TMA solutions
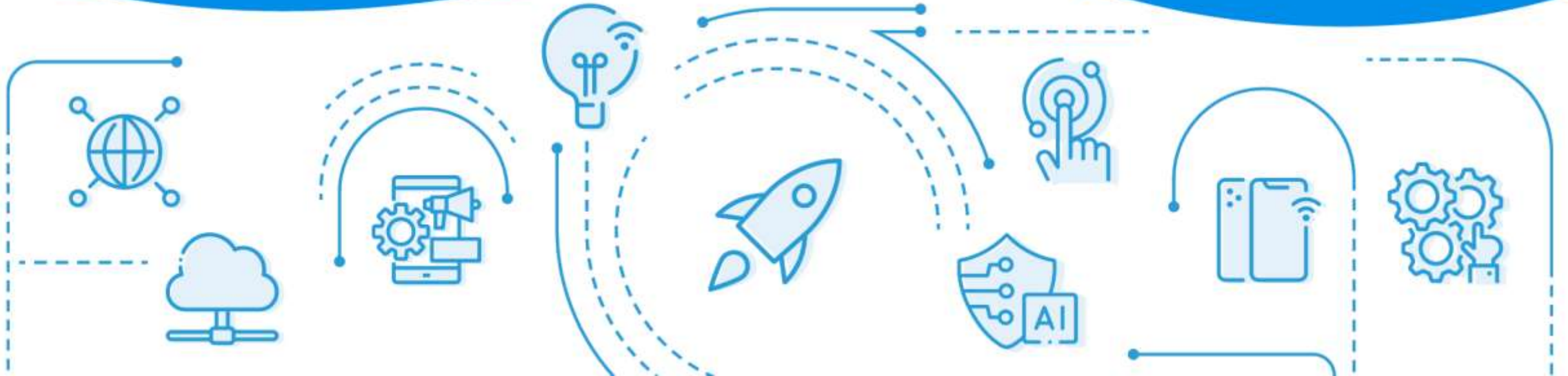
# Technical Competencies

# Contents

Skill Matrix

Microsoft Technologies

Java

Open Source

Responsive Web Development

Mobile Technologies

Cloud & DevOps

Big Data & Analytics & AI

Internet of Things

Telecom/Network

Automotive & Embedded

Testing

# Skill Matrix

**2.000** Telecom/5G Automotive Engineers

**2.200** Application Development Engineers

**500** Finance & Insurance Engineers

**400** Data analytics & AI/ML Engineers

**400** E-commerce, Retail, Distribution Engineers

**300** IoT & Robotics Engineers

**300** Healthcare Engineers

**200** Cloud/DevOps Engineers

# Microsoft Technologies (1/2)

## 24 years

Experience in helping companies worldwide to improve business performance with Microsoft-based solutions

## Microsoft Competency Partner

With Gold Level since 2007

## 500 Skilled Microsoft technology developers

- MCSD
- MCITP-SE
- MCP
- MCSA

- MS Dynamics AX 2012
- MCPD: SharePoint Developer 2010
- MCTS: SharePoint 2010
- MCTS: Project Server 2010

# Microsoft Technologies (2/2)

Experience in a wide range of Microsoft technologies

## Technologies

C#, ASP.NET, ASP.NET MVC, TypeScript, Razor. NETCore, VB.NET, EF, ADO.NET, VBA, WCF, WPF, WF, MS IoT, Machine Learning

## Server & Middleware

SharePoint, SharePoint Online, MS Dynamics AX, MS Dynamics CRM, NAV, MS Dynamics 365, Project Server, TFS, Test Manager Application Insights, TeamCity, Octopus

## Cloud

Azure IoT Hub, SQL Azure, Azure Mobile, Signal R, Notification Hub, Azure Service Bus, Azure Monitor

## Analytics & BI

SSIS, SSAS, SSRS
MS BI Tools
SQL Server Data Tools

# Java

## 22 Years

In leveraging Java technologies to provide scalable and high performance applications

## 600 Skilled Java developers and architects

**J2EE**
EJB, Servlets, JSP, JNDI, RMI/IIOP, JTA/JTS, JMS, JavaMail, JSF, JMS, JCA connectors, JDBC, Hibernate, JPA, Spring, Guice, Struts, Liferay portal

**Web/Desktop**
CSS, JavaScript, AJAX, J2SE, Swing, GWT, GWT-Platform, Sencha GXT, Eclipse RCP, Macromedia Flex

**Business Process & Workflow**
BPMN2, JBoss jBPM5

**Application Server**
Apache Tomcat, JBoss AS, GlassFish

**Web Services & SOA**
WSDL, SOAP, REST, XSD, WS-I, UDDI, JAX-RPC, AXIS, XML RPC, WS-Security

**Tools**
- Eclipse, Maven, Jenkins, SonarQube, SoapUI, PowerBuilder
- Atlassian: JIRA, Confluence, Fisheye, Crucible, Bambo
- SVN, Git, VersionOne

# Open Source

**15 Years**

In providing open source solutions

## 350 PHP, Ruby, Golang and Python developers

CodeIgniter, Symfony, Laravel, Ez, Zoop/Pear

Drupal, WordPress, Joomla, Typo3, Orchard

Magento, osCommerce, Rails e-Commerce

Rails, ActiveMerchant, Devise, Resque, Canvas, Social Stream, Redis, Etherpad, Sphinx, Sunspot, Solr

wxPython, Django, rabbitMQ, Celery, Mochikit, CherryPy, Kid, SQLObject

# Responsive Web Development

## 300 Responsive Web developers

## Skill Set

- CSS3, AngularJS, Bootstrap & NodeJS
- ReactJS, ReactNative, Redux
- LESS, SASS, EnyoJS, Moonstone, NoSQL
- Backbone JS, Underscore JS, Require JS, jQuery
- Durandal JS, KnockoutJS, Ext JS
- EmberJS, NextJS

# Mobile Application Development

## 15 years
## Since 2007

## 120 enterprise applications delivered

## 250 mobile developers

Soft Phone, Call Control

Mobile DRM

Smart TV

Flutter, ReactNative

VoIP, MjSIP, PjSIP, SIP, RTP, SDP

e-Pub3, pdf, mp3, mp4

Linux kernel

HTML5, JQuery, Sencha Touch

Bluetooth, Beacon

3D, OpenGL, WebGL

AR, camera

Google Map, Bing Map, OpenStreet Map, Offline Map

# Cloud Services

**12 years of experience**

Providing cloud development services for leading enterprises

**Experience DevOps Center**

DevOps frameworks and solutions

**200 Certified Cloud Engineers**

AWS , Azure, GCP Salesforce certificates

**TMA Cloud Backend**

Proven architecture, fast track development time, minimize cost

# Cloud Application Development

## Application development on cloud

Build and maintain a custom application by using cloud delivery platforms such as AWS, MS Azure, Google Cloud, IBM Watson, Salesforce, etc.

## Porting application to cloud

Port current applications to cloud architecture

## SaaS implementation

Implement a SaaS solution or transition a current application to a SaaS model

## Cloud application testing

Solution to test cloud based applications

## Cloud administration

Setup, configure, monitor and manage cloud infrastructure

# Cloud Technologies

| Amazon Cloud (AWS) | Google Cloud | MS Azure, SQL Azure, Azure Mobile, Signal R, Azure Service Bus | IBM Watson | Kubernetes, Docker, Edge Computing |

# DevOps

# Big Data & Data Analytic - Services

Data warehouse and data mining design and implementation

Collect and analyze data in real-time

Data visualization

Standard and custom reports

Data analytics and forecasting

Analyzing high volume structured and unstructured data

Data migration

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# Big Data & Data Analytics – Skill set

## Data Warehousing

- SSIS, SSRS, AWS Glue, AWS SQS, AWS DMS, AWS Kinesis Stream, AWS Kinesis Firehose, AWS EMR
- Hbase, HDFS
- MongoDB, CouchDB, Cassandra, Teradeta, AWS RedShift, AWS Aurora, AWS Athena, AWS Dynamo Database

## Frameworks

- Hadoop, Spark
- Kafka, Storm, Sqoop, Flume
- Mahout, Drill, Solr
- Druid, SnappyData, Cassandra
- Map Reduce, Pentaho

## BI and Data Visualization

- Tableau, Splunk, Pentaho, QuickSight, PowerBI, PowerApp, Cognos, Jasper, Qlikview, Pentaho BI, Power View, Datazen

## Predictive analytics

- Regression
- Classification
- Clustering
- Time Series

## Programming

- Python, R, Java, Hive, Scala, SAS, SPSS

# AI & Machine Learning - Skill Set

## Machine Learning

- Descriptive Statistics
- Deep learning: TensorFlow, Keras, Yolo
- Model Optimization: TensorRT, OpenVINO

## Supervised Learning

- Linear Regression
- Neural Networks
- Support Vector Machines

## Reinforcement Learning

- Markov decision process
- Q-Learning and Deep Q-Networks

## Unsupervised Learning

- K-Means Clustering
- Anomaly Detection
- Principal component analysis (PCA)
- Latent Dirichlet allocation (LDA)

## MLaaS

- SAS
- Google Cloud AI
- Microsoft Azure AI
- AWS AI

## Computer Vision
Image/video analytics

## Object Detection
Products, People, Vehicles

## NLP/OCR

## Category Theory

# AI & Machine Learning - Sample Tools

## AI
- Scikit Learn
- TensorFlow
- Caffe
- MxNet
- Keras
- PyTorch
- Theano
- OpenVINO
- Tensorrt
- Gym
- OpenCV
- Pillow
- Rawpy
- Scikit-image

## NLP
- Gensim
- Underthesea
- NLTK
- Hugging Face
- Spacy

## ML Pipeline
- Amazon Sagemaker
- Apache Airflow

## OCR
- Tesseract
- Google Vision
- AWS Textract

## Infrastructure
- Docker
- Kafka
- RabbitMQ
- Kubernetes

# Internet of Things - Applications

**Sensor**

**Camera**

**Wireless devices**

**Drone**

**Since 2012**

**250 engineers**

## Sample applications

- Asset tracking
- Smart agriculture
- Vehicle tracking
- Machine optimization
- Remote monitoring
- Thermal meter
- Smart camera box
- Robot apps
- Drone apps

- Quarantine tracking
- Health monitoring
- Hospital box
- Fitness
- Water monitoring
- Smart home
- IoT devices testing
- Wireless testing

# Internet of Things - Skill Set

## Programming
- Edge computing
- C/C++
- Python
- Java

## Hardware
- Arduino
- ESP
- NVIDIA Jetson
- Google Coral
- Raspberry Pi
- Google Coral
- Xilinx
- Sierrawireless FX30
- STM/ ARM/ AVR/ TI

## Communication
- 2G/3G/4G/NBIoT/5G
- Bluetooth/BLE
- Wifi
- LoRa/LoRaWAN
- Modbus
- CAN
- LIDAR
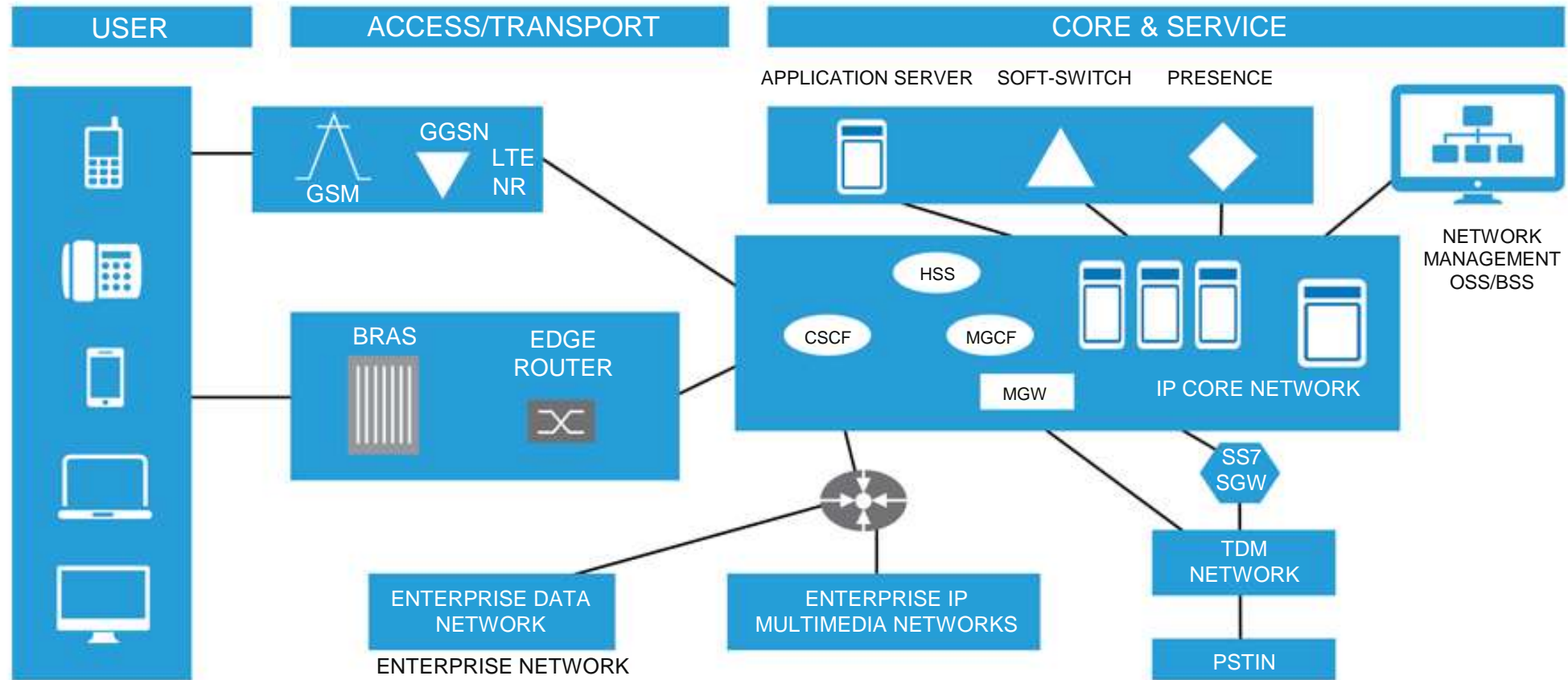- SLAM
- MQTT
- CoAP
- LWM2M
- AMQP

## OS
- Android
- RTOS
- Yocto
- Windows IoT Core
- Linux
- Raspberry Pi OS

## IoT Platform
- AWS IoT
- Google Cloud IoT
- Azure IoT Hub
- SierraWireless Legato/Octave
- Thingsboard

# Telecom/Network: Sample Projects

- 4G LTE, NFV
- 5G, Open RAN
- Unified Communications
- Enterprise Communications
- Contact Center, IVR, IP PBX
- Media Gateway, IMS
- Mobile VoIP, SIP
- Asterisk, Soft Phone, WebRTC
- Service Edge Router, GGSN

- Network Management
- Access Management
- Broadband Remote Access
- Soft-Switch & Gateway Control
- Carrier VoIP and Applications
- Multi-mode IoT Gateway
- Universal Convergence Gateway
- Robotic, LiDAR, SLAM
- Car Wireless Communication

# Telecom/Network: Domains

## 400 engineers
### Enterprise Communications

SIP PBX, Unified Communication Applications, Contact Center, IP Phones

## 400 engineers
### EMS, NMS, OSS/BSS

- Network Provisioning/Monitoring/Control, Inventory Management
- Resource Provisioning, Data Collection/Processing, Performance Management, Trouble Management
- Fulfillment Process, Assurance Process, Billing Process
- Cloud Manager and Orchestrator

## 500 engineers
### Wireless & Carrier Communications

- 4G LTE EPC: PGW, SGW, MME
- 5G Open RAN: O-CU, O-DU, NearRT RIC
- GGSN, SGSN
- NGN: Softswitch, SIP Application Server, Gateway Controller, Media Gateway, Signaling Gateway, Session Border Controller, Session Server Trunk
- IMS: CSCF, BGCF, MGCF, HSS, SLF, Application Server

## 300 engineers
### Networking

- Backhaul Metro NODE, NID
- Ethernet Routing Switch, Carrier Edge Router, BRAS
- LAN Core/Access Switch, Data Center Switch

# Automotive Software

## Hardware

- Embedded RTOS for ECU, R-Car V2H, RH850, STM32, MPC56xx, S32K14x, STM32F413, ELM327, ESP8266
- Automotive Camera: Front, Rear, Left-Side and Right-Side
- ADAS: Cruise Control, Adaptive Cruise Control, Surrounding View Came

## Tools

- Ascet, Matlab-Simulink, SCADE, Qt, QML, QNX, Genevi, Yocto, Naver Map, NaviCore Map, Eclipse, VS Code, Gcc for arm, KiCad, ESP8266 NONOS SDK
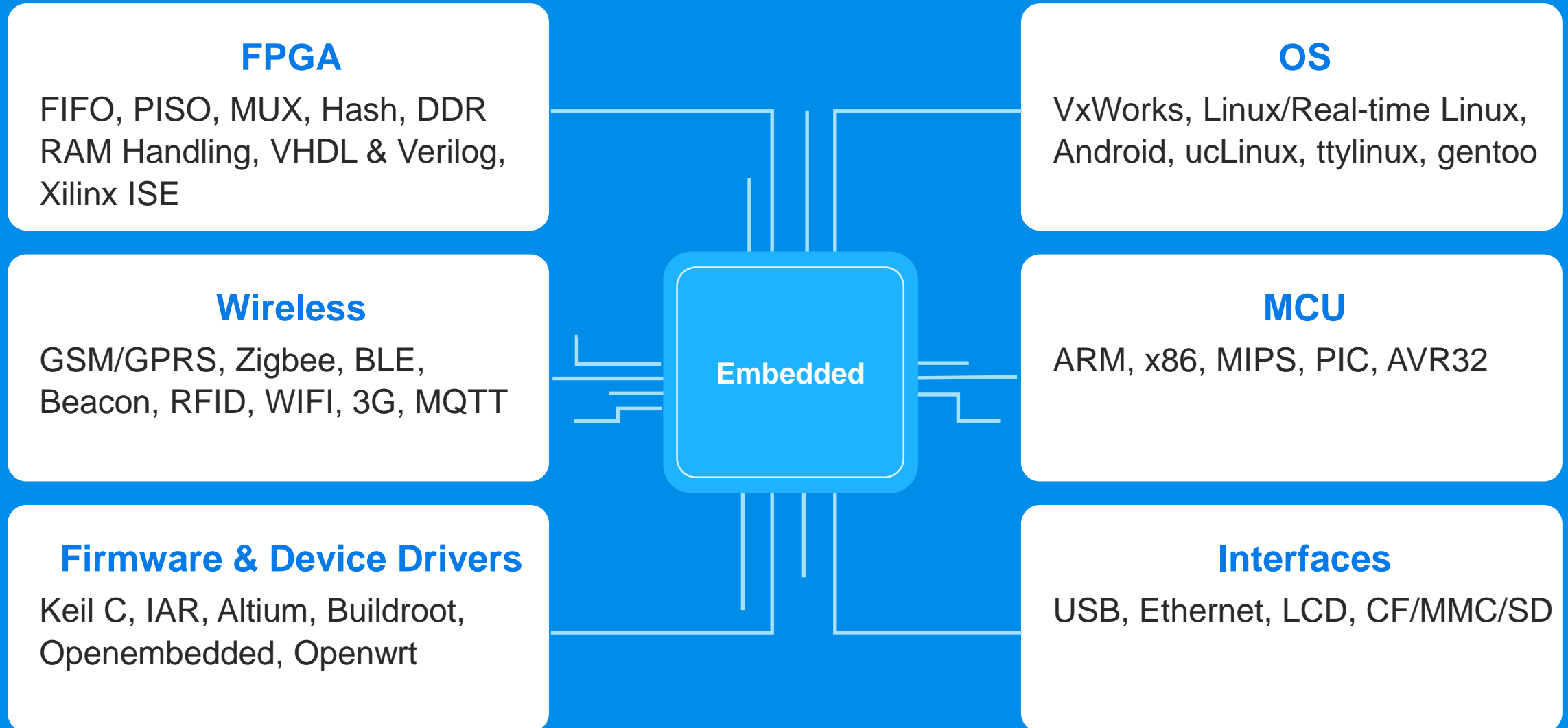
## Model-based

- Matlab Simulink
- Matlab Stateflow
- SCADE
- ASCET
- Model in Loop
- Software in Loop

## Protocols

- CAN, LIN, MOST, ETH/GETH, BT, USB, LTE, FOTA, HTTPS, MQTT(SSL), Websocket, CAN, LIN, GMLAN, SPI, 3G, 4G, LTE, 5G

# Embedded Software

## FPGA
FIFO, PISO, MUX, Hash, DDR RAM Handling, VHDL & Verilog, Xilinx ISE

## Wireless
GSM/GPRS, Zigbee, BLE, Beacon, RFID, WIFI, 3G, MQTT

## Firmware & Device Drivers
Keil C, IAR, Altium, Buildroot, Openembedded, Openwrt

**Embedded**

## OS
VxWorks, Linux/Real-time Linux, Android, ucLinux, ttylinux, gentoo

## MCU
ARM, x86, MIPS, PIC, AVR32

## Interfaces
USB, Ethernet, LCD, CF/MMC/SD

# Testing Services (1/2)

25 years of experience in software testing

700 test engineers

Experienced in large and complex projects

Setup and operate dedicated test centers for many global companies

# Testing Services (2/2)

## Full Product Verification

- Manage all aspects of product testing
- Product quality assessment
- Test solutions

## Test Planning & Execution

- Functional test
- Integration & system test
- Performance test
- Regression test
- Compatibility test
- Installation & upgrade test
- Configuration testing
- Localization test

## Test Automation

- Develop test automated scenarios
- Custom test automated tools/solutions
- Enhance test automated scenarios for regression
- Execute test scripts and reporting test results

# Testing Tools (1/2)

## Test automation tools

### UI test
QTP (UFT), SilkTest, TestComplete, MS Test Professional, SoapUI, Selenium, Sikuli, AutoIT

### Mobile test
UIAutomator (Android), Selendroid, Appium, Calabash, LogCat, Mobile Log, Device Log Viewer, REST Client, SBSetting, Pylot, Grinder

### Voice test
Crescendo (Voice path), VQuad (Voice quality), Hurricane (Signaling), SIPp (Signaling), TARTS, In-house speech path verification

### Framework
MS Automation UI, TestShell Studio, TestNG, BDD Framework, Att, Twister, In-house Framework Tools (Hybrid Model)

## Performance and Traffic test

- IXIA, SmartBits, Ameritec, Hammer
- Hurricane, NES, Fortissimo
- Ysim, ICARUS, MP3, iPerl, Jmeter

# Testing Tools (2/2)

## Security testing

- Nessus, Codenomicon, OpenVas, Cain
- Radius, SAML, USB Token

- Spectra2, SIPp, INES
- IxExplorer/IxLoad, VLC, IXIA, Spirent

## CLI Test

TCL/Tk/Expect, Perl, Awk, Java, Unix shell, Fanfare, Python

## API Test

NodeJS, PyrestTest, SOAPUI, Curl

## Instrument control

MatLab, Labview

## Test case tracking Bug/Defect tracking

- Quality Center, Clarify, Remedy
- Test Rails, ClearQuest, Bugzilla

- JIRA, Redmine, Problem Reporting System (PRS)
- Salesforce, TestLink

# THANK YOU!

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