

Беспроводные сотовые технологии для рынка M2M на примере решений Gemalto M2M. Обзор LTE, 3G, 2G модулей для рынка IoT.

Денис Можайков, Евромобайл



# IoT уже здесь...

## Growing Market

Gartner Says 4.9 Billion Connected "Things" Will Be in Use in 2015

In 2020, 25 Billion Connected "Things" Will Be in Use

**50 billion connected IoT devices by 2020**

**Morgan Stanley: 75 Billion Devices Will Be Connected To The Internet Of Things By 2020**

**25 billion connected devices by 2020 to build the Internet of Things**

### News & Analysis

**Internet of Things: 50 Billion Is Only the Beginning**

**Ericsson backs away from expectation of 50B connected devices by 2020, now sees 26B**

June 3, 2015 | By Phil Goldstein

**Internet of things: \$8.9 trillion market in 2020, 212 billion connected things**

IDC tries to put a number on the Internet of things and while you may quibble over the forecast, the numbers are huge assuming multiple hurdles can be overcome.



gemalto  
GSM/3G/LTE

НАВИА  
GPS/GLONASS



Wi-Fi



ISM 868/433



Bluetooth  
НАВИА

# Gemalto - лидирующая компания в производстве и разработке беспроводных модулей для M2M/IoT



**SIEMENS**

1994

Появление сотовой связи  
M2M

2002

Первый GPRS модуль

2003

Первый Java модуль

2005

Первый EDGE модуль

2006

Первый HSDPA модуль



CINTERION

2008

GSMA award за лучшую 2G  
платформу

2009

Первый HSPA+ (4G in North  
America)

2010

Год Automotive: первый  
Automotive SMT модуль

2011

Первая демонстрация eCall  
на Ertico ITS



2012

Первый Automotive LTE  
модуль

2013

Первый промышленный multi-  
mode модуль (CDMA + GSM)

11M+

11 миллионов модулей в год

2015

Первый модуль LTE Cat 1  
для M2M / IoT

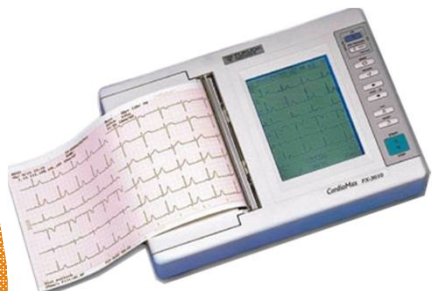
# Рынок GSM модулей в России, 2015 год

2 000 000  
штук  
GSM модулей

■ Track&tracing  
■ Metering  
■ others

■ Security  
■ POS

■ Industrial modems  
■ mHealth



# Рынок GSM модулей в России, 2015 год



2nd June 2015

## Telenor Norway to shut down 3G network in 2020; five years before 2G

Teilen 4 Share 21 Tweet 20



Telenor Norway's CTO, Magnus Zetterberg, said the company plans to completely shut down its 3G network in 2020, five years before it closes 2G in 2025.



by Kavir Majithia

## Telstra to shut down its 2G network by the end of 2016

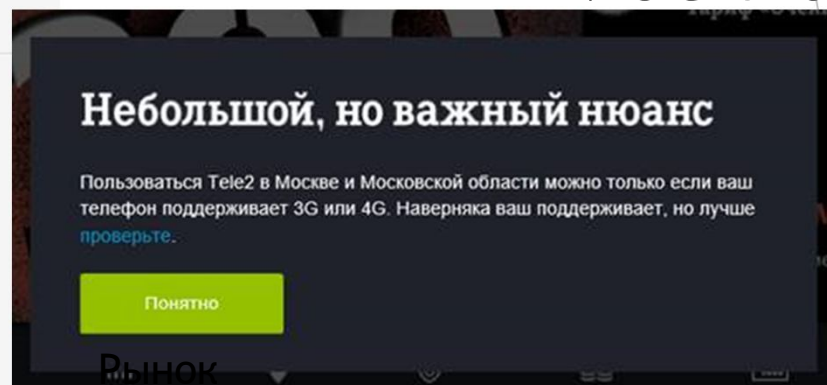
By Farrha Khan July 23, 2014 Phones

The end of the 20-year old GSM network

## AT&T plans to shut down entire 2G network by 2017

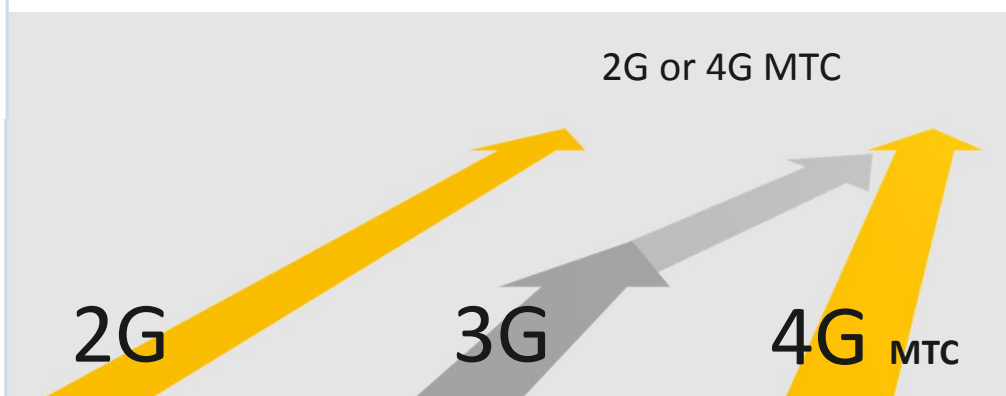
by Jon Fingas | @jonfingas | August 3rd 2012 at 3:42 pm

## TELE2 Москва



# Развитие...

The **Things** in “IoT” – focus: Connectivity



Technologies for connectivity / coverage will be 2G and 4G MTC

**Verticals:**

- Metering, POS, track & trace, RMC

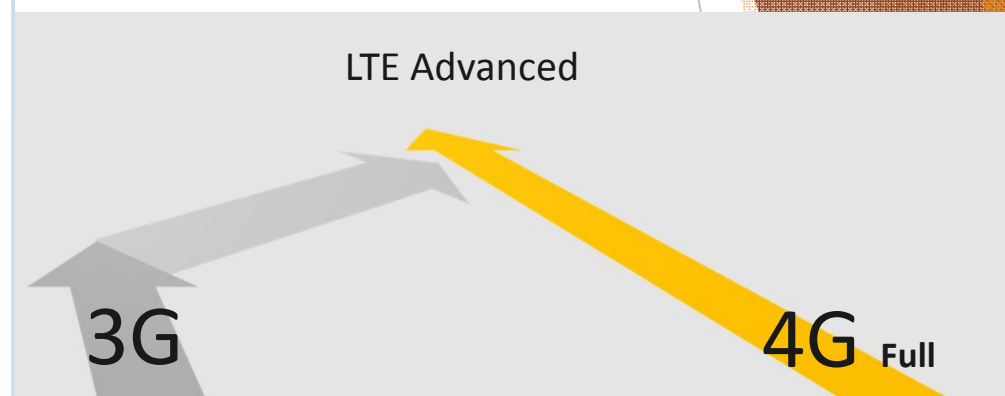
**Drivers:**

- CAPEX and OPEX optimization, size reduction, longevity

**Technologies:**

- 2G (in EMEA Region)
- Lower Cat (1, 0, M...) LTE

The **Internet** in “IoT” – focus: Data Speed



Technology for data speed will move from 3G to LTE / LTE-A

**Verticals:**

- Automotive, wireless local loop, rugged handheld devices

**Drivers:**

- Smartphone like experience, technology leadership

**Technologies:**

- LTE and LTE advanced

Consumer  
& Automotive  
(main focus)

High Speed LTE Advanced

LTE Adv.

Next Rel.

Next Rel.

5G High Speed

High Speed Data Path: Throughput, Complexity, MIMO Antenna System, Bandwidth, CA

LTE

LTE Cat3

Low Speed Data Path: Power Save, Reduced Complexity, Reduced Signalling

5G  
Step1

5G  
Step2

M2M & IoT  
(main focus)

Lower Cat LTE Cluster

LTE Cat1

LTE Cat 0

LTE-M

LTE CioT

NB LTE

CioT LTE Clean Slate &  
NB (Narrow Band) LTE  
not decided today

5G  
MTC

Mission critical,  
emergency devices

„Simple“ High  
volume devices

2008 Rel. 8: LTE, Cat1  
2011 Rel. 10: LTE-Adv.

2014

2015 Rel. 12: Cat0

2016 Rel. 13: LTE-M, CioT?

2017 Rel. 14: LTE NB?, first 5G concepts

2018

2019 Rel. 16: 5G first specification

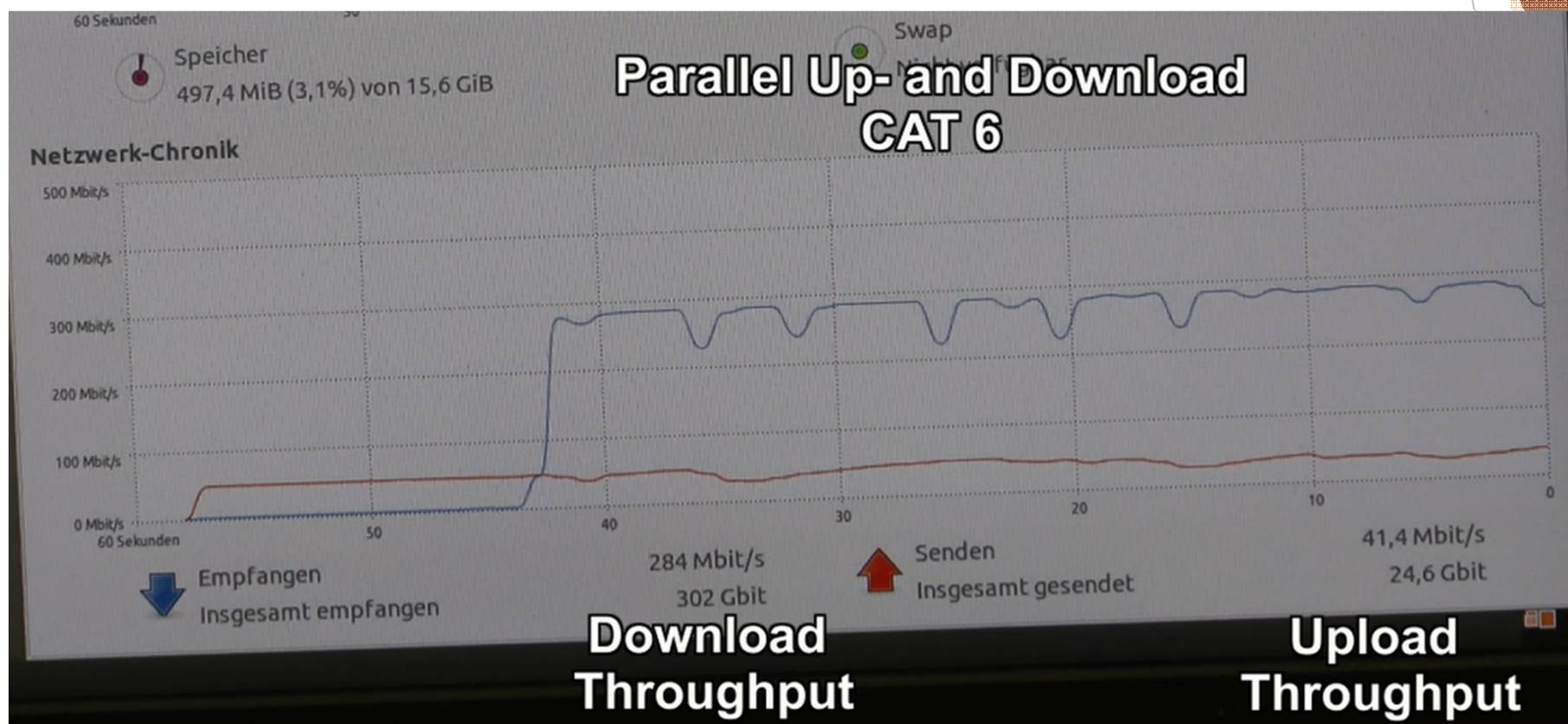
2020

2021

○ First M2M / IoT Products

● Possible first (Consumer) Products

## Демонстрация LTE-A 284Mbit/s download + 41Mbit/s upload!



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security to be free

## ELS31

Dual Band  
LTE Cat. 1

Multi-Design  
Capability  
& I/Os

USB 2.0  
High Speed  
compatible

Embedded  
TOTP Stack

FOTA  
configurable &  
free of charge

Highly  
Compact  
Size

Advanced  
Temperature  
Management

EMI  
Independent  
Protocol

## LTE

Cat.1 M2M Module

Highly Efficient 4G LTE Connectivity Optimized for the IoT.

— PRELIMINARY VERSION —

• CC/PTCRB conformance protects to validate approval readiness

conformance is a key hallmark of our leading support offer.

Modules  
work  
in a fast

in LGA B, and  
focusing  
focus on  
designed for  
support for  
UART  
igned for LTE

roller  
ries (e.g.  
port easy  
y sharing the

gher LTE  
they offer  
2G  
approval  
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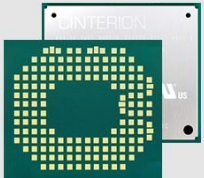
© WWW.GEMALTO.COM/M2M

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# Gemalto Portfolio

## Automotive

### Connected Cars

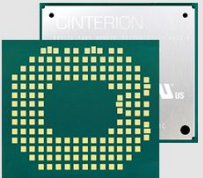


2G 3G LTE


- Automotive grade
- Automotive feature set

## Industrial<sup>Plus</sup>

### Performance Connectivity

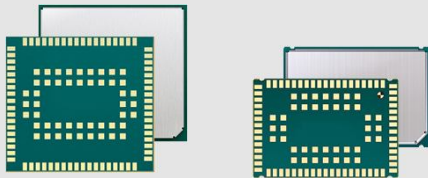


1xRTT EV-DO HSDPA HSPA+  
Multi Mode LTE


- All cellular technologies
- Java™ Embedded System 

## Industrial




### Easy Connectivity



2G 3G LTE

- Size- and cost-optimized
- Java/Linux Embedded System 

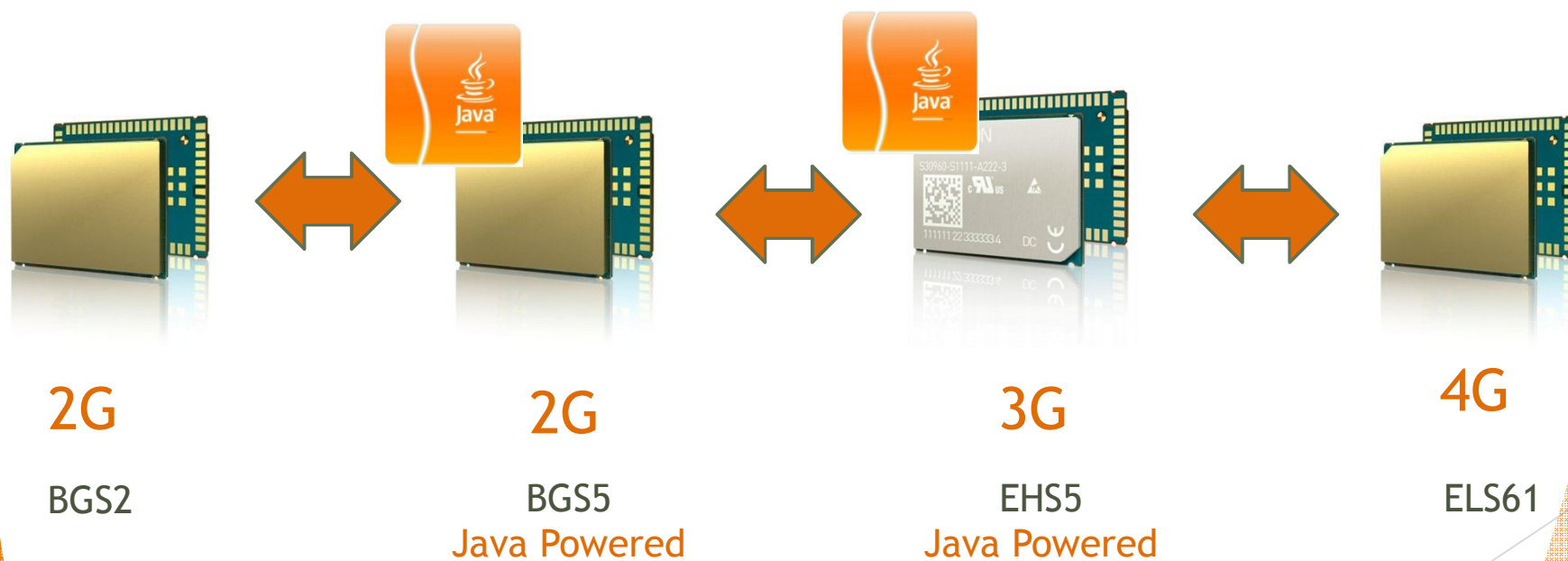
## MIM

<ul style="list-style-type: none"> <li>• Full Auto Quad</li> <li>• Full Auto eUICC</li> <li>• M2M SE Auto</li> </ul> 	<ul style="list-style-type: none"> <li>• Full Industrial Quad</li> <li>• Plug 105</li> <li>• M2M SE V2.0</li> </ul> 	<ul style="list-style-type: none"> <li>• U-MIM Quad</li> <li>• Plug 85</li> <li>• M2M SE</li> </ul> 
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## Services and Security

<ul style="list-style-type: none"> <li>• Security Consulting</li> <li>• Trusted Service Management (TSM)</li> <li>• Sentinel Software Monetization</li> </ul>	<ul style="list-style-type: none"> <li>• SafeNet Identity and Data Protection</li> <li>• On-Demand Provisioning Services (OPS)</li> <li>• MIM Services</li> </ul>	<ul style="list-style-type: none"> <li>• SensorLogic Application Enablement platform</li> </ul>
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## Серия модулей Industrial в совместимом форм-факторе





Компания Евромобайл - официальный  
дистрибьютор **Gemalto** в России!

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