Why Your Analytics of Things Aspirations Will Fail

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Yes, everybody's talking about analytics and the Internet of Things (IoT). A recent Gartner hype cycle places the "Internet of Things" squarely at the top of the so-called "peak of inflated expectations." Nearby, just a little down the slope on either side are "big data", "prescriptive analytics" and "data science." So when you hear talk about the "analytics of things" you are right to be skeptical.

Your skepticism should be focused on the readiness of data to support the lofty aspirations put forth by vendor marketing campaigns and pundit bloggers. First Analytics has been analyzing machine and sensor data for a long time. Before we commit to developing a new application we conduct a data readiness assessment. In almost every case we find that IoT data is not ready. Here are the primary impediments encountered:

Poor data model design:
Engineers and architects did not have advanced analytics in mind when designing PLCs, event recorders, and their supporting data collection systems.

Missing swaths of data:
The patterns of missing-ness are varied (time, location, device, intermittency, etc) and more common than one would expect.

Anomalous data:
Unfortunately we aren't talking about anomaly detection as in the sense of predictive maintenance, but numerical observations that are flat-out wrong or infeasible.

Machine "historians" with short-term memory:
Why do they call them historians if they don't keep history for very long?

There are indeed very valuable applications to be found in the Internet of Things. But to avoid failure you must invest the time and effort at the very outset to qualify your data. Gaps can often be addressed through a well thought-out plan, but it will usually take time to build the right data systems and history.

Too many organizations spend the early stages of their IoT initiatives in planning for applications they later come to learn cannot be supported by the data. Using a data-first, data-driven approach is a tangible way to get your IoT initiative started and mitigate the risk of failure before you spend too much time and expense in planning.

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