

Introduction

DCML enables any IT organization to benefit from the lower costs, increased agility and improved service levels that are central to utility computing. Using DCML, companies now have a standard method to enable data center automation, utility computing, and system management solutions to exchange information about the data center environment to make the vision of automated computing a reality. The following features are part of the DCML standard:

- DCML is the only open, XML-based standard designed to achieve interoperability by providing a systematic, vendor-neutral way to describe the data center environment, functional relationships between data center components, and policies governing the management of the environment.
- DCML provides the first standard model to describe both a recipe and a blueprint of one or more data center environments.

Within the emerging category of utility computing is a considerable assortment of internal and vendor-developed tools. Each of these utility computing technologies performs a different function in the data center: some are complete platforms automating the full lifecycle of servers and software; some are solely focused on infrastructure virtualization; some enable intelligent system monitoring; and others are point tools performing highly focused tasks such as device provisioning or application patching, etc.

Similarly, standards organizations and best practices have been created to address distinct elements of IT management. Over time these organizations have evolved to cover the growing complexity of the data center. As a result, it has become increasingly difficult to understand both the common elements as well as the differences among standards.

Comparison Chart

This table compares DCML to other industry standards and best practices focused on IT infrastructure.

Industry Standard/ Best Practices	Primary Goal	Common Elements	Key Differences
DCML	Description of all elements of the data center including: hardware, software, network, services and the recipes and blueprints for building these environments including: sequential procedures, required versions and patches etc. DCML provides the core competency of associating assets with services, roles, environment architecture and IT policies.	Uses OWL (Web Ontology Language) to describe the data model. Information is exchanged in RDF/XML.	DCML concentrates on upper level, services-oriented aspects of consolidation, automation, virtualization, and thereby the utility enabling of complex services and management on top of infrastructural and application-level components. It leverages existing standards and best practices to create the interdependency and interlinking relationships within DCML, providing an open and complementary cohesion among these standards.
DMTF /CIM	Creates the abstract models for describing the information in the enterprise management environment.	Uses MOF to describe the object model. Information is exchanged in XML and validated with DTD.	Focus is on modeling the environment, not the management activities of a data center environment. Where appropriate, DCML leverages CIM environment descriptions.
ITIL	Provides best practices processes for Information Technology Infrastructure.	Best practices approach.	DCML provides rules, blueprints and recipes for building services and applications which codify aspects of ITIL.
OASIS/WSDM	Defines web services interfaces management of web services systems.	Uses of XML schema.	WSDM focuses on the management of web services.

Where DCML Fits In

Many organizations have primarily focused on the interfaces and adaptation among various applications and management systems, but DCML is the only organization that is addressing the standard language format and methodology of the actual information distributed and exchanged by these systems. The DCML standard should be viewed as complementary to other industry standards.

While having common interfaces is required, there is still the need to transform the actual information into a format that enterprise management applications can use. DCML provides a common language for this information. For example, when moving the description of a specific database server between critical management systems within the enterprise, DCML ensures that such critical information is understood by both the asset management system and the systems monitoring the health of the server within the data center.

The task of managing all the elements of a data center can be daunting. The asset management system will keep track of the number, type, manufacturer, software version, patches applied and date they were applied to a given element, such as a router. When a change is made to this element, it must be communicated to all the other systems that rely on this information to manage the operation of the data center. Unfortunately, today, the asset management system uses one information format while the process monitoring system uses a completely different format for maintaining the same data. A transformation or adaptation of the data is required to make sure all systems are in sync. Maintaining a library of such alterations from product to product is cumbersome, error-prone, and subject to continual and massive changes as management systems providers modify the nature and format of the information from release to release.

The common format of DCML eliminates the need for this transformation and thus reduces the opportunity for error. As data centers become more complex, the benefits increase significantly.

Conclusion

DCML provides a missing link in data center management, enabling resources to work well together. When used in conjunction with other standards such as CIM, WSDM, and best practices such as ITIL, the IT operations team has a set of common tools that allows them to model and build services based on best practices. With the blueprint and recipe functions contained in DCML, the guesswork for building applications is eliminated and new levels of automation can be implemented to ensure error reduction and lowered cost of operation. DCML should be viewed as complementary to existing standards and an essential component of world-class data center operations.

For additional information on the DCML Organization and Use Case examples, please visit the website at www.dcml.org.