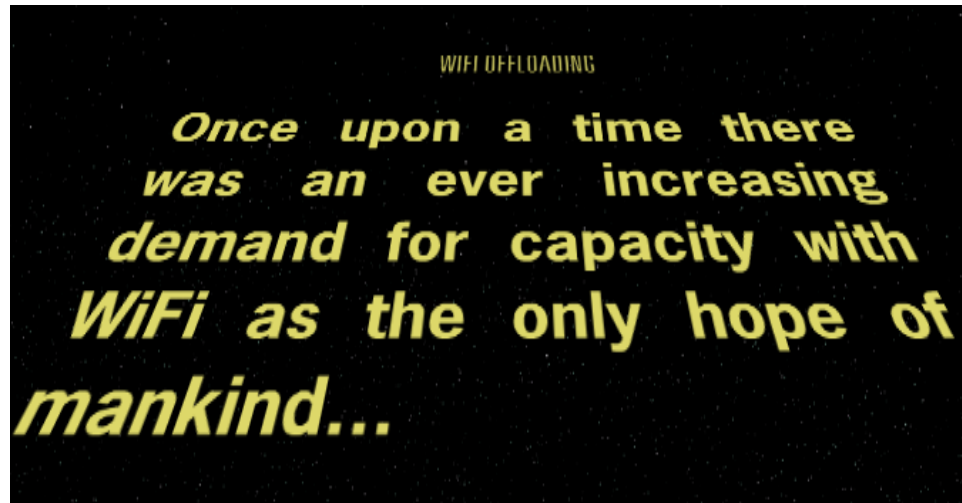


Fairytale?



Swiss Army Knife?



WIFI OFFLOADING – A CASE STUDY

Fairytale or Swiss Army Knife?

25. ComNets-Workshop Mobil- und Telekommunikation, 14. März 2014*

Dr. Matthias Siebert,
Deutsche Telekom AG, Europe & Technology, Mobile Access

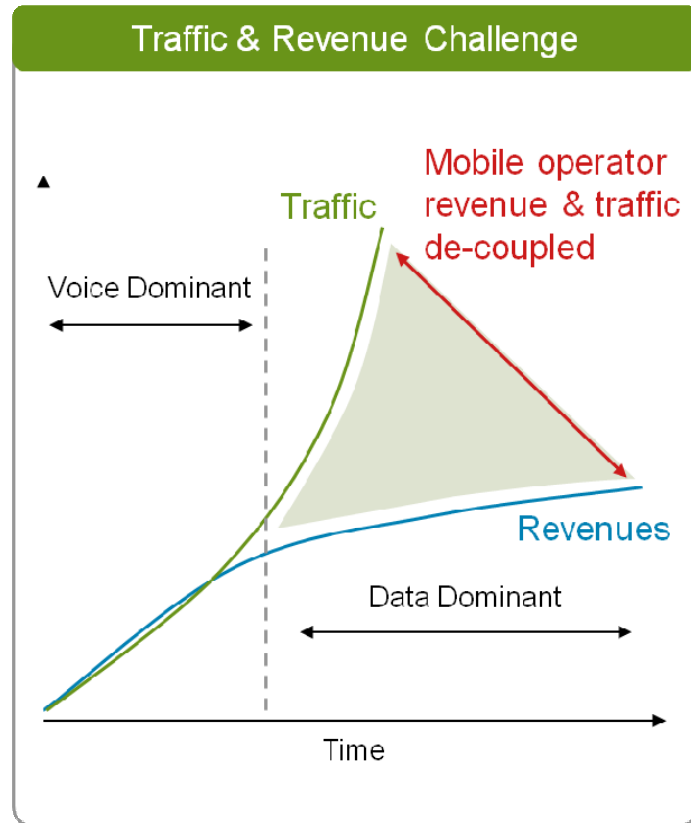


LIFE IS FOR SHARING.

*reference: Global Wi-Fi Offload Summit , January 23rd, 2014 - Frankfurt, Germany

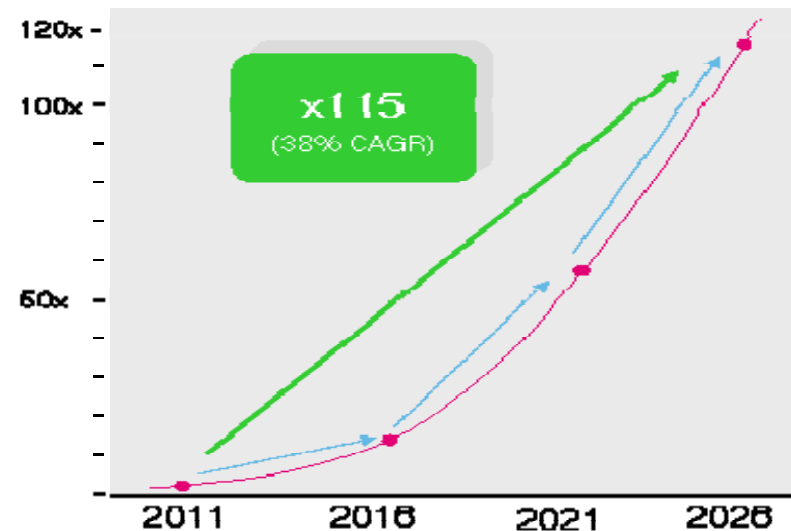
DATA GROWTH CONTINUES – COST BURDENS, TOO

Predicted already in 2008* ...



- Revenues to be increased or cost to be shrunk

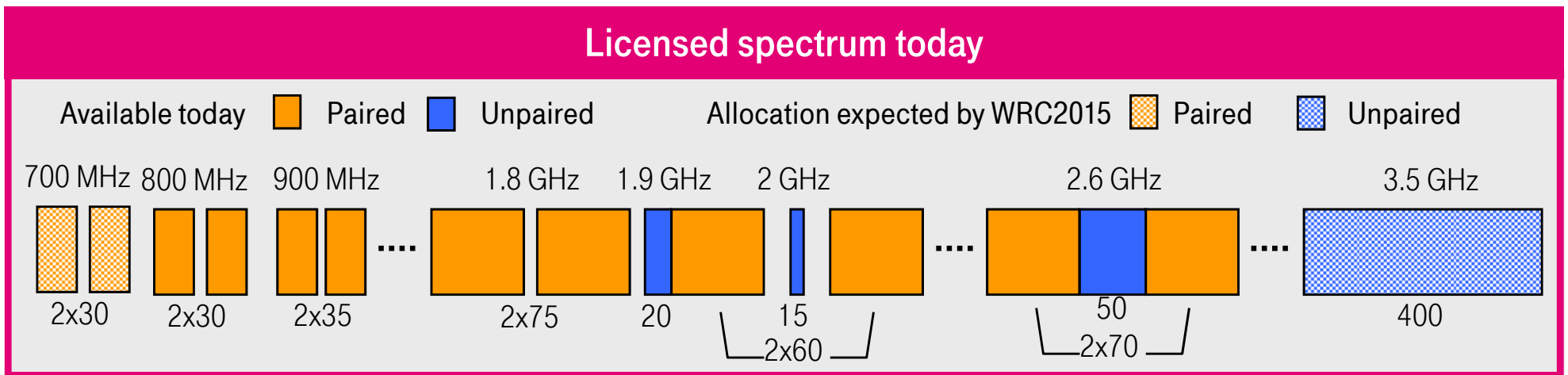
... confirmed nowadays.



- In recent years, DT's Natcos saw continued data traffic growth of around 50-80% pa
- Smartphone penetration already >50% in W. European Natcos

- Data hungry users
- Deliver capacity at minimum cost

MAIN MOTIVATION FOR WIFI – FREE SPECTRUM



- Spectrum is a big cost factor
- Available cellular spectrum today: Cellular → 625 MHz (FDD: 540; TDD: 85), WiFi → 538,5 MHz

Main Motivation for WLAN usage

Free of charge spectrum



83,5MHz @2.4GHz

455MHz @5GHz



Everywhere deployed

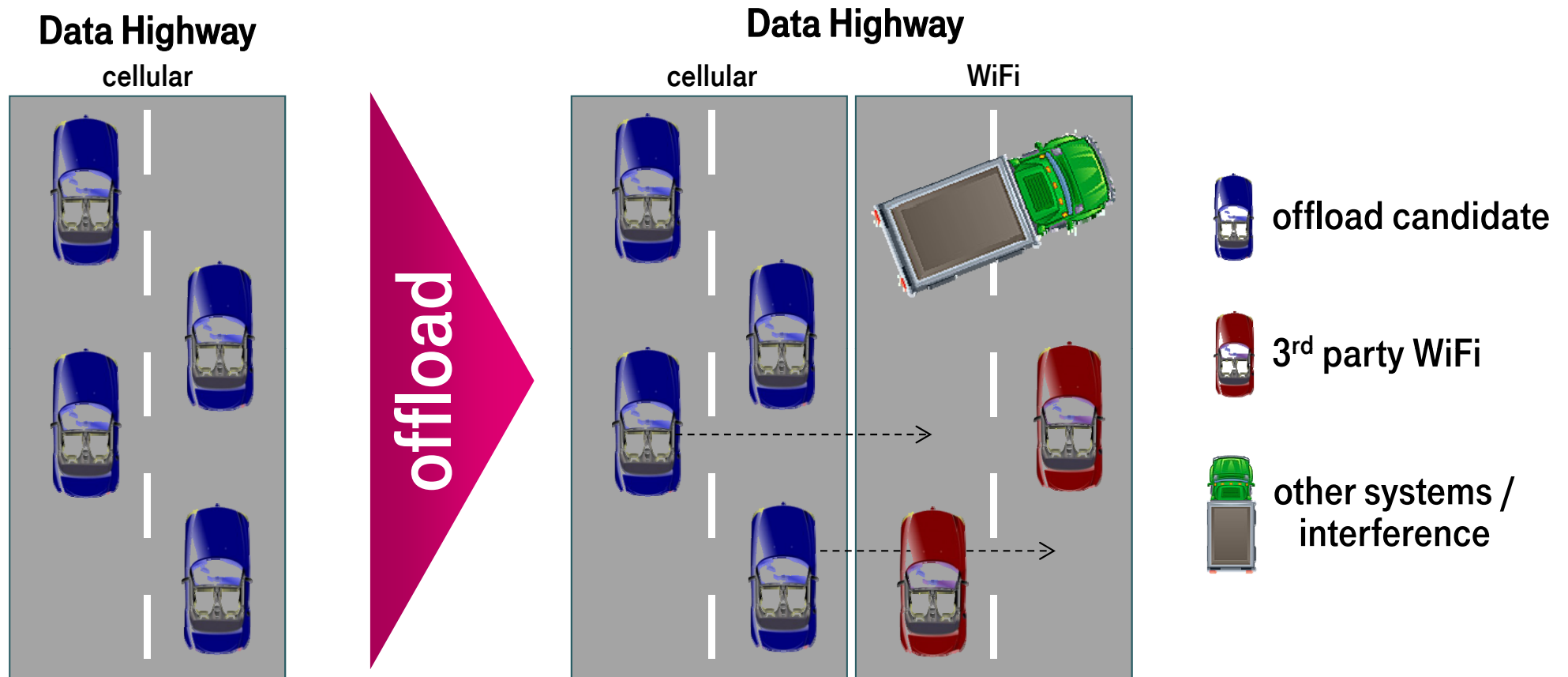


High terminal penetration (smart phone, PC, tablets)



WLAN OFFLOADING DEFINITION

Definition: WiFi offloading is the use of complementary network technologies (WiFi) for delivering data being served by cellular networks otherwise.

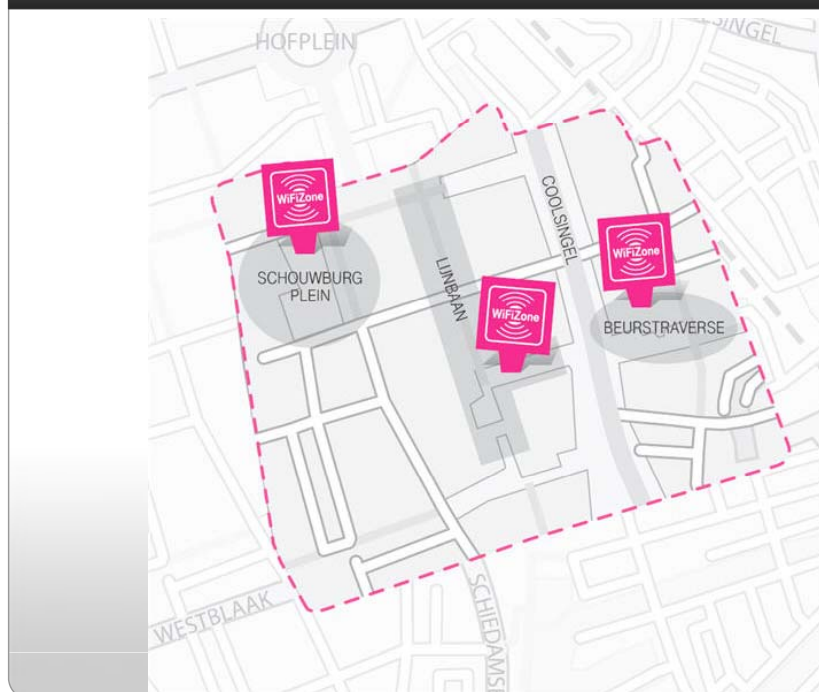


- WiFi promises to carry over cellular traffic, but how does real life performance look like?

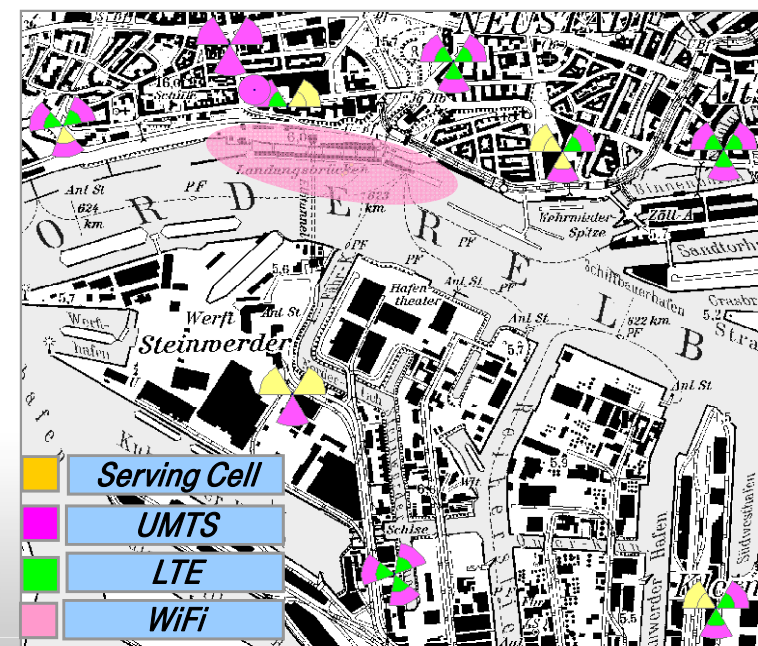
TELEKOM WIFI ZONES USED IN OUR ANALYSIS



Rotterdam City Center



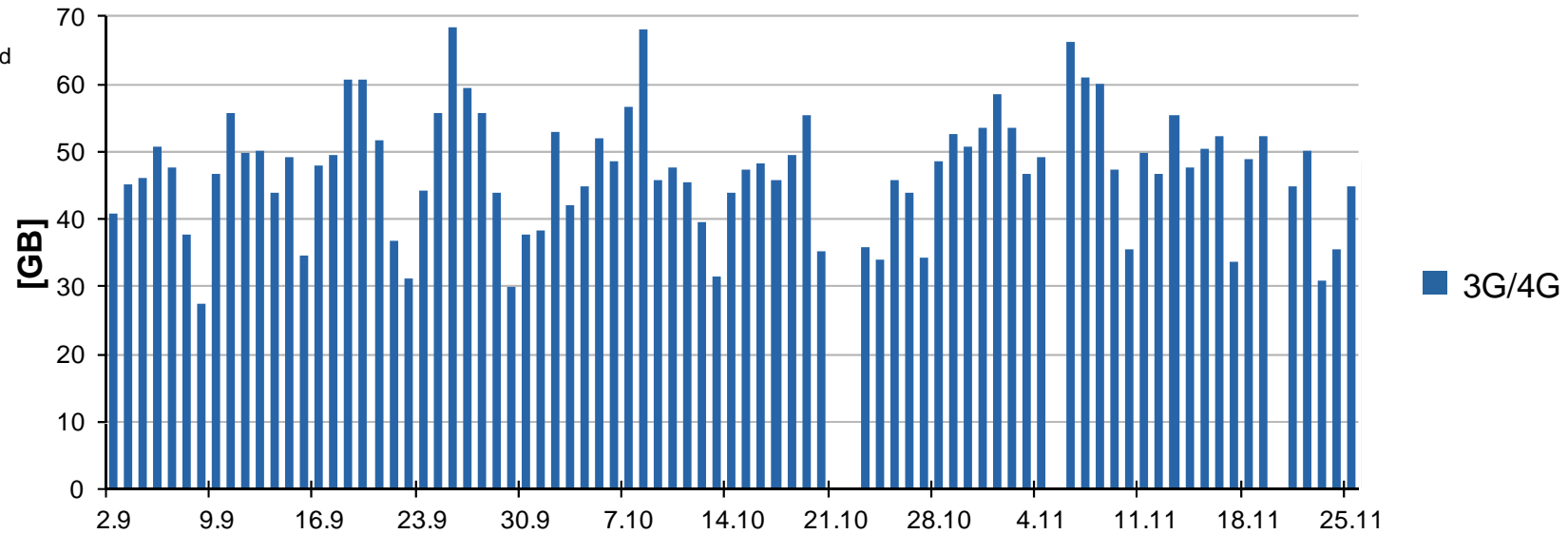
Hamburg Landungsbrücken



CELLULAR TRAFFIC MAINTAINS ITS CHARACTERISTIC

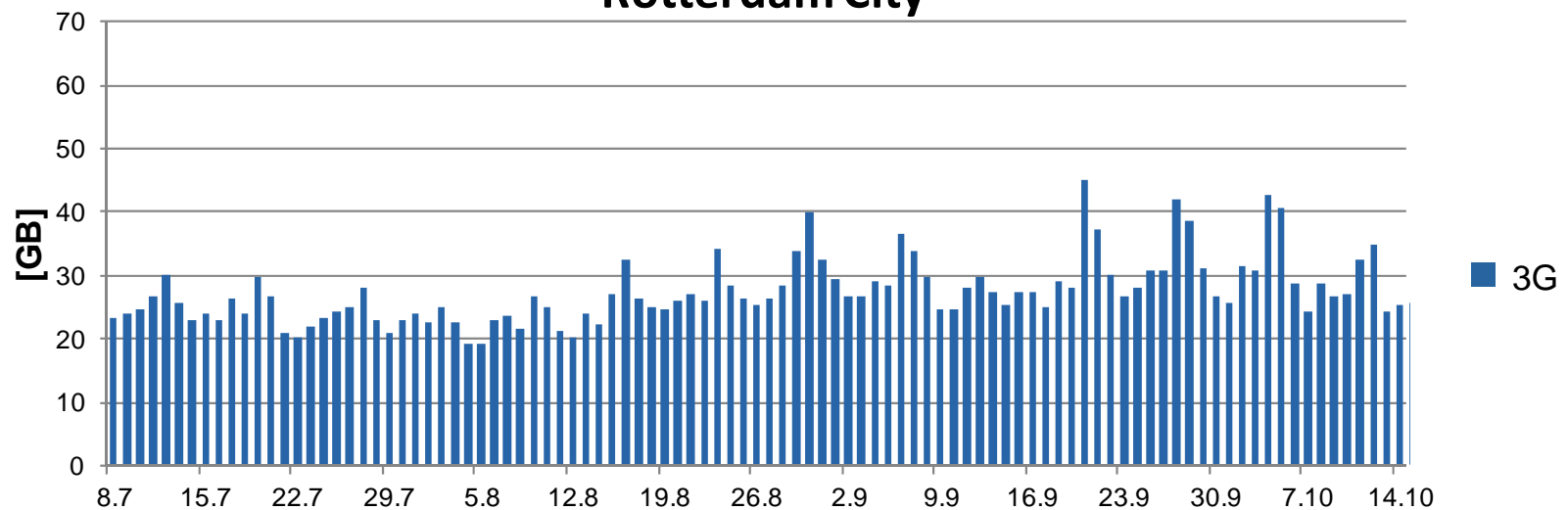
Hamburg Landungsbrücken

data source:
Telekom Deutschland



Rotterdam City

data source:
T-Mobile NL



LIFE IS FOR SHARING.

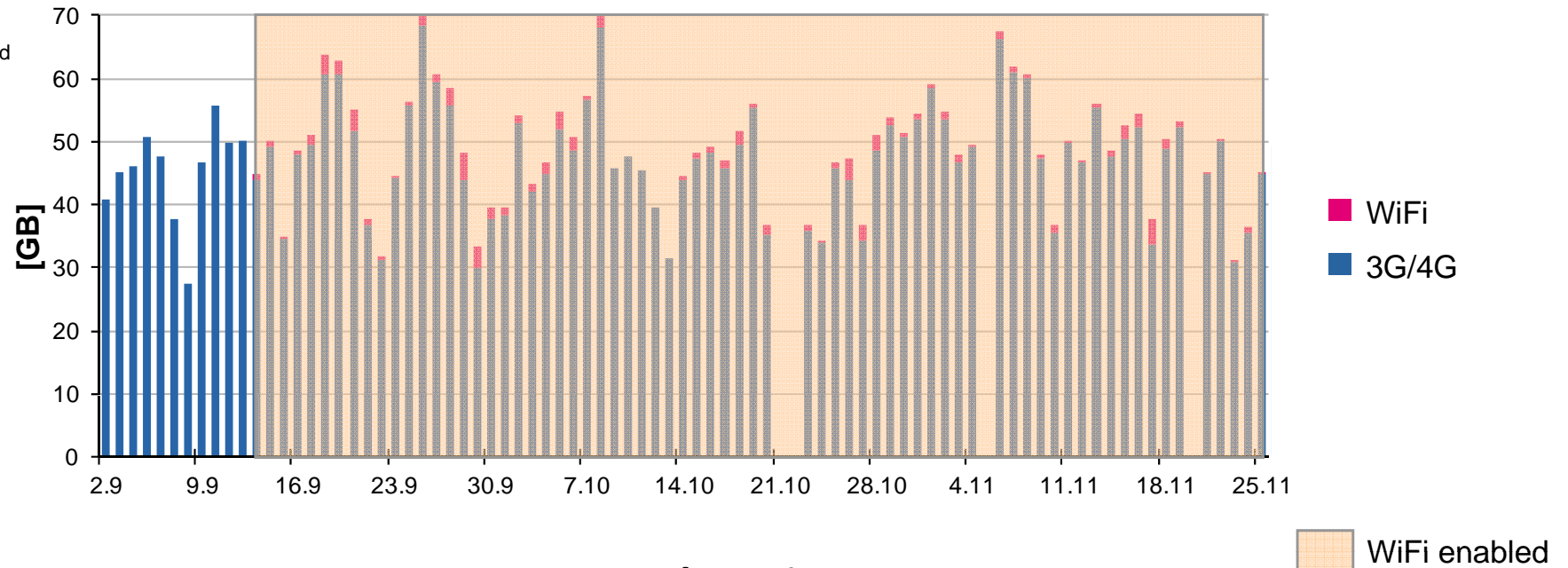
ComNets FFV, 14.03.2014

Matthias Siebert

CELLULAR TRAFFIC MAINTAINS ITS CHARACTERISTIC

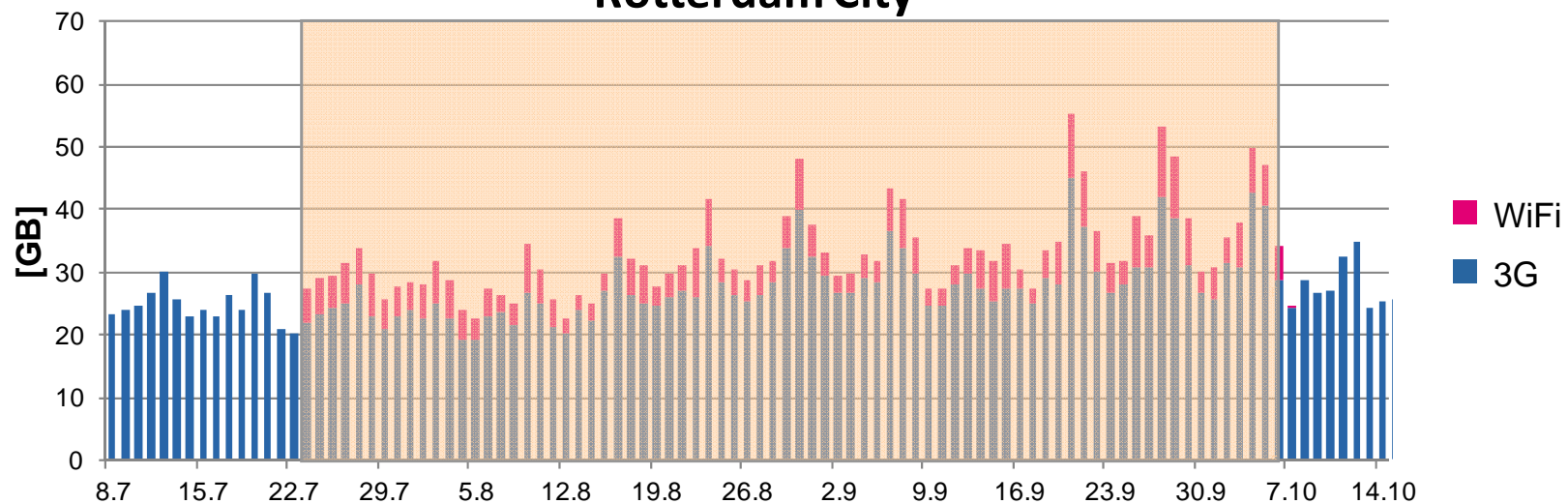
Hamburg Landungsbrücken

data source:
Telekom Deutschland



Rotterdam City

data source:
T-Mobile NL



LIFE IS FOR SHARING.

ComNets FFV, 14.03.2014

Matthias Siebert

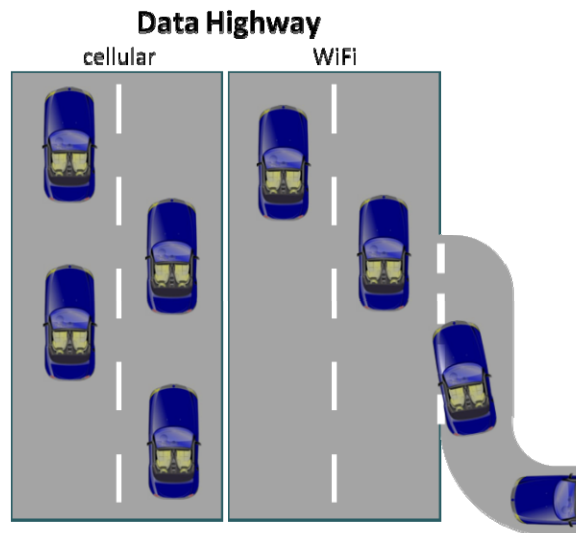
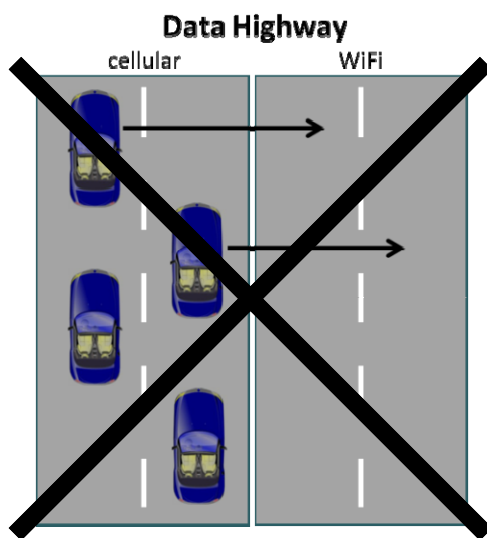
OBSERVATIONS



- WiFi switch on does not change the cellular load characteristic
- Expected decrease of cellular load can not be observed
- 3G load in Rotterdam even shows some increase

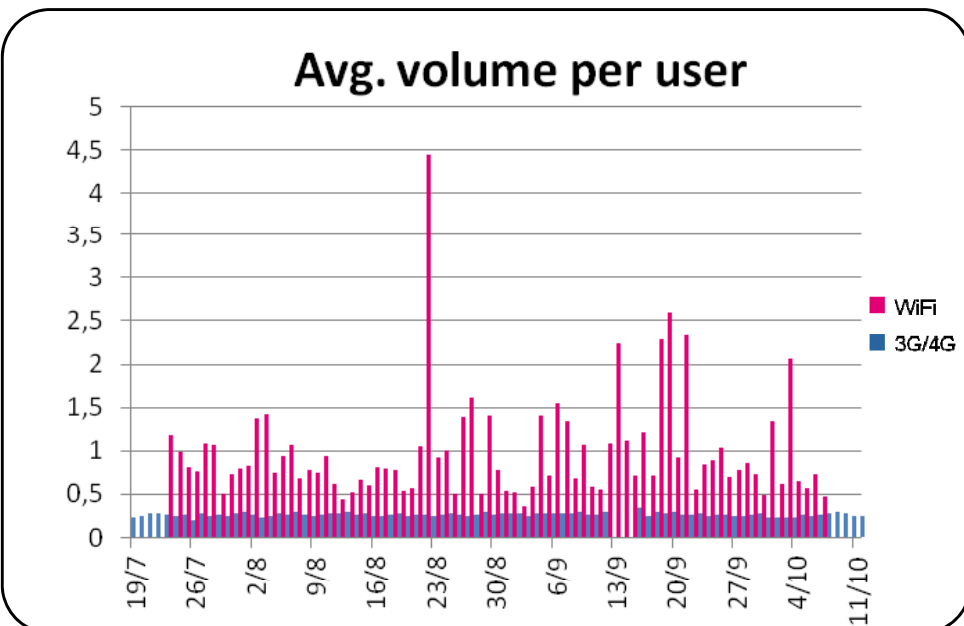
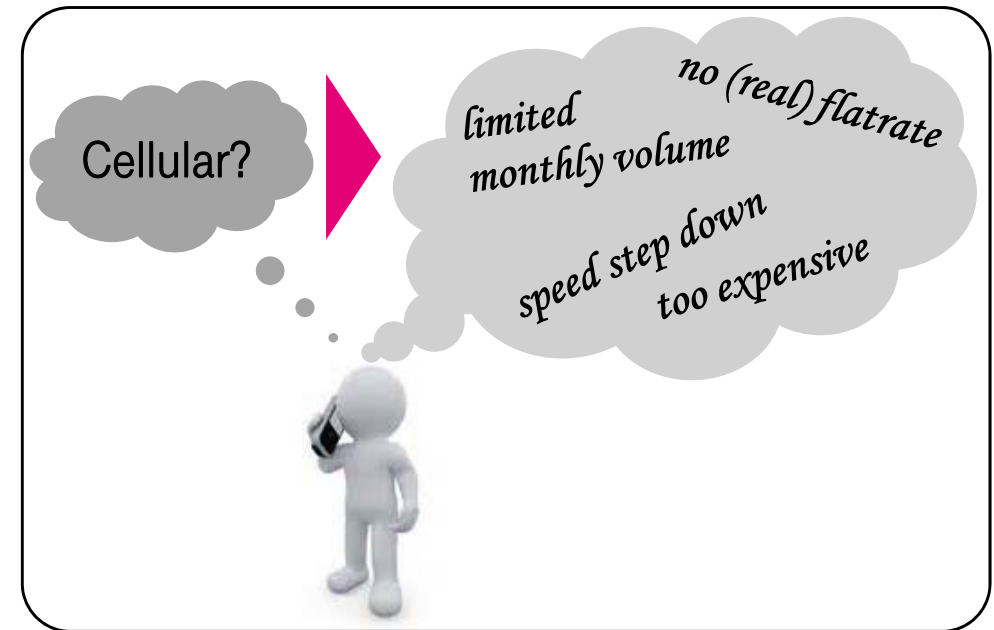
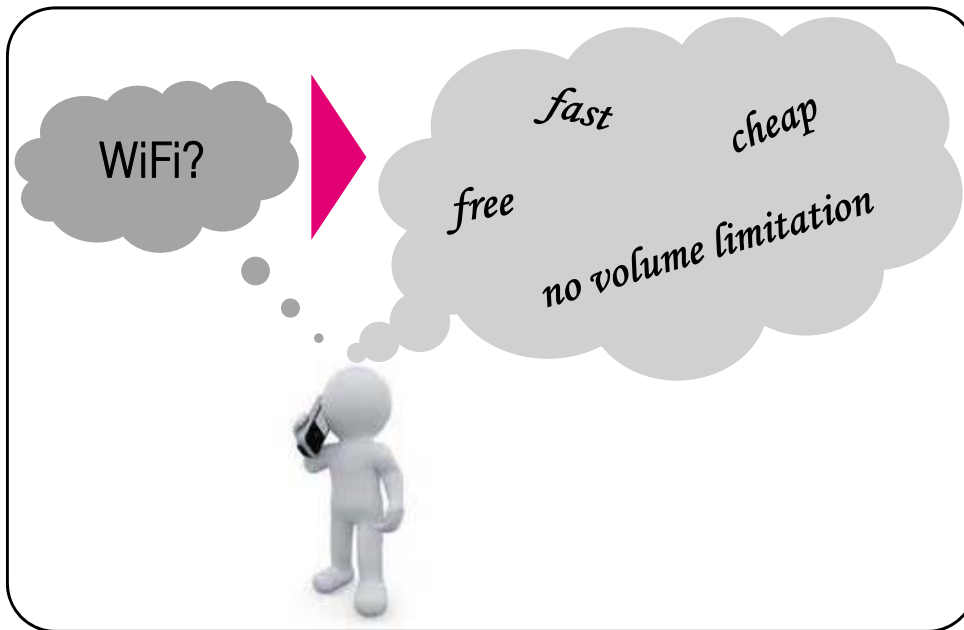


- After WiFi switch off, cellular load also maintains its characteristic
- WiFi traffic seems to have disappeared



Hypothesis:
WiFi does not offload cellular
but attracts further traffic?!

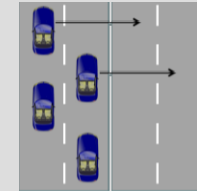
USERS & APS CHANGE THEIR BEHAVIOUR WITH WIFI



SUMMARY: WIFI...



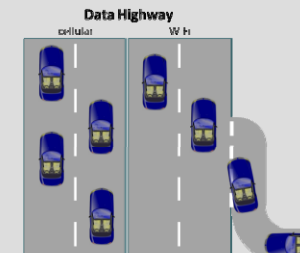
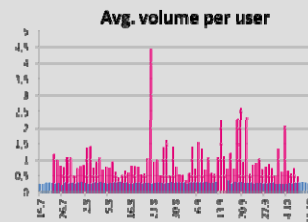
- ...is deployed everywhere and has a high terminal penetration
- ...promises to be an attractive low cost capacity add on to cellular
- ...promises to take over traffic from cellular



but



- ...switch on did not decrease cellular load
- ...changes user/app behavior
- ...attracts additional traffic



WiFi is not the right means to overcome cellular congestion , but there are other good reasons for it...

Fairytale

Once upon a time there
was an ever increasing
demand for capacity with
WiFi as the only hope of
mankind...

Swiss Army Knife



Deutsche Telekom AG
Europe & Technology / Mobile Access

Dr. Matthias Siebert

Landgrabenweg 151, 53227 Bonn, Germany

+49 228 / 181 18575 (Phone)

+49 151 / 18009465 (Mobile)

+49 391 / 580148753 (PC-Fax)

E-Mail: siebertm@telekom.de



LIFE IS FOR SHARING.