

# NB-IoT Platform in VF network

Presented by Lomoz Milan  
April 13<sup>th</sup> 2018

C2

**C2 - Vodafone Restricted**

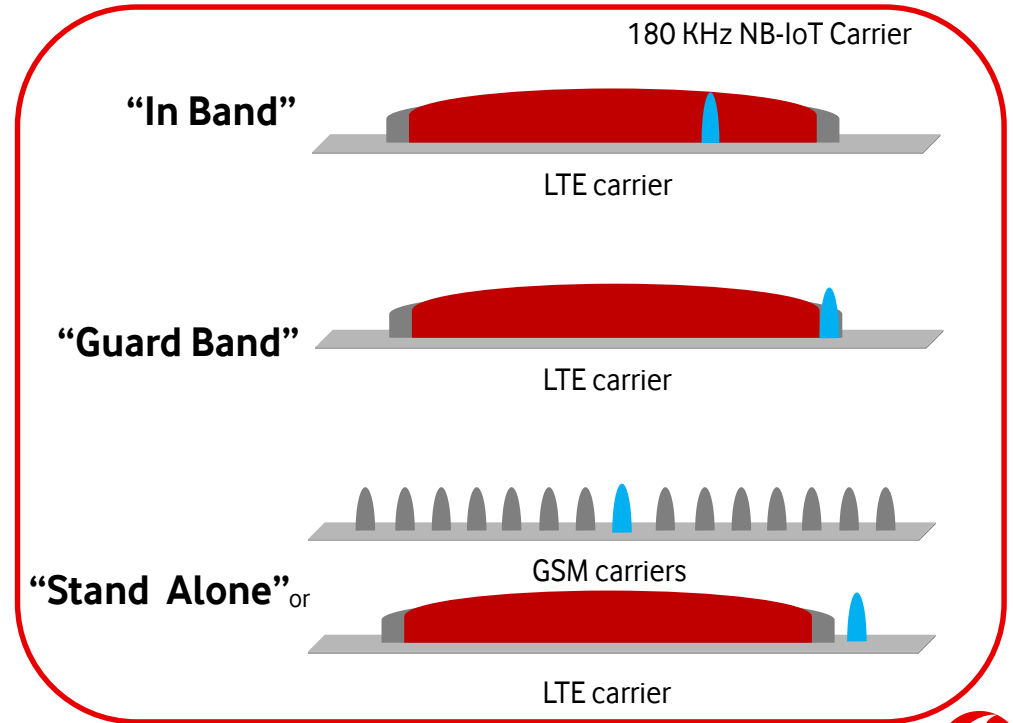
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Owner: Lomoz, Milan, Vodafone CZ  
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# Narrowband IoT is a Globally Deployable Standard

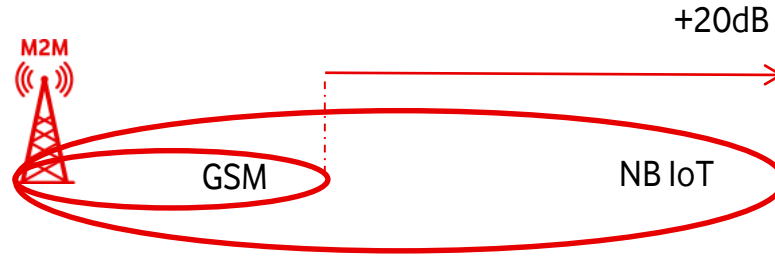
- **NB-IoT is built on existing mobile network infrastructure** and is flexibly deployable across any networks licensed bands.
- Natural evolution of LTE - software upgrade to existing RAN
- Enables fast, wide area, contiguous rollout



# Extended Coverage

## Extended coverage

mode extends coverage by up to +10 dB over GSM

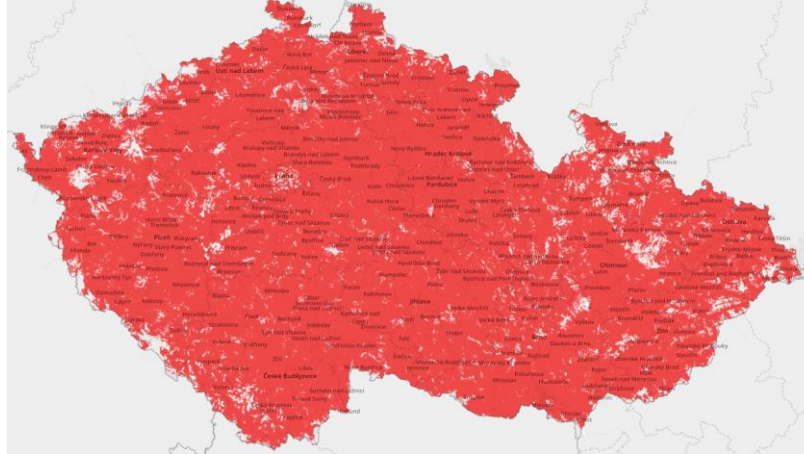


DL	2G	LTE	NB-IoT
Tx power / dBm	43	18	27
Rxlev min / dBm	-105	-120	-131
MCL / dB	<b>148</b>	<b>138</b>	<b>158</b>
delta to NB-IoT / dB	10	20	



# NB-IoT Coverage in Czech Republic

- The NB-IoT coverage in Czech Republic can be checked on following public website
  - <https://www.vodafone.cz/mapa-pokryti/>
  - NB-IoT extended coverage feature will cover all outdoor areas where LTE 800MHz is not available today (white spot)
  - You can expect good indoor coverage in areas where LTE 800MHz service is available (red spot)



## Podle sítí

<input type="checkbox"/> 2G	<input type="checkbox"/>	▼
<input type="checkbox"/> 3G	<input type="checkbox"/>	▼
<input type="checkbox"/> 4G LTE	<input type="checkbox"/>	▲
<input checked="" type="checkbox"/> LTE 800	až 75 Mbit/s	
<input type="checkbox"/> LTE 900	až 20 Mbit/s	
<input type="checkbox"/> LTE 1800	až 150 Mbit/s	
<input type="checkbox"/> LTE 2100	až 75 Mbit/s	
<input type="checkbox"/> LTE-A	až 225 Mbit/s	

- Capacity of current VFCZ NB-IoT network is more than 2 billions devices



# Vodafone Global IoT Service - Main pillars

## National Roaming

Coverage, High Availability

Unbeatable coverage for all mobile technologies 2G/3G/4G = the best customer experience  
Ideal for technical solutions with request to high availability use case  
Usually at least one backup network per country

## Web portal & API

Control, troubleshoot, integration

Easy solution can use only portal & batch files  
Complex solution can utilize both access in parallel i.e. web portal & API  
Troubleshoots feature (swimming line, SIM diagnostic)

## SIM state model

Activation & billing cycle

Is able to control lifecycle of SIM from following perspective:  
Access to network – ability to register to the network  
Billing cycle

## Report & Alerts

No FUP – alert are more suitable in IoT space  
Detailed reports of all mobile service (data, SMS, voice) in standard file format (CSV, XML)

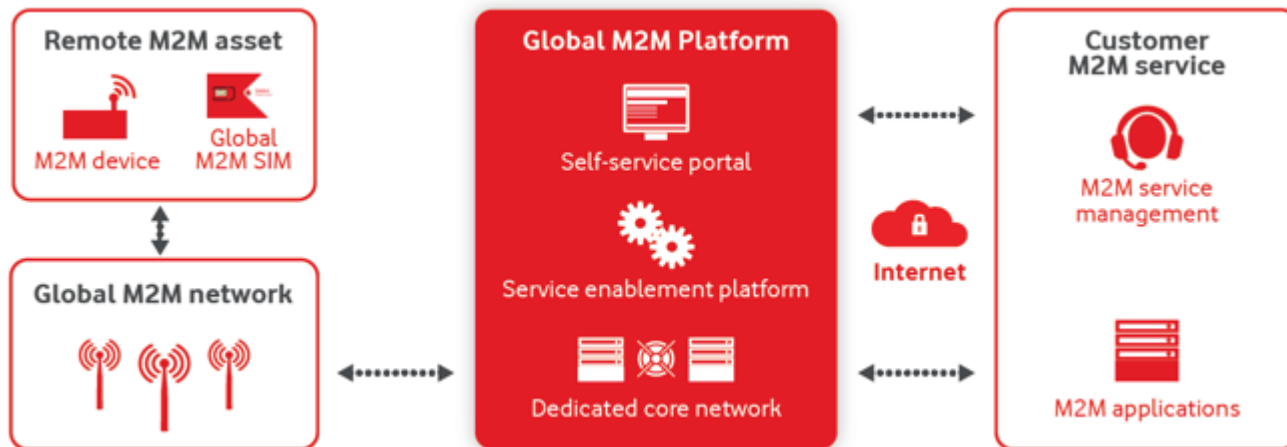
## Global support & helpdesk

Global service support through self service portal (TT) in 24/7 régime  
Local service Architect  
SLA for GDSP platform as standard



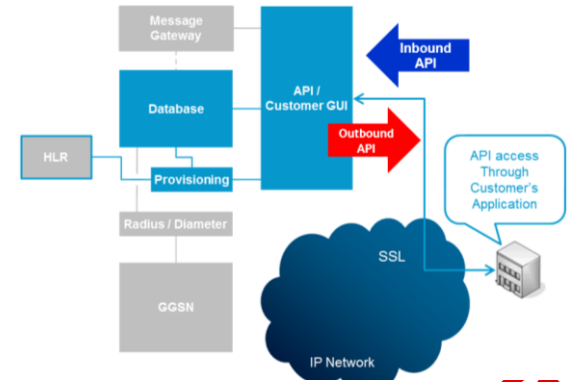
# GDSP – Global Data Service Platform

- GDSP is developed and owned by Vodafone Group > GDSP service & feature roadmap
- 1400 IoT experts
- LPWA
  - NB-IoT
- Portal
- API & Reports

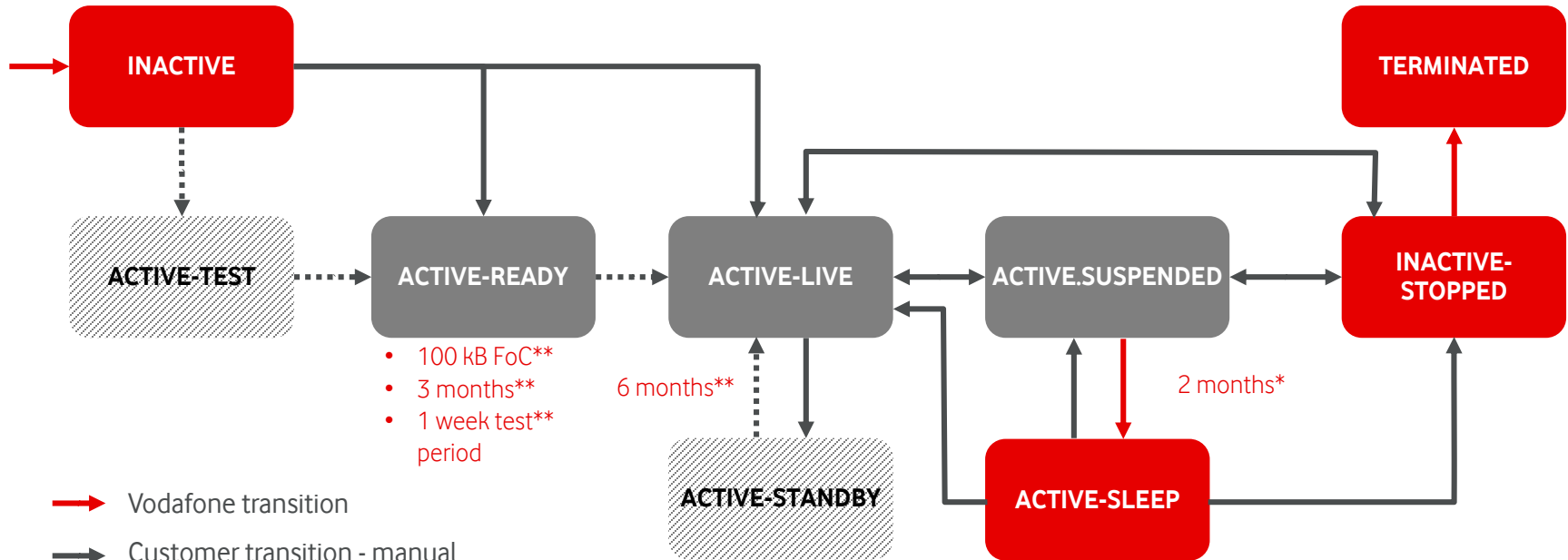


# GDSP feature set

- Data services - APN & backhaul connectivity
  - Shared internet APN & restricted Internet
  - Private internet APN & restricted Internet
  - Private dedicated APN & IP sec tunnel
  - Private dedicated APN & VPN/MPLS service
  - RADIUS proxy
- SMS MO/MT service – SMS private SMS centrum or restricted P2P SMS
  - Inbound / Outbound API SOAP
  - API HUB – REST
  - SMPP connect
- Voice MO/MT services
  - Restricted voice MO/MT services



# SIM State model



- 100 kB FoC\*\*
- 3 months\*\*
- 1 week test\*\* period

6 months\*\*

2 months\*

























- Vodafone transition
- Customer transition - manual
- .-> Customer transition – manual or automated
- ▨ Optional - Needs to be customer enabled

\* System wide  
 \*\* Customer configurable





# Evaluation pack

Vodafone Networks	Extended Networks	Extended Plus	NB-IoT Connectivity
 90 days trial length	 90 days trial length	 90 days trial length	 180 days trial length
 Vodafone networks in 20+ countries	 Networks in 65+ countries	 Networks in 170+ countries	 Vodafone Networks in 5 countries*
 5 SIMs per pack (2FF, 3FF, 4FF or SIM-chip)	 5 SIMs per pack (2FF, 3FF, 4FF or SIM-chip)	 5 SIMs per pack (2FF, 3FF, 4FF or SIM-chip)	 20 SIMs per pack (2FF, 3FF, 4FF or SIM-chip)
 Max. usage per SIM over the trial period <ul style="list-style-type: none"> <li>• 3 GB total data traffic</li> <li>• 600 data sessions/month</li> <li>• 100 SMS-MO</li> <li>• 100 SMS-MT</li> </ul>	 Max. usage per SIM over the trial period <ul style="list-style-type: none"> <li>• 30 MB total data traffic</li> <li>• 600 data sessions/month</li> <li>• 100 SMS-MO</li> <li>• 100 SMS-MT</li> </ul>	 Max. usage per SIM over the trial period <ul style="list-style-type: none"> <li>• 5 MB total data traffic</li> <li>• 600 data sessions/month</li> <li>• 100 SMS-MO</li> <li>• 100 SMS-MT</li> </ul>	 Max. usage per SIM per month <ul style="list-style-type: none"> <li>• 50 MB total data traffic</li> </ul>
 2G/3G/4G and SMS	 2G/3G/4G and SMS	 2G/3G/4G and SMS	 NB-IoT IP connectivity only
 Dedicated account consultant during business hours	 Dedicated account consultant during business hours	 Dedicated account consultant during business hours	 Dedicated account consultant during business hours
<b>€ 100,-</b>	<b>€ 150,-</b>	<b>€ 175,-</b>	<b>€ 100,-</b>



# Interested in NB-IoT?

- If you are interested in NB-IoT feel free to contact our sales team on email:

[iotcz@vodafone.com](mailto:iotcz@vodafone.com)



**Thank you**



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