IoT platform and solutions

Complete ecosystem for partnership development
About INTECH

The team of over 200 high-grade professionals and innovators, who develop and advance our cutting-edge products.

INTECH combines intelligence and creativity to develop the best products in the telecom market.

200 000 000

of subscribers use INTECH solutions

GROSS SALES:

- 65 mln USD (2011)
- 40 mln USD (2012)
- 136 mln USD (2013)
- 151 mln USD (2014)

- 139 completed projects
- 13 business divisions around the world
- 60% of staff works in R&D
- 30% of the profit we invest in innovation

CONVERGED COMMUNICATIONS
- Video, Data, Voice products

INTERNET OF THINGS
- Connectivity & M2M solutions for vertical markets

DIGITAL ENTERTAINMENT
- Media Stores and Mobile Apps

MOBILE COMMERCE
- mCommerce, mLoans, mTicketing and mLoyalty

MOBILE ADVERTISING
- Target AD RBT, mobile APPS and mobile advertising

LABS
- R&D as a service and Call Center as a service

OUR PARTNERS
- VimpelCom
- MTS
- Rostelecom
- TeliaSonera
- TELE2
- MegaFon
What is the size of IoT market?
Potentially 8 time more than size of GSM connections

There are 65 billion ‘machines’ globally

- Tracking and remotely monitoring a roadside digger, to minimise downtime
- Your fridge ordering milk direct from the supermarket when needed
- Your electricity meter delivering a reading daily, to save you money
- Emergency or breakdown calls from your car, plus remote diagnostics & maintenance
## Areas of IoT implementations

<table>
<thead>
<tr>
<th>Utilities</th>
<th>Logistics</th>
<th>Consumer</th>
<th>Smart City</th>
<th>Smart Buildings</th>
<th>Industry</th>
</tr>
</thead>
</table>
| - Smart management  
  - Metering  
  - Waste  
  - Water  
  - Gas | - Goods tracking  
  - High value goods sealing | - Wearables  
  - Home appliances  
  - High value goods tracking | - Street lighting  
  - Smart parking | - Alarm systems  
  - Access control  
  - Heating/ AC controls | - Equipment status & management  
  - Energy infrastructure monitoring  
  - Vending machines |
Potential revenue for clients’ market

**Manufacturing**

+12.7% *EBIT*
- Remote / Predictive Maintenance
- Connected Manufacturing & Supply Chain
- Knowledge Worker Productivity
- Innovation & New Business Models
- Connected Products

**Retail**

+54.6% *EBIT*
- In-store Analytics
- Checkout and Out-of-stock Optimization
- Remote Expert
- Physical Security

**Public Sector (Civilian)**

+0.5% *GDP*
- Citizen Utility
- Cybersecurity
- Smart City solutions – lighting, parking

**Financial Services**

+16.4% *EBIT*
- Sales & service transformation across all channels, customer touch points (remote adviser, branch recognition, mobile video)
- Cloud delivery models
- Pervasive security

**Oil and Gas**

+57.6% *EBIT*
- Recovery Efficiency & Lifting-Process Automation
- Remote Monitoring
- Drilling Optimization
- Project Planning
- Oil-spillage Control

**Utilities**

+6.8% *EBIT*
- SmartGrid:
  - Demand response monitoring, Smart metering
  - Electricity theft reduction
  - Reduction in transmission and distribution losses
  - Fault detection automation
Growth will be rapid - to 27bn in 2024

Global IoT connections 2014-2024 by technology

- 5 billion connections in 2014 and there will be 27 billion in 2024, a CAGR of 18%
- 69% of connections in 2024 will be short range, down from 72% at the end of 2014
- Cellular accounts for 2.2 billion connections in 2024, an increase from 256 million at end of 2014
  - By 2024 3G takes 21% and 4G/LTE 54%, driven by higher bandwidth requirements and need for future-proofing
- 14% of connections in 2024 will be LPWA, driven by the simplicity of deployment

Source: Machina Research 2015
The total IoT opportunity will be USD4.3 trillion by 2024

- Clearly IoT services represent a very substantial opportunity
- Opportunities for new IoT business propositions are incremental, on top of these figures
- And that’s the message: IoT will be huge, and will disrupt almost all aspects of enterprise

Source: Machina Research 2015
Standard telco model

- Vertical Apps
- Service Layer
- Connectivity Management
- Machines

APPLICATIONS

BUSINESS PARTNERS’ SERVICE LAYER

M2M PLATFORM

M2M CONNECTIVITY
GPRS, HSDPA
What is M2M and what is IoT platform?

“Machine to machine” service is a group of technologies that allow wireless access to / control of the special devices, that gather information about distant objects.

M2M is considered an integral part of the “Internet of Things” (IoT) and brings several benefits to business in general as it has a wide range of applications such as industrial automation, logistics, Smart Grid, Smart Cities, health, defence etc. mostly for monitoring but also for control purposes.

IoT platform should cover all possible M2M needs:

- **Control & Usage** of your special equipment / devices in those places where you simply can not use wired connection. For example if you need to control your building machinery like bulldozers and cranes simply from your iPad.

- **Quick connection** of the new M2M deices or equipment without the cost of organizing dedicated wired connection. For example if you provide Public surveillance cams you can use a secure and dedicated wireless M2M connection.

- **Cost optimization** of your M2M SIM cards data traffic bills. IoT platform is not a single cellular operator’s solution, so it allows to easily manage SIM cards from different operators to keep your costs down.

- **Data analytics** that transforms machine or M2M data into actionable information, ready to be integrated into other systems.
IoT solution components and functions

- SIM cards management
- Alerts management
- Billing options
- Secure connection management
- Platform management
- Reports management
SIM cards management

• IoT solution allows to conveniently manage your SIM cards from different operators to keep the cost of data traffic down.

• IoT solution has a convenient web interface, that can be easily and securely accessed from, for an iPad or PC.

• Prevention of fraud is realized through SIM cards usage rules settings and alerts management.

• Online management of SIM cards allows to quickly determine if the SIM card is working or not (for example if the SIM card is out of network reach), see if the data flow is going, determine the set of IP addresses and other functions.
**Alerts management**

- **Alerts management** function is used to receive alerts to the set email or mobile phone number with a set frequency (for example 1, 6 or 24 hours) about set events
- **Business rules** can be set to be processed after certain events. Rules processing means the alerts are issued or certain actions are taken. For example:
  - To many connections rule. Works if SIM card is trying to connect too often during the last 24 hours
  - Last SMS rule. Works if SIM card is sending more SMSs than was preliminary set
- **Traffic limit.** For the set number of SIMs a certain traffic limit can be set, after reaching of which:
  - Alert is issued over email or SMS
  - SIM card status is changing (to “blocked” for example)
- **Session management.** This functionality allows to quickly determine SIM cards that are working incorrectly or have an unstable connection so that these SIM cards will be blocked before additional data traffic is consumed.
IoT billing options

• IoT solution can be easily integrated with operator’s billing system for:
  – Automatic change of SIM cards tariff
  – Change SIM cards set of services
  – Block SIM cards on operator side
  – Quickly gain SIM card traffic and data monthly record

• IoT solution also allows to create an additional tariff plan for end users, which is useful if you're a solution provider and working with different end users
Secure connection management

IoT solution provides a **secure connection** from the M2M platform and all the way to the device (SIM card) if needed. For example:

- **Static IP.** It provides a possibility for secure access, VPN – connection, from a particular device (SIM card) to your corporate network, based on the Static IP filtering

- **Dedicated APN** is another secure mechanism supported by IoT solution for an additional security of access to corporate network (in this case company uses a unique access point)
Reports management

IoT solution might provide **a following statistics and report tools:**

- Usage report on the selected group of SIM cards
- SIM cards payments
- Particular SIM card statistics and bill*
- SIM cards activation*
- Data traffic (type and amount) for the set period (day / month/ week)
- Custom reports are also can be developed according to your need!
Reports management
Universal SIM Chips

Electronic device with integrated connectivity
(Besides Wi-Fi and Bluetooth, SIM chip is installed with uploaded profile of a mobile operator)

Plug & Use:
- To switch on you just have to connect the battery
- Flexible settings over IoT BackEnd
- No need for extra customization of Hardware and Firmware.
- Small amount of electronic components (both passive & active)

Interfaces to connect:
- SPI (for ex. to connect with CAN bus of cars/trucks and other machines)
- SDIO (for ex. to connect extra flash memory)
- I2C (for ex. to connect external microphones)
- USB

Tech specs:
- CPU ARM Cortex X
- Accelerometer
- Gyroscope
- Bluetooth Low Energy
- 3G
- LTE
- GPS+Glonass
- WiFi
- SIM chip
- Android based
- MQTT support
- OTA updates

Size: ~ 30/30/3 mm
Structure of IoT platforms

Device

Back End
- Device data collection order / logic
- Data transfer to user App over standard API
- Data transfer to corporate servers over encrypted channel

Apps
- Collection of READY TO USE standard Apps
- Web site with READY TO USE standard Apps

Corporate servers for M2M data storage
Example of IoT
Pets control platform

No buttons
To turn Mishiko on, just shake it!

Wear-and-Go
Comfortable collar and fits-them-all mount included

Waterproof
Waterproof for up to 1m, with IP67 certification

Durable
High-grade aluminum body for ultimate protection

No wires
Wireless charging station

Never lose
GPS module tracks pet’s location any time

Track activity
Accelerometer tracks dog’s physical activity all day long

Synchronization
Device sends data via wireless network (2G/3G)

Always updated
Device updates firmware automatically

Long battery life
Up to 5 days on a single charge
Example of IoT
Pets control platform

SMS
SOS activation

SMSC

SMPP
Sending SMS with SOS activation

Dedicated APN
GRE over IPSec, Radius.

GGSN

Data
Location, Fitness, Profile, Settings

Intech IoT Platform

Data
Location, Fitness, Profile, Settings

Communication

Dog owners Apps
(iOS, Android)

Dog owners Apps
(iOS, Android)
Example of IoT
Pets control platform
Fast-paced city life gives you less chance to pay enough attention to your family, but we still have to take care of our relatives.

Where is your child now? What are the risk zones for your child? Have you ever lost your child in crowded places like airport or shopping mall?

Emergency situation could happen to your relatives any moment, and it’s critical to react to it as fast as you can.
Example of IoT
Smart watches

Main Features:
- Quick and easy call to personal contacts
- Waterproof and shock resistant, IP 67
- Voice recognition software
- OTA software and settings update
- Signals for people with poor eyesight
- Background listening
- Heart rate monitor
- Pedometer
Example of IoT
Gas delivery control
Example of IoT
Transport control

- Operation
  - Students’ addresses are geocoded by operators
  - Door sensors to track opening/closing of bus doors
- As a result: When the door opens at child’s house, a SMS will be sent to parents
Thank you for your attention!

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