Cloud Data Management Interface Extension: CIMI

Version 1.0f

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Working Draft

Revision History

Date	Version	By	Comments
12/14/2011	1.0a	Mark Carlson, Oracle	Document created
1/16/2012	1.0b	Marie McMinn	Updates to include standard SNIA front matter and technical edit
1/20/2012	1.0c	Mark Carlson, Oracle	Split the CIMI and OVF extensions
1/26/2012	1.0d	Marie McMinn	Performed minor edits.
1/30/2013	1.0e	Mark Carlson. Oracle	Updated for latest CIMI integration
2/8/2012	1.0.f	Marie McMinn	Performed minor edits.

CIMI CDMI Extension

This extension to the CDMI international standard supports the DMTF CIMI Standard (DSP 263), which is used to manage an IaaS cloud. Both of these standards can be used together to manage data and storage for IaaS clouds.

Modifications to the current CDMI spec:

The changes are as follows:

- Support for exporting containers to Cloud Infrastructure Management Interface (CIMI) machines and having them appear as CIMI volumes

1) Insert into Clause 2 – ”Normative References”

DSP 0263

Cloud Infrastructure Management Interface (CIMI) Specification

2) Insert into Clause 3 - "Terms":

3.x
Cloud Infrastructure Management Interface
CIMI
a DMTF standard for managing IaaS

3) Add a table entry to the end of Table 102 in 12.1.1 as follows:

Capability Name	Type	Definition
cdmi_export_cimi	JSON String	If present and "true", this capability indicates that the cloud storage system supports CIMI exports.

4) Add a table entry to the end of Table 106 in 12.1.5 as follows:

Capability Name	Type	Definition
cdmi_export_cimi	JSON String	If present and "true", this capability indicates that the container supports CIMI exports.

5) Substitute into 13.1 - <entire section>:

For all occurrences of “OCCI” in this section, add references to “CIMI” such that the section reads as follows:

CDMI™ containers are accessible not only via CDMI as a data path, but also via other protocols as well. This access is especially useful for using CDMI as the storage interface for a cloud-computing environment, as Figure 8 shows.

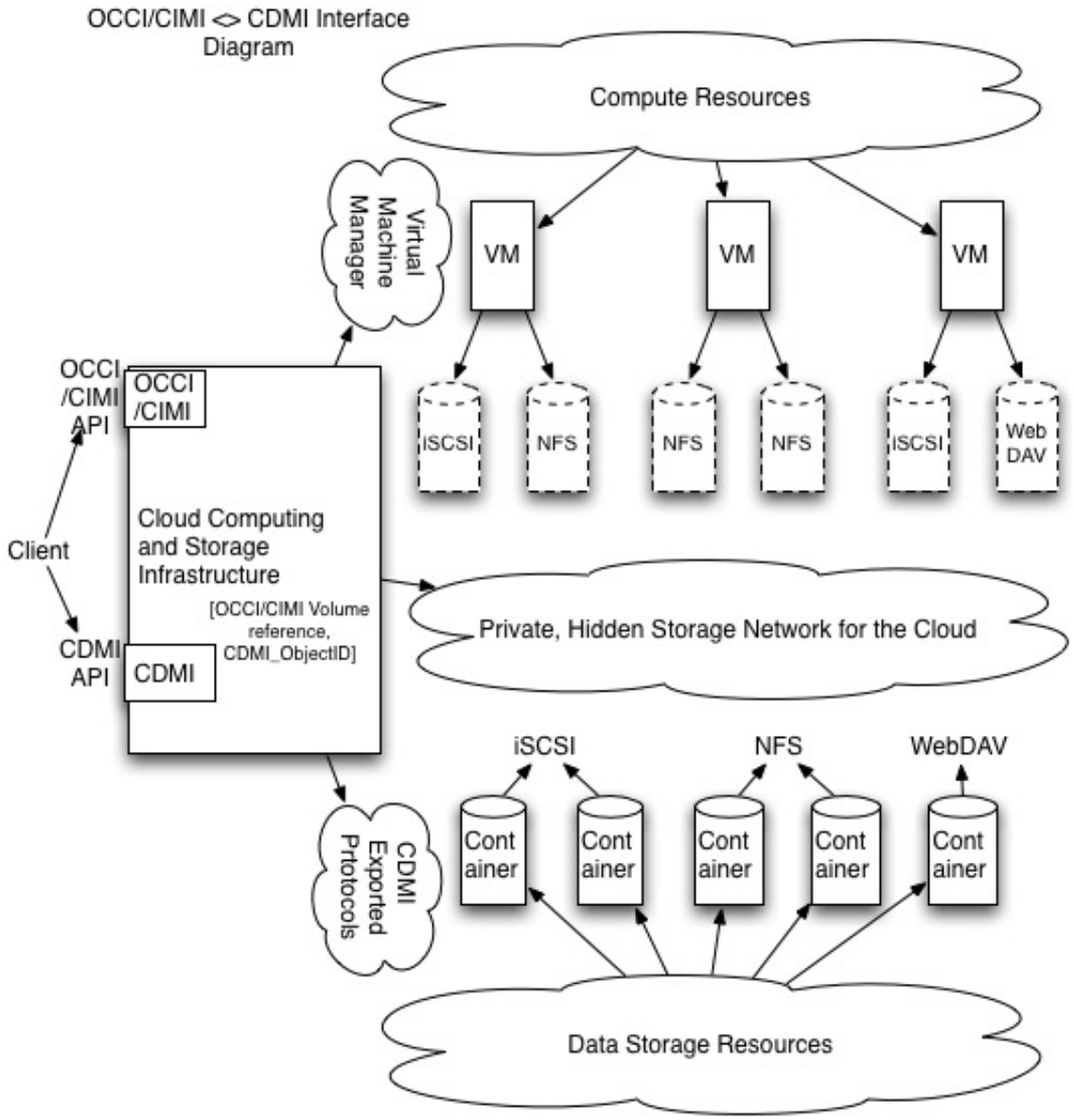

Figure 8 - CDMI and OCCI/CIMI in an Integrated Cloud Computing Environment

The exported protocols from CDMI containers may be used by the virtual machines in the cloud-computing environment as virtual disks on each guest as shown. The cloud computing infrastructure management is shown as implementing either an Open Cloud Computer Interface (OCCI) or a CIMI along with the CDMI interface. With the internal knowledge of the network and the virtual machine manager's mapping of drives, this infrastructure may associate the CDMI containers to the guests using the appropriate exported protocol.

To support exported protocols and improve their interoperability with CDMI, CDMI provides a type of exported protocol that contains information obtained via the CIMI interface or the OCCI interface. In addition, both CIMI and OCCI provide a type of storage that corresponds to a CDMI

container that is exported with a specific type of protocol used by either CIMI or OCCI. A client of both interfaces performs operations that align the architectures, including the following.

- The client creates a CDMI container through the CDMI interface and exports it as either an OCCI export protocol type or a CIMI protocol type. The CDMI container objectID is returned as a result.
- The client creates a virtual machine through either the OCCI interface or the CIMI interface and attaches a storage volume of type CDMI using the objectID and protocol type.
- The client updates the export protocol structure of the CDMI container object with the CIMI or OCCI virtual machine URI to allow the virtual machine access to the container.
- The client starts the virtual machine through the CIMI or OCCI interface.

6) Insert new subclause after 13.6 OCCI Exported Protocol:

13.7 CIMI Exported Protocol

CDMI defines an export protocol structure for the DMTF standard: CIMI for each type of network interface as follows:

- Protocol is "CIMI:<protocol>" where <protocol> is one of NFS, CIFS, or iSCSI.
- The required and optional parameters are as specified in 13.4, 13.5, and 13.7.

EXAMPLE An example of a CIMI NFS export protocol structure in JSON is as follows:

```
"CIMI:NFS" :
{
    ...
    {"no_wdelay", "true" },
    {"refer", "otherserver://path/leaf"},
}
```