

# 正文科技公司簡介



March, 2019

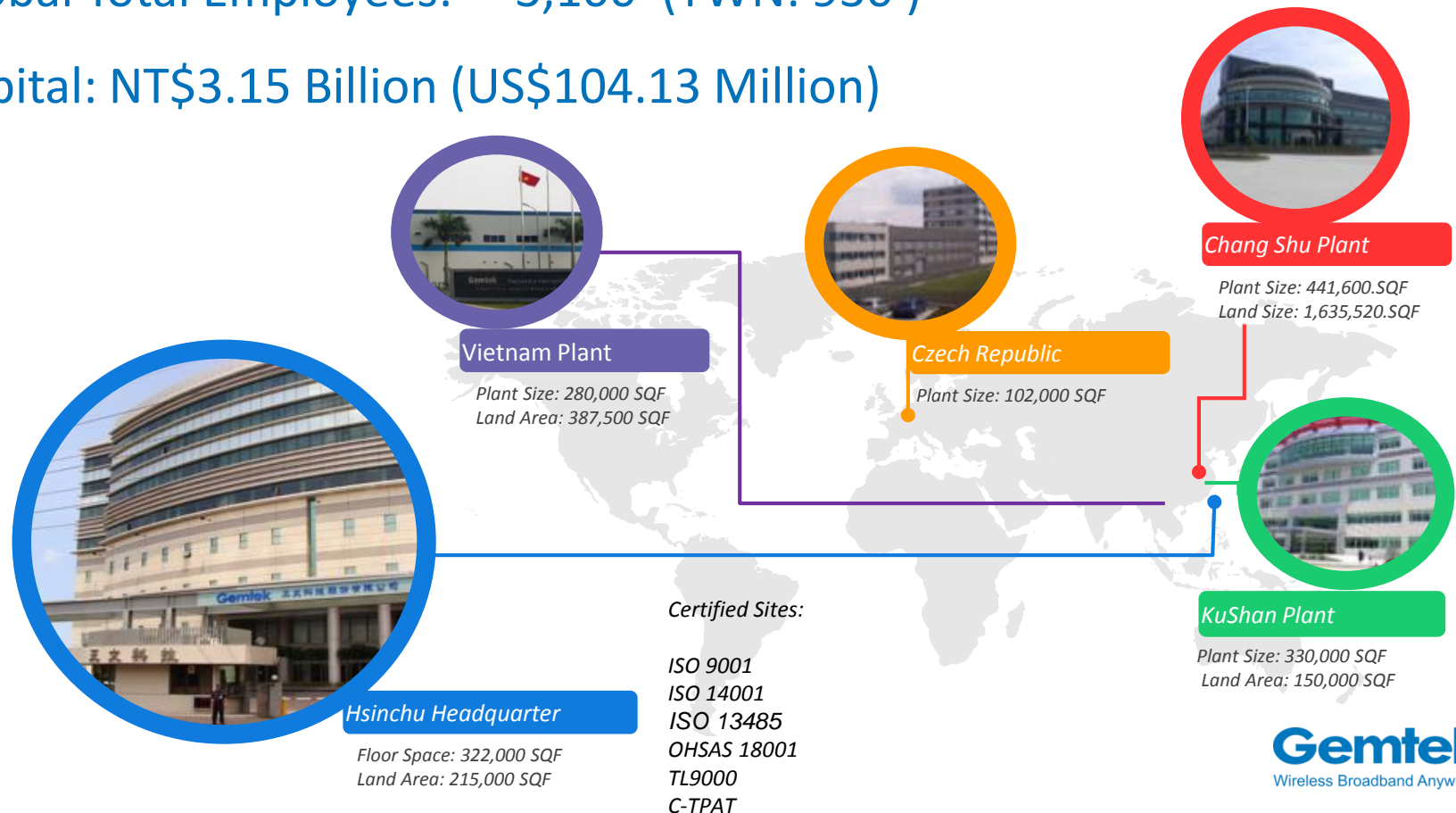
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Distribution Prohibited

# Safe Harbor Notice

- **The following presentation may contain forward-looking statements regarding, among other things, our financial condition, future expansion plans and business strategies based on our current expectations and projections about future events. Although we believe that these expectations and projections are reasonable, such forward-looking statements are inherently subject to risks, uncertainties and assumptions.**
- **The company undertakes no obligation to publicly update or revise any forward-looking statements whether as a result of new information, future events or otherwise. The actual results could differ materially from those contained in these forward-looking statements.**

# 公司基本資料

- Established: 1988
- Location office: Hsinchu Industrial Park, Hsinchu, Taiwan(Headquater)
- Global Total Employees:≈ 3,100 (TWN: 930 )
- Capital: NT\$3.15 Billion (US\$104.13 Million)



# 越南廠

- Opening date: 2019/02/20
- Location : Dong Van II Industrial Park, Bach Thuong Commune, Duy Tien District, Ha Nam Province, Vietnam

Land : 36,000 m<sup>2</sup>

Building : 26,000 m<sup>2</sup>



# 越南廠



Front Door View



Inside View



Front View

# 2018 Q3 財務報告

# 2018 Q3損益表

*Units: NT\$ Thousands; Consolidated*

	September 30 2018		September 30 2017	
	Amount	%	Amount	%
Sales Revenue (k)-	4,420,372	100%	2,961,499	100%
Gross Profit(K)	485,359	10.98%	317,610	10.72%
Operating Income	81,758	1.85%	(134,139)	(4.53%)
Non-Operating income and expense	(16,475)	(0.37%)	297,841	10.06%
Net Profit After Tax (k)	26,357	0.6%	166,988	5.64%
EPS after tax	0.08		0.53	

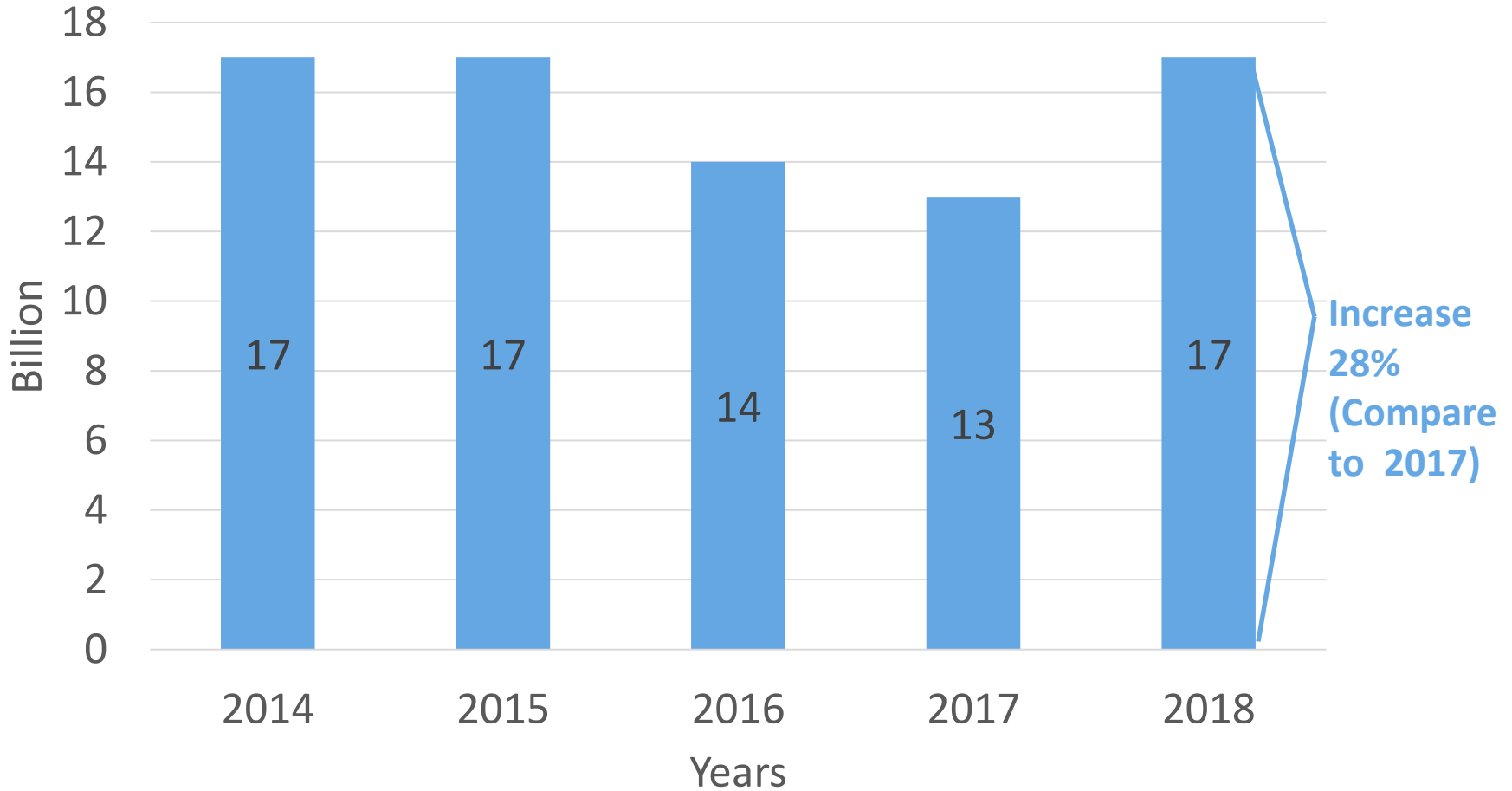
# 2018 Q3 資產負債表

*Units: NT\$ Thousands; Consolidated*

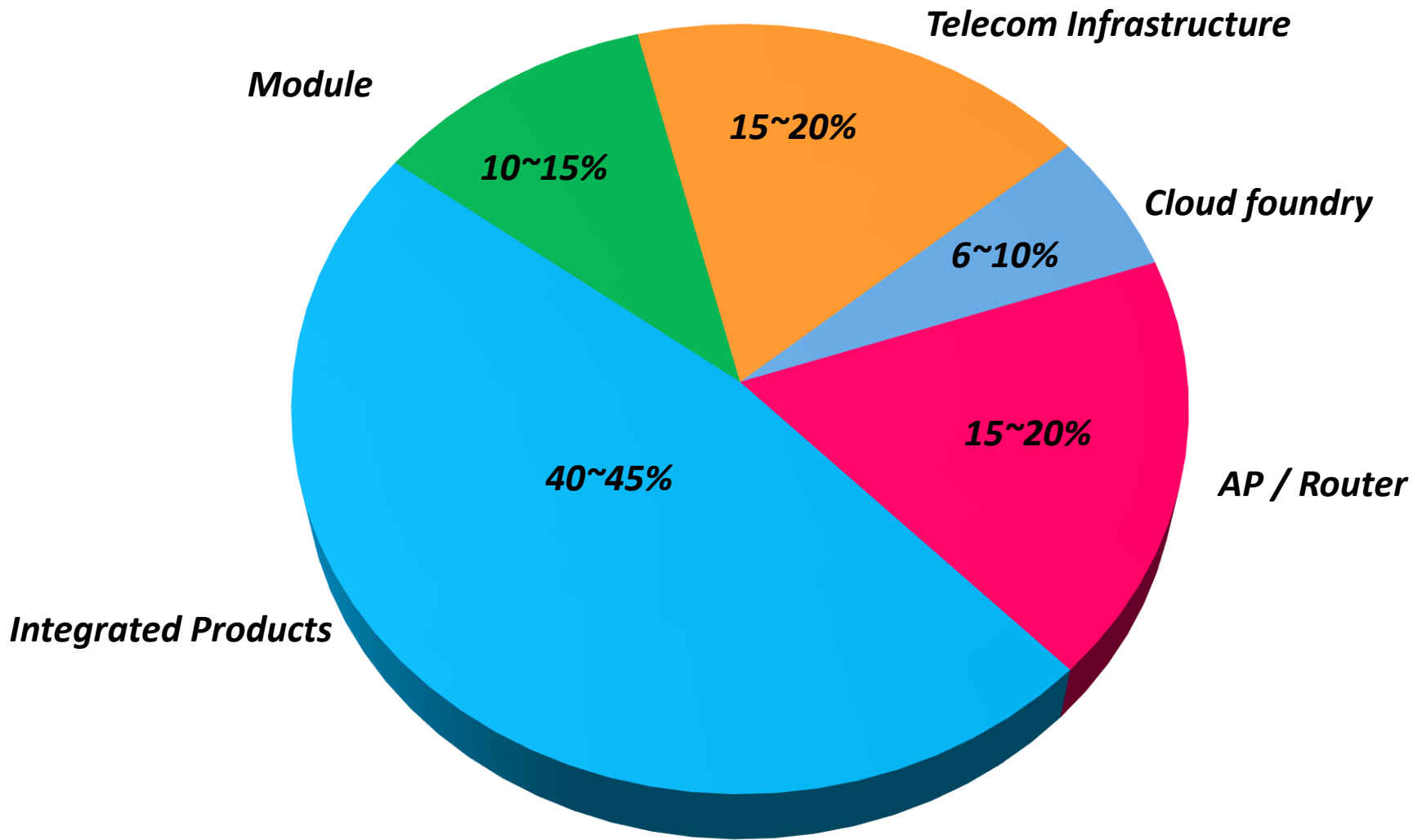
Asset	September 30 2018		Liability and Equity	September 30 2018	
	Amount	%		Amount	%
Cash Equivalents	1,770,365	11%	Short-term borrowing	1,928,675	11%
A/R	4,706,504	28%	A/P	4,825,196	29%
Inventory	3,789,021	23%	Current Liabilities	7,509,915	45%
Other Current Assets	146,113	0.8%	Non-current Liabilities	218,181	1%
Non-current Asset	5,625,907	33%	Total Liabilities	7,728,096	46%
Total Assets	16,808,666	100%	Total Equity	9,080,570	54%
			Total Liabilities & Equity	16,808,666	100%

# 營收增加

Gemtek Revenues



# 2018 Q3產品分布



# 產業趨勢與新產品

## Wireless Access

- Cooperate with Chip Vendors and provide time to market solution of WiFi service platform
- Target market: Mesh AP system, gaming router, wireless streaming, Enterprise Market (Carrier Provider)
- Focus on the product of Telecom infrastructure Ex: LTE CPE, small cell, 5G product

## Fixed Broadband

- Targeting at the next generation broadband access technology, 10GPON, to fulfill Telco and Cable MSO business needs and migration, as well as supporting 5G infrastructure
- Developing continuously on copper technologies (G.fast) to provide a compliment FTTx service demands
- Increase production lines utilization rate and seize opportunity to increase revenue

- **Small Cell**

- Sign agreement /contract with platform vendors (Base Band and Remote Radio Head) to develop hardware (on going)
- Working with protocol Stack vendors to develop 5G product (on going)
- Working with mmWave partners for outdoor small cell (on going)
- Develop customers oriented features for vertical and enterprise business. Product will be ready in 2020

- **UE (CPE and other fixed devices)**
  - Working with chip set vendors to develop CPE in Sub 6G (2019)
  - Sign agreement with Fibocom ( Intel module provider) using Intel Sub 6G chipset XMM 8160 for CPE development.  
Developed with Intel and release in 2019 MWC
  - Add mmWave features on CPE ,Outdoor devices (2020)
  - Provide dual mode (LTE and 5G NR) CPE to current LTE customers (2020)

# 產品介紹



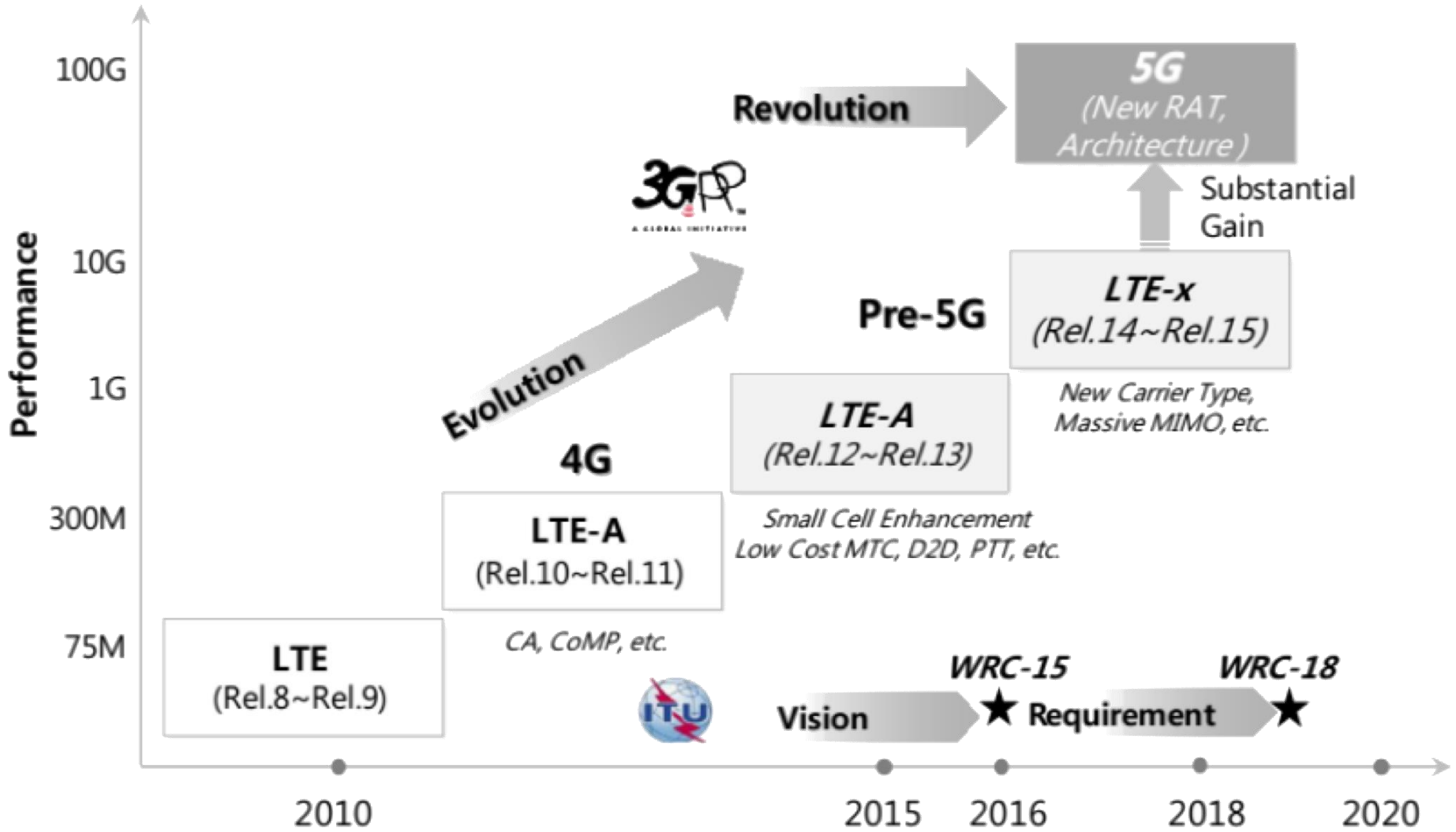
**Telecom  
Infrastructure**

**Integrated  
products**

**AP/Router**

**Cloud**

# 4G : LTE & 5G



Source: [www.eurescom.eu](http://www.eurescom.eu)

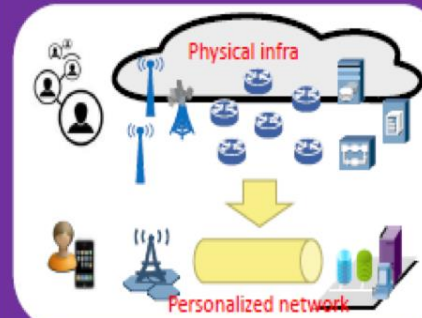
# 5G Key Network Technologies

## New RAN Architecture



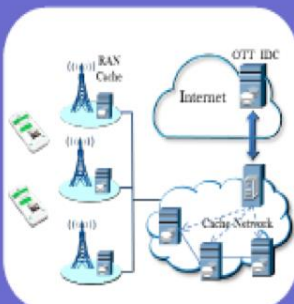
- C/U decouple
- Multi-RATs coordination
- Multi-architecture (C-RAN/D-RAN/Mesh)
- Plug-and-play

## Customer-centric Network



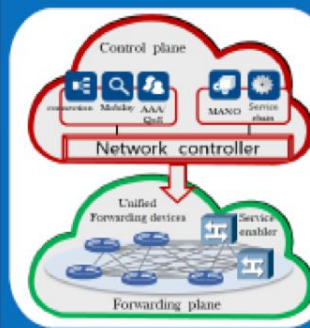
- Customer-centric Access
- Simplify multi-connection management mechanism
- Service provision optimization based on user preference

## Mobile CDN



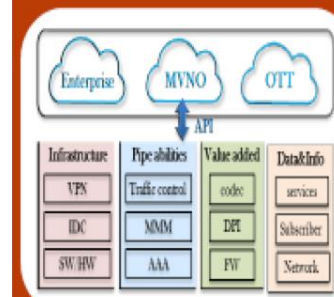
- 2 levels content offloading (RAN and CN)
- ms latency & high data rates
- Good experience

## Resource Control and Service Steering



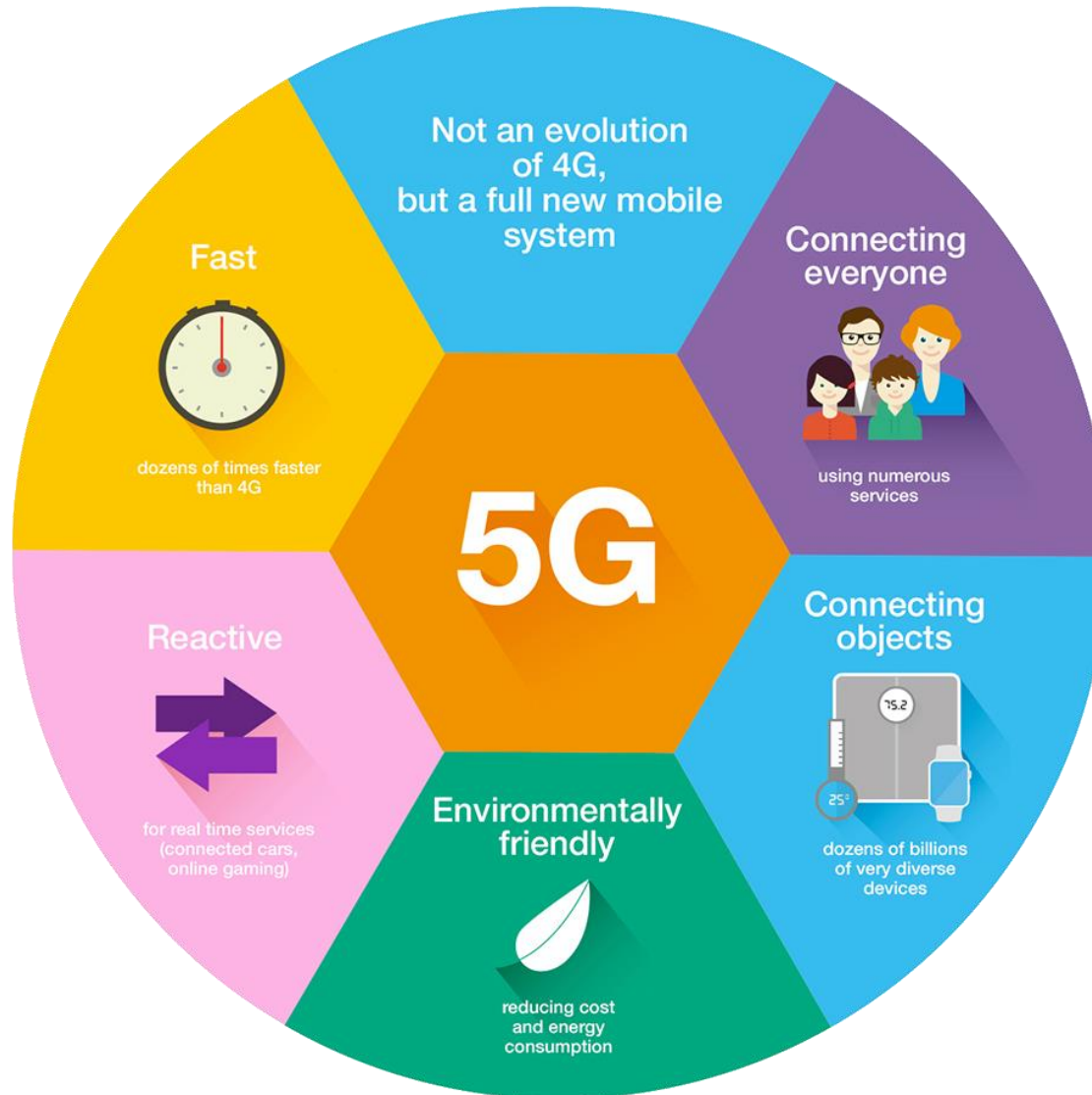
- Real-time traffic monitor
- Per-app resource reservation
- Intelligent value added service provision

## Network Capabilities Exposure

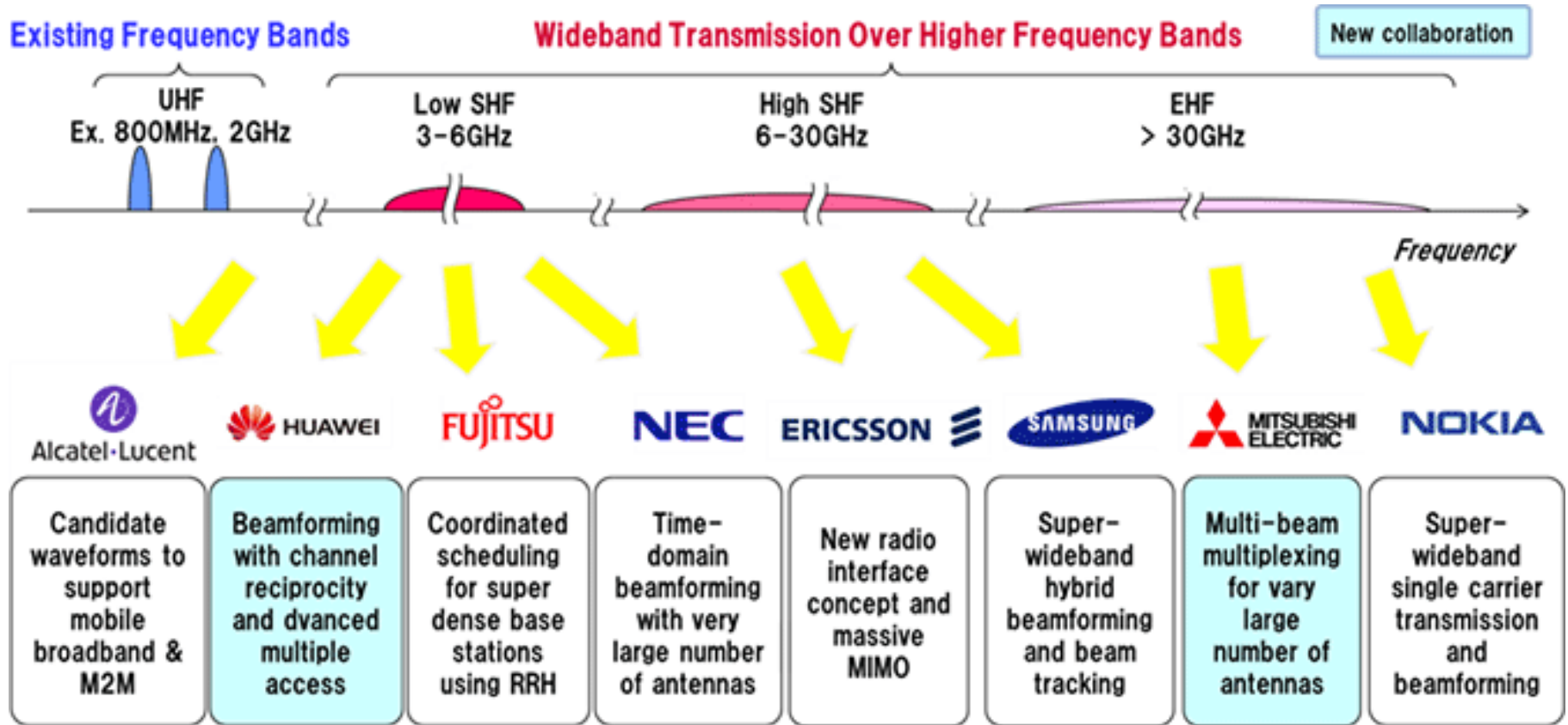


- Adapting 3<sup>rd</sup> requirements to network capabilities
- Customized infrastructure
- Friendly API

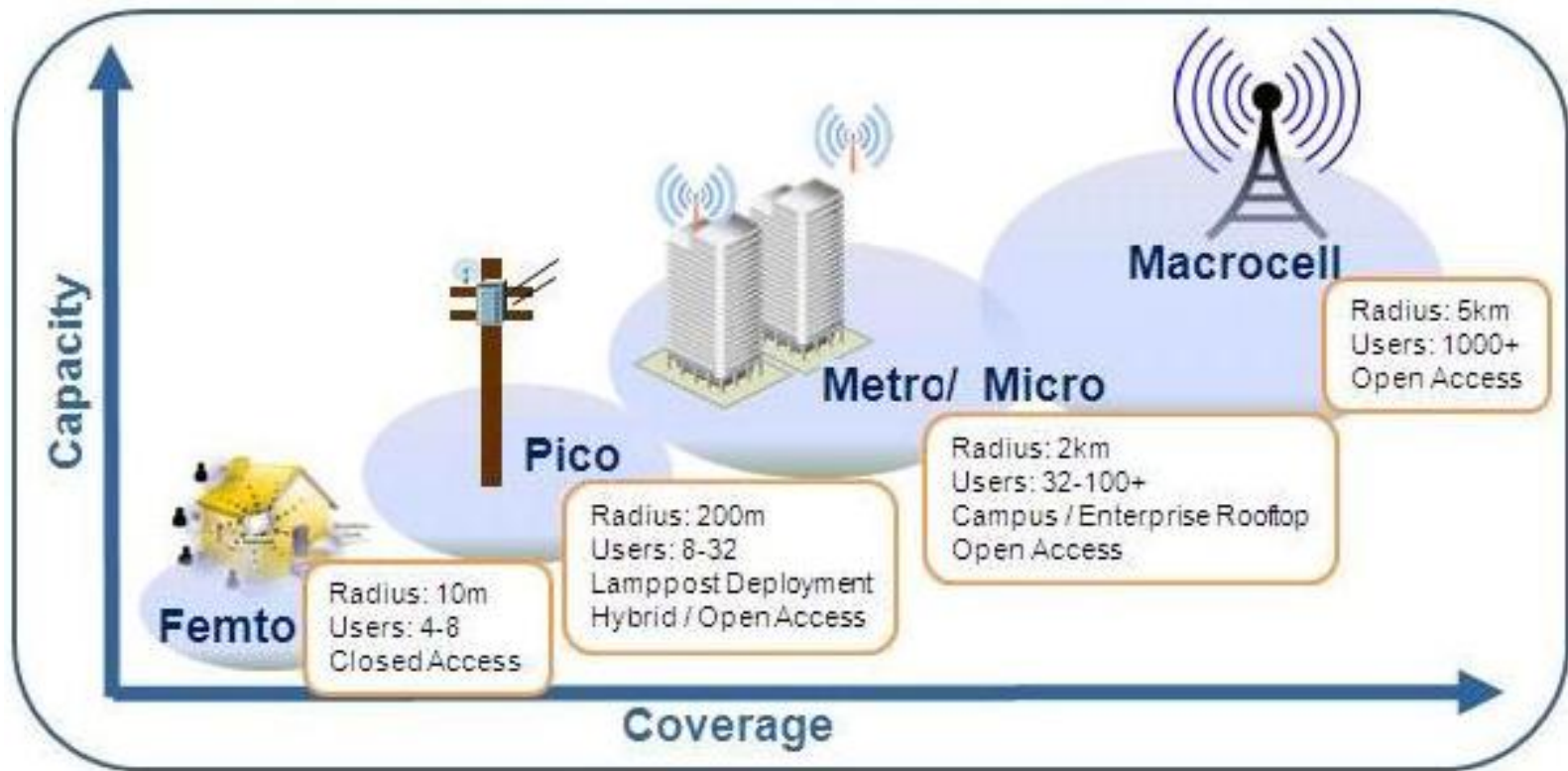
# 5G – Connected World



# 5G 頻段



# 4G/5G 小細胞基地台



FEMTOCELLS



PICOCELLS



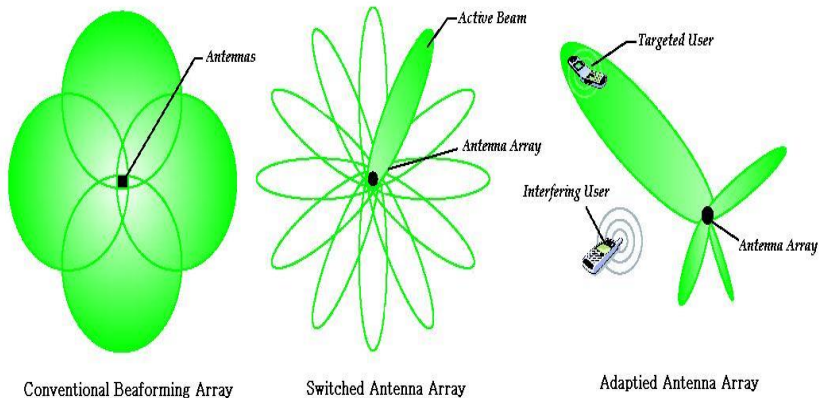
METROCELLS



MICROCELLS



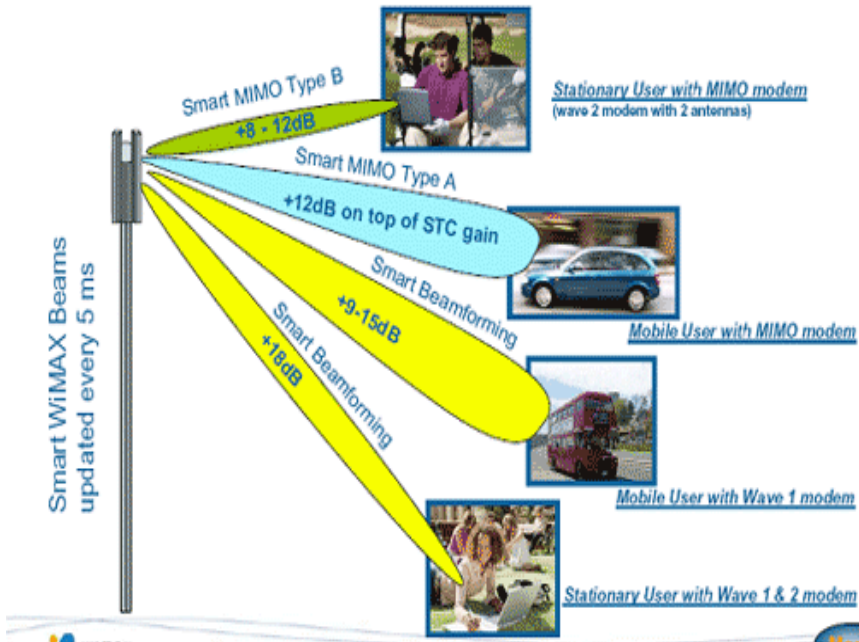
# 4G/5G智慧型天線



The illustration shows a tower with a traditional antenna (top) and a smart antenna (bottom). The traditional antenna broadcasts energy in all directions, while the smart antenna uses narrow beams to target specific users.

### Smart antennas: Pointing at you

Old-fashioned antennas on cell towers (top) send energy in all directions, like a fountain. A smart antenna (bottom) is more like a garden hose: It sprays in one direction, easing congestion everywhere else. In one smart-antenna approach, startup Vivato clusters together 128 pencil-size antennas, each packing data on waves starting at different points in time. When the waves of one antenna start to wane, those from another may be cresting. Combined the waves for rays shaped to reach the target.



# Gemtek LTE 小細胞基地台

## *LTE Single mode*



*Residential Small Cell*  
*In production in 2017*

- ~16 or ~32 simultaneous calls
- Band: FDD/TDD

## *LTE Single mode*



*Enterprise Small Cell*  
*In production in 2017*

- ~32 or ~64 simultaneous calls
- Band: FDD, TDD

## *LTE Single mode*



*Outdoor Small Cell*  
*Pre-5G band (Sub 6G, i.e. 3.5GHz)*

- ~64 or ~128 simultaneous calls
- Band: FDD, TDD includes CBRS and 5G New Radio (3.5GHz, Sub 6G, and 28GHz)
- MIMO and SON, all in one with EPC and HSS

# LTE CPE Roadmap with 5G NR – 室内型

World 1st



**Cat 12 : DL 4x4+2CA+ ULCA**

- **TDD Maximum 573Mbps**
- **LTE 2T8R**
- **2GE + 1RJ-11 + AC1200**



**Giga LTE**

**Massive MIMO & Carrier Aggregation**

- **TDD + FDD (sub-6GHz)**
- **FDD 4x4 @ 1.Gbps**
- **LTE 2T8R**
- **GE + VoLTE + 11AX**
- **Pre-5G band (Sub 6G, i.e. 3.5GHz)**



**Cat 6 or 12 : 4x4 + 40MHz CA**

- **TDD Maximum 440Mbps**
- **TDD Only ( 3.xGHz or 2.xGHz )**
- **LTE 2T4R**
- **4GE + 1 RJ-11 + N300 or AC1200**

# LTE CPE Roadmap – 戶外型



**Cat 12 : DL 4x4+2CA + UL CA**

- **TDD/FDD**
- **TDD Maximum 573Mbps**
- **FDD Maximum 783Mbps**
- **LTE 2T/4R**
- **1GE + GPS + Full Industrial**
- **Official CBRS**



**High Gain Antenna**

- **Extended coverage**
- **Over 15KM distance**
- **Beam forming**



**Cat 12 : DL 4x4+2CA + UL CA**








- **TDD/FDD**
- **LTE 2T/4R**
- **1GE + Light Industrial**
- **PoE IDU ( Voice + Wi-Fi)**



**Cat 12 : DL 4x4+2CA**

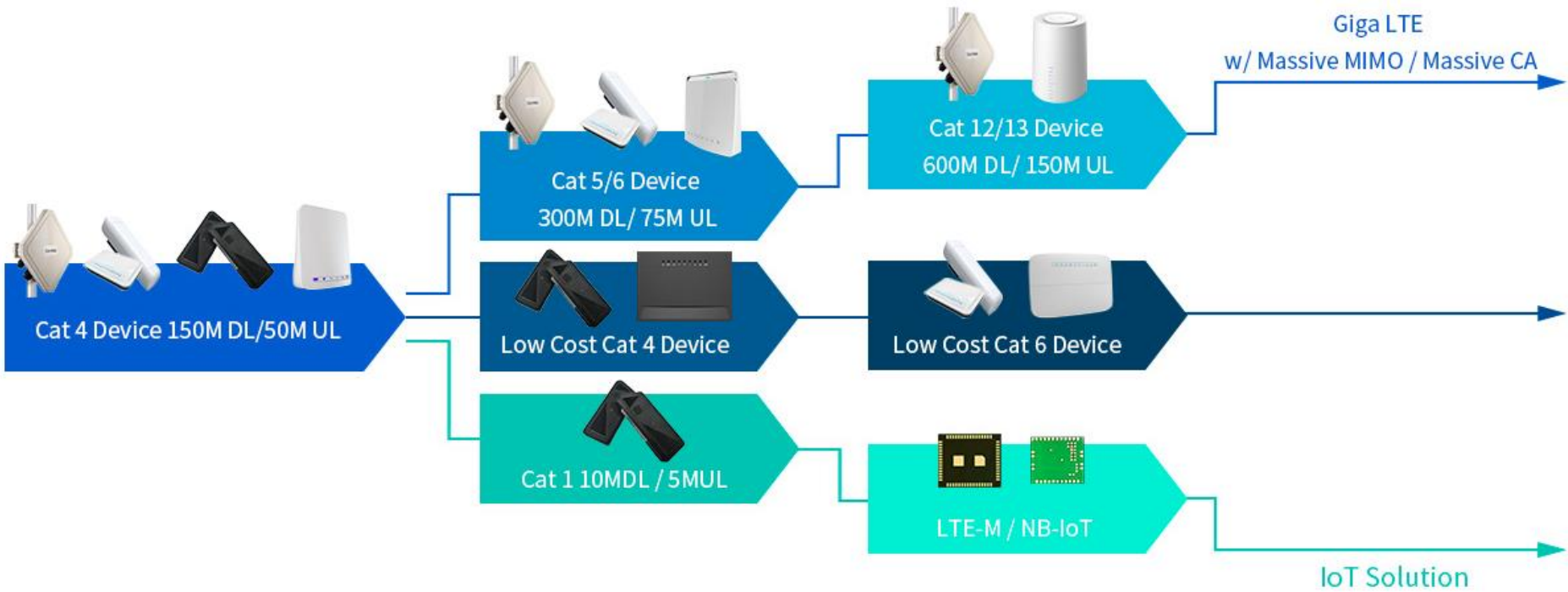
- **CBRS+LTE-U Dual**
- **Pre-5G band (Sub 6G, i.e. 3.5GHz)**
- **TDD Maximum 573Mbps**
- **2T/4R**
- **1GE + GPS + Full Industrial**

# Cellular IOT Roadmap ( 5G Massive MTC)

Category	MP	2018'1H	2018'2H
Tracker	 <p><b>Cat 1 Car Tracker</b></p> <ul style="list-style-type: none"> <li>• US Band</li> <li>• GPS / 3D Sensor</li> </ul>	 <p><b>Cat M1/NB1 Car Tracker</b></p> <ul style="list-style-type: none"> <li>• US Band</li> <li>• GPS / 3D Sensor</li> </ul>  <p><b>Cat M1/NB1 Personal/Asset Tracker</b></p> <ul style="list-style-type: none"> <li>• WW Band</li> <li>• GPS/Wi-Fi / LTE Positioning</li> </ul>	 <p><b>Cat M1/NB1 Cattle Tracker</b></p>
Module		 <p><b>Cat M1/NB1 GPS</b></p>	
Vertical Market	 <p><b>Cat 4 IOT HUB</b></p> <ul style="list-style-type: none"> <li>• EU Bands</li> <li>• Wi-Fi/BT/GPS</li> <li>• 10 Sensors</li> <li>• Type C Connector</li> </ul>		 <p><b>Cat M1/NB1 Parking Sensor</b></p>

MP / Developing/ Planning

# Wireless Broadband Network



# Gemtek LTE Xcell System

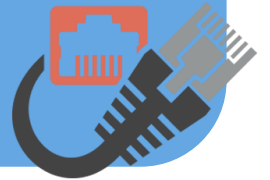
Gemtek X-Cell is embedded with the Gemtek Compact EPC and Light HSS function. It also supports the S6a interface to external HSS. Easy and fast installation feature is very suitable for fixed wireless application. Using X-Cell, you don't need Expensive CoreNetwork anymore!!



# 產品介紹

**Telecom  
Infrastructure**

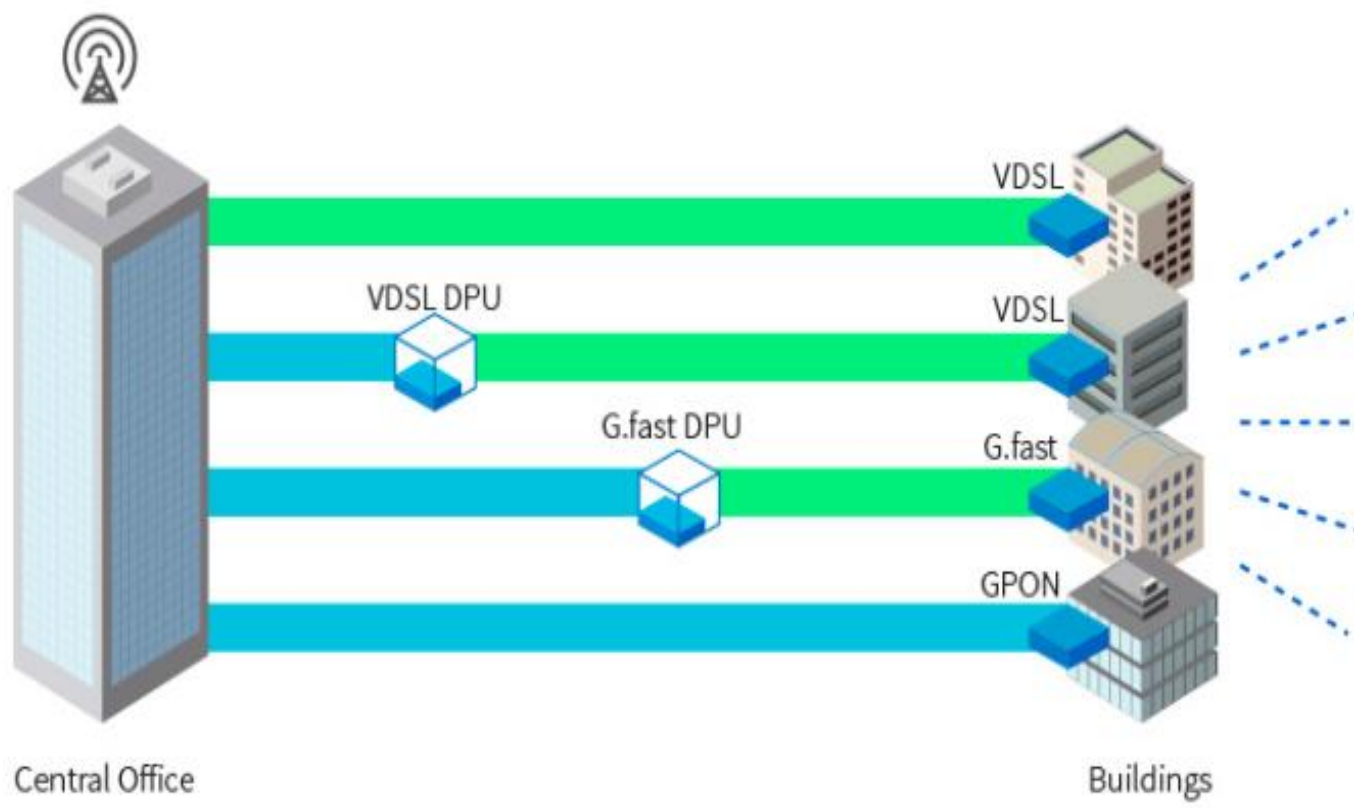
**Integrated  
products**



**AP/Router**

**Cloud**

# 固網相關產品



# 主要類別

**Telecom  
Infrastructure**

**Integrated  
products**



**AP/Router**

**Cloud**

# RF技術演進



MP

2016

2017



**ZigBee 3.0**



802.11ah HaLow

# 802.11 ax

## 802.11ax for improved densification and outdoor performance



### Densification

- Better capacity—especially in dense scenarios
- Uplink and downlink OFDMA
- Adding uplink MU-MIMO



### Outdoor deployments

- Improved outdoor performance
- Longer cyclic prefix and longer OFDM symbol duration



### Backward compatible

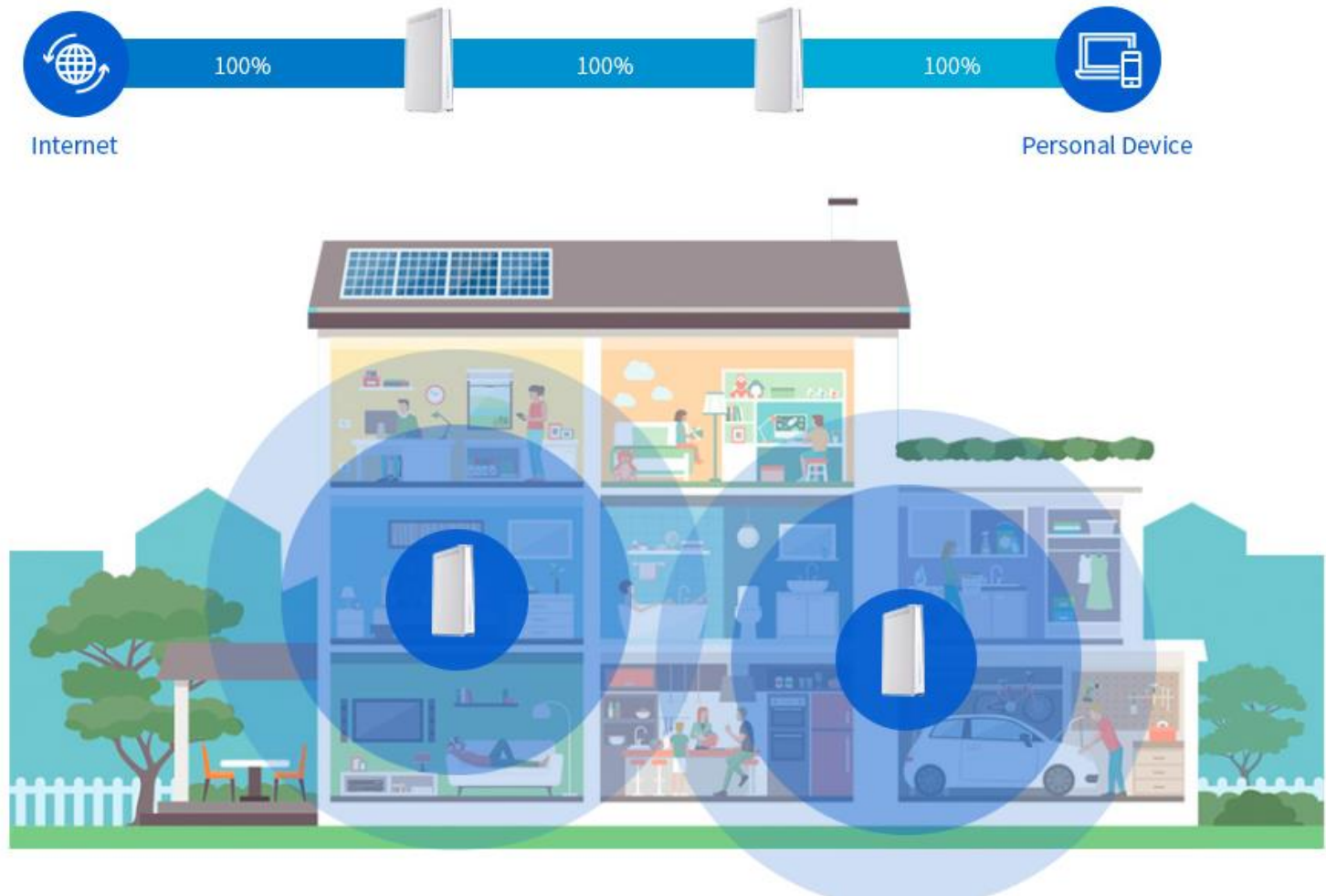
- Supports both 2.4 GHz and 5 GHz
- Backward compatible with legacy 802.11 (n/ac)

# 802.11 ac/802.11 ax

	802.11ac	802.11ax
BANDS	5 GHz	<b>2.4 GHz</b> and 5 GHz
CHANNEL BANDWIDTH	20 MHz, 40 MHz, 80 MHz, 80+80 MHz & 160 MHz	20 MHz, 40 MHz, 80 MHz, 80+80 MHz & 160 MHz
FFT SIZES	64, 128, 256, 512	256, 512, 1024, 2048
SUBCARRIER SPACING	312.5 kHz	<b>78.125 kHz</b>
OFDM SYMBOL DURATION	3.2 us + 0.8/0.4 us CP	<b>12.8 us + 0.8/1.6/3.2 us CP</b>
HIGHEST MODULATION	256-QAM	<b>1024-QAM</b>
DATA RATES	433 Mbps (80 MHz, 1 SS) 6933 Mbps (160 MHz, 8 SS)	600.4 Mbps (80 MHz, 1 SS) 9607.8 Mbps (160 MHz, 8 SS)

# 家庭聯網方案

**Gemtek Full Coverage Seamless Connection System incorporates the most advanced Wi-Fi connection technology to establish high-reliability and multi-connection features.**



# Wi-Fi CERTIFIED EasyMesh™:

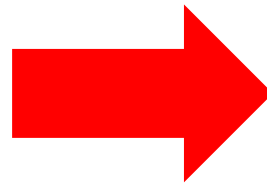
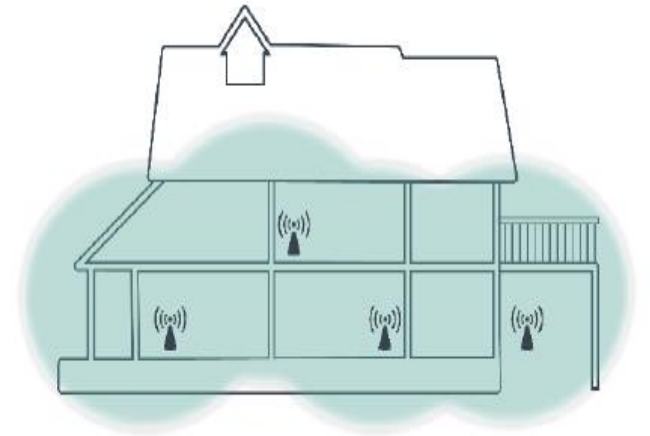
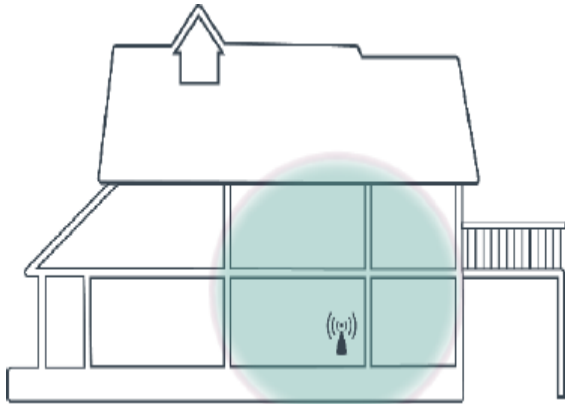
Smart, extended coverage home Wi-Fi®



WAN

GATEWAY

# Home Wi-Fi® is evolving



# 主要類別

**Telecom  
Infrastructure**



**Integrated  
products**

**AP/Router**



**Cloud**

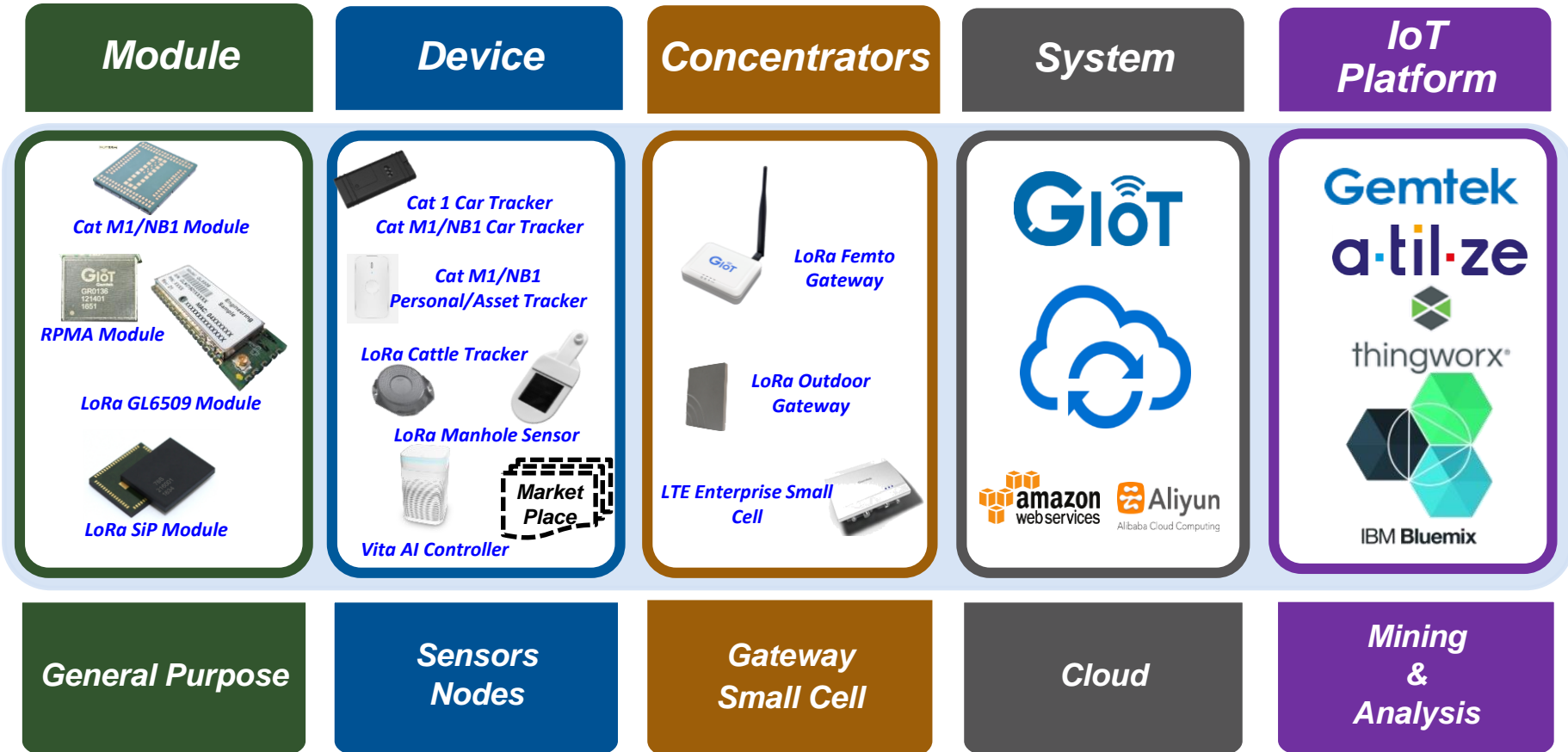
# 正文科技物聯網解決方案比較

Category	<b>WLAN</b> Short range communication	<b>LPWAN</b> Low data transmission
IoT Solution		
Pros & Cons	<ul style="list-style-type: none"> <li>• Well established standards</li> <li>• Better for:                             <ul style="list-style-type: none"> <li>• Mobile devices</li> <li>• In-home</li> <li>• Short range</li> </ul> </li> <li>• Poor for:                             <ul style="list-style-type: none"> <li>• Battery life</li> <li>• Long range</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Emerging PHY solutions</li> <li>• Better for:                             <ul style="list-style-type: none"> <li>• Long range</li> <li>• Long battery life</li> <li>• Low cost</li> </ul> </li> <li>• Poor for:                             <ul style="list-style-type: none"> <li>• Low data rate</li> </ul> </li> </ul>

# 雲端智慧家庭系統



# 軟硬體整合解決方案



## ● Revenue and Margin Challenge

- Impact of The US – China Trade War.
- The uncertainty of external economic environment

## ● 2019 outlook

- Cooperating with worldwide System Integrators, increasing telco market share.
- Launching 5G related products.
- 5G main focus: Small cell , CPE and other fixed devices.
- Launching WiFi-6 related products.
- Focus on high value-added market.
- Seize opportunity to increase revenue and reduce the cost



**THANK YOU**



## Q & A