

# A Novel Approach for Service Function Chain (SFC)Mapping with Multiple SFC instances in a Fog-To-Cloud Computing System

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ICSPIS Conference, December 2018

# Outline

## 1 Introduction

- Internet of Things (IoT)
- Cloud computing
- Fog computing
- Fog-to-Cloud computing system
- Software Defined Network and network function virtualization
- Related Work

## 2 System Model

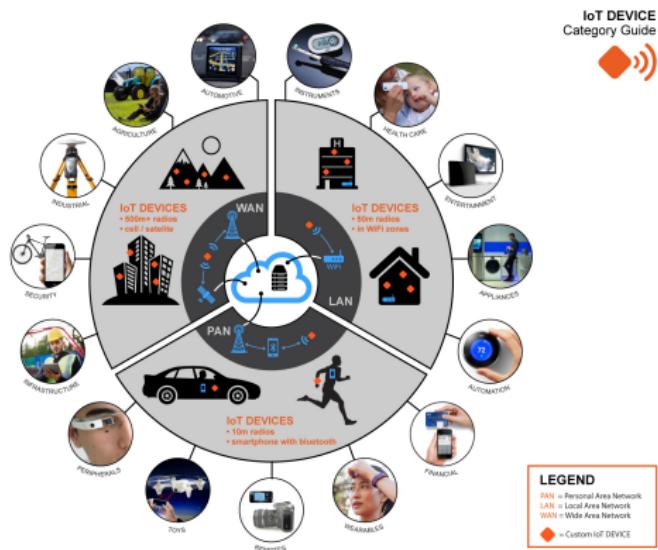
- Problem statement
- Modeling
- Objective function
- Constraints

## 3 Numeric Results

## 4 Second Section

- IoT

- interconnects billions or even trillions of diverse devices



## Figure: IoT devices

IoT

- interconnects billions or even trillions of diverse devices
  - generate a massive amount of data

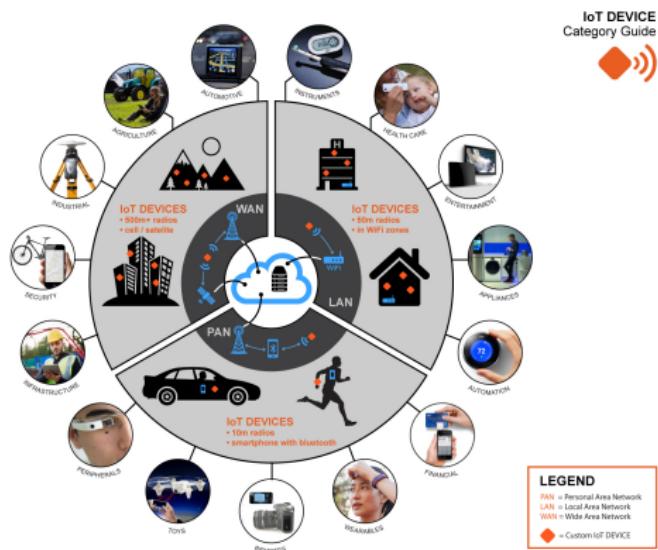


Figure: IoT devices

## • IoT

- interconnects billions or even trillions of diverse devices
- generate a massive amount of data
- should be transmitted to the cloud for computing

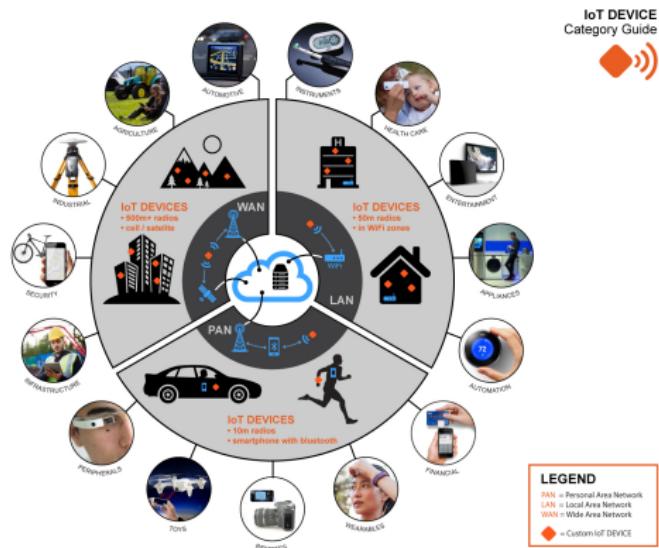


Figure: IoT devices

- Cloud computing
  - cloud offers various benefits such as scalability and elasticity



Figure: Cloud computing

- Cloud computing
  - cloud offers various benefits such as scalability and elasticity
  - consolidation and centralization lead to many network hops



Figure: Cloud computing

- Cloud computing
  - cloud offers various benefits such as scalability and elasticity
  - consolidation and centralization lead to many network hops
  - results in high latencies and high bandwidth consumption



Figure: Cloud computing

- Healthcare



Figure: Healthcare

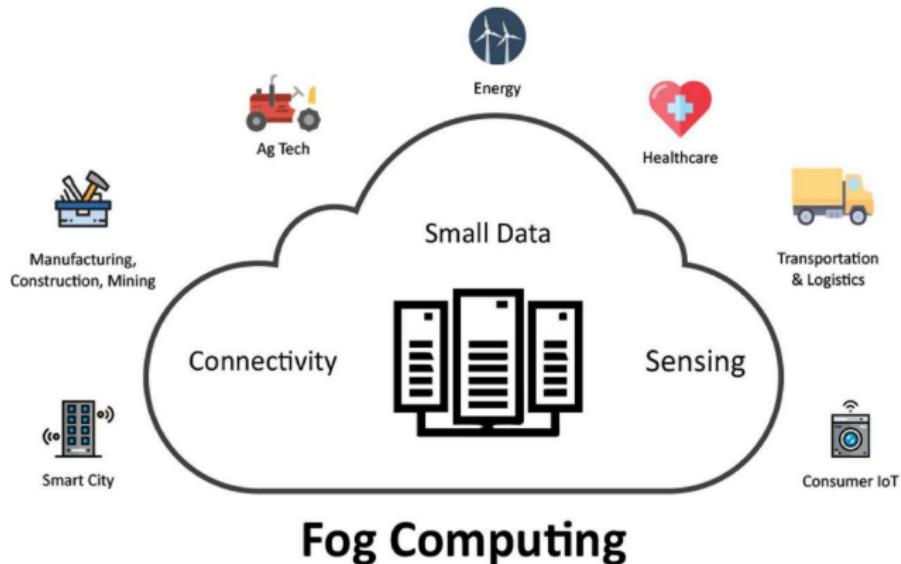
- Augmented reality



Figure: Augmented reality

- Fog computing

- offers distributed edge cloud close to the Things



- Fog-to-Cloud architecture
  - fog and cloud work together

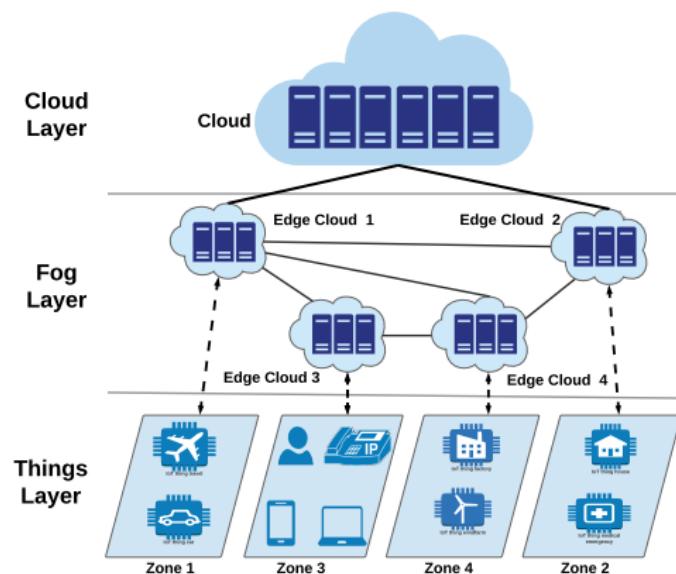


Figure: Fog-to-Cloud computing system

- Fog-to-Cloud architecture

- fog and cloud work together
- provide computing, storage, and application services in the IoT domain

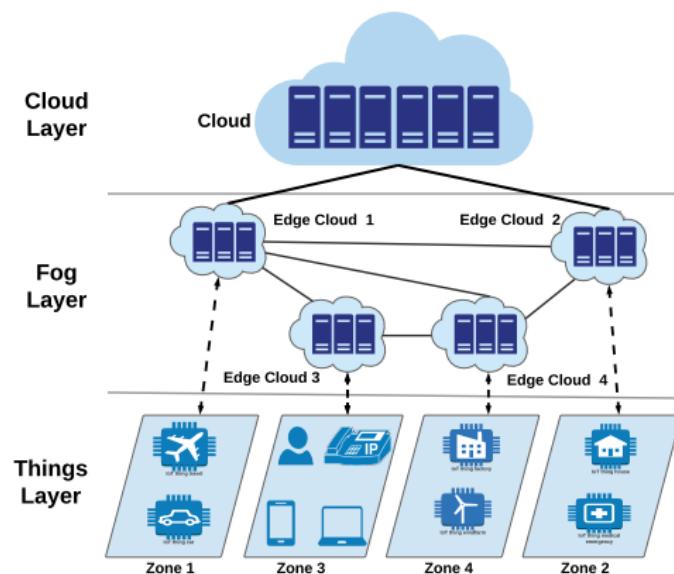


Figure: Fog-to-Cloud computing system

# Paragraphs of Text

# Bullet Points

- Lorem ipsum dolor sit amet, consectetur adipiscing elit
- Aliquam blandit faucibus nisi, sit amet dapibus enim tempus eu
- Nulla commodo, erat quis gravida posuere, elit lacus lobortis est, quis porttitor odio mauris at libero
- Nam cursus est eget velit posuere pellentesque
- Vestibulum faucibus velit a augue condimentum quis convallis nulla gravida

# Blocks of Highlighted Text

## Block 1

  Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer lectus nisl, ultricies in feugiat rutrum, porttitor sit amet augue. Aliquam ut tortor mauris. Sed volutpat ante purus, quis accumsan dolor.

## Block 2

  Pellentesque sed tellus purus. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Vestibulum quis magna at risus dictum tempor eu vitae velit.

## Block 3

  Suspendisse tincidunt sagittis gravida. Curabitur condimentum, enim sed venenatis rutrum, ipsum neque consectetur orci, sed blandit justo nisi ac lacus.

# Multiple Columns

## Heading

- ① Statement
- ② Explanation
- ③ Example

Lorem ipsum dolor sit amet,  
consectetur adipiscing elit. Integer  
lectus nisl, ultricies in feugiat rutrum,  
porttitor sit amet augue. Aliquam ut  
tortor mauris. Sed volutpat ante  
purus, quis accumsan dolor.

# Table

Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Table: Table caption

# Theorem

Theorem (Mass–energy equivalence)

$$\underline{E = mc^2}$$

# Verbatim

## Example (Theorem Slide Code)

```
\begin{frame}  
 \frametitle{Theorem}  
 \begin{theorem}[Mass--energy equivalence]  
 $E = mc^2$  
 \end{theorem}  
 \end{frame}
```

# Figure

Uncomment the code on this slide to include your own image from the same directory as the template .TeX file.

# Citation

An example of the \cite command to cite within the presentation:

This statement requires citation [Smith, 2012].

# References



John Smith (2012)

Title of the publication

*Journal Name* 12(3), 45 – 678.

# The End