Was a new architecture the way forward?

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1 Topic Summary

This is a review of the research paper A New IoT Architecture for a Sustainable IoT Adoption by Lukman Lamid Idowu, Soo-Hyun Park, and Isa Ali Ibrahim. The authors talk about a point called the "inflection" point which is where a large portion of the population will have already adopted a technology and growth will start to plateau. The authors feel that to make IoT as a technology has to take some measures for it to reach the point. Hence they propose a new sustainable architecture.

2 Key contributions from the author(s)

They talk about the stages of a technology adoption life cycle, which comprises of five main psychographic profiles:

- Innovators
- Early Adopters
- Early Majority
- Late Majority
- Laggards

Between the Early Adopters and the Early majority lies a critical phase where the technology has to transition. This Phase is called the Chasm, and is really important. They feel that IoT hasnt crossed this phase. Deliberate actions are needed to be taken for it to safely cross this phase. This is why this paper proposes a new architecture and architectural design styles as contribution to ensure increased recognition of benefits, sustainable adoption into the society, rapid development and reuse of IoT systems and applications.

They propose a five layer structure. From top to bottom:

- Business Layer
- Interface

- Platform Layer
- Interconnecting Layer
- Sensing Layer

The Business layer will serve as a means to demonstrate and analyze investment opportunities and risks to the potential investors, organizations and governments who want to invest their resources in IoT applications and solutions.

Interface Layer is where services and applications are defined based on requirements from investors, users, organizations and governments.

The Platform Layer is where IoT is provided as a service. this layer is required to have capability to retrieve, process, compute information, and then automatically decide based on the computational results to help the business and organizations make decisions.

The Interconnecting Layer is the layer that connects the sensing layer and the platform layer through different protocols.

The Sensing layer is outmost layer of IoT, where all devices are exposed to the environment and data are generated.

They also propose a parellel layer , a security layer which defines specific security policies, standards, frameworks and challenges at each of the above layers.

3 My Views on the Paper

I have mixed thoughts above the paper, as the authors don't really explain their thoughts completely. For example, they say that the interconnecting layer should use a peer-to-peer(p2p) network for communication, but dont explain why p2p is preferred, or how it would be implemented. They make bold claims, but dont follow them up. There's a lot being said, and too little put forward at the same time.

4 Agreements, pitfalls and fallacies

I agree that in order for IoT to really penetrate the consumer market, there has to be really careful measures taken by those working on IoT, in 2017 when IoT devices werent really that popular. But proposing a new architecture wasnt really the way to go. IoT had to solve problems for people, fit into their needs or people had to be tempted to buy products. Because people who needed products to help with their problems will already have bought them, and those who didnt need it had to be convinced. Retrospectively, that's how it happened. Over the last few years, people brought things they needed or thought they needed. Not everyone who bought full fledged smart home systems needed it , but were made to believe they needed it , so the authors were wrong about that one.