakarta, new investments are increasingly expanding into West Java and Batam.

Thailand features a policy-driven computing power market. Its computing center industry growth has been jointly shaped by the local digital economy agenda, the Thailand 4.0 strategy, and the Eastern Economic Corridor (EEC) initiative. Bangkok, as a central hub, becomes increasingly attractive to hyperscale computing power centers, benefiting from the EEC initiative, its role as a regional transport hub, and ongoing infrastructure improvements such as international submarine cable landing facilities, dual-loop power supply, and intercity dark fiber network. Currently, the market sees an accelerated transition from traditional Internet data centers (IDCs) to intelligent computing power centers.

(iii) Market Competition Landscape

1. Market concentration in key countries

Using the computing power[4] of the top five third-party computing power center service providers as a percentage of the top 30[5] as the core metric, market concentration is compared across key countries in Southeast Asia. By integrating vendor characteristics and competition patterns, the degree of monopoly and investment potential in each market is evaluated. On the whole, the concentration of computing power markets varies widely among Southeast Asian countries, showing a three-tiered pattern. Market concentration is closely linked to market maturity and vendor power distribution.

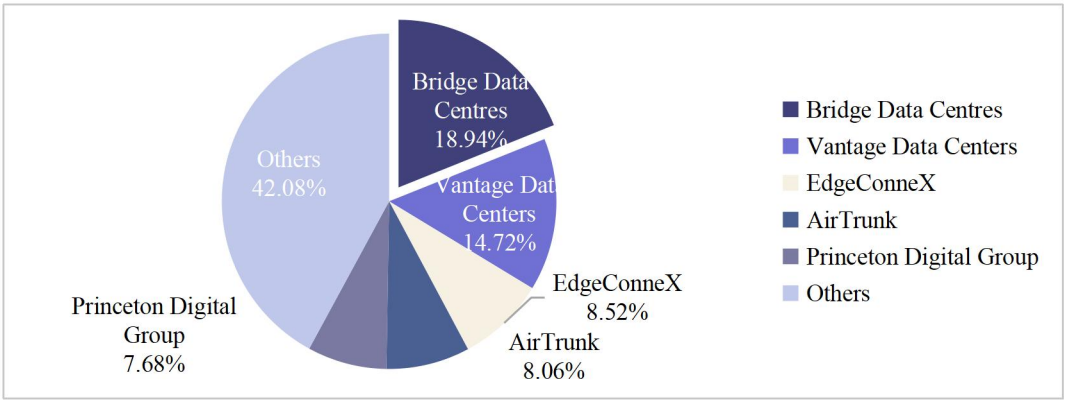
(1) Malaysia

International giants dominate the market, with several strong players maintaining a balanced presence. The top five vendors in Malaysia, namely Bridge Data Centres, Vantage Data Centers, EdgeConneX, Airtrunk, and Princeton Digital Group,

[4] The measurement of computing power is based on the highest IT load officially reported as constructed and put into operation (by the end of 2025).

[5] Following the general paradigm used by global authoritative institutions in computing power and IDC market research, the standardized and verifiable public data of the top 30 vendors in the global and regional computing power markets are used as the foundation.

collectively hold over 58% of the market share, indicating a moderate level of market concentration. These highly internationalized companies have similar market shares and notably Bridge Data Centres, invest in large-scale computing power centers in Malaysia. No single company has established a monopoly. This balanced market structure is attributed to Malaysia's strong appeal to international capital and its role as a regional computing power hub, which has encouraged multiple leading players to establish operations at a comparable scale, fostering a healthy competitive ecosystem.

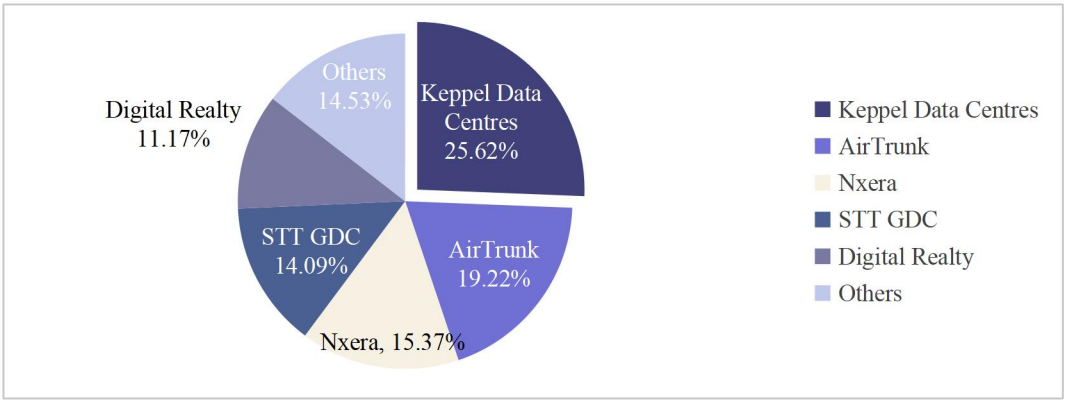


Source: Data as of the end of 2025, CAICT

Figure 2 Competitive landscape of leading computing power service providers in Malaysia

(2) Singapore

Local companies dominate the market, with international giants filling remaining gaps. The top five vendors in Singapore account for over 85% of the market share, representing the highest market concentration in Southeast Asia. Local companies, such as Keppel Data Centres, Nxera, and STT GDC, hold market shares of 25.62%, 15.37%, and 14.09%, respectively. Together with international players, they form an unshakable, collaborative monopoly. Such high market concentration is related to Singapore's limited land and energy resources, quota restrictions for new projects, market occupation by early entrants including both local leaders and international giants, and extremely high barriers to new entrants. These factors result in a relatively stable market structure.

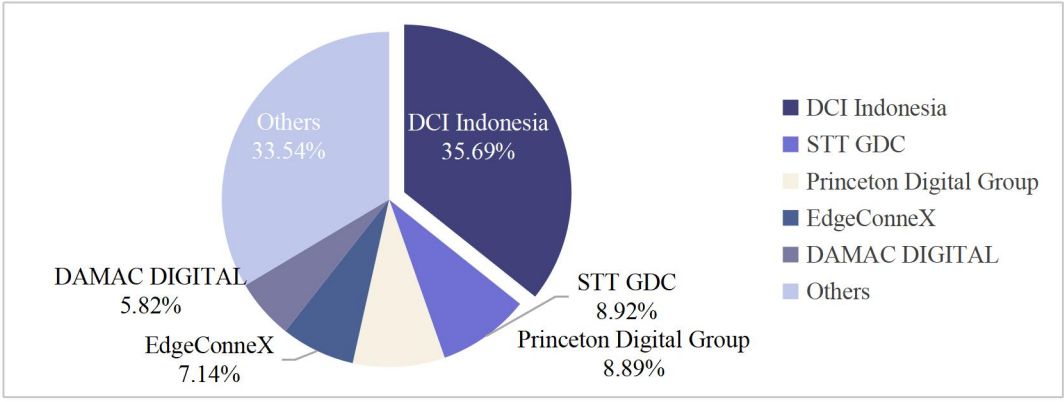


Source: Data as of the end of 2025, CAICT.

Figure 3 Competitive landscape of leading computing power service providers in Singapore

(3) Indonesia

The market is dominated by local oligarchs, followed by small and medium-sized vendors. The top five vendors in Indonesia together hold 73.48% of the market share, indicating a high level of market concentration. DCI Indonesia, a local enterprise, enjoys an absolute leading edge with a market share of 35.69%, creating a significant head effect. International vendors such as STT GDC, Princeton Digital Group, and EdgeConneX have similar market shares of less than 10%. Such high market concentration is essentially because local giants leverage their localized resources and first-mover advantages to control computing power resources in the core area (Jakarta), while international vendors mostly play a complementary role.



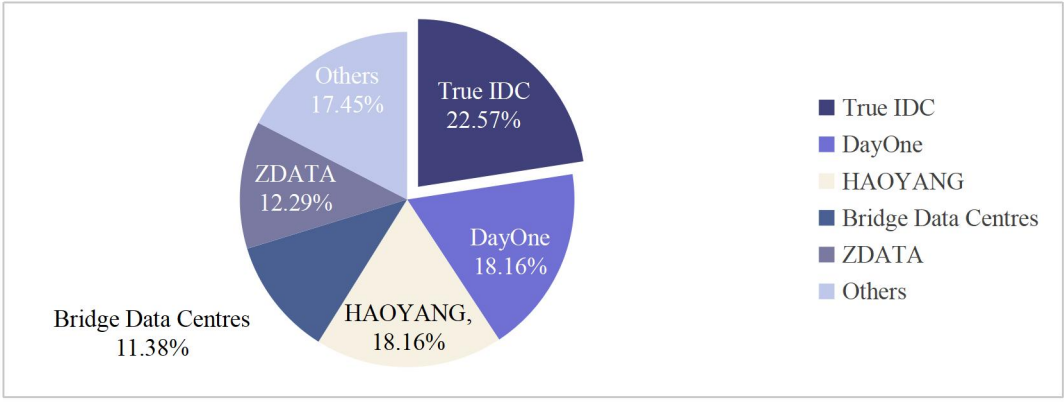
Source: Data as of the end of 2025, CAICT.

Figure 4 Competitive landscape of leading computing power service providers in Indonesia

(4) Thailand

At this stage, the market shows a high degree of concentration, with a balanced competitive structure of leading players. The top five vendors in Thailand[6] account for 83.58% of the market share, reflecting significant market concentration. True IDC secures the top position overall, while DayOne and HAOYANG are tied for first place in terms of approved project size (each holding 18.16%). Bridge Data Centres and ZDATA occupy about 12% each. The differences in size among leading vendors are relatively small, contributing to a balanced competitive landscape without any single vendor monopolizing the market. The overall market structure aligns with the computing power layout guided by the Thailand 4.0 strategy. With resources concentrated in Bangkok and both local and international vendors entering simultaneously, there remains room for differentiated competition in the market.

[6] The capacity of several projects launched in Thailand in 2025 is expected to reach 100MW or more, which will significantly affect local market landscape. For comprehensive consideration, local market concentration is examined based on the potential scale of investments.



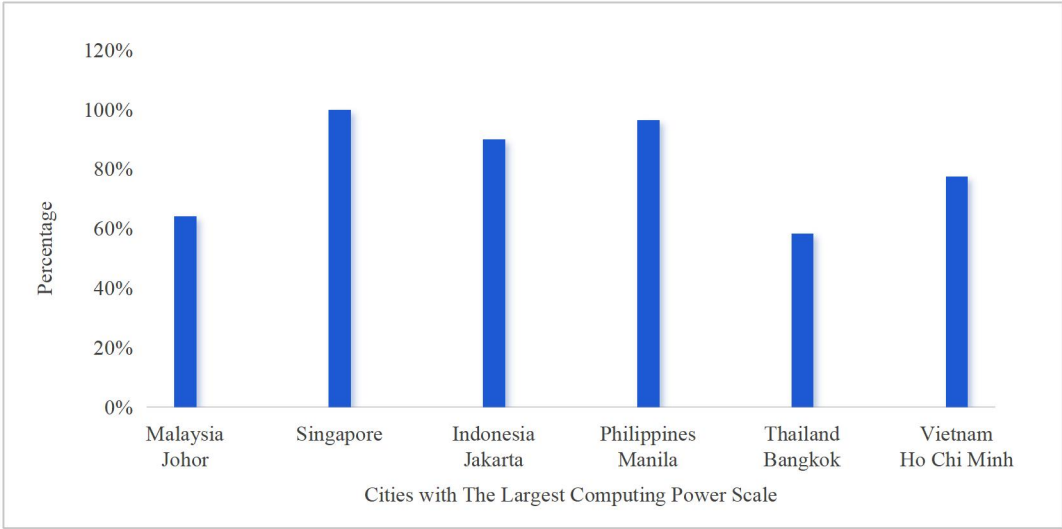
Source: Data as of the end of 2025, CAICT.

Figure 5 Competitive landscape of leading computing power service providers in Thailand

(5) Vietnam and the Philippines

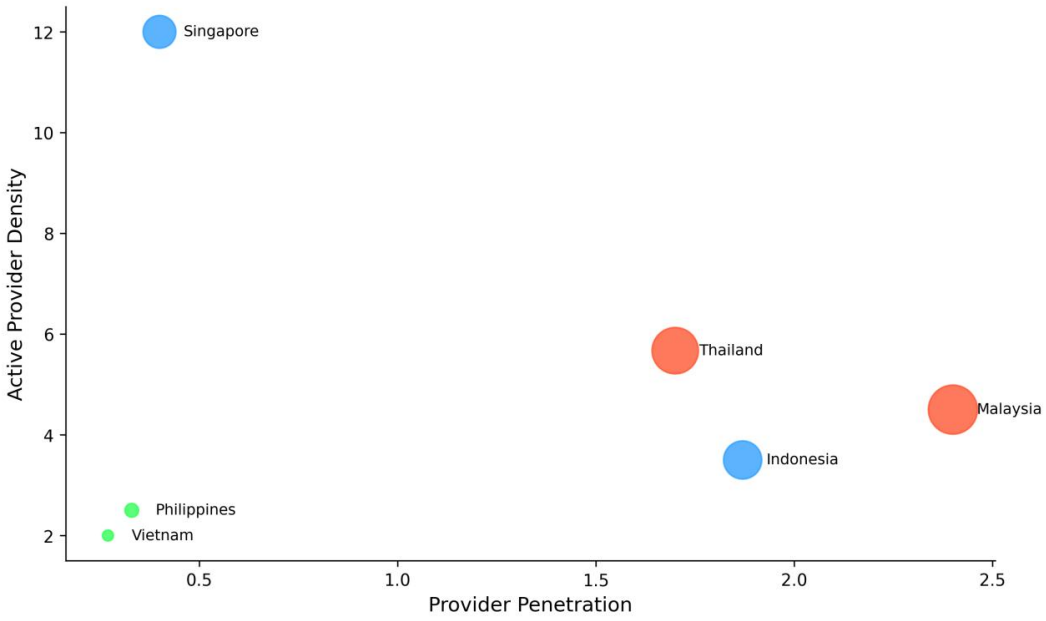
These markets have low concentration, with leading third-party players having limited influence. Both Vietnam and the Philippines are low-concentration markets, and their computing power industries are still in the incubation stages. In Vietnam, computing power service providers are mainly local telecom operators, with a low combined market share and limited external service scale. Although international capital and technology have been introduced, a large-scale leading group has not yet taken shape, and the market remains fragmented. In the Philippines, the top five vendors have the smallest market share in Southeast Asia. Only STT GDC has established 100MW-level projects, while the rest are small local service providers, with computing power resources heavily concentrated in Manila. The absence of major leading players is fundamentally due to unleashed demand and low investment enthusiasm. Market concentration in both countries is expected to improve gradually as the industry matures with the entry of leading vendors.

2. Regional market divergence



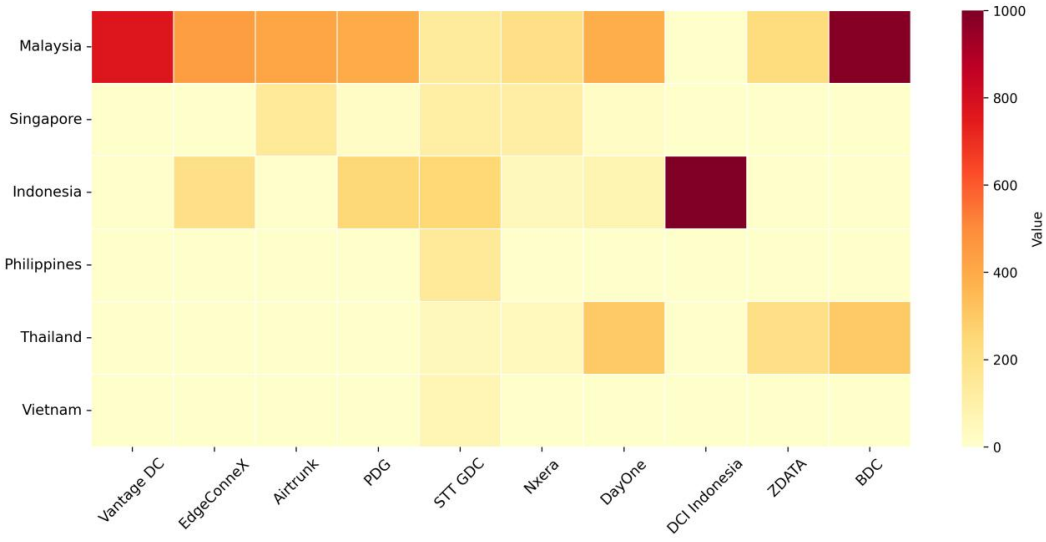
Source: Data as of the end of 2025, CAICT.

Figure 6 Percentage of cities with the largest computing power scale relative to the national total by country



Source: Data as of the end of 2025, CAICT.

Figure 7 Market activity of computing power service providers by country



Source: Data as of the end of 2025, CAICT.

Figure 8 Heat map of computing power service provider distribution by country

From the perspective of market structure, the market activity and distribution of computing power service providers in each country represent the proper adaptation pathways based on regional resource conditions. Benefiting from an open foreign investment policy and Johor's cross-border location advantage, Malaysia has attracted numerous international giants to actively enter the market, which leads to a balanced pattern of market share. The foundation as a regional computing power hub has been reinforced through competition among multiple strong players. In contrast, Indonesia faces constraints related to the policy of data localization and the centralization of core resources in Jakarta. DCI Indonesia has formed an oligopoly by leveraging high compliance barriers and high-quality first-mover resources. This local enterprise has

quickly built a local computing power capacity to meet the initial-stage demand for resource coordination in the digital economy.

From the perspective of corporate strategy, three types of path dependence concretely reflect corporate development positioning. First, the regional focus type, exemplified by DCI Indonesia and Vantage DC, concentrates capacity within a single market and deeply engages in localized operations. Second, the dual-core drive type, such as Bridge Data Centres, EdgeConnex, and Airtrunk, utilizes dual-region complementarities to balance costs and high-value customers, or targets high-growth markets like Thailand and Malaysia to spread risks. Third, the broad-spectrum layout type, including Dayone, STT GDC, and Nxera, maintains significant presence in core countries and, supported by strong capital and standardized operational capabilities, achieves broader layout across Southeast Asia.

In short, differences in market concentration of computing power service providers in Southeast Asia stem from variations in national resource adaptation pathways and defined enterprise capability boundaries. All market patterns and strategic choices represent rational decisions by market participants. While market structure offers the fundamental space for corporate strategy, the differentiated strategic layouts of enterprises reinforce the characteristics of the existing market structure. Interactions between these two elements create a closed-loop ecosystem of dynamic adaptation.

III. Industry Development Trends

(i) Opportunities for Computing Power Service Providers

Superior resource conditions establish a solid foundation for green computing power. There is room to expand into markets with land and cost advantages. Malaysia and Vietnam offer abundant land resources, lower electricity prices, and more competitive operating expenses, enabling space expansion and cost reduction for service providers to build large-scale computing power center clusters and meet overflow demand for computing power. Renewable energy resources are important. For example, Indonesia's geothermal energy allows it to develop green computing power brands that attract high-value international clients. Strategic geographic location and network hub status are also beneficial. Southeast Asia, as a major landing point for many international submarine cables, can provide global low-latency connections, supporting efficient and stable cross-border data services.

Clear policy guidance supports deep industry growth. Incentives are offered alongside access facilitation. Thailand, Malaysia, and Indonesia have reduced costs for computing power centers through tax breaks, land concessions, and simplified approval procedures, while the Philippines has relaxed access restrictions on foreign investment to remove barriers. Meanwhile, strict data localization regulations create rigid demand. Data sovereignty policies in various countries, particularly Indonesia, require domestic processing of financial, government, and other critical data, creating a firm market for providers offering compliant, high-end local computing power

center services. In addition, being an early adopter of green transformation is advantageous. Singapore has introduced the Green Data Center Roadmap, while other countries increasingly emphasize ESG requirements. Service providers that first integrate energy-efficient and renewable technologies are more likely to gain operational approval and attract customers focused on green procurement.

A strong talent base drives digital upgrading. The local digital talent pool has expanded rapidly. With Internet penetration exceeding 80% in major Southeast Asian countries, a large generation of digital natives has emerged, providing a talent base for the computing power sector. Moreover, there is a window of opportunity to attract international AI talent. Regional countries are using flexible regulatory strategies and proactive industrial policies to draw AI startups and research teams relocating from Europe and the United States due to high compliance costs. Local talent cultivation has also accelerated. By including talent cultivation goals, national digital strategies encourage governments, businesses, and educational institutions to strengthen collaboration to gradually improve the supply of senior local professionals, injecting impetus into long-term industry development.

(ii) Challenges for Computing Power Service Providers

Resource limitations become increasingly severe, steadily driving up operating costs. There is a staged mismatch between the lengthy timeline for expanding regional power grids and the rapid deployment pace of computing power projects, making it difficult to fully bridge the gap between power supply and demand in the short term. Mandatory green energy standards for computing power projects implemented in various countries conflict with the limited availability of regional renewable energy and the low efficiency of integrating these sources into grids, placing cost and supply pressures on service providers procuring green power. In addition, Southeast Asia's hot and humid climate undermines the efficiency of traditional air-cooling technologies. The high water consumption of computing power centers also runs counter to the region's water resource regulation requirements. Meanwhile, the renovation costs and entry barriers associated with new technologies such as liquid cooling impose higher operational demands on enterprises.

Policies and regulations become more refined, increasing the complexity of operational compliance. Most countries are tightening requirements for local storage of critical data, and there are significant regional differences in rules regarding data classification and exit approvals, which pushes up construction and compliance costs for cross-border operations. Restrictions on foreign ownership, requirements for localized labor and research and development, and pre-approval conditions such as energy efficiency targets and green power ratios have raised market access barriers. Given the dynamic updates to data security, network security, and AI regulatory rules in various countries, combined with the spillover effects of foreign chip control policies, service providers must navigate both local and international compliance demands, further complicating operation and management.

Structural talent shortages become more prominent, impeding technological

upgrades and localized operations. The rapid iteration of the AI computing power industry has magnified the gap between talent supply and demand within the computing power sector in Southeast Asia. Demand for high-level professionals grows quickly, but the regional talent pool is insufficient, leading to intense competition among companies for top talent. Meanwhile, local talent training system upgrading does not keep pace with industry development, resulting in inadequate job readiness of fresh graduates and high training costs for companies. These factors, combined with localized talent cultivation challenges associated with employment policy restrictions on hiring foreign talent, continue to impact the long-term, stable operation of enterprises.

Supply chain stability is under strain, and intensified market competition squeezes profit margins. As core hardware components such as AI acceleration chips, and high-speed interconnects rely heavily on imports, geopolitical tensions and changing export control policies directly affect supply chain reliability. At the same time, many Southeast Asian countries have introduced various policies supporting the computing power industry, stimulating a surge in computing power center projects and intensifying competition in basic computing power services. Leading service providers continue to capture market share through advantages in capital, technology, and customer resources. Since high-end, value-added business is concentrated in Singapore, most regional providers face the practical challenge of shrinking profit margins and pursuing differentiated development.

(iii) Scoping Opportunities for Expanding to Overseas Markets

When expanding into the Southeast Asian market, a prudent and steady approach should be employed. A quantitative evaluation system serves as the main benchmark to assess market suitability and strictly manage the risk of uninformed expansion. This evaluation focuses on four core dimensions: policy and business environments, compliance and operational costs, resource availability and implementation capacity, and market and industry potential. It includes seven critical indicators: green and low-carbon requirements, policy friendliness towards Chinese investment, costs related to cross-border data compliance, difficulty in adapting local talents, infrastructure compatibility, nature of regional competition landscape, and overall demand for computing power. This system systematically assesses the difficulty of expanding computing power to the Southeast Asian market. Using this system, six Southeast Asian countries are ranked from easiest to hardest access: Malaysia, Singapore, Thailand, Vietnam, Indonesia, and the Philippines.

Table 3 Scoring scale for access to overseas markets

Target country	Green and low-carbon requirements	Policy friendliness towards Chinese investment	Costs related to cross-border data compliance	Difficulty in adapting local talents	Infrastructure compatibility	Nature of regional competition landscape	Overall demand for computing power	Overall score
Singapore	3	1	1	1	3	5	1	2

Malaysia	1	2	2	2	1	1	2	1
Thailand	5	3	1	3	5	2	4	3
Indonesia	4	4	3	2	4	4	3	5
Vietnam	2	5	4	3	2	3	5	4
Philippines	5	6	2	4	6	3	6	6

Source: CAICT.

Note: All evaluations are based on qualitative descriptions and quantitative data (such as risk scores, policy ratings) in this report, which are converted into a scale from 1 to 6 (1 indicates easiest/lowest cost/lowest difficulty, and 6 indicates hardest/highest cost/highest difficulty). The overall score for access to overseas markets is calculated as the average of these indicator scores (rounded to the nearest whole number), reflecting the overall level of difficulty in expanding to overseas markets.

Malaysia and Singapore have the lowest access barriers, the most stable policies, and the most developed support packages in the region. Malaysia boasts highly friendly foreign investment policies, clear and achievable green compliance pathways, and excellent supporting infrastructure, in addition to a healthy and orderly competitive market. It ranks highest in overall suitability for establishing operations, making it the top choice for large-scale layout, particularly large-scale base projects requiring long-term operational stability and strong financial backing. Singapore has established a world-class compliance system with high policy transparency. However, room for large-scale expansion into this market is constrained by limited land availability, high construction and operational costs, and great concentration of international giants. It is suited as a strategic hub for serving premium cross-border clients and building a global brand identity.

Thailand and Vietnam have moderate access barriers, offering both growth opportunities and compliance risks. Thailand's digital economy has been driving market demand, with a relatively decentralized competitive landscape and low oversupply risk, positioning it as a potential regional sub-hub. However, its core infrastructure such as power supply and cross-border networks lacks sufficient carrying capacity, a critical deficiency that directly inhibits project delivery efficiency and long-term operational stability. Vietnam has land and labor cost advantages, but its stricter foreign investment policies and uncertainties in localization regulations necessitate design of investment structures and compliance systems in advance.

At the bottom of the list, Indonesia and the Philippines have the highest access and operational thresholds despite broad long-term market space. These obstacles are linked to the dominance by local giants, weak infrastructure, and unpredictable policies, and pose grim challenges to capital resources, localization capabilities, and sustained commitments.

For Chinese investors seeking global development, the optimal path should consider both local development potential and its resource availability. Given the characteristics of the computing power industry — heavy assets, high financing needs, strict compliance, and rapid delivery — Chinese service providers should adopt

differentiated strategies that leverage their strengths for dislocation competition. Existing industry practices have fully validated the feasibility of a tiered approach. ZDATA and HAOYANG focus on markets with clear growth and high certainty such as Thailand and Malaysia, while BODADATA invests proactively in emerging markets such as the Philippines. All have successfully avoided high-barrier, fiercely competitive red oceans such as Singapore and Indonesia, achieving a steady start. In summary, Chinese enterprises going global must build core competitiveness through cost control, rapid delivery, and compliant transfer, combined with a deep understanding of Asian customer needs. They should carefully balance potential, risk, and certainty to establish a strong presence in a specific market, using it as an important springboard to enter Southeast Asia and beyond.

IV. Evaluation of Service Provider Competitiveness

(i) Evaluation System

1. Definition of evaluation targets

This report clearly differentiates the core business scope and boundaries among various types of computing power center service providers. The evaluation primarily targets third-party computing power center service providers, while also benchmarking against telecom operators, public cloud self-builders, and other business models for differentiated comparative analysis. This approach removes the influence of non-market factors such as cloud ecosystem dependency, carrier channel reliance, and exclusive support for governments and enterprises. Built on the underlying logic of competition in the third-party computing power infrastructure market, the evaluation system focuses on key dimensions such as neutral operational capability, cross-regional interconnectivity, customized service capacity, and scalable implementation effectiveness. This allows for accurate assessment of the tiered competitive landscape, regional supply and demand characteristics, and long-term development trends in this sector.

Table 4 Qualitative comparison of business boundaries of computing power center service providers in Southeast Asia

Type of service providers	Core business scope	Layout characteristics	Examples
Third-party computing power center service providers	Neutral cabinet hosting, cross-regional interconnectivity, computing power park development, and customized infrastructure operation	Global reach without ecosystem dependency	Equinix, Digital Realty, and Bridge Data Centres
Hyperscale cloud vendors	Export of full-stack cloud services, and self-construction of proprietary computing power bases	Representing both the demand side and infrastructure investor	AWS, GCP, and Azure

Local telecom operators and other technology enterprises	Server room construction and operation, local network access, and data compliance support services	Focusing on local markets, with an emphasis on local compliance and adaptation	Singtel, TM One, Telkom sigma, and Viettel

Source: CAICT.

2. Analysis of indicator system

To scientifically identify leading computing power center service providers in Southeast Asia, the evaluation system is designed on a quantifiable, accessible, and highly relevant basis. It assesses regional comprehensive competitiveness in the two dimensions of enterprise strength and local adaptation, and measures the global presence, regional adaptability, and growth potential of service providers. While upholding data availability and verifiability, it assigns weights rationally and clearly defines statistical standards to ensure that the rankings are both scientific and practical.

The system includes 16 indicators across two dimensions, which are complementary with distinct focuses. The Global Comprehensive Strength dimension emphasizes the scale and strength of global operations, covering key indicators such as revenue, footprint, and operational efficiency, which serves as the foundation for evaluating market influence. The Southeast Asia Regional Engagement and Local Adaptation dimension highlights the depth of involvement in Southeast Asia, focusing on characteristics of regional core computing power hubs. It considers factors such as computing power scale and regional presence to align with local market needs and long-term commitments. The specific indicators and their weightings are detailed in the table below:

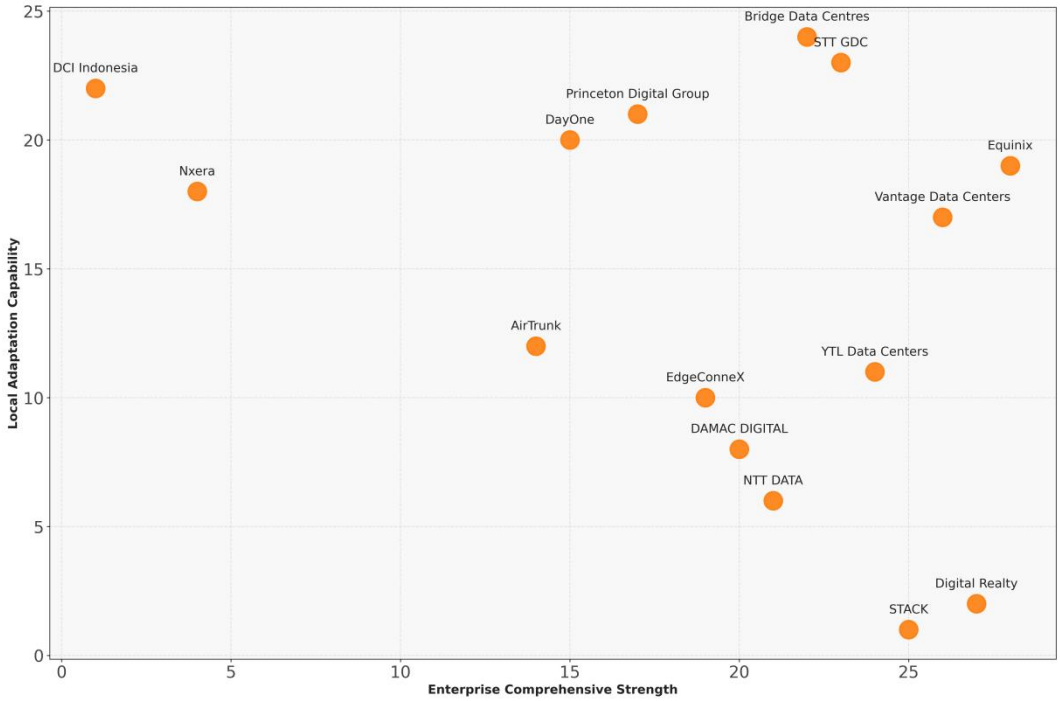
Table 5 Scoring weights for computing power service providers in Southeast Asia

Dimension	Indicators	Weight (%)
Global comprehensive strength	Global operational performance and profitability	20
	Global infrastructure layout and scale	20
	Core business focus and growth potential	20
	Technology research and development and product innovation capabilities	10
	Service operation and delivery assurance capabilities	10
	Green, low-carbon, and sustainable development capabilities	10
	Global industrial ecological resource integration capabilities	5
	Global risk control and compliance capabilities	5
Southeast Asia regional engagement and adaptation	Infrastructure depth and breadth in Southeast Asia	25
	Regional strategic focus and long-term commitment	25
	Core market coverage and market penetration	15

Dimension	Indicators	Weight (%)
	Localized operations and service implementation capabilities	15
	Regional industrial ecological cooperation and resource integration capabilities	5
	Regional policy compliance and risk adaptation capabilities	5
	Regional market reputation and customer recognition	5
	Localized and customized service supply capacity	5

Source: CAICT.

(ii) Development Matrix of Leading Service Providers in Southeast Asia



Source: CAICT.

Figure 9 Development matrix of leading service providers in Southeast Asia

1. Strategic leaders — global vision and local engagement

Enterprises in this echelon excel in both integrating global resources and deeply operating within regional markets. By combining strong global capital and technological strength with precise understanding of local Southeast Asian markets, they have taken a leading role in shaping the industry landscape and ecosystem, and become key drivers in developing regional computing infrastructure.

Equinix: It ranks top in terms of global comprehensive strength. Leading globally in computing power infrastructure, Equinix has brought advanced experience of global network operations to Southeast Asia, establishing high-end nodes in major computing power hubs. Its core business focuses on international hosting and cross-border interconnections, setting a benchmark for blending global computing

power services with local Southeast Asian needs.

STT GDC: It ranks front in terms of local adaptation capability. As the top local computing power service provider in Singapore, STT GDC focuses on regional computing power infrastructure in Southeast Asia, with operations in major cities of Singapore, Thailand, and the Philippines. It provides comprehensive hosting and customized infrastructure services to deeply support the Southeast Asia computing power market.

Bridge Data Centres: It leads the industry in local adaptation capability and computing power capacity under construction, with distinctive operational characteristics. Bridge Data Centres incorporates world-leading green and low-carbon technologies and energy efficiency standards into local practice, embedding itself in the Southeast Asian computing power market. It has established a large-scale network of computing power parks with leading capacity, and continues to expand its AI computing power base with a forward-looking approach.

Vantage Data Centers: It stands at the forefront of the industry in terms of global comprehensive strength. Vantage Data Centers leverages global technology, capital, and experience in computing power infrastructure to focus on key Malaysian computing power hubs. Its main activities include building ultra-large-scale computing power centers, providing high-end computing power hosting, and operating green computing power infrastructure, effectively linking global resources with regional markets.

Princeton Digital Group: With prominent local adaptation capability, it serves Southeast Asia's core computing power markets, offering tailored service solutions aligned with regional customer needs for localized computing power. It focuses on computing power infrastructure construction, operation, and hosting, and closely integrates with the local ecosystem, enjoying high customer stickiness and market acceptance.

2. Regional pillars — solid foundation and steady approach

Enterprises in this echelon form the backbone of the Southeast Asia computing power market. They largely build core strengths through local adaptation, targeting specific market segments and key regional markets. They secure their market presence by offering localized services and differentiated positioning, and steadily increase their industry influence and market penetration as regional demands grow.

YTL Data Centers: It holds an advanced position in terms of global comprehensive strength. Focusing on core Southeast Asian cities, YTL Data Centers mainly engages in computing power infrastructure construction, computing power center operations, and comprehensive computing power solutions, steadily expanding service penetration in regional markets.

DayOne: With superior local adaptation capability, DayOne is rooted in the Southeast Asia market, addressing both hyperscale computing power needs of global giants and

localized computing power needs of local companies. It provides computing power hosting, operation and maintenance, and customized solutions tailored to regional needs, and achieves a solid operational base and broad local client coverage.

Digital Realty: It is an industry leader in terms of global comprehensive strength. With a network spanning major economic hubs, Digital Realty offers reliable, scalable computing power infrastructure, colocation, and global interconnection services for multinationals. It supports flexible, compliant computing power deployments in Southeast Asia's core markets, benefiting from a sound global platform ecosystem.

EdgeConneX: It has advantages in terms of both global strength and regional foundation, with superior capabilities of computing power infrastructure design and construction. In Southeast Asia, EdgeConneX focuses on technology transfer and core node development for computing power infrastructure, emphasizing large-scale computing power center planning and construction and high-end computing power hosting. It is now accelerating local partnerships to meet the demands of regional markets.

DAMAC DIGITAL: It reaches the mid-to-upper level in terms of global comprehensive strength. Through its EDGNEX brand, this company has developed large data center parks in key regional nodes such as Thailand, Indonesia, and the Philippines. It offers customized construction, hosting, and full-lifecycle operation and maintenance services for computing power centers, achieving rapid business growth and significant regional investment.

3. Segment breakers — sharpened edge and targeted breakthroughs

Enterprises in this echelon demonstrate distinctive advantages in a single dimension, possessing either industry-leading global comprehensive strength or superior local adaptation capability. They have effectively entered the Southeast Asia computing power market, creating unique competitive barriers with their specialized capabilities. They serve as important complementary players that enrich the regional computing power ecosystem and address niche market needs.

NTT DATA: It ranks among the first in terms of global comprehensive strength. As a global leader in information technology services and digital transformation, NTT DATA offers comprehensive computing power services including cloud computing, data centers, cross-border interconnections, and industry digitalization solutions in Southeast Asia by leveraging its deep industry experience, broad technology capabilities, and global resource network.

STACK Infrastructure: It is an industry leader in terms of global comprehensive strength. With operations across the Americas, Europe, and Asia-Pacific, STACK Infrastructure provides integrated digital infrastructure solutions for mega technology companies and large enterprises. It has actively expanded in Southeast Asia, establishing core nodes in Malaysia, Japan, South Korea, Australia, and other Asia-Pacific locations. This demonstrates strong capability of global deployment and fast speed of regional expansion.

AirTrunk: It reaches the moderate level in terms of both global and regional strength. AirTrunk focuses on high-density, green computing power infrastructure in the Asia-Pacific. Building on mature experience in Australia and Japan, the company gradually expands into Southeast Asian hubs such as Hong Kong, Singapore, and Malaysia, offering customized, energy-efficient data center hosting and maintenance services for hyperscale and AI clients.

DCI Indonesia: It is at the forefront of the industry in terms of local adaptation capability. DCI Indonesia centers on Indonesia to expand to nearby Southeast Asian markets, with deep understanding of local policies and customer needs regarding computing power. Its core business includes computing power infrastructure construction in key cities, localized computing power hosting, and exclusive computing power services for governments and enterprises, standing as a key player in the Indonesian market.

Nxera: With notable local adaptation capability, Nxera focuses on building the local computing power ecosystem in Southeast Asia, which centers on leading cloud and AI players with great computing power and extends to governments and enterprises undergoing digital transformation. Its core business includes computing power infrastructure operation and maintenance, customized computing power hosting, and regional computing power network construction, supported by a comprehensive local service system.

V. Future Prospects and Recommendations

(i) Industry Trends up to 2030

The industry will transition from relying on natural resources to embracing technology-driven green intensification. Current limitations in electricity, land, and cooling resources will necessitate changes in the upper infrastructure layer. By 2030, core competitive advantage will shift from dependence on natural resources to efficient resource use and green transformation through technological innovation. In terms of energy, the share of green power will become a crucial measure of sustainability and investment appeal. For heat dissipation, advanced thermal management technologies such as liquid cooling will move from pilot stages to widespread commercialization to address tropical hot and humid conditions, which helps reduce the average power usage effectiveness (PUE) in this sector to below 1.3. Water use efficiency will also be significantly improved through recycled cooling and alternative water sources.

The market service pattern will experience profound structural differentiation. Geographically, a three-tier network system including core hubs, regional nodes, and edge access points will be formed. Singapore and Johor as international core hubs will focus on high-value AI training and advanced computing. Regional core nodes such as Indonesia and Thailand will handle massive data processing and analysis based on domestic markets and data localization regulations. Service providers will also

become highly specialized. Leading cloud vendors and large neutral operators will offer cross-regional "computing power network" services. Meanwhile, the market will see the emergence of numerous niche experts focusing on AI computing hosting, vertical-specific solutions, and green computing certification and optimization.

The demand-side drivers of industry growth will undergo a qualitative shift. The widespread adoption of generative AI will accelerate the shift in computing power demand structure from general-purpose computing to high-performance GPU clusters and dedicated AI chips. AI applications will deeply penetrate traditional sectors such as finance, healthcare, and government beyond consumer Internet companies, creating demand for integrated computing power solutions. In addition, data sovereignty regulations will continue to reinforce rigid demand for localized computing power, enabling operators that offer "compliant data" and "sovereign cloud" services to establish strong barriers in specific markets.

The gradual enhancement of fundamental institutional frameworks will empower the industrial ecosystem. At the policy level, while adhering to the bottom line of data sovereignty, countries are expected, under regional cooperation mechanisms such as ASEAN, to create clearer "white lists" or authentication channels for cross-border flows of specific data types, such as commercial and research data, to boost the overall effectiveness of the regional digital economy. Regarding standards, green computing power center ratings, carbon footprint accounting methods, and intelligent operation and maintenance protocols will be gradually unified in the region, reducing compliance complexity and operational costs for enterprises. At the talent level, the collaborative training mechanisms involving government, businesses, and academia will initially alleviate shortages of basic operation and maintenance talents, but high-end composite talents with AI expertise and industry knowledge will become crucial in the competition for commanding heights in this sector.

(ii) Recommendations for Industry Development

A tiered strategy should be adopted to align precisely with market conditions. In accordance with the ranking of regional market layout suitability, a differentiated layout combining core hubs and regional nodes shall be adopted, establishing a tiered regional production capacity system. It is wise to prioritize Malaysia and Singapore, leveraging friendly policies and robust infrastructure to build large-scale, high-end computing nodes. Enterprises may enter Thailand and Vietnam at the right time to capture the incremental market of the digital economy. They should be cautious about approaching Indonesia and the Philippines, with focus on overcoming compliance and resource challenges and avoiding competition with oligopolies and infrastructure-related risks.

Green development should be prioritized in line with regional transformation orientations. Green and low-carbon principles must be integrated into project core designs. New computing centers should maintain PUE below 1.3 and widely apply liquid cooling and intelligent heat dissipation technologies to reduce energy use. Local clean energy sources, such as geothermal energy in Indonesia and solar energy

in Malaysia, should be incorporated to increase green power share through long-term power purchase agreements. Proactive disclosure of carbon footprints and energy efficiency metrics, as well as green certifications, help attract ESG-focused customers and mitigate policy risks.

Lean operations should be advocated to improve industrial service efficiency. It is important to establish a specialized system for talent cultivation and introduction that integrates industrial and educational resources to enhance talent supply, thereby addressing the shortage of high-end technical talents and operation & maintenance professionals. Intelligent operation & maintenance and automated management tools can streamline service processes, lower operating costs, and ensure stable facility operations through digital methods. It is crucial to strictly adhere to regulatory requirements concerning data security, cybersecurity, and energy efficiency across different countries, preferably by building a full-process compliance management system to support the sustained and steady development of the industry.

Ecosystem collaboration should be encouraged for win-win development of regional industries. Cooperation across entities, sectors and regions within this ecosystem should be advanced to improve industrial value chains. Enhanced collaboration among computing power service providers, telecom operators, technology enterprises, and government platforms help integrate core resources including electricity, land, and networks. It is advised to avoid homogeneous competition in basic computing power services, and instead, concentrate on segmented fields such as AI computing power, disaster recovery services, and industry solutions to build a differentiated service system. Regional cooperation mechanisms can be leveraged to advance the interconnection, standard mutual recognition, and resource sharing of computing power infrastructure, and comprehensively elevate the overall competitiveness of the computing power industry in Southeast Asia.

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