

1 Network Connectivity for Smart Nation

Citizen Centric Service Delivery

Sensor Network & Smart Nation Operating System

SNP CAPABILITIES & COMPONENTS



COMMUNICATIONS to establish resilient wired and wireless connectivity to sensors



SENSORS AND PROBES to sense, capture and register environmental information

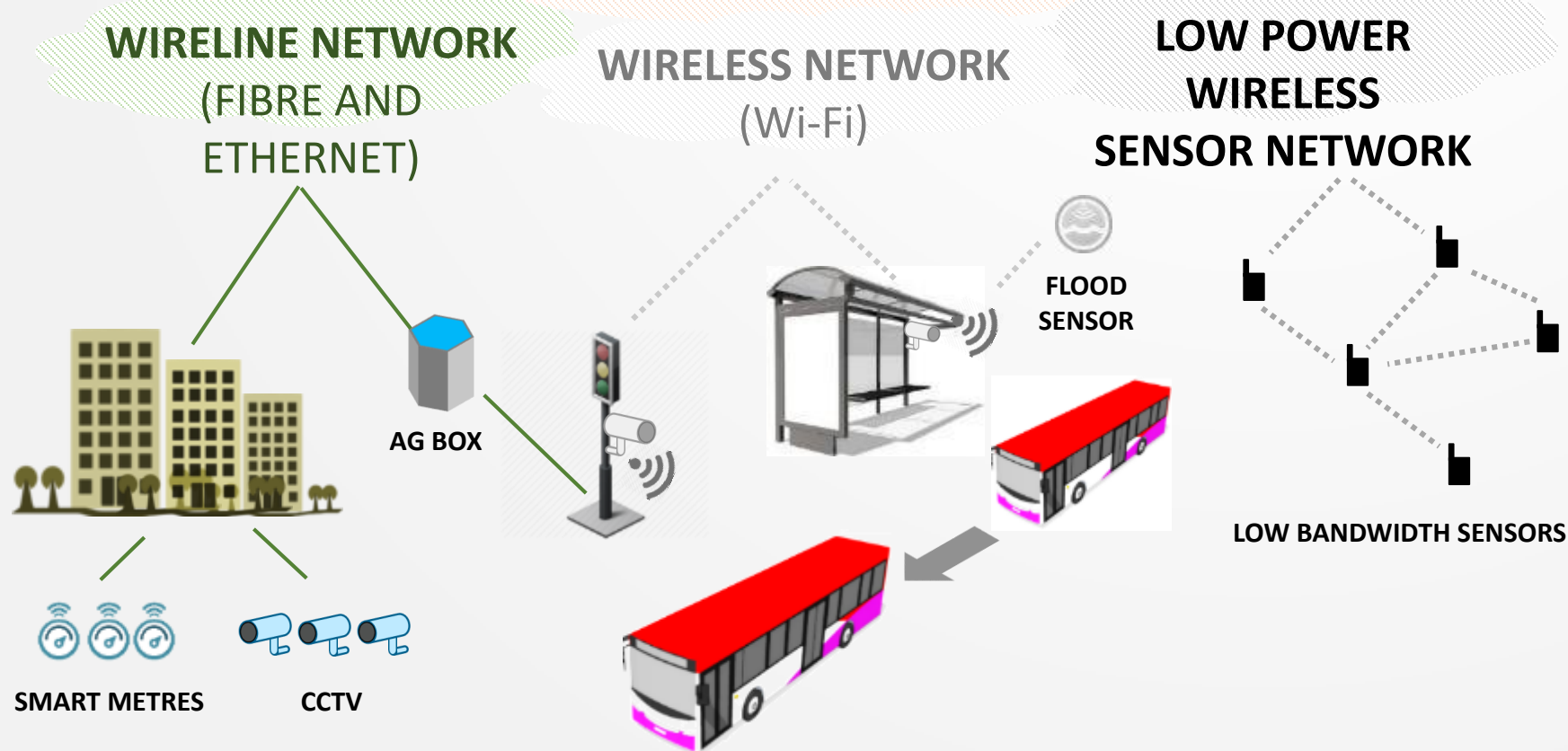


SMART NATION OPERATING SYSTEM to process, fuse and share data with agencies

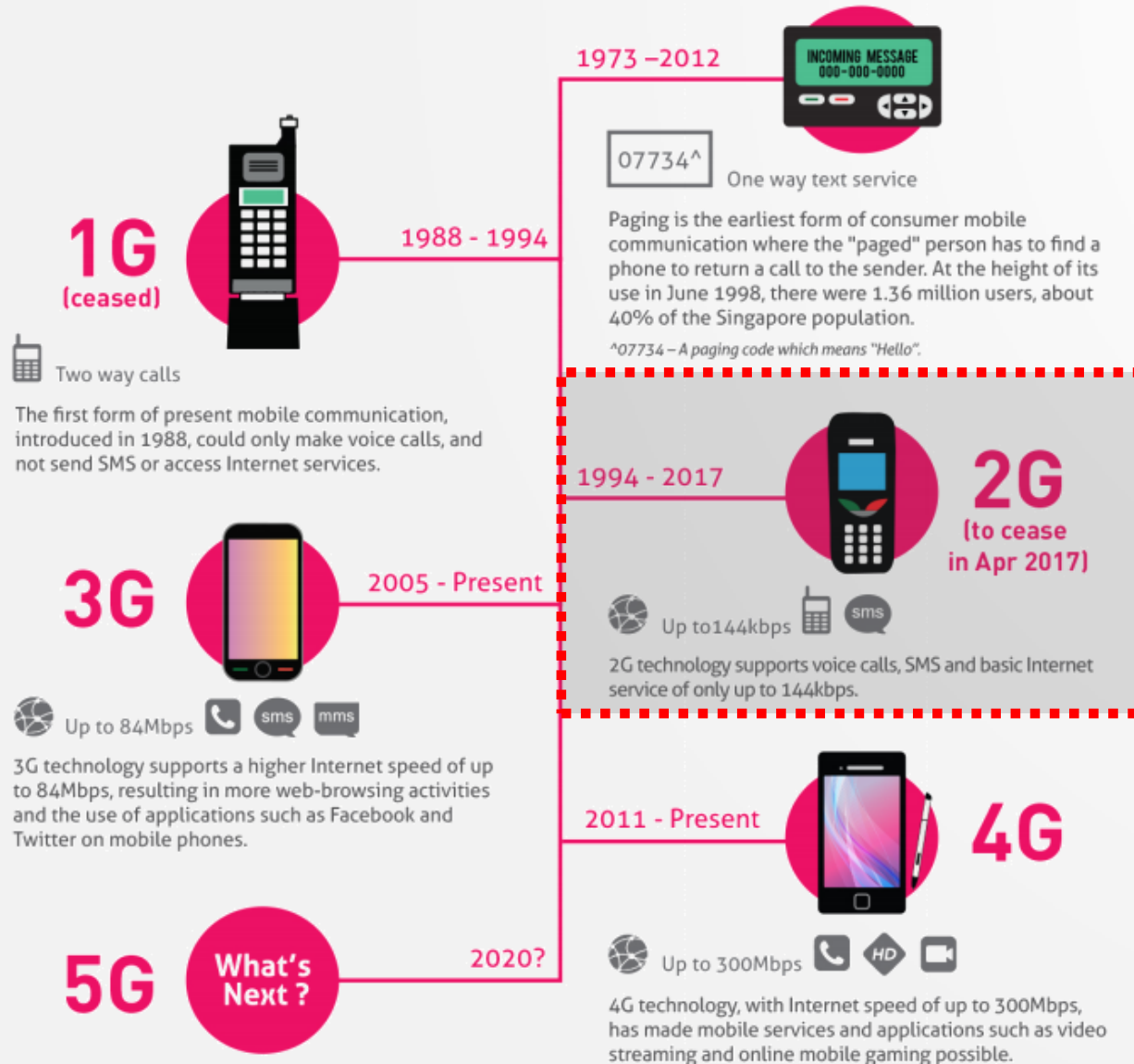
Network Infrastructure for SENSORS

Possible Network Infra for Sensors

SNP COMMUNICATIONS AND SENSOR NETWORK



Mobile Networks



Closure of 2G Networks

Frees up spectrum for 3G+4G

- Existing 2G networks to closed by **April 2017**
- 2G subscriptions only make up **<2% of all mobile subscriptions**
- Good 3G and 4G coverage in Singapore
 - 3G** – >99% nationwide outdoor coverage
 - 4G** – >99% nationwide outdoor coverage
- MNOs to facilitate transition by:
 - Maintaining 2G subscription existing service plans on 3G network (**no increase in fees**)
 - Low-cost 3G phones** (no contract required) available for <\$S100
- IDA, CASE and MNOs raise awareness by advertisements, social media and outreach programmes.

Mobile Services in Singapore

MOBILE SERVICES IN SINGAPORE

2G



2G technology supports voice calls, SMS and basic Internet service of only up to 144kbps.

3G



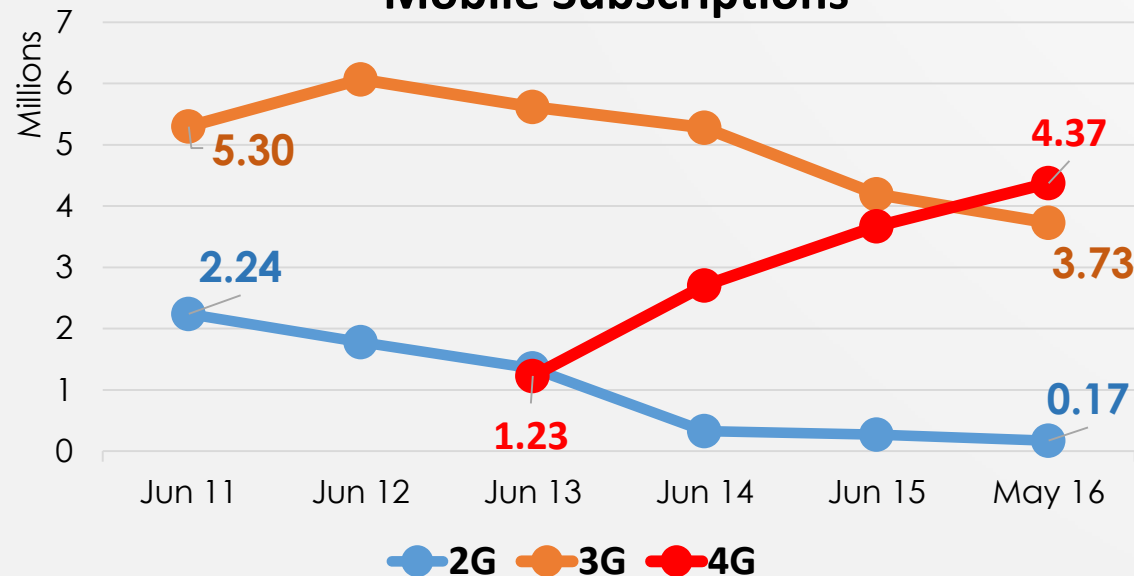
3G technology supports a higher Internet speed of up to 84Mbps, resulting in more web-browsing activities and the use of applications such as Facebook and Twitter on mobile phones.

4G



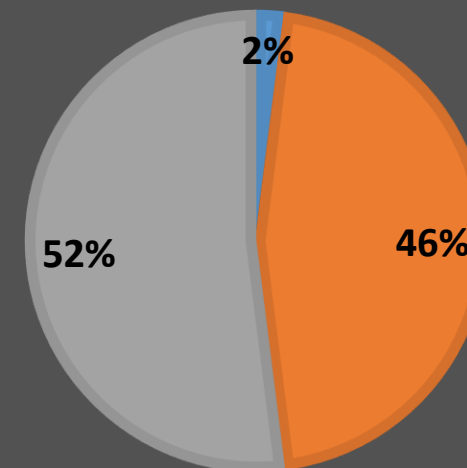
4G technology, with Internet speed of up to 300Mbps, has made mobile services and applications such as video streaming and online mobile gaming possible.

Mobile Subscriptions



To 4G and Beyond

- **4G is the new normal** – 52% of all mobile subscriptions in Singapore are 4G
- **5G** commercial trials by **2020**
- Singapore has one of the world's **highest smartphone penetration rates** : 9 out of every 10 surveyed users have smartphones (Deloitte, 2015)

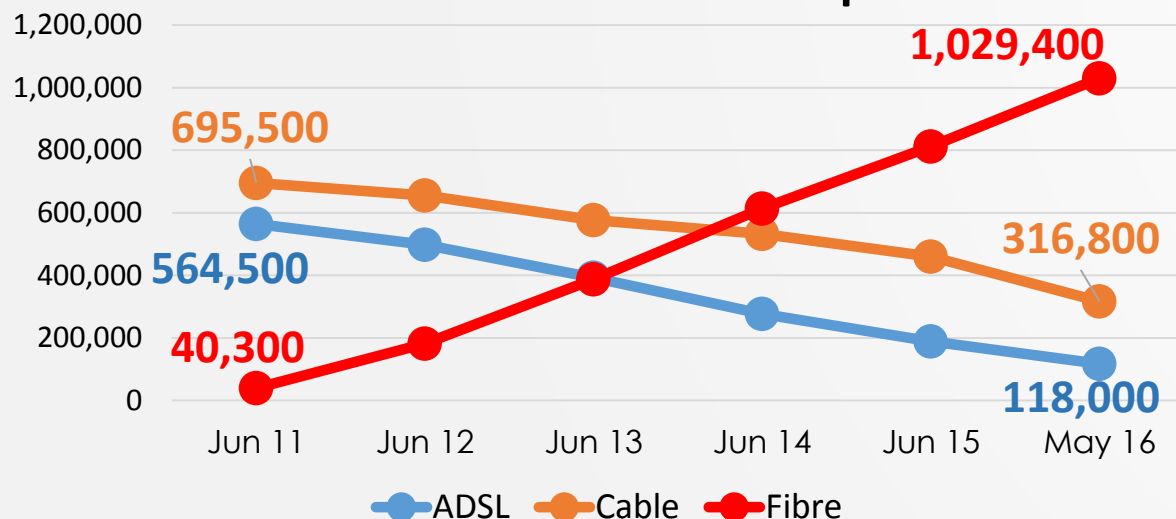


Composition of Mobile Subscriptions

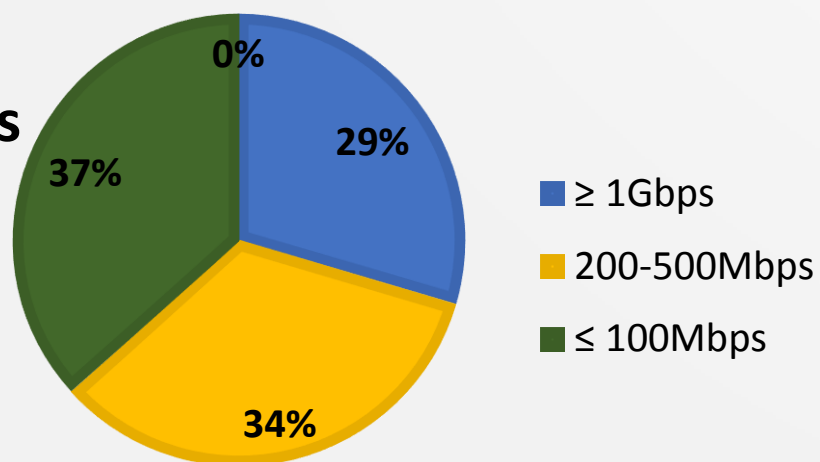
■ 2G ■ 3G ■ 4G

Fixed Broadband in Singapore

Fixed Broadband Subscriptions



Broadband Subscriptions by Speed



Affordability of Fibre Broadband spurring migration from older technologies

- **1Gbps fibre broadband plan (\$39/month)** one of the most affordable in the world – prices have fallen by more than 90% since January 2014.
- **10Gbps residential fibre broadband** now available – using either Optical Ethernet or xGPON technology. Prices from \$189/month

10Gbps Ready:

