Paper Review


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Simplified IOT and smart cities architecture
Hardware Layer

• Tangible hardware elements like sensors, actuators, chips and radios are found
• Elements in this layer interact directly with the environment, with other hardware elements and sometimes with users/consumers
Communications Layer

• Also called “Connectivity”
• Connects and binds different components in Hardware layer
• Examples include Ethernet, Wi-Fi, etc
Data Analytics Layer

- Receives data from the Communications layer and then stores, analyzes and processes them
- This is where “big data” could reside
- Main function is to collect data from the bottom two layers and then extract useful data
Service Layer

• Intelligence resides and decisions are made
• In position in the system to create the highest value for the users in the system
• Many business decisions made in this layer
Infrastructure and Applications

• “Infrastructure” refers to the bottom two layers of the IOT architecture
• “Applications” refers to the top two layers
Challenges for Advancing IOT in Smart Cities

• Many smart city projects are isolated and rely on custom solution
• Many of them are “one-off” with inadequate consideration for upgradability
• These don’t enjoy economies of scale
Global City Teams Challenge

• Replicability : Solutions designed to operate in multiple cities without customization
• Scalability : Solutions must be functional regardless of size
• Sustainability : Solutions must last beyond its initial funding stage
GCTC Approach
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• Multiple cities coalesce around shared challenges like air pollution
• Since each cluster has multiple members, the solutions can be replicated in other cities as well
• It is a win-win for both types of cities, namely, those who has been successful and those who are learning
Missing Links

• Lack of connectivity fabric which is a commonly shared IoT infrastructure
• No easy mechanism for an IoT solution to be deployed in a plug-and-play manner
• Current landscape of IoT and smart cities are like pre-internet days