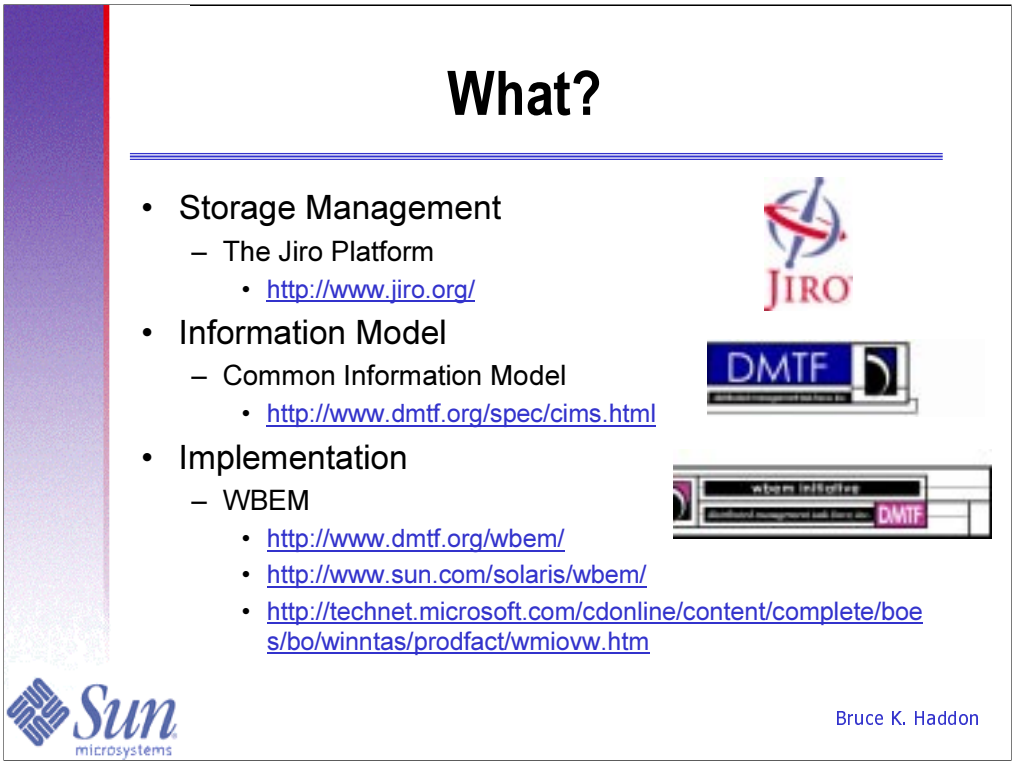


The context in which the Network Storage division of Sun Microsystems, Inc., is using XML is the Jiro Management Platform. The Jiro project is developing and proposing a Java language extension, which incorporates a definition of a component model designed for the creation of active elements from which system and storage management applications may be built, as well as the creation of a platform containing support for a distributed object model and basic services needed by those management applications.

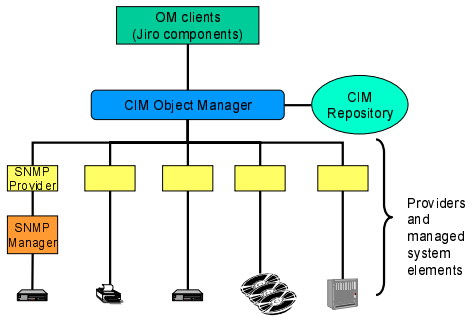
In order to support consistent and interoperable management components, an “information model” is needed defining what standard attributes, behavior, and relationships are known about the items being managed. In system and storage management, these items are processors, memory, network adaptors, printers, disks, tapes, RAID subsystems, media libraries, and so on. The Distributed Management Task Force (DMTF) has sponsored the development of such an information model, named the “Common Information Model.” The underlying object and the methodology for defining classes and instances is contained in the CIM Specification, and the CIM Schema is an actual set of definitions of classes for all the common system elements, such as those listed above.

The CIM Specification itself does not specify any particular form of implementation of its object model, or of the objects defined in the Schema, nor any means of communication with those objects.

However, a parallel activity of the DMTF is the “Web-based Enterprise Management” initiative, which defines an architecture for the implementation of the object model, and a means of representing and creating the definition of classes and instances, and of making calls on the methods of the objects. Both Sun and Microsoft have such implementations, the Sun one being known by the name “Java WBEM,” and the Microsoft implementation being known by the name “Windows Management Interface” (WMI).

How?

- WBEM
  - implementations use CIM object managers
- Client ↔ OM
  - XML protocol
    - direct or *via* HTTP(S)
    - http://www.dmtf.org/spec/wbem.html
- Further information
  - Jiro Developer's Forum, October 4-6, 1999
    - http://www.jiro.com/devforum99.html



Sun microsystems

Bruce K. Haddon

The heart of the WBEM architecture is an Object Manager, that uses some form of a persistent repository in which to keep copies of class definitions, and what it needs to know about the existence of instances. It presents to a client the means to access the objects, meta-information about the objects (including their class definitions), and the methods of the objects. In particular, for instances, it will keep information about the location of programming constructs call "providers," where each providers is the code that is executed to find current values of attributes or to carry out other method calls, usually by using some "native" way of interacting with the real world item that it represents.

For the communication of method calls, and related data, between the Object Manger client, and the Object manager, the XML Working Group of the DMTF has defined an XML DTD. This DTD effectively defines a serialization of CIM classes, instances, and primitive types, and the way to marshal these into method calls and result returns. This XML is passed to the Object Manager, essentially as a document, for it to effect the required operations. An embedding of this XML document into HTTP or HTTPS is defined, so that HTTP and an HTTP server may be used as the transport mechanism, in both directions.

The Jiro Management Platform assumes access to a CIM Object Manager, usually via HTTPS, as the primary way of interacting with the system items that are being managed.