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TELCO DEEP DIVE 2017

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Top 2 Digital Delights

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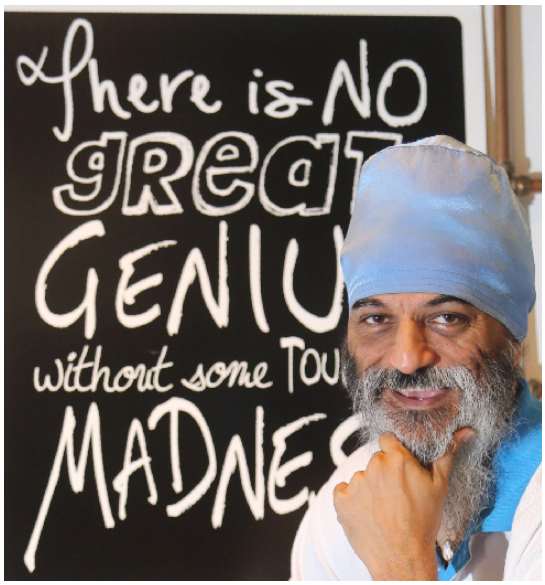
Infobip delivers on the promise of omnichannel

Malaysian wireless spectrum

Refarming completed and optimised as operators ramp up on 1800MHz 4G rollout. 2G technology to exist for foreseeable future, as 5G is a ways off

Telco battleground Q1 2017

EDITOR's NOTE



Sharing, not taking away telco lunch

And actually telcos are in pole position to offer their customer base digital services that the base is increasingly shifting to. That is why, emerging market video service, iflix, was able to partner with 27 telcos and counting, which have bundled its service as part of their value proposition.

EVERYONE loves a David vs Goliath story and over the past decade one of the favourites has been about how over the top (OTT) services were going to eat the lunch of the incumbent mobile operators. Everyone assumed mobile operators were going to be rooted in inaction, like a deer caught in the headlights of an onrushing car.

But that was naive thinking. You don't get to be a multi-billion revenue business by sticking to one business model. Plus the telcos are already a battle hardened group from competing with each other. And while the biggest knock against celcos, as the mobile telco players are called, was their supposedly rigid engineering cultures that was resistant to change, we know now that this assumption is wrong. Because, lo and behold, every telco globally has declared their intention to embrace the culture of their attackers – the nimble, innovative, bold startups.

Any listed telco that aims to keep investors calm about the digital disruption onslaught they are facing, has already declared their intention to become a digital company themselves as they adapt and transform and evolve their cultures.

DNA readers would be familiar with this as we have interviewed and written about the three Malaysian based listed telcos and their digital intentions as well. Infact, one of those CEO's was Sigve Brekke who I interviewed in 2013 when he was running Telenor Group's Asia operations and sat on the board of Digi. Sigve of course has since gone on to become the President and CEO of the Telenor Group.

And in a brief conversation I had with him in 2016 he emphasized again this move to becoming a digital player but refined the message to the telco not becoming an internet company as much as a digital services company and using a "burning platform mentality" to change the company.

He also spoke about the need to get very close to the customer through offering them services and products relevant in a digital era. And you can see that from how the telcos in Malaysia are offering more digital based services and this can range from how Digi and Celcom are positioning themselves to be the preferred network choice for gamers who wish to enjoy their games on the go and through their mobiles. While on the corporate side, you see the likes of Digi and Maxis offering their Internet of Things (IoT) services as well.

And actually telcos are in pole position to offer their customer base digital services that the base is increasingly shifting to. That is why, emerging market video service, iflix, was able to partner with 27 telcos and counting, which have bundled its service as part of their value proposition. No surprise that, iflix, which just announced a fresh round of US$133 million considers the telcos a key partner as it roles out its services. Imagine that, an OTT player considering the telcos as a key partner and vice versa.

This sharing of revenue is happening in the world of enterprise messaging as well where a senior executive of global messaging leader, Infobip from Croatia, recalls how he was being warned that the OTT messaging apps were going to wipe away the margins and business of players like him. So, what happened?

The OTT players have started using the SMS service offered by enterprise messaging players to send customers their one-time activation pins! Both Infobip and the telcos make money here.

And telcos will be making money for a long time to come and they will adapt to any change in the ecosystem but will they still be making as much as they are now? Maybe not as much as more players fight for a share of the consumers wallet and the enterprise's budget. But, don't worry about them, they will still do just fine. But expect their CEO's to adopt a burning platform mentality as they keep their organisations fearful of any future change coming.

Me and the team of editors and writers who put together DNA's fourth annual Deep Dive hope you enjoy the articles and please send us your feedback at karamjit@digitalnewsasia.com.

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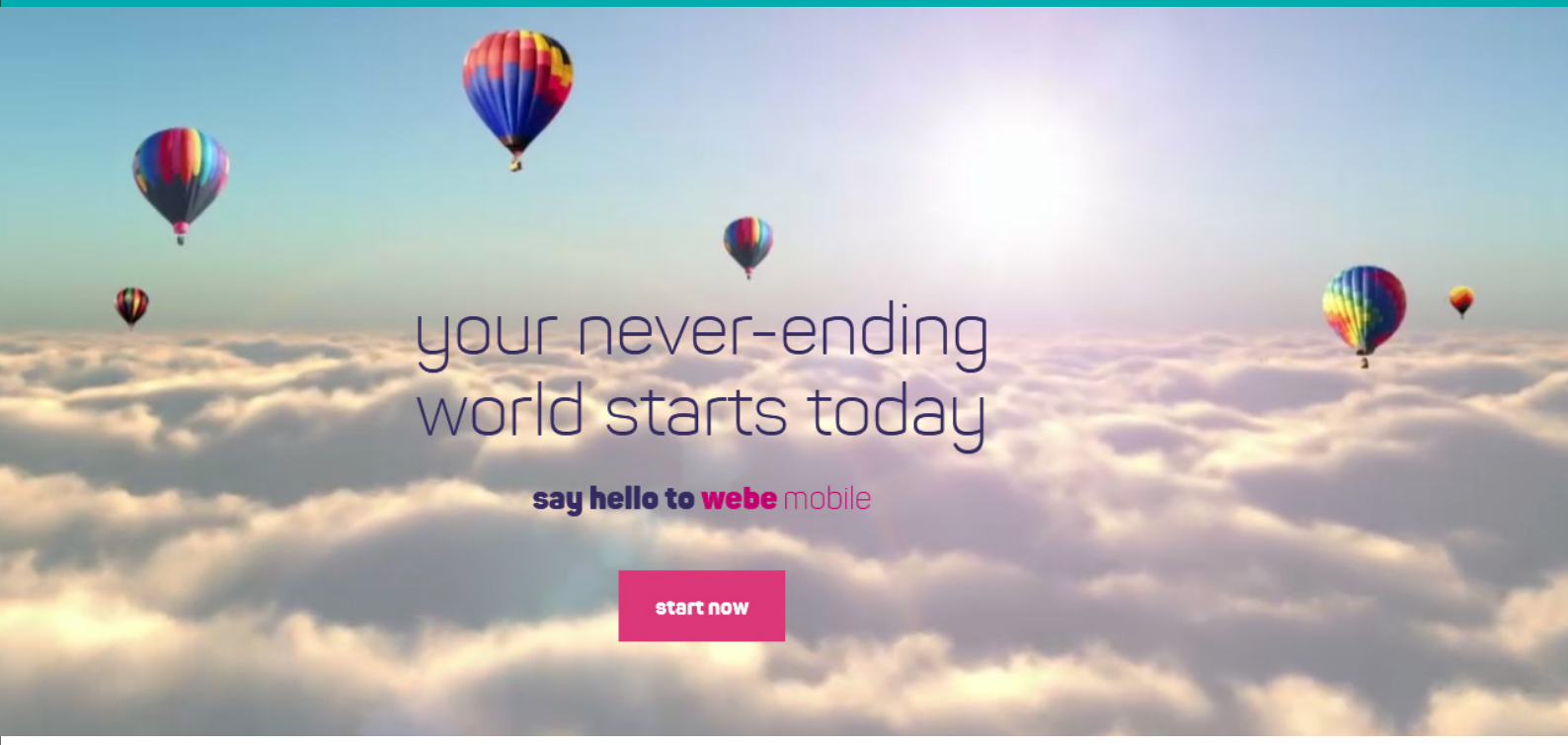
maxis

Can webe be an effective challenger?



BY **EDWIN YAPP**

WHEN one thinks of Malaysian telco companies, invariably four names – Digi.com Bhd, Maxis Bhd and Celcom Axiata Bhd, U Mobile Sdn Bhd – come to mind. The fact that the first three are listed on Bursa Malaysia and have been in operation for decades are probably the main reasons why this is so.

And while U Mobile may be the smallest of the four, the telco has recently been making waves due to its aggressive promotions, capital expenditure announcements and aggressive price cutting plans.

In the last year or so, one other mobile operator – webe digital sdn bhd – has been popping up on the industry radar. The company, formerly and better known as Packet One Networks Sdn Bhd (P1), began ramping up its service promotion and network rollout after it was taken over by Telekom Malaysia Bhd in 2014. Webe officially launched in August 2016.

So how far has webe come since its launch? How will another mobile operator with similar features and pricing plans survive in an already overcrowded market dynamic? How will it capture market share and differentiate itself from the rest? What technology is it using for its services? What are some of its marketing plans going forward?

These are but some burning questions vis-a-vis webe, which were put to the company for this Telco Deep Dive story. webe however declined to take Digital News Asia's (DNA) questions seeking comments.

"We can't provide a comment from webe at this time as some of the stakeholders who need to sign off on media statements are unavailable. This is due to the process that must be undertaken by the business as it is part of the TM Group," said a spokesperson for the company.

Some background

In trying to evaluate how far webe has come as a mobile operator, DNA looked at its performance and announcements based on publicly available knowledge, thoughts from industry analysts, as well as conversations with senior telco industry insiders.

To fully appreciate its journey as a mobile operator, one needs to reflect on how its parent company and incumbent player TM came to take a stake in webe.

TM's journey back into the wireless game began back in 2014, when it took up controlling

- ***Back in the wireless game again after 10 years amidst tough market conditions***
- ***Hazy plans, roaming charges may affect growth prospect, marketing efforts***

Moharmustaqeem Mohammed, CEO of webe

stake in the then ailing independent wireless operator P1. TM then took a 55.3% stake in the company for RM350 million (US$81.5 million), putting an end to rumours that had been percolating for almost two years.

TM has since raised its stakeholding from 55.3% to 72.9% in 2016, and the company is now a full-fledged subsidiary of the telco giant, having also been renamed webe.

The company operates as an independent wireless operator in Malaysia and uses three spectrum bands and two distinct technologies to power its LTE/ 4G wireless offerings: Frequency division LTE (FD-LTE) at 850MHz (Band 5) and time division LTE (TD-LTE) at 2300MHz (Band 40) and at 2600MHz (Band 38).

Unbeknownst to many, TM has been itching to get back into the wireless game after exiting the business some 10 years ago, when it spun off its wireless entity into what is known today as Axiata Group Bhd, formerly known as TM International (TMI).

The move then essentially left TM as a strictly fixed-line player, although it also had other forms of business surrounding a typical telco, such as its international gateway and submarine data division.

While these businesses are generally profitable, and while TM's jewel in the crown – its UniFi fibre-to-the-home business – is booming, industry watchers familiar with the matter have argued that TM has been left out of perhaps the most lucrative business there is in the telco space today: The wireless sector.

That all changed when TM took controlling interest in webe and began moving quickly to consolidate much of its assets and organisational structure. This included moving one of its long-time executives, Azizi A. Hadi into webe as chief operating officer soon after the takeover in 2014.

Azizi was previously the vice president of TM's SME (Small Medium Enterprise) and prior to that, the vice president of Retail Product, where he was responsible for the development and commercialisation of TM's products and services.

Back to webe, subsequent to TM's acquisition, it was mostly quiet, preferring to stay out of the limelight and in particular, the press, a sign that one industry observer said was to be expected.

"After such a takeover like the one TM did [with P1], there will be a gestation period in which the two companies will need to evaluate their strategies and priorities, and 2015 and some of 2016 were that for TM."

Signs of life

Still, TM didn't go completely dark. In a highly unusual move, TM quietly launched its TMgo service in August 2014 in the states of Kedah and Melaka, two non-metropolitan areas.

Its 850MHz LTE-based TMgo was launched based on legacy spectra that had been used by the now defunct Mobikom, which TM took over back in 1998. The spectrum was originally based on CDMA (code division multiple access) technology and used to offer fixed-wireless voice service to its customers, primarily in suburban to rural areas where it was not economical for the telco giant to roll out fixed-line services.

At the time, one industry source said that although the move to launch TMgo in Melaka and Kedah was not in the usual urban areas – where such advanced data services are normally launched – it was significant in that it wasn't about capturing market share or ramping up subscriber numbers.

"To me, it's about 'bragging rights' – that is to say: 'We – Telekom Malaysia – are back in the wireless game, and all our competitors better take note of this'."

Also, launching TMgo in these two areas may have something to do with the fact that the original 850MHz spectrum used by TM for its CDMA service was supposed to be for the benefit of suburban to rural folks, said the source.

"Now if TM were to have launched TMgo in urban Klang Valley, this would run contrary to this, and it would have been difficult for TM to be able to justify why the spectrum is used in urban areas," said the source. "In doing so, TM is keeping to its raison d'etre – that of bridging the digital divide."

While webe kept under the press radar, it did ramp up its network rollout plans using both the aforementioned spectrum bands and appointed two network vendors – ZTE Corp, the incumbent supplier, and Huawei Technologies Co Ltd – as their equipment vendors.

Their mandate was to build out about 2,100 base stations nationwide, including Sabah and

webe® community how it works start a project projects

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0% TO GO

FB LIKES	PLEDGES	TOTAL	DAYS TO GO
11K	113	11,446 / 9,000	0 / 30

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by Dick Lim Yew Teck

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0% TO GO

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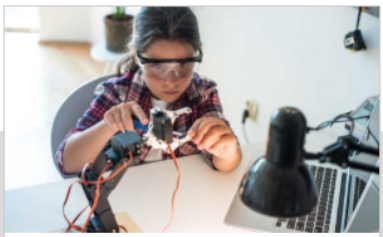
3K	71	3,245 / 2,335	0 / 30



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Band 5 schools are usually not exposed to STEM subjects in a fun and engaging way. With maker mobile, this can be a reality.... more

0% TO GO

FB LIKES	PLEDGES	TOTAL	DAYS TO GO
13K	208	13,297 / 9,655	0 / 30

Sarawak, to provide 4G/ LTE coverage for webe. Much of 2015 and 2016 were spent focusing on these efforts.

webe born

Eventually after consolidating P1's assets and organisation structure, TM began teasing the market when it announced that "P1 is no more," and that its name had been changed to webe in April last year.

The then webe CEO, C.C. Puan insisted at the announcement that the name change wasn't just for the sake of doing so but that webe had renewed its philosophy and approach to business.

"webe's brand philosophy – 'start here. go anywhere' exemplifies the diversity of ways communities can come together to make things happen, for a better Malaysia, he told news daily The Star. "This is why, instead of introducing plans and services, we are starting with the launch of the webe community."

Puan did not announce any mobile plans but speculation was rife within the industry that it was going to launch attractive packages, with one community portal having guessed in April 2016 what it was going to launch with.

DNA also reported in April that webe was expected to be launched some time in mid-2016, citing then TM group chief executive officer Zamzamzairani Mohd Isa as saying that "webe is currently undergoing closed end-to-end user tests."

Eventually, webe announced its plans and officially launched its service to much fanfare in August last year. In tandem with this, TM completed taking over webe by announcing that Puan had been replaced as CEO by COO Azizi. Puan however remained in the company as a non-executive director of webe.

Industry watchers at the time said this wasn't unexpected, given that TM would want to exert as much control over webe and installing a veteran

(From left) Karthik Karunanithy, Amelia Tan and Andrew Yong, founders of the 100% Project, social enterprise that empowers teacher in Mlaysia to do more for their student

TM executive would be the best way to do it.

Since then however, Azizi has been replaced as CEO of webe with Moharmustaqeem Mohammed taking over the role. Azizi returns to TM and will lead its Managed Accounts Council, according to an announcement made recently after TM welcomed its new group CEO Shazalli Ramly.

For now, webe has been pushing its service in the market, positioning itself as an 'all you can eat' broadband player, with unlimited calls, text and data usage for RM79 monthly.

Industry observers noted that it was trying to target the RM70 to RM80 segment of the market, where it believes operators were getting most of their revenue from.

TM has also been trying to grow webe's subscriber base, with its deputy group CEO and executive director Bazlan Osman claiming in a news report that webe recorded a penetration rate of 2% in TM households, with a target of 8% to 10% of that same base by year-end. webe has also launched packages for SMEs, in a bid to bolster its growth.

In its recent Q1 briefing, TM reported that its webe subscribers stood at 4.2% of its total TM household subscriptions but however it did not specify what the actual subscriber figures are.

Analysts' viewpoints

According to Neil Shah, research director at Counterpoint Research, webe's strategy is to enter the wireless market with disruptive low-cost pricing while adopting a quad-play of services so that it can cross-sell other services and drive the overall average revenue per user (ARPU).

In an email interview, Shah said webe can drive some gains as it looks to penetrate first the existing TM customer base and then target other small businesses with bundled plans to drive higher ARPU postpaid plans.

"This strategy is similar to what we are seeing with BT in the United Kingdom or Comcast in United States, where traditional fixed broadband network providers enter the mobile wireless space without having to directly challenge incumbents," he explained.

Concurring with this view was Nicole McCormick, practice leader at Ovum, who believes that webe is differentiating on unlimited data pricing and seeks to target "value seekers in the market."

Asked what were the challenges faced by webe given that it's such a new player, McCormick said one of the main challenges includes continued network deployment and how to upsell its products to consumers on unlimited data plans. On the plus side, webe is controlled by TM, which provides it with a customer base to cross-sell to, she added.

Another challenge is to continue to gain

enough scale so that it can reach EBITDA (earnings before interest, tax, depreciation and amortisation) breakeven, she argued.

Counterpoint Research's Shah said things would be tough for webe in the foreseeable future because webe still has to rely on Celcom for fall back 2G/3G network where it does not have good LTE coverage. Webe signed a domestic roaming deal with Celcom Axiata in January 2016 allowing the former to use the latter's network.

Deep-rooted challenges

A check by DNA amongst some industry executives familiar with the telco landscape, who spoke on condition of anonymity, revealed that these analysts' viewpoints were fairly accurate.

One industry executive familiar with webe's business said while webe has the backing of TM, which is very significant, it still has its work cut out.

"They now have about close to 200,000 subscribers on webe, and that isn't bad since it only started in August last year. The question really is how it will grow further – that is really webe's challenge.

Concurring with Counterpoint Research Shah's view on 2G/3G fallback, the executive elaborated by saying that this was webe's biggest Achilles heel, as it is still ramping up both its outdoor and indoor service coverage due to being a new operator.

"To be fair, webe's network rollout to date has been fairly smooth and quite organised and by industry standards quite good," said the executive.

The executive said technology-wise, webe's 850MHz-based FD-LTE provides well spread out coverage for its services, while its 2300MHz and 2600MHz provide the necessary capacity for bandwidth-intensive application.

Webe has also enabled VoTLE (voice over LTE) in its entire network, which allows them to carry voice like packetised data over its network. Currently, most cellular voice calls in Malaysia are currently over 2G and 3G networks and to date only some networks have VoLTE turned on.

"But being a new network, it will invariably lack 4G/ LTE coverage in certain areas in Malaysia. This is especially true in buildings such as malls and commercial properties, where they may lack in-building antenna systems

"This means that wherever it doesn't have 4G/ LTE service, it would switch/ fallback onto Celcom's 2G/3G network for voice and data, for which it pays Celcom roaming charges. This is what I believe may be hurting them as its cost of operations is likely to escalate."

Asked if this scenario were true, a technical expert DNA spoke to said that it's difficult to say since commercial arrangements are confidential, but noted that that scenario is logically plausible.

Besides this, the executive DNA spoke to also believes that targeting the RM70 to RM80 range of subscribers from other networks with an unlimited plan may be futile as webe's value proposition isn't enough to cause subscribers to churn over.

"Most of webe's competition have plans between 10GB and 20GB quota for the RM70 to RM80 price range, and for most that is enough. Why would anyone want to switch over to a new network whose coverage and quality aren't proven as yet?"

A straw poll conducted by DNA concurs with this view. Out of 10 people polled, DNA only found one webe subscriber. What's more it was his secondary line and not his primary one. This subscriber profile isn't typical either: He is a heavy user of data, consuming anywhere between 25GB and 30GB a month.

"Even for those considering replacing their UniFi or Maxis broadband fixed-line Internet can't consider webe as the company charges for tethering of data to devices," the executive said.

Yet another challenge webe faces is the fact that while the network rollout has been largely smooth thus far, the next phase of their plans aren't clear yet, said the executive.

"There isn't clarity about the next phase of its plans," the executive argued. "Are they going to invest in more in-building systems? What are its marketing priorities? Are they selling its user experience? Or coverage? Will it have more pricing tiers? Are they going to introduce pre-paid packages? Or are they just going to stick to a RM79 post-paid package only?

"To me, webe would not progress much if they don't address such issues. The typical gestation for such plans is a year so if it doesn't plan well, its growth will plateau and though it claims to target 8% to 10% of TM subscribers [to grow its base], it will be a uphill battle."

Counterpoint Research Shah summarised webe's challenge this way: webe will have to take a leaf out of the Western operators and how they invest in content to enhance their bundled services and differentiate and drive up the overall value proposition.

"Webe will remain niche with focus on more targeted segments such as households and businesses, he argued. "The market will be fiercely competitive this year and it will be tough for webe to make its mark."

Maxis taps into rising enterprise interest in IoT

BY **KARAMJIT SINGH**

AS telcos seek to take advantage of the increasing dependency of enterprises on mobile connectivity for not just their people but also their assets, a new revenue stream in services has emerged in the form of IoT or Internet of Things. For example, Vodafone, a world leader in offering IoT services, already manages 40 million IoT connections a month on behalf of its customers.

Analysts predict the global IoT marke to be worth US$400 billion by 2020. In Malaysia, the market is expected to be worth US$700 million (RM2.99 billion) in 2018. In making this prediction, IDC Malaysia specifically sees four verticals that will lead the way; connected vehicles, insurance telematics, personal wellness, and smart buildings.

Aiming to tap this lucrative market and position itself as a leader, Maxis has launched its IoT suite of solutions targeting the early adopter industries of logistics, fleet management and utilities.

Commenting on the timing of its move to offer IoT solutions, Loong Tuck Weng, Head of Enterprise, Maxis talks about how the convergence of IoT, AI (Artificial Intelligence) and big data analytics have paved the way for businesses to become more digitalised and tech savvy, in the hope of gaining a competitive advantage.

"Now more than ever, industries in Malaysia are looking into smart solutions, such as smart metering and smart building, as part of their business operations," he says. Another push factor in IoT adoption, he adds, has come in the shape of regulators in Malaysia who are actively developing IoT policies and providing grants for development of IoT projects.

M2M base for IoT services

For Maxis, it was not too much of a leap to offer its IoT suite as for the past five years, it has been offering M2M services which are now part of its IoT solution. As Loong notes, "M2M was our first step in transitioning to IOT, in the sense that it was very point to point - data is collected from the same set of devices and then information is provided based on data gathered - while IOT utilises data from multiple sources and delivers insights, information, services utilizing analytics."

Aligned with various analyst predictions, Loong feels that IoT adoption will only increase over time as businesses have started seeing the benefits of IoT.

Having already anticipated the rising adoption of IoT by industry, Maxis, in preparation, had embarked on its own digital journey over the past two years. "This saw us changing not only how we operate as company but how we offer our products and services to customers. We are making fundamental changes in our operational setup, IT and processes to support our goal of becoming fully digital," says Loong.

He feels that Maxis is now in a very good position and more prepared to offer IoT to customers, as it understands the importance of how the right technology and solutions can transform a business.

Loong Tuck Weng, Head of Enterprise, Maxis

Partnering with a world leader

In its desire to offer a compelling suite of IoT solutions to the market, Maxis decided it could not go it alone and has chosen to partner to with UK operator, Vodafone which has been a world leading IoT provider among telcos.

Explaining the rationale, Loong says, "This partnership allows us to equip businesses in Malaysia with a global standard IoT managed connectivity solution through our advanced data network. It also opens the doors to bring in more end-to-end IoT solutions to optimise costs, improve operational efficiency, create more value and ultimately deliver a better customer experience."

On the question of pricing, Maxis is moving away from quota based packages and pricing. The investment to deploy its IoT service depends on how extensive the customer solution is in terms of number of sensors and depth of information that needs to be collated. "Based on customer requirements and types of use, we are creating tailor made packages e.g. Smart Metering package, POS package, etc," says Loong.

Besides customized solutions, Maxis also offers 'plug and play' solutions with one, mDrive, being offered from as low as RM59 a month. Operating on a worry-free opex model (no upfront payment), the fleet-tracking solution works seamlessly across neighbouring countries while offering support for real-time tracking of vehicles and business reports with UBI (Usage Based Insurance) adoption built-in ready for adoption.

With security being of paramount concern and embedded in Maxis' approach to building its solutions, a multi layer security design is adopted between the IoT devices and applications.

An innovative global leader in enterprise messaging

DIGITAL NEWS ASIA

CROATIA may be known for its natural beauty and scenery but unknown to most, it is also home to one of the world's leading enterprise SMS solution providers, Infobip.

A global company with operations in over 40 countries and 400+ operator partnerships that helps it cover 190 countries, Infobip operates a full-stack Communications Platform as a Service (CPaaS) with private cloud infrastructure and zero-hop connectivity to telecoms globally.

In Asia, it picked Malaysia to be its regional HQ with a market presence here since 2010 with Malaysia overseeing operations in 10 countries in Asia.

Among the services Infobip offers include SMS messaging, voice, app notifications, email, chat apps messaging and carrier billing.

From its humble beginnings in 2006 where it was founded by two brothers and a close friend in a small town called Vodnjan in Croatia, with its first customer being the local council, Infobip has grown into a leading, multiple award winning company in its enterprise SMS messaging space.

It has a strong suite of enterprise customers in Malaysia especially in the banking sector, notes its Regional Sales Manager, CS Gill *(pic right)* who has been with Infobip in Malaysia since its launch.

"In fact our first customer was one of the largest banking groups in the country," he points out.

Getting a major corporate as its first customer in the country back in 2010 is a testament to the fact that Infobip was already offering global coverage back then, backed by 24x7 customer support and with strong anti-spam filters. Further strengthening its security features, in November 2014, it announced a €1.8 million (RM9.15 million) investment in security, infrastructure and data protection.

Its global connectivity across 190 countries coupled with its strong SMS platform has seen it experience solid growth in Malaysia with Gill sharing that is now has over 450 enterprise accounts in Malaysia, from the nine it had in 2010. (see chart of its growth from 2010- July 2017)

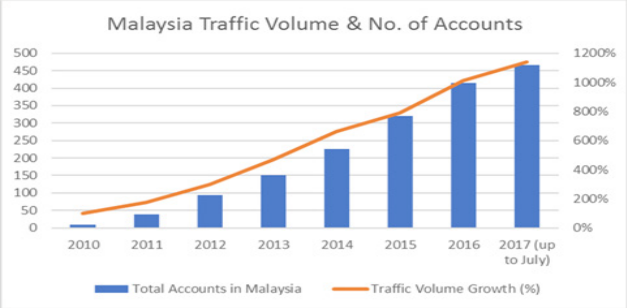
But it is not resting on its laurels, and consistent with its culture that values innovation, persistence and creativity, Infobip has recently expanded its product offerings to now offer enterprise customers a strong omnichannel capability.

"We have built this on the back of our strong SMS platform to now offer our enterprise customers the ability to reach their customers anywhere in the world and on any messaging platform such as Facebook messenger, Viber, Line or Telegram with WhatsApp in the near horizon."

The model has also changed with this new omnichannel layer to become a pay as you use CPaaS.

"We see omni channel as the future of messaging and more importantly, it puts the consumer in control as they can choose which platform they prefer to be reached by their bank, telco, insurance company, car or credit card company etc," says Gill.

Having been with Infobip for the past seven years, covering Asia and being familiar with global enterprise messaging trends, Gill shares a few observations about the Malaysian market.



"When compared with market leaders in Europe and the US, enterprises in Malaysia are actually lagging behind in their mobile messaging and engagement strategies," he says. Generally, he finds that larger enterprises in Malaysia are still old school and slow to adapt to the new technology.

He especially notes that banks in Europe are more nimble and come to market with new products faster, even though it is a sector that is as heavily regulated as the Malaysian banking sector.

"I think we need to catch up and, by the way, even in non-regulatory sectors like retail and marketing, enterprises are slow to move to new tech and have challenges with their database in terms of the quality of the data they have."

On the other hand though, he sees that Malaysia consumers expect world class services that are efficient and convenient for them. "There is a clear disparity here in what is being provided to them by enterprises versus the expectations from the market," he says adding that this is an opportunity for those who move aggressively into omni channels to perhaps capture dissatisfied customers from slower moving competitors.

In this sense, he feels the investments Infobip has been making over the years, which saw it recognized in June as the world's best A2P (Application to Person) SMS vendor for 2017 by Roaming Consulting Company Ltd ideally places the company to deliver a stronger customer proposition for enterprises in Malaysia that want to keep and grow their customer base.

Next Page: How Infobip takes the complexity out of omnichannel and delivers a compelling customer value proposition.

Infobip delivers on the promise of omnichannel

DIGITAL NEWS ASIA

OMNICHANNEL has been a sexy buzzword amongst marketers for a long time and yet it has never reached its heady potential with successful use cases, few and far between. And yet the need for an omnichannel approach by enterprises, especially those with a regional customer base has never been greater in this age of the messaging apps.

For instance in Malaysia, the Communications and Multimedia Ministry revealed in Parliament recently that over 90% of Malaysian smartphone users have either Facebook Messenger or Whatsapp on their phones. Go to the Philippines though and its Viber while in Thailand, LINE runs supreme.

The point being that each country has a different messenger app that is most popular with consumers. "Imagine the hassle for an enterprise to try and figure out which messaging platform to use in the various Asian countries," says CS Gill, Regional Sales Manager for leading Enterprise SMS Messaging provider, Infobip Asia Pacific Sdn Bhd.

Yet figuring out which platform to use is just one of many challenges enterprises face if they decide to undertake an omnichannel strategy. They have to look for an SMS connectivity partner, an email vendor and various other parties after which comes the API integration and the complexity of setting up the omnichannel platform themselves. Which is why Gill points to complexity as the reason why so many enterprises have failed in their attempt to roll out an omnichannel service.

"It becomes a nightmare in cost and time but with Infobip's Communications Platform as a Service (CPaaS), enterprises just have to use our platform to launch a campaign across all the various messaging platforms out there," he says of the platform that a team of engineers at its HQ in Croatia, spent a year to build.

With the advantage of an existing global SMS connectivity platform that covers 190 countries, Infobip built an intelligent mobile messaging platform on top of this with a web application as well that, Gill says marketing teams love. "They can create and execute an omnichannel campaign without IT getting involved through our CPaaS."

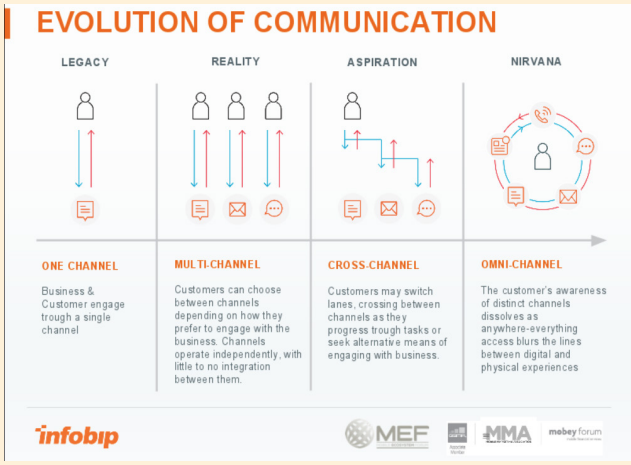
Their platform also churns out analytics and reports for ease of monitoring various campaigns. At the same time it is powerful enough that enterprises can even manage their customers in specific geographic areas with the flexibility to execute and run two-way campaigns with automated responses.

Based on a pay per use model where clients are not charged for any capex or integration work, Gill explains that as far as enterprises are concerned, they are sending you a message. "Our platform will detect which platform you are on and route it there and with the backup being SMS, which despite popular belief of its waning impact, is still the most pervasive communications platform," he says.

Indeed the surprise here is that, the cost of enterprise SMS has actually been going up. "It is true that P2P SMS is dying off but telcos, hungry for new revenue sources, have realized that enterprise messaging is an important platform for brands and have been gradually raising prices," he says.

Assuming the cost per SMS is 10 sen and database cleaning costs 1/5 of the cost of SMS	Savings calculation
Total number database	1,000,000
Dirty data 15%*	150,000
Cost of SMS to invalid numbers (yearly)	RM180,000
Cost of database cleaning	RM20,000
Minimum savings (yearly)	RM160,000

**Average percentage of invalid numbers in each used database is 15-20% (based on Industry experience)*



And this is where Infobip's move to offer its omnichannel service actually saves their enterprise clients' money.

"It becomes cheaper when they use these additional channels where we use push via data with SMS as the fallback. In terms of cost, Push notification works on a charging model of per active subscriber per month with unlimited usage while for over the top (OTT) it is cheaper than SMS with a flat rate for global connectivity," he reveals.

Another way Infobip saves the client money is by cleaning up their database which often time is not up to date. (see table)

There is some irony to Infobip's embrace of the OTT messaging services with Gill recalling his peers warning him that the days of Enterprise SMS providers are numbered with the rise of the data based messaging apps. Yet, it has turned out that the messaging apps have also been using SMS for their one time pin activations and the fact still remains that SMS is still the most pervasive communications platform globally.

As a global enterprise messaging service provider, Infobip has won a slew of local and global awards for the technical excellence of its platform along with being certified for some ecosystem relevant certifications that solidify its best-in-class platform.

Looking ahead, Gill says that Infobip sees different teams within enterprises, using different channels to interact with customers but based on a single omnichannel platform. And the global leader in Enterprise Messaging is betting that the market will see the value of its powerful platform.

Top 2 Digital Delights

AS the first six months of 2017 fly by, there have been a whirlwind of product launches as device makers clamour to best each other and vye for the elusive consumer dollar.

At Digital News Asia's Personal Tech section, we have curated a list of Top 2 Picks for digital devices that have made the cut above the rest ranging from categories that include the best premium smartphones, tablets and business laptops.

Without further ado, here are our Top 2 Picks for the first half of 2017. Take note that the top two picks are arranged in no particular order.

Premium Smartphones:

Samsung Galaxy S8+

The Galaxy S8+ is quite possibly the best flagship Samsung has made thus far. It boasts a massive 6.2-inch Infinity Display with Quad HD+ (2,960 x 1,440 resolution) that stretches the screen across the front almost edge-to-edge. All this means you get additional screen real estate for enjoying your content.

On top of that, you also get Samsung's top-of-the-line Exynos 8895 processor, 4GB of RAM and 64GB of storage that delivers fast performance. It also comes with a large 3,500mAh for all day productivity.

Not forgetting optics, the Galaxy S8+ carries the same 12-Megapixel camera that absolutely rules the roost in low light mobile photography.

On top o f cramming in all sorts of fancy features, the Galaxy S8+ has an IP68 dust and water resistant rating, making it a phone for all occasions.

More than just a smartphone the Galaxy S8+ has a rich ecosystem of accessories that include DeX a docking port that connects the handset to a monitor for a desktop PC-like environment. Integration with Samsung Gear VR means that the Galaxy S8+ doubles up as your window into new virtual worlds that you can practically bring anywhere you go.

Huawei P10 Plus

Huawei's update to its top smartphone the P9 came earlier this year during the Mobile World Congress in Barcelona. Since then, the Chinese phone maker has been aggressively pushing its P10 series to meet the competition.

The P10 Plus is the big brother of the series, towering over the rest with its 5.5-inch IPS display with quad HD (2,560 x 1,440 resolution). It comes in a variety of different colours that stretch from refreshing colours like earthy green shades, dazzling hues of blue to the traditional matte black model.

If you pop open the hood (which you can't really) you will find Huawei's own Kirin 960 processor, it's quickest and most efficient yet, together with 6GB of RAM and massive 128GB of storage. Furthermore, there is a microSD card slot that supports cards up to 256GB should you want to expand it further.

Just like its predecessor, the P10 Plus' claim to fame it's rear dual cameras that are co-engineered with Leica. The cameras are split between a 20-Megapixel monochrome and 12-Megapixel RGB sensor so it is claimed to have better black and white photo taking capabilities.

Selfie lovers will love the fact that the 8-Megapixel front camera is also Leica branded for quality portraits.

Business laptops:

Dell XPS 15

If you are looking for a serious business laptop that looks modern and sleek, you may be in luck as Dell's XPS 15 has received a full redesign.

Dell's best-in-class notebook boasts an impressive list of features with a 15.6-inch screen with options for non-touch full HD (1,920 x 1,080 resolution) or Ultra HD touch panel (3,840 x 2,160) with Adobe RGB calibration for increased colour accuracy.

Of course this being 2017, the Dell XPS 15 has updated specs that include the ability to be outfitted with a 7th generation Kaby Lake Core processor, up to 16GB of DDR4 memory and multiple options for traditional hard drives or solid state drives.

The inclusion of a Nvidia GTX 1050 graphics processor is a big plus for those working in the creative industry be it in design, video or photo editing, where GPU acceleration will greatly benefit workflow.

Aside from getting a full sized HDMI port, that comes in handy for presentations, there is also a Thunderbolt 3 port

Samsung Galaxy 8+

iPad Pro 2017

ThinkPad X1 Carbon

that supports charging.

To top it all off, Dell calls it their lightest performance-class laptop that measures just 11-17mm slim and weighs 1.8kg for easy transportation.

ThinkPad X1 Carbon

When you think of business notebooks, the classic ThinkPad definitely comes to mind. The iconic red TrackPoint centre button and sharp business design have evolved over the years.

This year's Lenovo's flagship ultraportable business notebook, ThinkPad X1 Carbon is claimed to be it's thinnest and lightest one yet, weighing just 1.39kg.

Just as its name suggest, the X1 Carbon is constructed with a tough four layers of carbon-fiber reinforced chassis and a magnesium alloy roll-cage for added strength, Lenovo claims can handle whatever life throws your way be it the heat, cold or a spilt drink.

The X1 Carbon manages to keep a 14-inch display within a 13-inch display with an option for a Quad HD display.

Considering that much of today's workforce is mobile the X1 Carbon is ready to go unplugged with battery life that is said to last up to 15.5 hours. A rapid charging feature also helps get the laptop up to 80% of capacity in just an hour.

The new X1 Carbon packs more power with specs that can be configured up to a 7th generation Intel Core processors, up to 16GB of RAM, up to Intel HD Graphics 620 and up to a 1TB solid state drive.

Tablets:

iPad Pro

When it comes to tablet there is no avoiding the tablet that started it all, the iPad. Apple's iPad Pro was initially only available as an ultra large tablet but it has since introduced the more portable 9.7-inch iPad Pro.

It sports a vivid Retina display (2,048 x 1,536 resolution) that Apple purports to be bright and reduces reflections. Using sensors to detect light around it, the iPad Pro is able to adjust the colour temperature of the display to match the ambient light making it natural and comfortable to read.

Possessing Apple's fastest mobile processor, the A9X chip gives it the iPad Pro power that is normally found on workstations but in a form factor that you can bring along with you anywhere.

The two WiFi and WiFi + Cellular models come in a variety of storage capacities ranging from 32GB up to 256GB.

It also features four speakers around each corner for rich detailed sound and even automatically adjusts the orientation of high frequencies to the topmost speakers no matter how it is orientated.

There is a bevvy of different accessories to deck your iPad Pro with from the new portable Smart Keyboard that lets you get down to typing the moment it is connected, Apple Pencil for pixel-perfect renditions of drawing and sketches.

Not forgetting Instagramers, Apple included a 12-Megapixel rear facing camera for photo taking.

Samsung Galaxy Tab S3

Some may say that Android tablets are out of fashion, but Samsung begs to differ as its Galaxy Tab S3 stubbornly holds its ground.

This premium tablet held the Samsung's ground during Mobile World Congress 2017 and it brings many of the sleek features of the company's smartphones to a tablet form factor.

It brings Samsung's brilliant display technology on board with a 9.7-inch QXGA sAMOLED that is capable of HDR video playback via services like Amazon Prime Video. To match the great looking content you can watch, it comes with a quad-speaker system tuned by Austrian audio meisters AKG, that projects sound each corner of the tablet.

It offers powerful performance with a Snapdragon 820 processor and Vulkan graphics to take your gaming to the next level.

While most other tablets need you to purchase a stylus separately, the Galaxy Tab S3 comes with Samsung's redesigned S Pen right out of the box so you can begin sketching almost immediately.

Of course being a tablet made for productivity, there are options to increase your productivity on the go with keyboard accessories.

Lastly, with a massive 6,000mAh battery that also supports fast charging, the Galaxy Tab S3 is all set to go for one entire day.

On a whole, there have been plenty of stunning products and devices that have wowed us in the first half of 2017. With any luck, we hope that there will be more interesting products to come be it laptops, smartphones, notebooks or cameras in the second half of 2017. And of course, the highlight could be the much anticipated new iPhone. Will it blow us away?

Digi: A company in continuous beta mode

BY **SHARMILA GANAPATHY-WALLACE & KARAMJIT SINGH**

HE describes Digi as a company that is in continuous beta mode: "We consistently try a lot of things and that is the beauty of Digi, we haven't lost our DNA, we are continuously trying new things," said Albern Murty, CEO of Digi Telecommunications Sdn Bhd, when speaking to Digital News Asia (DNA) at the end of June for our Deep Dive focus.

If something doesn't work, the telco will just move on and try something else with Murty emphasizing that this culture and DNA is an important element that makes up Digi as the mobile operator faces up to rising disruption from cross border internet startups and its rival mobile operators in Malaysia.

In a wide ranging interview, DNA brought up a number of market and tactical issues that Digi has embarked on including the use of its 900Mhz spectrum that Murty is particularly excited about as it finally allows Digi to compete on a more level playing field against competitor who have had the advantage in the coverage bands up to the moment on July 1 where Digi finally could offer the same inbuilding quality coverage through this spectrum.

DNA: Industry observers note that competition between the telcos has gotten even more ferociou. Is this kind of competition sustainable? Or are you locked in a death-embrace?

Murty: If you look at markets that are a little more established than us, where they control the whole voice, SMS and data and there are options like OTT, over the years with the rise in OTTs, you need to have your own pricing strategies. Our pricing strategy like I mentioned earlier, is we always look at margins and that is profitable for us to do something.

But I think that we all need to have our own strategy. I don't think you can say that the industry is right or wrong, we just need to make sure that we're doing makes sense for us. So if I'm guiding for 40% EBITDA margins like last year, then I need to make sure that either that prices are what they should be for us and the market is performing and that we have a lot of efficient control to be able to deliver those numbers. I think it's very competitive definitely and there's a lot of price movement in the market, but that's always the case. I don't think I've seen a market where they haven't gone through this.

DNA: All the three telcos lost some customers in Q1 and it's interesting. So where have they gone?

Murty: I think there are a few things. One is the prepaid to postpaid movement, all three of us would have seen some of that. The other part is that it's seasonal, there are movements in and out. If you look at every year's results, Q1, Q4 peak, Q1 down, Q2 stabilised and Q3…this sort of trend always happens to prepaid.

Is the trend changing? Yes, it is changing and what's changing that trend is that some customers will also look at multiple operators. The fact is that the market is such, there is price competition and people will always move around. But in Q1, we saw the entire market sort of dipping economically, I think it's more of a trend and that can change, depending on the influx of people coming in. It's not so much that there are fewer Malaysians today or not, but also because of the economic situation; it could be people are also streamlining their spending on the different SIM cards. So they could be making a choice as well, that they want don't want two SIM cards. I think it is a combination.

DNA: What was it that triggered the move of your prepaid customers to postpaid? Or was it more about Digi winning customers from your competitors?

Murty: I think it was a combination. Definitely, pre to post [adoption] was a big part of the movement, because you obviously attract your existing customer base, so there's no secret there. And again, prepaid customers are still very important. It's a payment method, so it doesn't mean that cash not important. But we wanted to make sure that when the customer feels that he needs to move to postpaid, we are their first choice. So that's what we established with our base of customers. What convinced them the most was probably the network and the brand. Because they saw the investments that I talked about being translated to actual experience. They could see 4G, 4G+ being displayed on their phone, they could see more value in the postpaid bundles, with devices or without devices. That's naturally the way they would move.

Of course some of those customers were ports, some were new customers, so when they move to the 32 shops and then 400 based on the franchise model, we started to address pockets of the market where today we're the only brand that actually has a store serving postpaid customers in some of those markets. If you look at Port Dickson, for instance, we were the first to put a postpaid stor–DiGi Express–there. You have phone bundles now being offered. Previously we used to think that customers really never wanted a smartphone because they are from a secondary or smaller town, but that's not the case anymore. We always have segments that we can address, and the prices of smartphones have fallen dramatically, by 30% to 40%. That has allowed people to move much quicker to that Internet journey.

Of course going into Q12016, we changed our plans a bit. We looked at two areas, we have to ensure that our business says profitable. We had to make a choice in terms of protecting our margins in 2016 and looking at who we really want to serve and reinvesting in the business. The more we make funds available to reinvest, the more stable the outlook going forward. So we looked at that and we actually moved away from some areas, particularly on very price sensitive areas like IDD. We decided to move away from intense price competition in those areas. This was in Q3 2016 and of course there's an immediate short-term effect, which you saw in Q42016 and Q12017.

During Q4/Q1 we wanted to look at how we could develop healthy EBITDA margins and at the same time have the right

Albern Murty, CEO, Digi Telecommunications Sdn Bhd

balance of customers. So postpaid was going very well, which is important for future growth. Prepaid we were quite happy with. Subscriber numbers fluctuate and that is noting new. You have fluctuations based on seasonality, based on offers in the market, choices that we made by moving away from IDD. All in all, we were okay.

DNA: But after that, the prepaid customers would have fallen, since you moved away from IDD? The migrant worker segment for instance.
Murty: But it doesn't mean that IDD is the only way of communicating to these segments. In Malaysia, there are a lot of foreigners and there are also transit foreigners such as tourists and medical tourism is also picking up. So we have people coming here for two or three months and you will capture them on IDD or Internet. So you have to make sure you are attractive. What we have decided is that we will have a good balance: we won't sell things that are not profitable in terms of IDD or in fact anything.

DNA: So does that mean right now in your portfolio you currently don't have anything that is unprofitable?
Murty: Not unprofitable. Y ou have to look at it from a consumer point of view. A consumer spends X ringgit with us. What sort of margins are you looking at? And I think what we've decided to do is that there are areas that we're quite competitive, such as Telenor Friends. It is an IDD offering only with the Telenor group of companies in the four countries that it operates in, in Asia. To those sister companies, we offer a special rate, but otherwise we've stayed away from any dramatic price slashes in that segment.

But Internet is something that will come even for those segments. So that's where we are in Q1 and recently we've had Freedom To Internet for both our postpaid and prepaid customers. And we've also done some new verticals in the market, we have iFleet (a new intelligent fleet management solution).

DNA: What are the other new verticals you have?
Murty: The one you've seen so far is iFleet and connected vehicles. And the reason for that is again, timing. If you had done this two or three years ago, even one year ago, it would have been wrong timing. It's hard to explain to people: 'don't you want your car or truck to be connected?' and they go 'why'? But now when they can see that on apps on their phone, that whole experience of having a little bit more control and a little of that show-off factor, you have the right kind of phone to display where your car is…things have to stack up. So we decided to do that; the second one is the insurance detariffing is the perfect time for us to go into this space. We want to take a big ambition on IoT [Internet of Things] and IoT is not just vehicles, but IoT in general.

DNA: Have you partnered with insurance providers?
Murty: We are working with different partners but from a software solutions perspective CSC is our partner for iFleet. My intention for that is that it has to be as simple as a retail offering. So if you make it too complicated for consumers, it is a waste of time doing anything on that front. If you get one more party involved to get it to work, you have lost that opportunity.

The other area is of course, financial services which is not new. We've done it before, we did remittance services a long time ago. We launched remittance four or five years ago and then we did it again two years ago when Telenor bought over Prabhu which they rebranded as Value and we leverage it a lot. Again, it's not really for the migrant community, it's really for anyone because it's not just about cross border, it's about peer-to-peer, B2C. There's also the e-wallet solution, which we are exploring. There are probably one or two areas that we will come up with in the future.

DNA: Are you still finalising these areas or do you already know them but are trying to create the right model?
Murty: I think it's just about trying to make a decision

whether it's something we could do. One of the things when you go into digital and new verticals is that on paper it looks really good, so we're really trialling it out to see if there's a business model and business opportunity. We're doing pilots and I really believe that we shouldn't do a business that does not have revenue from day one. At least it has to show that someone is willing to pay for it. There's always the argument: scale first, or revenue first. It really depends, but if someone is willing to pay for a service then it's a good way to start.

All of us run promotions, it doesn't mean it is free. If 1am to 5am is free, doesn't mean the whole model is free. So from day one you know you have to pay for that service, I think that is important. Otherwise you just lose the end game. Especially for us, because that is not our core business.

DNA: You see U Mobile being so aggressive there in post-paid segment. But you've got to defend your turf, right?
Murty: Postpaid customers are slightly different. One is of course, there are those that look for the best deals in town but most postpaid customers actually want to have consistent Internet, a good network and shops to serve them, enough touchpoints. It's beyond just price, they want innovation, services and a lot of other things. So I think you have to have a balance and we are growing in the marketplace. That's because of our strong brand, a much better network.

Hence the 900Mhz spectrum is so important to us. One of the best things for us last year was getting this spectrum and that will allow us from July 1st, to take a very strong position in the market.

DNA: When you say July 1st, aren't you already using that spectrum now?
Murty: So we refarmed it, so from July 1st we are allowed to turn it on. Refarming started from Q4 last year to Q1 this year, so we had some challenges with customers and movements, but overall we've very happy with what the team did on refarming. At the same time we were rolling out new sites, so you can imagine balancing both things at the same time. Because I wanted us to keep the lead on 4G plus; it was important for the brand and the perception.

For 4G, we are now at 85% population coverage nationwide and 45% for 4G plus.

DNA: How much was the investment for the 900Mhz spectrum?
Murty: The refarming involved just the normal capex [capital expenditure], of course we paid the spectrum fees upfront. The refarming expenses we took it as the normal business-as-usual expense.

DNA: So you didn't increase the capex?
Murty: No, we had enough. We had already planned for that, this didn't happen overnight. The spectrum discussions had been going on since 2015. For DiGi, it's super-important as we never had broadband spectrum. And it's important for us to be able to do that, because the in-building coverage issues was always something that was challenging for us. That helps us a lot now in our positioning, while rolling out the network.

DNA: Adding on to what you said earlier about price competition, in a lot of Asian countries, mobile operators are operating at EBITDA margins of about 30%. Do you see this happening eventually to the Malaysian telcos?
Murty: I can't comment on Malaysian telcos, but we have guided that we will stick to the margin that we're at, which is why the way we run the operations is that we don't look only at revenue and new segments, we actually look at efficiencies. And we use Telenor, ourselves, our negotiating capabilities to really run that efficiently. We are the smallest telco in terms of organisation, so there alone the efficiencies are quite amazing.

And then we look at new models, we look at where it makes sense to either get efficiencies from in-sourcing, outsourcing, we explore all kinds of models. Even distributions, when I talked about the franchise model, that's a choice. So all those things give you the efficiencies you need. Digitising our core business will give us future efficiencies. So that's why I started this story by saying we wanted to do this ambition and free up funds to reinvest into new areas, which is why EBITDA margins that we guide will be the same. And I think it is important for us to aim for that.

DNA: It's kind of an anomaly in the region. So you are planning to keep that 40% margin as far as possible then?
Murty: Yes.

DNA: You feel that Malaysia has moved a lot faster on IoT that expected. What was the trigger for that?
Murty: I think it's a combination of the services, solution providers coming up with services for their own respective industries, and then us being able to provide affordable SIMs for connectivity. It's again timing, if you'd taken services out to market two or three years ago, it wouldn't have made sense. Take remittance, for example. Four years ago we introduced it to the market, we were the first to take it out. It looked like it made sense, but traction was very slow. Today the traction is amazing and now when you offer it as a mobile app, suddenly you see a different scale of people taking it up.

So I think timing has to do with it, devices timing, different industries modernising themselves. Because everybody wants to move into the digital age.

Malaysian wireless spectrum: Where are we after a year?

BY **EDWIN YAPP**

MALAYSIA'S telecommunication (telco) landscape has been hailed as one of the more advanced in the Southeast Asia (SEA) region, primarily because of forward thinking regulatory policies as well as the quick adoption of technologies.

For the most part, the country's operators have largely kept abreast with market pressures primarily because of the fierce competition that exists between key mobile operators in Malaysia. This is certainly a good thing as it has forced these operators to embark on a series of modernisation projects over the past few years.

Last year, the cover issue of Digital News Asia's (DNA) annual Telco Deep Dive outlook focused on the government's spectrum redelineation plan needing to be implemented properly and in a timely manner. That plan was the first major such exercise the government had embarked on since it initially issued wireless spectrum in the early 1990s.

DNA's Telco Deep Dive 2016 issue concluded that because redelineation was such a major undertaking, the developments in the next year or two were going to be significantly impactful for both operators and consumers alike.

Put simply, the industry is at an inflection point because for the first time since the early 1990s, all operators, including the smaller and newer ones, will have near-parity when it comes to spectrum.

For the record, spectrum is a term used to describe the range of frequencies by which the electromagnetic wave is transmitted from one point to another. The information embedded in the spectrum commonly includes radio, TV, mobile voice and data, and broadband wireless data.

As spectrum is a finite resource, the government, through industry regulator, the Malaysian Communication and Multimedia Commission (MCMC), leases out spectra in different blocks or bands to telco operators for them to utilise.

MCMC is tasked with ensuring that these spectrum blocks are managed in a way that meets the needs of spectrum users, with adequate provision for public and community services, and to maximise the allocation of spectrum efficiently.

So how far have we come since the government's redelineation plan came into force? What have operators done with the reengineering of their respective spectra? And what can consumers expect going forward?

These are but some questions that DNA will try to answer in this year's Telco Deep Dive.

The background

The massive project that the 'big four' major operators – Digi.Com Bhd, Maxis Bhd Celcom Axiata Bhd and U Mobile Sdn Bhd – have been undertaking these past nine months is the re-engineering of their respective spectra of wireless operating frequencies.

The move to reassign spectrum all started when Malaysian Prime Minister Najib Razak, in a review of the national Budget 2016 on Jan 28, surprisingly announced plans to "optimise government income by reallocating telecommunications radio spectrums and making operators bid for them."

The plan called for Celcom, Digi, Maxis and U Mobile to be reassigned 900MHz and 1800MHz spectra for a 15-year period and for a specific fee. The MCMC has since confirmed that the total cost of a 2 x 5MHz block of spectrum in the 900MHz band is US$115.6 million (RM499.72 million) while the total cost of a 2 x 5MHz block in the 1800MHz band is US$50.2 million (RM217.77 million), according to a local media report.

The spectra assignments is understood to be as follows: Maxis and Celcom will be allocated two blocks of 10 MHz spectrum (2 x 10MHz) each, while Digi and U Mobile Sdn Bhd will each be allocated a 2 x 5MHz block, all in the 900MHz band.

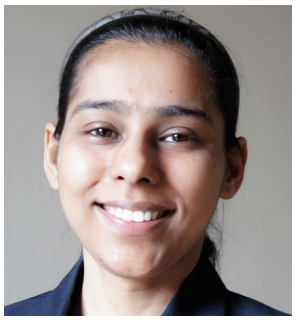
In the 1800MHz spectrum band, Maxis, Celcom and Digi will each be allocated 2 x 20MHz, versus the 2 x 25MHz they were assinged previously. Meanwhile, U Mobile, which did not have any 1800MHz spectrum before this, will be allocated a 2 x 15MHz.

As explained in last year's DNA Telco Deep Dive, the reassignment is key simply because the two bands – 900MHz and 1800MHz – are coveted spectra due to their optimum compromise between coverage and capacity.

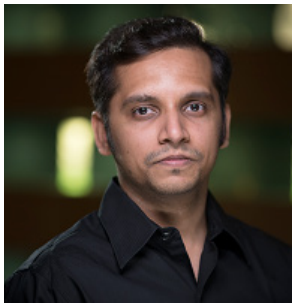
The lower 900MHz frequency has the advantage of being able to service larger areas compared to the higher 1800MHz frequency. The lower 900MHz also means that it can penetrate deeper into buildings much better than that of 1800MHz.

The two biggest beneficiaries with these new assignments are Digi, which has been pining after a larger block of 900MHz for years now; and U Mobile, which is the smallest player by subscriber size and which to date does not own any 2G spectrum at 900MHz and 1800Mhz.

U Mobile, which came into being in 2007 as a late entrant only secured 3G spectrum allocation from the MCMC in 2006. It struggled in its initial years to become a credible competitor to the three big players but of late has been gaining some ground.



Inderpreet Kaur, Ovum telco analyst



Neil Shah, Counter-point Research

Stephen Wilson, principal analyst, Analysys Mason

Both these players will now gain access to precious lower band spectra (900MHz and 1800MHz), which will help them expand their coverage and capacity without having to spend as much as they otherwise would have had to if they had not gotten these spectra reassignments.

Vacating of 2G spectrum

The key engineering activity that has been taking place since last September is the spectrum refarming of the aforementioned 900MHz and 1800MHz bands, two blocks of spectra that have historically been used for the transmission of legacy 2G (GSM) mobile communications.

In industry parlance, spectrum refarming is the vacating of dated wireless technology occupying a particular frequency band so that a new wireless technology can use that frequency band to improve telco services to consumers.

In Malaysia's case, the aim is to reduce existing 2G technology occupying the 900MHz and 1800MHz band to make way for LTE/ 4G services in those same bands. This will enable better coverage and indoor penetration compared to operating 4G/ LTE in higher 2600MHz band, which all four operators already have the capability of doing.

At the same time, operators embarking on spectrum refarming cannot completely clear out all 2G spectrum as there is still a large community of consumers using 2G for basic telephony services. As such, operators would need to keep the minimum of 2 X 5MHz for this use (more on this later).

According to Nils Kleemann, global head of mobile solutions at Nokia Corp, the industry today has become more competitive than ever as end-users expect faster speeds and greater data at lower costs.

As a result, revenues of operators have remained flat while their investments continue to increase in a bid to jostle for leadership in network performance, he explained.

"Operators are focusing on efficient and cost-saving methods for their network investments and related operations," said Kleeman in an email to DNA's questions. "Today, we have 2G (GSM), 3G (WCDMA) and 4G (LTE) all of which are running in parallel in most countries.

"2G was to support wireless voice services; 3G, a hybrid technology for voice and data communication; and 4G which is designed for data. So the logical question is do operators still need to run all these networks when they are serving similar or overlapping services?"

Ovum telco analyst Inderpreet Kaur

noted that spectrum refarming isn't a new phenomenon and has been going on for a long time in many other countries in the region.

In an email response to DNA, she noted that historically many operators in the regional markets, including that of Australia, Japan, and Thailand, have embraced the refarming of 900MHz and 1800MHz frequencies so that they could deploy high-speed mobile broadband services.

More recent examples include Indian operators, RCOM and Tata Teleservices, which are now using the dated CDMA band (800MHz) to offer LTE and mobile broadband, she explained.

"From a regulatory standpoint, spectrum refarming is an essential tool for efficient spectrum utilisation and makes up a key part of spectrum management policy," she said.

Noting that regulators in different countries have taken different roads to refarming, Inderpreet said regulators generally adopt technology-neutrality to facilitate use of mobile broadband technologies in the existing 2G spectrum.

"Still some have required a reallocation of spectrum once the licences of all existing operators expire to provide a more level playing field [which is what has happened in Malaysia]," she said.

What's up, Malaysia?

According to industry insiders, the three big players – Digi, Maxis and Celcom – have all but concluded their respective refarming activities nationwide. Maxis and Celcom have also handed over their 900MHz spectra to both Digi and U Mobile. Reciprocatively, Digi has also given up its 1800MHz to Maxis, Celcom and U Mobile.

This timeline to do so is in accordance with stipulations laid out by the MCMC, which specified that all refarming activities of both 900MHz and 1800MHz spectra must happen by June 2017.

When asked what were some of the challenges facing mobile operators embarking on spectrum refarming projects, Stephen Wilson, principal analyst with telco consultancy Analysys Mason said he can't be specific about the challenges faced by Malaysian operators.

But based on work done elsewhere around the world, Wilson told DNA in an email that one big consideration is to ensure that the quality of the GSM network remains sufficient despite the use of less spectrum.

A Malaysian-based industry insider who has direct knowledge of the spectrum refarming work and whom DNA spoke to said the reduction of all operators' 2G spectra to 2 X 5MHz will limit their ability to serve their respective subscribers with anything but basic voice communication.

"There'll be virtually no data capabilities while on 2G and voice will be rudimentary at best. The voice quality at certain low coverage areas would also be choppy and not smooth," said the insider.

Quizzed further as to how well Malaysian operators have fared in managing their respective refarming exercises, the insider said that for the most part, the overall quality for 3G and LTE services have not been affected as the refarming exercise only affected 2G services.

"I would say that for those who are still using 2G services, the degradation they experience would be 10% to 15% worse than what they had been enjoying before," he explained. "For example in practice, they may experience 10% to 15% more drop calls than before."

However, the insider also said that all operators have made it a condition that the vendors and their respective subcontractors doing the refarming work will have to ensure

A village in rural Malaysia

that they deliver "equal or better quality" as part of their key performance indicators (KPIs) for the projects.

Contractors involved in this refarming work include incumbent equipment providers Huawei Technologies Co Ltd (for Maxis) and ZTE Corporation (for Digi) and Huawei and Ericsson (Celcom). There are also several small independent wireless subcontractors involved in these works.

Quizzed as to whether the operators have received negative feedback from 2G subscribers after the refarming work, the insider said it's hard to say as there isn't an active feedback mechanism to gauge how bad the quality may have become.

"I'm not aware of any feedback mechanism for complaints they may get from after the 2G refarming work but I suspect that this would be minimal as people are quite used to dropped calls these days.

"Also, a lot of these 2G subscribers using basic feature phones are based in rural areas and I suspect that they wouldn't bother complaining as much as if the quality of 3G or LTE were to drop in urban centres where the more affluent subscribers with their fancy smartphones would likely complain more."

A straw poll conducted by DNA amongst users noted that 2G services have indeed suffered since the refarming. Anecdotal evidence confirmed what the insider said, with some complaining that 2G services had really gone from bad to worse.

"My Celcom service is quite bad now, when it's not on 3G or LTE," said a senior IT executive DNA spoke to on condition of anonymity. "I can't get data at all on 2G and voice quality is choppy."

Another challenge for operators, said Analysys' Wilson, is that they have to struggle with the availability of devices that support LTE on the different frequency bands.

"There are devices that support LTE in 900MHz frequencies but this number is some way behind the number of devices supporting LTE in the 1800MHz band," he explained.

What this means is that operators can't just provide LTE in 900MHz and expect subscribers to upgrade their handset due to the unavailability factor, even when an operator's network can support LTE 900MHz.

Switching off 2G?

Which leads to the next question – will Malaysia turn off its 2G services, and if so, when would it?

For the record, some operators in Australia have begun switching off their 2G network as have Singaporean operators. Based on Ovum's research, other countries considering doing so include New Zealand, South Korea and Thailand, which is one of the first movers in SEA to do so.

Nokia's Kleemann said amongst the considerations when it comes to making the decision to switch off a technology like 2G include looking at the number of subscribers who are still using the service and managing the existing subscriber base during the transition phase, which can impact network

performance and overall customer experience.

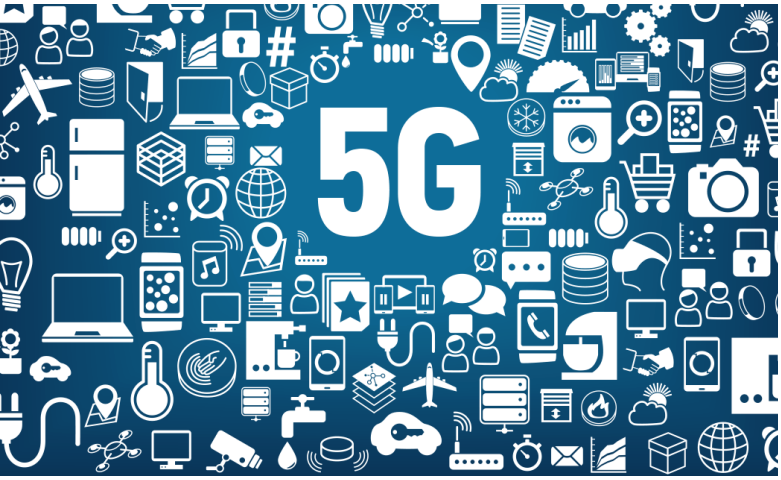
"This also means that, besides simply spectrum refarming, operators must consider offering subscribers attractive transition packages to encourage them to move to the upgraded network," he argued.

Ovum's Inderpreet concurred with Kleemann about attracting subscribers to switch over using bundled packages but added that more could be done.

"It's important to match the LTE/ 4G coverage with the 2G network to ensure people would not switch back to 2G; boost the capacity of 3G/ 4G networks to avoid network overload which can lead to quality issues; ensure availability of low cost smart devices that match the pricing of basic feature phones to stimulate migration at the bottom of the pyramid.

"Other methods include device buy-back plans or device trade-in offers and to offer a good good lead time for subscribers to learn and understand the new services, as well as train and equip support staff to help subscribers during the migration phase."

Neil Shah of Counterpoint Research feels that the biggest challenge for Malaysia is that one in three mobile subscribers are still reliant on 2G network. In Malaysia, that number



equates to approximately between nine and 13 million subscribers or approximately 25% to 30% of the total mobile subscribers in Malaysia.

"So operators have to make sure that the number of 2G subscribers goes down to below 10% before any switching off of 2G can be considered without any disruption to existing subscribers," he said in an email.

A senior executive familiar with regulatory issues DNA spoke with said that the shutting off of the 2G service "isn't realistic" yet in Malaysia as there are too many challenges, which will directly impact both operators and consumers.

The person said that although the MCMC had been flirting with the idea of turning off 2G, the fact that there are still over 10 million subscribers that are on 2G means that this will not happen "anytime soon."

"There are political and economic considerations at play," the executive argued. "Shutting down 2G means that invariably, the lower income group – many of whom live in outlying areas of Malaysia – will be impacted. They would need to upgrade their mobiles to get 3G and LTE services, and many of them can't afford to do so.

"In Malaysia, the big impact to this class of people isn't realistic and given the impending Malaysian General Election around the corner, you can't just kill off 2G service for the conceivable future."

What the future looks like?

While much of the efforts to date have been focused on spectrum refarming, operators in Malaysia are keeping one eye on the future too. After all, the main objective of refarming is to prepare for the future, noted Ovum practice leader Nicole McCormick.

Arguing that on a LTE/ 4G network, operators can increase data revenues and data average revenue per user (ARPU) and lower per-bit-cost, she said, "One of the main reasons for moving customers off 2G is to enable better data monetisation prospects. On a 4G network, operators can increase data revenues while lowering per-bit costs.

Counterpoint Research's Shah said comparatively speaking 2G and 3G networks were optimised for voice-centric or lighter data-centric applications, which often generate low ARPU and are being cannibalised by over-the-top (OTT) apps and services which are mostly IP (Internet protocol) driven, and also are spectrally less efficient.

"There is a case to move 2G/ 3G subs to 4G networks to maximise ARPU and in the process boosting their bottom lines with more efficient network," he argued. "It's all about lowering the cost per bit, driving more revenue opportunities and maximising the user experience."

Analysys' Wilson agreed, adding the better spectral efficiency offered by LTE and LTE Advanced (LTE-A) versus 3G and 2G could allow operators to increase the size of their data bundles.

There is even a chance for operators, including those in Malaysia, to move to once again offer complete unlimited data packages, Wilson speculated.

"It is worth noting that traffic per head of population in Malaysia is higher than in some Western European markets such as Germany," he said. "A central challenge for operators globally is how to better monetise data traffic growth."

But what about vendors touting the much-vaunted 5G technology, as Celcom recently did with the demonstration of the technology at its headquarters?

Ovum's Inderpreet cautioned against getting too excited about the case for 5G as there are a lot of issues to consider before getting there.

"5G would require new spectrum, she argued, "The frequencies around 3.5GHz and in the lower C-band spectrum up to 4.2GHz are gaining attention as they promise higher bandwidth and capacity than the sub-3GHz bands. So too are some trials focused on 28GHz band for extreme high capacity networks."

Analysys' Wilson concurs, noting there remains a good deal of uncertainty around investing heavily in a new technology such as 5G in a challenging business environment for global operators.

"Spectrum is one area of uncertainty around 5G. One option would be to use millimeter wave, such as 28GHz, spectrum but the cell range for such high frequencies is low and significant investments will need to be made in fibre backhaul also. A further area of uncertainty is with regard to the value of 5G Internet of Things (IoT), he said. "IoT forms an important part of the 5G vision but it is unclear at this point which IoT applications will actually require 5G as opposed to existing IoT technologies."

However, such spectrum and 5G in general might offer possibilities for operators in Malaysia to monetise fixed wireless broadband connections, Wilson argued, as further spectrum releases will be required to meet the growing demand in traffic.

Telco battleground Q1 2017: Return of the King

BY **GOH THEAN EU**

THE Malaysian telecommunications industry is never short of a Hollywood-like script, as the first quarter saw Maxis regaining its lost ground and re-emerging as market leader once again. Hence my Peter Jackson-inspired headline.

To recap, Maxis was the Malaysian market leader in both the prepaid and postpaid for most part of the 21st century. During the period, Celcom snatched the lead in terms of the overall subscriber base and prepaid subscriber base, and Digi, too, took the market leadership in both prepaid and overall subscriber base.

But, the leadership secured by its rivals appear to be short-lived, as the company, controlled by tycoon Ananda Krishnan, has regained its throne in the telco space.

During the first quarter, Maxis overtook rival Telenor-controlled Digi.Com Bhd in terms of prepaid and overall subscriber base.

The first quarter also saw Maxis extending its lead in the postpaid sector, after rival Celcom almost overtook the company in terms of the postpaid subscriber base.

In short, Maxis now leads the market in both prepaid subscriber base and postpaid subscriber base, and other key metrics as well – an impressive feat for a company whose CEO shared with DNA last year that it had embarked on a strategy of evolving based on three priorities, to become a company that does things very differently in the future.

Below is a snapshot on how the telcos performed in the first quarter of 2017:

Overall subscriber base and market share

	Q1 2017	Q1 2016
Maxis	11.81 mil (34.90%)	12.31 mil (33.51%)
Digi	11.78 mil (34.81%)	12.34 mil (33.59%)
Celcom	10.25 mil (30.29%)	12.08 mil (32.90%)
	33.84 mil	**36.73 mil**

Digi made 2016 memorable when it overtook Maxis as the country's largest mobile operator in terms of subscriber base. (link please) It was the first time the mobile operator captured the leadership position based on this metric.

However, like most smartphone batteries these days, it (the lead) did not last long. In the first quarter, Maxis regained the market leadership in terms of overall subscriber base.

The change in the leadership wasn't because Maxis added more customers than Digi and Celcom. It was because Maxis did not lose as many customers as the other two telcos. During the first quarter, Maxis registered a 150,000 decline in terms of overall subscriber base (versus Q4 2016). In contrast, Digi suffered a net reduction of 520,000 subscribers and Celcom recorded a net reduction of 300,000 subscribers.

Prepaid subscriber base and market share

	Q1 2017	Q1 2016
Maxis	8.82 mil (34.30%)	9.28 mil (32.06%)
Digi	9.59 mil (37.30%)	10.43 mil (36.03%)
Celcom	7.30 mil (28.40%)	9.24 mil (31.91%)
	25.71 mil	**28.95 mil**

Although Digi lost its lead in the overall subscriber market share, it remained dominant in the prepaid space with a commanding lead of 37.3% market share.

Maxis gained the most market share during the first quarter with a 2.24 percentage point increase (year-on-year).

While Celcom's market share may have declined by more than 3 percentage points (year-on-year), its market share remained unchanged at 28.4% if compared against fourth quarter 2016. Could this be a sign of the stabilization of its prepaid business? Only time will tell.

Postpaid subscriber base and market share

	Q1 2017	Q1 2016
Maxis	2.99 mil (36.78%)	3.03 mil (39%)
Celcom	2.95 mil (36.28%)	2.84 mil (36.55%)
Digi	2.19 mil (26.94%)	1.90 mil (24.45%)
	8.13 mil	**7.77 mil**

Celcom recorded a good run for its postpaid subscriber market share in 2016, as it closed its gap with market leader Maxis. As at end 2016, Maxis had 37% market share while Celcom had 36.8%. At end 2015, Maxis had a commanding market share of 40.3% while Celcom had 36%.

Just as we thought Celcom could maintain its momentum into Q1 2017, and perhaps topple Maxis in the postpaid segment – Maxis managed to grow its subscriber base (quarter-on-quarter) to 2.99 million. In contrast, Celcom recorded a marginal decline in its postpaid subscriber base at 2.95 million (Q4 2016: 2.96 million).

What made Maxis' performance impressive was that it was able to grow its postpaid base without having to lower its MaxisONE postpaid plans' entry packages and remain focused on the premium segment.

Service revenue and market share

	Q1 2017	Q1 2016
Maxis	RM2.13 bil (42%)	RM2.12 bil (40.77%)
Digi	RM1.47 bil (29%)	RM1.56 bil (30%)
Celcom	RM1.47 bil (29%)	RM1.52 bil (29.23%)
	RM5.07 bil	**RM5.20 bil**

During the first quarter, Maxis not only showed its dominance in terms of subscriber base – it also flexed its muscles in the topline.

A look at the top three's service revenue – revenue that excludes the money it gets from the sale of mobile devices – showed that Maxis managed to grow its service revenue market share by over 1 percentage point at 42%. During the quarter, its rivals Digi and Celcom registered a decline in market share.

Prepaid service revenue and market share

	Q1 2017	Q1 2016
Maxis	RM1.01 bil (38.55%)	RM1.01 bil (34.83%)
Digi	RM952 mil (36.34%)	RM1.09 bil (37.58%)
Celcom*	RM657 mil (25.11%)	RM803 mil (27.69%)
	RM2.62 bil	**RM2.90 bil**

**Although Celcom reported the lowest prepaid revenue, it is important to note that the reported revenue does not include inbound roaming revenue.*

During the first quarter, Maxis also captured the lead in the prepaid revenue market share with a remarkable 38.55% market share, with Digi slipping to the second spot.

This is a commendable achievement, as Digi holds the leadership position in terms of prepaid service revenue market share in 2014, 2015 and 2016.

To regain its market lead, Digi – which suffered a net reduction in prepaid subscriber base of around 600,000 – will need to grow its prepaid subscriber base significantly. Such task, however, will not be easy – as the prepaid subscriber base by the big three has been on a declining trend.

Capital expenditure breakdown

	Full year capex allocation	Q1 Capex	Q1 Capex per subscriber	Q1 Capex to Service Revenue ratio
Maxis	Around RM1.2 bil	RM159 mil	RM13.46	
Digi	Up to RM900 mil	RM197 mil	RM16.72	17%
Celcom	Up to RM1.5 bil	RM167 mil	RM16.29	

Postpaid revenue and market share

	Q1 2017	Q1 2016
Maxis	RM989 mil (44.6%)	RM997 mil (47.3%)
Celcom	RM705 mil (31.9%)	RM648 mil (30.7%)
Digi	RM520 mil (23.5%)	RM464 mil (22%)
	RM2.21 bil	**RM2.11 bil**

During the first quarter, two of the big three were able to grow their postpaid revenue significantly. While Maxis suffered a slight decline on its postpaid revenue, it is still able to capture the bigger piece of the market share.

With a commanding 44.6% market share, it will be a while before Celcom can surpass it.

However, as Celcom's postpaid revenue does not include inbound roaming revenue, the lead that Maxis is having may not be as wide as it seems.

Capital expenditure breakdown

Although Digi has the smallest capital expenditure allocation planned for 2017, it was the biggest spender in the first quarter with RM197 million.

This was not entirely surprising as most mobile operators tend to have relatively lower capex spend during the first quarter. For example: Maxis' capex for Q1 2016 was RM162 million, Celcom's was RM174 million and Digi's capex was RM171 million.

For the telcos, most of the money goes to two areas: improving its network quality and coverage; as well as to upgrade its IT system. The trend is expected to remain the same over the next several years as the telcos are leveraging on technologies like 5G and big data analytics.

Who will lead by end of this year?

In late May, Digi introduced its Infinite postpaid plans which comes with unlimited data and calls. At RM150 a month, customers will get unlimited data with no restrictions on speed and tethering. It also has a RM80 Infinite postpaid plans which has restrictions on speed and additional charges on tethering.

The launch of the new plans signal that the competition

in the mobile space will continue to be intense and that the industry could be moving towards the introduction of more unlimited data plans.

"We do not foresee competition in the mobile space to be easing off anytime soon," said Alliance Research analyst Toh Woo Kim.

"We expect other Malaysian mobile operators to react by introducing their unlimited data plans as they compete for subscribers and try to maintain market share. At the very least, some of the higher end plans by Maxis and Celcom would need to be adjusted, while similar plans would also need to be introduced to counter the very attractive RM80 Infinite plan."

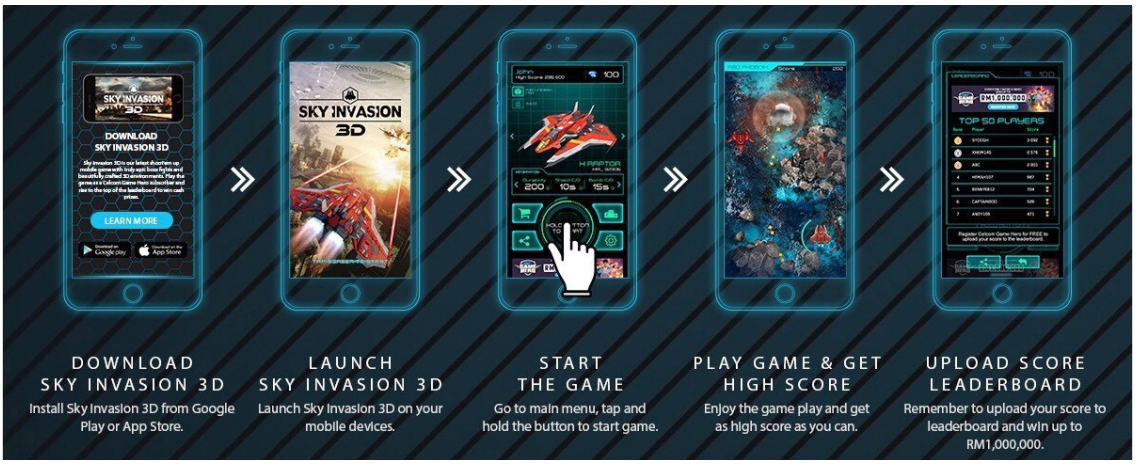
When contacted by Digital News Asia, analysts believe that Maxis is likely to lead in most metrics, with Digi narrowing its gap on the prepaid revenue front, and Celcom catching up on the postpaid subscribers end.

"While Maxis is expected to maintain its leadership in the overall segment, I expect that it will be a neck-to-neck race between Maxis and Celcom on the postpaid front," said a head of research from a local brokerage.

A look at Alliance Research's report revealed that Maxis will continue to grow its overall revenue in 2017 (+2.6% at RM8.84 billion) while Digi's revenue is likely to remain flattish at about RM6.57 billion (2016: RM6.597 billion). Meanwhile, in terms of the bottom-line, both these telcos are likely to post lower profits.

And who will win bragging rights as the leader in total subscribers come end 2017?

Will that even matter as they all work to keep EBIDTA margins above 40%?



A gaming offer from Celcom to its subscribers