

# Internet of Things towards Ubiquitous and Mobile Computing

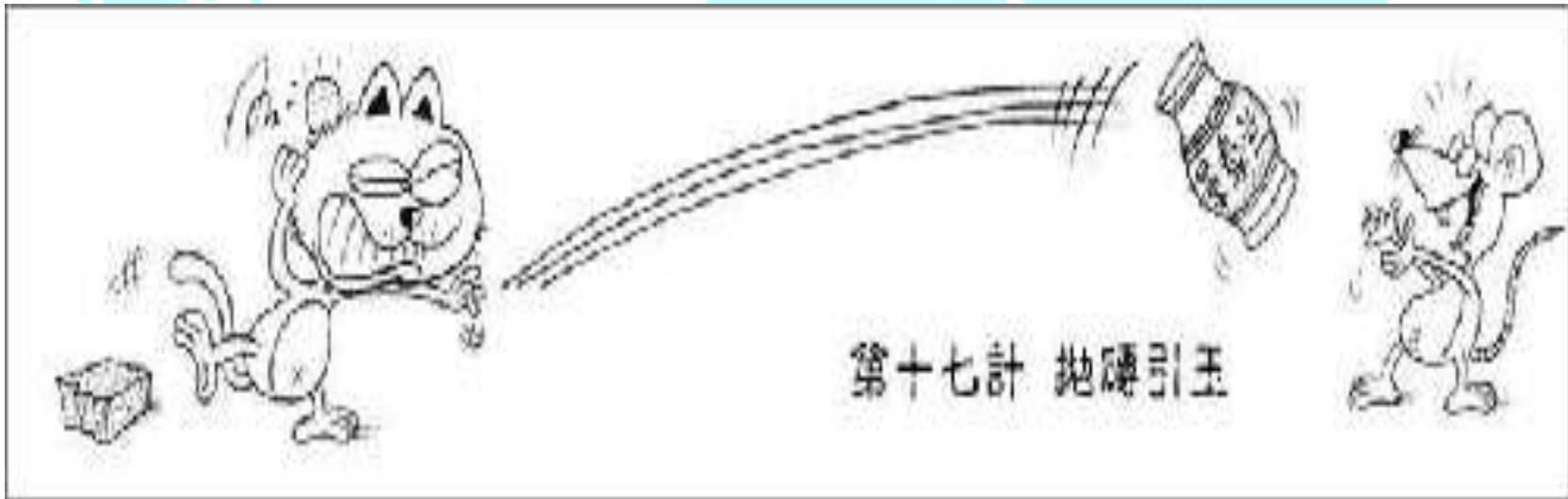


Guihai Chen  
October 17, 2010



# Claims

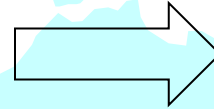
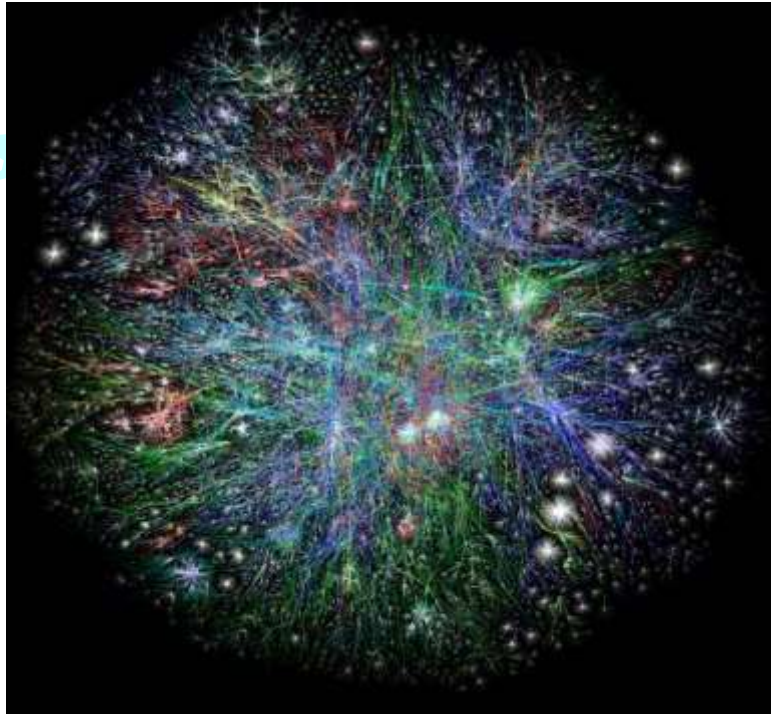
- Any opinions expressed here are those of myself, and do not reflect the views of any agencies of China government
- Throw out a brick to attract a jade







# Starting from the Internet



- ◆ **Internet appears everywhere in the world;**
- ◆ **but it is still a connection between people and people**

# What is IOT?



- Naming** → name
- Sensing** → 5 sense organs
- Processing** → brain
- Communication** → language

**IOT is more like a Human Society**



有名有姓  
长有五官  
大脑思考  
语言交流

**IOT is a communication network connecting things which have naming, sensing and processing abilities.**





# Smart Planet, Pervasive Computing

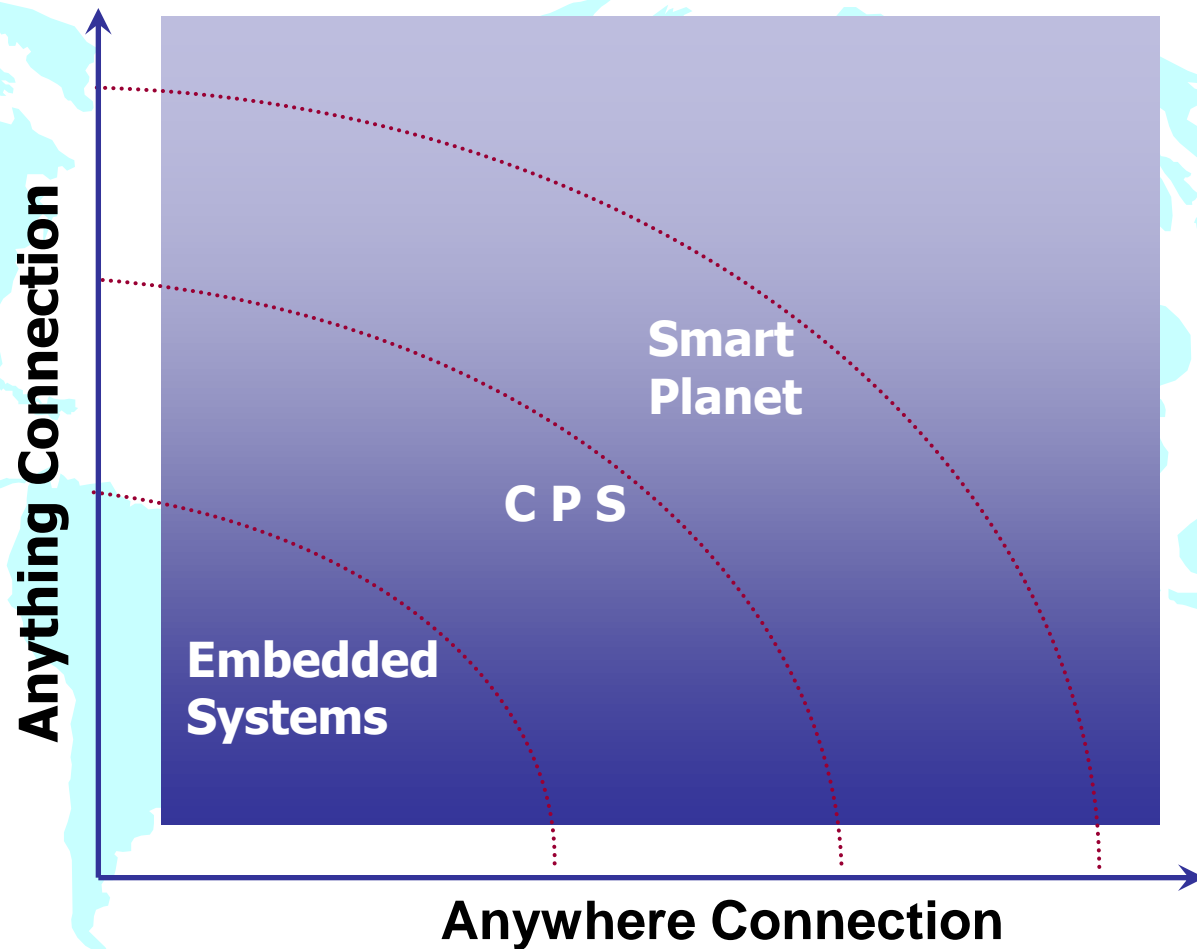


**All such buzzwords refers to the same balloon. When it is blown to large size, it is called Smart Planet; when to middle size, it is called CPS; When to small size, it is called pervasive or embedded system.**



# Smart Planet, Pervasive Computing

They differ in size.







# IoT and CPS



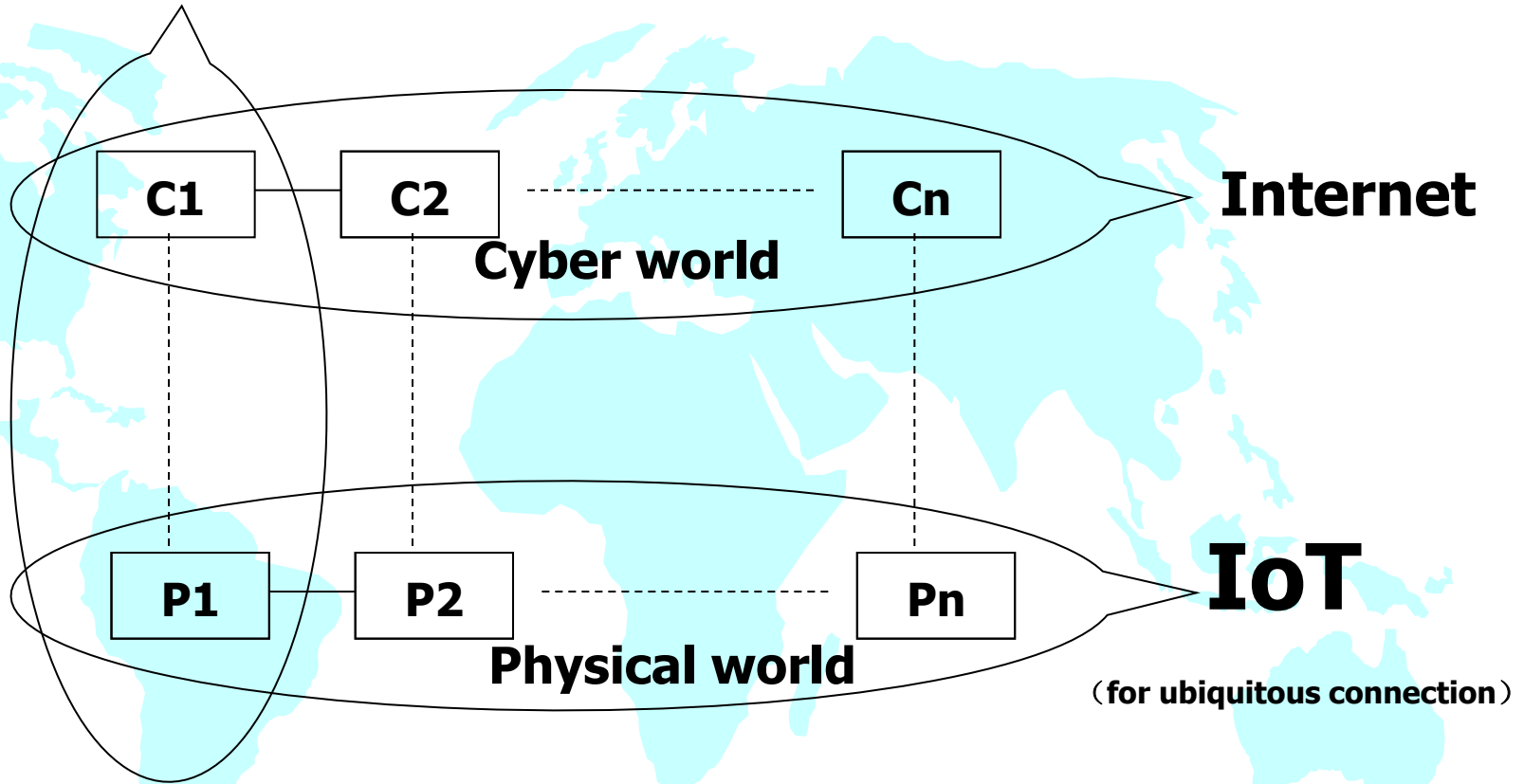
**are a pair of Twins.**





# IOT and CPS

## CPS (for harmonious interaction)



- Cyber world:  $C = C1 \vee C2 \vee \dots \vee Cn$
- Physical world:  $P = P1 \vee P2 \vee \dots \vee Pn$



# IOT and CPS

## ◆ **Fact 1**

- **USA likes to use CPS.**
- **China likes to use IoT.**

## ◆ **Fact 2**

- **Academia likes to use CPS.**
- **Government likes to use IOT**

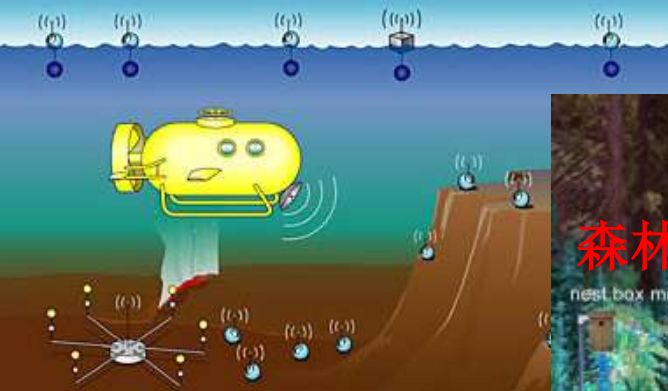




# In Large Environments

海洋监测

OCEAN MONITORING



森林管理



战场指挥



So, we have Ocean Monitoring, Forest Management and Battlefield Control.



# IoT covers many disciplines

IoT  
Culture

IoT  
Economy

IoT  
Technology

Application  
Layer

Network Layer

Sensing Layer



**Big 3 layers**  
  
Hundreds of  
Billions Industry

**Small 3 layers**  
  
**Technicians**

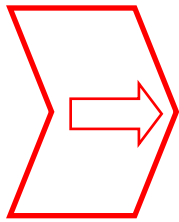
**Departments of  
Computer Science,  
Communications,  
Electronic and  
Control**



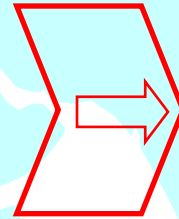




# Write in the Air



www.ttsstars.com.cn



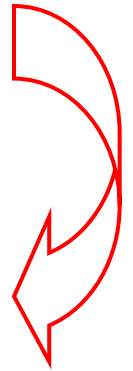
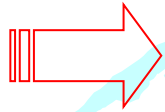
**Use pen and paper  
before keyboard**

**hit keys every day**

**Air writing or  
Writing in the air  
or Ubiquitous writing**



# Sensing Wall



**Matrix can be extended to a wall of any size.**

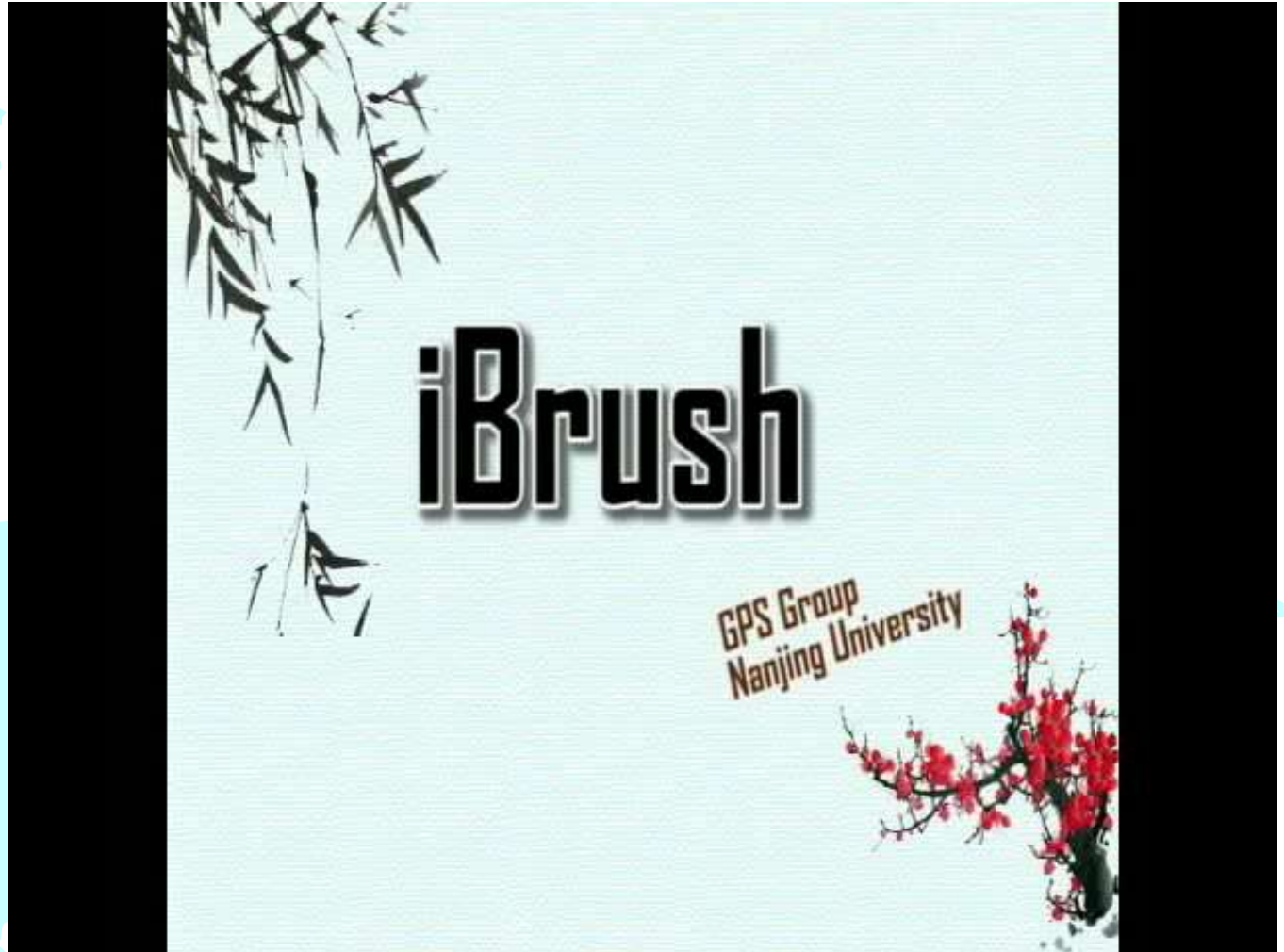


# Touch





# Demo





# Similar Works







