



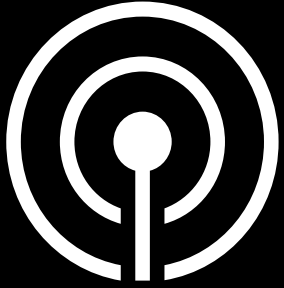
# THOMAS LIPS

CTIO AND BOARD MEMBER OF T-MOBILE POLSKA

# WHAT ARE THE KEY CUSTOMER NEEDS



LIFE IS FOR SHARING.



**TO BE IN RANGE  
EVERYTIME AND EVERYWHERE**



**DATA USAGE WITHOUT  
WORRIES ABOUT NETWORK  
SPEED AND CAPACITY**



**LIFE IS FOR SHARING.**

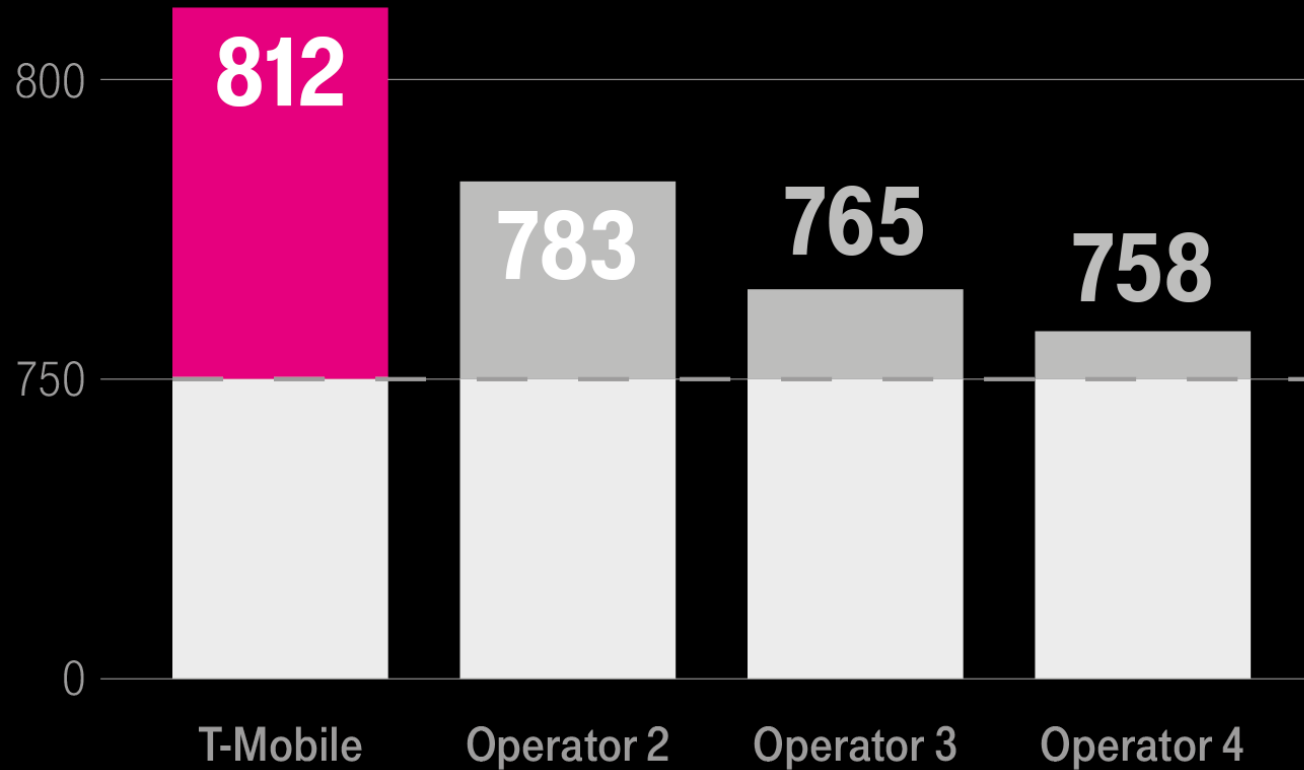


AND  
WE  
DELIVERED!



LIFE IS FOR SHARING.

# T-MOBILE BEST NETWORK OF 2015



LIFE IS FOR SHARING.

# WHERE WERE WE IN 2016?

# #najlepszasieć



LIFE IS FOR SHARING.

# NUMBER OF SITES AT THE END OF 2016



**10.370**

**INCLUDING**

■ **7000**

LTE1800

■ **2100**

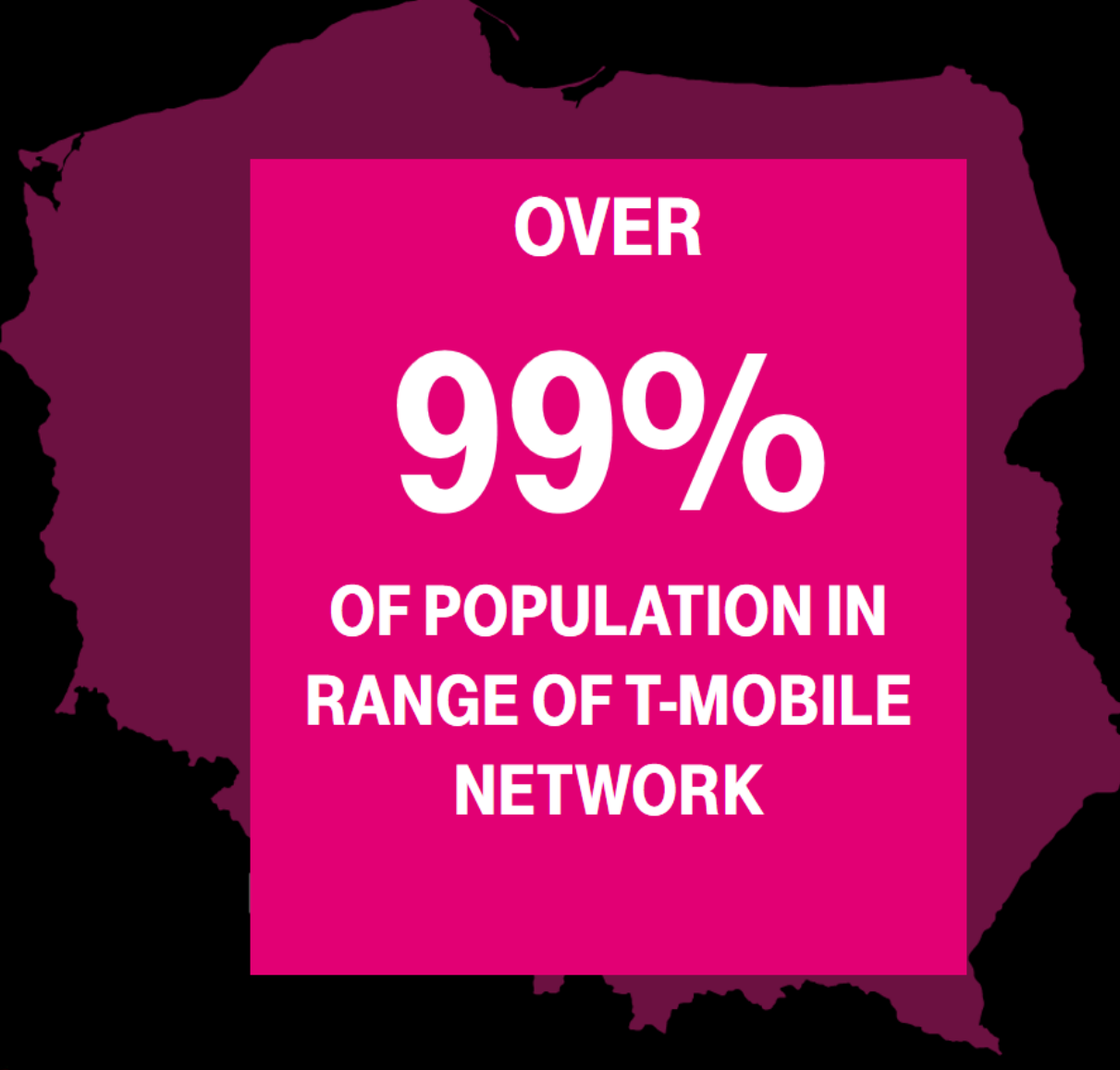
LTE800 AND/OR 2600

■ **600**

CARRIER AGGREGATION



LIFE IS FOR SHARING.



**OVER**

**99%**

**OF POPULATION IN  
RANGE OF T-MOBILE  
NETWORK**

**GSM – 99,7%**

Since SEPTEMBER 1996 till 2008

**UMTS – 99,5%**

Since OCTOBER 2006 till 2014

**LTE – 99,1%**

Since JUNE 2014 till 2016



LIFE IS FOR SHARING.



# IT WAS A YEAR OF A MASSIVE ROLLOUT

**150**

OF 2G/3G

**380**

LTE1800

**2100**

LTE800/2600



LIFE IS FOR SHARING.

# AND WE NEED IT DUE TO RAPIDLY GROWING DATA CONSUMPTION

DATA  
CONSUMPTION (YoY)



△+27%



△+28%

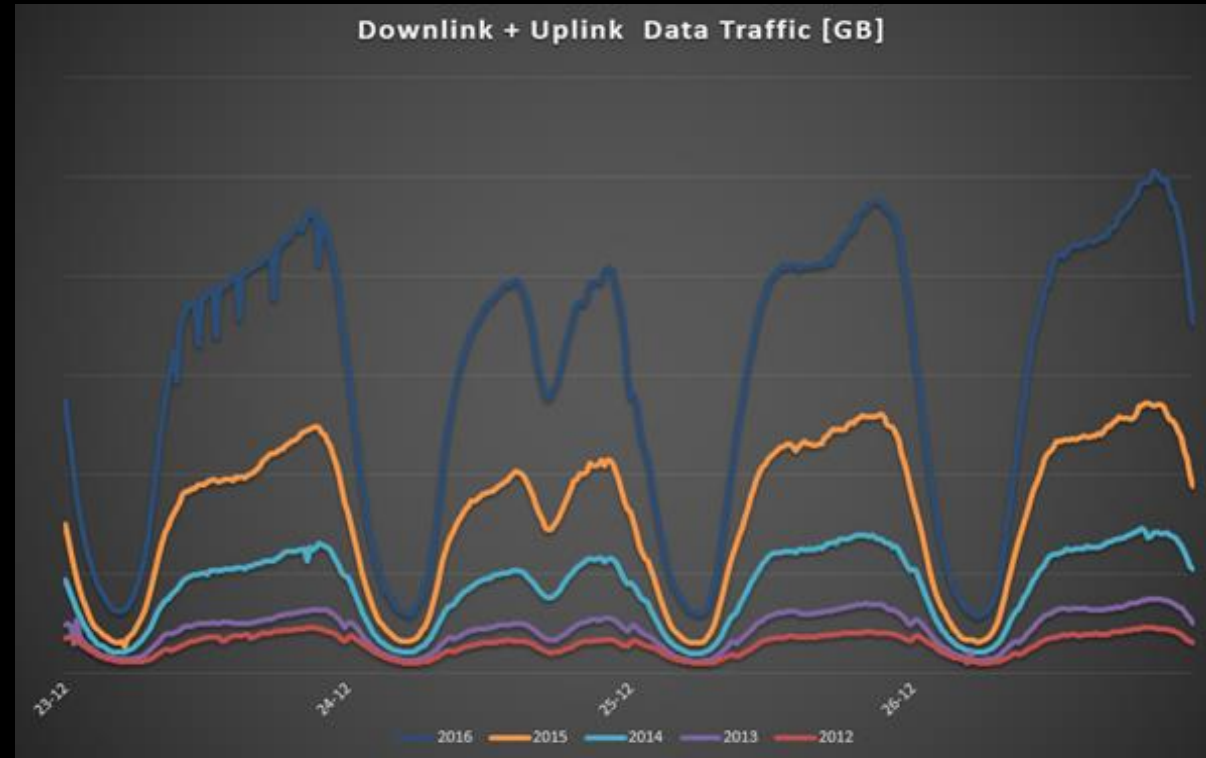


△+275%



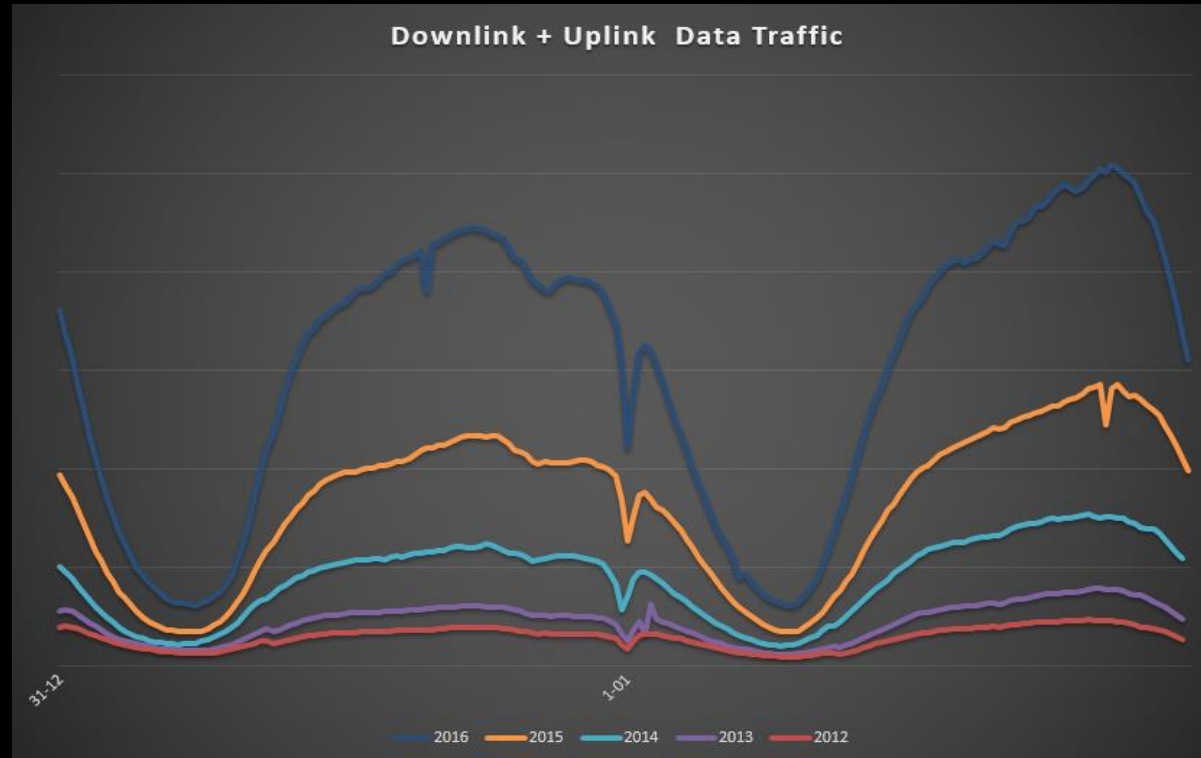
LIFE IS FOR SHARING.

# DATA USAGE DURING CHRISTMAS



LIFE IS FOR SHARING.

# DATA USAGE ON NEW YEAR'S EVE



LIFE IS FOR SHARING.

# PREPARATION FOR WINTER HOLIDAYS

**26** NEW INVESTMENTS

**6** CAPACITY EXTENTIONS

**6** MOBILE BASE STATIONS

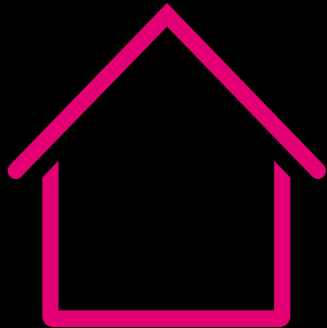


LIFE IS FOR SHARING.

# VOICE SERVICES IN ALL TECHNOLOGIES

2G ✓ 3G ✓ LTE ✓ WiFi ✓

AND EVEN IF YOU ARE, WITH SOME REASONS, OUT OF T-MOBILE NETWORK YOU CAN USE VOWIFI:



**AT HOME**



**IN PUBLIC PLACES**



**AND EVEN AT PLANE**



LIFE IS FOR SHARING.



# VOLTE & VOWIFI

## T-MOBILE LEADING INNOVATIONS IN POLAND

AS OF END OF 2016	T-MOBILE	PLAY	PLUS	ORANGE
VoLTE	YES	NO	NO	YES
VoWiFi	YES	YES	ONLY APPLICATION	NO
VoLTE > VoWiFi Handover	YES	NO	NO	NO
VoWiFi > VoLTE Handover	YES	NO	NO	NO
WiFi MMS	YES	NO	NO	NO
WiFi SMS	YES	YES	NO	NO
Service Activation	YES	BY SMS	NO	NO

### AVAILABLE DEVICES:

- SAMSUNG GALAXY S6
- SAMSUNG GALAXY S6 EDGE
- SAMSUNG GALAXY A5
  - SONY XPERIA XZ
  - SONY XPERIA X

**19 MODELS BY THE  
END OF 1Q2017**



LIFE IS FOR SHARING.

# ZERO DROP NETWORK



H1'2014



H1'2015

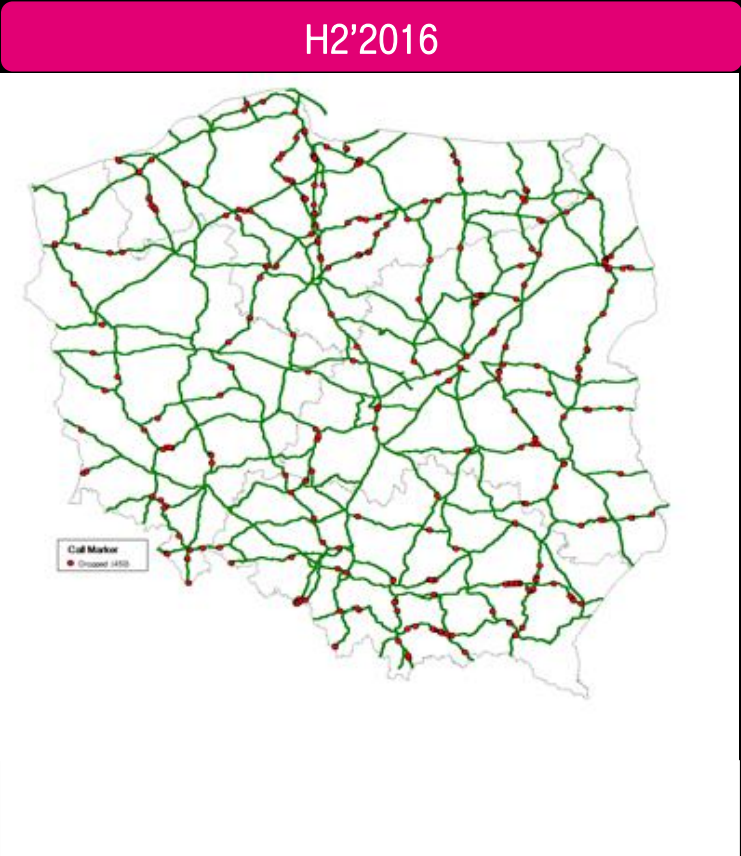


H1'2016



LIFE IS FOR SHARING.

# ZERO DROP NETWORK



H1'2014		H2'2016
152 544 km	DISTANCE	254 048 km
659	DROPS	450
231	KM/DROP	548

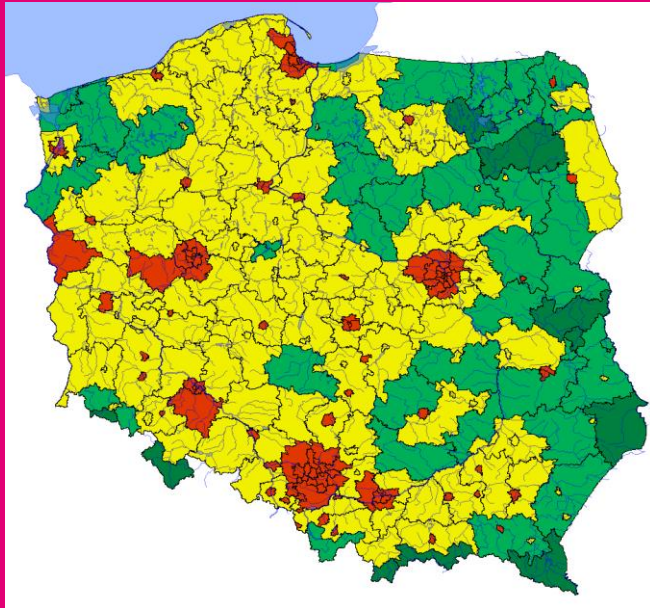
2,3 x LONGER DISTANCE WITHOUT DROP



LIFE IS FOR SHARING.

# SUBSCRIBERS MIGRATIONS

## CALLS



Traffic migration Chrsitmas  
Absolute value of calling subscribers

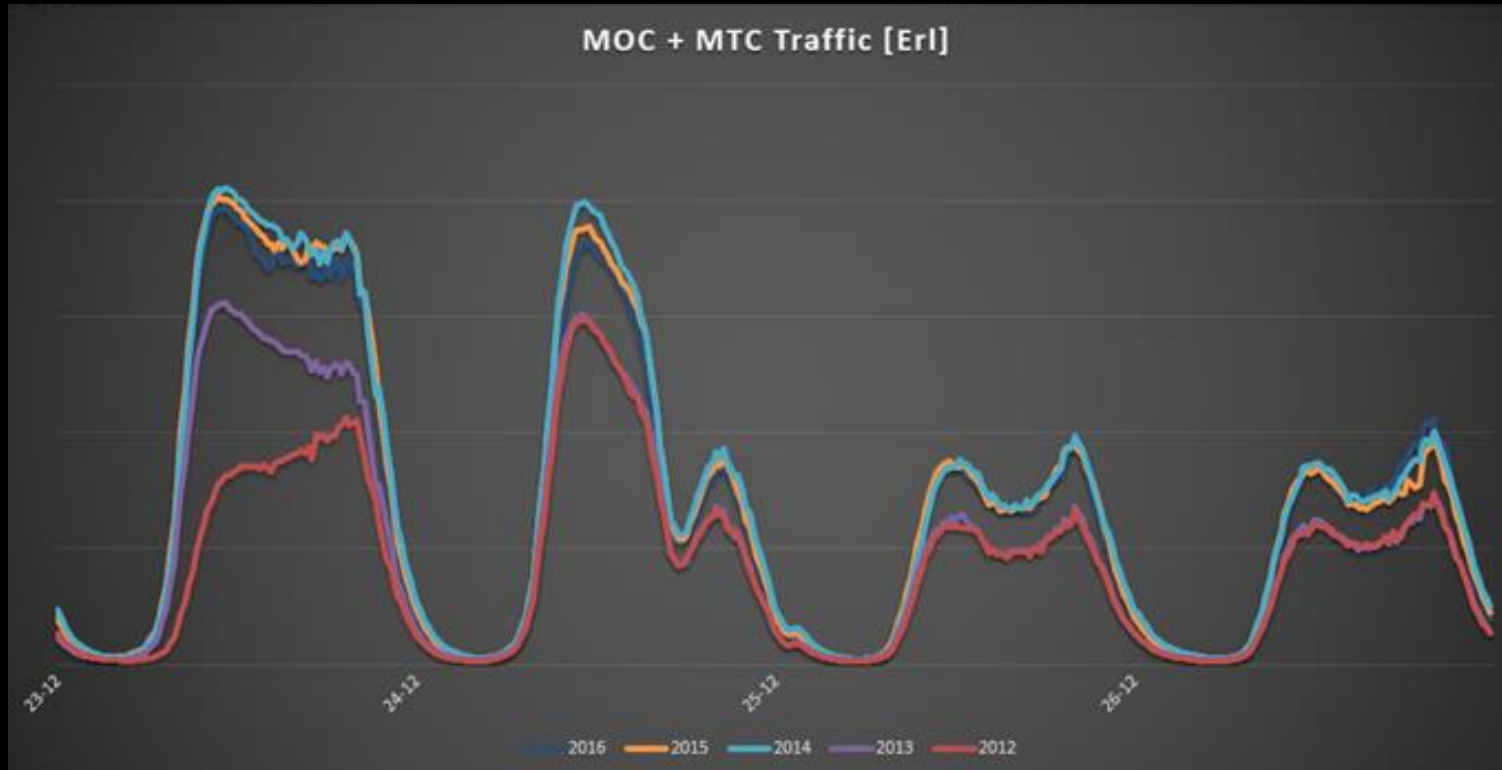
■	> 110% of users	(10)
■	100-110% of users	(36)
■	80-100% of users	(129)
■	<80% of users	(118)

## DATA



LIFE IS FOR SHARING.

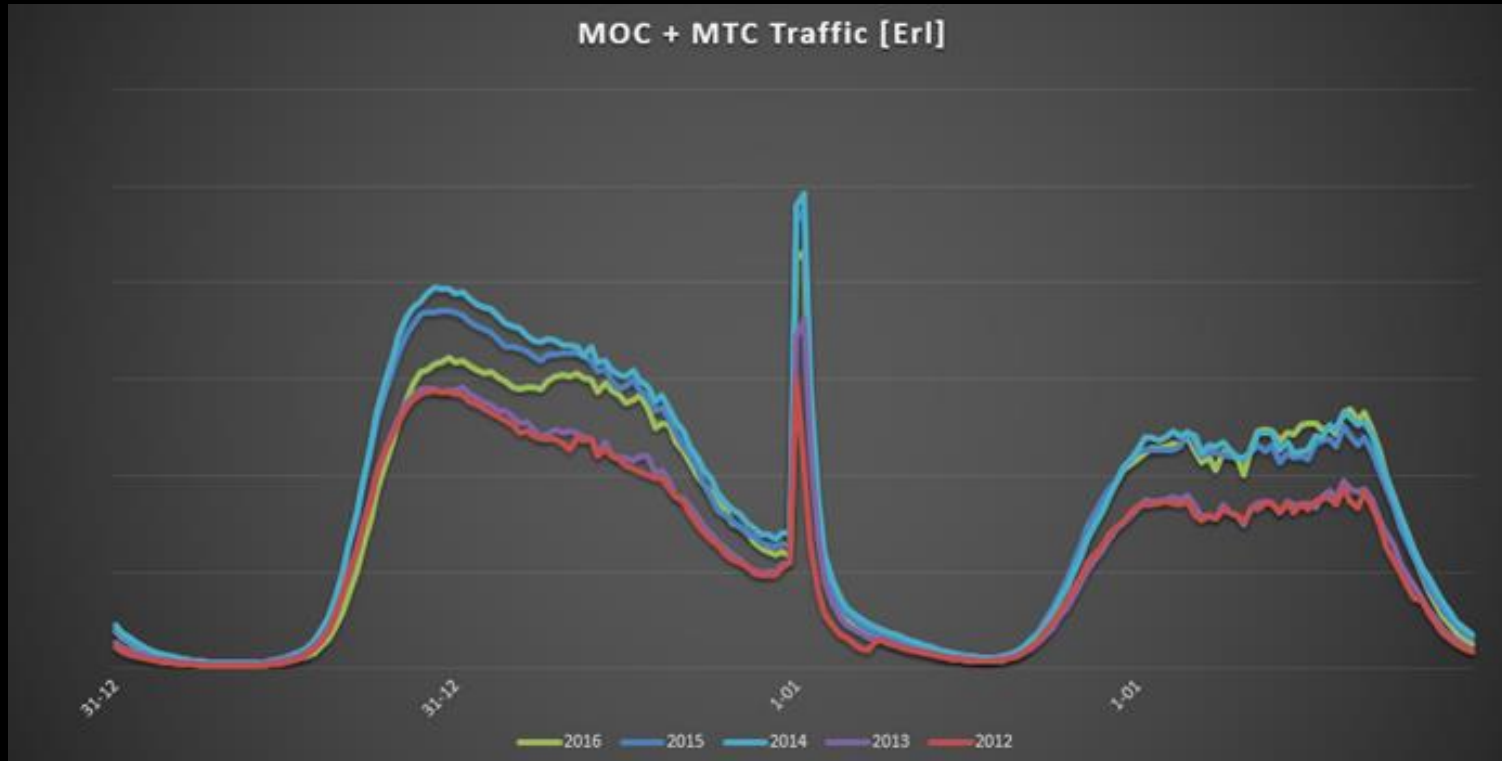
# VOICE TRAFFIC - CHRISTMAS



LIFE IS FOR SHARING.



# VOICE TRAFFIC – NEW YEAR



LIFE IS FOR SHARING.

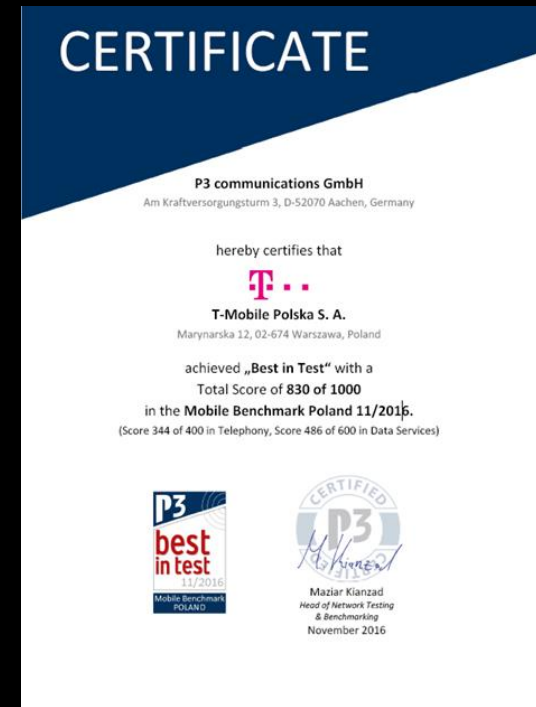
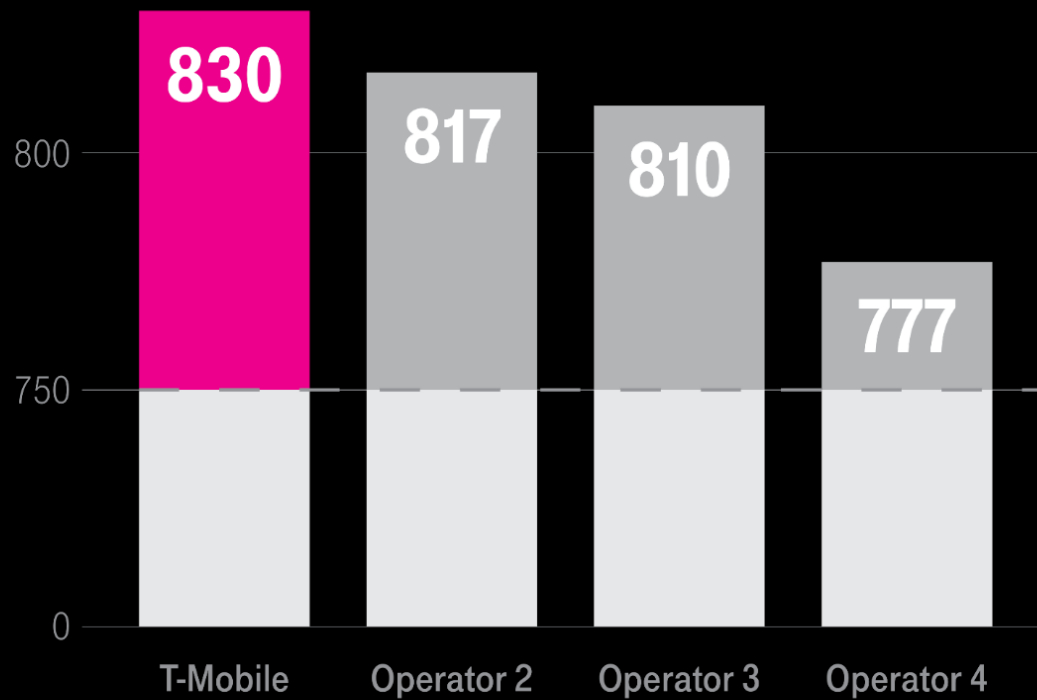


**WAS IT ENOUGH  
TO BE THE BEST  
NETWORK IN  
2016?**



LIFE IS FOR SHARING.

# T-MOBILE BEST NETWORK OF 2016



LIFE IS FOR SHARING.

# P3 MEASUREMENT SETUP

## GENERAL INFO



**27** DAYS OF MEASUREMENTS

CA **190** HOURS

CA **10000** KILOMETERS

**100%** DRIVE TEST - **56.8%** IN CITIES, **17,5%** IN

TOWNS, **25,8%** ON ROADS

**4300** VOICE SAMPLES PER OPERATOR

**3000** DATA SAMPLES PER OPERATOR

**WARSAW** - 2 DAYS OF MEASUREMENTS

**41 TOWNS** - 1 DAY MEASUREMENTS

**21 CITIES** - 2-4 HOURS OF MEASUREMENTS



LIFE IS FOR SHARING.

# P3 MEASUREMENT SETUP

## ROADS



Roads picked by P3 for measurement in 2015



Roads picked by P3 for measurement in 2016



# P3 MEASUREMENT SETUP

## TEST CASES



- MOBILE-TO-MOBILE
- 4G TO 4G
- 4G TO 3G
- 115 SEC CALL WINDOW
- 70 SEC CALL DURATION
- 15 SEC CALL SETUP TIMEOUT
- DATA 4G PREFERRED CA
- HTTP DL DATASTREAM 10S
- HTTP UL DATASTREAM 10S
- HTTP 3MB DL FIXED TRANSFER
- HTTP 1MB UL FIXED FILE TRANSFER
- WEB BROWSING KEPLER
- 10 LIVE WEB PAGES (50% HTTP, 50% HTTPS)
- YOUTUBE HD/SD VIDEO 45S



LIFE IS FOR SHARING.

# BEST CALL SETUP TIME

# HIGHEST SPEECH QUALITY

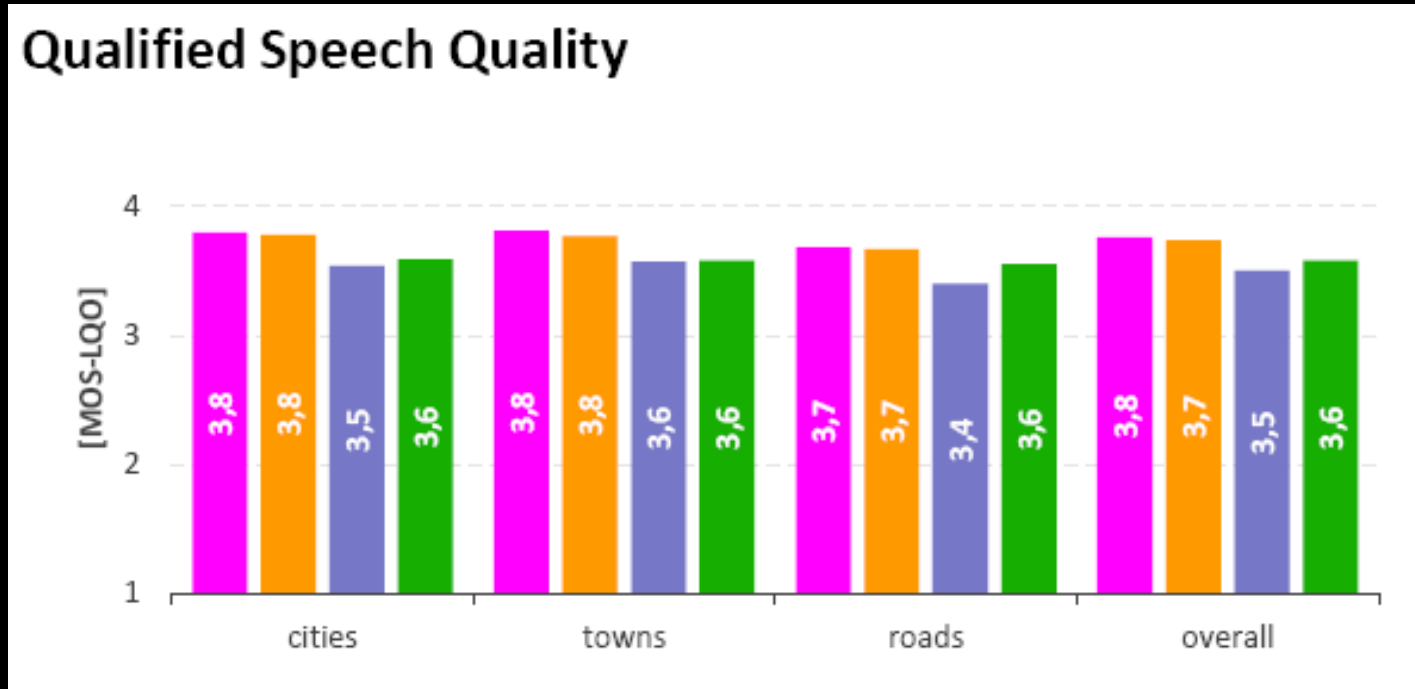
VOICE M2M	KPI NAME	UNIT	T-MOBILE	OPERATOR 2	OPERATOR 3	OPERATOR 4
CITIES	QULIFIER	[%]	99,3%	98,7%	98,8%	98,8%
	CALL SETUP TIME	[s]	6,0	6,3	6,1	6,9
	AVG SPEECH QUALITY	[MOS-LQQ]	3,8	3,8	3,5	3,6
TOWNS	QULIFIER	[%]	98,5%	99,2%	98,8%	99,1%
	CALL SETUP TIME	[s]	5,8	6,1	6,1	6,6
	AVG SPEECH QUALITY	[MOS-LQQ]	3,8	3,8	3,6	3,6
ROADS	QULIFIER	[%]	95,7%	96,4%	92,2%	96,9%
	CALL SETUP TIME	[s]	6,0	6,3	6,4	6,8
	AVG SPEECH QUALITY	[MOS-LQQ]	3,7	3,7	3,4	3,6



LIFE IS FOR SHARING.

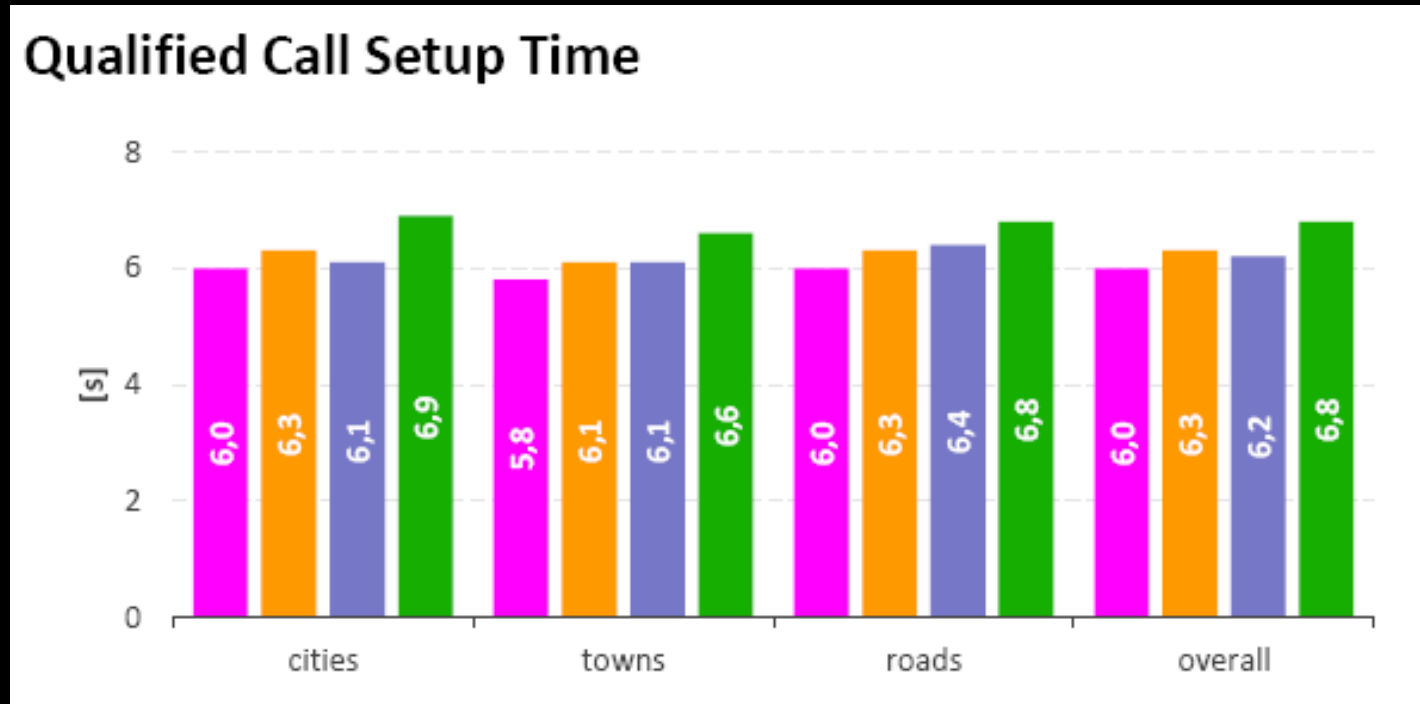


# HIGHEST SPEECH QUALITY



LIFE IS FOR SHARING.

# BEST CALL SETUP TIME



LIFE IS FOR SHARING.

# HIGH QUALITY OF ALL FACTORS

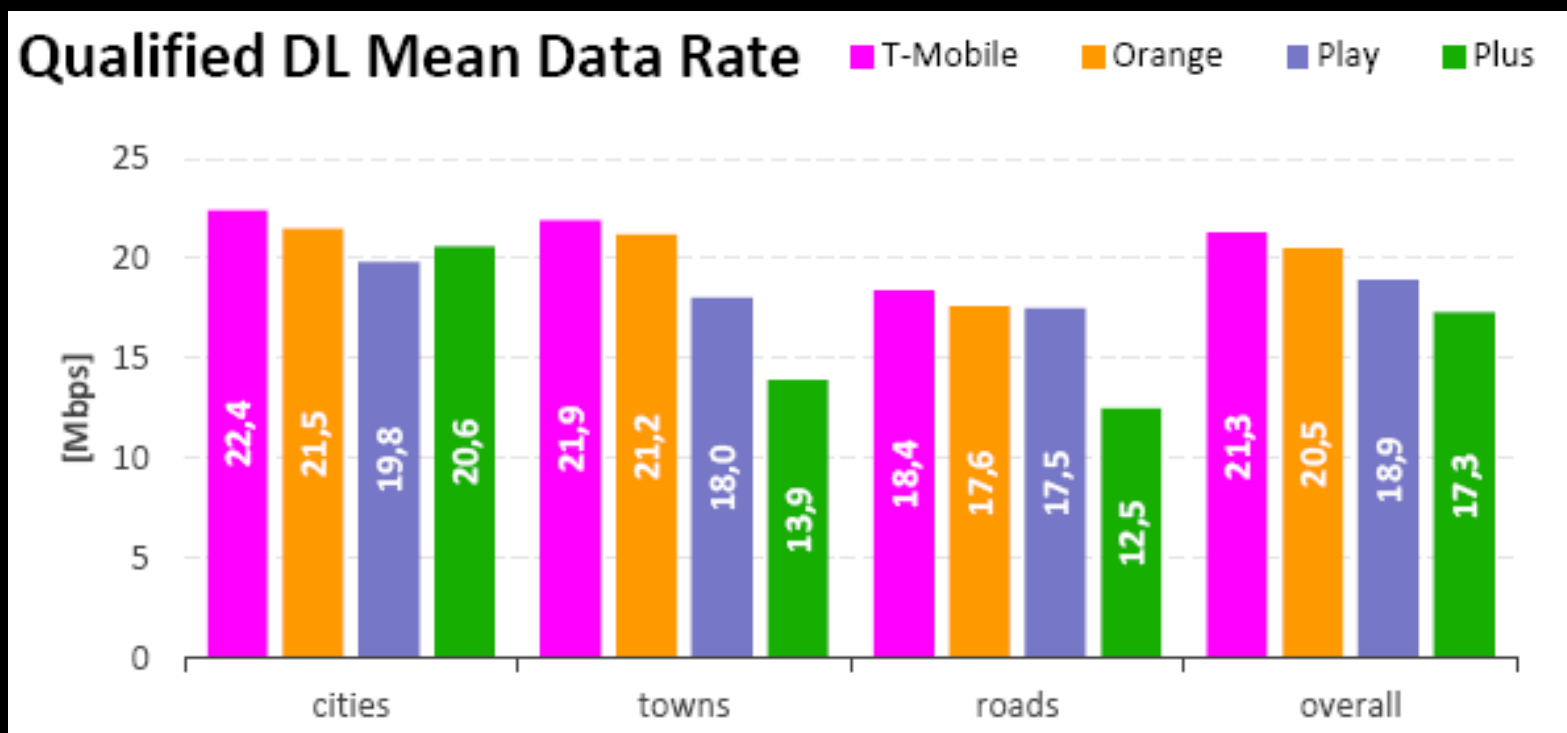
## 11 OF 12 IN TOP2

DATA	SERVICE GROUP	MAX.	T-MOBILE	OPERATOR 2	OPERATOR 3	OPERATOR 4
CITIES	WEB BROWSING	126	87%	84%	85%	85%
	FILE DOWNLOAD	72	81%	79%	79%	82%
	FILE UPLOAD	72	86%	81%	80%	88%
	YOUTUBE	90	92%	91%	90%	93%
TOWNS	WEB BROWSING	42	80%	75%	80%	71%
	FILE DOWNLOAD	24	74%	76%	76%	71%
	FILE UPLOAD	24	68%	62%	44%	74%
	YOUTUBE	30	91%	88%	88%	82%
ROADS	WEB BROWSING	42	59%	60%	49%	62%
	FILE DOWNLOAD	24	74%	74%	62%	73%
	FILE UPLOAD	24	55%	51%	36%	64%
	YOUTUBE	30	78%	80%	66%	77%



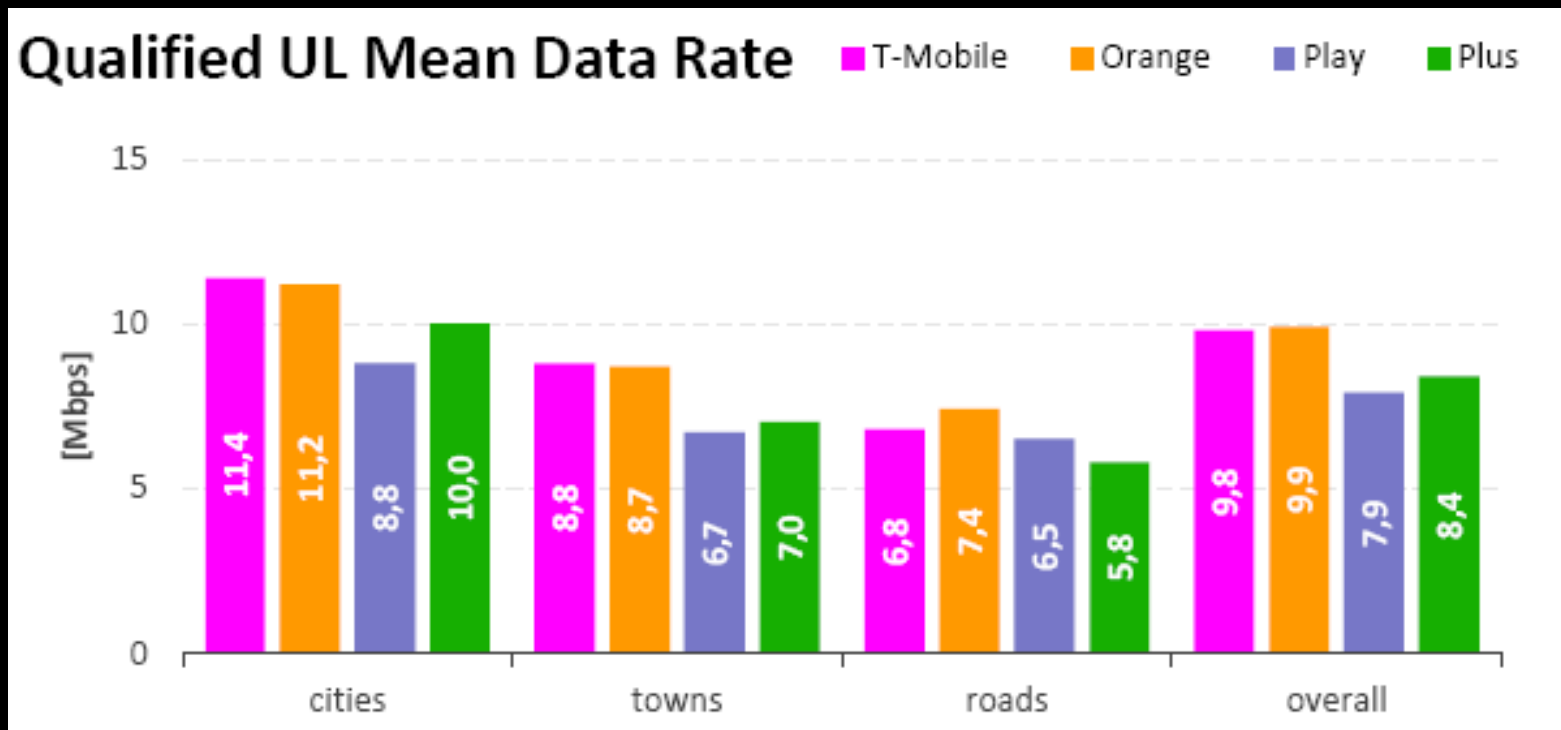
LIFE IS FOR SHARING.

# HIGHEST HTTP DL SPEED



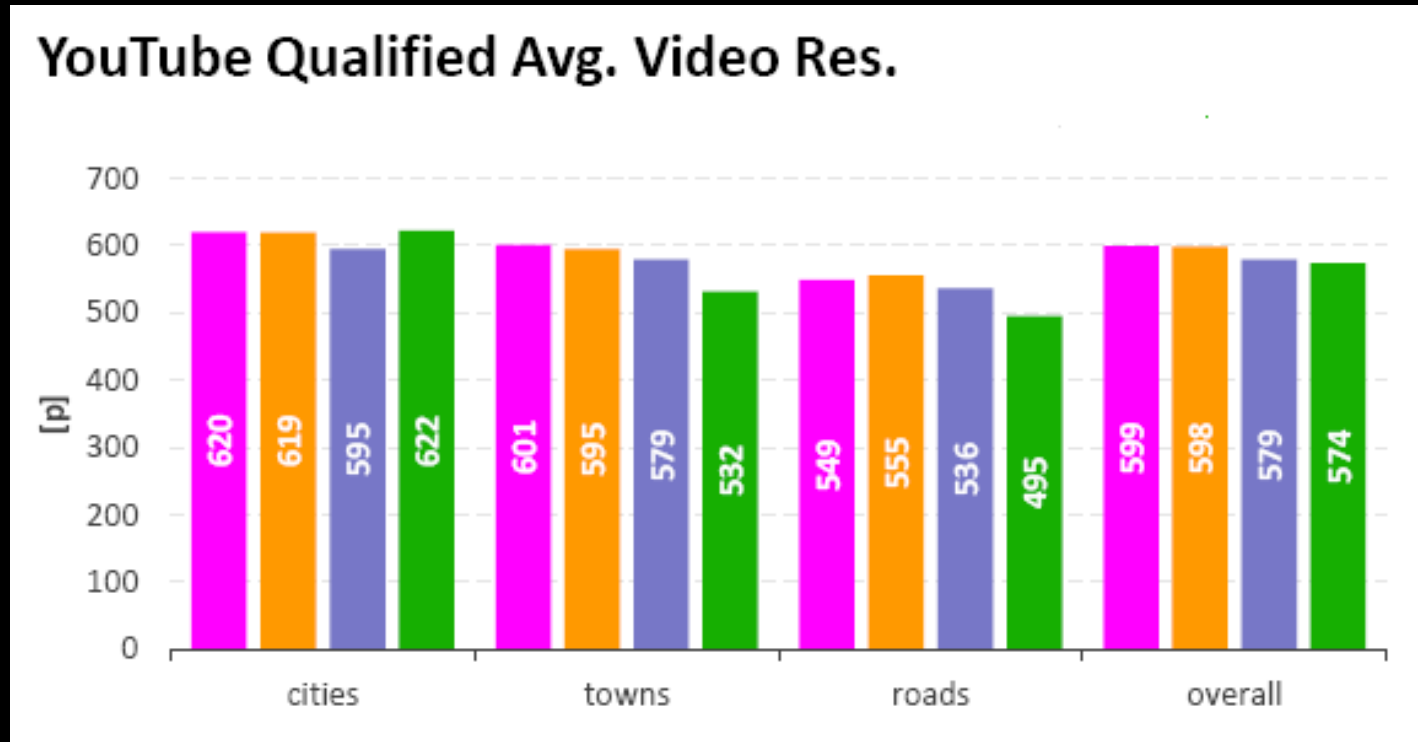
LIFE IS FOR SHARING.

# HIGHEST HTTP UL SPEED



LIFE IS FOR SHARING.

# QUALITY OF SERVICES





# SPEEDTEST.PL RESULTS - DECEMBER

3G/LTE

<b>1</b> T-Mobile	+1 poz.	T-Mobile	<b>19.18 Mbps</b> <b>7.93 Mbps</b> <b>47 ms</b> <b>12,455</b>	- średnia prędkość pobierania (+7%) - średnia prędkość wysyłania (+6%) - średni ping (-1%) - liczba testów	SpeedTest.pl najlepszy ISP
<b>2</b> Orange	-1 poz.	Orange	<b>17.97 Mbps</b> <b>7.78 Mbps</b> <b>44 ms</b> <b>18,307</b>	- średnia prędkość pobierania (-10%) - średnia prędkość wysyłania (-10%) - średni ping (-6%) - liczba testów	
<b>3</b> Plus		Plus	<b>14.13 Mbps</b> <b>5.89 Mbps</b> <b>48 ms</b> <b>20,696</b>	- średnia prędkość pobierania (-6%) - średnia prędkość wysyłania (-15%) - średni ping (-1%) - liczba testów	
<b>4</b> Play		Play	<b>13.45 Mbps</b> <b>4.86 Mbps</b> <b>42 ms</b> <b>31,742</b>	- średnia prędkość pobierania - średnia prędkość wysyłania (-5%) - średni ping (-1%) - liczba testów	

LTE

<b>1</b> T-Mobile	+1 poz.	T-Mobile	<b>26.85 Mbps</b> <b>11.64 Mbps</b> <b>38 ms</b> <b>7,837</b>	- średnia prędkość pobierania (+8%) - średnia prędkość wysyłania (+5%) - średni ping - liczba testów	SpeedTest.pl najlepszy ISP
<b>2</b> Orange	-1 poz.	Orange	<b>24.92 Mbps</b> <b>11.35 Mbps</b> <b>38 ms</b> <b>11,466</b>	- średnia prędkość pobierania (-7%) - średnia prędkość wysyłania (-7%) - średni ping (-3%) - liczba testów	
<b>3</b> Plus		Plus	<b>19.02 Mbps</b> <b>8.31 Mbps</b> <b>44 ms</b> <b>13,498</b>	- średnia prędkość pobierania (-4%) - średnia prędkość wysyłania (-14%) - średni ping (-1%) - liczba testów	
<b>4</b> Play		Play	<b>17.75 Mbps</b> <b>6.54 Mbps</b> <b>33 ms</b> <b>22,063</b>	- średnia prędkość pobierania (+5%) - średnia prędkość wysyłania (-2%) - średni ping (+2%) - liczba testów	



LIFE IS FOR SHARING.

# THANK YOU



LIFE IS FOR SHARING.