

A Word about Operational State

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First a word

- We need a word for data
 - Not config (not part of the device config)
 - Not operational state (it is writable)
 - Learned from external sources (apps, managers)
 - Heavily tied to automation
 - High frequency/volume
 - Non-persistent
- Examples: customer ports, routes, firewall signatures, etc.

Fortunately ...

- Swedish has a word that's "just right":
"Lagom"
- So we have a distinct, specific word

Current World

- Issues:
 - Is the data model for opstate a subset of config?
 - Is the organization different?
 - Do the leafs have distinct values?
 - Are there config values that can't be opstate?
 - Are there opstate values that can't be config?
- RFC6244 gives no answers
 - Because we don't have any

IRS Needs

- IRS has some additional requirements
 - Need to work w/ IRS to clarify
 - Impacts, costs, and ramifications
 - "fast path"

Proposal

- Distinct datastore with distinct operations
 - Two types of validation:
 - Field level (as data is added)
 - Semantic (when data is consumed by system)
 - Allows semantically invalid data
 - Well defined failure modes (ignore invalid data)
 - Data model needs to indicate:
 - Data that is allowed in lagom
 - Failure points within lagom data hierarchies

Lagom

- Cannot invalidate config data
 - Config data must remain valid
- Independent of config true | false
- Lagom validity considers config
 - But not vice versa
- Failure points
 - Allow invalid data to be partially ignored
 - When semantic check fails, the failure point identifies hierarchy to be discarded
 - Default failure point is the top of the lagom hierarchy

New Math

$$\text{DM} + \text{config} + \text{valid}(\text{lagom}) = \text{DS}$$

$$\text{DS} + \text{PE} + \text{LD} = \text{OS}$$

Where:

DM data model

DS desired state

PE physical environment

LD learned data

Lagom Module

- Two extensions
 - lagom (true | false);
 - lagom-failure (true | false);
- Two operations
 - get-lagom
 - edit-lagom
- Distinct operations reduce options
 - test-options, error-options, etc