



**Asia-Pacific
Economic Cooperation**

2014/TEL50/PLEN/012

Policy and Regulatory Update – Singapore

Purpose: Information
Submitted by: Singapore



**50th Telecommunications and Information
Working Group Meeting
Brisbane, Australia
29 September – 3 October 2014**

**APEC TEL 50
29 SEPTEMBER - 3 OCTOBER 2014
BRISBANE, AUSTRALIA
POLICY AND REGULATORY UPDATE**

Key Telecommunications Indicators

INDICATORS	STATISTICS (as of April 2014)
Residential Wired Broadband (Household Penetration Rate)	105.5%
Wireless Broadband (Population Penetration Rate)	188.1%
Mobile Phone Penetration Rate	153.7%
2G Penetration (as a percentage of total mobile subscriptions)	4.16%
3G Penetration (as a percentage of total mobile subscriptions)	66.13%
4G Penetration (as a percentage of total mobile subscriptions)	29.73%

TV White Space (TVWS) Framework

IDA will be introducing a set of regulations for the use of spectrum in TVWS. Singapore is one of the first few countries in the world to implement such a framework for TVWS. The regulations will make available for use approximately 180 MHz of spectrum when it takes effect from November 2014.

The regulations come after the conclusion of a public consultation in 2013. Taking into account inputs from the industry, these regulations will set out the TVWS equipment requirements, spectrum channels to be made available for TVWS use, and how TVWS equipment should communicate with geo-location databases in order to identify the available spectrum channel to use, among others.

The regulations will provide business certainty to companies who intend to offer services over TVWS. This signals Singapore's commitment to support TVWS technology

as businesses roll out innovative applications and solutions over TVWS. Such applications may include Machine-to-Machine communications, smart metering, outdoor environment and security monitoring services. Consumers will stand to benefit from this additional spectrum. As more Internet-capable devices are launched, it is necessary for more spectrum to be made available to cater for increased data consumption.

To facilitate the adoption of TVWS, businesses that wish to deploy or use TVWS technology may do so without applying for a licence from the IDA, subject to technical parameters and regulations for the use of TVWS. Consumers too can also look forward to services provided over TVWS, through various service providers. This licence-exempt approach has also been adopted for Wireless Local Area Networks such as Wi-Fi to encourage widespread use and wireless technology innovations. Adopting this approach for TVWS will similarly facilitate the deployment of new wireless technologies and help drive greater innovation.

Trials for Heterogeneous Network (HetNet)

The Infocomm Development Authority of Singapore (IDA) forecasts that the mobile data traffic in Singapore will grow exponentially from approximately 3.1 petabytes per month in 2010 to approximately 37 petabytes per month in 2015. This represents a compound annual growth rate of 64%.

In March 2014, IDA announced plans to embark on a blueprint for HetNet as a strategy to mitigate the potential crunch in wireless spectrum usage. HetNet is expected to allow for more optimal use of wireless spectrum by allowing devices to switch seamlessly between various types of wireless networks. The key benefits of HetNet are:

1. Seamless Access and Consistent User Experience

It is important to provide users with a consistent experience as they move across different networks. With HetNet, consumer devices will be able to authenticate and access different networks, powered by various mobile technologies, seamlessly when they roam. For example, when a mobile device that is connected to a cellular network enters a Wi-Fi hotspot where faster speeds are available, it will switch to the Wi-Fi network automatically without interruption to data downloads or video freezes that typically arise from switching between different wireless networks.

2. Dynamic Network Management

HetNet would allow for sharing of information among various networks, as different networks would be able to “talk” to one another. In the process, it would optimise resources and re-distribute demands across different networks. This results in an overall better management of network capacity and spectrum usage, ensuring an acceptable level of experience for all users. Such dynamic network management would benefit cellular operators as it would alleviate the growing mobile data load on cellular networks.

To realise the full potential of what HetNet can offer to citizens, IDA will be conducting a series of HetNet trials in conjunction with the infocomm industry. Through the trials, IDA will be able to validate technologies and capabilities of HetNet, which may either be commercially available today or still in research, and identify the most suitable ones for future deployment. IDA has since conducted a briefing to the infocomm industry and the trials are expected to commence in 2015.

A key outcome of the trials is to achieve seamless roaming across different wireless access networks within each mobile network operator (MNO), as well as more efficient use of physical resources (e.g. spectrum, networks, energy). Data throughput will also be increased to support a wider range of multimedia applications. Consequently, consumers will enjoy an improved quality of experience.

Multi-Tier Cloud Security (MTCS) Standard

The MTCS Standard For Singapore (SS-584), which was launched in November 2013, is the world’s first cloud security standard that covers multiple tiers and can be applied by Cloud Service Providers (CSPs) to meet differing cloud user needs for data sensitivity and business criticality.

This standard seeks to assist in driving cloud adoption across industries by giving clarity around the security service levels of cloud providers, while also increasing the level of accountability and transparency from these companies.

With the new standard, certified CSPs will be able to better spell out the levels of security that they can offer to their users. This is done through third-party certification and a self-disclosure requirement for CSPs covering service-oriented information normally captured in Service Level Agreements. The disclosure covers areas including: Data retention; data sovereignty; data portability; liability; availability; BCP/DR; incident and problem management.

While the adoption of SS-584 is voluntary, being certified under SS-584 will be a requirement for CSPs participating in future public cloud services bulk tenders from the Government. CSPs can certify themselves at any of the five qualifying certification bodies in Singapore.

Moving forward, IDA will cross-certify the SS-584 with other international standards or certification schemes – such as the International Standard Organization (ISO) 27001 Information Security Management System (ISMS) and Cloud Security Alliance (CSA) Open Certification Framework (OCF) – to help those CSPs already certified against them to meet SS-584. It will also assist such CSPs, including foreign ones, offering cloud services that serve both domestic and APAC markets.

SS-584 has three different tiers of security, Tier 1 being the base level and Tier 3 being the most stringent.

- **Tier 1:** Designed for non-business critical data and system, with baseline security controls to address security risks and threats in potentially low impact information systems using cloud services (e.g.: Web site hosting public information)
- **Tier 2:** Designed to address the need of most organizations running business critical data and systems through a set of more stringent security controls to address security risks and threats in potentially moderate impact information systems using cloud services to protect business and personal information (e.g.: Confidential business data, email, CRM – customer relation management systems)
- **Tier 3:** Designed for regulated organizations with specific requirements and more stringent security requirements. Industry specific regulations **may be applied** in addition to these controls to supplement and address security risks and threats in high impact information systems using cloud services (e.g.: Highly confidential business data, financial records, medical records)

New Phase of Wireless@SG

The Wireless@SG programme was launched in 2006 to accelerate the take-up of high-speed wireless broadband among consumers and spur the wireless broadband market in Singapore. Today, there are over 2 million subscribers with an average of over 30 usage hours per month.

The new phase of Wireless@SG kicked off in March 2013, starting with a speed bump from 1 Mbps to up to 2 Mbps which was completed in March 2014. On 1 April 2014, the registration and log-in process was further simplified for consumers through a SIM-based login mechanism for mobile devices. After a one-time set-up process, new and existing users will be able to connect to Wireless@SG automatically using a supported device with a local SIM card, without the need to register for an account.

From 1 June 2014, foreign visitors to Singapore can register for a free account at any Wireless@SG hotspot and receive their login details through SMS messages sent to their foreign mobile numbers. Alternatively, visitors can buy a local prepaid SIM card to log on to the service using the SIM-based login process.


Below are further developments for the Next Phase of the Wireless@SG:

More Hotspots

To support the expected growth in demand for free public Wi-Fi services, the IDA, with the support of Wireless@SG operators and venue owners, will roll out more hotspots progressively, including MRT platforms and other public places. By 2015, the IDA will double the total number of hotspots to 10,000. This will be further doubled to 20,000 by 2016.

New Services for Enterprises


Enterprises can look forward to more business applications and services, such as targeted advertising and data analytics to be offered by Wireless@SG operators. For example, enterprises could work with operators to conduct targeted advertising for the operators' subscribers. They could also take advantage of applications that would help them monitor in-store traffic to improve product placement, in addition to customised Wireless@SG login pages for retailers to promote product deals.



POLICY & REGULATORY UPDATE APEC TEL 50

© 2014 IDA Singapore.
All Rights Reserved.

CONFIDENTIAL




SCOPE

1. TV White Space Framework
2. Heterogeneous Network
3. Multi-Tier Cloud Security Standard
4. New Phase of Wireless@SG

© 2014 IDA Singapore.
All Rights Reserved.

CONFIDENTIAL
2



TV White Space (TVWS) Framework

- ❑ TVWS Framework w.e.f. November 2014
 - After nearly one year of industry consultation, with 21 responses from the industry
 - Sets out the TVWS equipment requirements, spectrum channels, and how TVWS equipment should communicate with geo-location databases in order to identify the available spectrum channel to use, among others
 - 180MHz of spectrum will be made available for use
- ❑ License-exempt approach on the deployment or use of TVWS to facilitate the adoption of TVWS
- ❑ Framework will provide business certainty for provision of innovative solutions over TVWS as well as more spectrum for increased data consumption

© 2014 IDA Singapore.
All Rights Reserved.

CONFIDENTIAL

3



Trials for Heterogeneous Network (HetNet)

- ❑ Announced in March 2014 as a strategy in anticipation of ever increasing mobile data traffic. It is expected to allow for more optimal use of wireless spectrum by allowing devices to switch seamlessly between various types of wireless networks
- ❑ Key benefits:
 - Seamless access and consistent user experience
 - Dynamic network management
- ❑ Trials will commence in 2015 to validate technologies and capabilities of HetNet and identify the most suitable ones for future deployment
- ❑ A key outcome of trials is to achieve seamless roaming across different wireless access networks within each mobile network operator, as well as more efficient use of physical resources (e.g. spectrum, networks, energy)

© 2014 IDA Singapore.
All Rights Reserved.

CONFIDENTIAL

4



Multi-Tier Cloud Security Standard for Singapore

- ❑ Launched in November 2013 to allow Cloud Service Providers (CSPs) to meet differing cloud user needs for data sensitivity and business criticality
 - World’s first cloud security standard that covers multiple tiers
 - Aims to drive cloud adoption and increase security, accountability and transparency of CSPs
 - Self-disclosure requirement for CSPs covering data retention, portability and sovereignty, liability, BCP/DR and incident management etc
- ❑ Voluntary third-party certification, but will be made a requirement for participation in future government public cloud services bulk tenders
- ❑ Certification Grant Scheme available for CSPs to encourage MTCS adoption
- ❑ Will be cross-certified with other international standards, e.g. ISO27001

© 2014 IDA Singapore.
All Rights Reserved.

CONFIDENTIAL
5



Multi-Tier Cloud Security Standard for Singapore

TIER	DESCRIPTION
Tier 1	Designed for non-business critical data and system , with baseline security controls to address security risks and threats in potentially low impact information systems using cloud services (e.g. website hosting public information)
Tier 2	Designed to address the need of most organisations running business critical data and systems through a set of more stringent security controls to address security risks and threats in potentially moderate impact information systems using cloud services to protect business and personal information (e.g. confidential business data, email, CRM systems)
Tier 3	Designed for regulated organisations with specific requirements and more stringent security requirements. Industry specific regulations may be applied in addition to these controls to supplement and address security risks and threats in high impact information systems using cloud services (e.g. highly confidential business data, financial records, medical records)

© 2014 IDA Singapore.
All Rights Reserved.

CONFIDENTIAL
6



New Phase of Wireless@SG

- First launched in 2006 to accelerate high-speed wireless broadband adoption and spur the wireless broadband market in Singapore
 - Today, there are over 2 million subscribers with an average of over 30 usage hours per month
- New enhancements to Wireless@SG implemented or in development:
 - Speed bump from 1Mbps to 2Mbps from March 2014
 - SIM-based auto-login for mobile devices from April 2014
 - Free Wireless@SG account for foreign visitors to Singapore using foreign mobile numbers from June 2014; also eligible for SIM-based auto-login for mobile devices
 - Double Wireless@SG hotspots to 10,000 by 2015 and 20,000 by 2016
 - New services for enterprises through targeted advertising and data analytics

© 2014 IDA Singapore.
All Rights Reserved.

CONFIDENTIAL
7



Key Telecommunications Indicators

INDICATORS	STATISTICS (AS OF APRIL 2014)
Residential Wired Broadband (Household Penetration Rate)	105.5%
Wireless Broadband (Population Penetration Rate)	188.1%
Mobile Phone Penetration Rate	153.7%
2G Penetration (as a percentage of mobile subscriptions)	4.16%
3G Penetration (as a percentage of mobile subscriptions)	66.13%
4G Penetration (as a percentage of mobile subscriptions)	29.73%

Thank you

© 2014 iDA Singapore.
All Rights Reserved.

CONFIDENTIAL

iDA
SINGAPORE