



# Architecting the Internet of Things

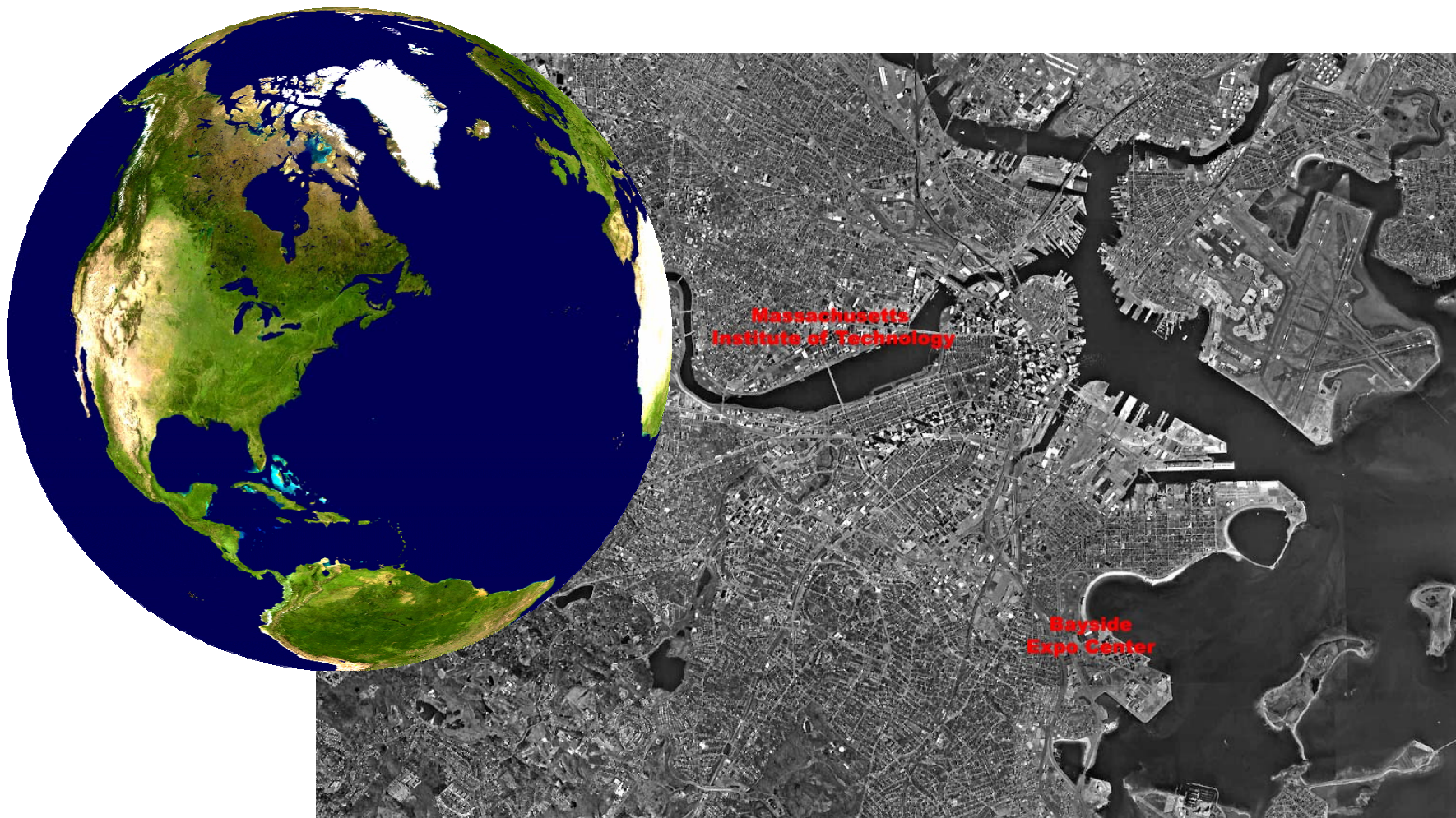
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MIT Auto-ID Laboratory

# Global Network



- Identity of things
  - Identity of things
  - What happens when we know where everything is?
- Software Trends
  - Security on Internet (need new tools)
  - Change happens (build for CLEMSS)
  - Services – Memo

# Billions of Things

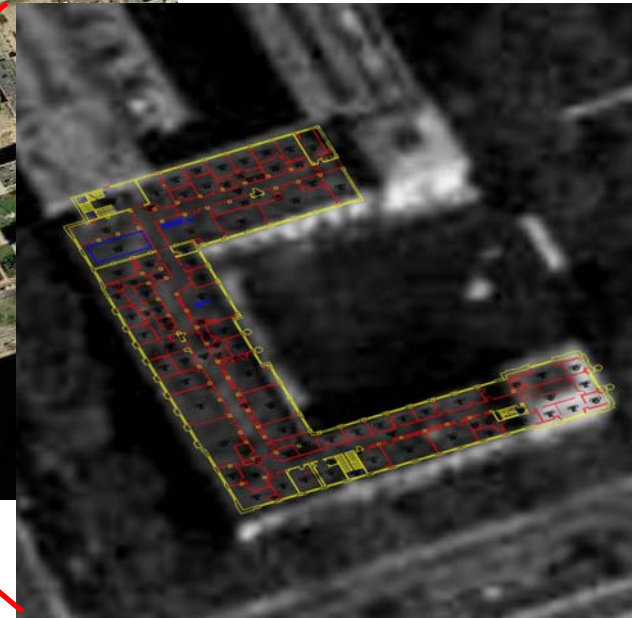
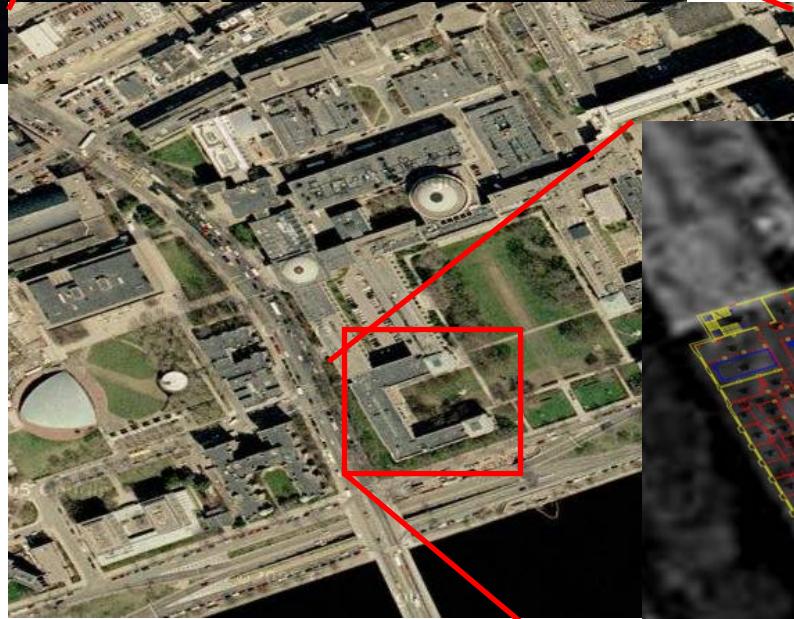


# Google and RFID



- AdWords – Anyone can buy and sell anything \$6 billion revenue on 50c per transaction
  - Match search query with 100,000s marketers intentions → most profitable Advert to display
- Eric Schmidt – Match every single item in the world to a buyer

# Integrating Information to Provide New Services

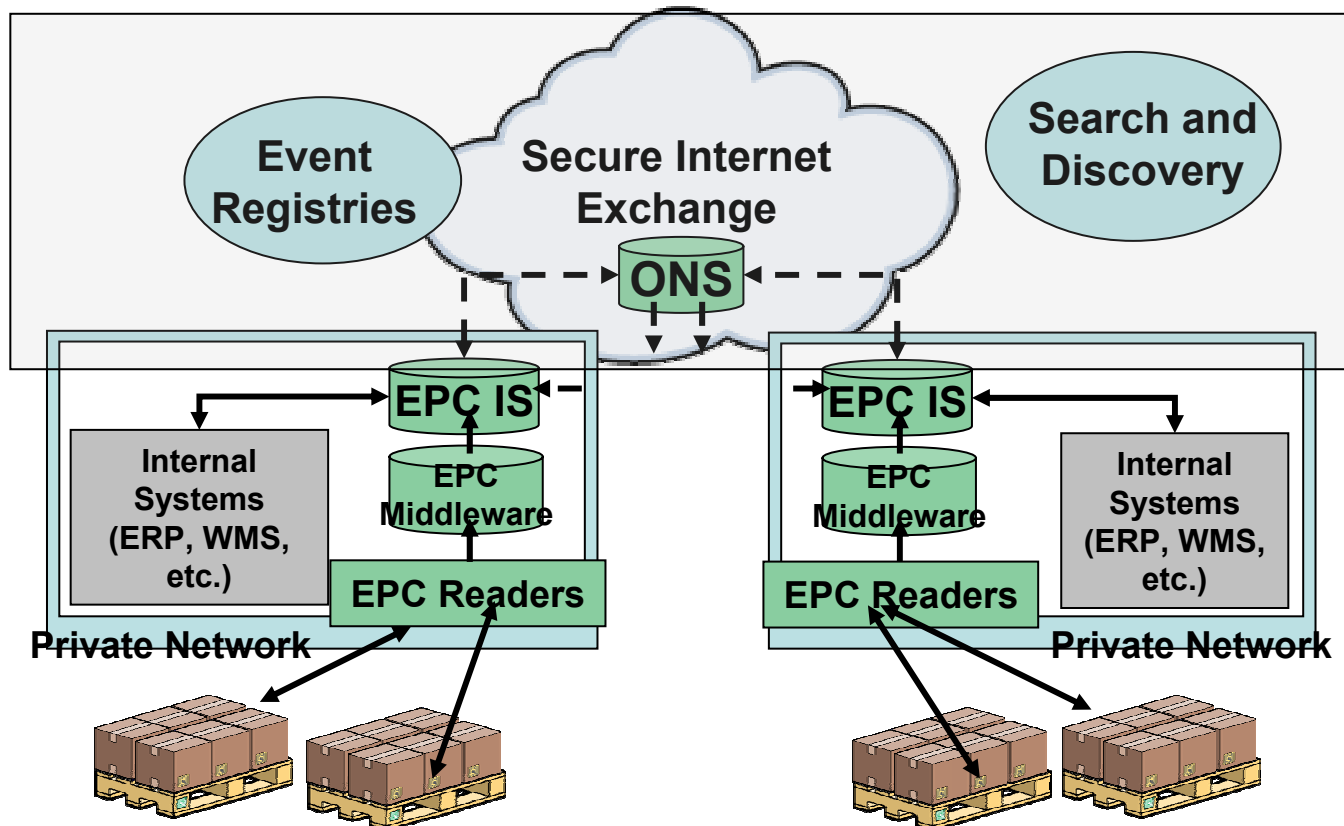


EPC Code +  
Image Data +  
CAD Data +  
POS Data +  
...

# RFID Network



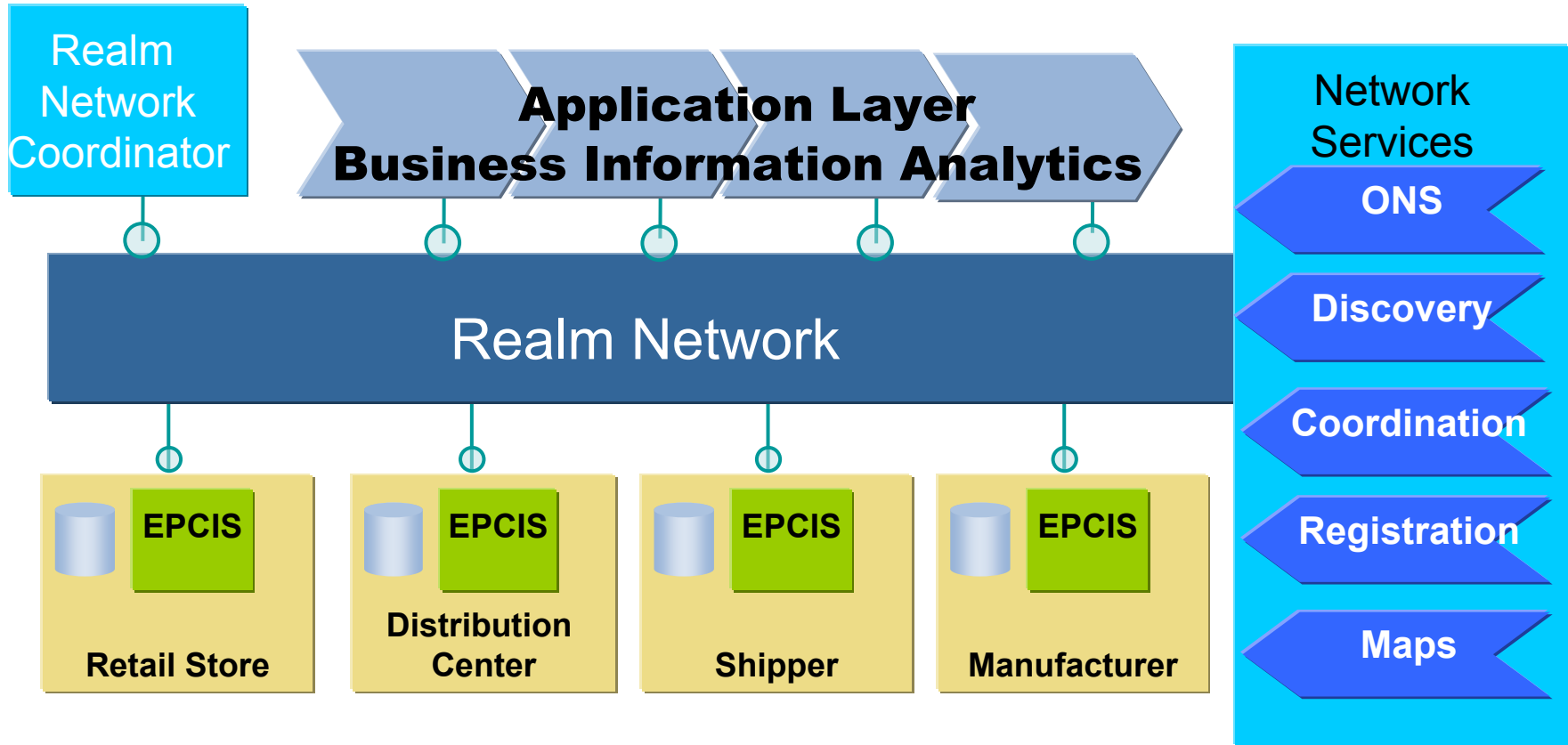
- Network above EPCIS layer – Building Simulator
- Business ROI from Events and Information Integration



# Auto-ID Labs RFID Network Simulator



# RFID Network Simulator





# Issues



- Security
  - Confidentiality
  - Integrity
  - Authentication (often combined with Access control)
  - Non Repudiation (often combined with Authentication)
- Scalability and Robustness
  - $O(N)$  desirable (Google in memory caching approach)
  - Managing Change (Interfaces, Schema...)
- Knowledge Management
  - Semantics - Problem of Meaning eg <ShippingDate>
  - Information Overload
  - Human Cognitive Limits