



## White Paper

# Toward an IT Infrastructure That Delivers in 2016 and Beyond: the Journey of ASEAN Banks

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## IN THIS WHITE PAPER

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In this White Paper, IDC Financial Insights discusses how a new era of IT infrastructure modernization is upon banks actively participating within the Association of Southeast Nations (ASEAN) market. There are five imperatives to modernization that banks have to address forcefully and effectively,

## SITUATION OVERVIEW

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Although the industry has been talking about IT infrastructure modernization for many years, the current state of the market and the many developments in technology have made it much opportune.

Since 2007, IDC has predicted, chronicled, and analyzed the industry's remarkable shift to the "3rd Platform" — with the Four Pillars of cloud, mobile, social, and Big Data technologies. The 3rd Platform has proven to be the core source of growth for IT — growth in investments in the Four Pillars has been outstanding. More recent times have seen the keen competition by enterprises to innovate using the Four Pillar technologies, and even newer technologies, what IDC calls the "Innovation Accelerators," comprising the Internet of Things, next-generation security, 3D printing, and so on. This has given rise to frenetic initiatives in digital transformation (DX) — to change a business model and to provide new revenue or value-producing opportunities. The call, of course, is that as banks transform around the 3rd Platform, their IT infrastructure needs to be much more changed, much more transformed as well.

The case for looking for the "new" has indeed become much more relevant. The past years have unveiled what constitutes the new normal for the industry: slow macroeconomic growth, ever-thinner margins, revenue replacement, constant cost pressures, and regulatory changes. In Asia/Pacific, traditional sources of revenue are either slowing down (Asian banks traditionally relied on lending as a major source of revenue, but are now faced with moderating loan growth), under threat (banks are vulnerable to the emergence of disruptive non-banks eating into traditional businesses of lending, payments, and wealth management), or put under question (transaction fees and commissions are under scrutiny).

Furthermore, in the lead-up to 2016, the industry is seeing a confluence of new trends that promise to hasten banks' initiatives in IT infrastructure modernization. Banks now have a new set of 2016-vintage imperatives vis-a-vis their IT infrastructure strategies — ranging from the need to cut operational downtimes, to improving cost management, and to improving the quality of customer interactions. In all of these, banks need to address how, in light of these new trends, their IT infrastructure can meet the new standards of scale, reliability, availability, cost, and performance.

From both the perspective of market need and the perspective of technology maturity, no time is as good as now to really modernize the IT infrastructure.

## 5 NECESSARY THINGS ASEAN BANKS SHOULD DO — NOW

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Below are the imperatives that IDC Financial Insights believe are most relevant to banks within the Association of Southeast Asian (ASEAN) region, as they pursue the longstanding goal of IT infrastructure modernization.

### As Points of Potential Failure Increase, Banks Need to Ensure Greater Availability of IT Infrastructure

The number of banking outages in the Southeast Asian region will continue to increase, continuing the spate of major operational incidents in the past five years. Current and future outages are more often associated with teething problems as banks upgrade to new systems. On the software side, using old hardware creates a situation in which the software platform is not optimized for the hardware platform on which it is running, causing incompatibilities that require frequent patching. This makes the migration costs high, especially in situations in which the bank transforms from very old to very current. The number of steps in between in the operating system layers and connections make it difficult and time-consuming. The amount of labor required to perform the migration increases the cost significantly.

Clearly, the outages are symptoms of legacy systems that are close to breaking, or of the unmanageable interlace of systems and processes that are cobbled together to run the bank — brought about, of course, by hyper-growth in the region that caused an unwieldy expansion of the bank and its IT assets.

The rise in outages has introduced a weighty new driver for legacy core system replacement: regulatory interference. Several regulators have put forward mandates to monitor and address issues related to unscheduled downtime and for preventing and mitigating future outages. Fines and the threat of revoked licenses will prove to be motives for action.

Meanwhile, vicious attempts to breach bank security are also causes of worry. They have been more multi-pronged and -layered in their nature compared with previous trends, and are expected to intensify moving forward. Banks will need to monitor the suitability and functionality of their existing systems in order to make sure they are up to spec against the latest threats — especially because frontal DDoS attacks are often used as distractions while hackers act covertly to try and extract information from databases such as credit card data while under this cover. In terms of quantity, points of failure and security breaches have exploded, thanks to the advent of new technologies including the blistering pace of Internet utilization by consumers, rapid expansion of the cloud software market and a correlated increase in web usage by corporates, relative defenselessness and ubiquity of mobile devices, proliferation of mobile workers with unmanaged devices from the bring-your-own-device (BYOD) trend, and the advent of social media and the increasing popularity of social networking sites.

The sentiment for 2016 will definitely be one of high alert against both unintended outages on one end and vicious attacks on the other. Banks of all sizes will see the agenda of reliability, uptime, and availability become more important, and they will allocate budgets accordingly.

Points to think about:

- The number of Severity 1 and Severity 2 incidences has increased from 2012 to 2015 in ASEAN markets, by approximately 15%. This will increase further as more institutions migrate inefficiently to newer platforms and new technologies.
- According to IDC Financial Insights data, every hour of downtime costs a typical Asia/Pacific bank US\$100,000 in tangible and intangible damage.
- Security incidences have spiked 22% from 2013 to 2015.

### *Continue on the Path to Regionalization, but Avoid a Sprawling Headache*

The emergence of the ASEAN Economic Community (AEC) with the promise of greater liberalization in financial services within the ten-member Association of Southeast Asian Nations (ASEAN) has stoked the agenda for many financial institutions to regionalize.

Although the AEC agenda has been slowed down in several areas, the theme of regionalization is providing impetus for IT organizations to transform. The regional ambitions of global banks in ASEAN and tier 1 institutions in the rest of the Asia/Pacific have typically resulted in a fragmented network of processes, workflows, and systems. To the IT organization, this can mean an ever-expanding sprawl of IT assets across the region and thus an ever-expanding headache to deal with. However, this can also mean an opportunity to centralize decision making and a new reason to optimize technology capabilities. This includes various initiatives in standardizing infrastructure and software assets across multiple country operations.

Virtualization, for example, is seen to offer quicker deployment of application functionalities to the business in these new locations. This is especially welcomed by regional, multi-jurisdiction banks. This is relevant for applications most in use by financial institutions, such as account origination systems, credit risk systems, trading and payments processing, and various applications for product management systems and lead management.

Cloud projects are also in this mix. As banks' confidence in cloud services expands and regulators flesh out their cloud computing regulations, usage of cloud models will continue to widen and deepen. We envision private clouds extending beyond the enterprise (through collaborations and joint ventures) and cloud models being executed in parallel at different levels of the technology stack, ranging from IaaS, via SaaS and PaaS, to BPaaS.

Meanwhile, given the diversity of the Southeast Asia market, the pace of adoption would vary by geography and by bank because of in-country regulations, the status of legacy systems, the scale of IT infrastructure, and the level of flexibility and cultural resistance among the core influencers. Newer and smaller emerging market banks, for instance, generally have fewer legacy systems and infrastructure, making it easier for them to adopt cloud models.

Points to think about:

- ASEAN super-regional banks expect to make 60% of their revenues outside of the home market in the next two years.
- According to IDC Financial Insights data, there will be a 133% growth of workloads put into cloud by leading banks in the Asia/Pacific region.

## *Don't Settle: Continue Improving Cost and IT Optimization Metrics*

The opportunities offered by 3rd Platform migration and the effort by banks to modernize existing systems call for banks to get clarity of their existing technology assets: to see how they are performing, and then mapping out ways of integrating them more effectively.

The list of must-dos for IT optimization is long. There is the all-important work of prioritizing IT projects, and we allude to the expansion in the number of transformative projects that are ongoing in most Southeast Asia banks. This expansion ranges from core banking system upgrades, to even more programs of work in credit risk and market risk management, to channels and touch points, to the overhaul of payments systems. Multiple projects will compete for attention, and IT leaders need to have an aggregated view of how these projects meet more stringent on-time, on-budget, and on-target benchmarks.

Furthermore, the standardization of hardware and software assets will also be critical, especially for tier 1 institutions wherein IT cost management imperatives are most evident. Various initiatives will be relevant here and will gain momentum: virtualization of hardware and software, datacenter consolidation, and even ambitious system re-architecture programs.

Amid all of these imperatives is one potential organizing principle: the revision of banks' cost and performance standards. Banks should continue to up their metrics in cost management, becoming more granular on understanding the real sources of cost (and revenue) within the organization, and aligning themselves to metrics that are suitable to their segment of banks. Cost metrics should focus on the level of optimization, so that that the organization addresses important questions on how much of their IT assets are standardized and available for re-use.

As we look ahead to 2016, we note that the industry is entering the most critical period yet in cost optimization. About 80% of banks in Asia/Pacific believe that operating expenses (opex)-based spending has many benefits, with 60% of the respondents stating that opex-based spending, as opposed to capital expenses (capex)-based spending, will be their preferred model in the next five years. This indicates a resurgent managed services market, bringing to the agenda issues as varied as multivendor sourcing, vendor due diligence, service-level agreements, the suitable path to cloud computing in different markets, and the new options that banks can use, consume, and pay for technologies.

Points to think about:

- IDC Financial Insights Asia/Pacific data shows that about 25% of IT spending among top 60 Southeast Asian banks will be opex (versus capex) by 2020, from the current 14–16% level.
- According to 15 early adopter banks, cloud computing has given them a total capital expenditure reduction of 2% within 2 years, indicating that cloud presents fast-and-effective opportunities to cut capex spending.
- Cost-to-income ratios need to be pushed down to approximately 40% in Asia/Pacific banks, with only about 20% of Southeast Asia banks able to comfortably meet this benchmark. IT cost is the largest contributor of cost, after staff salaries.

## ***Push for Scale, and Persist in Meeting Greater Customer Expectations***

The numbers showing the growth in banking interactions in Asia/Pacific are by themselves staggering. In the past three years, there has been an 80% increase in the number of mobile devices. By 2018, 50% of the consumer base in all Southeast Asia markets will be on smartphones (as opposed to feature phones), indicating how their banking interactions will be more frequent, longer in terms of duration, and much more data-intensive.

The digital channel — particularly the mobile channel — is an increasingly important mode of engagement. This means that the power has shifted to the customer, who now owns, manages, and controls a channel: the device in his hand. In other words, companies now have to engage with the customer under the latter's own terms: when the device is used (services must be provided 24 x 7 with minimal wait times), what the device is to be used for (what mobile applications are downloaded onto these devices and how they are used), and where the device is used (contingency provisions for limited connectivity; data ownership; and secure, fully wireless authentications). Uptime, availability, reliability, user-intuitiveness are the most relevant technology imperatives for banks in this regard — not to mention the capability of these companies to support the sheer growth in transactions.

Furthermore, customers are demanding instantaneous response in their interactions with institutions, in no small part due to them being accustomed to the speed with which apps on their mobile devices responds to them, but also because of the arrival of a new generation of customers that demand, rightly or wrongly, instant gratification. In 2016, we expect banks to continue to ramp up their capabilities to serve customers fast — or at least be perceived as doing so. This means that institutions have to respond to their customers right away, give them the right response at (or almost at) the point of contact, and resolve cases as quickly as possible. Latency is an impediment to building such a strong customer experience.

Points to think about:

- IDC Financial Insights Asia/Pacific data shows that there has been a 60% increase of data collected and stored by banks from 2012 to 2015.
- Banks will maintain at least 18 channel types by 2018, pointing to the staggering volumes of data that are pushed to and from customer touch points.
- Institutions are pushing out more interaction with customers — at least 6 times a month per customer by 2018 — so the rise in traffic goes the other way too.

## ***Align IT Strategies with Regulatory Directions***

From newly articulated positions vis-a-vis innovation, new guidelines on cloud and managed services, and then regulations on security and other types of risk, regulators have been showing their effort to foster greater clarity. They will continue to do so in 2016 and beyond. Such regulatory clarity is highly anticipated as this will allow IT leaders to make sense of the new and disruptive technologies that present themselves to the IT organization.

Prime in this theme of regulatory clarity is that around cloud. Recent regulations have been more detailed about initial regulatory misgivings vis-a-vis cloud. Among the regulators actively deliberating on cloud, the most typical concerns can be categorized into customer data privacy and protection, security, and data residency — usually in that order of importance. In 2016, we see more regulators stipulating guidelines around data handling to include data classification and controls, segregation, access,

storage, and record retention. Regulators are also going to mandate operating procedures in the event of breaches.

For regional, multi-country institutions, the bigger story is that of the convergence of global regulations on cloud. Even Asia/Pacific markets that were skeptical of cloud have started to emulate the guidelines set in the United States and in Europe. The clear implication here is that leading datacenter providers supporting financial services will most likely be able to easily and effectively serve banks in most jurisdictions.

We also state that the emergence of community clouds seen in the region first by nonbank financial institutions such as stock exchanges (those in Singapore and Australia are examples) and insurance will make banks more willing to talk big on cloud. Industry clouds offering cloud-based data and services platforms will gain even more appeal. Although the types of solutions on offer will be broad, many of these industry-specialized platforms will be within the ambit of risk data and risk management-related services: cyberthreat intelligence, market and post-trade risk data, and credit risk analytics models. The growth of financial services community clouds is welcome not just from the perspective of infrastructure or IT optimization, but also from their impact on the consolidation of definitions and the standardization of standards — especially welcome if this happens in the area of risk intelligence and risk management.

Points to think about:

- All ASEAN super-regional banks will have a hybrid cloud architecture by 2018. These large banks will not only set the pace, but also clear the way for their peers. They will set best practices in the location, control, ownership, and management of data on the cloud — and set templates for regulatory compliance for each of these areas.
- Our recent assessment of core banking system vendors worldwide, for example, revealed that vendors have made their solutions cloud-optimized, so that new solutions in and close to the modern core are most likely tuned for cloud deployment.

**TABLE 1. INFRASTRUCTURE MODERNIZATION: WHAT BANKS IN INDONESIA NEED TO KNOW**

Below we present some of the considerations that banks in Indonesia need to consider as they develop their road maps for IT infrastructure modernization.

| <b>Imperative<br/>(What Needs to Be Done)</b>              | <b>Relevant Trends in Indonesia</b>  | <b>Level of Priority</b> | <b>Next Best Steps<br/>(How Indonesia's Banks Can Achieve Quick Wins with NTT Communications)</b>   |
|--|--|--------------------------|---|
| <b>1. Ensure greater availability of IT infrastructure</b> | <ul style="list-style-type: none"> <li>Indonesia banks saw the highest level of downtime in 2014 — in both frequency and duration of outages. Most banks blame lack of effective IT integration. Power failure is the second cause cited.</li> <li>Recovery Time Objectives remain far from ideal, outside of the ideal 30 minutes being talked about within the industry.</li> </ul>  | High                     | To overcome low availability for both network and power, it is essential to have the system and data stored in stable datacenters with managed services. However, it is also crucial to select datacenters with high accessibility. |
| <b>2. Regionalize</b>                                      | <ul style="list-style-type: none"> <li>The Indonesia banking sector has shown signs of not supporting further growth of foreign presence in the domestic banking sector, although new competition might come from domestic non-bank companies, disrupting the payments business in particular.</li> <li>Owing to a still-untapped domestic banking market, Indonesia banks are not regionalizing as much as those in other markets.</li> </ul> | Low                      | It is important to consider shifting away from large capital expenditure toward an operational expenditure model. This would make the banking sector cope with many changes in market demand.                                       |

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| <p><b>3. Improve cost and IT optimization metrics</b></p>                      | <ul style="list-style-type: none"> <li>• Average cost-to-income ratios of the top 10 Indonesia banks is at 45–50%, higher than the ideal 40% in the region.</li> <li>• Indonesia banks spend higher than their peers in one specific area: telecommunications.</li> </ul>  | <p>High</p>   | <p>A significant percentage of the IT spending are on hardware purchase and of banks managing this on their own, which is resulting in less-than-ideal cost metrics. Shifting spending to more services and outsourcing will be worth considering. It is also important to find a solution to effectively manage multiple domestic carriers in order to maintain cost-effectiveness and service level.</p> |
| <p><b>4. Meeting greater expectations of scale and customer experience</b></p> | <ul style="list-style-type: none"> <li>• Indonesian banking customers interact with their bank only 1.5 times per month, much lower than benchmarks in the region.</li> <li>• Indonesia will have the lowest smartphone penetration rates in 2018, indicating still nascent data-intensive banking interactions.</li> </ul>  | <p>Medium</p> | <p>It is crucial that the systems supporting retail services are equipped with high bandwidth to have both the local and global Internet access.</p>   |
| <p><b>5. Align with regulations in cloud and next-generation IT</b></p>        | <ul style="list-style-type: none"> <li>• Regulation for in-country hosting of data is fostering growth in next-generation datacenters in Indonesia. IDC forecasts a CAGR of 21% in managed services from 2015 to 2018.</li> <li>• Guidelines GR82/2012 called for effective business continuity, but newly issued datacenter tender (June 2015) by Bank Indonesia points to a shift in focus to performance. These higher standards of performance will possibly be required for the industry at large.</li> </ul> | <p>Medium</p> | <p>Selecting a datacenter with high quality in terms of facility and operation is necessary not only to realize a bank's stable operation. Stability is also a growing focus by regulators. Considering its social infrastructure weakness on transport, it is likely that the accessibility of the datacenter will be a growing regulatory concern.</p>   |

**TABLE 2. INFRASTRUCTURE MODERNIZATION: WHAT BANKS IN MALAYSIA NEED TO KNOW**

Below we present some of the considerations that banks in Malaysia need to consider as they develop their road maps for IT infrastructure modernization.

| <b>Imperative<br/>(What Needs to Be Done)</b>              | <b>Relevant Trends in Malaysia</b>  | <b>Level of Priority</b> | <b>Next Best Steps<br/>(How Malaysia's Banks Can Achieve Quick Wins)</b>   |
|--|---|--------------------------|--|
| <b>1. Ensure greater availability of IT infrastructure</b> | <ul style="list-style-type: none"> <li>Malaysia's financial institutions have higher-than-expected rates of IT virtualization and adoption of advanced datacenter technologies. Service providers can bring new technologies to meet relative market maturity.</li> <li>Standards for Recovery Time Objective and Recovery Point Objective are among the highest in ASEAN.</li> </ul>   | High                     | Look for both high quality infrastructure and high availability. Note that globally standardized operation procedures reduces operational complexity.  |
| <b>2. Regionalize</b>                                      | <ul style="list-style-type: none"> <li>Malaysia continues to grow its role as a global financial services center, particularly for wealth management and Islamic banking.</li> <li>The number of financial services institutions is gradually being expanded as the regulator issues more licenses.</li> <li>Malaysia banks are the most aggressive in the region to expand in the ASEAN, and have become active not only in commercial banking but also in capital markets and insurance.</li> </ul> | High                     | A datacenter provider's extensive footprint in the region means consistency for all of a customer's locations/sites and the ability to meet the customer's regional business expansion requirements. Banks should also consider a flexible yet secure identity management to support engagements/collaborations across the region. Also, a globally standardized operation procedure reduces operational complexity. |

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| <p><b>3. Improve cost and IT optimization metrics</b></p>                      | <ul style="list-style-type: none"> <li>• Declining revenues of banks will make the impact of operational costs to cost-to-income ratios more evident.</li> <li>• Increase in overall IT cost has been caused by higher cost of IT services, thanks to higher salaries paid to skilled IT staff. Financial institutions can take advantage of economies of scale offered by managed services contracts.</li> <li>• Availability of metered pricing makes banks optimize operational costs for datacenter resources, including cost of power.</li> </ul> | <p>Medium</p> | <p>Self-designed, self-constructed datacenters offer low construction cost and energy costs that can be passed on to customers. There will also be opex-savings from reduction in management cost through integrated customer portals, and a unified management of hybrid environments. Banks can consider the benefits of low-cost network services with low latency and fully redundant systems.</p> |
| <p><b>4. Meeting greater expectations of scale and customer experience</b></p> | <ul style="list-style-type: none"> <li>• A push by different industry stakeholders will make Malaysia among the early adopters of new digital channels (mobile, mobile wallets, new forms of payments). Customer satisfaction can be affected — positively or negatively — by the level of experience offered by these new and largely untested technologies.</li> </ul>   | <p>Medium</p> | <p>Consider on-demand cloud solutions to scale for growth in digital channels and customer interaction.</p>  |
| <p><b>5. Align with regulations in cloud and next-generation IT</b></p>        | <ul style="list-style-type: none"> <li>• Some Malaysia banks are the industry's early adopters of cloud, although preference is on private cloud. Banks are expected to focus on global optimization of ICT environments triggered by migration of their on-premises systems to cloud.</li> <li>• Aside from gaining maturity in their ability to price services on a pay-per-use basis, vendors have scaled up on their response to stringent guidelines for risk management and security.</li> </ul>   | <p>High</p>   | <p>Banks should move more decisively on their plans for a hybrid-cloud environment combining cloud, datacenter, network, and security. There will have to be focus on high service quality in conformity with high-security and global standards such as ISO, ITIL, PCIDSS, and TVRA.</p>  |

**TABLE 3. INFRASTRUCTURE MODERNIZATION: WHAT BANKS IN SINGAPORE NEED TO KNOW**

Below we present some of the considerations that banks in Singapore need to consider as they develop their road maps for IT infrastructure modernization.

| Imperative<br>(What Needs to Be Done)                      | Relevant Trends in Singapore  | Level of Priority | Next Best Steps<br>(How Singapore's Banks Can Achieve Quick Wins)   |
|--|---|-------------------|---|
| <b>1. Ensure greater availability of IT infrastructure</b> | <ul style="list-style-type: none"> <li>• The focus on critical systems by IT infrastructure teams has led to a reduction in Severity 1 incidences, although such incidences get so much traction in the media.</li> <li>• Including fines, remediation, and even non-tangible impact of outages, IDC Financial Insights estimates that an hour of downtime equates to US\$1.4 million in damages to a financial institution.</li> <li>• A recovery time objective of 30 minutes is the new standard.</li> </ul>   | High              | Look for a partner with a proven track record, both financially and operationally. The partner should have end-to-end monitoring from customers' locations, and comprehensive SLAs for network availability, access line availability, restore time, network delay, on-time delivery, outage notification time, and bandwidth guarantees. |
| <b>2. Regionalize</b>                                      | <ul style="list-style-type: none"> <li>• Singapore continues to grow its role as a global financial services center, with a remarkable expansion in what the Monetary Authority of Singapore (MAS) calls the "breadth and depth" of products ranging from wealth management, asset management, insurance, and even Islamic banking. Underscoring its importance as a growth center for wealth management is the 2014 year-over-year growth in assets under management (AUM) of 30%.</li> <li>• The number of financial services institutions (banks and non-banks, all supervised by MAS) is almost 3,000 — all competing for scarce technology resources in the island.</li> </ul> | Medium            | Having the right decision makers in the region who have deep insights of the local landscape and know the key principles of governance makes a big difference. This creates faster turnaround processes for critical decisions in supporting growth, reliability, and scalability of a more regional infrastructure.                      |

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|   | <ul style="list-style-type: none"> <li>• Singapore institutions continue to venture into and beyond the ASEAN region, to markets such as China and India.</li> </ul>   |        |   |
| <b>3. Improve cost and IT optimization metrics</b>                      | <ul style="list-style-type: none"> <li>• Record revenues of banks mask the impact of higher costs to cost-to-income benchmarks.</li> <li>• Increase in overall IT cost has been caused by higher cost of IT services, thanks to higher salaries paid to skilled IT staff. Financial institutions can take advantage of economies of scale offered by managed services contracts.</li> <li>• Availability of metered pricing makes banks optimize operational costs for datacenter resources, including cost of power.</li> </ul>   | High   | <p>Optimize the IT infrastructure to take advantage of high-density systems to improve economies of scale and lower per unit cost. This would improve the cost metrics of critical IT infrastructure. Partners are building the capability to adapt to sudden changes and to be flexible in their cost models that will play a big role in achieving cost efficiency.</p> |
| <b>4. Meeting greater expectations of scale and customer experience</b> | <ul style="list-style-type: none"> <li>• In a recent IDC Financial Insights customer survey, banking customers in Singapore have the lowest rates of satisfaction of banks in a panel of 7 Asia/Pacific countries. Downtime and slow turnaround time are the main contributors to this dissatisfaction.</li> </ul>   | Medium | <p>Banks need to be more agile and adopt to the latest consumer trends such as mobile apps and improve user experience in their brick-and-mortar branches.</p>  |
| <b>5. Align with regulations in cloud and next-generation IT</b>        | <ul style="list-style-type: none"> <li>• Updated guidelines vis-a-vis cloud lists "SaaS, PaaS, and IaaS" as kinds of services that, when performed by a third party, would be regarded as outsourcing arrangements. The guidelines already indicate greater openness to multitenancy and hosting by global cloud providers subject to security management standards.</li> <li>• Aside from gaining maturity in their ability to price services on a pay-per-use basis, vendors have scaled up on their response to stringent guidelines for risk management and security.</li> </ul> | High   | <p>Managing third-party relationships is a daunting task. However, with proper guidelines and rules of engagement, the impact of adverse incidences can be reduced. MSA and specific T&amp;Cs must be spelled out properly to avoid misconception or misrepresentation.</p>   |

**TABLE 4. INFRASTRUCTURE MODERNIZATION: WHAT BANKS IN THAILAND NEED TO KNOW**

Below we present some of the considerations that banks in Thailand need to consider as they develop their road maps for IT infrastructure modernization.

| Imperative<br>(What Needs to Be Done)                      | Relevant Trends in Thailand   | Level of Priority | Next Best Steps<br>(How Thai Banks Can Achieve Quick Wins)  |
|--|---|-------------------|---|
| <b>1. Ensure greater availability of IT infrastructure</b> | <ul style="list-style-type: none"> <li>• According to IDC Thailand, 25% of enterprises in Thailand (including FSIs) suffered through Severity 1 incidences in 2014. This number seems to be sustained every year.</li> <li>• Recovery time objective (RTO) remains far from ideal, outside of the ideal 30 minutes being talked about within the industry.</li> </ul>   | Medium            | Banks should also consider third-party partners that can offer support for clients' business without interruption, with effective datacenter-disaster recovery (DC-DR) Solutions to secure the bank's business in adverse situations.   |
| <b>2. Regionalize</b>                                      | <ul style="list-style-type: none"> <li>• Thai banks are still primarily domestic-focused, even as they state that the emergence of the ASEAN Economic Community (AEC) will make Thailand the hub for the Mekong subregion.</li> <li>• The number of financial services institutions is gradually being expanded as the regulator issues more licenses, accommodating new licensees from the Asia/Pacific region.</li> </ul> | Medium            | Consider how service providers have built partnerships with local and global carriers to provide domestic and international network connections to support businesses globally. An enterprise cloud service, including hybrid solutions, can support clients' requirements for expansion. |

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| <p><b>3. Improve cost and IT optimization metrics</b></p>                      | <ul style="list-style-type: none"> <li>Declining revenues of banks and higher reserve requirements will make the impact of operational costs to cost-to-income ratios more evident.</li> <li>The financial services market is equally split between adopters and non-adopters of managed services and accounting. However, cost and productivity benefits seen by adopters point to more justification for further growth in outsourcing.</li> <li>Thailand is seeing the highest power costs in the region, which can somehow be resolved by managed datacenter services.</li> </ul> | <p>High</p>   | <p>A cloud partner can decrease equipment, facility, and man-hour cost. The partner should also have an integrated network operation center solution with managed network service that can consolidate the customer's network and manage from one location.</p>  |
| <p><b>4. Meeting greater expectations of scale and customer experience</b></p> | <ul style="list-style-type: none"> <li>Thailand will see a tipping point of growth in digital channel interactions as the percentage of smartphone users crosses 50% for the first time in end-2015. Greater availability of broadband will push "digital" further.</li> <li>Channel innovation tops the agenda of retail banks and insurers in the lead-up to 2016. Customer satisfaction can be affected — positively or negatively — by the level of experience offered by these new and largely untested technologies.</li> </ul>   | <p>Medium</p> | <p>The mobility era will transform clients' products and services to enhance their experience. Offerings to be considered include desktop as a service (DaaS) service, virtual desktop infrastructure (VDI) solution with enterprise mobility management (EMM) — mobile security that can support the bank's growing number of mobile services to their end users.</p>                   |
| <p><b>5. Align with regulations in cloud and next-generation IT</b></p>        | <ul style="list-style-type: none"> <li>Thai banks are the industry's early adopters of cloud. The industry expects that in 2016 over 2015, growth in workloads put into cloud will be 40%.</li> <li>Overall, the market for managed services and cloud will grow at 30% (CAGR for 2015 to 2018), thanks to robust growth in several industries including banking.</li> <li>Aside from gaining maturity in their ability to price services on a pay-per-use basis, vendors have scaled up on their response to</li> </ul>  | <p>High</p>   | <p>Banks should move more decisively on their plans for a hybrid-cloud environment combining cloud, datacenter, network, and security. Banks can institute a pay-per-use model for its IT infrastructure. Thailand's focus in the coming years might be in managed security service (MSS) covering high-end capabilities in web/email/VM anti-virus, IPS/IDS, application filtering,</p> |

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|  | stringent guidelines for risk management and security. |  | virtual patch, profiling, real-time malware detection, and so forth. |
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## CHALLENGES FOR NTT COMMUNICATIONS

The key challenge for NTT Communications in the ASEAN region is the multiplicity of client needs — every market in the region is different, with varying degrees of maturity: the availability of supporting infrastructure, cost of bandwidth, suitability of partners, risks — they all change drastically from market to market. Even banks in the same market maintain different trajectories toward infrastructure modernization, with some banks more decisively on their journey than others. Although a segmentation of customers by geography, asset size, strategic intent, and technology maturity will be a good start, NTT Communications will succeed with a bank-by-bank assessment and a granular evaluation of needs and requirements. The ASEAN market will be won one institution at a time.

## ESSENTIAL GUIDANCE: HOW 2016 IMPERATIVES CAN BE ADDRESSED

Like NTT Communications assessing opportunities one bank at a time, the banking industry's leaders will also need to undertake a comprehensive reassessment of their own road maps and ascertain that their plans are attuned to the times. They need to fulfill the new imperatives for IT infrastructure modernization as forcefully but as effectively as possible.

For sure, it will take some time for ASEAN banks to fully address the new imperatives, but their work has to be started now. We recommend that banks ask the right questions so that their journey toward IT infrastructure optimization will be fast-tracked. They can also ease their effort by making a reference to the experience of several banks that have already addressed some of these imperatives, and these banks already provide lessons for other banks to consider. We cite these questions and lessons in this section.

| Imperative<br>(What Needs to Be Done)                      | Questions to Ask in the Journey<br>Toward Infrastructure Modernization   | Lessons Learned<br>by Leading Banks  |
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| <b>1. Ensure greater availability of IT infrastructure</b> | <ul style="list-style-type: none"> <li>• Do we follow industry-leading service-level agreements (SLAs) for availability and reliability?</li> <li>• Is my datacenter design suited for best-in-class reliability, and also disaster recovery and business continuity?</li> <li>• Have I considered auditability?</li> <li>• Do I have on-the-ground support?</li> <li>• What security management tools have I deployed?</li> </ul> | According to one bank interviewed, "everything is mission-critical." In general, leading banks have taken a more proactive approach to guard against downtime and ensure the reliability of systems, especially focusing on: IT operations management, system testing, |

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|  | <ul style="list-style-type: none"> <li>• Security solutions must provide defense against a variety of advanced, targeted threats on emerging technologies &amp; variety of platforms while still achieving scalability.</li> </ul>   | and having reliable service providers.   |
| <b>2. Regionalize</b>                              | <ul style="list-style-type: none"> <li>• Is my datacenter optimized for regional operations?</li> <li>• What is my strategy toward virtualization, cloud, and software-defined infrastructure?</li> <li>• As my bank considers pan-regional presence, have I considered location of expertise (for support and data center resources)?</li> <li>• Am I ready to comply across multiple jurisdictions in Asia/Pacific?</li> </ul> | Regionalizing banks have focused on key principles of governance over performance (e.g., who has the final say on the datacenter resources and the strategies therein?)  |
| <b>3. Improve cost and IT optimization metrics</b> | <ul style="list-style-type: none"> <li>• Do we fully leverage IT-as-a-service consumption models, and use as-a-service for increasingly mission-critical workloads?</li> </ul>   | Leading banks have followed new IT consumption models as a greater share of budgets are allocated to compliance, and IT is under pressure to charge lines of business (LOBs) for what they actually use. Furthermore, the vendor must be ready to engage on new ways that FSIs want to use, consume, and pay for technology. With the continued evolution of the datacenter through virtualization technologies and the migration to cloud infrastructures (mainly private or virtual private for most banks), many of the dynamics of provisioning for technology have changed — and vendors must be willing and capable in talking with FSIs on these new terms. |
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| <p><b>4. Meeting greater expectations of scale and customer experience</b></p> | <ul style="list-style-type: none"> <li>• Are my datacenters allowing my bank to scale out and scale up effectively — especially as there is an increase in transactions and process traffic?</li> <li>• How do we balance core versus non-core environments to realize IT optimization?</li> </ul> | <p>All technical issues must be addressed, ensuring higher scalability and that scalability does not come at a high price.</p> <p>Furthermore, datacenter strategies must scale alongside platforms they are providing for banks to fully embrace the benefits of virtualization and consolidation. They must streamline management across both physical and virtual environments as banks are more likely to implement virtual and cloud solutions for specific infrastructure segments, rather than across the entire datacenter.</p> <p>Leading banks have become more focused on next-generation datacenter strategies, with demand on IT to reduce cost of "operational IT" plus enterprise mobility, new applications, new users all putting increasing pressures on IT to deliver. The CIO can reduce cost, increase agility, and optimize across the datacenter (including the traditional datacenter infrastructure, network, cloud, and facilities) all while maintaining ability to scale and provide availability 24 x 7.</p> |
| <p><b>5. Align with regulations in cloud</b></p>                               | <ul style="list-style-type: none"> <li>• Where can cloud be relevant to deliver scale and value?</li> </ul>  | <p>Leading banks have looked in the first instances at the regional capability of the</p>   |

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| <p><b>and next-generation IT</b></p> |  | <p>vendor or service provider.</p> <p>Note about compliance: most regulatory reforms are being introduced by Asia/Pacific countries in parallel, lending some congruity to the region's regulatory directions, and leading providers will be able to easily comply with the benchmarks for compliance regionwide.</p> <p>Inevitably, banks will struggle with the different types of cloud in operation, which could increase multiple-fold as an institution moves along its cloud journey. We predict even more focus on automated IT service management (ITSM) given that a financial institution's environment will increasingly become complex due to third-party involvement, cloud, and complex internal services delivery.</p> |
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## About IDC

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