



Delta Revolutionizing Digital Infrastructure For Thailand's New Normal

Delta Thailand
Innovation Review

Part 1 of 2

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Table of Contents

1 Introduction

2 Driving Trends in Thailand's New Normal

2.1 IIoT-driven Smart Manufacturing

2.2 Edge Computing

2.3 Thailand Data Center Opportunities

3 Delta Electronics Thailand Digital Infrastructure

3.1 UPS Solutions

3.2 Data Center Solutions

4 Summary

5 References



About the Author

Mr. Sakda Sae-Ueng is the Communication & Information Solutions Regional Director at Delta Electronics Thailand an international provider of data center solutions including UPS, cooling, rack, management software, and prefabricated Point-of-Delivery data center.

1. Introduction

As the world's number one switching power supply provider, Delta Electronics leverages our core competencies in power conversion and power management to develop ultra-efficient and reliable solutions for mission critical systems and data centers. Delta Electronics (Thailand) PCL. has a world-class product and solutions portfolio and effective synergy with our local information and communications technology (ICT) partner network in Thailand which powers our steady expansion in infrastructure, medical, manufacturing and education business verticals.

This article outlines how Delta's ICT infrastructure and data center solutions can form the backbone of digital transformation and be an efficient brain of the internet of things (IoT) factories and smart cities envisioned in the government's Thailand 4.0 policy. It also describes how Delta's award-winning data center solutions can enable emerging technologies like 5G and edge computing give Thailand and Southeast Asia a competitive edge in the new normal.

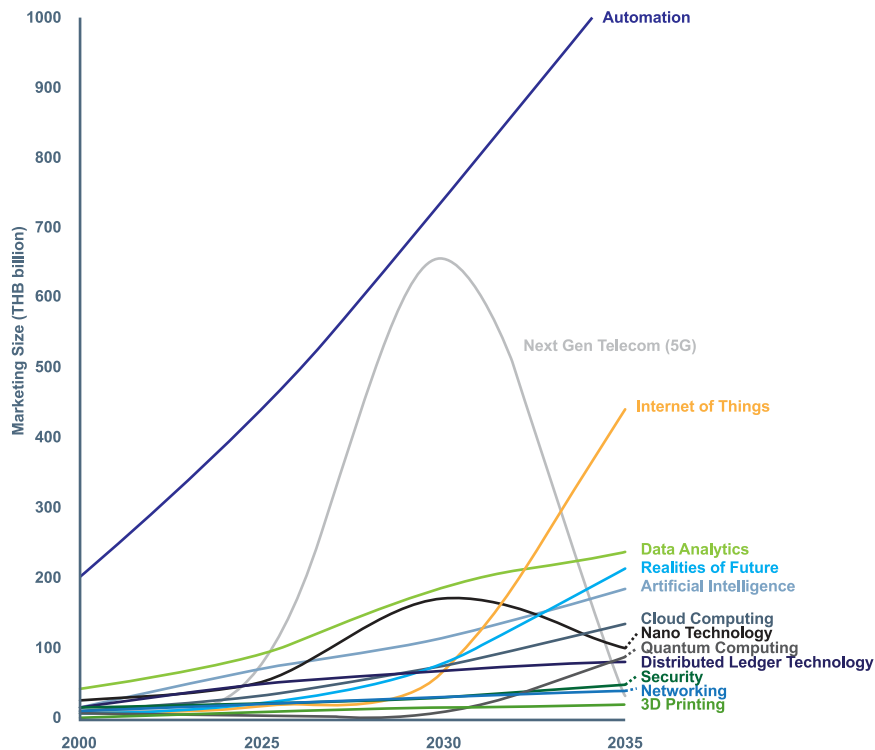


Figure 1: Forecast Market Sizes of 13 Future Technologies in Thailand;
Source: Frost & Sullivan

As a public-listed manufacturer and smart green solutions pioneer, Delta Thailand plays a key role in supporting the Kingdom's Industry 4.0 and smart city digital transformation objectives. Government and private sector projects to build up critical systems solutions and data center solutions are vital to the success of Thailand 4.0 policy. This includes Eastern Economic Corridor (EEC) projects, digital government and 5G telecoms along with target S-curve industries like smart manufacturing, next-generation automotive, smart electronics, automation and robotics.

However, the COVID-19 global pandemic has seriously affected many industries, including ICT. Global research firm

Gartner, Inc. forecasted \$3.4 trillion worldwide IT spending in 2020, a decline of 8% from 2019. It cut Thailand's 2020 IT spending forecast to 649 billion baht, a drop of 9.3% from last year. According to Gartner, the pandemic coupled with the effects of the global economic recession are causing CIOs to prioritize spending on technology and services deemed "mission-critical" over initiatives aimed at growth or transformation.

Despite the current setbacks to innovative growth, we are confident in our position as a useful and long-term partner for Thailand's sustainable development. We pursue our mission to provide innovative, clean and energy-efficient solutions for a better tomorrow. This includes installing and supporting a vast

THAILAND'S IT SPENDING

| | 2018 | 2019 | Growth | 2020f | Growth |
|-------------------------|---------|---------|--------|---------|--------|
| Data Center | 26,866 | 25,385 | -5.5% | 20,842 | -17.9% |
| Enterprise Software | 35,307 | 39,290 | 11.3% | 37,868 | -3.6% |
| Devices | 184,686 | 180,660 | -2.2% | 148,014 | -18.1% |
| IT Services | 56,893 | 60,579 | 6.5% | 56,520 | -6.7% |
| Communications Services | 405,453 | 409,947 | 1.1% | 385,718 | -5.9% |
| Overall IT | 709,205 | 715,861 | 0.9% | 648,961 | -9.3% |



Figure 2: Thailand's Predicted IT Spending; Source: Bangkok Post



network of ultra-reliable and efficient power protection and power management solutions for mission critical systems at Thailand's hospitals and essential businesses.

Meanwhile, we believe in Thailand's potential to become a hub for a "new normal" boom in ecommerce and online communications that require Delta's world-class data center solutions and ICT infrastructure. A better-connected and agile Thai society will be ready to cash in on fresh opportunities and enjoy prosperity in the coming digital economy.

2. Driving Trends in Thailand's New Normal

The COVID-19 pandemic pushed Thailand's major telecom operators to ramp up deployment of 5G technologies and become the first country in the ASEAN to have commercial 5G services. On May 11, AIS revealed it set aside up to \$1.2 billion for investment in 5G network expansion, aiming to

Figure 3: Thailand's First 5G Robot the AIS Robot for Care (ROC); **Source:** AIS

cover around 13% of the total Thai population by the end of 2020. AIS and True Corp. are now racing to deploy 5G networks at hospitals to support to doctors and medical personnel fighting COVID-19.

Previously, analysts expected Thailand’s mobile operators to spend more time before investing in 5G after spending billions of dollars in 2015 on 4G licenses and thus had low expectations for demand. However, the spread of COVID-19 infections quickly reversed earlier predictions, generating a new range of telecom service needs like telemedicine and robots.

After shopping malls reopened in Thailand, AIS and Central World Shopping Center established a 5G network to cover all shopping areas and use the AIS Robot for Care (ROC) and K9 robots operated on Live Network 5G for screening and temperature checking. As we enter the new normal, the 5G network will connect sensors and smart surveillance cameras, IoT building automation and robots together to help businesses manage social distancing and prevent new outbreaks.

5 Most Popular Applications for Home Users

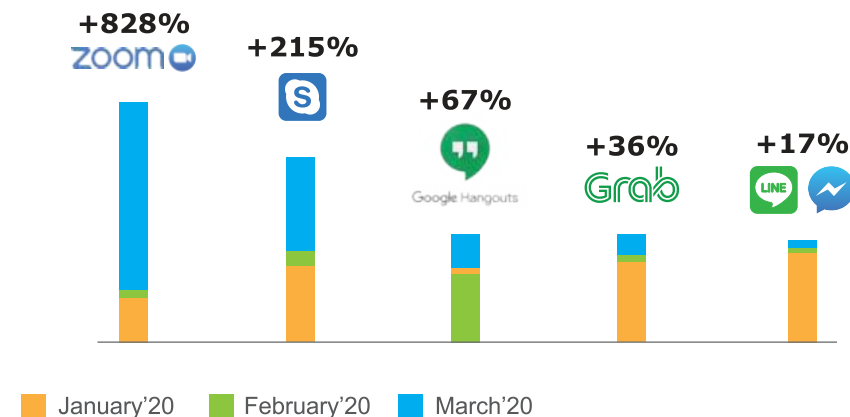


Figure 4: Videoconferencing Apps User Growth in Thailand; Source: DTAC, Techsauce



In March, Prathet Tankuranun, DTAC CTO, reported a significant rise in mobile applications focused on voice calls over the internet (VoIP), videoconferencing and home delivery. The top five apps are Zoom, Skype, Google Hangouts Meet, Grab, Facebook Messenger, and LINE Call (VoIP) with user growth of 828%, 215%, 67%, 36%, and 17% respectively. By province, Bangkok has had the highest growth of internet use, followed by Samut Sakhon, Samut Prakan, Songkhla, and Chonburi.

Mr. Prathet said working from home in Thailand appears to be on the rise as the pattern of data traffic shifts from densely populated locations like business districts, event venues and holiday destinations to less populated areas, such as residential districts and gated communities. He also outlined network capacity boost, network stations and equipment densification and dedicated 24/7 working teams as DTAC's short- and long-term support for traffic demands.

DTAC's engineering team will monitor internet usage by location to pinpoint the most critical growth areas and rapidly triple capacity by adding network stations and Massive MIMO technology. In the mid-term, engineers will evaluate congested sites to plan for additional sites on low- and mid-band, and make the necessary network equipment installations. Growth in network infrastructure will bolster the suppliers of products and solutions, including power supplies and power protection,

for critical communications equipment at network stations.

At the E-Commerce Summit 2020, Priceza revealed that social media channels make up the bulk of e-commerce in Thailand, beating both e-commerce platforms (35%) and online shops of major retailers (25%). Compared with other countries, Thailand and Vietnam are leaders of the Social Commerce market, with up to 40% of Thais and 36% of Vietnamese shopping through social media channels.

As we enter the new normal, we can expect more Southeast Asian ecommerce markets to evolve to the conversational commerce model preferred by Thai and Vietnamese users. Ecommerce platforms and online retail will try to emulate social media sellers to offer online customers more entertaining, responsive and personalized experiences. More face-to-face online conversations will fuel a boom in data usage and push up the required number of data centers for storage.

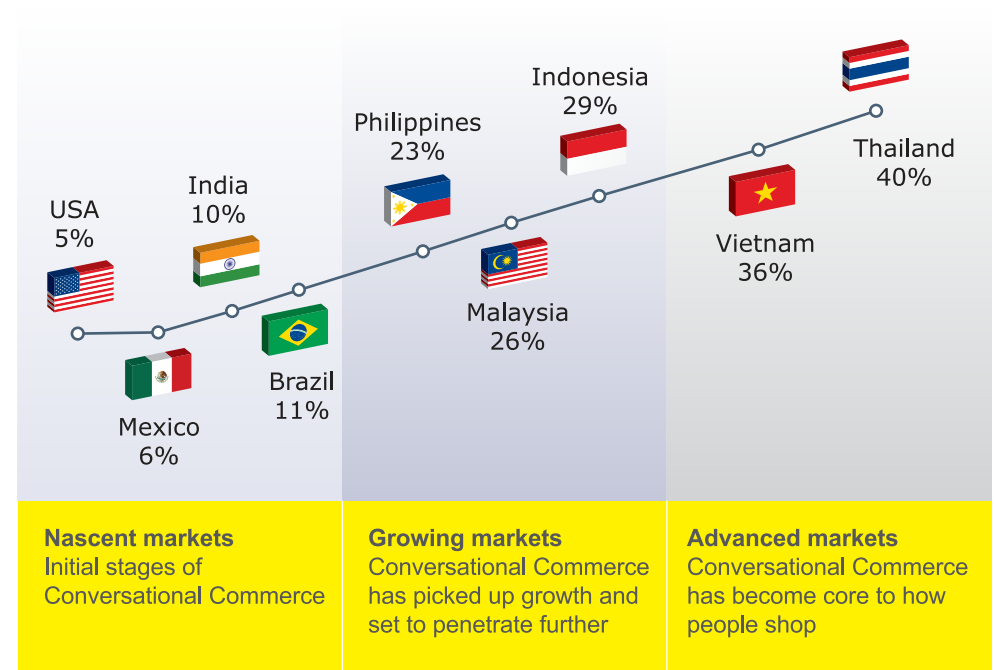


Figure 5: Thailand's E-commerce Market; Source: Priceza



At the same time all-mighty apps like Line, Grab and Gojek are morphing from their original chat or ride-hailing services to become powerful digital ecosystems for shopping, dining, entertainment and financial services. This puts even more purchasing choices in the hands of users and empowers local SMEs while driving up smartphone usage in the region.

2.1 IIoT-driven Smart Manufacturing

COVID-19 has laid bare the fragility of Thailand's economy and the danger of overreliance on the tourism and service sector. In March, the Tourism Authority of Thailand (TAT) reported tourist arrivals in Thailand fell 44.3% in February from a year earlier. Meanwhile, the Bank of Thailand slashed its 2.8% 2020 GDP growth forecast, projected last December, to -5.3%. This is Thailand's first GDP contraction since the 2008 global financial crisis and a reminder of the urgent need to build up smart manufacturing, localized supply chains and innovation pipelines to rebound as a more resilient economy.

Figure 6: Delta Smart Manufacturing (DSM)

In April, Thai manufacturing got a much-needed boost when the Board of Investment of Thailand (BOI) approved a raft of measures including steps to encourage rapid investment in medical equipment manufacturing along with support for R&D and for the modification or transformation of existing production lines to increase domestic medical supplies availability. Going forward, Thai-based manufacturers must accelerate digitization if they hope to overcome the internal and external challenges of pandemic lockdowns, trade wars, increased customer demands and skilled labor shortages in the new normal.

Within Thailand's industrial landscape, Delta stands out by offering a practical step-by-step approach to help Southeast Asian manufacturers of all levels and operational scales to get immediate value and best total cost of ownership (TCO) throughout their entire digitization journey. We've developed our own solutions from AC motor drives, servo systems, industrial controllers, HMIs and industrial robots to integrated control and management software. All this automation requires secure and reliable industrial communications that seamlessly connect machines, operators and managers and



relay inform decision making on all levels. Local manufacturers who partner with us can tap into our vast domain know-how, R&D capabilities and field application experience.

2.2 Edge Computing

To handle the explosion in data volume, the IT industry began promoting cloud computing architectures that connect IoT devices on the street, building or shop floor to the network and uploads collected data to the cloud through an internal gateway. In Thailand cloud service providers include global giants like Google, Microsoft and Amazon and local companies like True. These vendors provide a variety of data services to users who don't own their own infrastructure.

However, the spike in data volume from IoT poses challenges for cloud computing. For example, crowd control technology to manage social distancing and prevent COVID-19 can't do very advanced video processing at the cloud because on-site

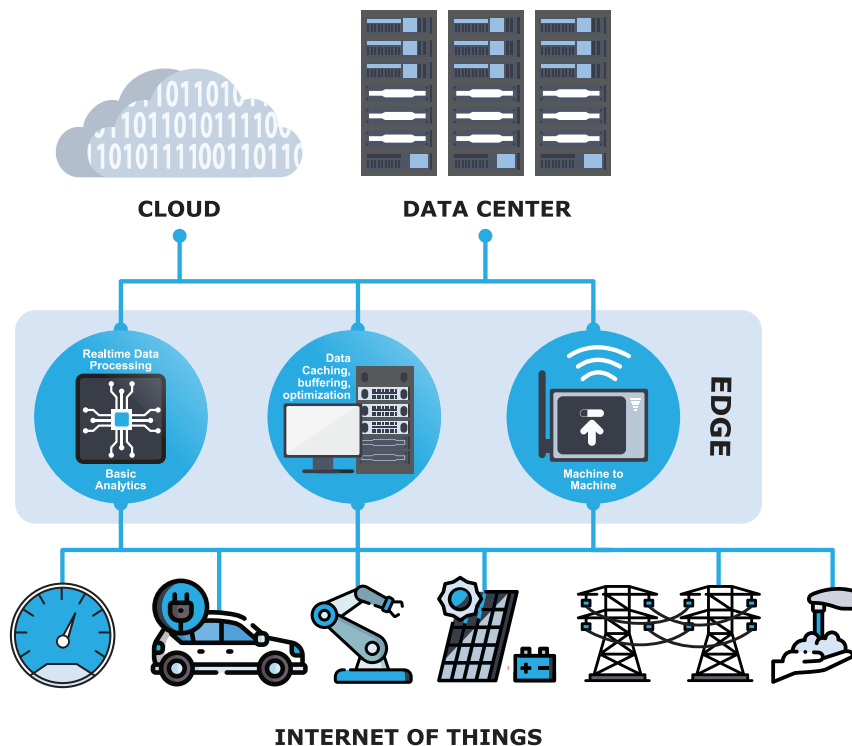


Figure 7: Edge Computing for More Efficient Cloud Computing

Graphic sources: iStock.com, Freepik.com

high-definition video signal needs very high bandwidth. So a better solution is to do computing and video data processing at “the edge”.

Putting data through the edge for simple analysis lessens the impact and load of big data on the cloud. Data requiring in-depth processing goes forward to the cloud for analysis and further insights. This solves the problem of latency and bandwidth limitations for devices that require immediate feedback like self-driving cars or production lines in smart factories. Drivers or operators can use edge computing for real-time control and get quick responses to dynamic environment conditions.

2.3 Thailand Data Center Opportunities

According to Google’s e-Economy SEA 2019 report, Thailand’s has an internet economy value of USD16 billion, and

SEA Internet Economy (GMV, \$B)

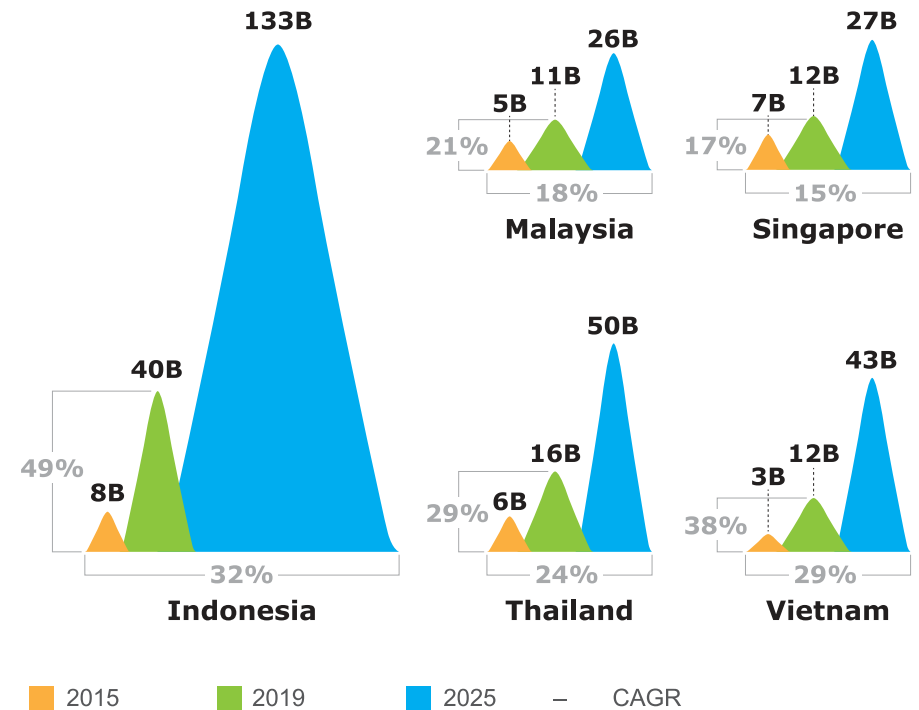


Figure 8: Southeast Asia Projected Internet Economy by 2025; Source: Google



this is predicted to increase more than three times to reach USD50 billion in 2025. Thailand's mobile penetration rate is a staggering 134%, and 52 million people are active internet users who spend nine hours every day online. As we enter the new normal, people are used to spending more time online using higher bandwidth video chat to maintain social distancing.

Singapore is a data center leader in Southeast Asia with strong network connectivity, reliable power supply and conducive business environment. But the city-state has space limitations for infrastructure, making well-located Thailand a potential hub for growth. The Thailand 4.0 policy aims to make the Digital Park Thailand in the Eastern Economic Corridor (EEC) zone a regional data hub with ultra-high speed broadband infrastructure powered by CAT, international submarine cable station, data center and satellite earth station to attract global digital leaders.

In the present climate of growth, we expect to see continued development in Thailand's large-scale government data centers, private sector cloud and colocation type data center businesses. Accelerating digital transformation in government administration, banking, telecommunication, transportation, delivery services and e-commerce industries will create a wave of new value and opportunities throughout the data center supply chain.