

**Huawei Enterprise** *A Better Way*

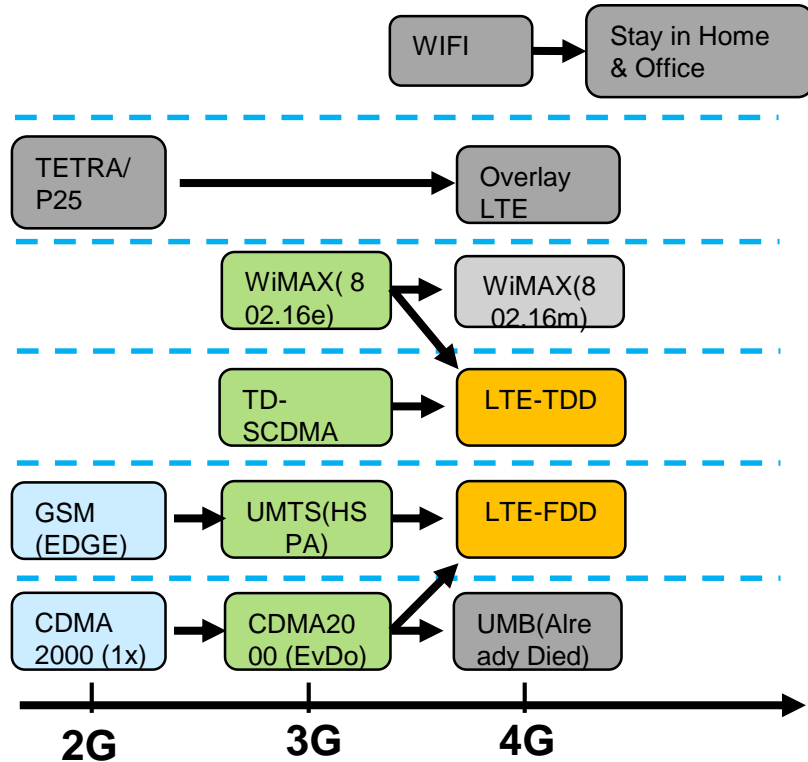
# LTE Enterprise Wireless Network Development

[enterprise.huawei.com](http://enterprise.huawei.com)

HUAWEI TECHNOLOGIES CO., LTD.



# LTE is the future for wireless technique



ERA Research on LTE-R

ERTMS UNIT



INTERNATIONAL UNION OF RAILWAYS



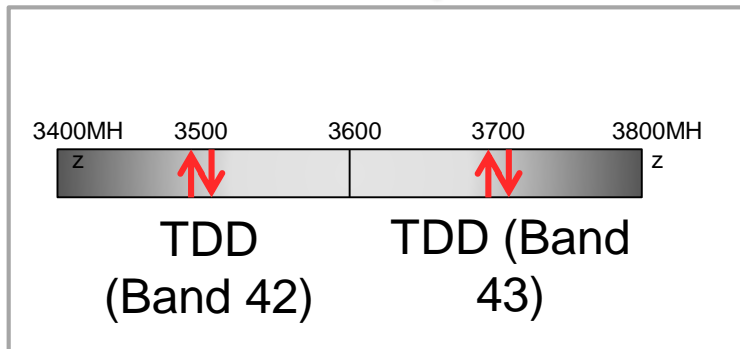
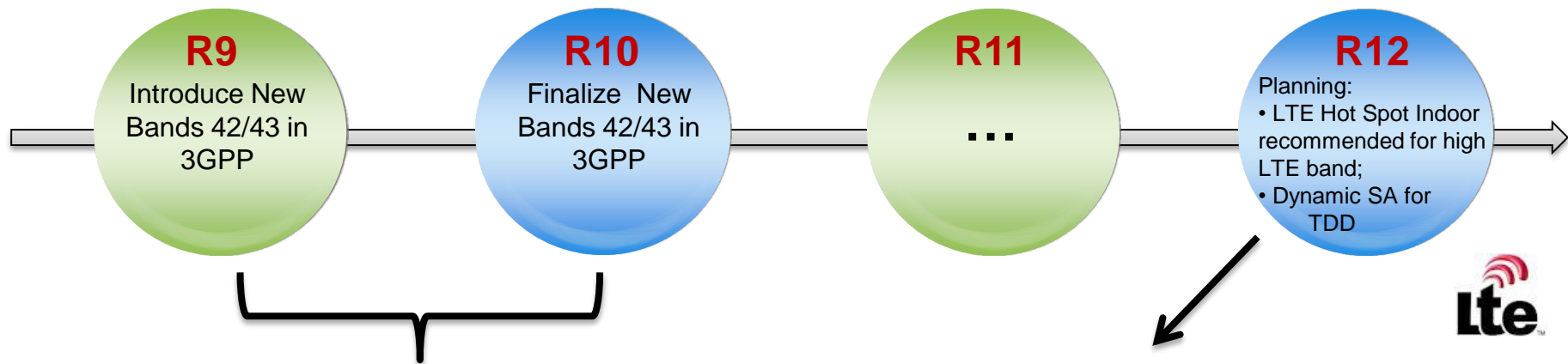
APCO: Association of Public-Safety Communications Officials  
NPSTC: National Public Safety Telecommunications Council

TCCA: TETRA and Critical Communications Association  
CCBG: Critical Communications Broadband Group

# 3.5GHz LTE TDD Offers Rich Services, Satisfying Various Demand

Segment	<b>Individual</b>	<b>Family</b>	<b>Enterprise</b>	<b>Vertical</b>
Scenario				
Services	Mobile internet	Wireless broadband+ VoIP (CPE+ phone set)	Wireless broadband+ VoIP+ VPN	Backhaul for small cell
Typical device				

# 3GPP Definition and Much More Advanced TDD Features Coming

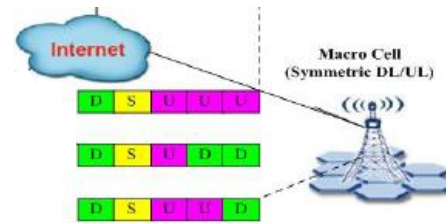


## LTE-Hi \*

➤ To provides ultra-high throughput by using technologies like 256QAM, scheduling simplification, MIMO

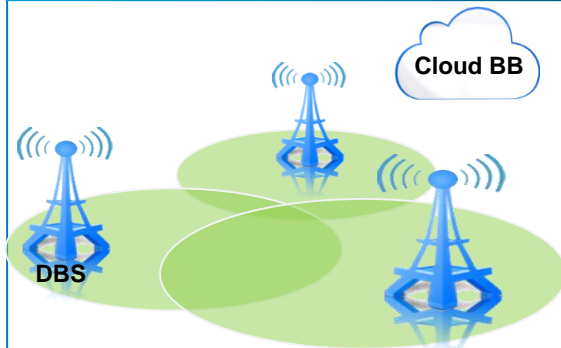
\*R12 has accepted LTE-Hi as official project task in Q4 of 2012

## Dynamic DL/UL SA\*



# Huawei LTE TDD Supports Whole Network Lifecycle

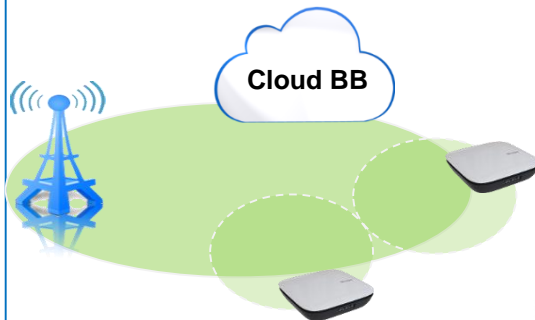
## 1 Phase 1: Universal Accessibility



### DBS or Cloud BB

- Intelligent coverage enhancements
- Adaptive interference detection and reduction scheme
- Accessibility enhancement

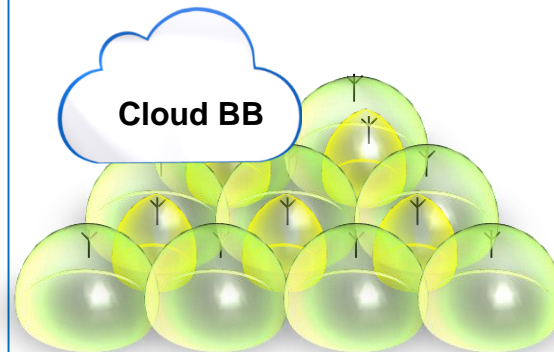
## 2 Phase 2: Deeper Coverage



### eCoordinator and LampSite

- Mobility optimization
- Service-oriented optimization
- Self-organized network upgrade
- Macro-micro coordination

## 3 Phase 3: Capacity Expansion



### AtomCell and coordination

- Adaptive SFN to erase cell-edge
- Inter-cell/site coordination;

# Ultra Wideband RRU and Most Flexible RRU Deployment



**325X Series**

## Ultra Wideband

Up to **80MHz IBW**  
vs. industry's 40 MHz

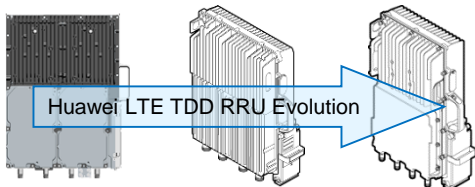
## Ultra Powerful

Up to **120W Tx Power**  
vs. industry's 80 W

Only **18L** Highly Integrated

**4x4** Multi-Antenna MIMO

**4** Multi-Carrier Carriers



370X Series

323X Series

325X Series

Bandwidth



Tx Power



**Enables Promising TDD Macro Coverage**



**Pico RRU**

## Clean Site, Easy Installation

**<3 kg**  
**<3 L**

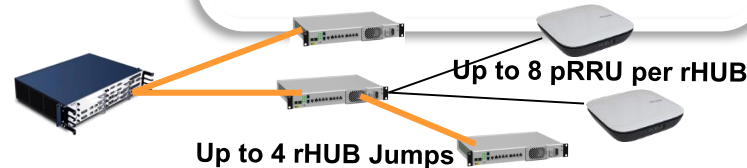
Industry

Macro RRU

**2x2** High Capacity MIMO

**1** Fast Rollout Cable

**M2000** Shared OM



DBS or Cloud BB

rHUB

pRRU

**Best Solution for Hotspot Coverage and Capacity**

# Continuous Innovation Builds GigaSite and Beyond

DBS39  
00

Beyond LTE

1,995 Mbps  
Per 20 MHz

Cloud  
BB

Lamp  
Site

Atom Cell

And More ...



50G/Site

LTE Advanced

225 Mbps  
Per 20 MHz



4G/Site

...

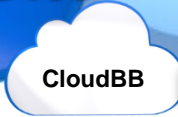
LTE R9  
150 Mbps  
Per 20 MHz

aICIC / SFN / Null-  
Forming / HetNet /  
Multi-Carrier CA...

1G/Site




CAT4 / Dual Layer Beam  
Forming



1,800 Cells  
75 Gbps Capacity



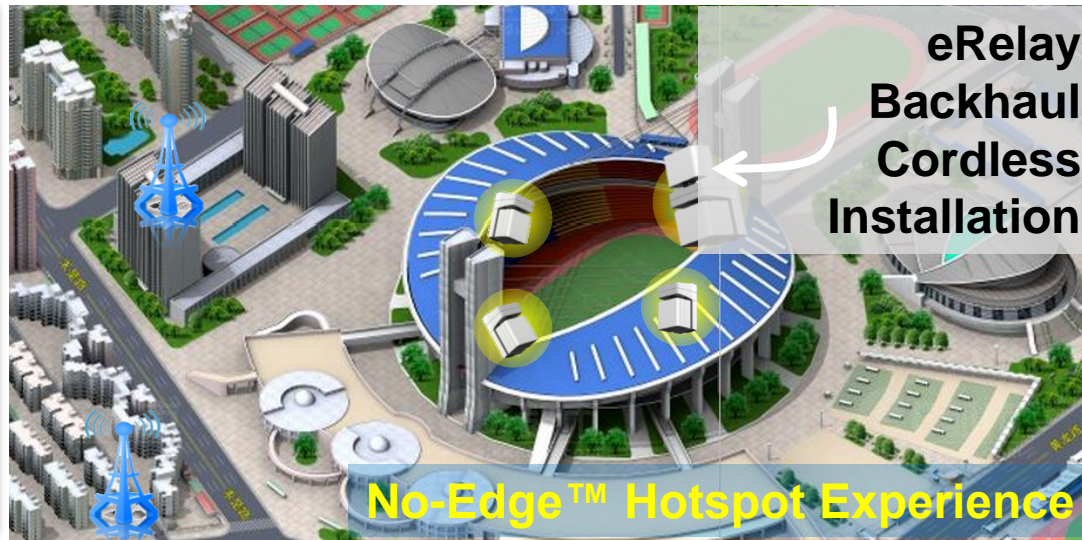
# Get Ready for the Hotspot Traffic Boosting



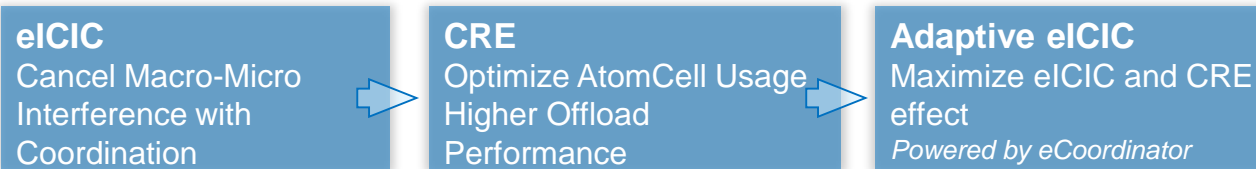
**AtomCell**

- ~ 5.2 L  
~ 6.5 kg Highly Integrated
- 4x4 MIMO Multi-Antenna
- Outdoor & Indoor
- PoE Power Easy Rollout

**2X Integration than Industry**



**HetNet: 4.7x** Capacity gain, field proven in Europe



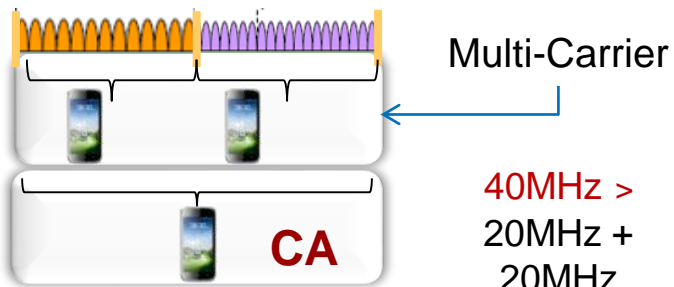
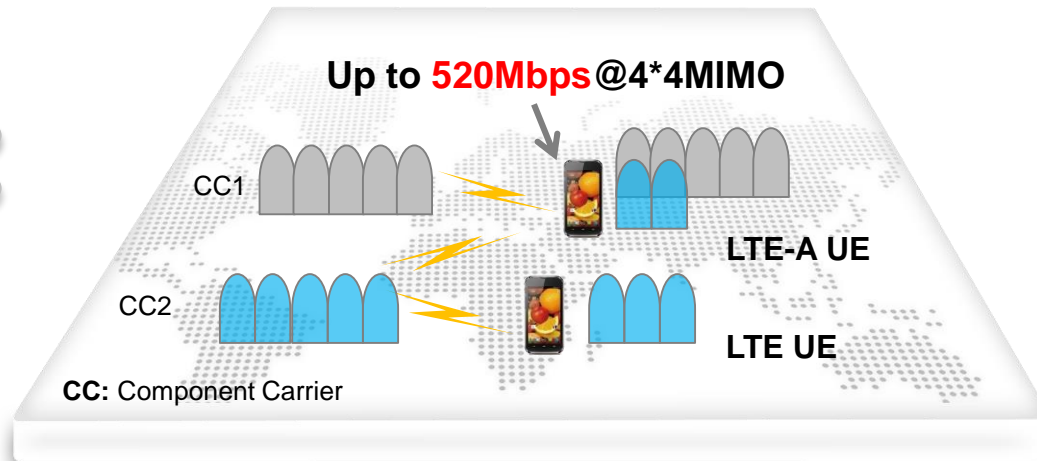


# LTE-A Carrier Aggregation Double Peak Rate to 520Mbps



## Intra-band CA

(Expected available timeframe for band 42/43 is 2H13 or 2014 depending on market demand)



- Applicable to multi-carrier LTE deployment
- Up to 520Mbps per UE @ 4\*4 MIMO
- Fast load balance between the two LTE carriers
- R10 UE is needed

3.5GHz with abundant spectrum, is especially suitable to utilize CA to improve user experience

# Huawei 3.5GHz Device Roadmap: 2<sup>nd</sup> Generation CPE on The Way

## Phase 1

- Single Mode device, 1 year ahead of market
- Basic device to satisfy wave 1 commercial launch demand

## Phase 2

- Multi-mode Mobile WiFi
- Dramatically driving price down of single mode device

## Phase 3

- Release multimode 3.5GHz LTE smart phone

**B593s-42**  
TDD Multi-mode  
WiFi b/g/n+4FE+2POTS

**B222s-42/42A**  
TDD Single-mode  
WiFi b/g/n+2FE+1POTS

**E5776s-420**  
Mobile WiFi  
L/U/G Multi-mode  
Screen:1.45 inch  
Battery:3000mA



### 2<sup>nd</sup> Generation CPE

**B5268 series**  
Low cost version  
Enterprise version

**B2268 series**  
Low cost version  
Standard version  
Premium version



**Ascend D2 LTE**  
L/U/G Multi-mode  
5.0" ISP Screen  
Chipset / Processor:  
Hi-Silicon K3V2 + V7R1  
Quad-core 1.2GHz  
Battery:3000mA

### Convergence device

### Premium & low cost device

### Basic commercial device

Planning

Planned or under development

Released

2012

2013

2014

# Sieć LTE dla Sektoru Publicznego



## Większa efektywność

### e-Urząd

- Komunikacja i wymiana informacji pom. urzędami
- Elektroniczny kontakt z Urzędem
- Dostęp do portalu Urzędu
- Zsieciowanie wszystkich jednostek Urzędu



## Lepsze bezpieczeństwo

### Bezpieczne Miasto

- Inteligentny wideo monitoring
- Komunikacja dyspozytorska
- Centrum Kryzysowe
- Karta Miejska



## Więcej Usług Publicznych

### e-Edukacja

- Nauka on-line
- Cyfrowe kampusy

### e-Zdrowie

- Dostęp do wyników (Cloud)
- Cyfrowy Szpital
- Wymiana pom. placówkami



## Zarządzanie

### Inteligentne Miasto

- Zarządzanie ruchem
- Zarządzanie transportem
- Sczytywanie liczników
- Zarządzanie oświetleniem

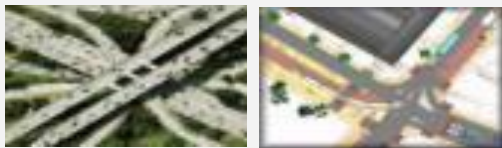
Jedna sieć do zapewnienia wszelakich usług dla Sektoru Publicznego

# Sieć eLTE do wsparcia specyficznych Usług Publicznych

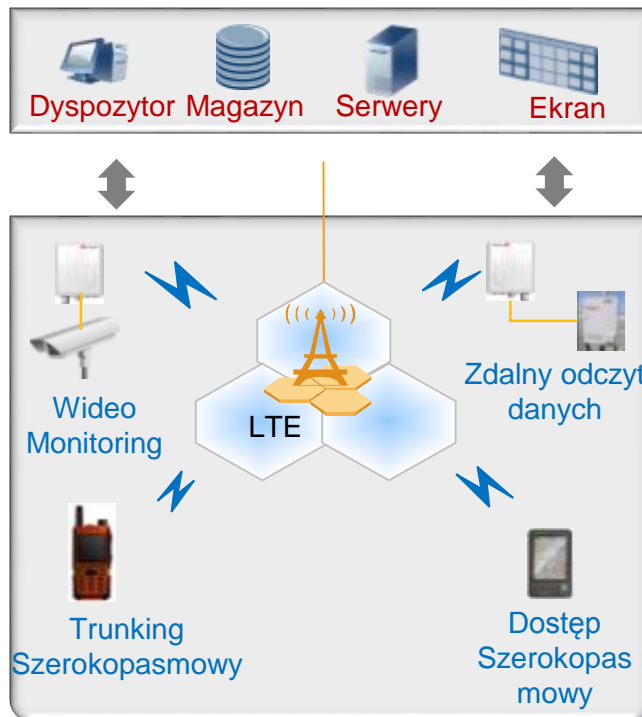
## Bezpieczeństwo



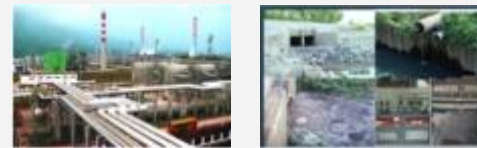
Centrum Kryzysowe



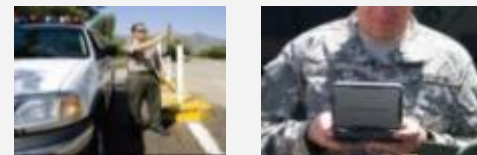
Monitoring Miejski



## Sprawy Miejskie



Zarządzanie ruchem



Monitoring środowiska



Służby miejskie



**Grow together & Win together**

***Ben Liu***

*Director of Wireless Solution & Marketing Department, Enterprise Business Group Poland*

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