Scalable Computing (CS7NS1) Assignment 1
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**Tutorial Paper:** Mobile Big Data: The fuel for data driven wireless.

**Contributions:**

- It is unique in that is so rich in context, making it a very valuable asset.
- The applications are vast, from medical/anthropological to service and marketing based.
- It can be categorised by source, relating to an OSI model layer.
- It is very user sensitive data, authentication and privacy are of the upmost importance.
- Excellent for user modelling, predicted from many sources with machine learning methods.

**Technological Insights:**

- Vast user predictions can be made based on models from machine learning on big data.
- Patients can be monitored remotely in some forms using big data and machine learning.
- User location tracking can be done to a point, even with disabled location settings.
- Centralized Mobile Cloud Computing could be answer to MBD processing.
- Mobile Big Data is so vast, shards previously thought of as useless may be key in future.

**Insights of relevance to Scalable Computing:**

- Processing scalability is consistently improving, with supercomputing and cloud advances.
- Data mining algorithm scalability crucial due to dynamic change in data and environment.
- Scalable infrastructures are key for data transmission.
- Hardware and software systems must scale due to distributed arch. Preferred currently.
- Paper claims Moore's Law is fading, large insight into transistor technology advancement.

**Review Paper:** A Survey on Security and Privacy Issues in Internet of Things,

**Contributions/Findings:**

- Security on IoT devices limited by the memory, battery and computing power of devices.
- Attacks on IoT devices can come in 4 levels, so very tough to prepare for them all.
- Authentication of human use of IoT devices poses issue, even with biometrics.
- Conventional Internet protocols security have many issues currently for supporting IoT.
- First fully functional two-way authentication for IoT, achieved using DTLS.

**Technological Insights:**

- Growth of IoT Devices expected to reach 40 billion in 2020.
- SmartOrBAC access control reduces cost and error in human use authentication of IoT.
- Malware now using IoT devices for creating botnets to DDoS etc.
- IoT medical implant devices invented, but security of the utmost importance.
- Most IoT and WSN attacks can be resisted using IoTSSP over DTLS model.

**Insights of relevance to Scalable Computing:**

- Rapid growth of IoT network infers need to manage scalability of device architechture.
- Use of SDN's in identity based authentication is new scalable scheme.
- Zhang and Green DDoS node defence algorithm could scalable manage network DDoS issues.
- As network grows, introduces more IoTSSP's over DTLS to manage growth security.
- As IoT network grows, security and authentication must scale effectively to ensure privacy.