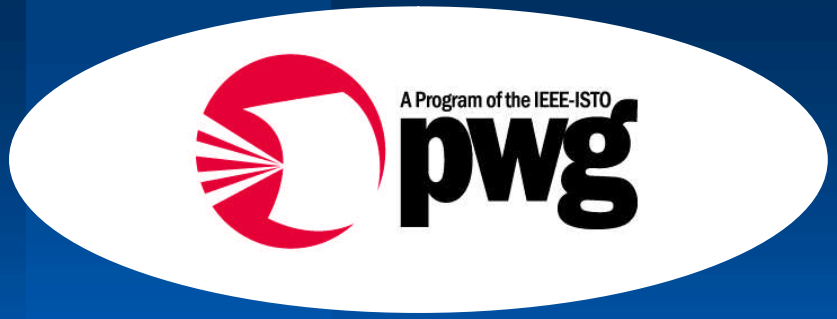


IEEE-ISTO PWG

Web-based Imaging Management System

WIMS Working Group Activities

PWG Plenary

January 2006, Las Vegas

WIMS Topics – Plenary Meeting

- Voting on Counter MIB as Informative PWG document
  - MIB Manifestation of Counter Spec
  - Informative because no prototype
  - Counter Schema activity turned over to Semantic Model Group
- WIMS-CIM alliance
  - Summary of Activity
  - Strategy overview
  - Preview of Slides and Agenda for CIM Core call on Friday
- Conclusion of WIMS Protocol Spec Last Call
  - Review of PWG last call comments and disposition
  - Overview of WIMS Protocol
  - Significant changes made in response to WG Last Call
  - Solicit further last call comments

Counter MIB Vote

- The Counter MIB has been adopted by PWG Formal Approval to become a PWG Informational specification.
  - Yes: 5
  - No: 0
  - Abstain: 3
- Publication Requires new standard file prefix
  - ftp://ftp.pwg.org/pub/pwg/general/process/pwg-namespace-policy-20060112.txt

WIMS/CIM WG Purpose

- **Alliance with DMTF:**
  "Together, the groups will work to review and update the DMTF's Common Information Model (CIM) with input based on the latest Printer Management Information Base (MIB) and the PWG Common Semantic Model."

  June 14, 2005 DMTF Press release

CIM Alignment Project

- **Work Register (July 2005)**
  - http://www.dmtf.org/about/register/PWG-DMTFWorkRegister.pdf
- **Mission**
  - review and update the CIM model based on the updated Printer MIBv2, the PWG Semantic Model and web services protocols
- Approach
  - Three Phases – See Rick's Slides
  - A PWG White paper will be generated for each phase-
    - informal means of communicating technical proposals among PWG members.
    - are posted and announced to working group but do not require any form of approval and have no formal status.
  - CIM Change requests will be derived from the white papers and submitted to CIM

DMTF Core Schema Working Group Joint Conference Call

- Friday 20 January at 9 AM PST
  - Call in information will be provided to WG members who request it
- Agenda
  1. Introduction
     a. Statement of project objectives
     b. Identification of participants
     c. Objectives of Call (both CIM core and PWG)
  2. PWG Plan and Schedule for Alignment - Slides
     a. Partitioning into three Levels
     b. Generate PWG White paper for each level for PWG consideration
     c. Derive CIM Change Requests from each White Paper
  3. Discuss and Solicit Suggestions on Mechanics of CR submission
     a. number vs size
     b. submission procedure
     c. anticipated follow-up activity, and time

CIM/Printer Background

- **Existing CIM Model Studied**
  - ftp://ftp.pwg.org/pub/pwg/wims/cim/CIM_Device_Printing.pdf
- **Areas of Inconsistency Documented and Changes Proposed**
  - ftp://ftp.pwg.org/pub/pwg/wims/wd/wd-wimscimprint10-20050804.htm
  - ftp://ftp.pwg.org/pub/pwg/wims/wd/wd-wimscimalign-20050822.pdf

Comments on CIM “Printer”

- **Structural problems**: blends Printer MIB and IPP "printer” models, mixing device and job properties
- **Vague or meaningless properties**: contains properties that cannot be implemented reliably or interoperably.
- **MappingStrings or ModelCorrespondence attributes**: some MappingStrings point to the wrong MIB; need additional MappingStrings or ModelCorrespondences to help implementers and future editors.
- **Read/write attributes**: CIM properties by default are read-only. Writable attributes are not identified
- **Mutable and Modifiable attributes**: to be added
- **Incompleteness**: CIM_Printer class includes small number of Printer MIB properties. Additionally, the other printing-related objects (PrintService, PrintQueue, PrintJob) should be aligned

Conclusion of WIMS Protocol Spec and WIMS Schema Last Call

- Review of PWG last call comments and disposition
  - Protocol Document and Schema went into last call in December, to be concluded at January Plenary
  - Sole comments was to start numberin in Figure 3 and associated test with event 1.
- Review of Protocol Spec and Schema
  - Identify major changes made in response to WG last call
  - Solicit further last call comments WIMS Protocol

WIMS Protocol

- **Rational**
  - **Management Techniques are Migrating to Web Services**
  - **Imaging Devices and Services have particular management requirements**
- **Remote/Third Party Management**
  - **Imaging employs complicated mechanical devices**
  - **Consumables and periodic service**
  - **Often maintenance by Third Party, external services**
- **Considerations**
  - **Various degrees of account information**
  - **Mixture of Third party and in-house maintained equipment**
  - **Security – not just trusted maintainer but also “need to know”**

WIMS Working Group Goals

- Design a Protocol to
  - Monitor, Manage and Administer:
    - Hardcopy imaging devices and systems
    - Image processing services (print spoolers, facsimile, format transform services, etc)
  - In a context supporting both
    - fleet management (across the Internet by outside service providers) and
    - Later added enterprise management (within an administrative domain by in-house staff)

Specific Features

- Allows all communication to be initiated by managed entities or proxy for managed entity
- Uses concept of a schedule of actions which agent obtains from manager and then executes
- Two levels of “operations”
  - Those initiated by agent, called operations
  - Those specified by manager in the schedule, called actions
- As requested during WG Last call, we have added manager operations which allow an internal manager to initiate connections, allowing WIMS to be used in a more conventional way.

WIMS Protocol

The WIMS Protocol defines three primary aspects:

- **The Agent Interface, including the operations to:**
  - **initiate & allow Manager access**
  - **solicit a schedule of management actions**
  - **report on requested elements**
  - **provide alert information for identified events.**
- **The Management Interface, including the operations by which the required management information is requested**
- **The monitoring, management and administrative actions requested of the managed entity in the schedule or the Management Interface operations.**

WIMS Protocol

- The WIMS Protocol is defined in the abstract to allow application in the most effective way possible, for example:
  - Agent to Manager interface use HTTP or HTTPS, perhaps bound to SOAP, but generally in a way fully analogous to a user accessing the WWW.
  - Manager to Agent Interface use SMTP, perhaps bound to SOAP, with the Agent receiving Emails in the same way as a human user.

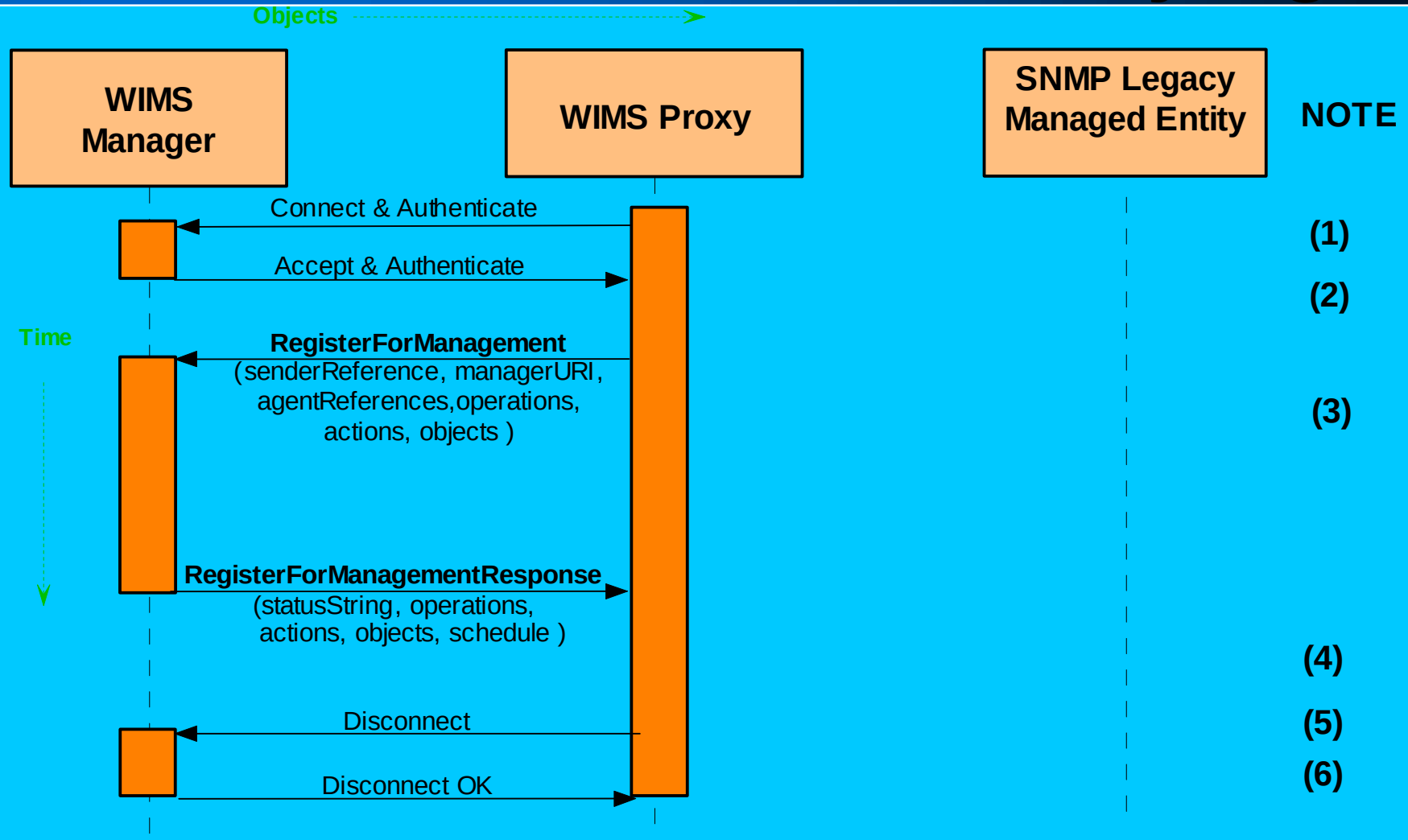
WIMS Protocol - Operations

- The Agent Interface
  - RegisterForManagement, UnregisterForManagement
  - SendReports
  - SendAlerts
  - GetSchedule
- The Manager Interface (Optional)
  - Set Schedule
  - ExecuteAction

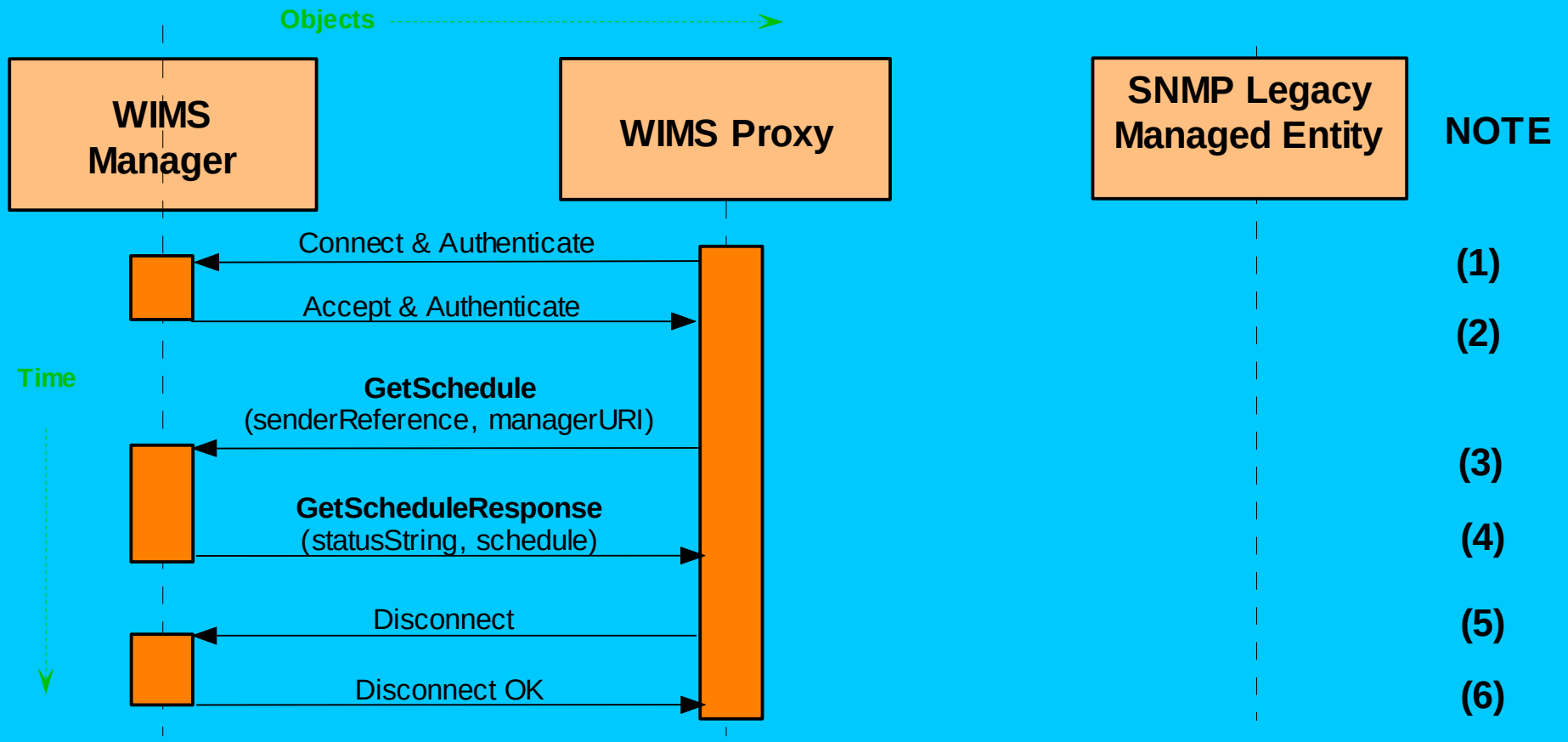
WIMS Protocol - Sequence

- An administrator responsible for a given site determines:
  - What imaging systems and system components are to be managed by this method,
  - The identity of the MANAGER, and
  - The degree of control and access allowed by the MANAGER.
- This information is entered into one or more AGENTS.
  - The AGENT is intermediary between the MANAGER and the Managed Imaging System
  - AGENTS may be independent proxy entities on the network or may be embedded in the managed entities.

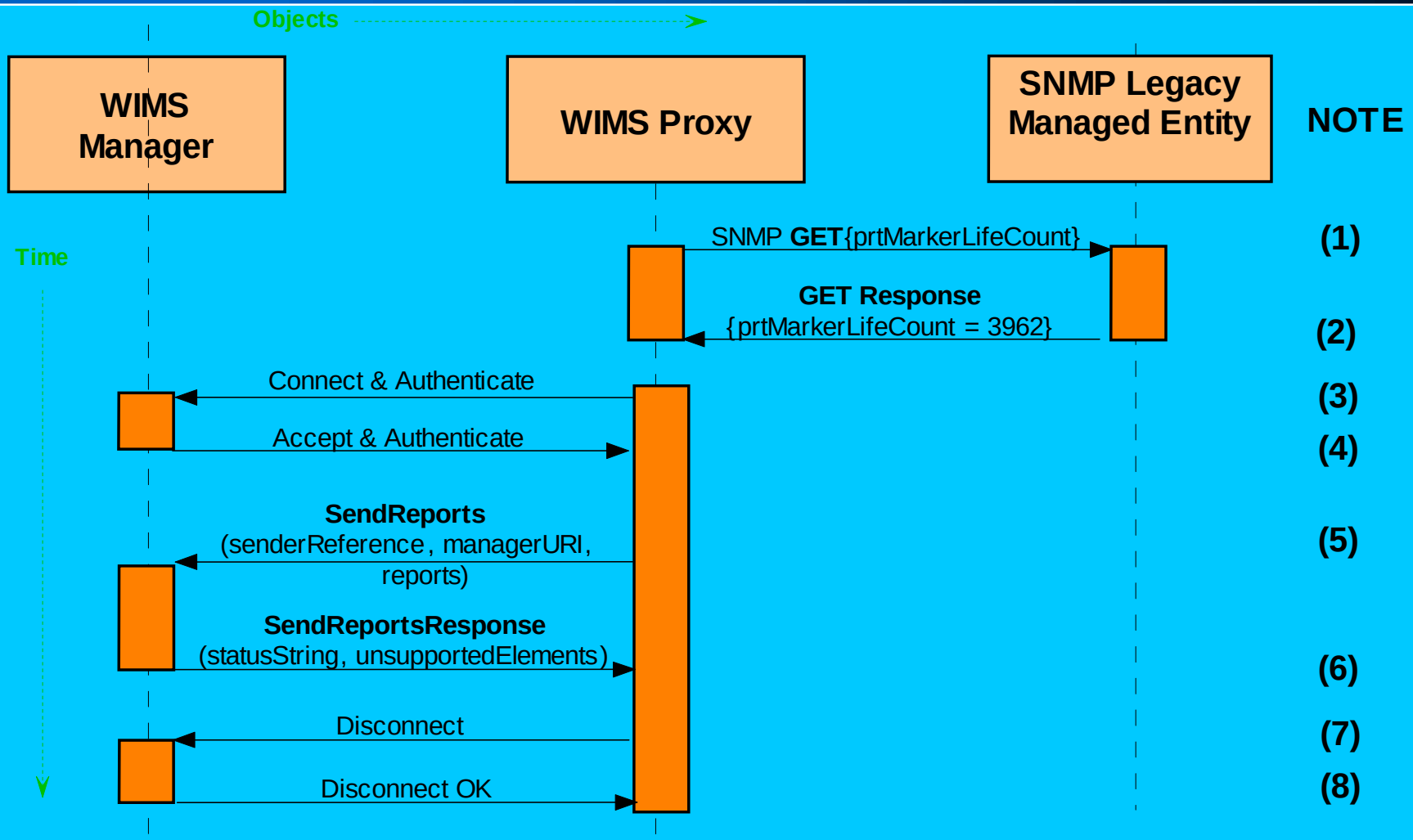
WIMS Protocol –Initiation by Agent



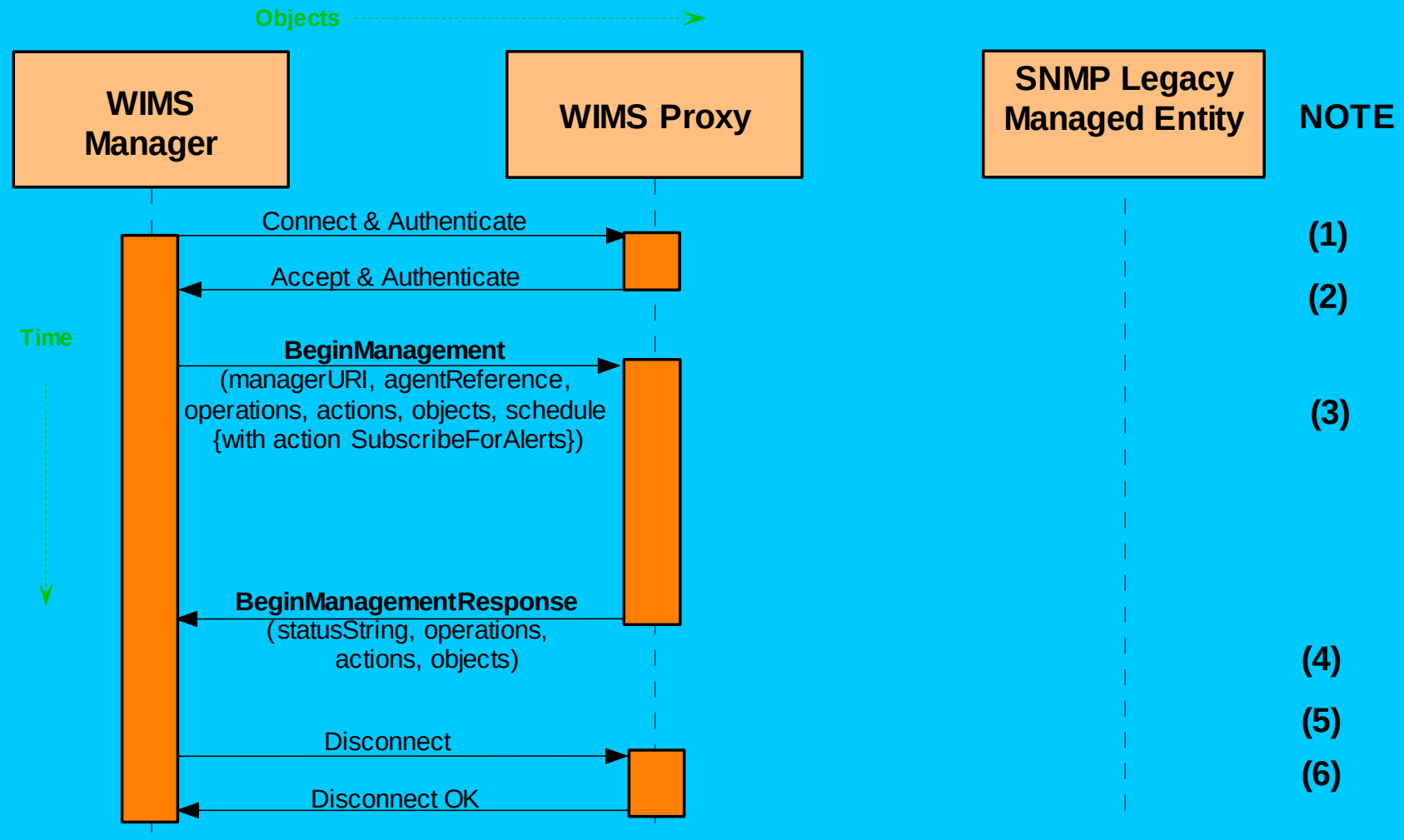
WIMS Protocol – GetShedule



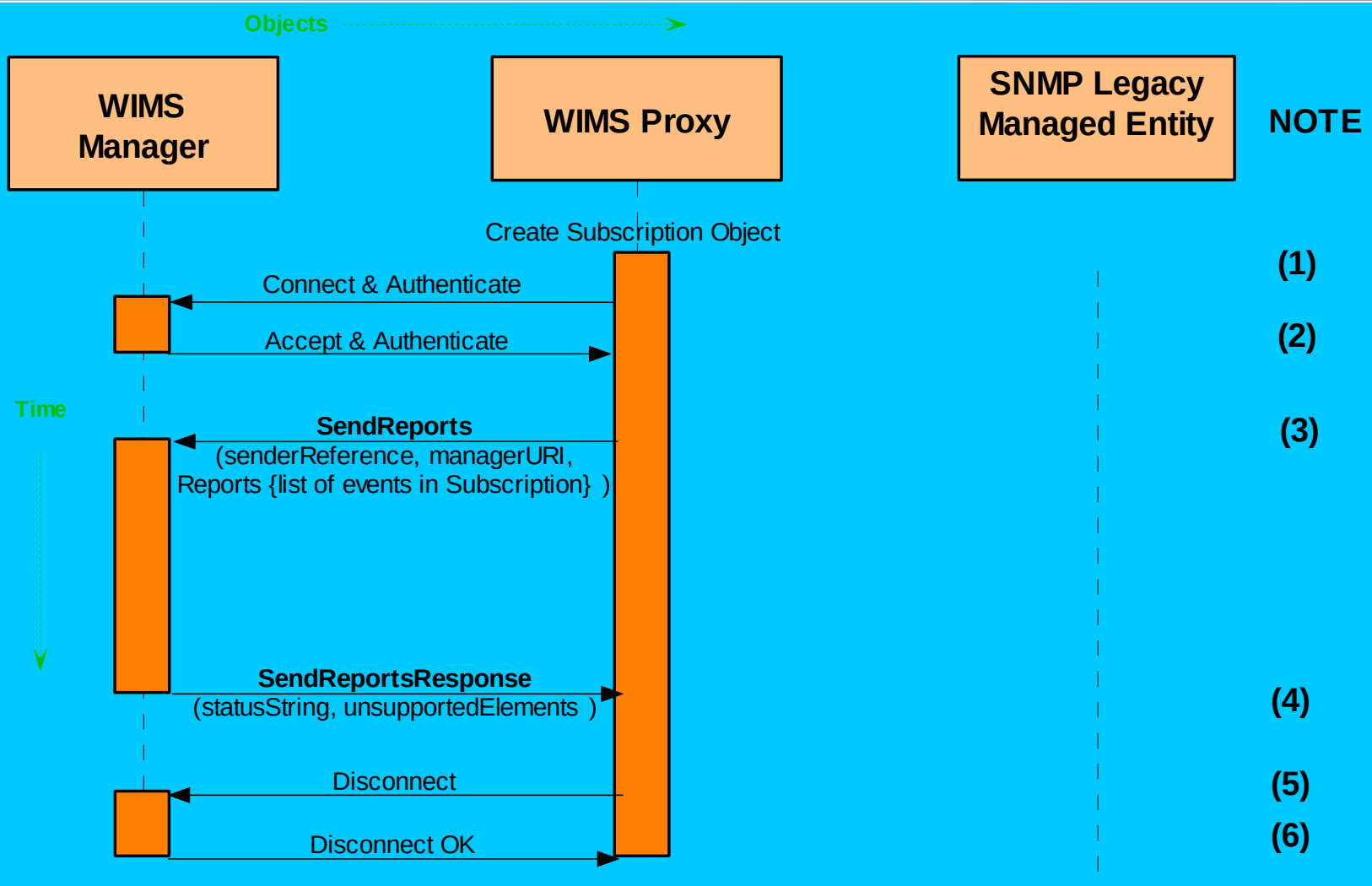
WIMS Protocol – Execute Action



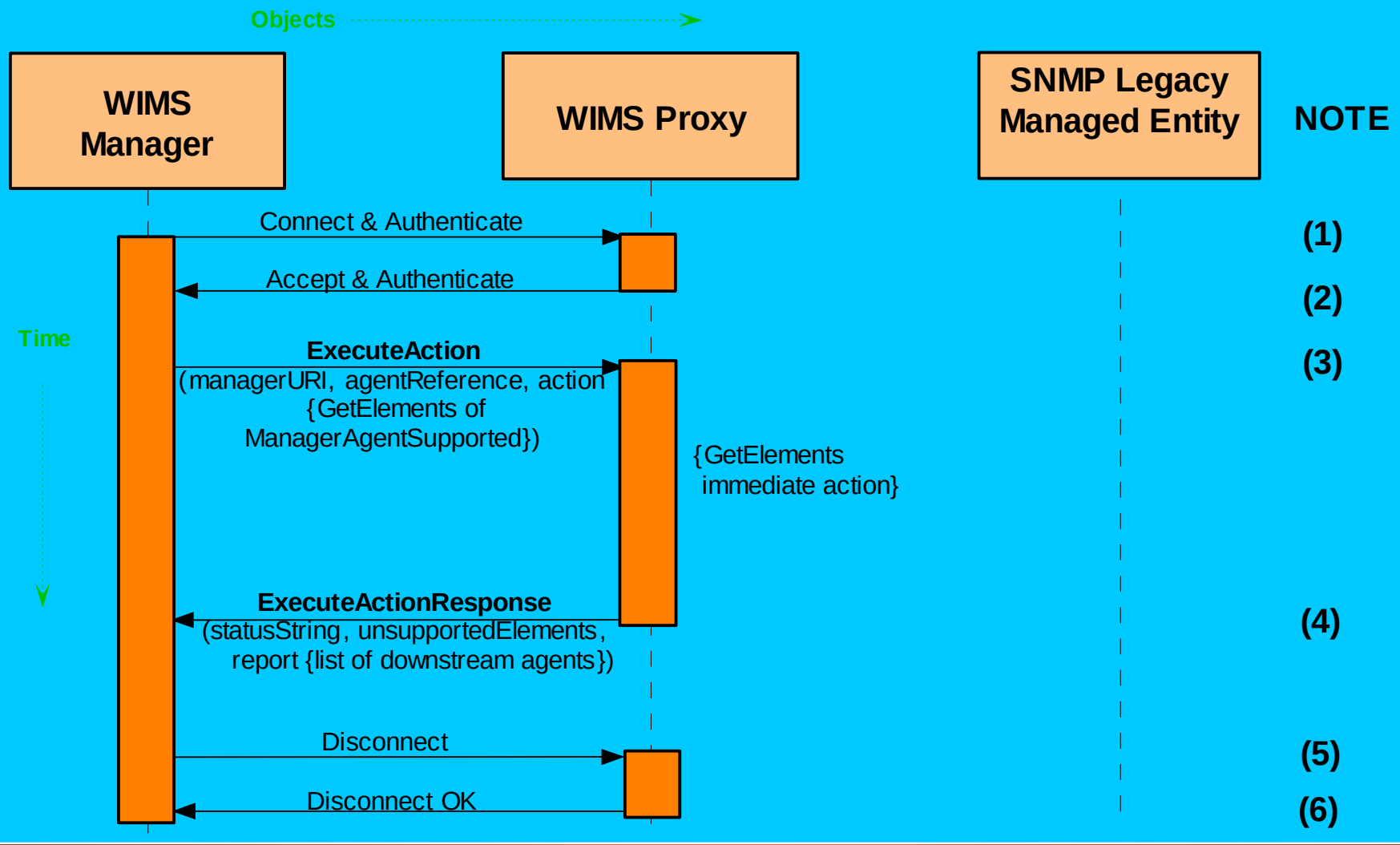
WIMS Protocol – Initiation by Manager



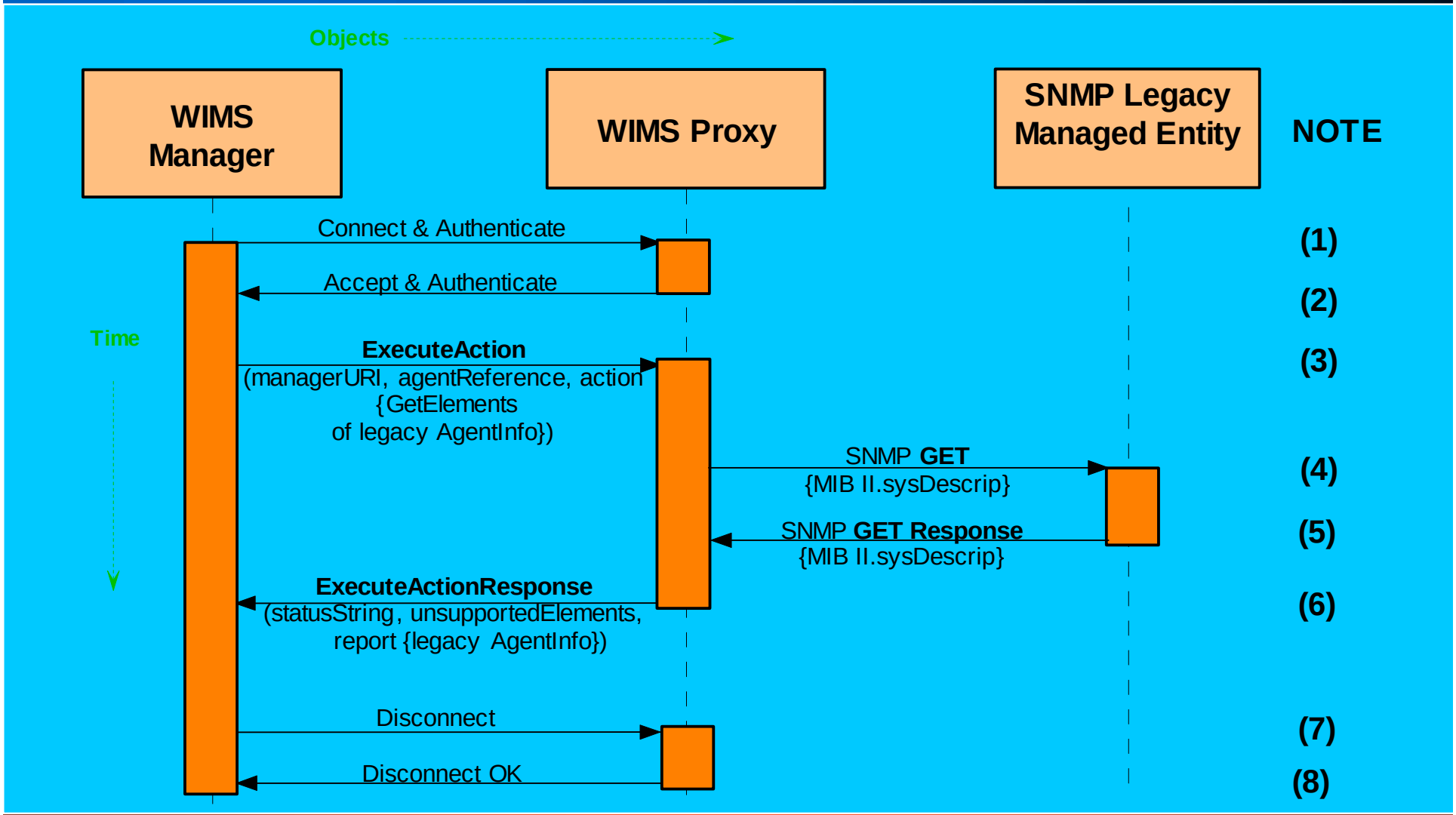
WIMS Protocol – Scheduled Action



WIMS Protocol – ExecuteAction Local



WIMS Protocol – ExecuteAction Forwarded



WIMS Protocol – Basic Actions

- Agent ACTIONS that may specified in the Schedule include WIMS Monitoring Actions and times or conditions for these actions to occur:
  - GetElements: Send a Report with element values at the specified time
  - GetResources: send a Report with the resource values at the specified time
  - SubscribeForAlerts: Send an Alert when a defined alert condition detected
  - UnsubscribeForAlerts: Remove specific Alert conditions
  - UpdateSchedule: Request new schedule

WIMS Protocol

- Schedule must include Update Schedule action, indicating when the Agent must request a new Schedule from the MANAGER.
- A moderated bi-directional dialog is thereby established between the AGENT and the MANAGER.
- Agent always has the option of restricting the information communicated to, ceasing communication with the MANAGER, or UnregisteringForManagement.

WIMS Protocol – Management Actions

- In addition to scheduling Monitor actions, WIMS provides for the scheduling of Management Actions
  - Vendor
  - SetElements
  - DeleteResources
  - SetResources

WIMS Protocol – Administration Actions

- WIMS Administration Actions
  - Disable
  - Enable
  - Pause
  - Resume
  - PurgeJobs
  - Restart
  - Shutdown
  - Startup

WIMS Protocol - Considerations

- In early implementations, WIMS Agent must be proxy, with one agent handling many managed devices and services. Proxy will communicate with managed entities using SNMP or other existing protocol.
- As protocol becomes more widespread, WIMS Agent can be embedded in managed entity. However, for security and ease of administrative control, continued use of WIMS Proxy may be desirable

WG Last Call WIMS Protocol Document Changes

- High-level definition of Management Operations and Actions
- Bindings Removed
- Agents now referenced by enterprise-specific name, asset number etc. as well as URI, to protect security at agent site
- New Management Operations
  - BeginManagment & EndManagement
  - Allows managment to be initiated by Manager

WIMS Schema

- ftp://ftp.pwg.org/pub/pwg/wims/schemas/wims-local-20051209.zip
  - ZIP of nine WIMS schema,
  - alert.xsd;
  - events.xsd;
  - report.xsd;
  - resource.xsd;
  - schedule.xsd;
  - subunits.xsd;
  - wimsbase.xsd;
  - wimsmsg.xsd;
  - wimstype.xsd