Capacity Insights Interface: Mission

- Provide an interface which is meant to allow Content Providers, Service Providers, and CDNs to exchange information to facilitate an integrated and informed end-to-end traffic steering workflow with the goal of keeping performance KPIs at acceptable levels.

- Identify areas where the existing IETF CDNi FCI and Metadata models and interfaces may be useful and where practical needs may dictate alternate solutions and formats.
Capacity Insights Interface: Goals

❖ Provide framework for information exchange to facilitate traffic delegation decisions.
❖ Provide limits that are scoped to a CDNi footprint.
❖ Provide limits that are scoped to a host.
❖ Provide limits that are specific to the delegation relationship.
❖ Define limits in unambiguous, mutually understood terms.
❖ Support the following communication workflows:
  ❖ Bootstrap
  ❖ uCDN to dCDN continuous polling
  ❖ dCDN to uCDN incremental updates
  ❖ uCDN to dCDN update solicitation
CDNi FCI: CapacityLimit

We intend to treat the concept of a Capacity Limit as an FCI Capability.

- a Capacity Limit defines the limit of traffic delegation from a uCDN to a dCDN.
- Scope of limit follows CDNi footprint guidelines, as well as additional host scoping.
- Limit is specific to uCDN to dCDN delegation relationship. The limit does not represent an advertisement of total dCDN capacity.
- We propose to Extend FCI with a new payload: FCI.CapacityLimits.
CDNi FCI: Telemetry

Capacity Limits will be associated with a corresponding Telemetry source

- The meaning of a Limit becomes well defined by a corresponding source of data providing current utilization.

- Telemetry source will share the same scoping as the Capacity Limit.

- The Telemetry sources will be advertised as an FCI Capability as such we propose to extend FCI with a new payload FCI.Telemetry.

- Initially a generic definition of Telemetry will be used, with the intent that a formalized Telemetry definition will be established at a later date.
CDNi MI: RequestedCapacityLimits

A Metadata object which will allow the uCDN to request Limit changes from a dCDN

- will be scoped to a footprint referenced by an existing Capacity Limit.
- intended to allow uCDNs to request that the dCDN reevaluate a current CapacityLimit with the values specified in the RequestedCapacityLimits object.
- RequestedCapacityLimits will be processed asynchronously by the dCDN.
- Updates to CapacityLimits that are triggered by a RequestedCapacityLimits signal will be handled in the same manner as any other FCI Capability update.
High level CapacityLimit Workflow

- **uCDN**
  - capabilities?
  - CapacityLimit:
    - limit = X metric
    - Telemetry: id = A
  - Telemetry id = A?
  - Is Y <= X?

- **dCDN**

- **dCDN Telemetry**
  - Telemetry: id = A
    - metric = Y