Data Type System for IoT

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Problems Being Solved

• Inform client application how to consume resources
Type System Topics

- Data Type
- Read vs. Update ability
- Data Structure
- Application Semantics
Data Type

• Describe rather than tag
  – Tag => "type": "uint8"
  – Description => "min": 0, "max": 255, "step": 1, "units": "ucum:Cel"

• Descriptions do everything tags do and more
Read/Update

• See Application Semantics
Data Structure

• Should not use schemas to explain JSON structures as atomic resources, this may not scale well
• Explain structure through a combination of hypermedia controls and application semantics
• Design resources so actuation and notification payloads are described using application semantics which are consistent with the resource design
• Use media types for structured data
Application Semantics

• Starts with a simple, bounded interaction model like Events, Actions, and Properties
• Design hypermedia controls such that annotations can describe elements in the context of a larger model
• Use RDF and a consistent conceptual model like schema.org
Web of Things Framework MVP

- Semantic Models: schema.org
- Hypermedia Controls: HSML, Thing Description
- Transfer Abstractions: REST, Pub/Sub

- Common Interaction Model, e.g. Events, Actions, Properties
- Consistent design patterns for Actuation, Notification
- Best Practices for Resource and API Design