

# 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](http://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