# eYs3D Microelectronics

eLock Demo

eYs3D Microelectronics

# Vision

Always Creating Most Lively/Cost/Performance/Power Effective 3D Vision Sensing Solution for Multiple System Application Including M.L. / A.I.

# Core Competence

Continuously Innovating High-Intelligence Heterogeneous Integration (HIHI) of Semiconductor-Centric Technologies Covering from Chips, Software to System。

# ABOUT US

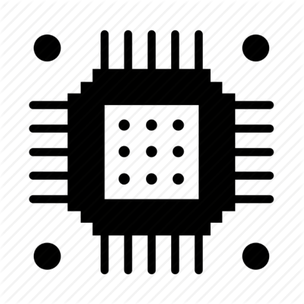
| Spin-Off | Locations | Focus | Product | Patents | 3D ASIC |
|---|---|---|---|---|---|
| 2016 | TAIPEI<br>Santa Clara | 2D/3D<br>Imaging<br>Processors | 20+<br>IC<br>System Design | 80+<br>Worldwide | 2<br>Generations of 3D ASIC with Generation 3 on the way |



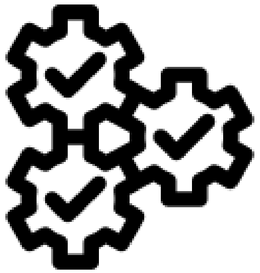
eYs3D 鈺立微電子 an Etron company

# ASSETS

DOOMAIN
KNOWLEDGE/
Design in Knowledge

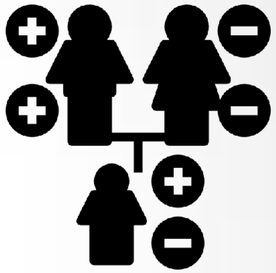


DEPTH IC
PRODUCT/
DESIGN Ability



VERTICLE
INTEGRATION
ABILITY

ROUTE TO MARKET
ADVENTAGE



Inherited
Value-Chain
For
IC production

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# 公司亮點

① 創辦人以及主要投資人為全球半導體設計的權威, 團隊具有專業以及生產價值鏈統治性資源。

② 全球最有經驗的3D感知技術公司之一。

③ 完整的縱向整合產品線以及應用領域知識與設計經驗。

④ 多個已量產半導體產品並且成功被世界級大型客戶採用。

# eYs 3D 公司發展歷程

我們的團隊始於超過二十年的世界級IC設計半導體集團,結合資深的光學, 機構以及軟體技術人士. 具備半導體設計以及系統整合商業化的能力與實績。

**2013 2015** 3D團隊於鈺創科技影像半導體事業部開始商業化矽型態解決方案. 推出第一代eSP870 3D深度感知晶片驚艷全球市場. 並且得到ＶＲ先驅者Oculus Design in 至 Oculus Rift VR產品同時獲得世界零售龍頭Amazon的採用, 於Amazon Go 智慧零售店的影像系統加速3D邊緣運算。

**2016 2018** 與Ocuculus繼續緊密合作並於2018年開始量產 新產品 Rift S. 除此之外,成功Design-in 至世界級遊戲公司 Valve 的 VR產品 Valve Index 同時間與世界級軍事設備大廠Lockheed Martin開始前瞻性ＡＲ戰備開發. 在 Amazon集團也展開智慧零售之外的技術合作關係, 其中包括智慧倉儲與智慧物流電腦視覺設備開發。

**2018 2019** 隨著3D感測應用的崛起, eYs3D產品被世界各地大廠採用, 於家電產品以及IoT設備開始量產. 並起展開生態系串連,並且與多間跨國公司開啟具體性戰略合作。

# 1. Iot

# 2. Sensor Fusion and IoT

# 3. AI Chips

# 4. Transmission

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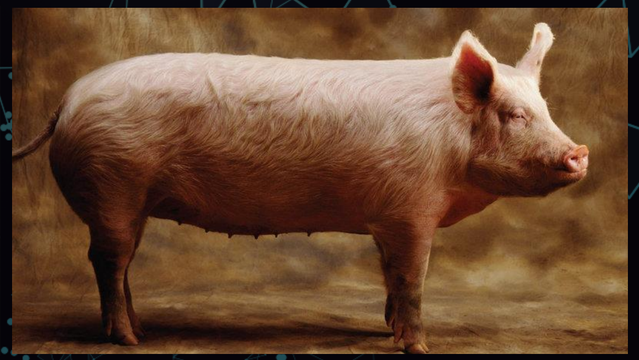

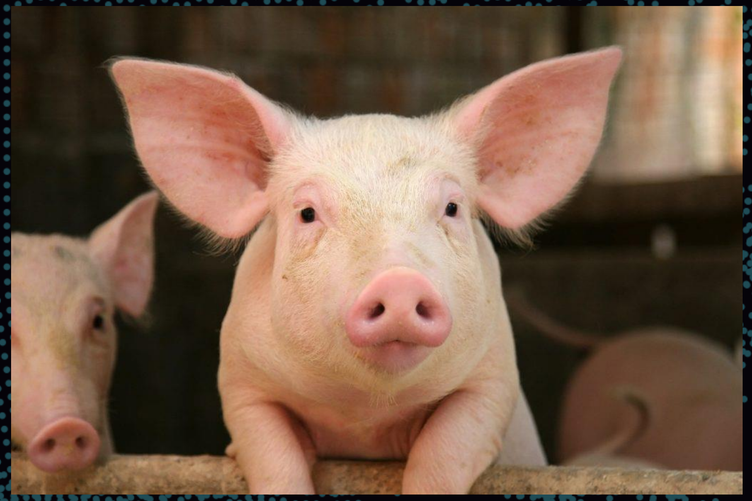

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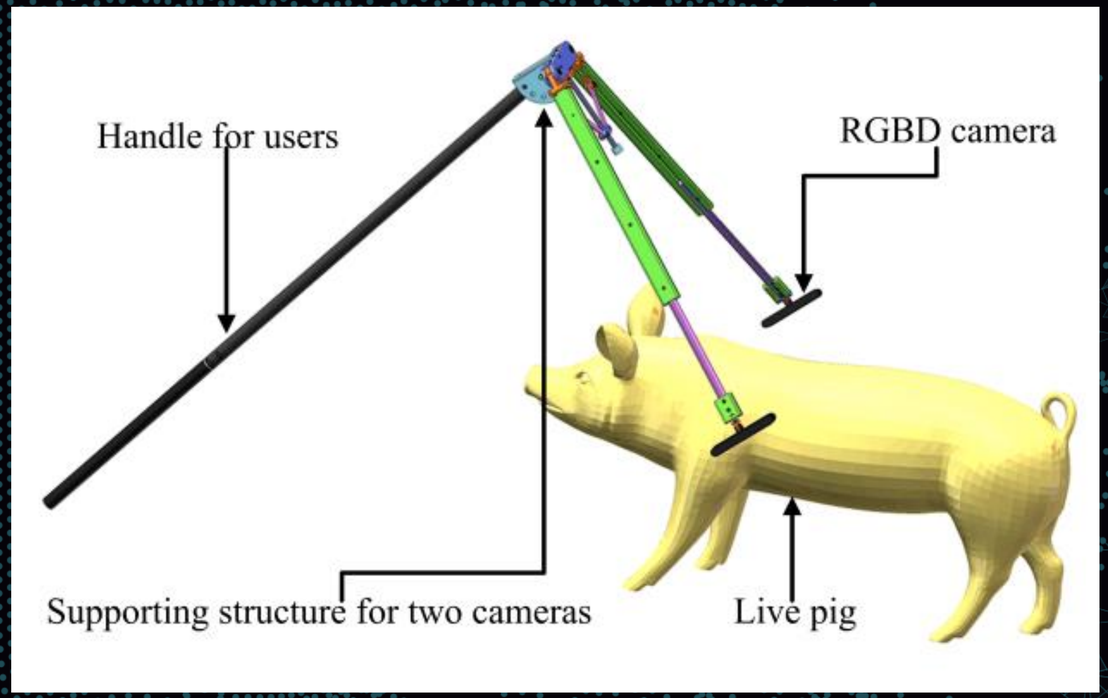
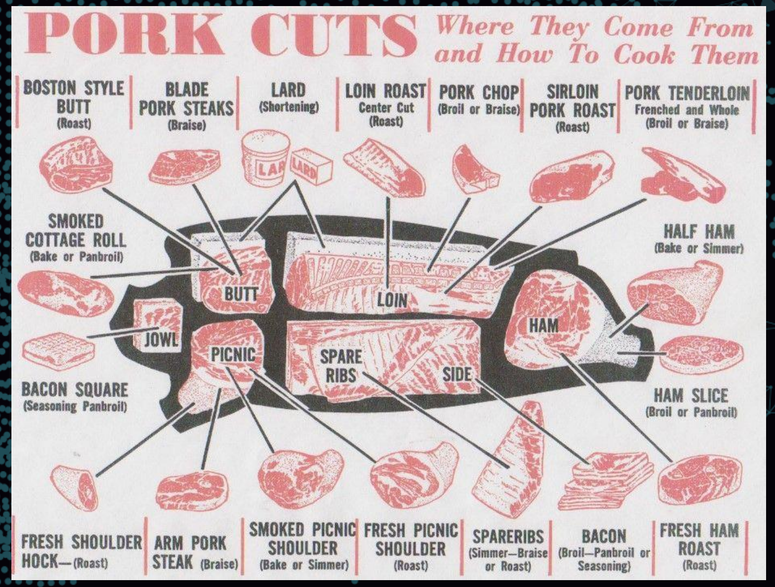
# First

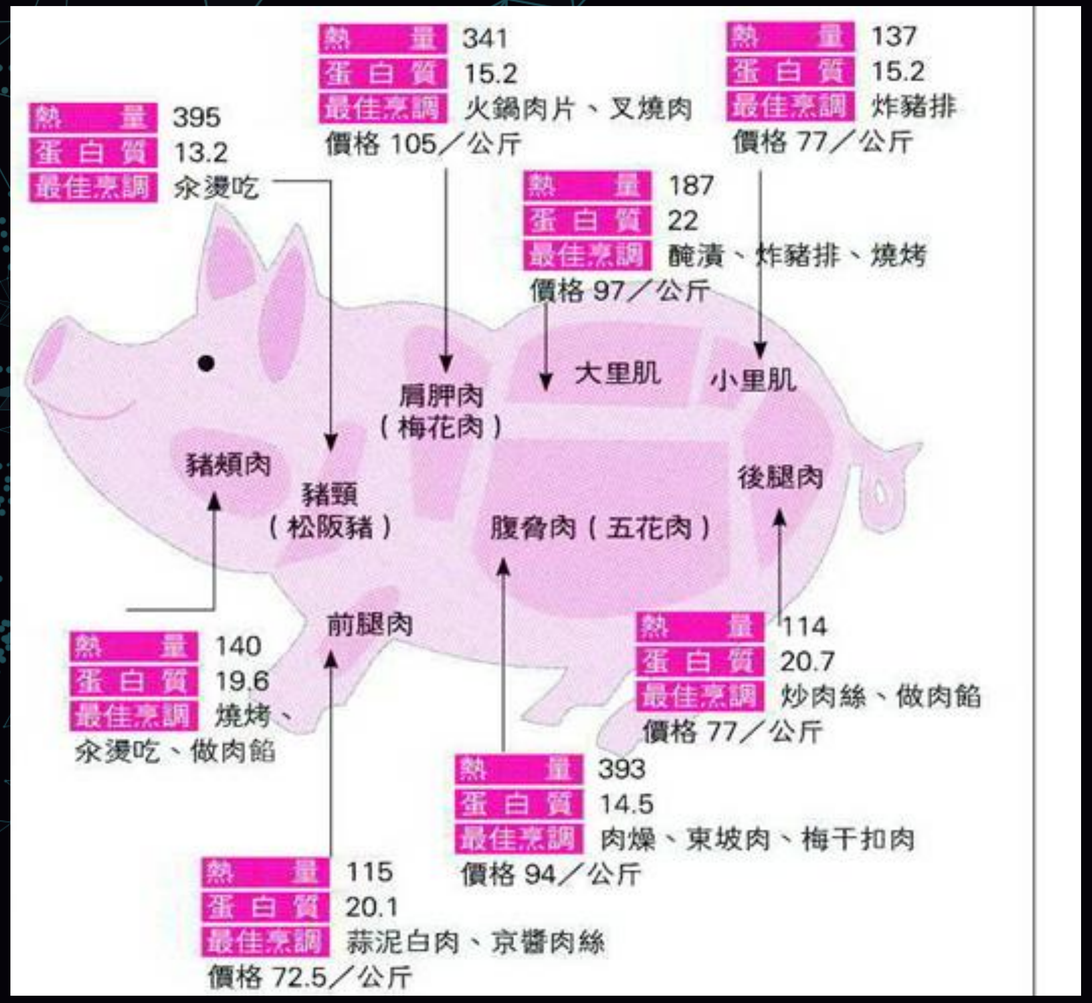


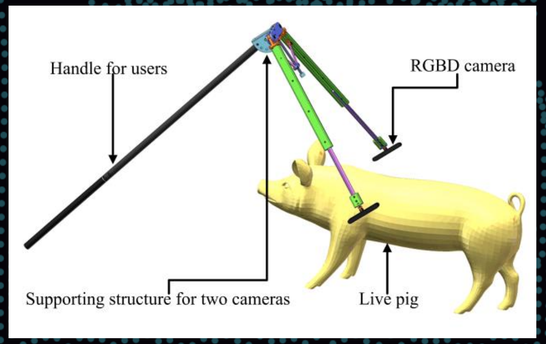

# Volumetric

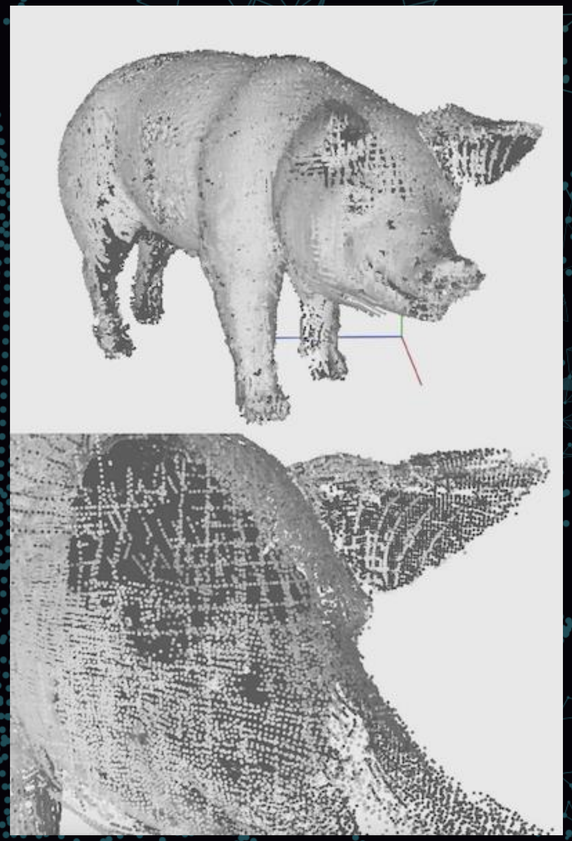
KG?

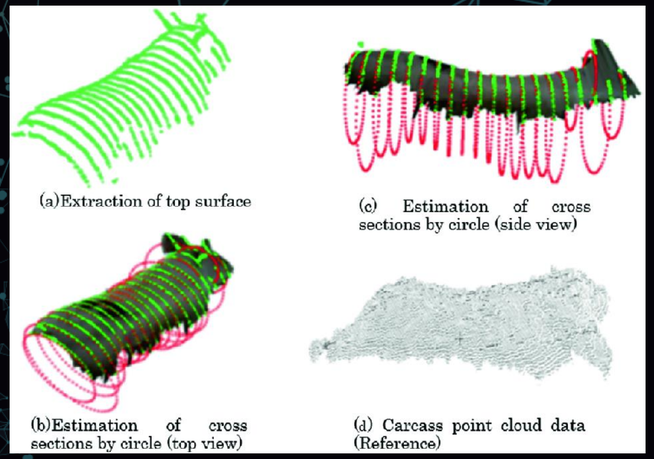
The..... End?

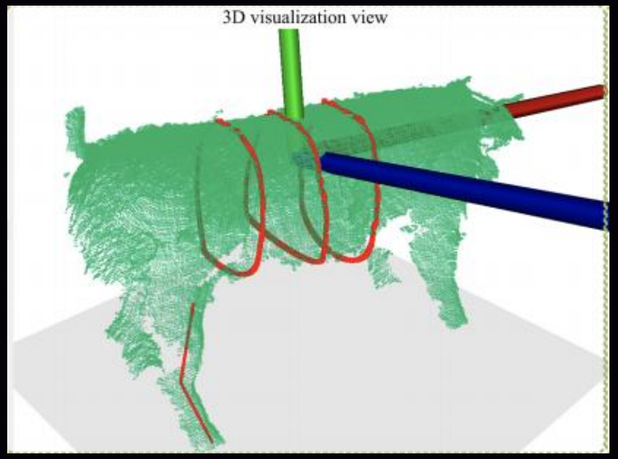





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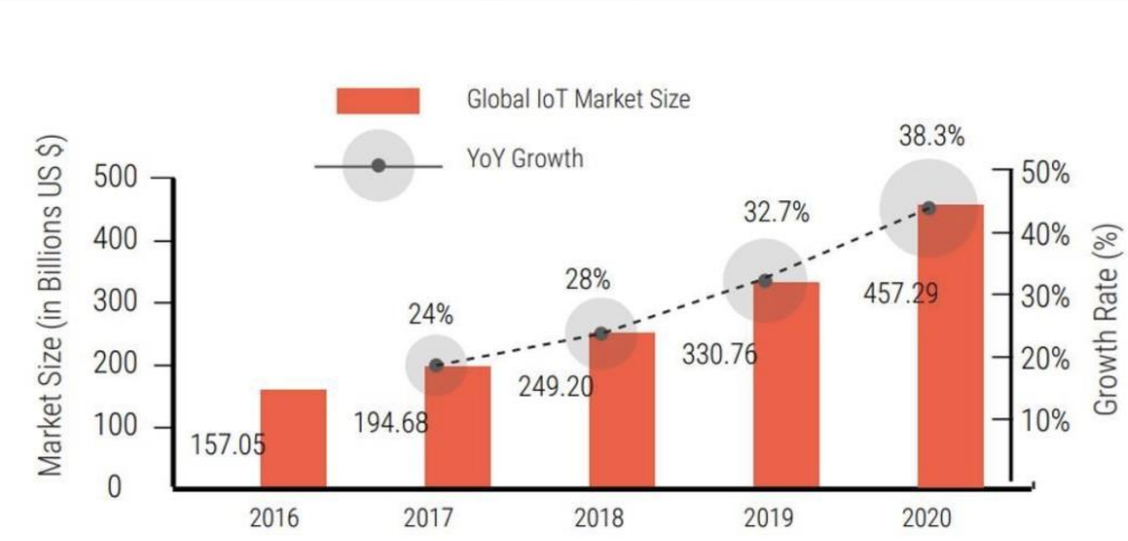
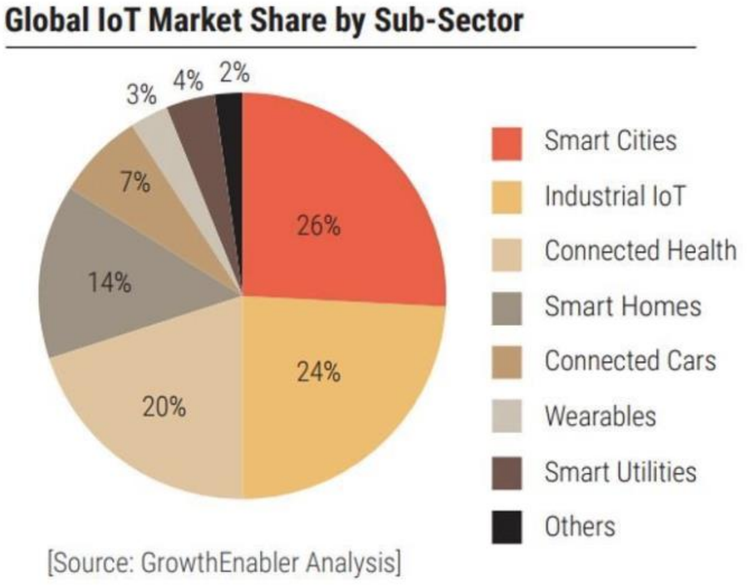
# IoT

# IoT

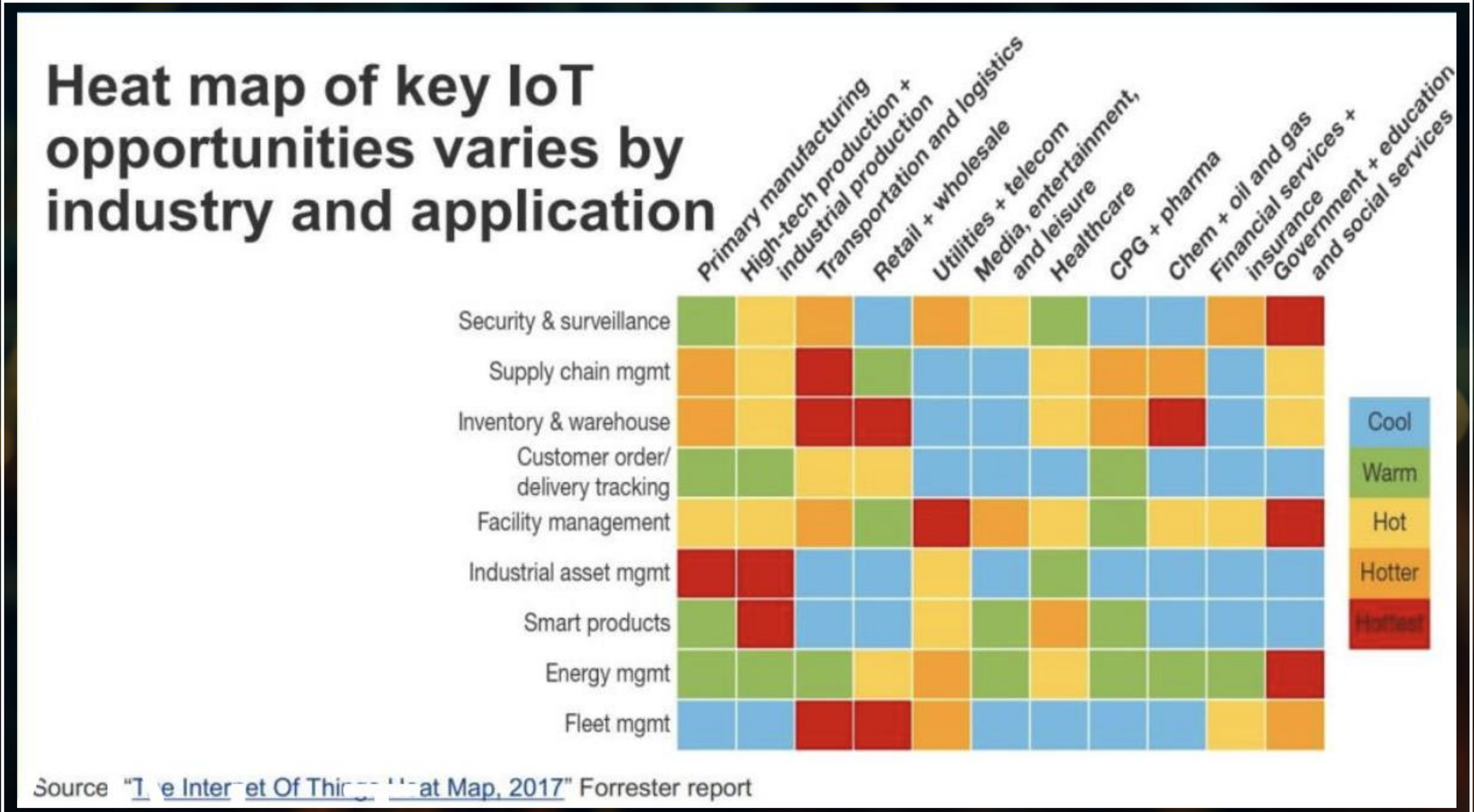
The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction



# IoT

**Functional Specific Applicational/Sensor Hub with Domain specific Quality.**




**Domain Specific**

## Edge Computing


## “Edge” Computing

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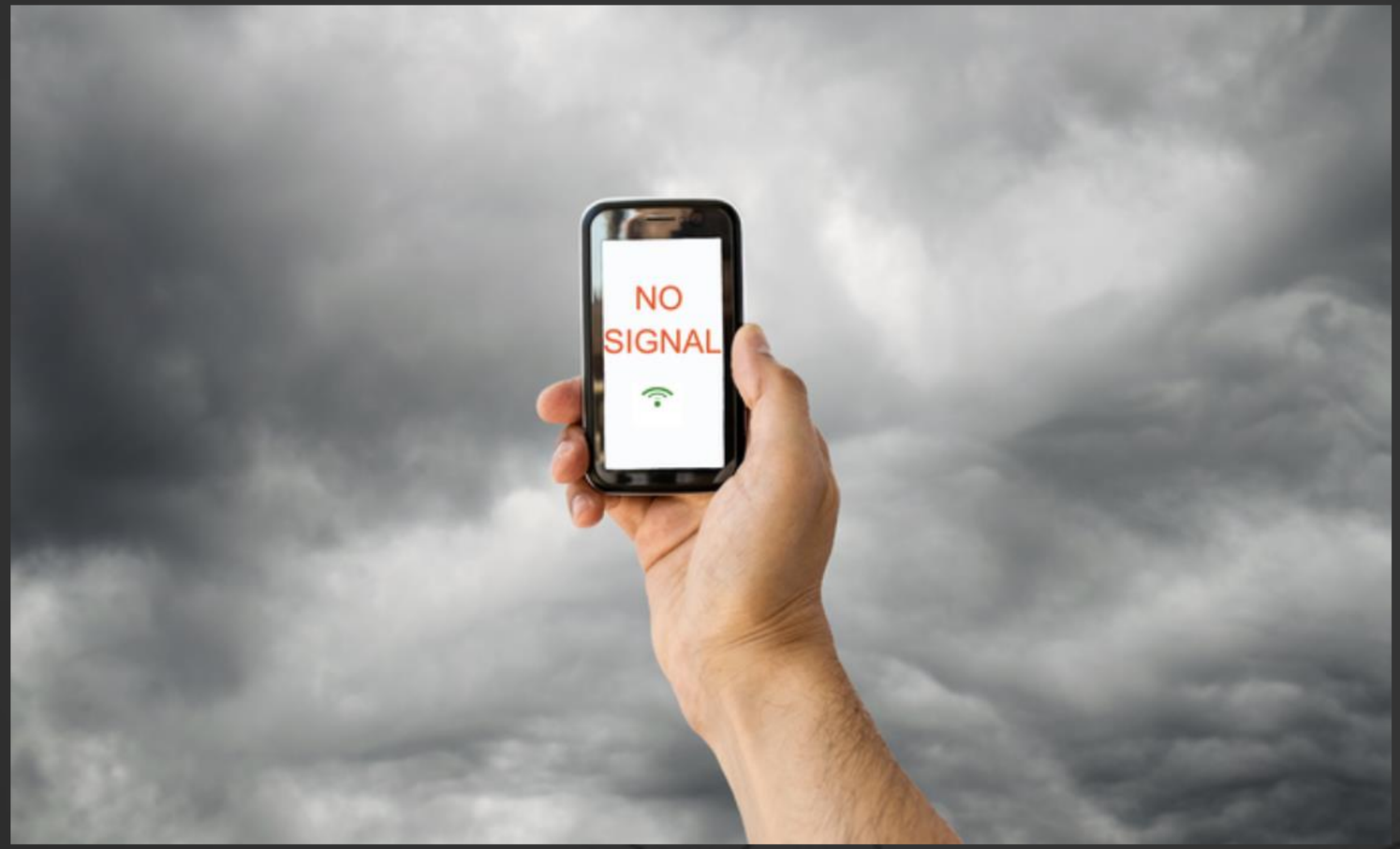


# Semiconductor Is Back in the Game

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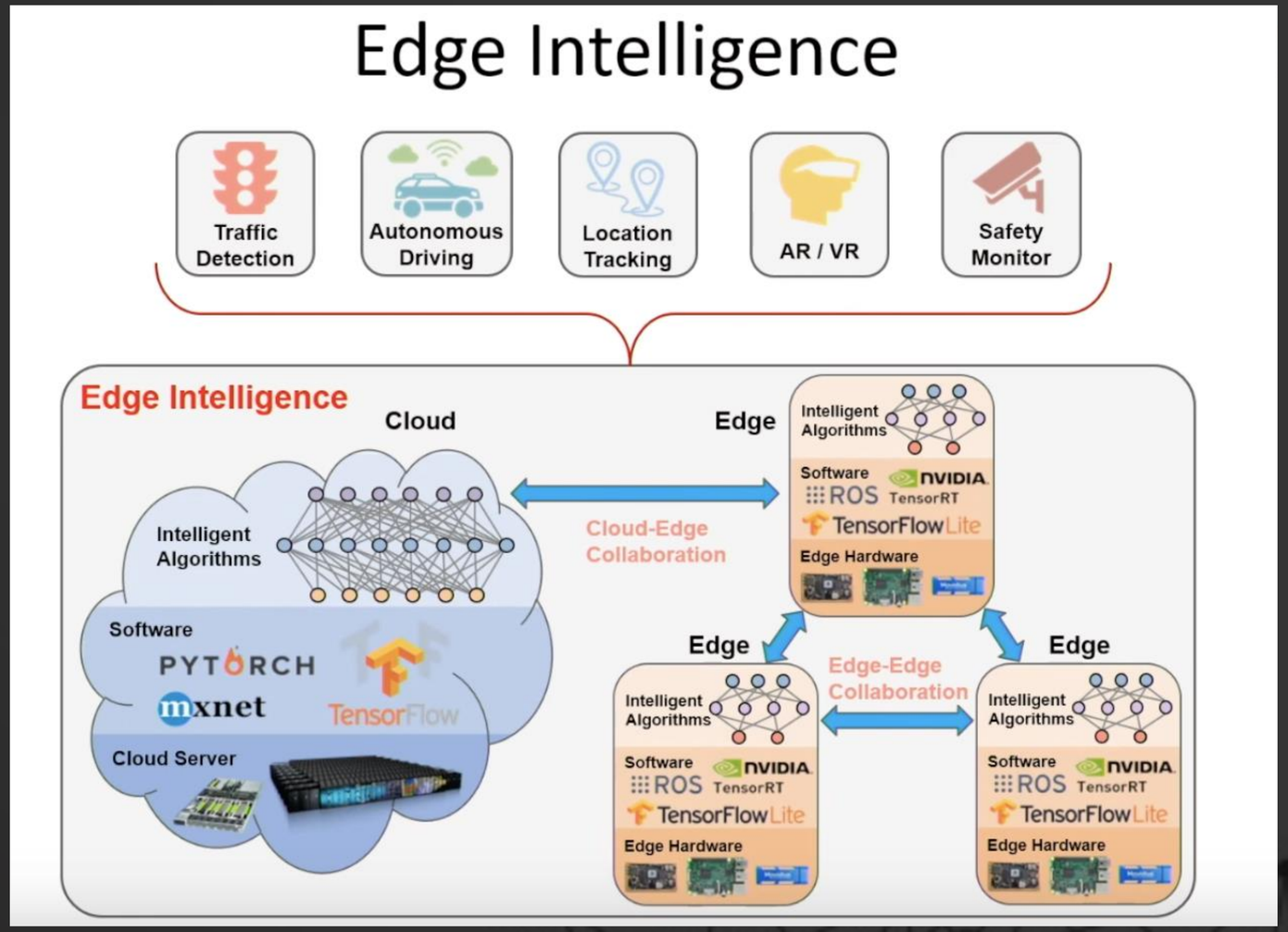
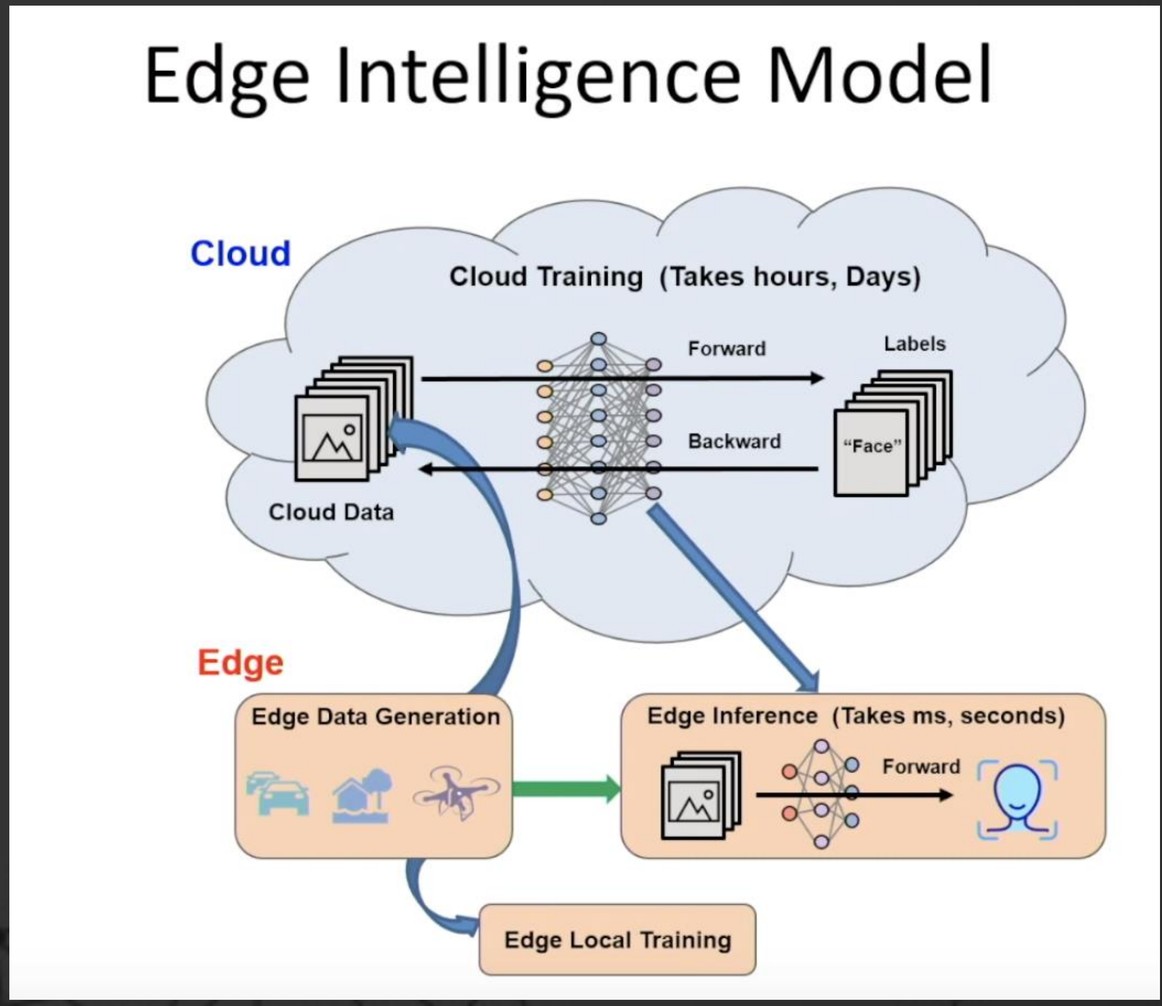
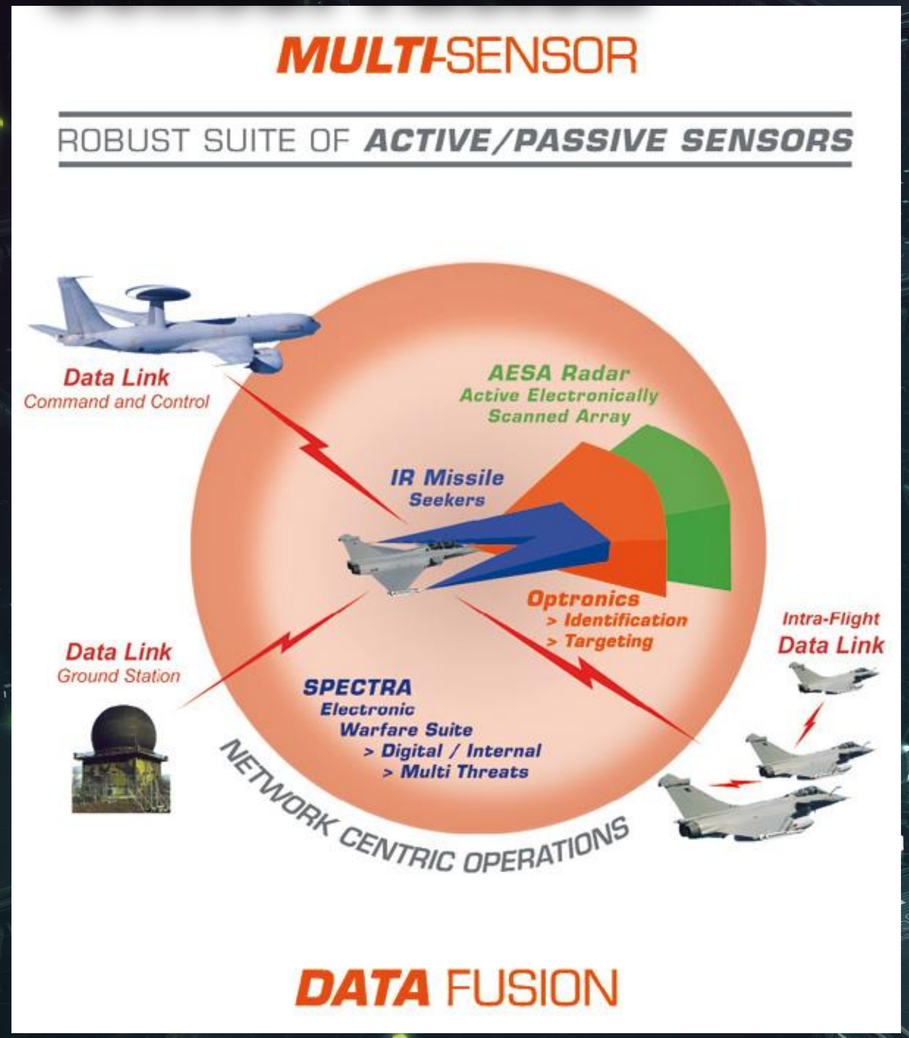
# Sensor Fusion and IoT

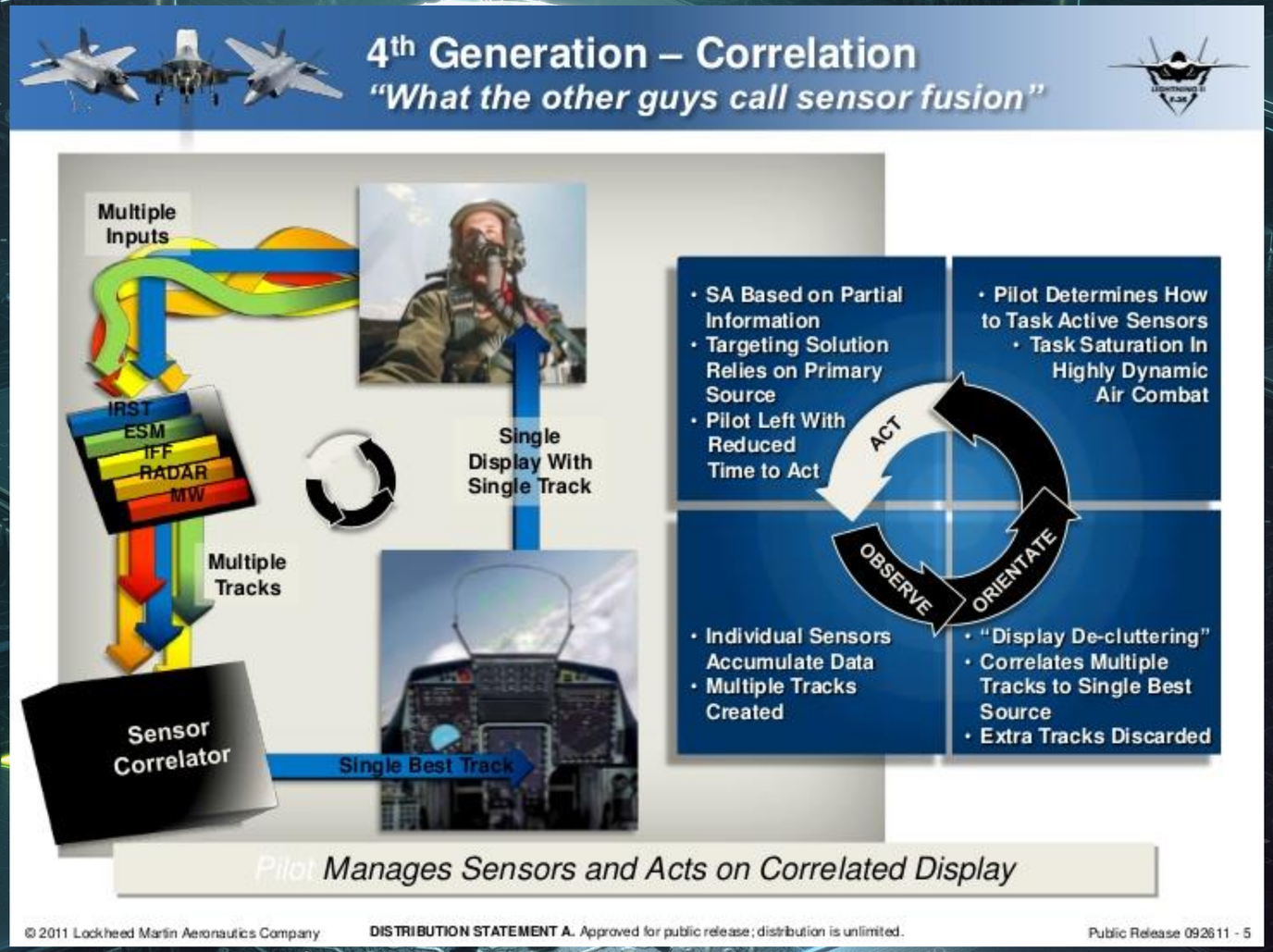
# Edge Process in different IoT Market



# Sensor Fusion

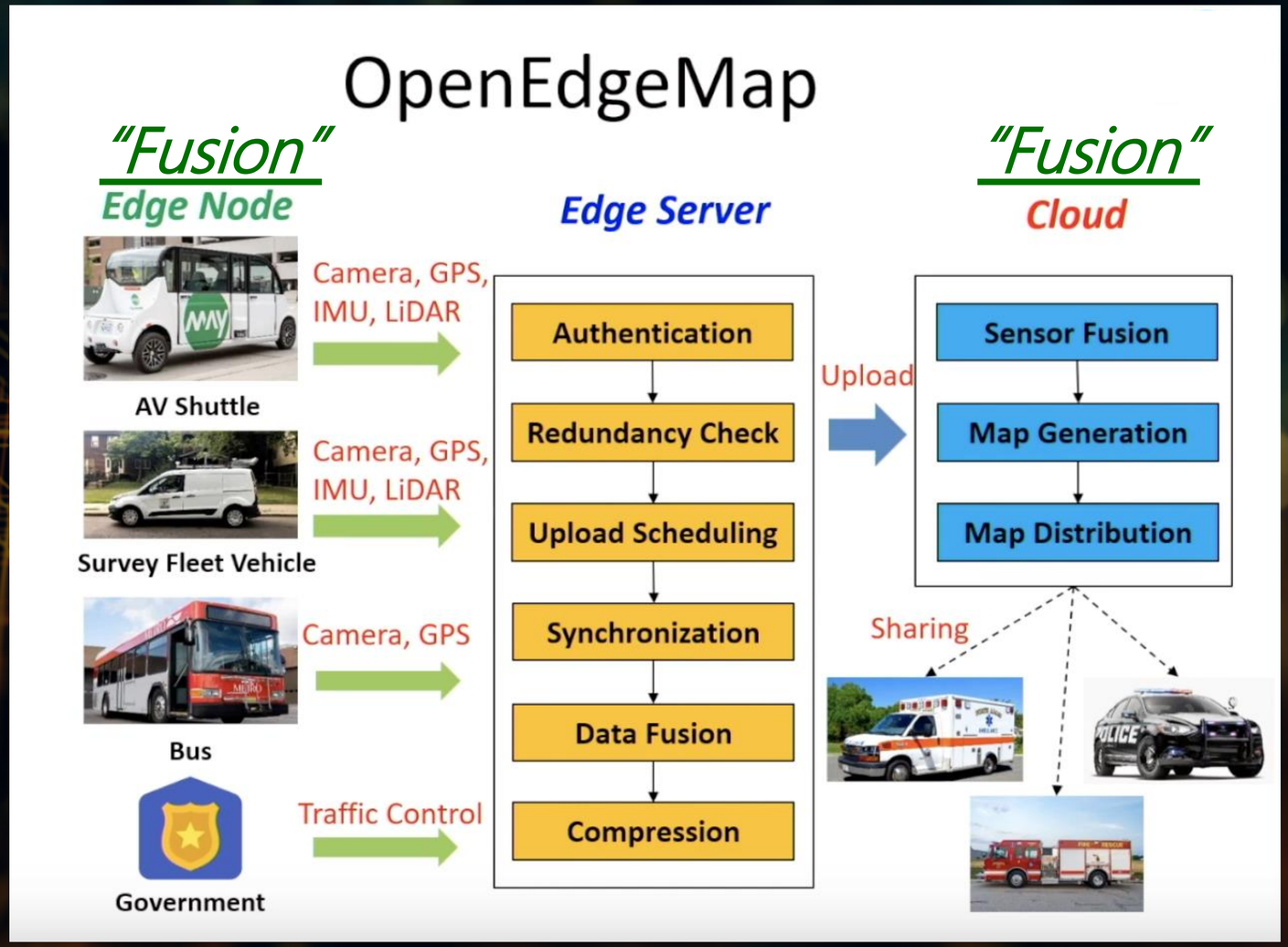


# Obvious Applications

Definition of
" Edge Processing "
Is not clear therefore will
Required multiple layers of
Local processing

Edge Filteration



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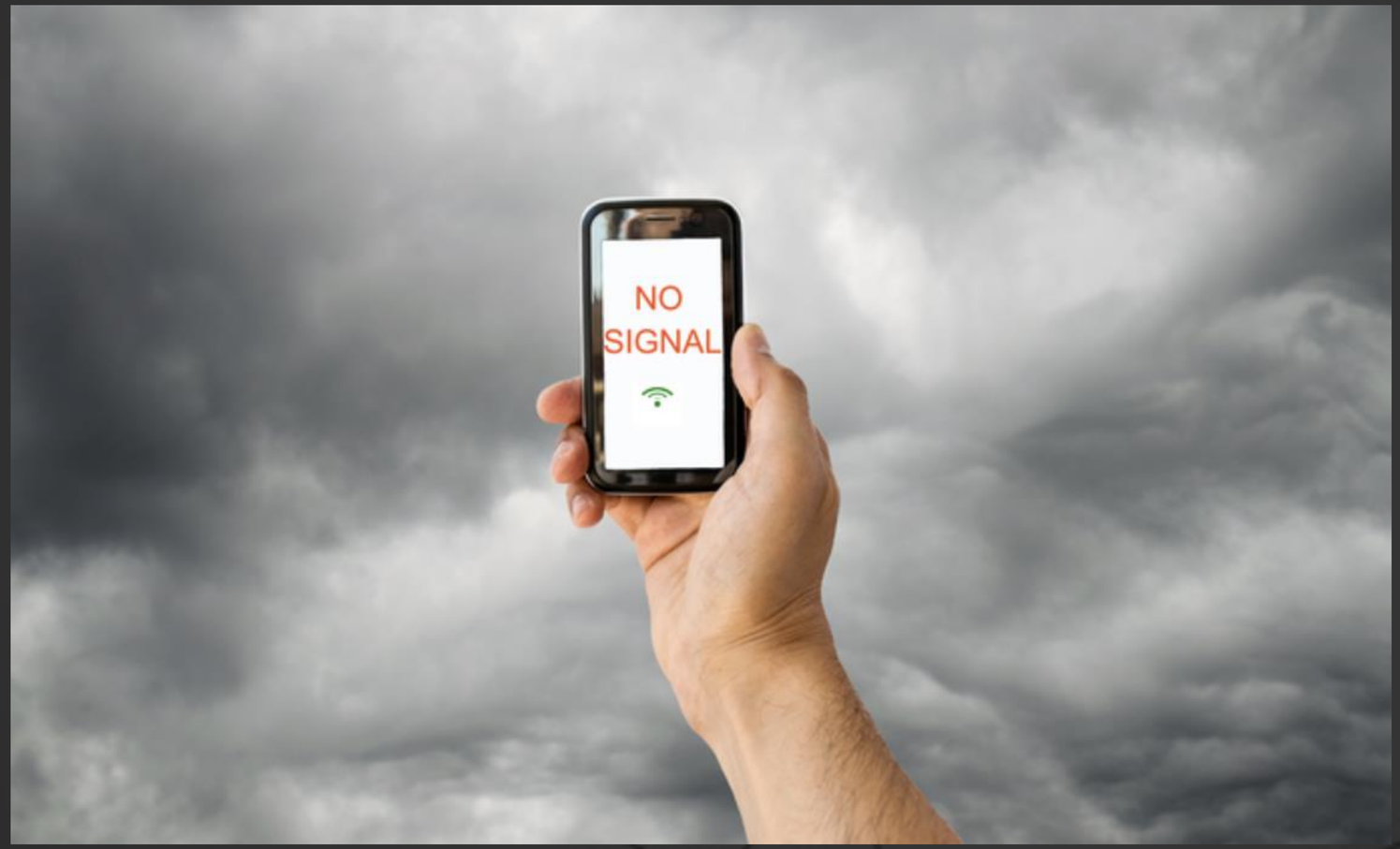
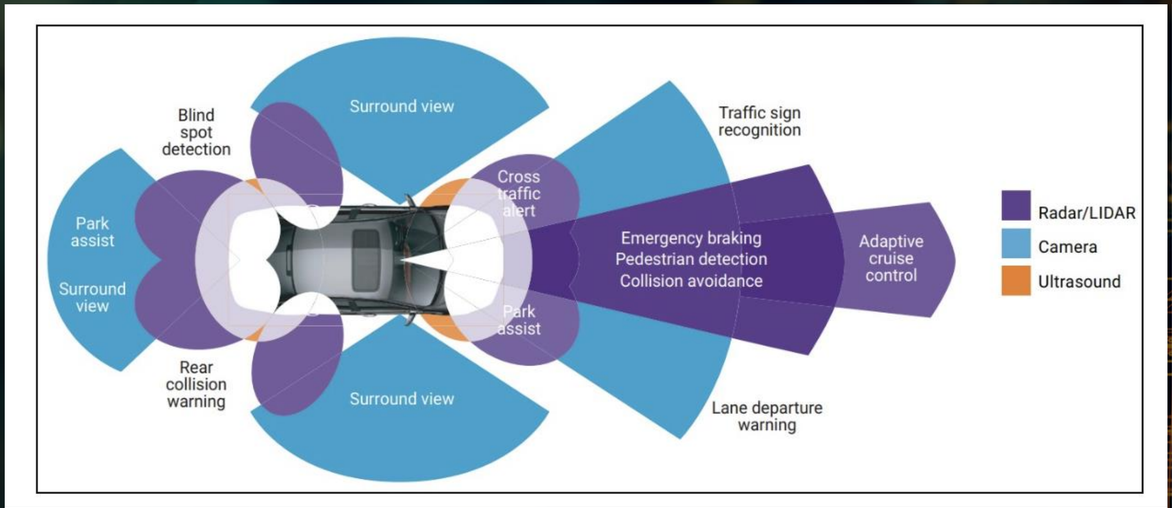
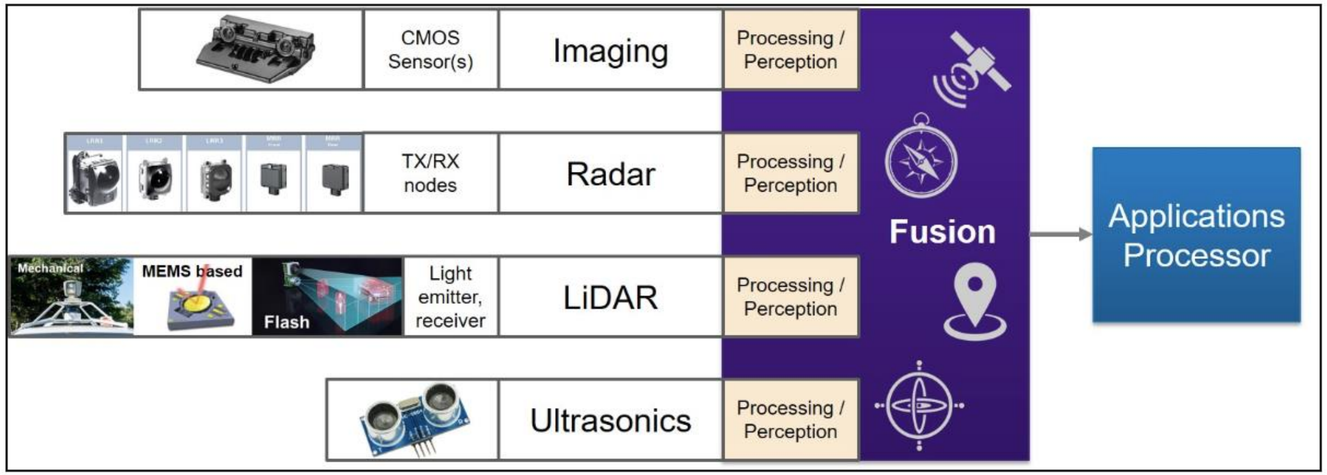
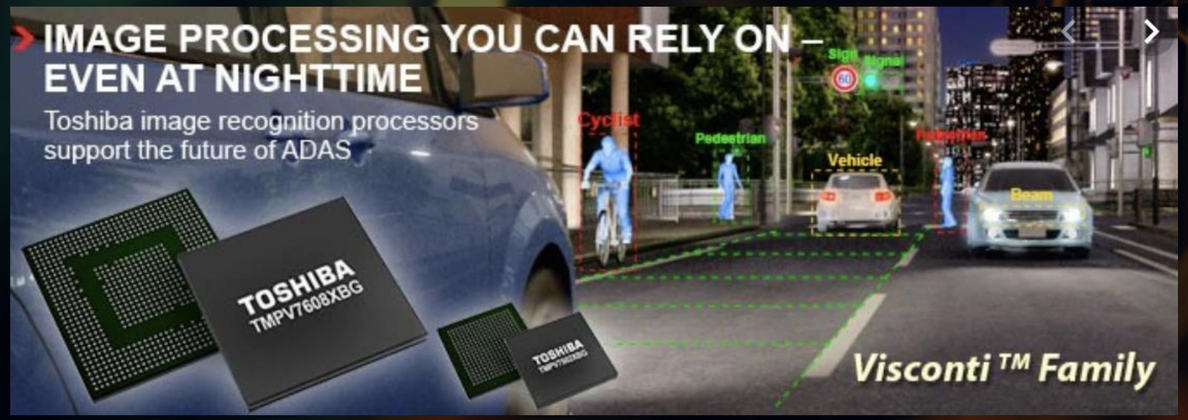



# Semiconductor Is Back in the Game

# Obvious Applications




TOSHIBA
Leading Innovation

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# AI Chip, IoT, Sensor Fusion

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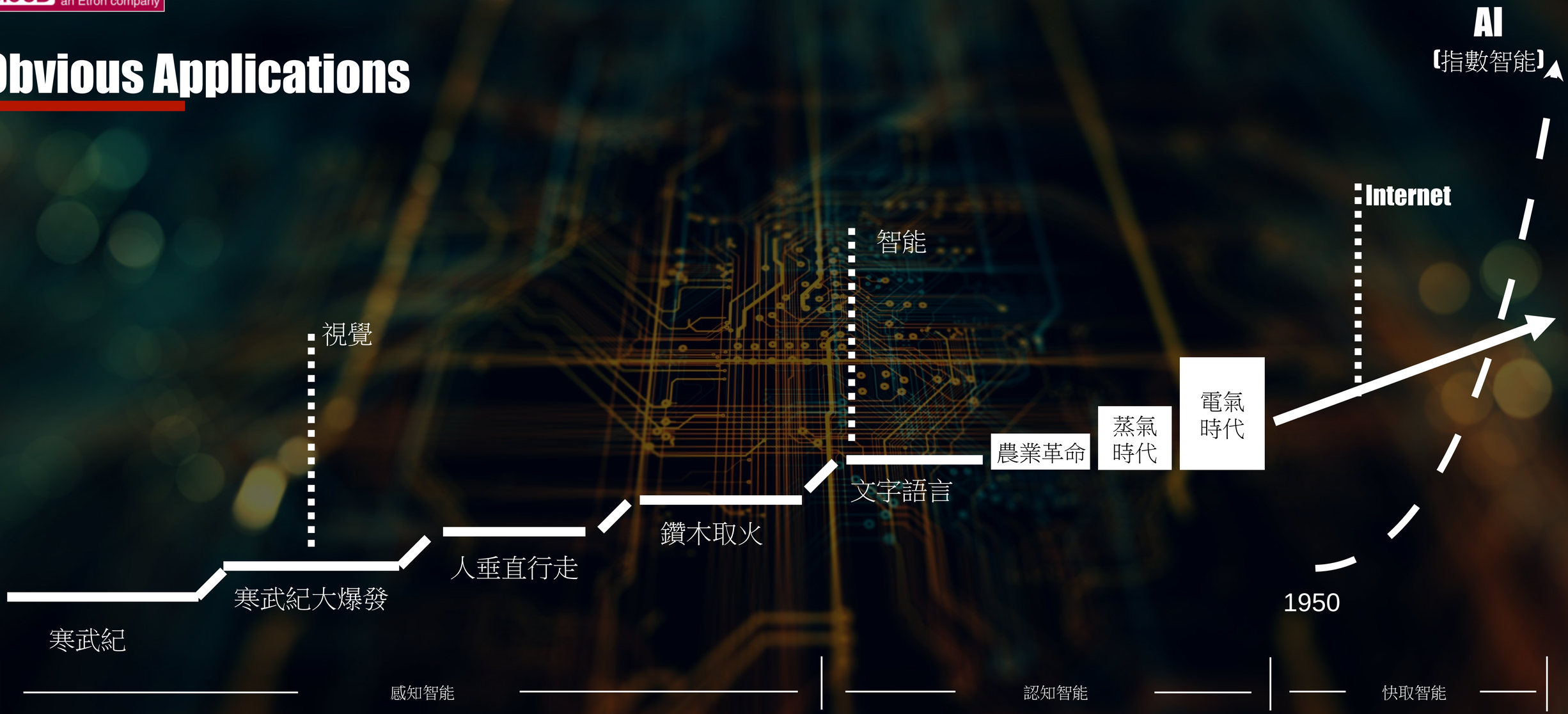
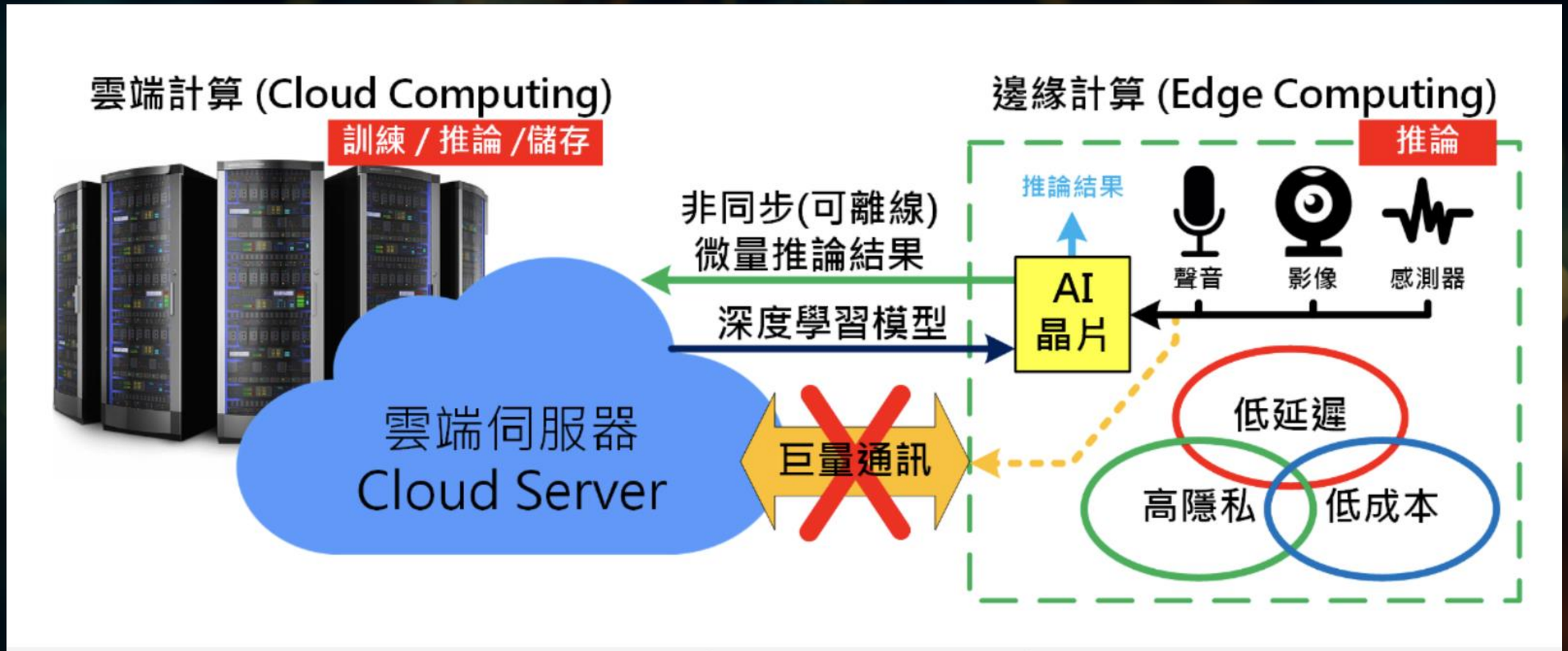
# Obvious Applications



# Sensor Fusions of AI Chip




雲端及邊緣運算（圖片來源：OmniXRI 整理製作）

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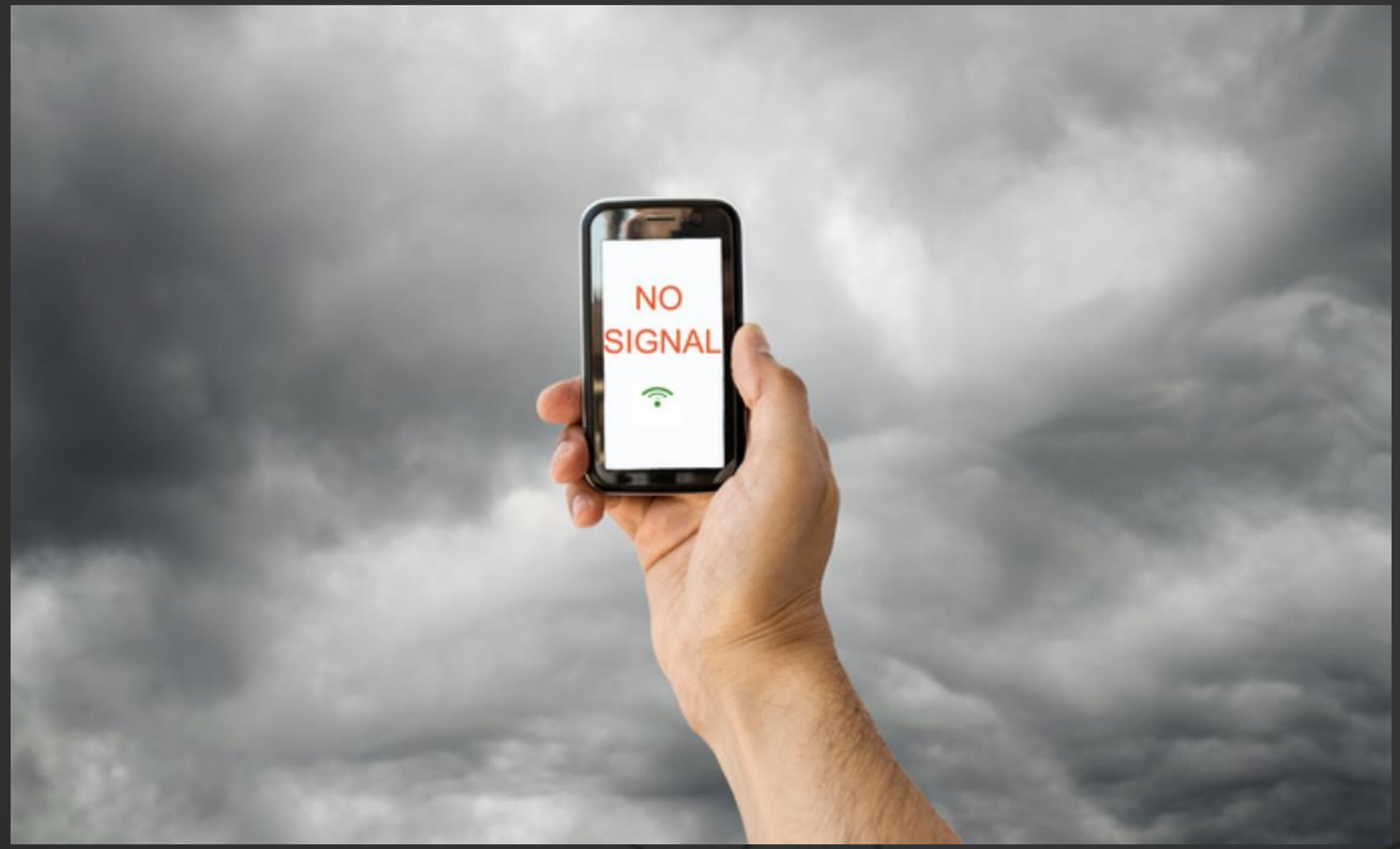
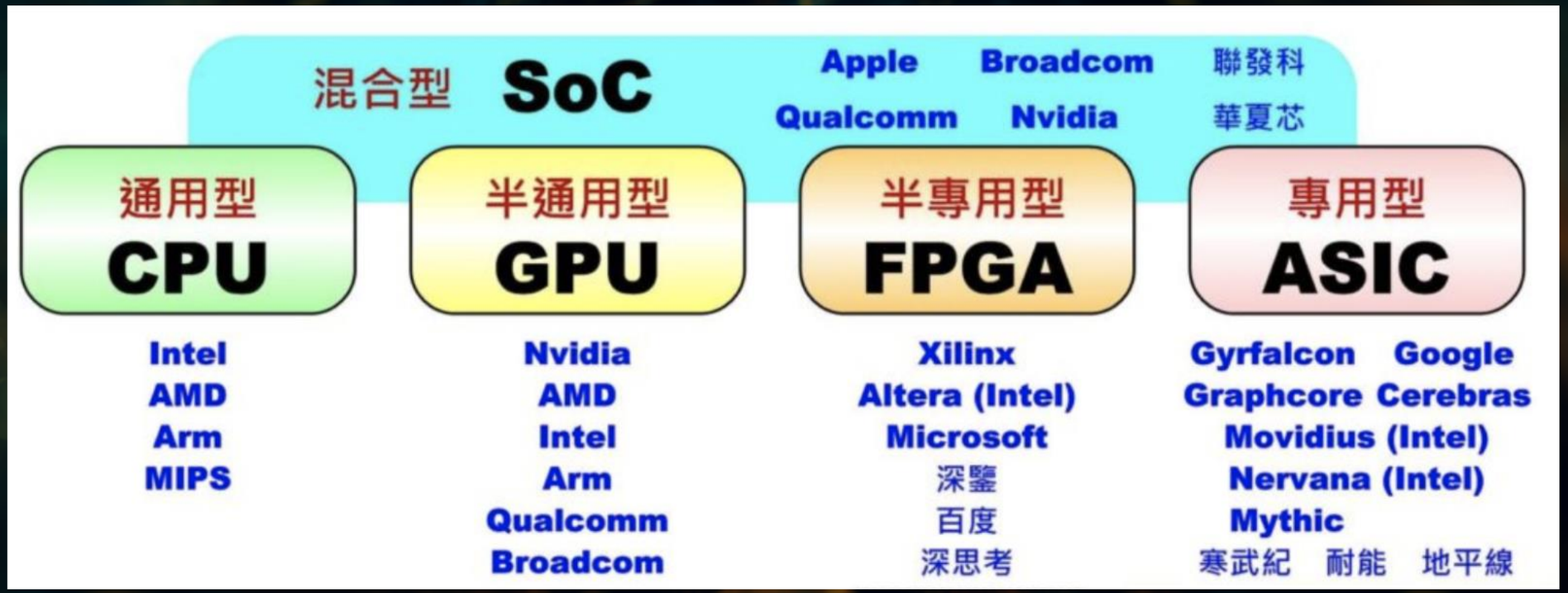
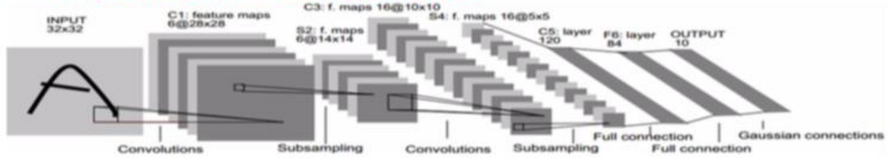



# Semiconductor Is Back in the Game

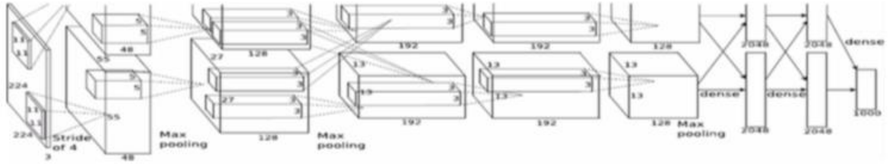
# Sensor Fusions of AI Chip



## ① AI 需要通用神经网络计算



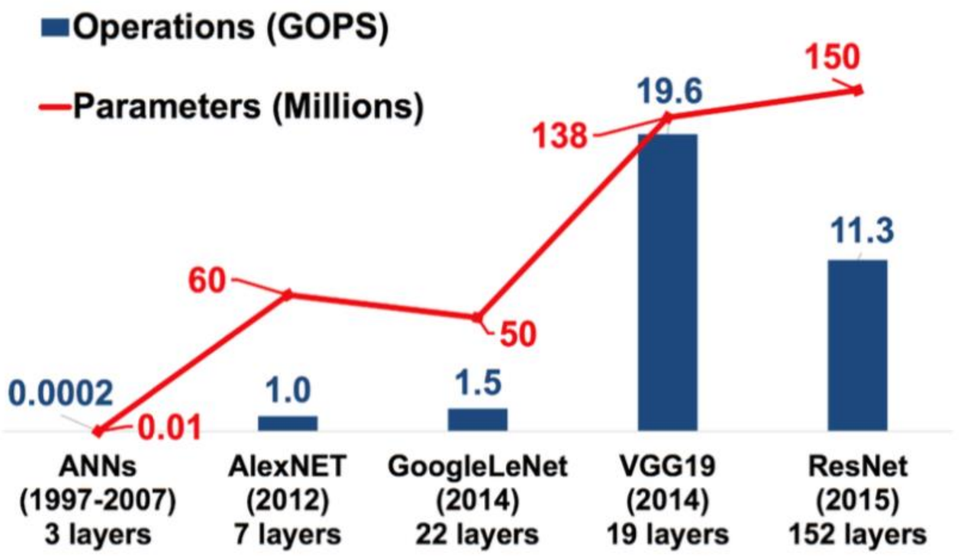

例1：用于手写体识别的LeNet



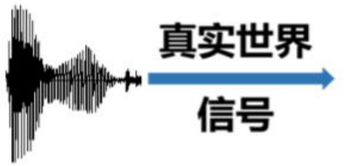

例2：用于图像体识别的AlexNet


例3：用于视觉场景理解的LRCN网络

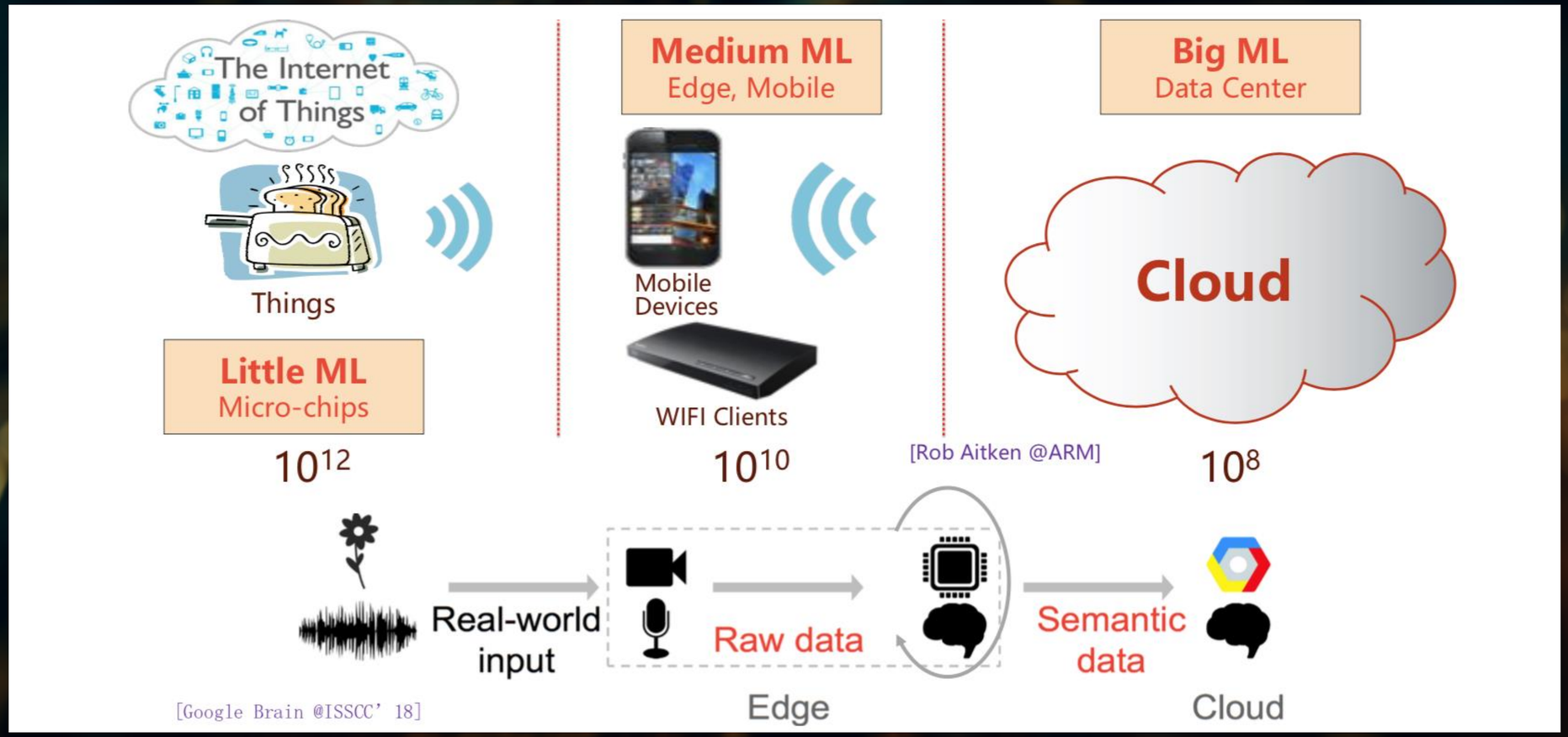
## ② 计算量和参数量激增



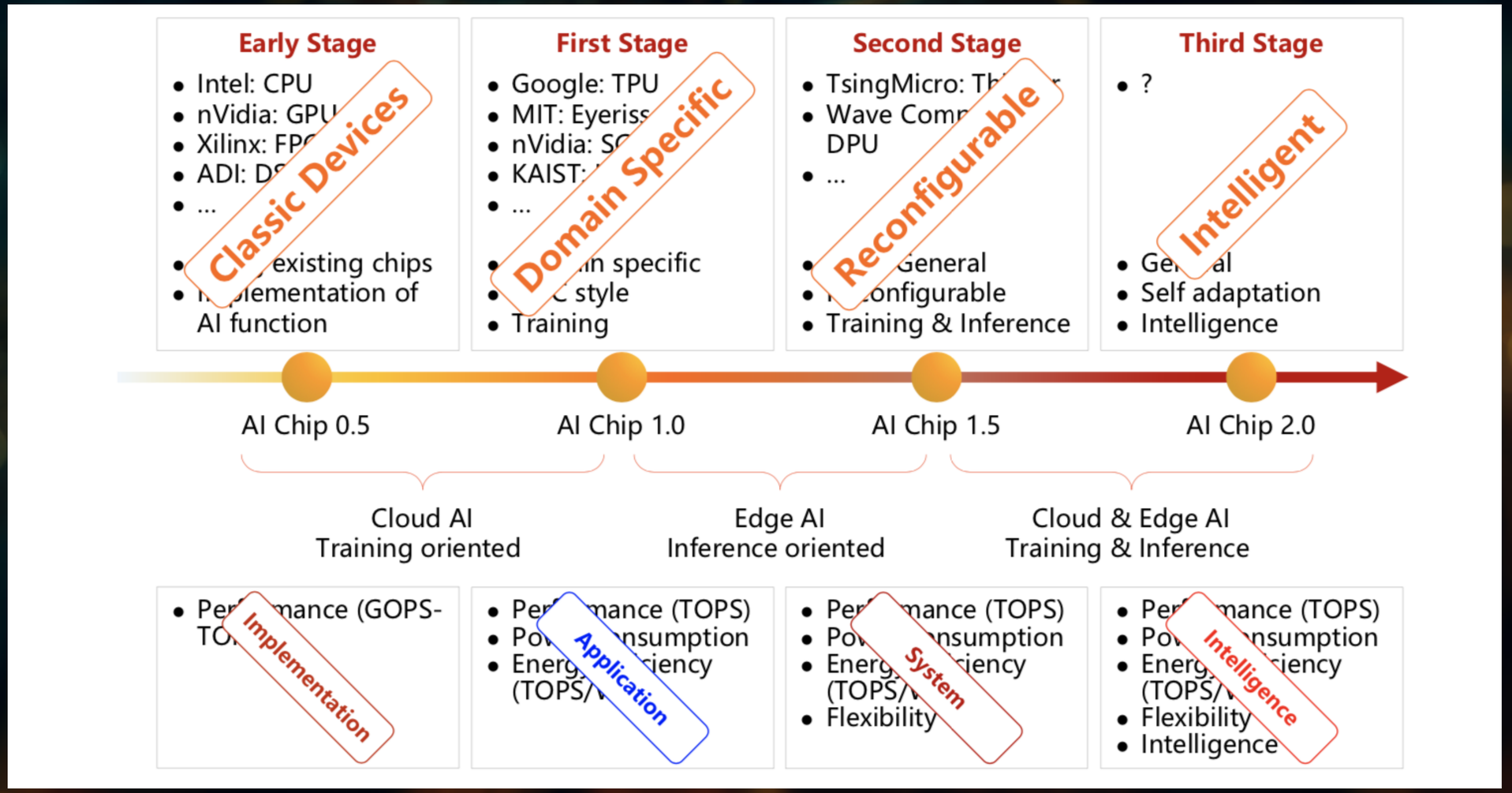

## ③ 从“云端”向“终端”的迁移，亟需高能效计算，能量效率 ~TOPS/W



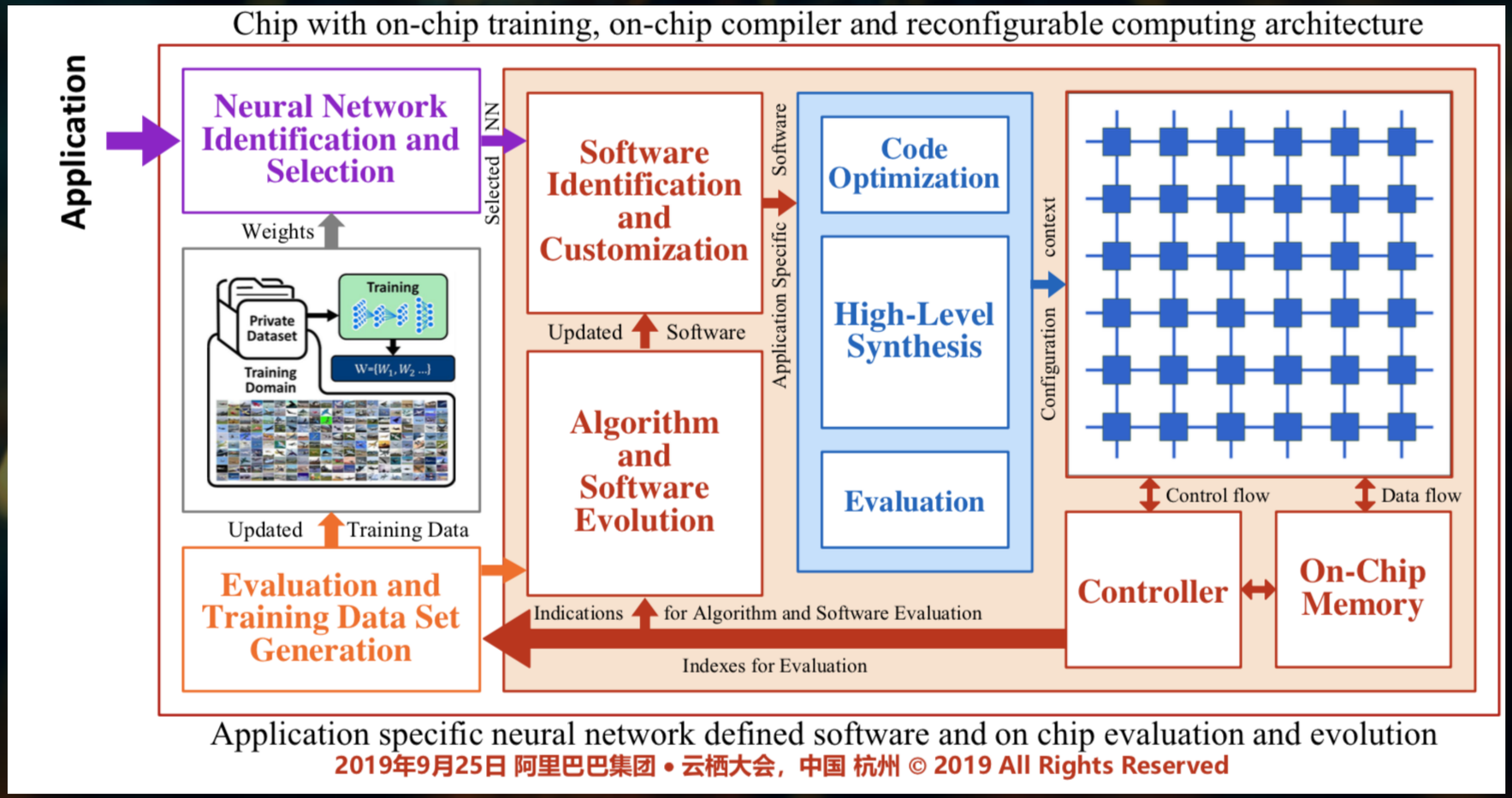
# Sensor Fusions of AI Chip



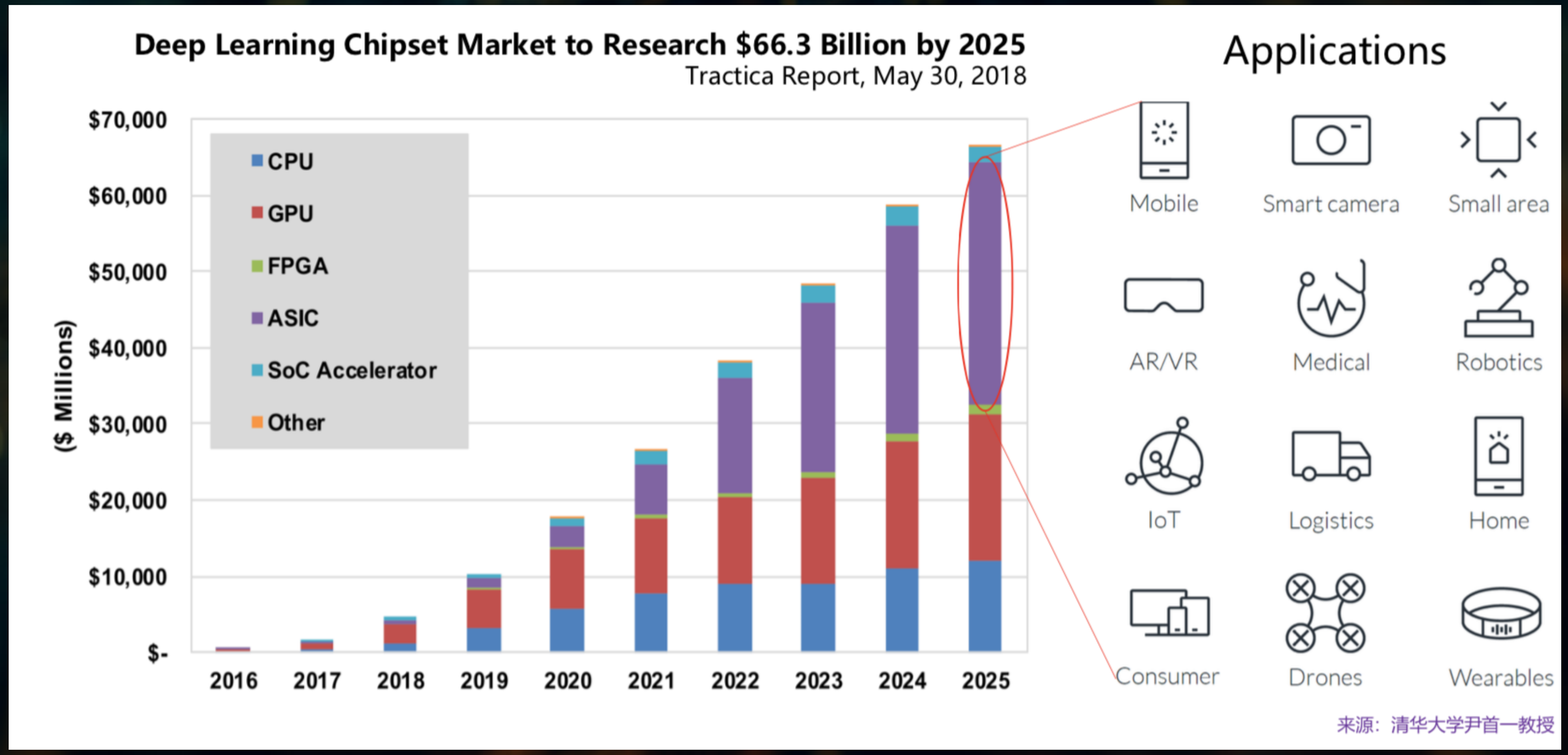
# Sensor Fusions of AI Chip



# Sensor Fusions of AI Chip



# Sensor Fusions of AI Chip



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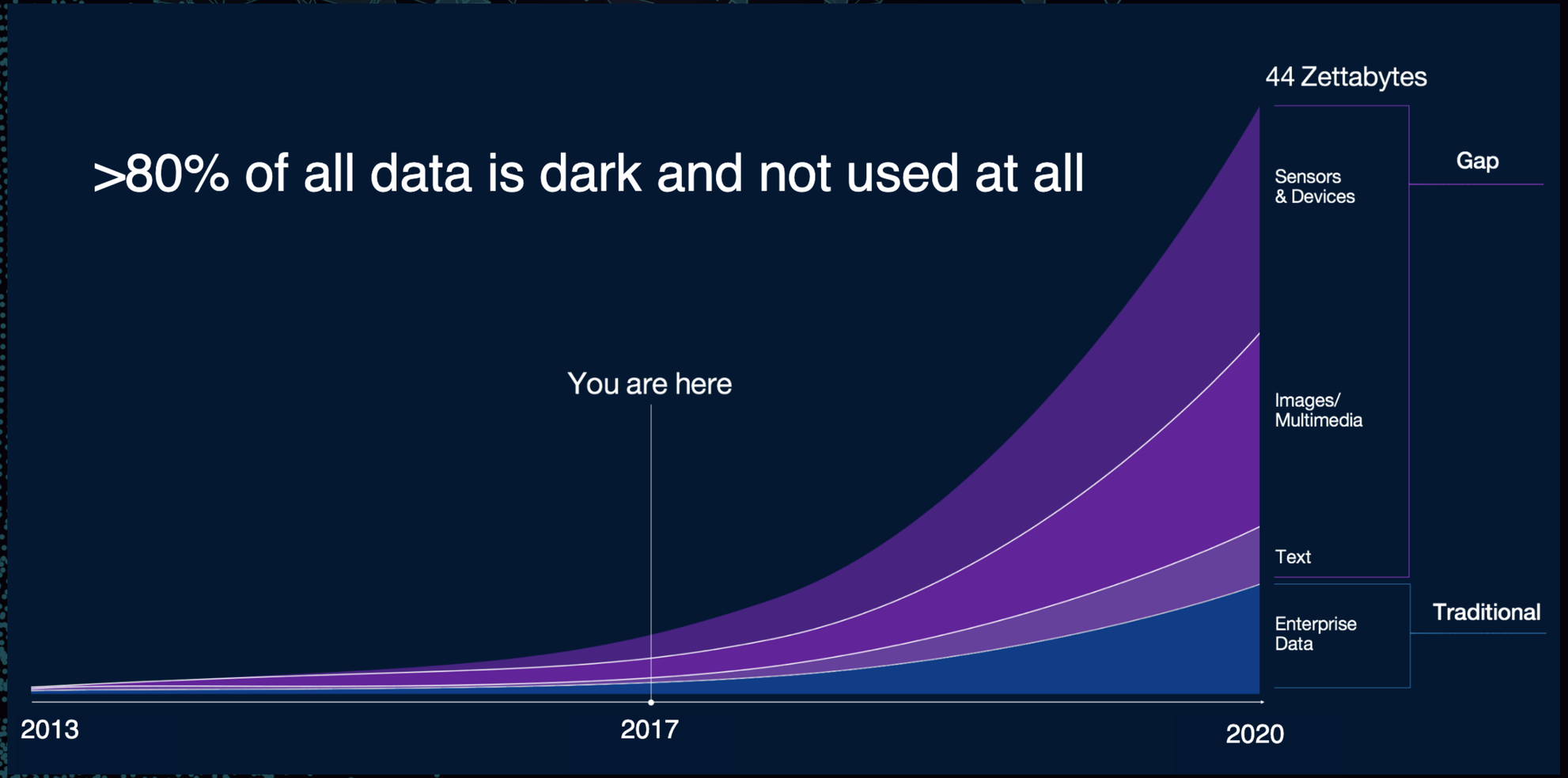
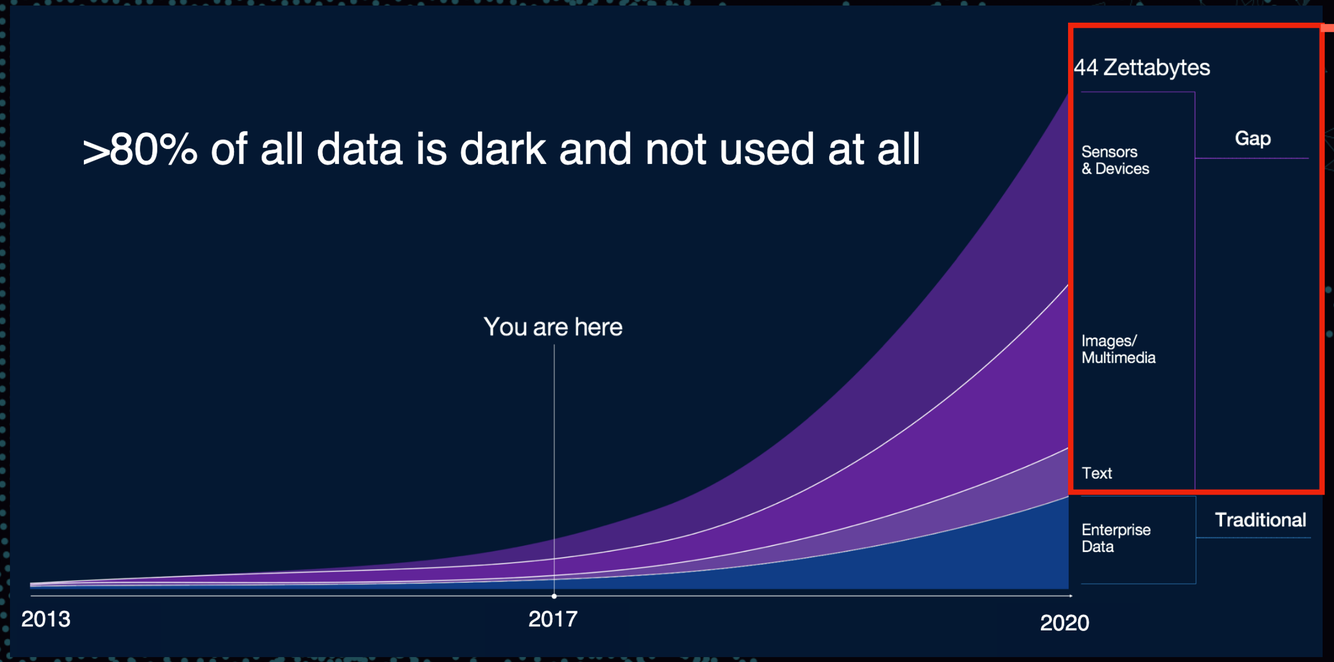
# Transmission

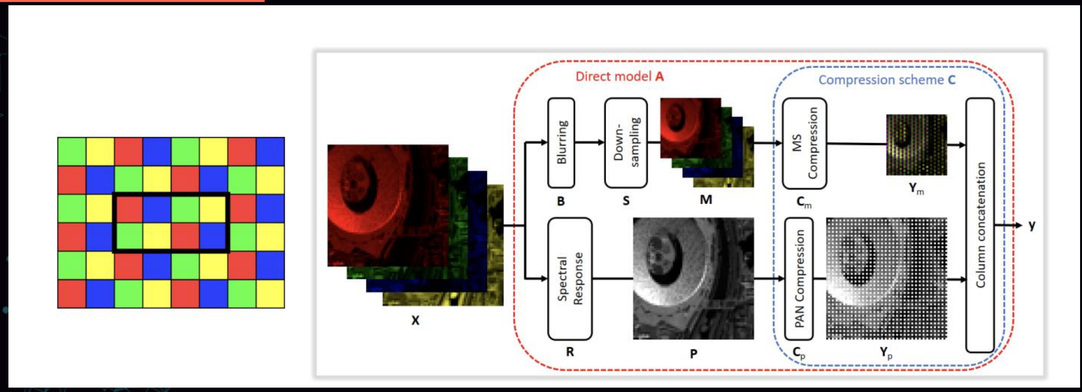
# Dark Data



# Problem

## Compression

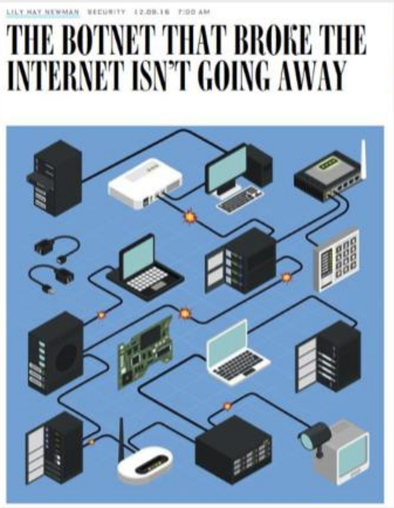


# Problem

## Security

## Information security cost in the AI-IOT era




### Mirai botnet

**Disruption of major Internet services**

### Software bug makes Nest Cams vulnerable to hacks

### Nest Hack

**Security camera shut down by a simple click on a phone**

### Jeep hack

Loss of control over vehicle via WiFi connection

### Casino hack

Sensitive information was disseminated across the network, out via the Thermostat and into the public domain

### Target Hack

Target declared that the total cost of the data breach had been $202M *NBC news, May 24, 2017*

TARGET

SEPTEMBER 20, 2017 by Mamta Badkar in New York

Parcel delivery company **FedEx** said that a June **cyber attack cost** the company **$300m in one quarter**, which originated in an European country.

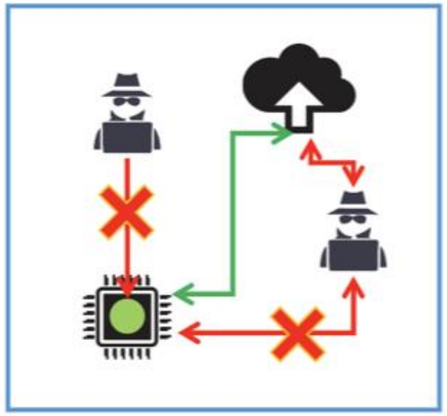

*By NXP

# Dark Data

## Information security application scenario in AI-IOT environment

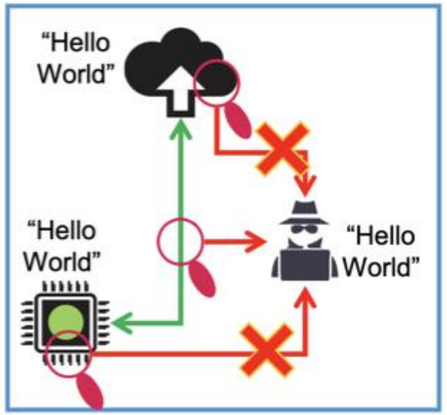
### Integrity

**Ensuring unmodified data transport & unmodified SW execution**



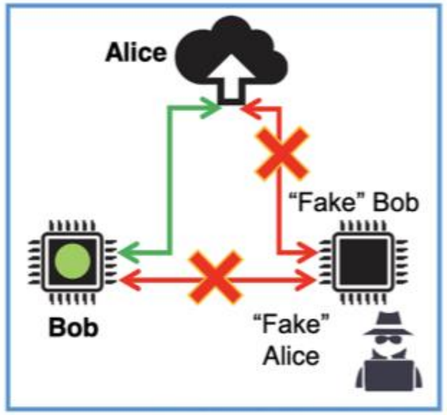
### Confidentiality (Conditional) [1)]

**Keeping secrets secret** (business value of data, privacy – encryption is the technology of choice)



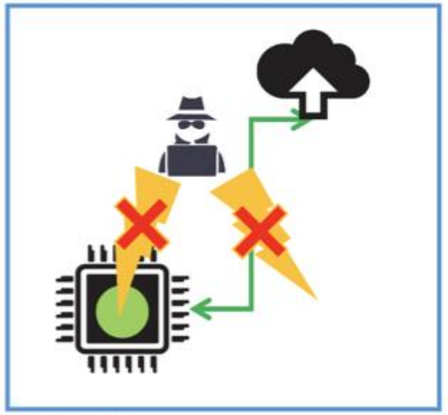

### Authenticity

**Verifying identities for source of data/SW, access control** (trusted operations)




### Availability (Conditional) [1)]

**Ensuring that the services remain available**



*1) Conditional requirements depend on the use case – they are not always required*

*By NXP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