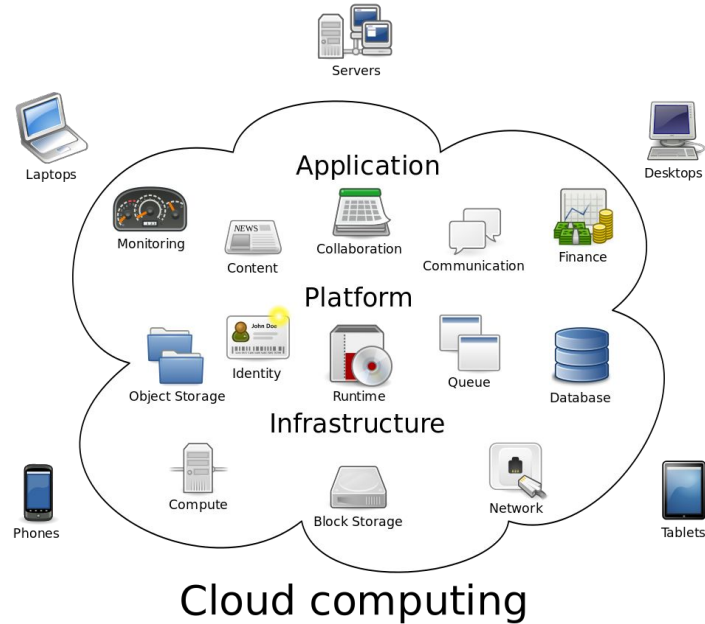




Edge and Fog computing

Adam Sawicki

Cloud computing - reminder





Cloud computing - challenges related to IoT

Physical



Economical



Legal



INDUSTRIAL IoT DATA PROCESSING LAYER STACK

CLOUD LAYER

Big Data Processing
Business Logic
Data Warehousing



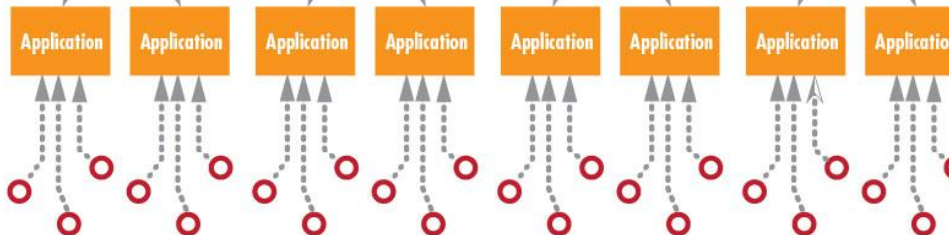
FOG LAYER

Local Network
Data Analysis & Reduction
Control Response
Virtualization/Standardization



EDGE LAYER

Large Volume Real-time Data Processing
At Source/On Premises Data Visualization
Industrial PCs
Embedded Systems
Gateways
Micro Data Storage



Sensors & Controllers (data origination)





AWS IoT Greengrass vs Azure IoT Edge



- 7 June 2017
- CPU-based devices (x86 or ARM) that run a general-purpose OS such as Linux
- It can run as a Docker container
- Only Lambdas and Greengrass ML



- 27 June 2018
- Linux/Windows
- Open Source - [GitHub](#)
- Use Moby, the open source container runtime
- Multiple services

Sample applications



Managing a fleet of trucks helps mining company save millions

- Limited connectivity requires local storage and processing
- Greengrass-enabled Intel gateways pre-process sensor data on the trucks
- Road roughness models help improve asset utilization & increase worker safety

The diagram illustrates the data flow from the truck to the cloud. It shows an Intel gateway on the truck connected to AWS Services (represented by a cloud icon with server racks) and Applications (represented by a laptop and tablet icon).

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AWS Snowball Edge

Petabyte-scale hybrid device with onboard compute and storage



RE:INVENT 2016 LAUNCH

- 100 TB local storage
- Local compute equivalent to an Amazon EC2 m4.4xlarge instance
- 10GBase-T, 10/25Gb SFP28, and 40Gb QSFP+ copper, and optical networking
- Ruggedized and rack-mountable



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