LET'S TALK DIGITAL

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ASIAN BANKING SCHOOL

CONTENT

Let's Talk Digital is a monthly newsletter that was created to build awareness on Digital Banking and provide a platform for industry practitioners to share insight and current trends on this exciting subject matter in relation to the Banking and Finance industry.

Big Data Application in Banking & Finance

By Peter Kua Seng Choy

Financial institutions sit on a vast amount data generated daily through a variety of customer and B2B interactions. Big data analytics (BDA) and the banking sector are a perfect match to improve and grow its business. We take a look at some of the high-value BDA applications in this sector.

Cloud Computing

By Ian Goh Suan Hooi

In a scene from the 2015 movie Creed, Adonis Creed son of Apollo Creed uses his mobile to take a photo of a note written by Rocky Balboa (Sylvester Stallone). Rocky then proceeds to ask Adonis if he should write it down instead, to which Adonis replies, "it's cool it's in the cloud". Rocky then proceeds to look at the sky to try and find the note in the cloud.

"The cloud" is a term had been bandied about rather freely for the past five to ten years. And like all IT related lingo we have been rather free with its use and its definition. This article attempts to give some real-world examples of what the cloud is and in doing so (hopefully) dispel some myths.

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www.asianbankingschool.com/our-programmes/centre-for-digital-banking

Peter Kua Seng Choy

Peter Kua is currently Head of Data Science and Analytics in Media Prima Digital. His responsibilities include finding ways data can be used as a competitive advantage as well as identifying new business opportunities with data.

Peter was also instrumental in driving the National Big Data Analytics (BDA) Initiative under the
Malaysia Digital Economy Corporation (MDEC) in the areas of thought leadership and
industry development. He played a key role in developing the first National BDA Framework that delivered strategic recommendations / action plans to achieve the National BDA vision.

Peter has extensive tech-related experience in various roles: Big Data / Data Science Strategy, Technopreneur, CTO, Project Manager and Software Developer. Startup leadership & management style. Excellent communication skills. Solid network of contacts in the private sector, government and universities/colleges.

Ian Goh Suan Hooi

With more than two decades in the industry, Ian's career spans multiple industries including Financial, Logistics, and Telecommunications both as a vendor and end user. He has held roles in multiple parts of the IT delivery value chain including operations, project and program management, systems integration and more recently IT strategy and architecture. He has experience in various domains including CRM, Business Intelligence and SOA.

Ian's current interest is in the impact of the digital economy on an organization. Given the need for agility within IT and the availability of Infrastructure, Platform and Software as near commodity services through cloud service providers, the lines between IT and business are blurring. Thus, requiring individuals to have a broader understanding of organizational dynamics and the need to embrace new approaches to service management such as bimodal IT, DevOps and Lean. Ian is passionate about helping IT professionals in redefining their role within this context.

Ian holds a master degree in electronics engineering and a bachelor degree in Information and Electronics Engineering from Curtin University, Western Australia. He also holds professional certifications from ITIL, TMForum, IASA and the Open Group.

By Peter Kua Seng Choy

Banking customers create an enormous amount of data every day through millions of transactions. This data comes from the numerous touchpoints provided by the financial institutions, like online banking, e-commerce, phone banking, credit card swipes, and even face-to-face interaction.

Analysing this big data brings plenty of untapped possibilities - from understanding their customers to better risk compliance and more accurate purchase propensity - to grow the bank's revenue and profitability.

Let's review some of the most prevalent big data analytics (BDA) applications in banking and finance.

CUSTOMER SEGMENTATION

Dividing customers into groups based on some common traits is essential to understand the customer's needs and preferences. Banks target these needs and preferences to increase their revenue. Traditional segmentation centres on demographics like age, gender, and income. BDA enhances customer segmentation by bringing in a variety of data from all customer touchpoints. BDA also enables banks to achieve micro-segmentation to uncover valuable information such as customer value, life stage, attitude, and behaviour. Examples of micro-segmentation: female millennials with degrees who don't own a home; high-income couples without children.

CREDIT SCORING

Conventional credit scoring employs statistical models using the borrower's data – such as age, repayment history, income, and previous loans – to decide whether to accept or reject a loan. There is, however, increasing demands for scoring precision. Big data and AI can improve scoring accuracy by bringing in alternative data (social media, internet activity, and e-commerce transactions) and analysing them together with the conventional borrower's data. Online behaviour, for instance, can show if a person is likely to service their loans, and allows banks to factor this in when accessing potential borrowers.

PURCHASE PROPENSITY

Customer data and previous purchase history are used to predict who would likely buy a product (purchase propensity). Like advanced credit scoring models, a bank can improve its purchase propensity model by incorporating alternative customer data such as social media, location, and online activities. All this data typically goes into the bank's Customer 360, which offers a single, unified view of its customers. With Customer 360, the bank can then use BDA to create highly sophisticated purchase propensity models and run targeted campaigns to increase its sales. A popular campaign that banks frequently run is targeting credit cardholders with the precise merchant offerings.

ANTI-MONEY LAUNDERING (AML)

Money laundering is a threat to the financial world as criminals try to convert dirty money into clean cash. Detecting money laundering is tricky because criminals are always finding new ways to launder money. Standard anti-money laundering mechanisms cannot keep up and it ends up highlighting many routine and legitimate transactions. Auditing these flagged transactions wastes a lot of money and resources. Therefore, BDA provides an effective way in fighting money laundering. Advanced algorithms can uncover hidden relationships; they can identify individuals and their associations with one another. They can also detect behaviours as most customers don't commit fraud, and their actions are predictable. When these behaviours change, they potentially indicate fraudulent activities. Advanced analytics algorithms can easily detect them.

ALGORITHMIC TRADING

Financial markets tend to be unpredictable and illogical. In the past, predicting stock prices was an extensive and arduous process because it was tough to find patterns. However, the power of BDA today allows traders to analyse large amounts of historical financial data and to find essential indicators that would guide them to make informed decisions. These advanced algorithms require as much unbiased data points as possible to generate outcomes. We can also give BDA the power to execute trades at optimal prices. Algorithmic trading reduces the possibility of mistakes by human traders by taking emotions and irrationality - like fear and greed - out of the way.

We have just scratched the surface with the BDA applications discussed in this article. The potential of big data analytics in banking and other financial institutions looks bright. Innovative BDA is critical to success. Banks need to continuously evaluate their data-driven strategy and deploy high-value BDA business cases that will positively influence their bottom line.

BIG DATA ANALYTICS APPLICATIONS IN BANKING AND FINANCE

Banking customers generate an enormous amount of data through touchpoints like online banking, e-commerce, phone banking, credit card swipes, and even face-to-face interaction. Analysing this big data carries lots of untapped potentials to increase the bank's revenue. We review some of the most popular big data analytics (BDA) applications in banking and finance.

CUSTOMER SEGMENTATION

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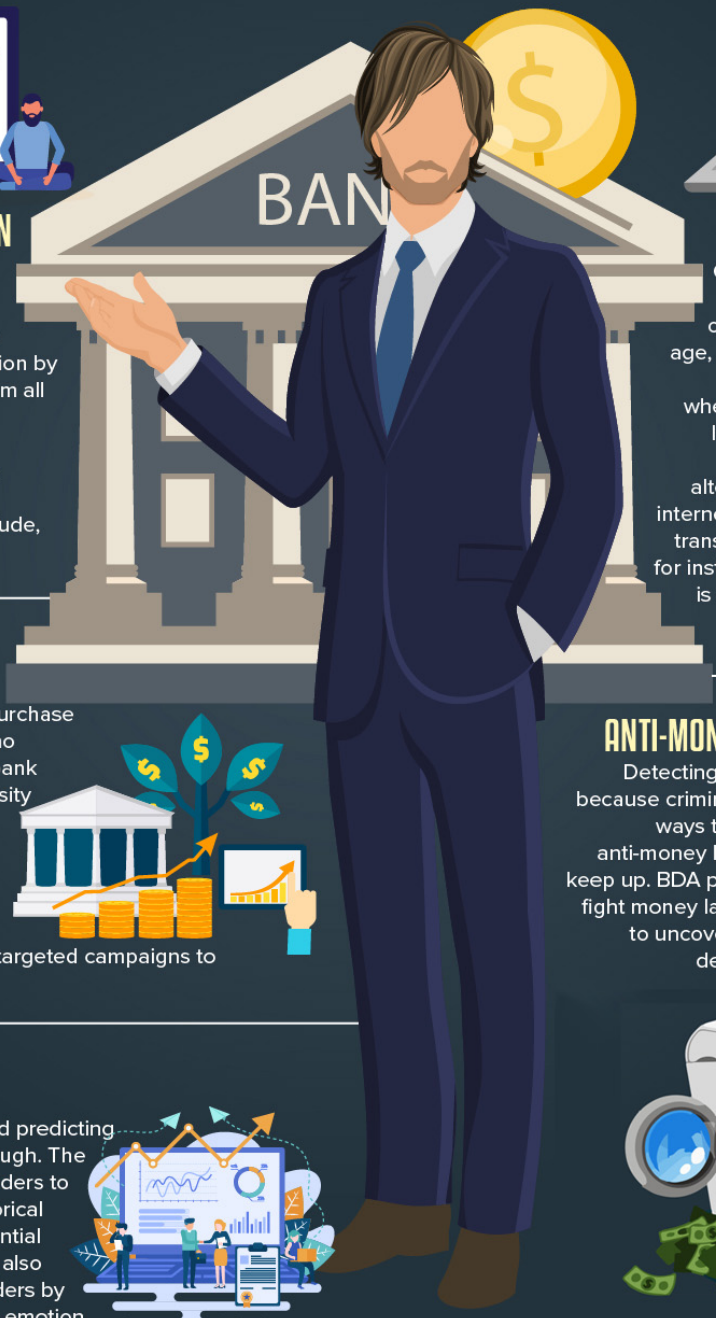


PURCHASE PROPENSITY

Customer data and previous purchase history are used to forecast who would likely buy a product. A bank can increase purchase propensity by incorporating other customer data like social media, location, and online activities. The bank can then use BDA to create highly sophisticated models and run targeted campaigns to increase its sales.

ANTI-MONEY LAUNDERING (AML)

Detecting money laundering is tricky because criminals are always finding new ways to launder money. Standard anti-money laundering methods cannot keep up. BDA provides an effective way to fight money laundering through its ability to uncover hidden relationships and detect suspicious behaviours.

ALGORITHMIC TRADING

Financial markets tend to be unpredictable and illogical, and predicting stock prices in the past was tough. The power of BDA today allows traders to analyse large amounts of historical financial data to discover essential indicators. Algorithmic trading also lessens the possibility of blunders by human traders by taking away emotion and irrationality.

WHAT IS CLOUD COMPUTING?

By Ian Goh Suan Hooi

Have you ever stored your files on Google Drive or Drop Box? Used Google Docs or Office 365 to edit documents? Gmail or Yahoo mail to manage your email or Prezi to create presentations?
Then congratulations, you have used Cloud Computing!
Quite simply, instead of having all the computer related hardware and software that you are using sitting in your office or somewhere else on your companies' computer network, Cloud Computing is about the delivery of computing hardware and software such as servers, storage, databases, networking, applications over the Internet i.e. the Cloud.

For companies, these business models offer some advantages.

YOU PAY FOR WHAT YOU USE

Jeff Bezos, the CEO of Amazon famously said "You don't generate your own electricity. Why generate your own Computing?"

What this means is that Cloud Computing essentially allows you to treat Computing like a utility. You only pay for what you use.

REDUCED CAPITAL EXPENDITURES

Say you were a startup software company and you were in the business of developing applications for your customers. In the traditional model, the company would have to purchase all the computing resources required for the developers to build and test the applications. Cloud Computing allows these companies to use these resources over the Internet in a "pay as you use model". Thus, reducing the initial capital expenses is required. The flipside to this, however, is that the ongoing operating costs go up, as well as the cost to ensure sufficient bandwidth and stability of networking services.

SCALE UP OR DOWN AS REQUIRED

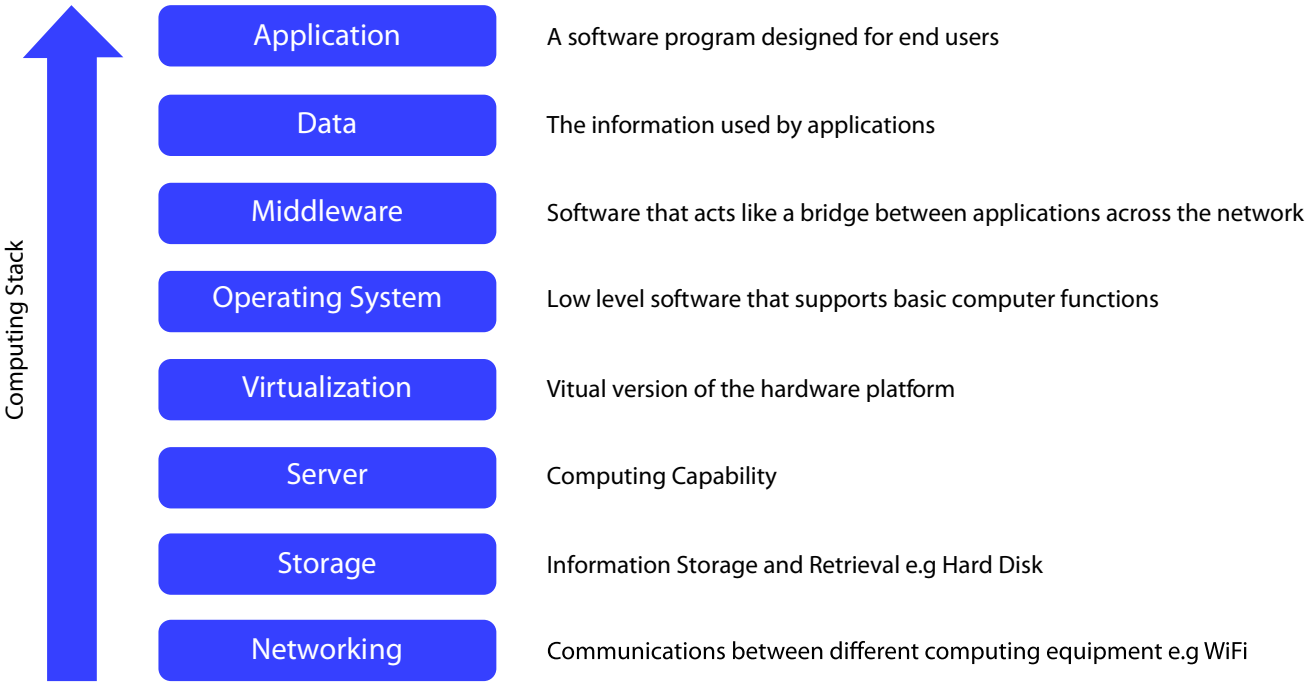
Traditionally, a company would have to purchase enough IT capacity to cater to the peaks in their traffic or processing volume. This means that for most of the time, this capacity is lying idle and underutilized. As Cloud works on a pay as you use model, a company can purchase as much processing capacity as they require to cater to their peak volumes and then scale back as the volume decreases.

SCALE UP OR DOWN AS REQUIRED

We can think of the different types of cloud computing models in two dimensions – the deployment models – HOW we put things on the clouds and the Services or WHAT we put on the Cloud.

Let us discuss the WHAT first.

There are a series of things that need to be put in place for an application to work. When you double click on the Microsoft Excel icon and an excel spreadsheet comes to life, there are a series of services that need to be active for this to happen. We can visualize this as a stack of services as illustrated in Figure 1.



Source: https://www.crucial.com.au/blog/2013/05/27/types-of-cloud-computing/

Figure 1: A typical computing Stack

If you are using a cloud service, you can decide how much of this will be managed by the cloud service provider and how much of it will be managed internally by you. Figure 2 illustrates this concept.

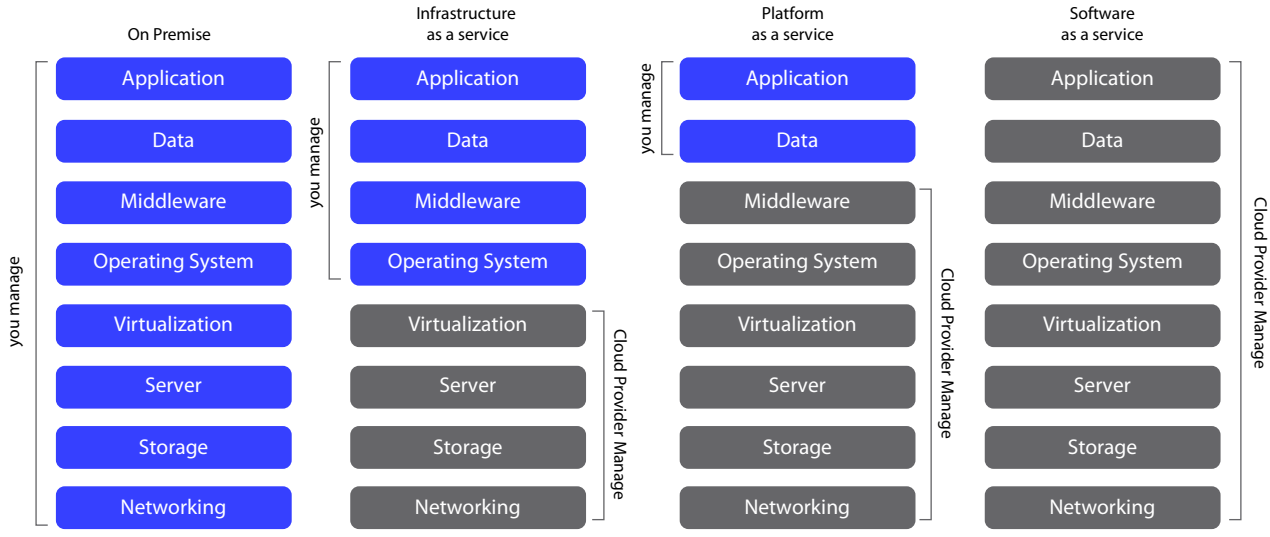


Figure 2: Cloud Services

This provides a degree of flexibility on the level of control that you have over the environments and applications.

ON PREMISE

As the name suggests, this implies nothing is on the cloud. i.e. the traditional deployment model where all components of the computing stack are managed internally.

INFRASTRUCTURE AS A SERVICE (IAAS)

As the name suggests in this model, the cloud service provider provides the basic computing resources such as data storage, (virtual) servers and networking. The rest of the stack must be managed by the customer themselves. Examples of IAAS include Amazon Web Services EC2, Rackspace Managed Infrastructure services, and Azure Virtual Machines.

PLATFORM AS A SERVICE

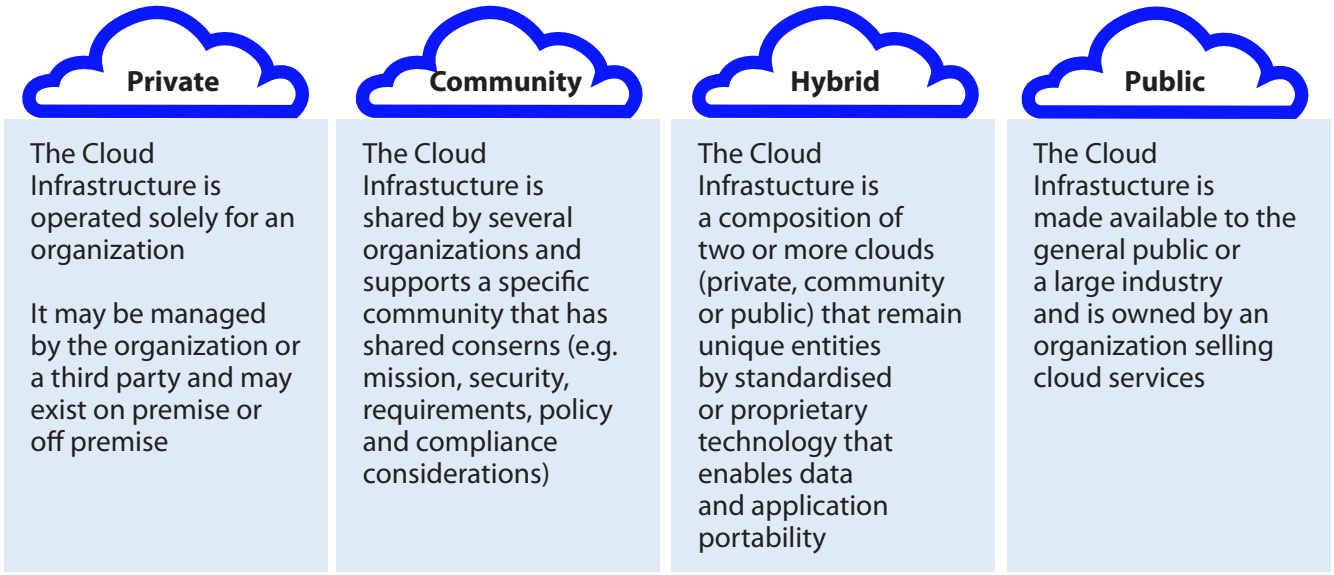
In some instances, companies need the flexibility to run and manage their own applications. However, they would rather leave the more "commodity" portion of computing stack to the cloud vendor. E.g. the Operating System, programming language, execution environments and databases. This model is known as 'Platform as a Service' (PAAS). Examples of these include Microsoft Azure PaaS, Google App Engine and Alibaba Cloud. A company might be interested in this model if, for example, they are utilizing applications from diverse sources, or application development is done within teams across multiple geographies.

SOFTWARE AS A SERVICE (SAAS)

The SAAS model means software applications are utilized on a pay per use basis rather than the outright purchase of the software licenses. Typical examples of these are Microsoft Office 365 and Salesforce.com.

DEPLOYMENT MODELS

There are several ways applications can be deployed to the Cloud as described in Figure 3



https://sites.google.com/site/cloudwikipedia/home/types-of-services/deployment-models-in-cloud-computing

Figure 3: Cloud Deployment Models

At the extreme ends of the spectrum are the Private and Public clouds.

With Public Cloud, the computing infrastructure is owned and operated by the cloud computing company. All resources are shared across their customer base, thus creating massive economies of scale. However, as a customer you have no physical control over the infrastructure

As Public Clouds use shared resources, they do excel mostly in performance, but are also the most vulnerable to various attacks.

In the Private Cloud model, the entire cloud infrastructure is owned and used solely by one organization. While the security and control are high in this model, it does not enjoy the economies of scale (i.e. cost reductions) of the Public cloud.
Community and Hybrid cloud models are essentially permutations of the Public and Private cloud models.

Apart from merely hosting customer applications, cloud service providers have now created offerings around services that can be difficult for a company to develop internally such as analytics, support for blockchain, machine learning and artificial intelligence, and augmented or virtual reality.

CONCLUSION

Cloud Computing essentially offers a company more options on how it can leverage on technology in order to meet its business objectives. Its main value propositions are the benefits in scalability and the utility model. The use of cloud services also helps an organization improve agility by reducing the amount of time required to deploy new capabilities and services.

Concerns exist about the risks of using cloud services. Bank Negara has been cautious of cloud usage and while not outright disallowing FIs from using cloud services, have stated that FIs must notify BNM for non-critical systems and prior consultation with BNM is required for Critical systems (Risk Management in Technology, Bank Negara Malaysia 10.50,10.51)

Cloud computing will shift an organization's IT expenses model from one which is more Capital Expense focused to a more Operational Expense focused. So, depending on how your company views the capex/opex split, this may be a pro or a con.

While Cloud Computing does offer many benefits, it is not a magic pill. A company needs to be clear on its own objectives and strategies, and whether or not the cloud is the answer.

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