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Open Cloud Computing Interface (OCCI)

Introduction

The Open Cloud Computing Interface is an open community consensus API, initially targeting cloud infrastructure services or "Infrastructure as a Service (IaaS)". A "Resource Oriented Architecture (ROA)", it is as close as possible to the underlying HyperText Transfer Protocol (HTTP), deviating only where absolutely necessary. Each resource (identified by a canonical URL) can have multiple representations which may or may not be hypertext (e.g. HTML). Metadata including associations between resources is exposed via HTTP headers (e.g. the Link: header), except in the case of collections where Atom is used as the meta-model.

Basics

URL Namespace

A single URL entry point (and optionally, suitable credentials for HTTP based authentication schemes) is all a client requires. Each resource type (e.g. compute, network, storage) is visible as a collection at the root level (e.g. <http://example.com/compute>) and the resources themselves appear under these collections (e.g. <http://example.com/compute/123>). Implementors should expose an AtomPub service document at the root to enable enumeration of resource types, supported formats and categories.

CRUD Operations

Create, Retrieve, Update and Delete (CRUD) operations map to the POST, GET, PUT and DELETE HTTP verbs respectively. HEAD and OPTIONS verbs may be used to retrieve metadata and valid operations without the entity body to improve performance. Additionally, all existing HTTP functionality is available for caching, proxying, gatewaying and other advanced functionality.

Collections

Operations that return multiple resources (e.g. categories, searches) are rendered as an Atom feed with an Atom entry per resource. Metadata that would normally appear in the HTTP headers is passed instead in standard Atom elements with the entity-body itself being passed by reference or value in the content element.

References

The following standards are referenced by this implementation.

- RFC 2616 Hypertext Transfer Protocol -- HTTP/1.1
- RFC 4287 The Atom Syndication Format
- RFC 5023 The Atom Publishing Protocol

Additionally RFC 2119 Requirement Levels are used throughout.