

# Overview of IoT systems

---

Dr Priyanka Bagade, IITK

Lecture 1

# Content Copyrights

- I own the copyright of the CS698T: introduction to internet of things and its industrial applications course material. It includes lectures, presentations, exams and assignments. It should not be distributed in print or through electronic media without the consent of the instructor. Students can take notes or make their own copies of the content.

# What is Internet of Things?

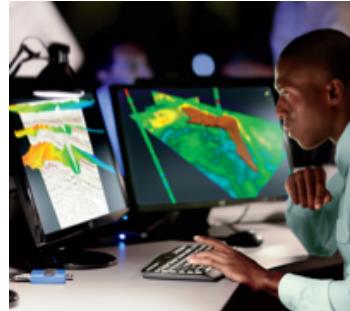




The idea of the Internet of Things is that instead of having a small number of powerful computing devices in your life, you have a large number of low energy, ubiquitous computing devices.

# Need for IoT

Many different industries are unlocking the power of the IoT fueling innovation to optimize processes and increase efficiency.



## ENERGY GRIDS

Environmental data logging, substation monitoring, grid efficiencies



## INDUSTRIAL & MANUFACTURING

Assembly-line equipment reporting, inventory management; automation



## TRANSPORTATION

Fleet management, freight tracking, urban congestion management

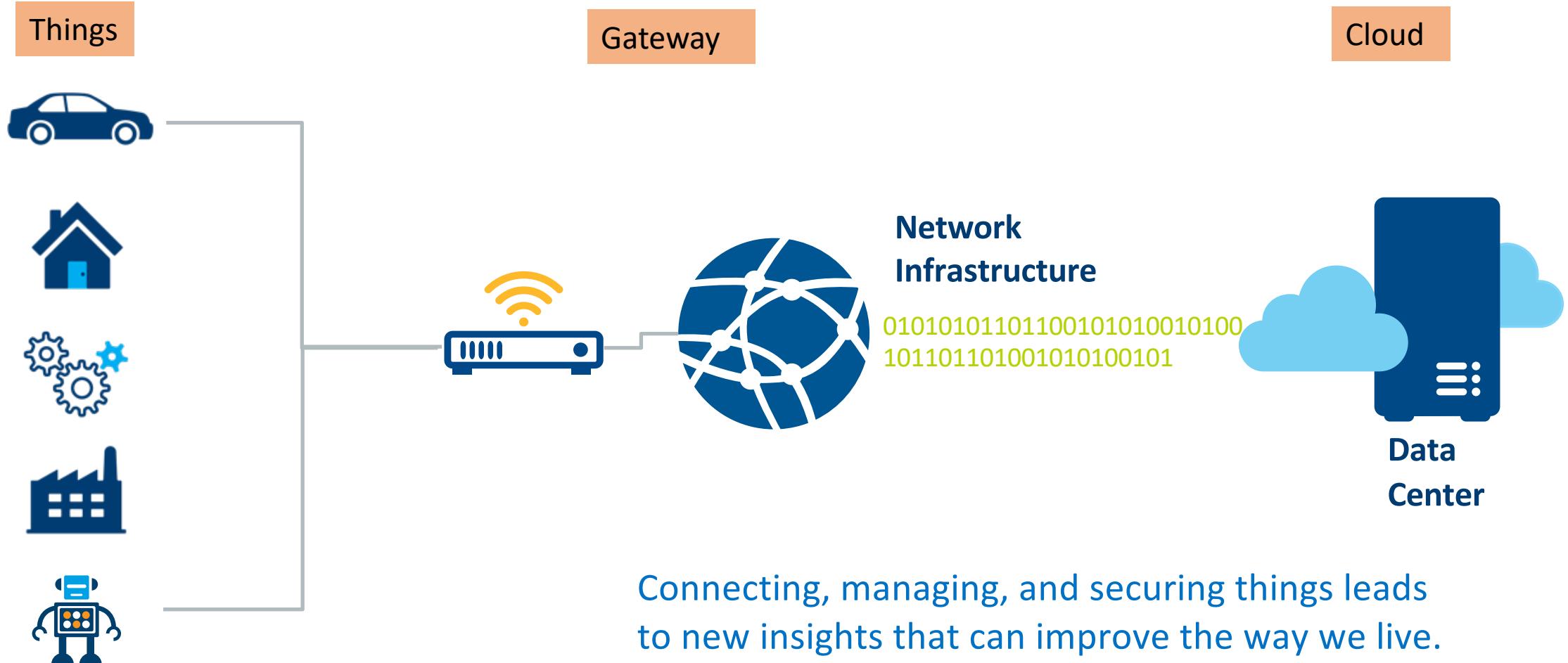


## RETAIL

Point of sale, vending machines, supply chain

# IoT Overview

83B devices will be connected to the Internet by 2024<sup>1</sup>



1. <https://www.softbatteries.com/energizing-iot/how-iot-world-shaping-2021-and-what-trends-will-influence-future-iot-infographic>

# Latest Trends in IoT Applications

Smart and Safe Retail

Smart buildings – “Internet of Behavior”<sup>1</sup>

Smart clothing

Telemedicine – continuous monitoring and recording the health data

Smart home offices

Solar and hybrid luminaires for street lights<sup>2</sup>

1. <https://axiosholding.com/say-hello-to-the-internet-of-behaviors-what-is-it-why-you-should-care/>

2. <https://www.interact-lighting.com/global/iot-insights/11-iot-trends-2021>

# Latest Trends in IoT Systems



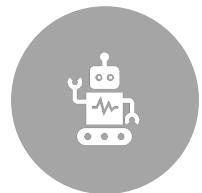
Camera as an IoT sensor



Digital Twins



Blockchain technology



AI/ML/DL techniques for data analysis



Forensics Enabled IoT systems



5G connectivity

# IoT Requirements/Challenges



Questions?