Pantas and Ting
Sutardja Center
for Entrepreneurship & Technology
Berkeley Engineering

Smarter Home Automation Landscape Analysis

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This work was created in an open classroom environment as part of a program within the Sutardja Center for Entrepreneurship & Technology and led by Prof. Ikhlaq Sidhu at UC Berkeley. There should be no proprietary information contained in this paper. No information contained in this paper is intended to affect or influence public relations with any firm affiliated with any of the authors. The views represented are those of the authors alone and do not reflect those of the University of California Berkeley.

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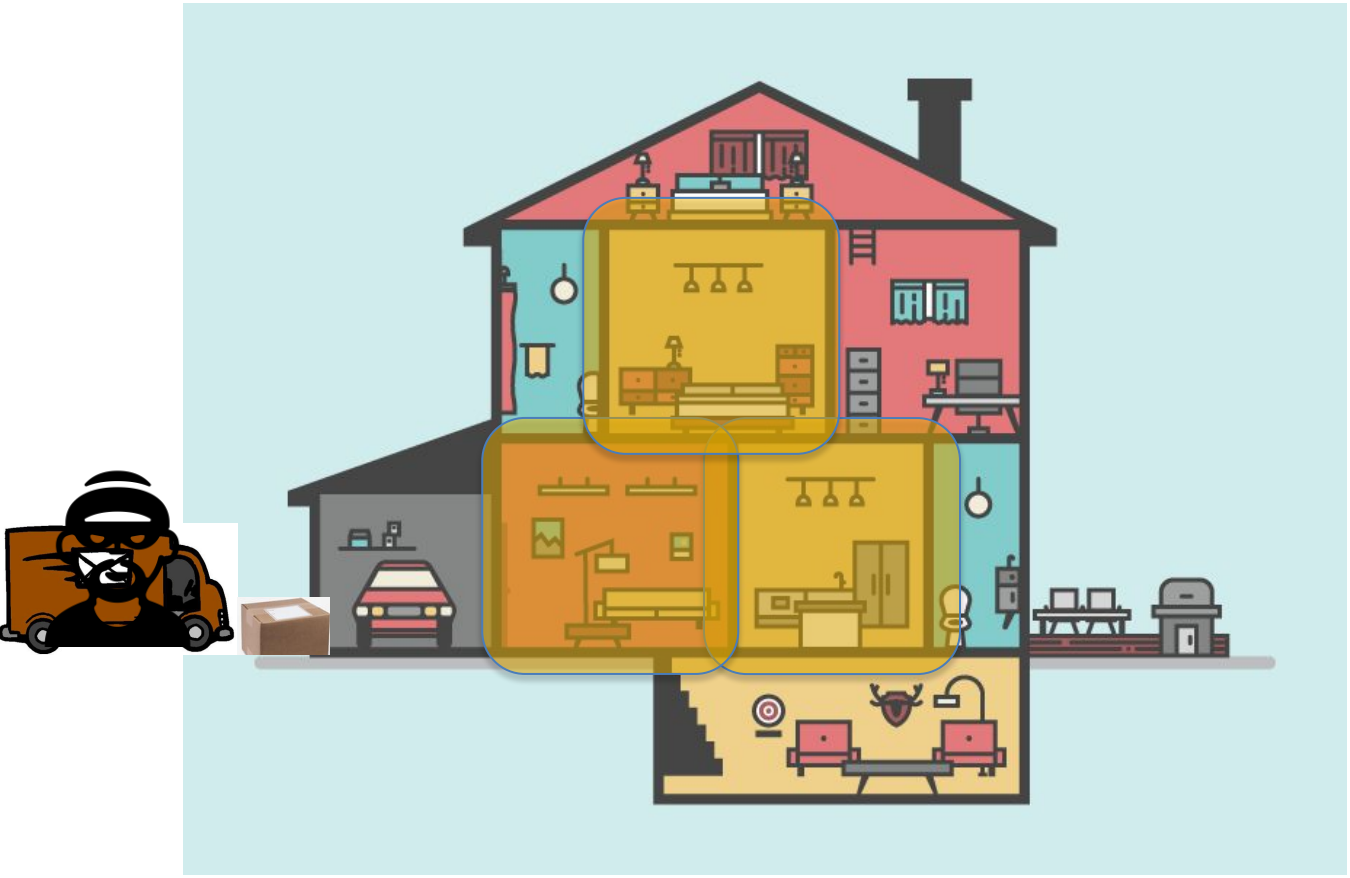
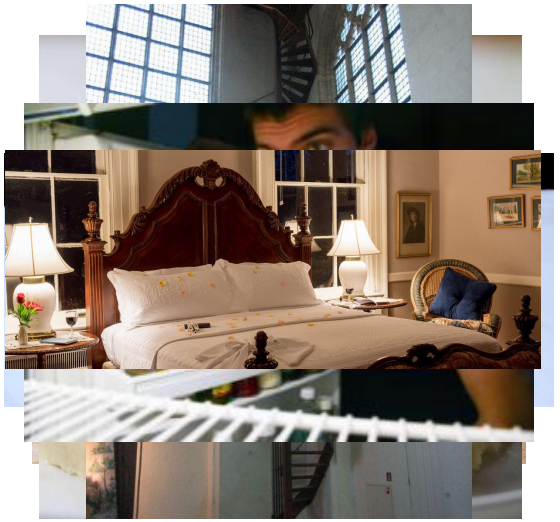
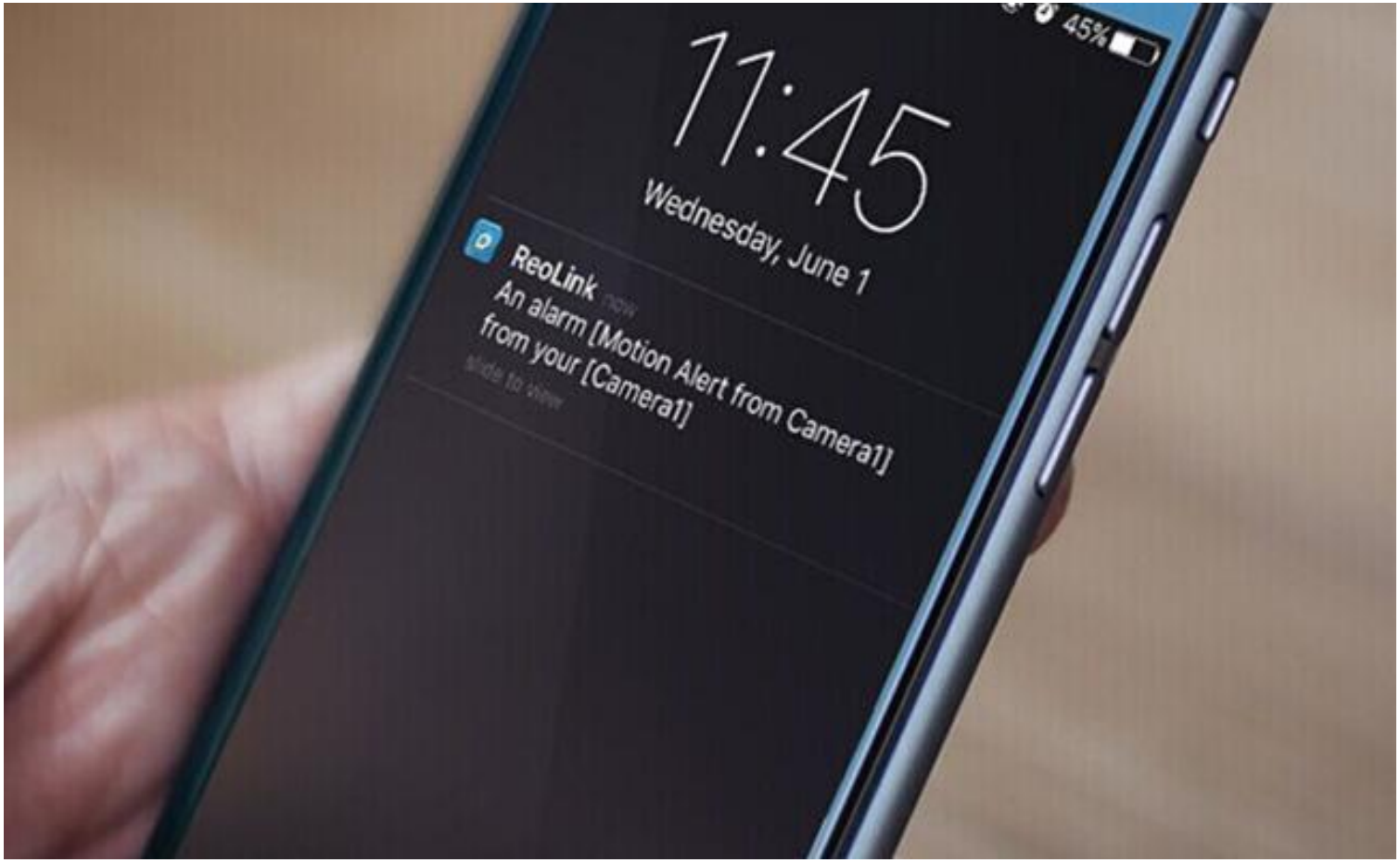
A day in Arvind's Family

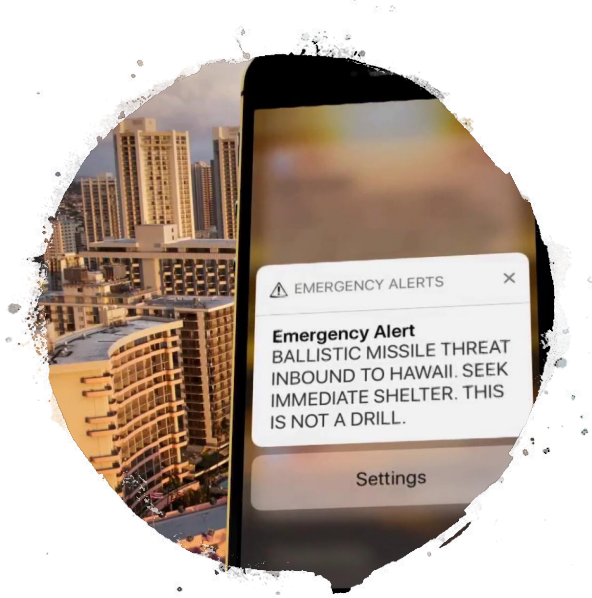




Package thief

11:45AM
Security camera detected motion in front yard





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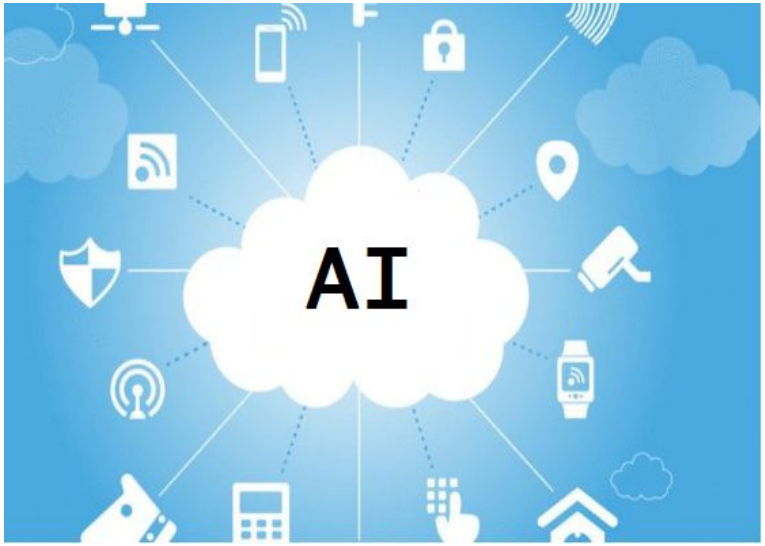
Alert Fatigue □ Ignored it

WHY AI in Home IoT ?

HOME IoT without intelligence

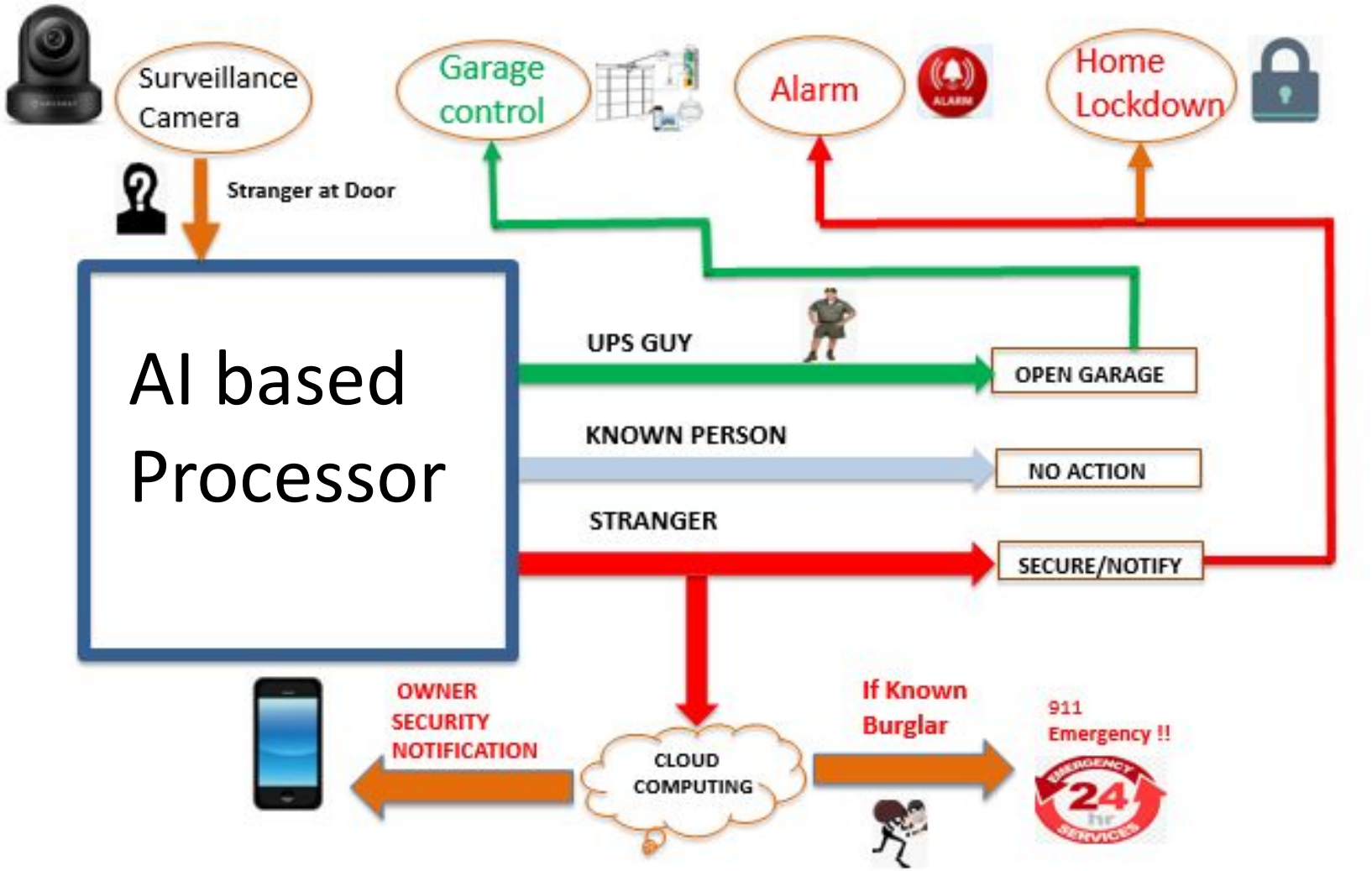
- Multiple smart devices interacting with end user but no intelligent interaction amongst the devices
- All decision making carried out by human intervention

HOME IoT with intelligence

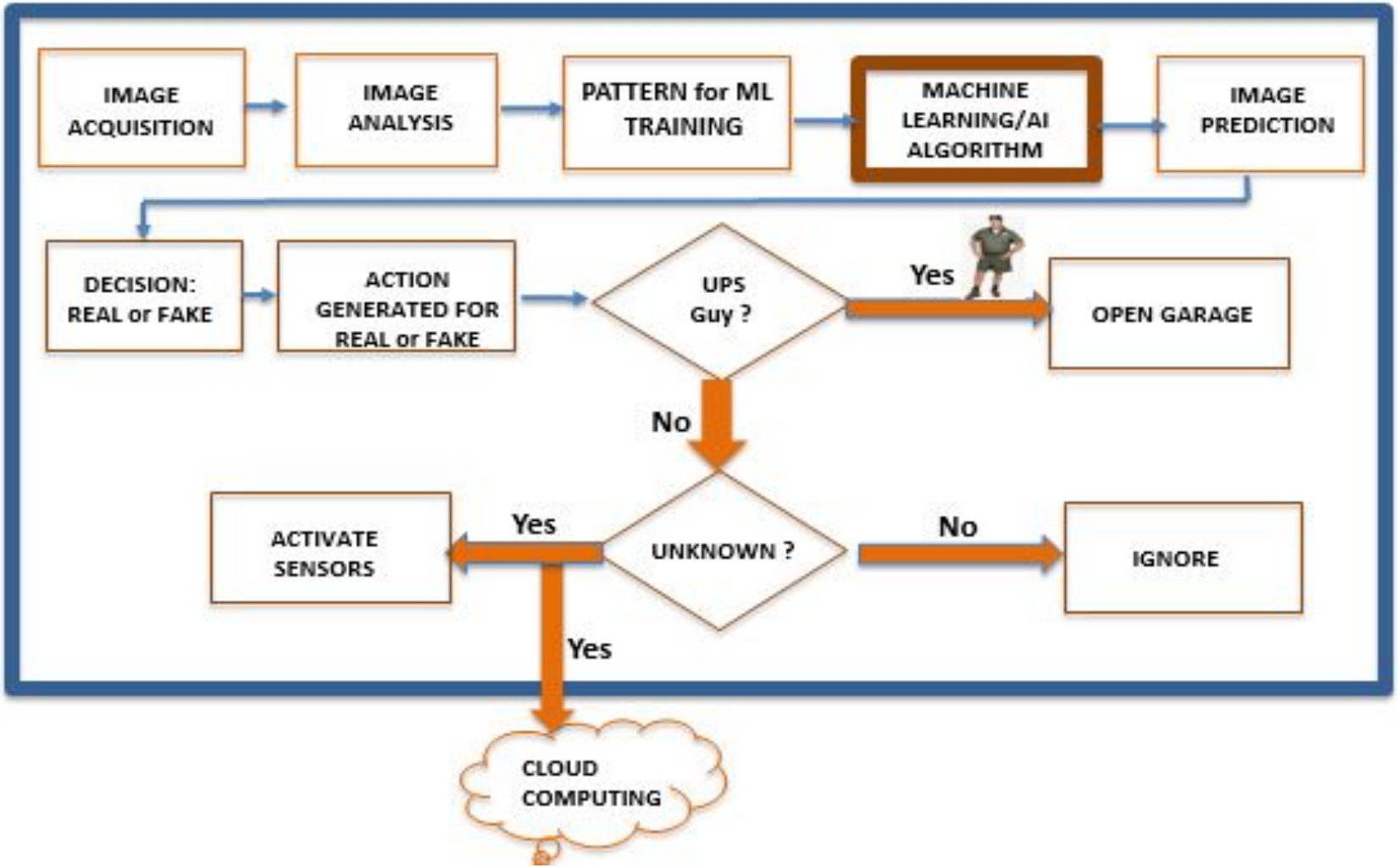


- **Interaction amongst devices through machine learning enabling one device to derive input from other devices.**
- **Use of AI to replace human intervention**

Intelligent Home Delivery



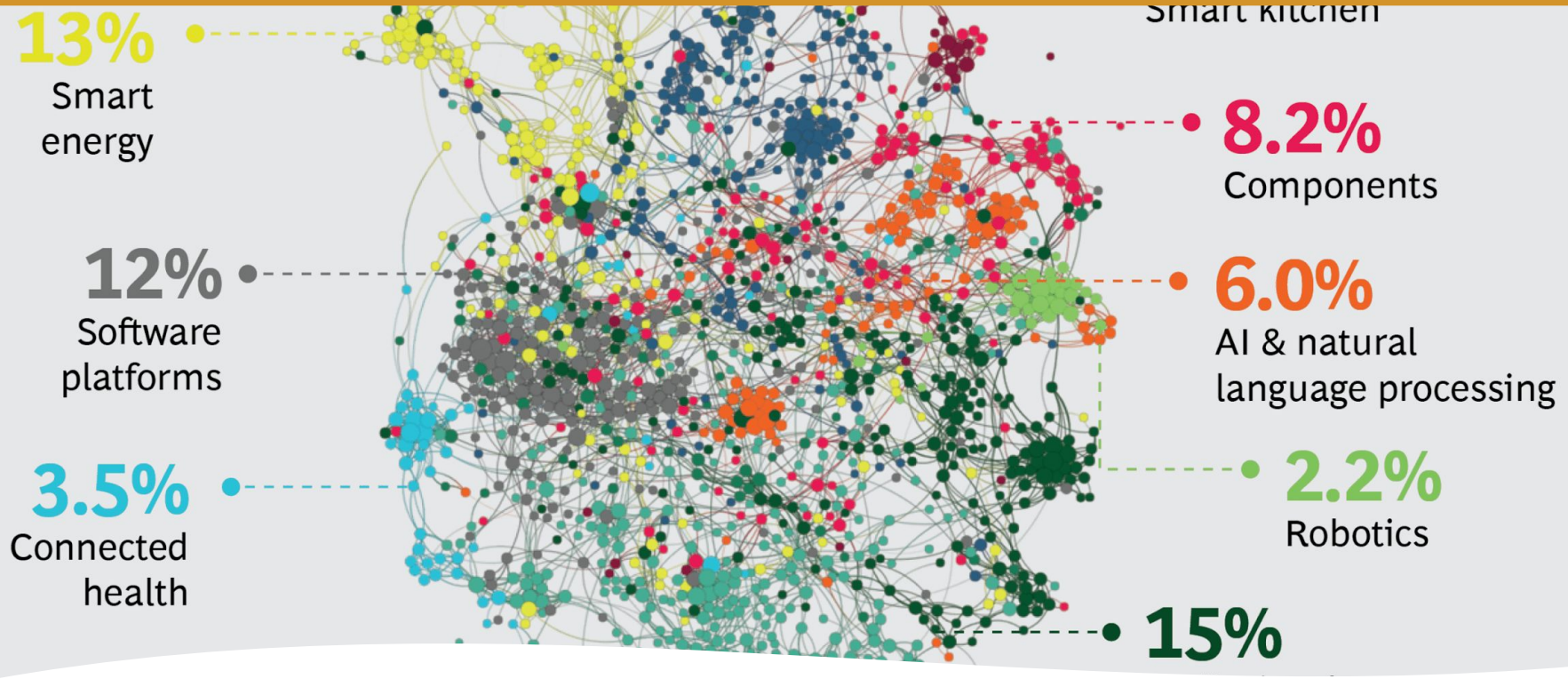
AI Based Processor



AI Sensors: detect / recognize / alert

	emza Visual Sense	HIKVISION	SIMCAM
AI-enabled hardware	• human /object classification • gesture recognition • visual context awareness • people counting analyses	• facial recognition, • face matching / searching • people counting analyses	• facial recognition, • pet monitoring, • location training
Data Analysis	• **Edge** (proprietary ML based Computer Vision system)	• **Cloud**	• **Edge**: Intel Movidus
Integration	• smart building systems - occupancy detection	• Access control automation • Alarm monitoring service webeye	• human classification • always on
Cost/Power	Low power / low cost	Low ASP	N/A

Only AI Sensors … NO connected intelligence



The Smart Home Ecosystem

- 1500+ players
- $12B in investment
- 4.5 billion sensors installed in homes by 2022

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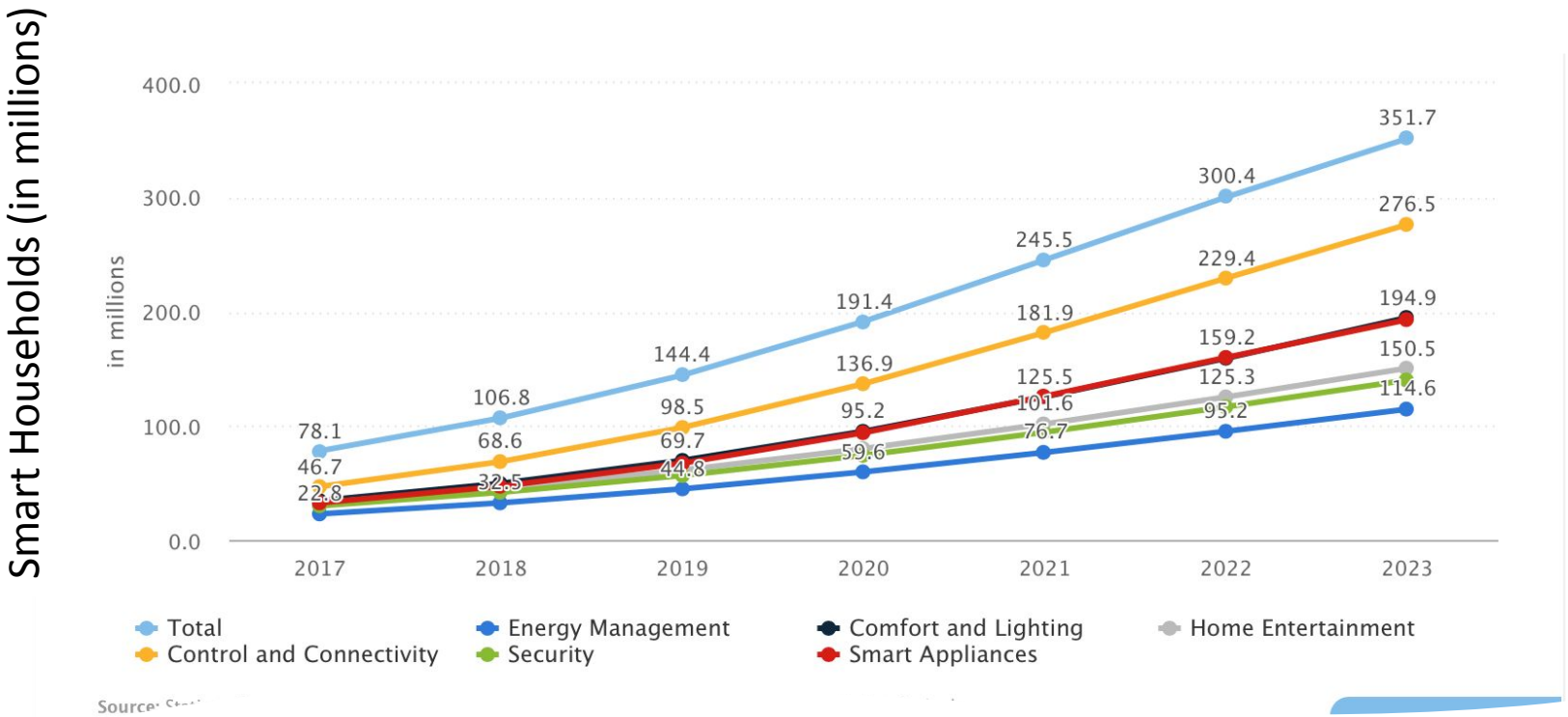

Smart Home Penetration

7.7% IN 2019

18.1% BY 2023

$124.63

(AVERAGE REVENUE PER SMART HOME IN 2019)

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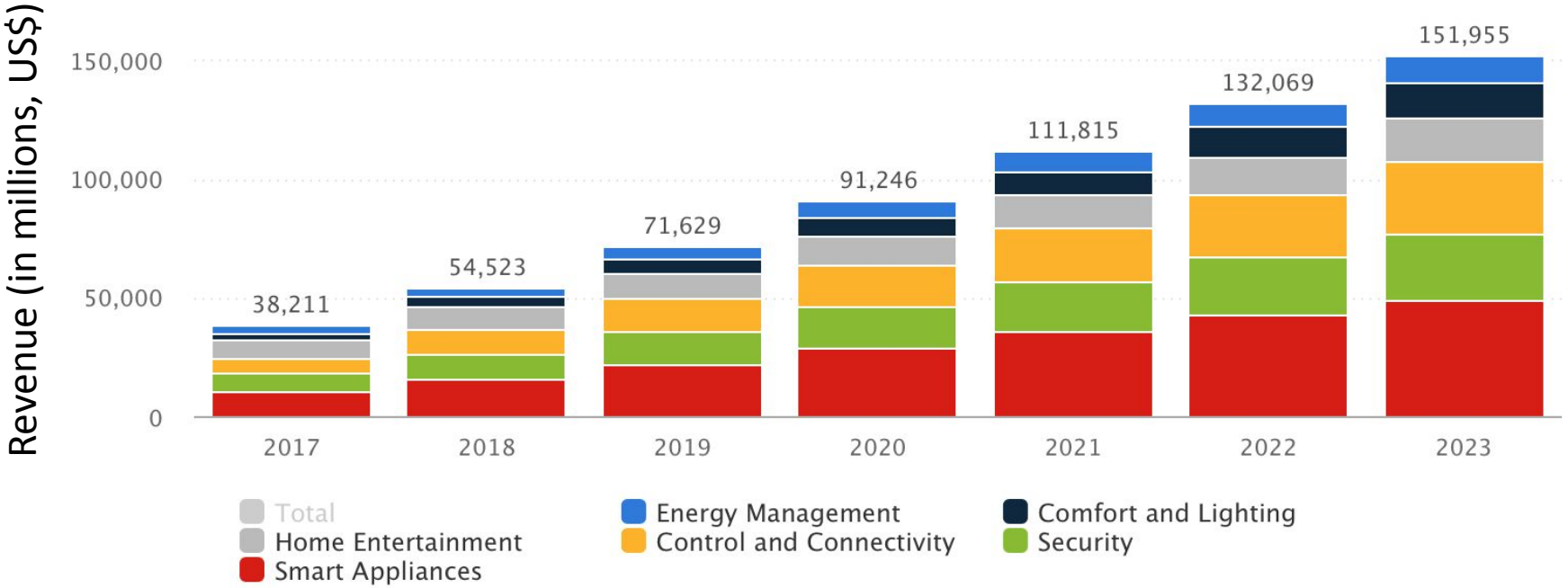

Smart Home Revenue

$72B in 2019

20.7% CAGR

(2019 – 2023)

$152B by 2023

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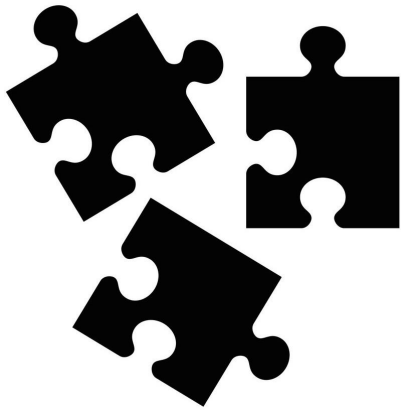
Challenges

Data Privacy

Regulations

Interoperability



Standards

Latency

5G / Edge

Security Breach

Technology Strong Auth

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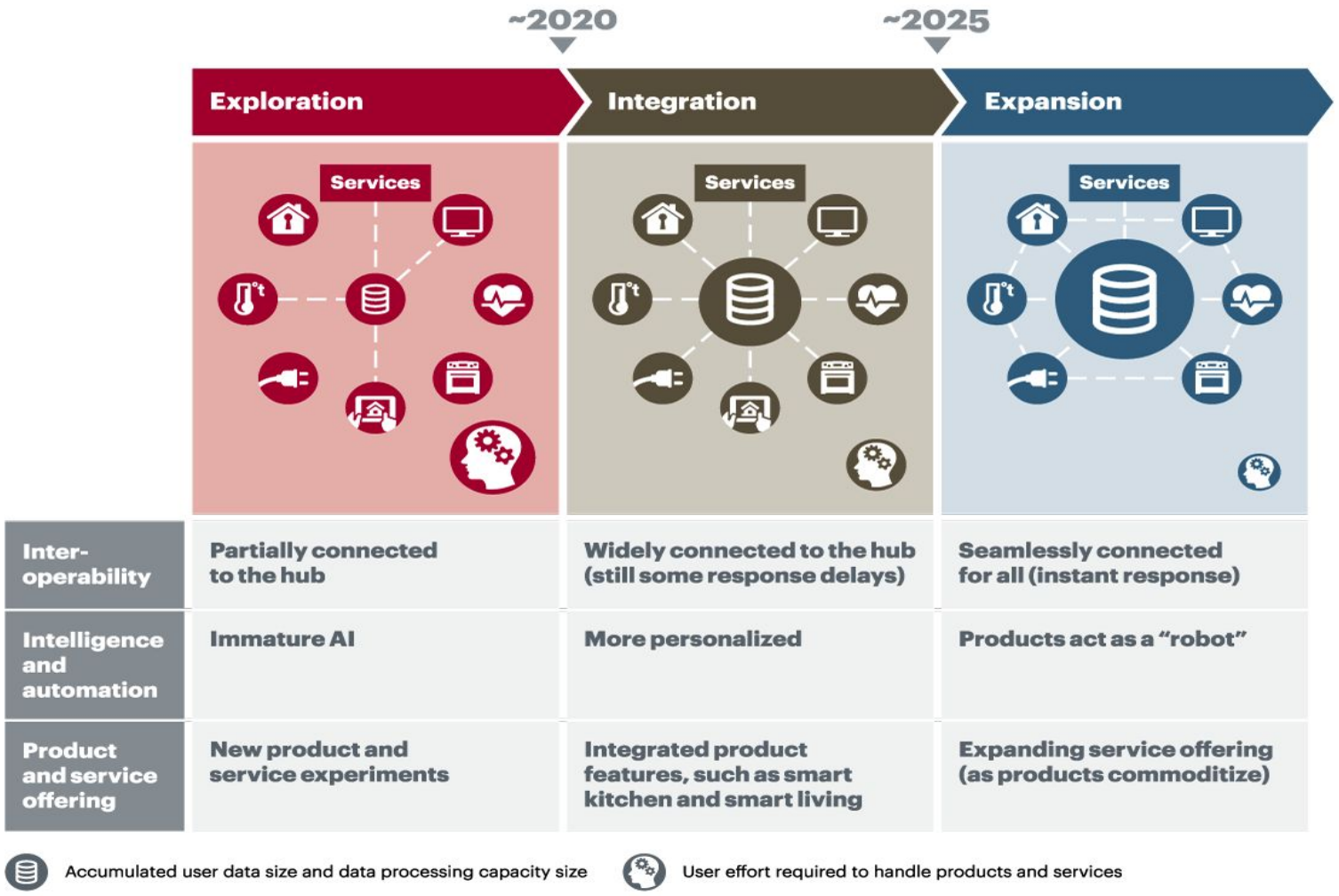
From Smart Sensors to Smart Homes



Source: A.T. Kearney analysis

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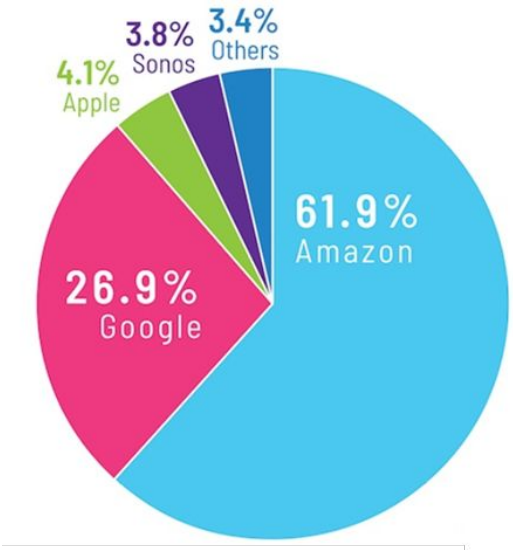
Smart Home Automation Winners

Voice Assistant



US smart speaker market

AI Processing Center

Tech Giants → Platform and Services

amazon

Google

SAMSUNG

Others → Devices and Services

Honeywell
THE POWER OF CONNECTED

IKEA

SimpliSafe

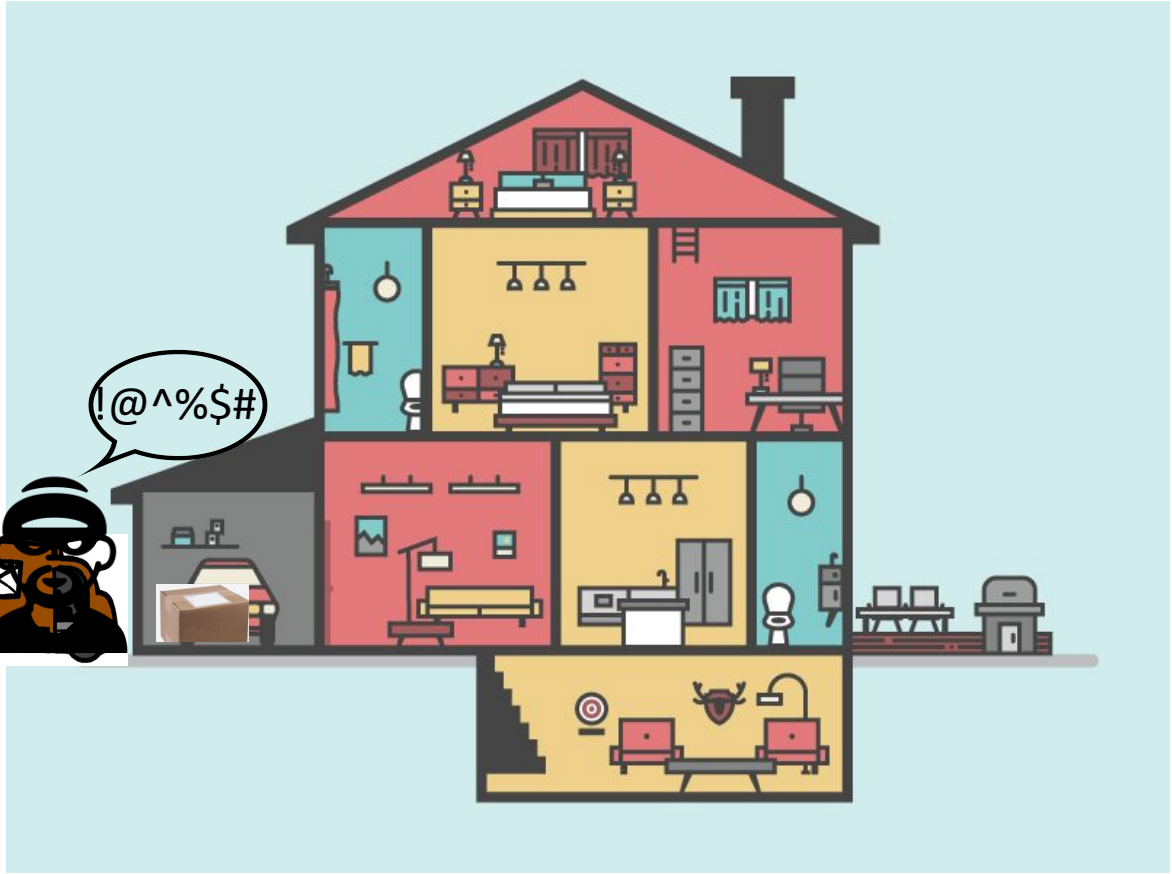
emza
Visual Sense

HIKVISION

SIMCAM

Big players with strong foothold in voice assistants market will dominate the future of smart home

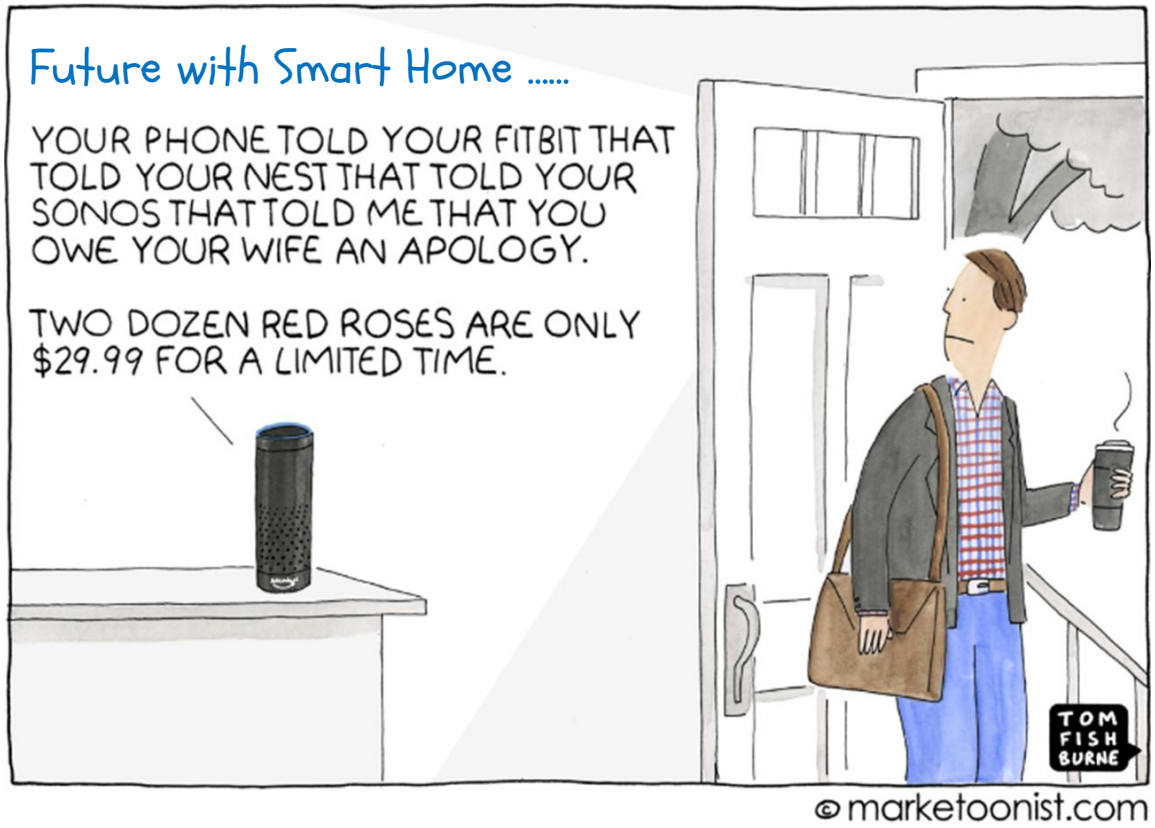
A Better day in Arvind's Family



11:45 AM
UPS

Smart Home Automation Team

- Anuj Awasthi
- Arvind Garg
- Grizel Lopez
- Kunal Shenoy
- Mihaela Balseanu
- Shiv Venkatraman



Q & A