



LTE 1800 – NETWORK VENDOR VIEW

MARTIN LJUNGBERG

PRODUCT MANAGER – MOBILE BROADBAND
BUSINESS UNIT NETWORKS

LTE/EPC DRIVERS

LTE/EPC drivers

Performance;

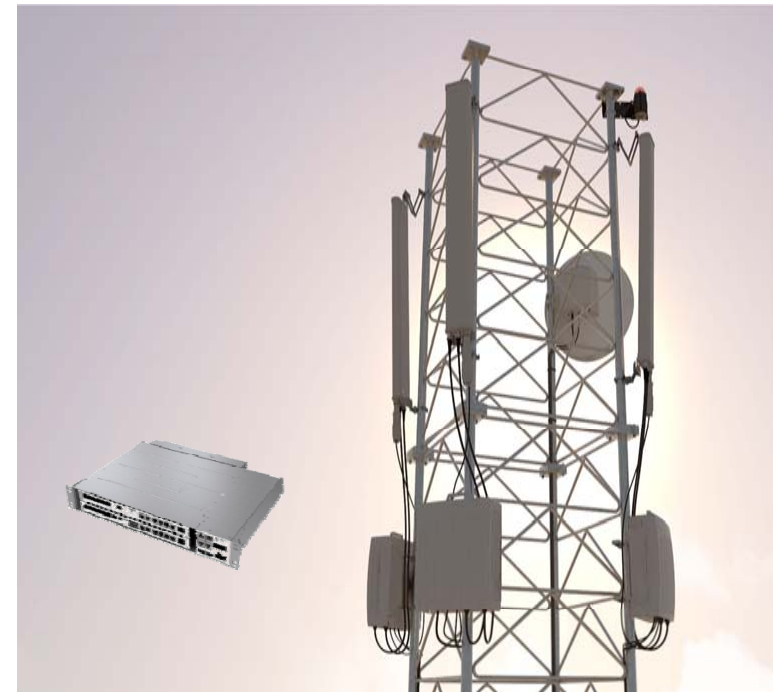
Operators now introduce LTE to offer users performance

Capacity;

LTE on new mobile broadband radio bands gives capacity

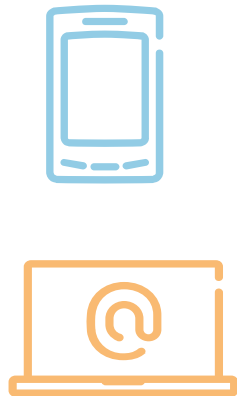
Cost;

LTE specified to be the most cost efficient technology



[Delivering the best user experience with LTE, HSPA and EDGE]

UPGRADING TO LTE



Radio



Coverage and capacity plan

Spectrum plan

MSR with LTE

Backhaul



Ethernet

Fiber

Microwave

Core



Flat IP

EPC functionality

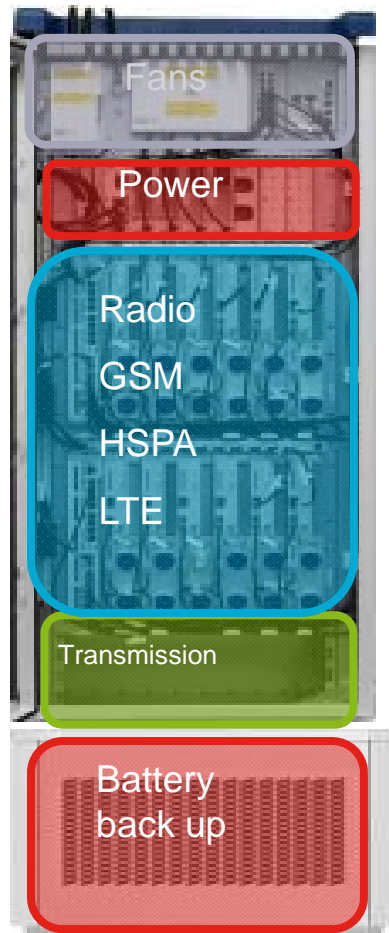
High capacity nodes

[Mobile Broadband in one network for all radio technologies]

RADIO SITE FOR MULTI TECHNOLOGY AND MULTI FREQUENCY



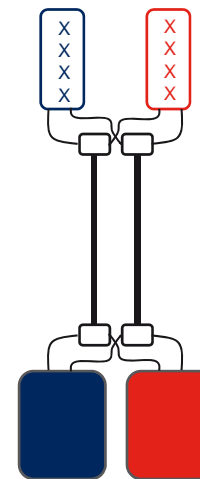
MSR RBS



RUS



Feeder sharing



Antenna sharing



MOST COMMON MOBILE BANDS

Band (MHz)	Current use	Re-farming potential	Comment
700 / 800	LTE		New LTE band
850 / 900	GSM, WCDMA	WCDMA	WCDMA getting established
17/2100 (AWS)	WCDMA	LTE	Americas band
1800	GSM	LTE (WCDMA)	
1900	GSM, WCDMA	WCDMA, LTE	Americas band
2100	WCDMA	WCDMA, LTE	LTE in Japan
2600	LTE		New LTE band

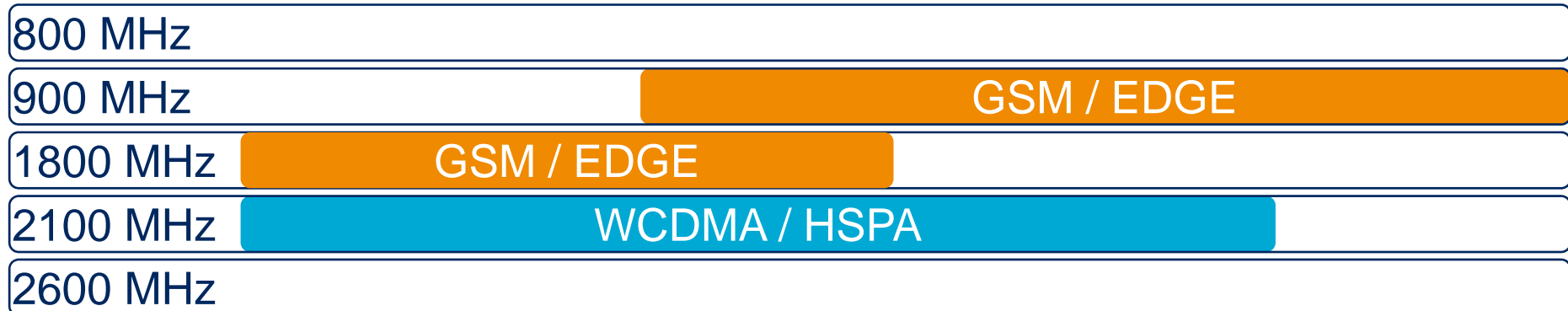
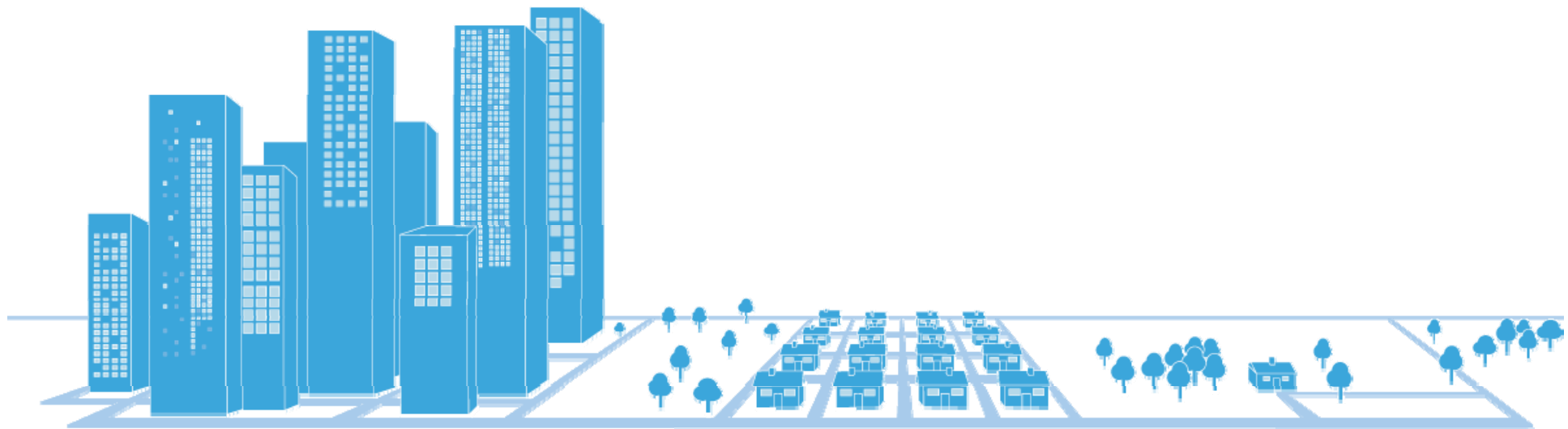
TYPICAL SPECTRUM STRATEGY



Urban

Suburban

Rural



TYPICAL SPECTRUM STRATEGY RE-FARM 900 TO WCDMA



Urban

Suburban

Rural



800 MHz	
900 MHz	GSM / EDGE WCDMA/HSPA
1800 MHz	GSM / EDGE
2100 MHz	WCDMA / HSPA
2600 MHz	

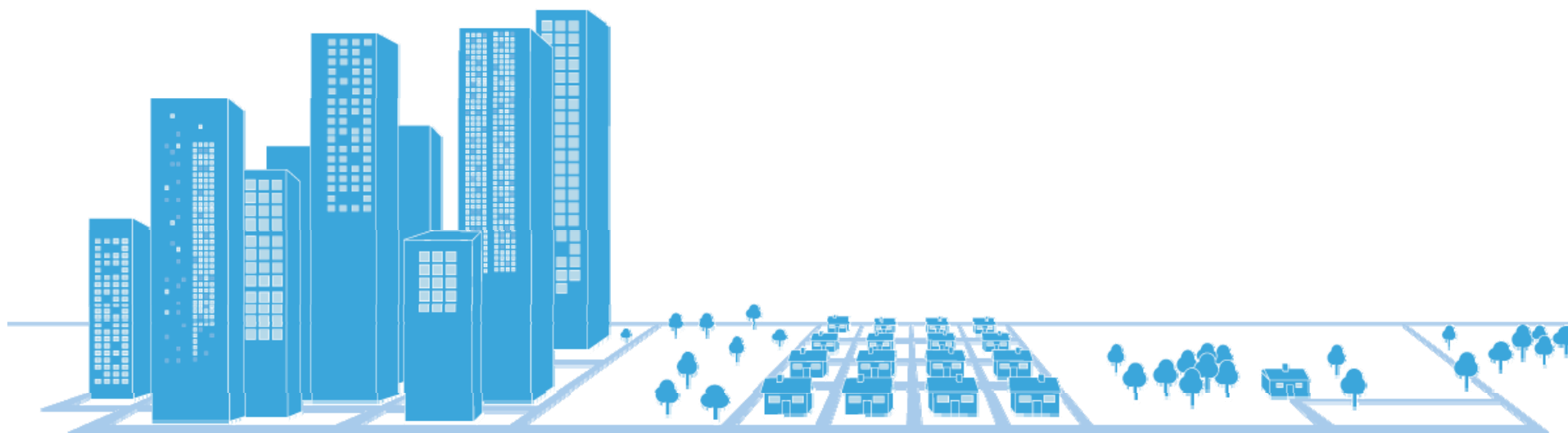
TYPICAL SPECTRUM STRATEGY INTRODUCE LTE 2600



Urban

Suburban

Rural



800 MHz

900 MHz

GSM / EDGE WCDMA/HSPA

1800 MHz

GSM / EDGE

2100 MHz

WCDMA / HSPA

2600 MHz

LTE

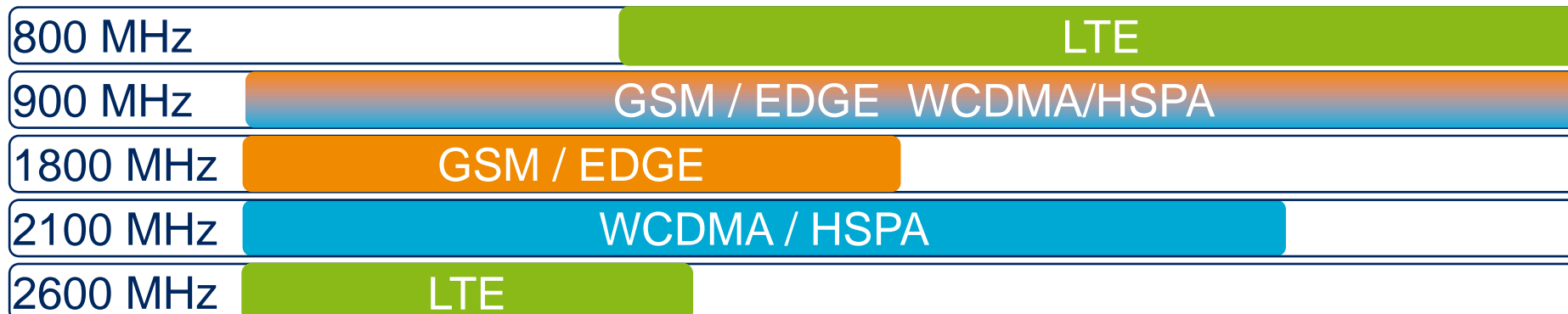
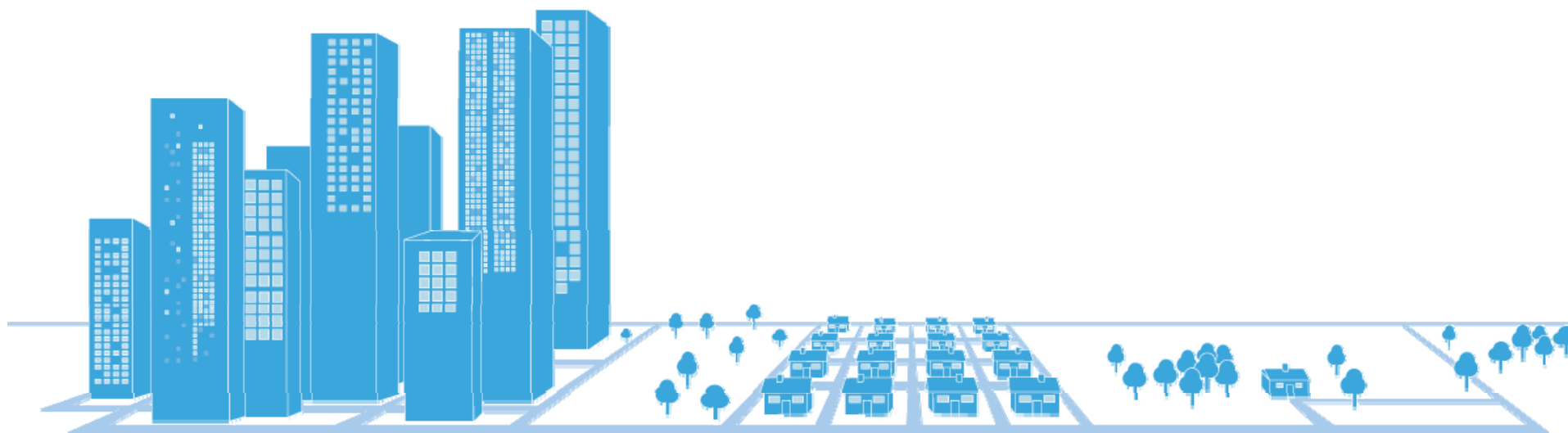
TYPICAL SPECTRUM STRATEGY INTRODUCE LTE 800



Urban

Suburban

Rural



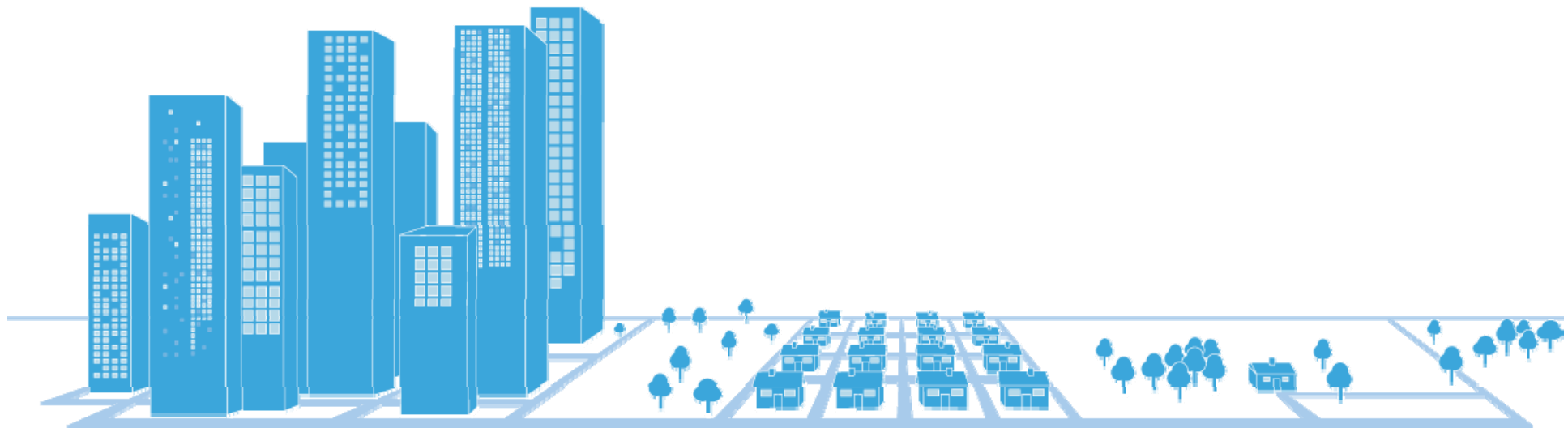
TYPICAL SPECTRUM STRATEGY RE-FARM 1800 TO LTE



Urban

Suburban

Rural



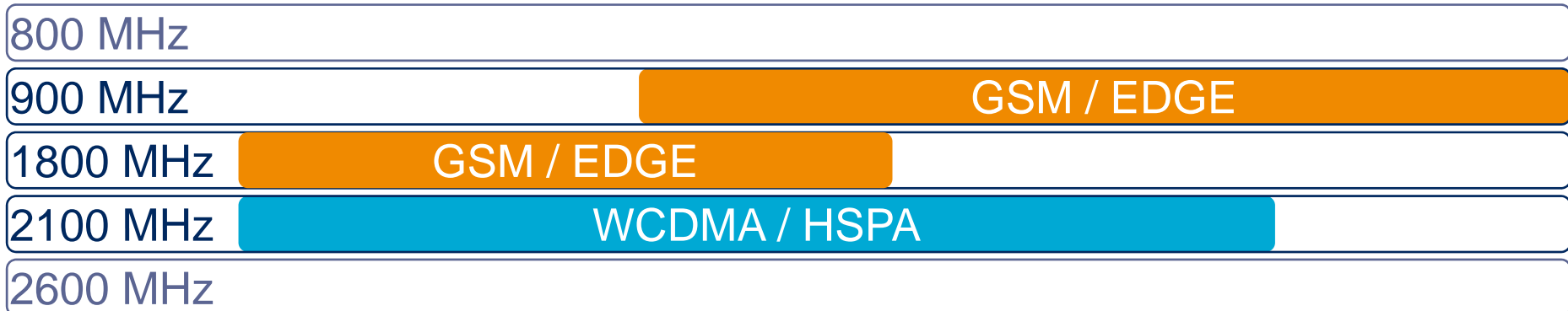
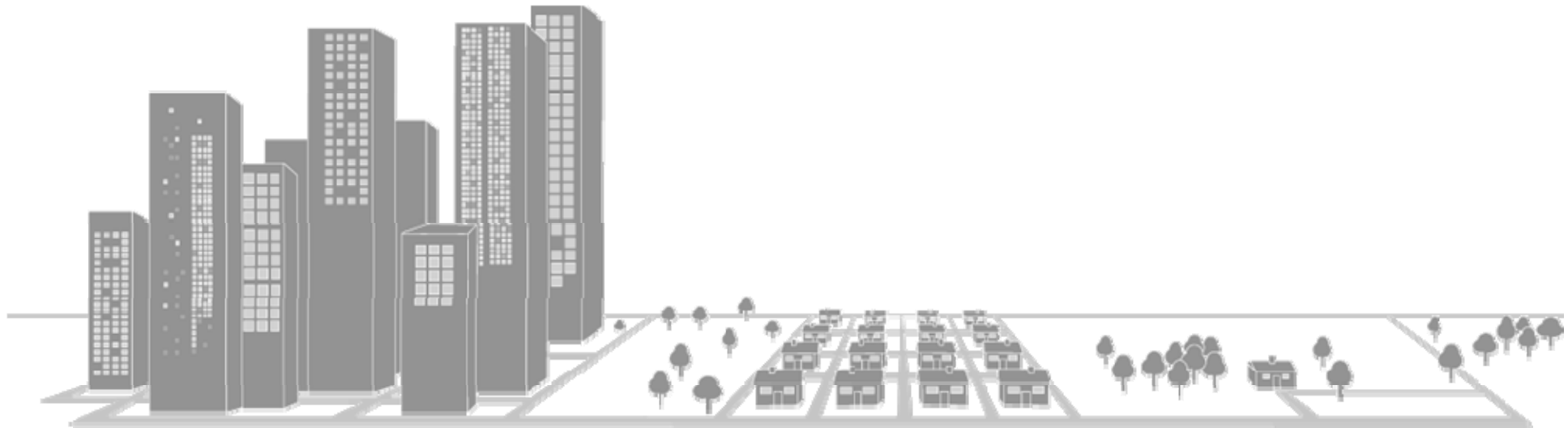
TYPICAL SPECTRUM STRATEGY

NO EARLY ACCESS TO 2600 AND 800

Urban

Suburban

Rural



TYPICAL SPECTRUM STRATEGY RE-FARM 900 TO WCDMA

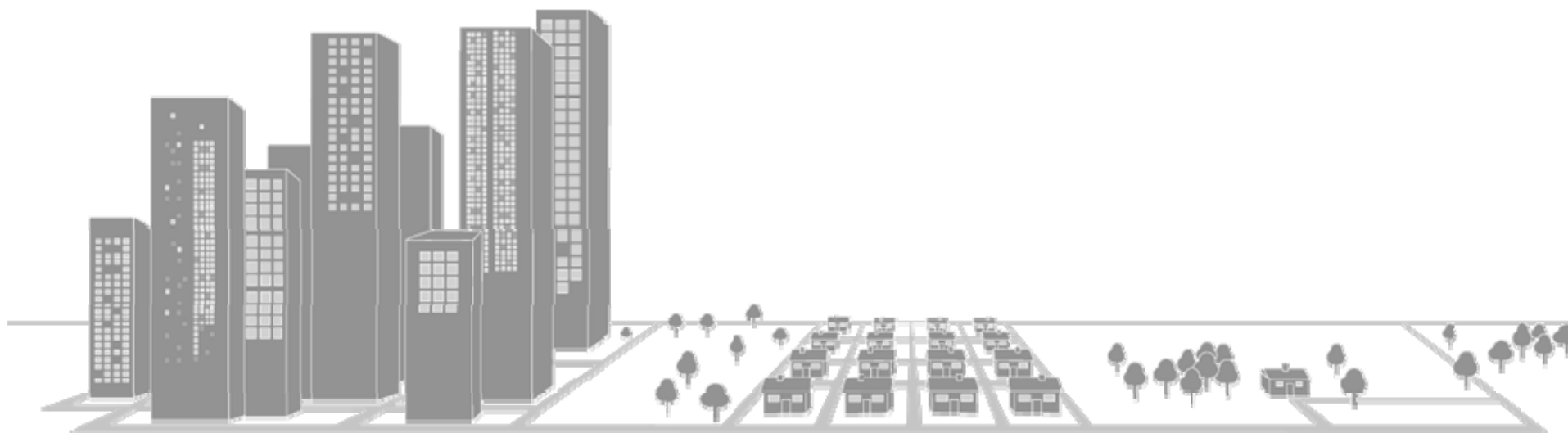


NO EARLY ACCESS TO 2600 AND 800

Urban

Suburban

Rural



800 MHz

900 MHz

GSM / EDGE WCDMA/HSPA

1800 MHz

GSM / EDGE

2100 MHz

WCDMA / HSPA

2600 MHz

TYPICAL SPECTRUM STRATEGY RE-FARM 1800 TO LTE

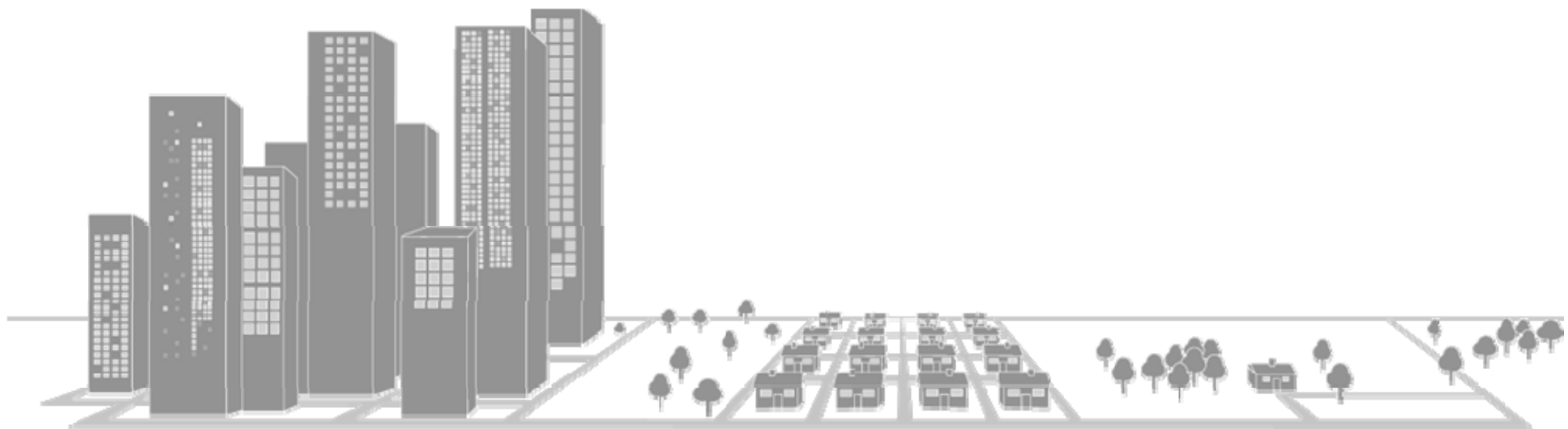


NO EARLY ACCESS TO 2600 AND 800

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800 MHz

900 MHz

GSM / EDGE WCDMA/HSPA

1800 MHz

GSM / EDGE LTE

2100 MHz

WCDMA / HSPA

2600 MHz

TYPICAL SPECTRUM STRATEGY INTRODUCE LTE 800 AND 2600

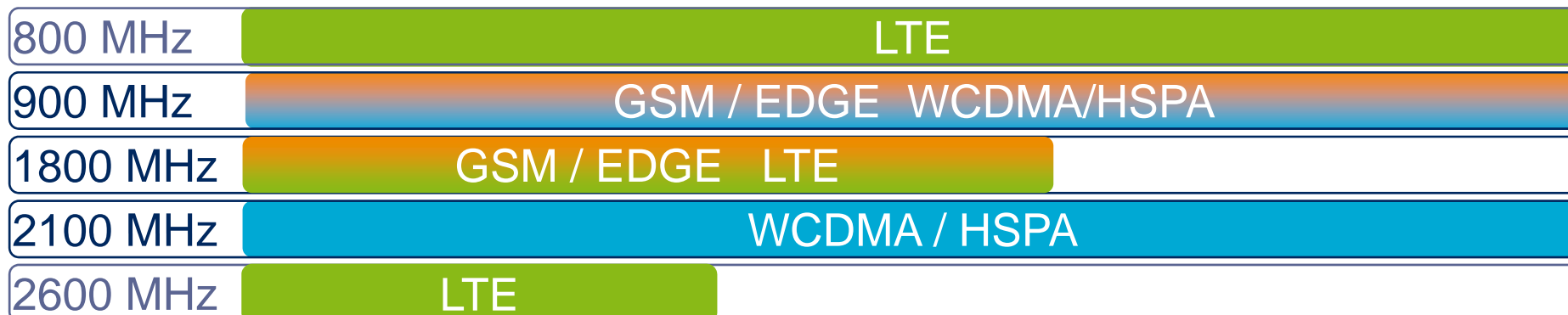
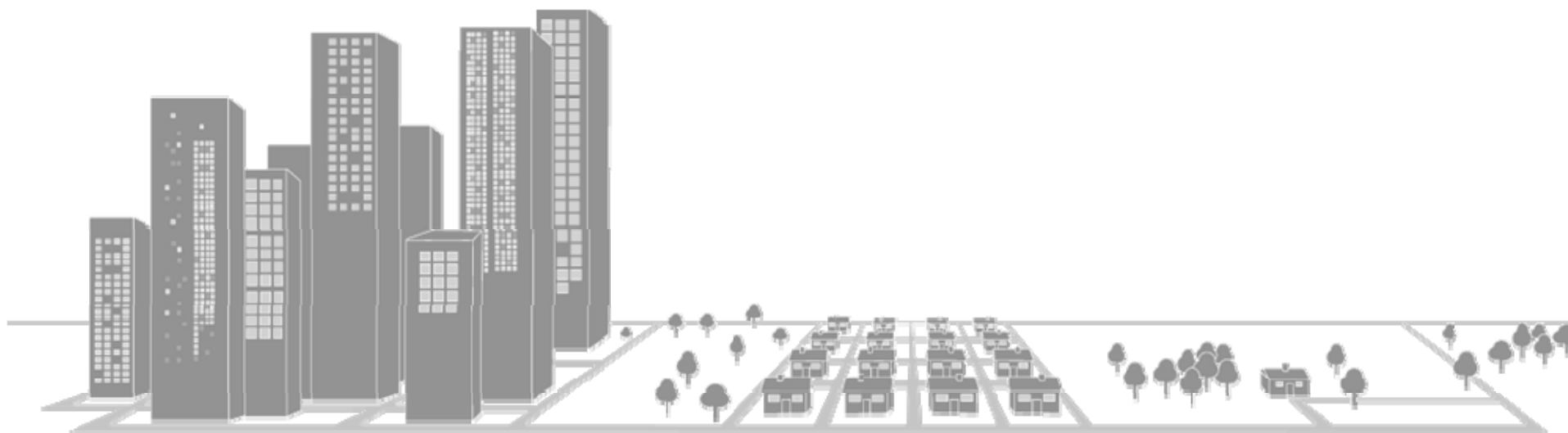


NO EARLY ACCESS TO 2600 AND 800

Urban

Suburban

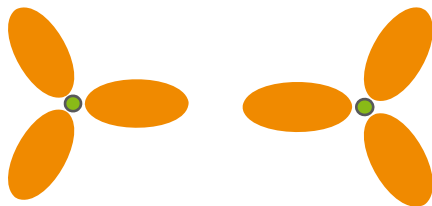
Rural



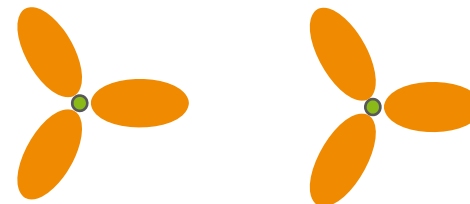
LTE 1800 INSTALLATION

- › Guard bands towards GSM
 - 100 kHz each end sufficient
- › Reuse of existing sites
 - WCDMA 2100 sites well suited for reuse for LTE 2600 or LTE 1800
- › Antenna reuse from GSM
 - GSM antennas typically designed for x-polarization (RX diversity) can be reused for 2x2 MIMO
 - Cell alignment issue in urban areas

Typical GSM



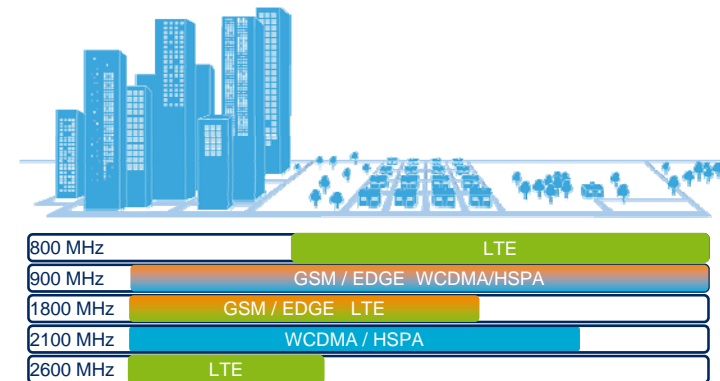
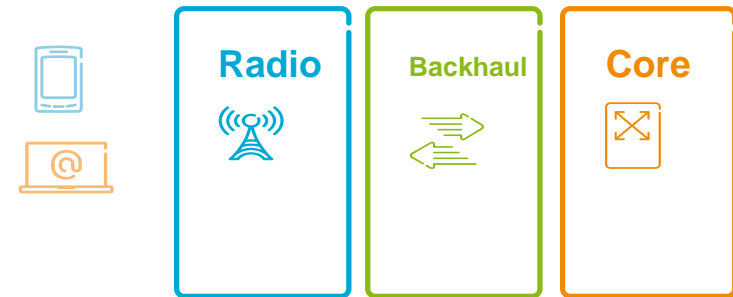
Typical HSPA, LTE



Minimize interference

SUMMARY

- › LTE Drivers;
Performance, Capacity, Cost
- › Delivering the best user experience with LTE, HSPA and EDGE
- › Mobile Broadband in one network for all radio technologies
- › LTE 1800 MHz makes LTE truly global





ERICSSON