

Enabling Technologies for Smart Cities

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Agenda:

1. Smart City Overview
2. ICT Technology for Smart City
 1. Smart Connectivity
 2. Smart Mobility
 3. Smart Living
3. Smart City Ecosystem and partners

Enabling a Smarter World



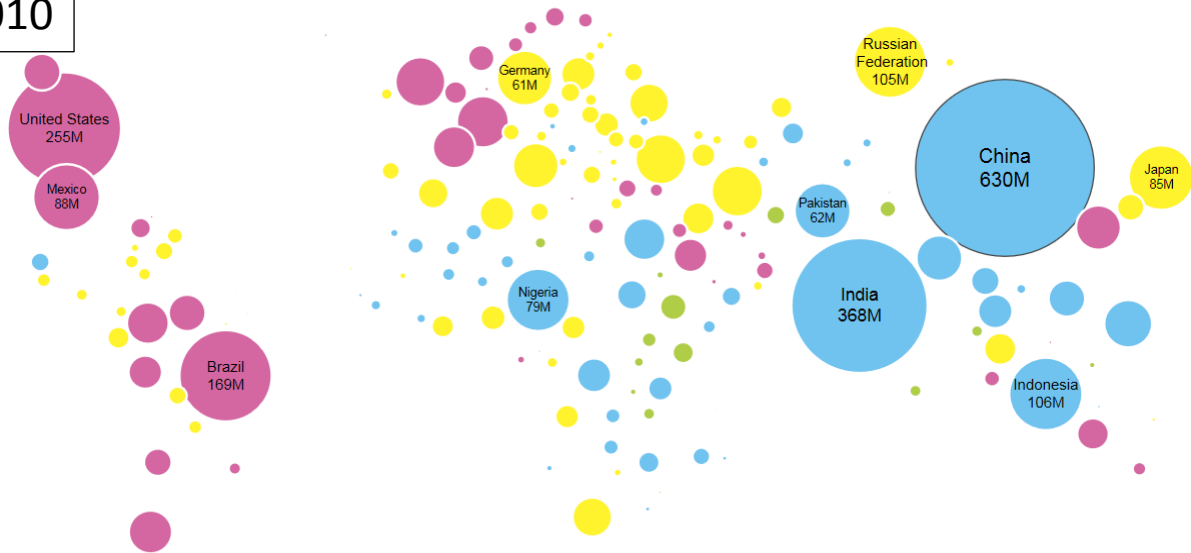
AN URBAN WORLD

This graphic depicts countries and territories with 2050 urban populations exceeding 100,000. Circles are scaled in proportion to urban population size. Hover over a country to see how urban it is (percentage of people living in cities and towns) and the size of its urban population (in millions).

Urban Population

- Greater than 75%
- 50% - 75%
- 25% - 50%
- Less than 25%

2010



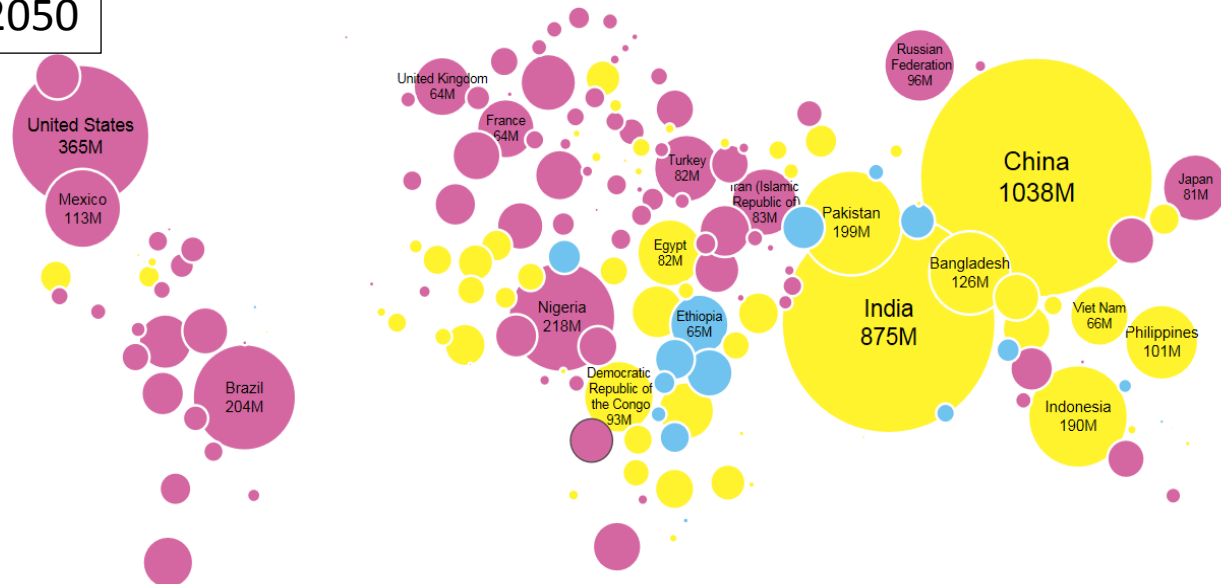
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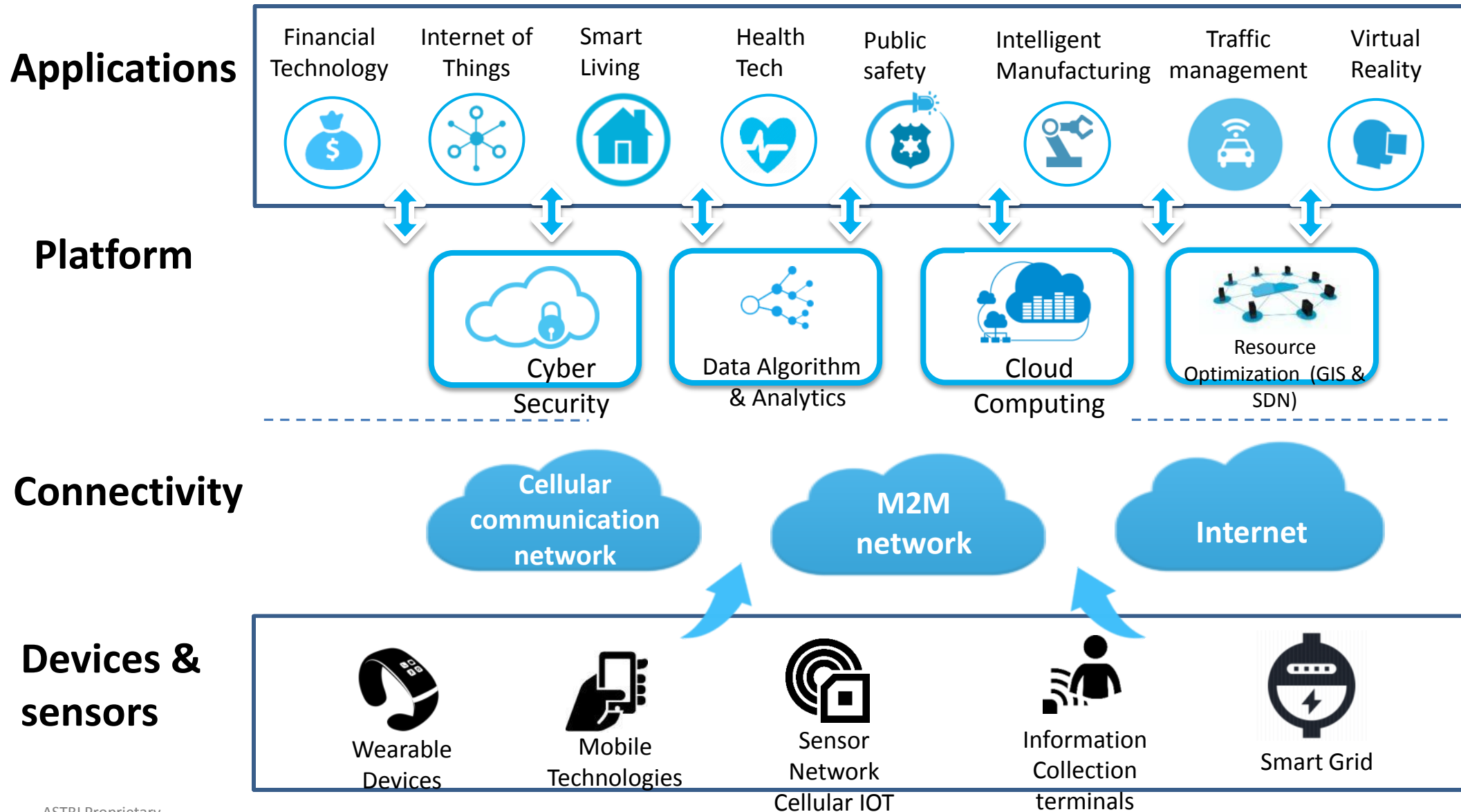
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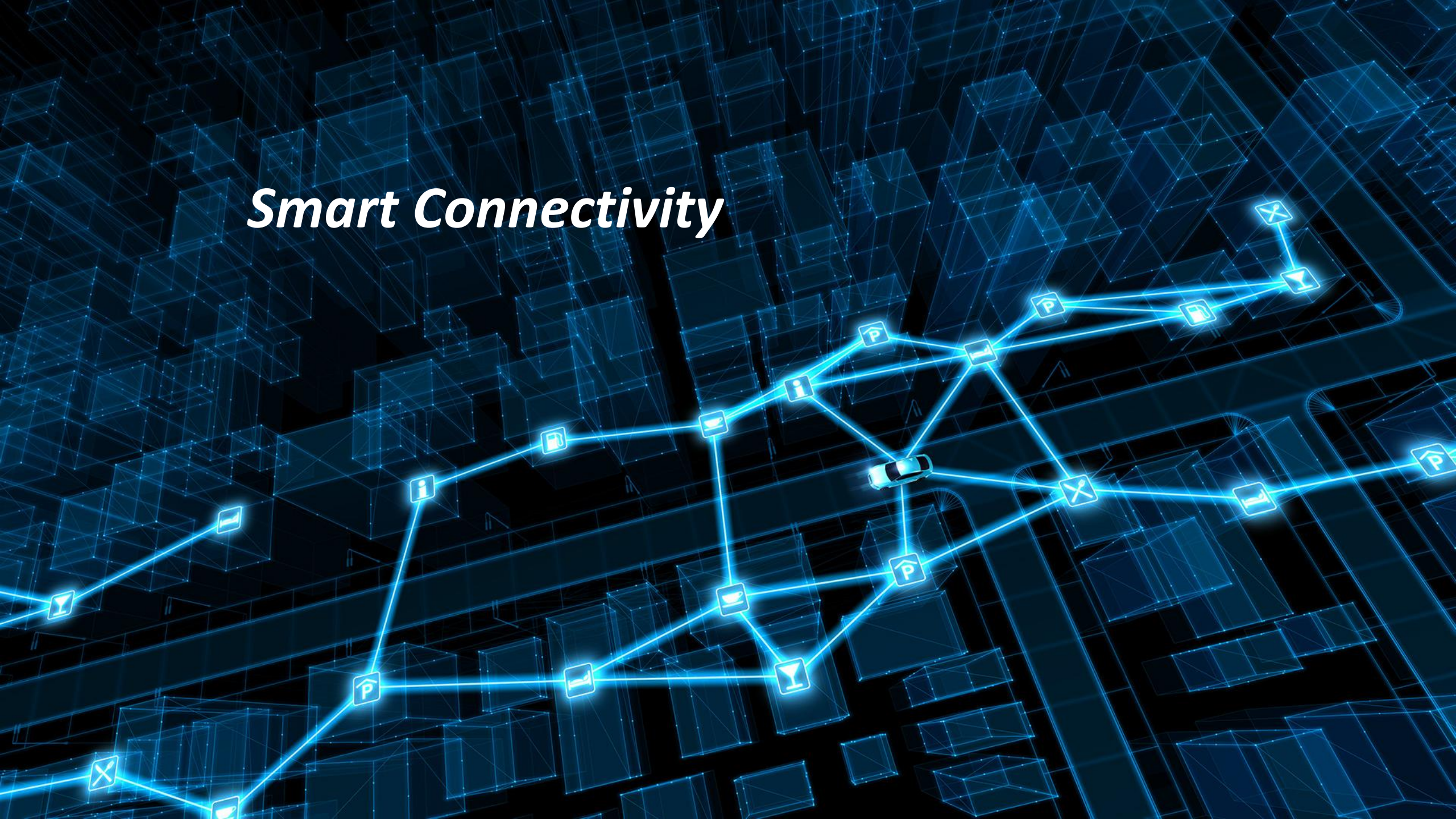
2050



ICT Infrastructure for Smart City Applications



Smart Connectivity



New Connectivity for New Applications



Utility meters



Security panel



Parking meter & space sensor



Street light

Enhanced Mobile Broadband

HD Video Streaming & Analytics



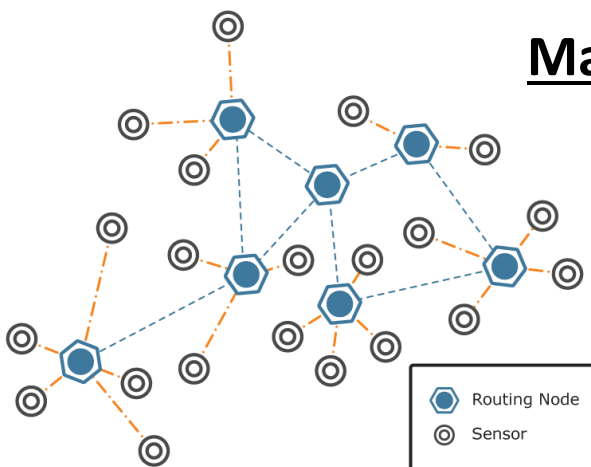
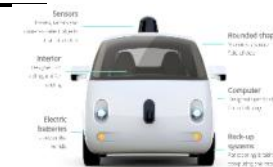
360 Camera-Live streaming



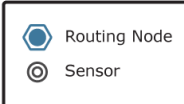
Virtual Reality



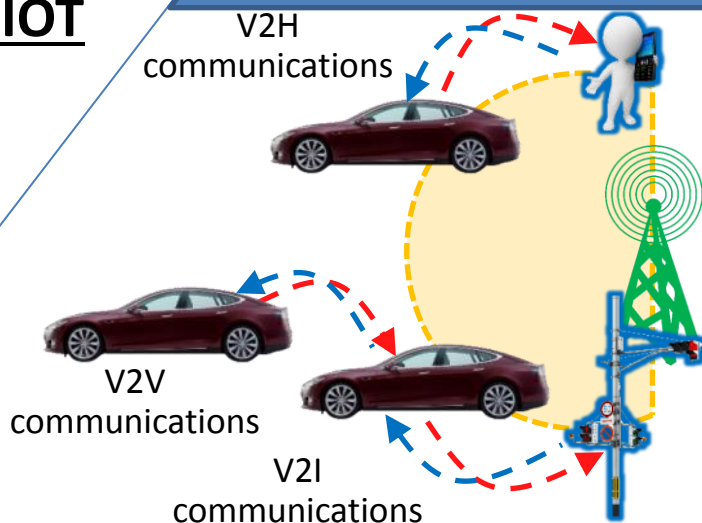
Critical communication & Low latency



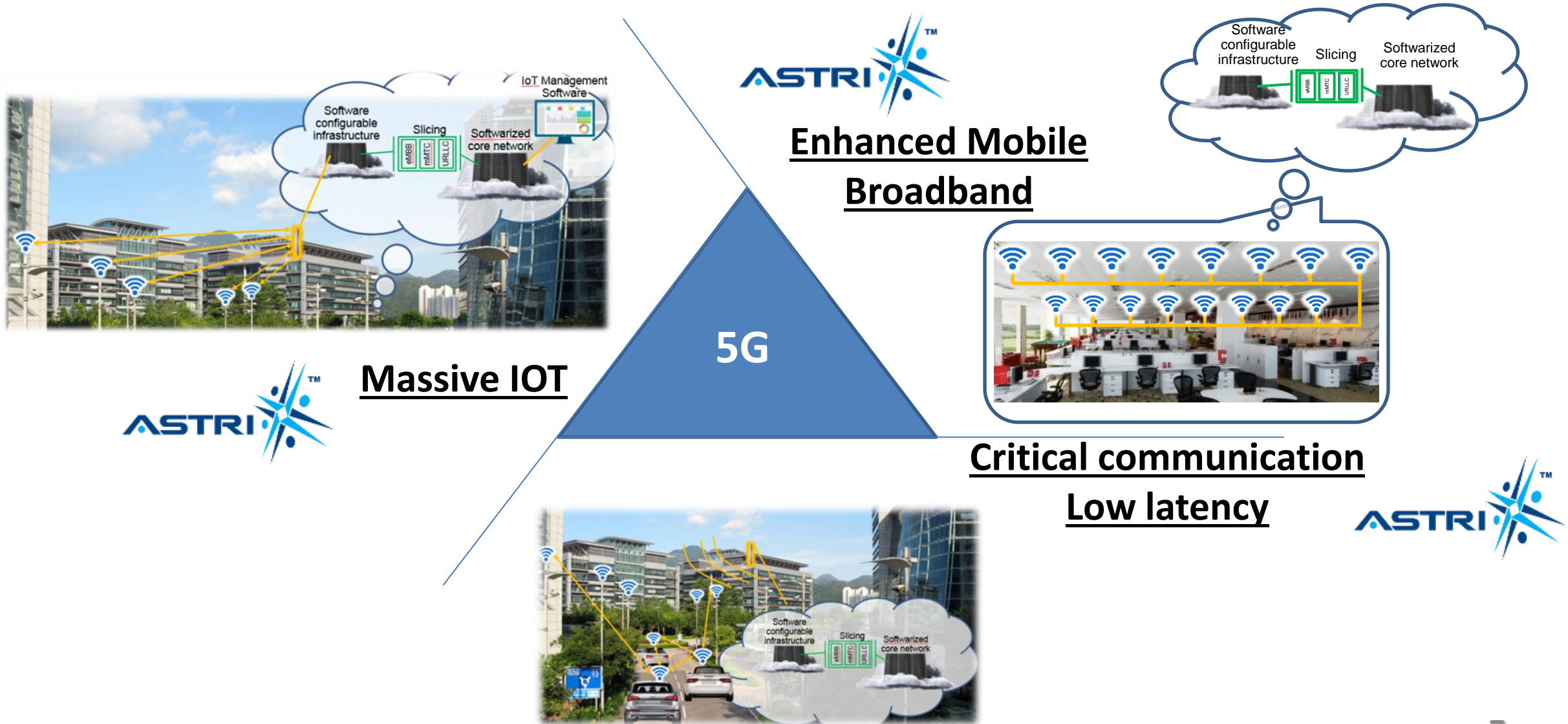
Massive IOT



ASTRI Proprietary



ASTRI Wireless Innovation Platform (5G testbed)

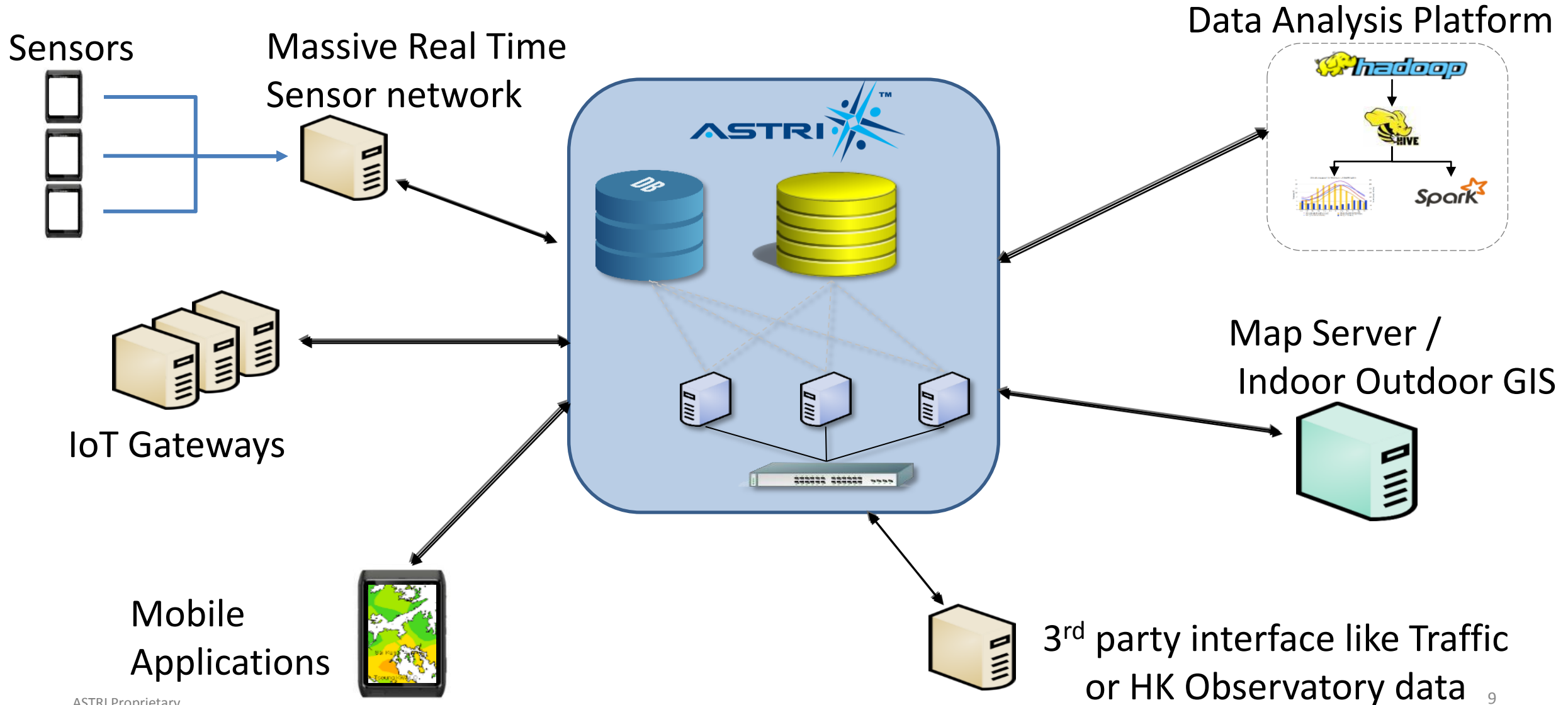


The background is a dynamic, abstract composition. It features a central bright light source on the right side, from which numerous thin, multi-colored lines radiate outwards. These lines are blurred, creating a sense of motion and depth. The colors transition from deep blues and purples on the left to bright yellows and whites near the light source. The overall effect is reminiscent of a high-speed tunnel or a futuristic data stream.

Smart Mobility

Open Interface of Smart City Technology Platform

Flexible framework for smart city standard/protocol



Smart Community – Seamless Navigation System



起 *energizing* 動 **Kowloon East**
九龍東辦事處



Indoor & outdoor navigation guide

Enquiry on nearby info (hyper meta data like multimedia) and real time special notice



Smart Parking



Private parking



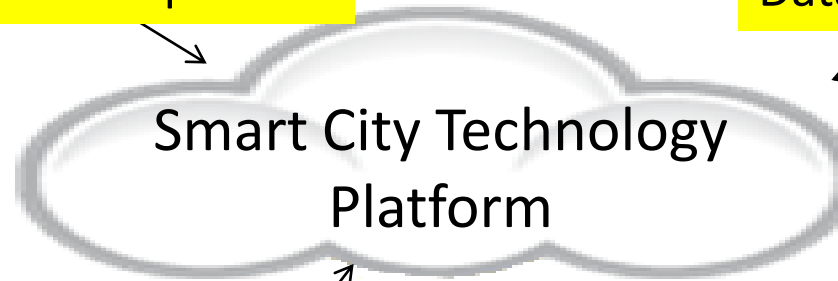
Traffic

IoT sensor data updated by Car Park Operator

Data updated by Transport Department



Technical session for car park operators to upload data to the platform in July



Smart City Technology Platform



Drivers with mobile

Enquiry on nearby /destination car park availability

Enquiry on parking info (fare, max height, etc.)

Enquiry on update traffic and map info

Auto Navigation

Examples of the Smart City Technology Platform



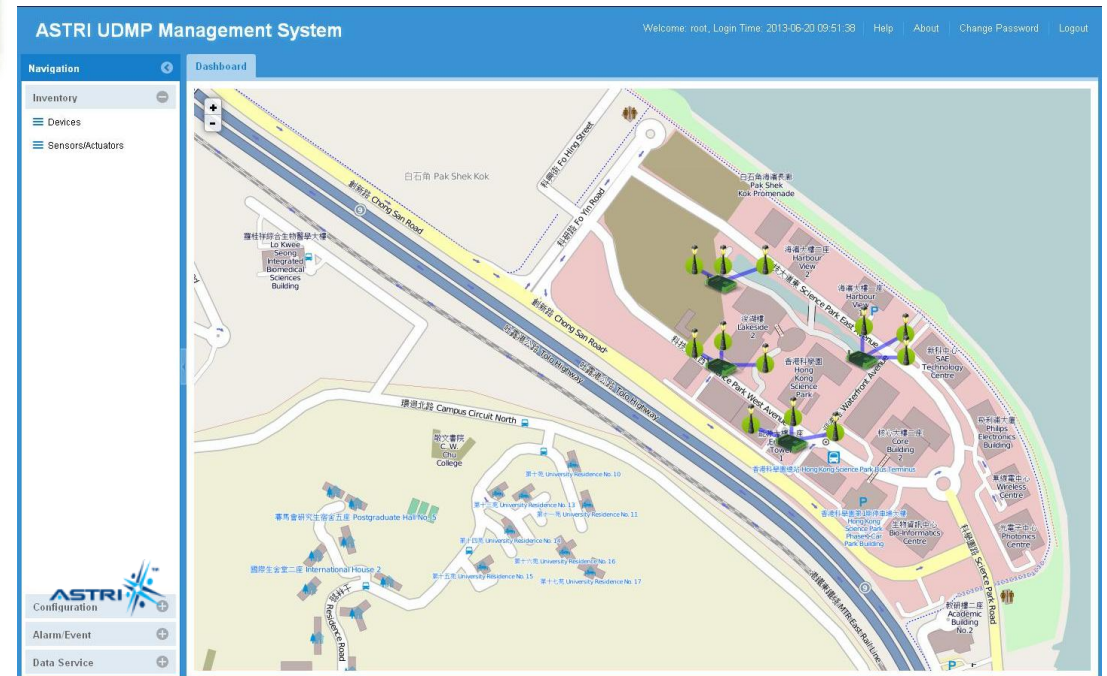
Implemented in China

Remote Controlling & Monitoring of 400+ street lamps wirelessly:

40% Saving in maintenance



Solar Panel



Smart Living

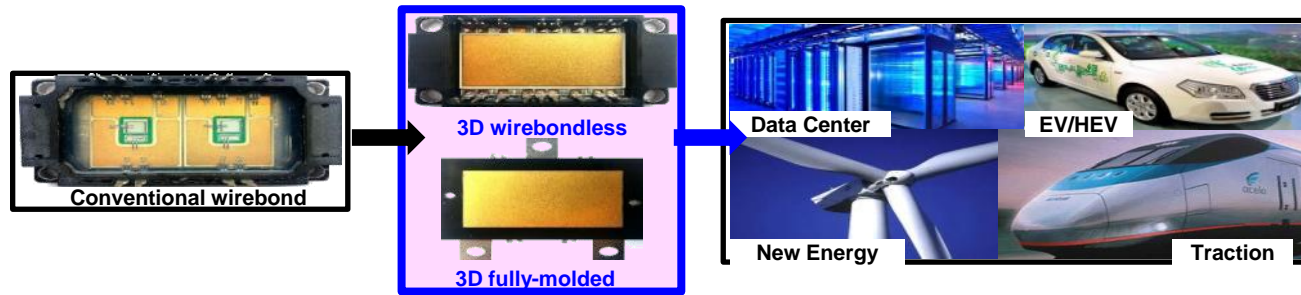


3D Power Transmission Module for modern devices

Problem

High voltage demand of modern devices shorten service life of current power module

Accomplishment



Designed two 3D power modules

- 3D wirebondless
- 3D fully-molded

Impact

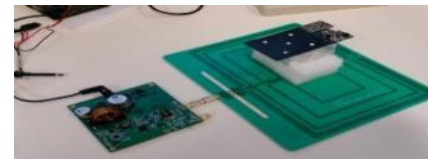
❑ 3D wirebondless interconnect:
Reduce the power loss by **40%**.

❑ 3D fully molded structure:
Improve the power density by **10X**.

❑ ASTRI new power modules
double the service life

Wireless Power Transmission

Without a conductor, using **Magnetic Coupling Effect**, to transfer electric energy from a source to consuming devices for operation or charging purpose.



- Medium Range
- Multiple Devices simultaneously charging
- Wide Area & Flexible Position
- Quick Charging



In Car charging:



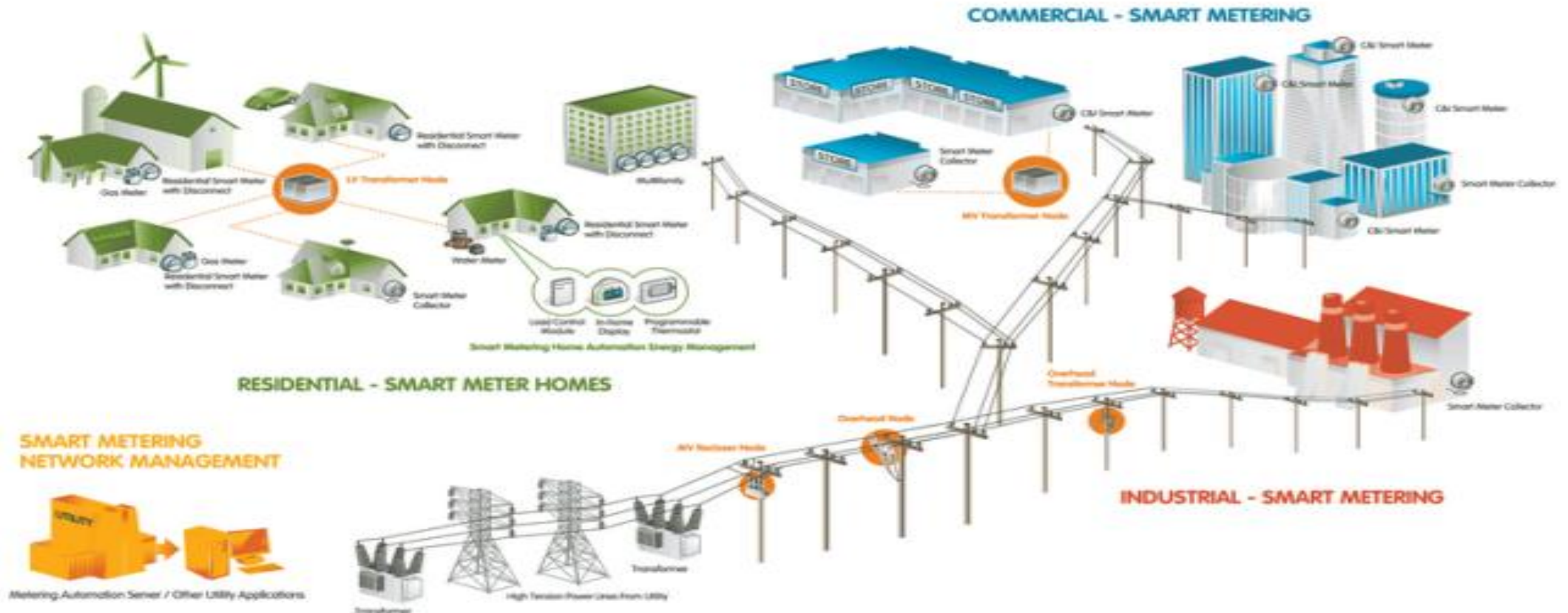
Electronic Vehicles



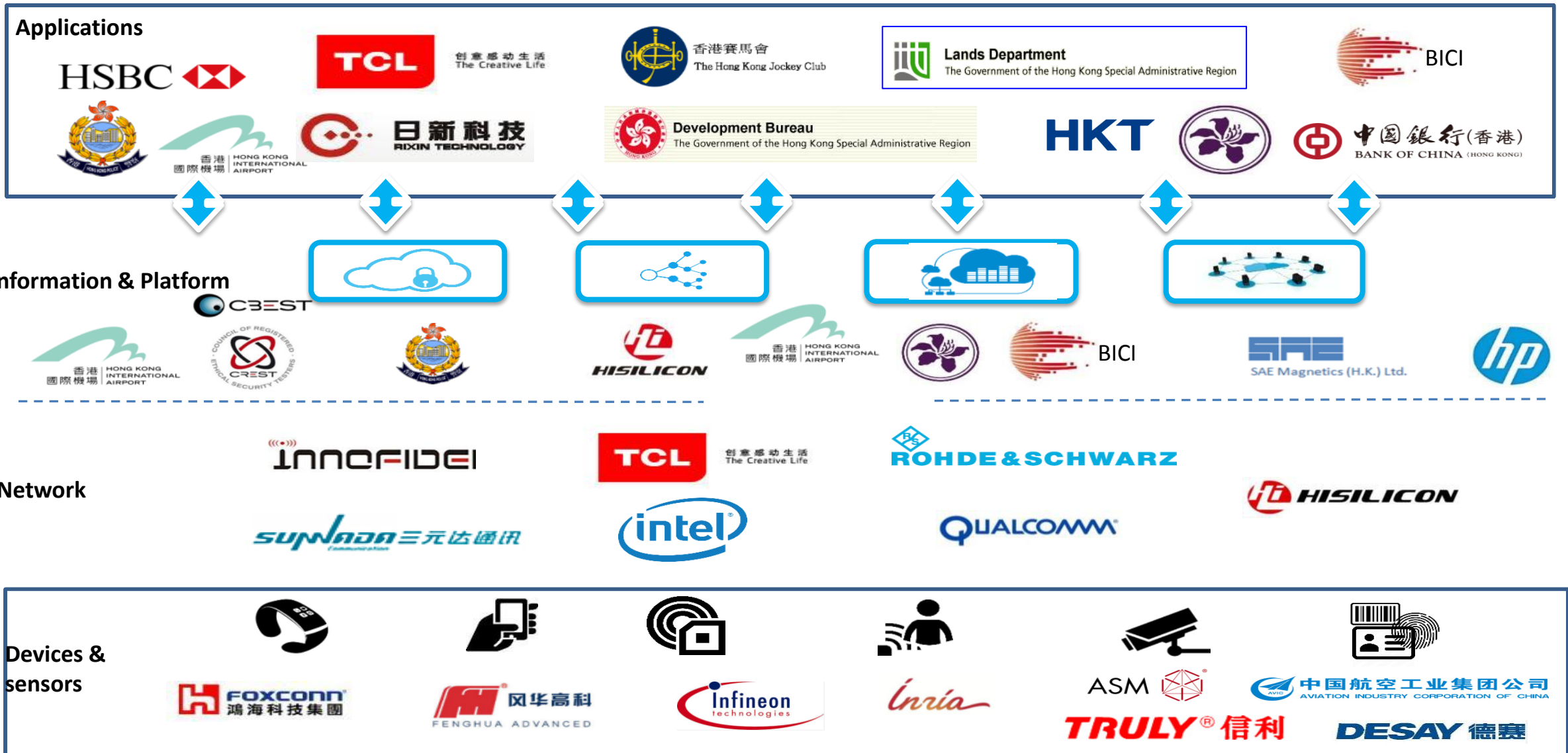
Smart furniture

Power Line Communication (PLC) System for Building Energy management

- ASTRI's SOC supported Homeplug GreenPHY and AV2 standards and will support China's first wideband PLC standard for smart meters
- Bi-directional Smart meters enable future pricing and transaction models. (e.g. Centralized or Blockchain type decentralized system)



Smart City Ecosystem and Partners



Joint Labs and R&D Centers



Welcome to ASTRI



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End of Presentation

Thank you. Questions are welcome.

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