HSML

Hypermedia for Connected Things

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November 2017

HSML

- Hypermedia content format for IoT sensors and actuators
- Combines IoT data and hypermedia controls
- Re-uses core link-format
  - https://tools.ietf.org/html/rfc6690
  - https://tools.ietf.org/html/draft-ietf-core-links-json-09
- Re-uses SenML
  - https://tools.ietf.org/html/draft-ietf-core-senml-11
- Suitable for constrained networks
  - Maps to CBOR, EXI Serializations, keyword sets

HSML Design

- HSML is a content format with a specified interaction model
- **Hypermedia controls**, like HTML Links and Forms
- **Collections** with group and batch operations through link embedding
- Asynchronous and structured interaction models for machine use cases
- Optimized for minimal interaction models wrt. workflow; data-only, links-only

HSML - Collections

- HSML extends the collection model of CoRE Interfaces
  - https://tools.ietf.org/html/draft-ietf-core-interfaces-10
- Defines update modes and additional semantics through link relation types
- Can specialize collection interactions through content-formats or interface types

HSML – Actions and Events

- HSML extends the REST interaction model
- Defines hypermedia controls for submitting Actions and Observing Events
- Extends CoRE Dynamic Linking (Dynlink)
  - https://datatracker.ietf.org/doc/draft-ietf-core-dynlink/
- Action model based on Forms

HSML – Status of the Work

- Revision in progress, tracking the final Link-format and SenML documents
- Implementation work being done, generating good feedback
- Demonstration of system level integration including semantic discovery and client interaction through hypermedia controls – MachineHypermediaToolkit
  - https://github.com/mjkoster/MachineHypermediaToolkit
  - https://github.com/connectIOT/HypermediaDemo

HSML Example, JSON Serialization