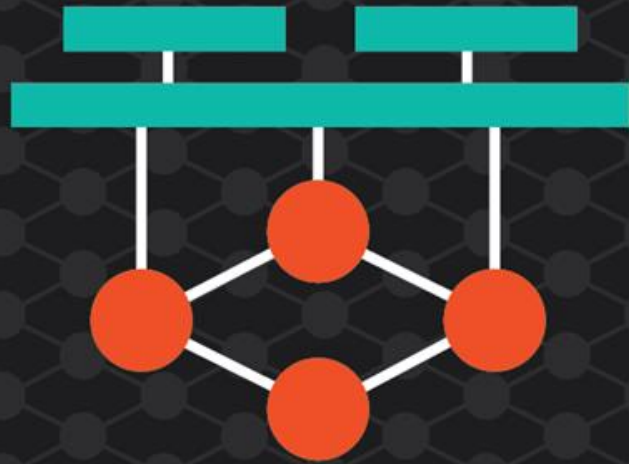


September 25 - 27, 2018  
Amsterdam, The Netherlands



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# Artificial Intelligence

## AI, the next Digital wave for Telcos

Dr Jamil Chawki  
Orange





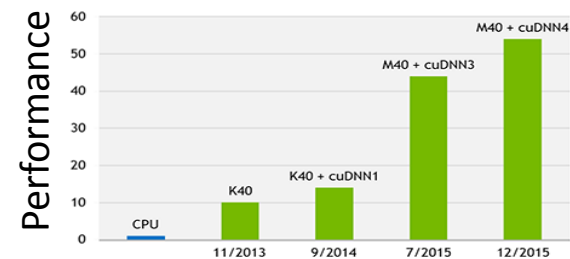
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## The AI development has speed-up since 2012

1. Development of **Deep Learning** neural network (100 layers & millions of neuron)
2. Increase of Graphics Processing Unit **GPU processing** (x50 in 3 years)
3. Availability of **Millions of labeled data**

***We are at a **decisive** moment in history in terms of **innovation rate & disruptive potential** of AI, in **all fields**:*** Stéphane Richard, CEO of Orange (Viva Technology Event, 2017)

50X BOOST IN DEEP LEARNING  
IN 3 YEARS



AlexNet training throughput based on 20 iterations.  
CPU: 1x ES-2680v3 12 Core 2.5GHz, 128GB System Memory, Ubuntu 14.04



Object-recognition rate in an image  
74% in 2011, 88% in 2013

➤ 97% today



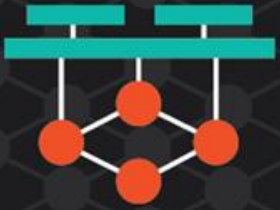
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## ML, DL & AI ?



- **Machine Learning:** the ability of computer system to **learn** from a **dataset or sensors** without being explicitly programmed
- **Deep Learning:** a **class of machine learning** methods based on artificial neural networks with many layers “deep architectures”
- **Artificial Intelligence:** **intelligence displayed by machines** using Machine and Deep Learning technologies





# Main ML & DL Algorithms

## Unsupervised

- Clustering
- Dimensionality reduction
- Association Analysis (Rules)

## Supervised

- Regression
- Decision Trees
- Classification

## Reinforcement Learning

- Q-Learning
- Deep Q Network
- State Action Reward SA

## Neural Networks:

- Convolution Neural Network CNN
- Recurrent Neural Network RNN
- Generative Adversarial Networks GAN



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## AI Telco use cases

1. Customer services & support



2. Marketing engagement

3. Network & Cloud infrastructure 'AIOps



4. Security

& Enterprise Apps: Finance, Smart cities, Medical, Automotive, Transportation





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# Acumos AI open source project: AI ecosystem for Telcos



Acumos AI

DLF  
DEEP LEARNING



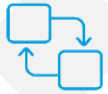


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Acumos AI

## AI Model lifecycle management platform



**Harmonization** across a range of AI tools and frameworks (ML & DL libraries)



**Onboard and manage** AI models



**Share** AI solutions in a Marketplace



**Deploy** AI solutions in a target environment as a **Container**

DLF  
DEEP LEARNING



AT&T



Tech  
Mahindra

NOKIA



HUAWEI

ZTE

Tencent  
腾讯

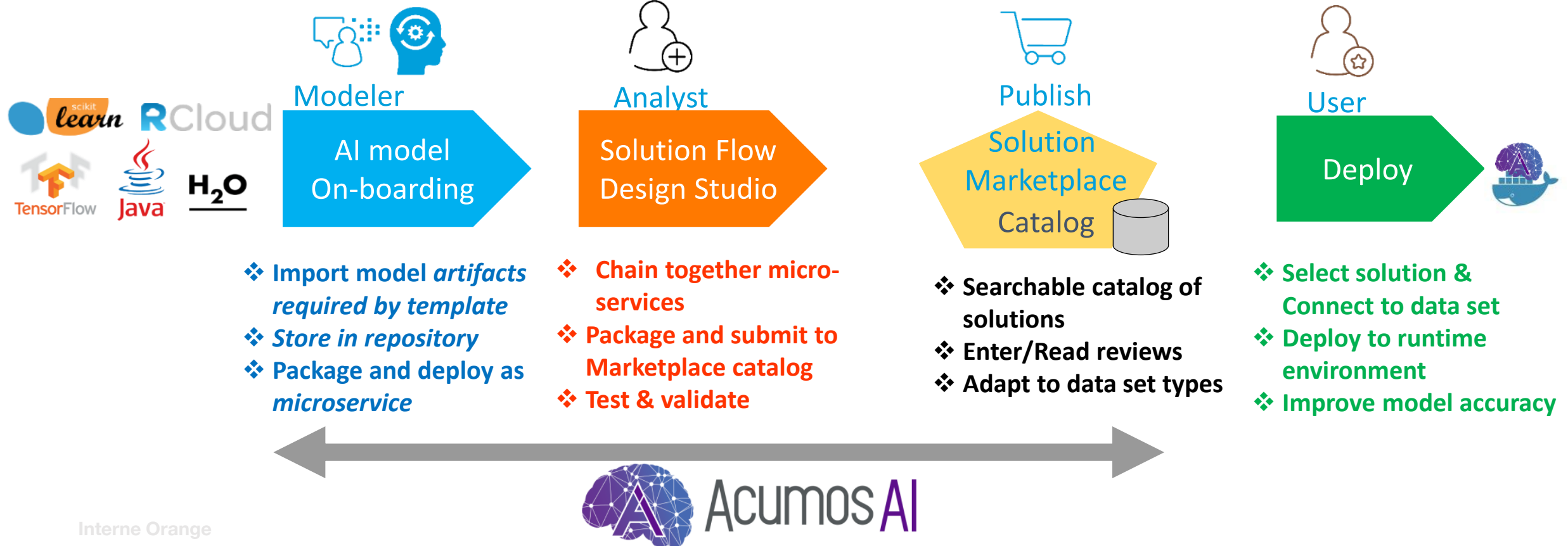
Baidu  
百度





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## Acumos AI proposes a user journey for AI Solutions development





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## Acumos AI : first 'Athena' Release planned for November 2018

Acumos AI THE LINUX FOUNDATION PROJECTS

HOME MARKETPLACE MY MODELS DESIGN STUDIO Q AND A

VIDEO ANALYTICS THREAT PREDICTION NETWORK SECURITY ANOMALY DETECTION

CLASSIFICATION REGRESSION CLUSTERING AGGREGATOR

### Explore the Acumos Marketplace

it's easy to **discover, download & deploy**

- TechM-CustomerSegmente...
- ATT-Face Privacy filter
- ATT-Face Detect
- ATT-Image Mood Classifier



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# Thank You