MLaaS (Machine Learning as a Service) with MATLAB Production Server

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Power Management and Multimarket
15.04.2019
A world leader in semiconductor solutions

Our vision
We are the link between the real and the digital world.

Our values
We commit
We partner
We innovate
We perform

Our mission
We make life easier, safer and greener.

Part of your life. Part of tomorrow.
**Infineon at a glance**

### Business Segments
- **Digital Security Solutions (DSS)**
  - Automotive (ATV): 43%
  - Power Management & Multi-market (PMM): 31%
  - Industrial Power Control (IPC): 17%

### Employees
- **40,100 employees worldwide** (as of Sept. 2018)
  - Europe: 17,400
  - Americas: 3,900
  - Asia/Pacific: 18,800

- **35 R&D locations**
- **17 manufacturing locations**

### Financials
- **[EUR m]**
  - FY 14: 4,320 (14.4%)
  - FY 15: 5,795 (15.5%)
  - FY 16: 6,473 (15.2%)
  - FY 17: 7,063 (17.1%)
  - FY 18: 7,599 (17.8%)

### Market Position
- **Automotive**
  - # 2
  - Strategy Analytics, April 2018
- **Power**
  - # 1
  - IHS Markit, Technology Group, September 2018
- **Security ICs**
  - # 1
  - ABI Research, October 2018
RF and Sensing devices enable new services and will shape the way we live and work

Various use cases are enabled by a small set of versatile core technologies

- Augmented Reality
- Voice-controlled devices
- Smart streetlights
- Commercial and consumer multicopters
- Gesture control
- Industrial robotics
From Sensors to Smart Services

Infineon’s intuitive sensing solutions

Machine Learning as a Service (MLaaS) for connected devices

- Inference running in the cloud
- Requires to be online
- Depends on the sensor/applications latency & Bandwidth requirements
Machine Learning as a Service (MLaaS) for edge devices

- Inference running on the edge device
- Works offline with low latency
- Requires design level considerations to enable the use case
MATLAB Production Server (MPS) Evaluation

- Deployment of a scalable and secure infrastructure is a huge challenge

- Evaluation of MPS for a demo project
  - Deployed on AWS
  - Classification as a service
  - Web application as client

- The process
  1. Prototype
     - With Machine learning toolbox
  2. Compile
     - Using Matlab Compiler SDK
  3. Deploy
     - on public cloud with MPS

Source: https://www.mathworks.com/cloud/
How MATLAB Production Server (MPS) helped?

› Reduced time-to-market
  ➢ From prototype MATLAB code to web service

› Scalable infrastructure
  ➢ On demand scaling
  ➢ Public cloud hosting
  ➢ Security

› Integration
  ➢ API access
MPS Evaluation
› MPS is a well-placed product that reduces our time-to-market

MLaaS validation
› Validated that MLaaS is also relevant for us and our end customers

Next Steps
› Evaluation of MPS for MLaaS in a complex real-life system
Part of your life. Part of tomorrow.