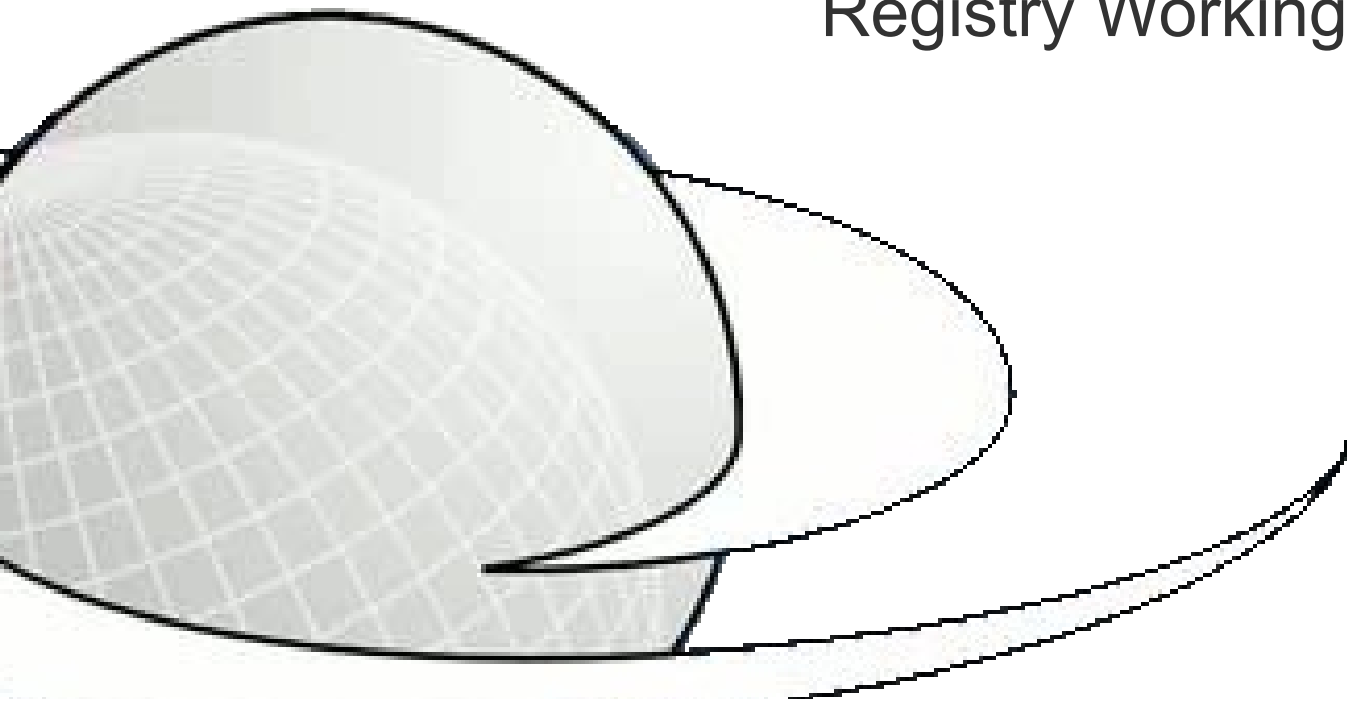# IVOA Identifiers: a Look Back

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### Registry Working Group Historian

Purpose and Requirements

- A globally unique way to identify resources
    - Can refer to anything of interest in a VO application
    - Can compare 2 identifier to determine if they are the same resource*
    - Can be resolved to a description of the resource
        → One role of the a registry: to resolve identifiers
        → Resolution to a registry description somewhere is a required
    - Maximizes freedom of data providers to control contents of identifier
        → Allows for mapping into internal identifiers
        → Provider can choose if content is explanatory

Components and formats

- Authority: an identifier that maps to an owner a namespace of names
  - Assigned to (registered) organizations
  - Gives organization right to create IVOA identifiers

- Resource Key
  - Name within organization's namespace
  - Restricted set of allowed characters (for use in URIs)

- Two supported formats: XML and URIs
  - XML not used

- Stop characters: # and ?
  - Mark the end of the identifier that can be resolved by a registry
  - Allows for internal/sub-component identifiers such as to...
    → Datasets within a collection – Dataset identifiers
    → Concepts within a standard – Feature identifiers

Design Decisions: Internal Structure
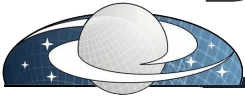
- ## Opaque identifiers

    - Resource keys can contain slashes, /, but containment is not generally implied*

    - Content structure for human consumption only, assuming authority-specific conventions

- ## VOSpace identifiers

    - Needed identifiers that imply containment

    - Need to mark separation between component that represents the VOSpace service and the path to the object of interest

        → vos:nvo.caltech!vospace/siap/out.vot

Design Decisions: Mirrored resources

- Identity does not span across Authorities
  - If a resource is mirrored at another organization's site, it gets a new identifier.
  - Resource description can indicate that one resource is a mirror of another.
- Debate: What is a replica? How is it defined? How can replication be confirmed?
  - Difficult when resources are not digital objects
  - If one organization claims to have made a mirror, what stops them from making alterations?
- Moved resources is a degenerate case of the replicated resource
- Tracking replicas require coordination across organizations
  - Someone—an authority—must make an assertion that two copies are the same.
  - IVOA Registries were not prepared to play that role
  - An attempt at Dataset Identifiers based on IVOA identifiers
    - → For referring to data in the literature
    - → ADS would be the authority; if an dataset was moved, the ADS would ensure it would resolve to the new location