THE Open GROUP

Framework For AQRM

9 Sept 2003

Karl Schopmeyer

Tom Bishop

Notes for presentation of a Framework

Version 1.2 after Tom's updates 19 Aug

What do we mean by “framework”

THE Open GROUP

- A context in which we can define our functionality and standards
- A context that provides common lower level management services needed by AQRM
  - Interoperability communication between management and manageability components
  - Interoperability communication between different management components
  - Data repository/registry service
- A mechanism by which we can build on what else exists to manage and define manageability, not recreate these functions.

Comments…

THE Open GROUP

- More about trying to define interfaces.
- If you do this you live on this side, if you do that you live on that side.
- Maybe this is a high level blueprint.
- How and where interoperability will occur and what it means.
- Where and how repositories will occur, and what they will need to contain (common data across integrated management tools)
- Capabilities.
- Need glossary now and it is part of defining the framework

Goal of Providing a Framework

THE Open GROUP

- To provide a context so that the AQRM group can identify and work to address the “holes” left after other management standards/components/solutions have been identified and embraced.
- To provide a context so the boundaries around the “holes” are well-defined and constrained.
- This is describing the landscape, fences, roads, etc.

Goal of Providing a Framework (cont.)

THE Open GROUP

- To provide the means by which AQRM solutions can be integrated into other existing or new management solutions (and thus use standard manageability interfaces), and not simply only as a standalone management solution.
  - External integration – Those things outside our domain
  - Internal integration – So multiple vendors can provide components of the solution
- It is not to duplicate or create general management or manageability services on any broad scale.

Requirements for a Framework

THE Open GROUP

- Provide standards-based access to the entities that the AQRM functionality will monitor and control
  - Definition of the entities and the semantics of monitor and control
  - Definition of the interoperability protocols/encoding/etc. so that AQRM solutions can communicate with these objects.
- Integration with a wide variety of standards-based management protocols/data models
- Ability to communicate with a wide variety of managed resources including:
  - Applications
  - Network components
  - System components

Requirements for a Framework (cont.)

THE Open GROUP

- Must allow integration of higher level management functionality such as policy and process integration as those concepts develop and are standardized.
- Provide an interoperability protocol that allows access to the managed resources both synchronously and asynchronously.
- Ideally, provide this access in a way that avoids agent software resident on the system being managed (e.g. management via standards-based management protocols)

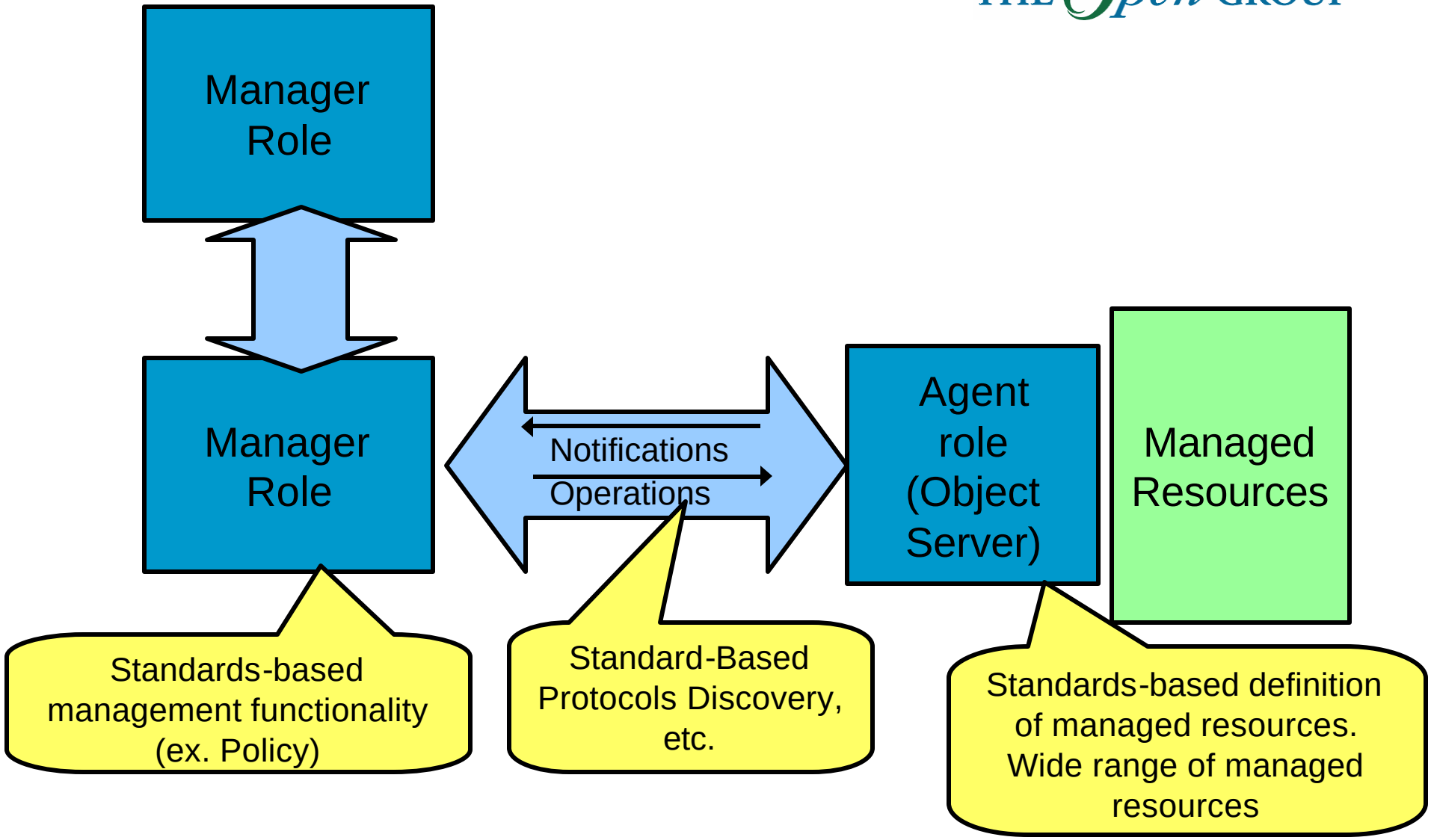
Multiple Perspectives/Models for Requirements

THE Open GROUP

- There are several different projections or view through this problem of defining requirements
  - Architectural Model
  - Communications Model
  - “Standards” Model
  - Functional Model
  - Information Model
  - Management Model

The General Management Architecture

THE Open GROUP



The Communication Model

THE Open GROUP

- Provides interoperable communication between manager and agent.
- Includes
  - Direct access to entities representing the managed resources (creation, modification, query of information
  - Event definition and communication from the managed resources as requested by management

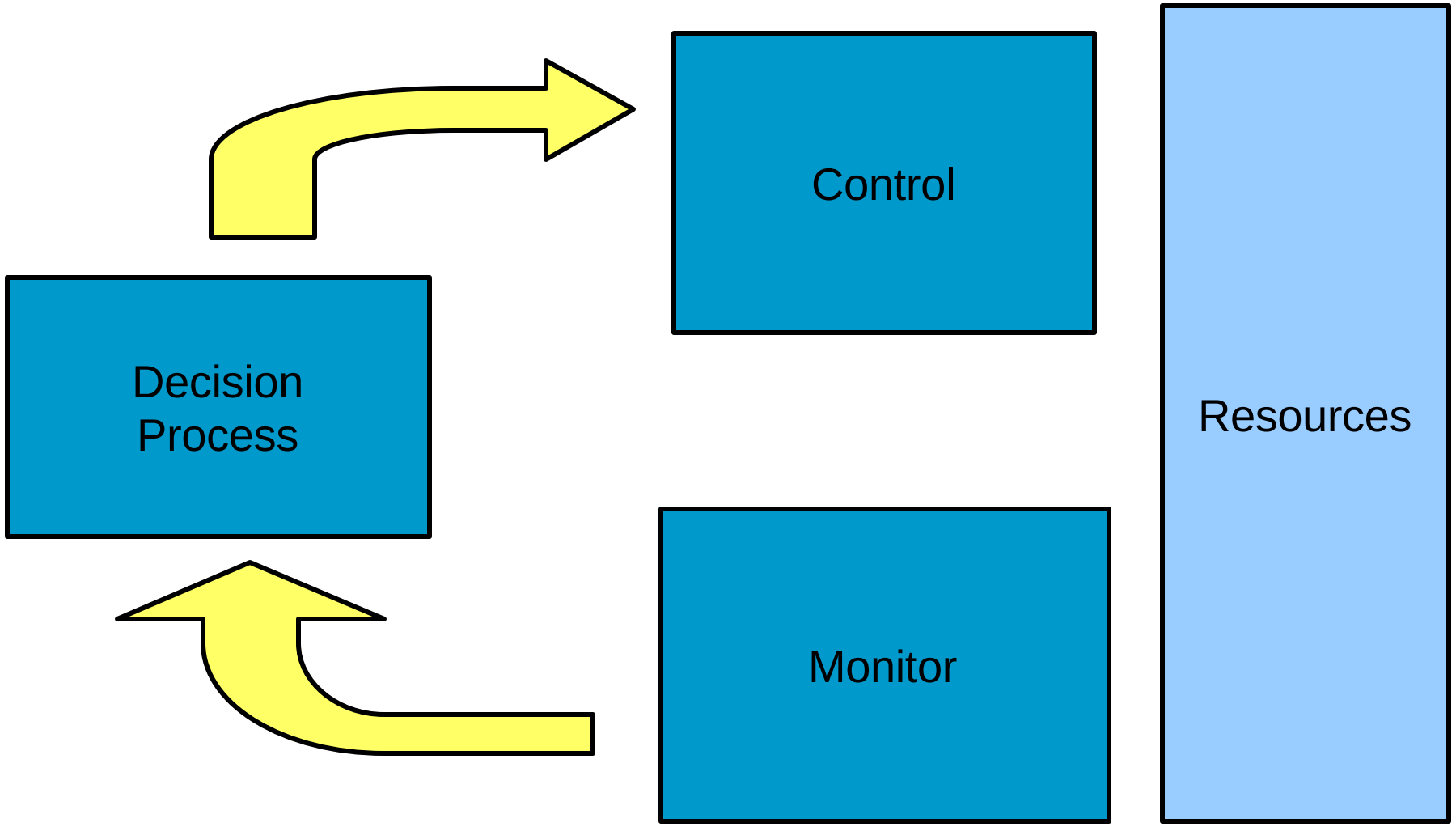
Including Multiple Management Standards

THE Open GROUP

- Several standards today for management
  - SNMP (While primarily network, widely used)
  - CMIP – Forget it.
  - CIM/WBEM – Largely limited to systems, netoworks and systems components today but moving to applications, management functionality like Service level and policy.
  - SID – Similar to CIM/WBEM

The Functional Model

THE Open GROUP



Requirements on the Function Model

THE Open GROUP

- TBD

The Information Model

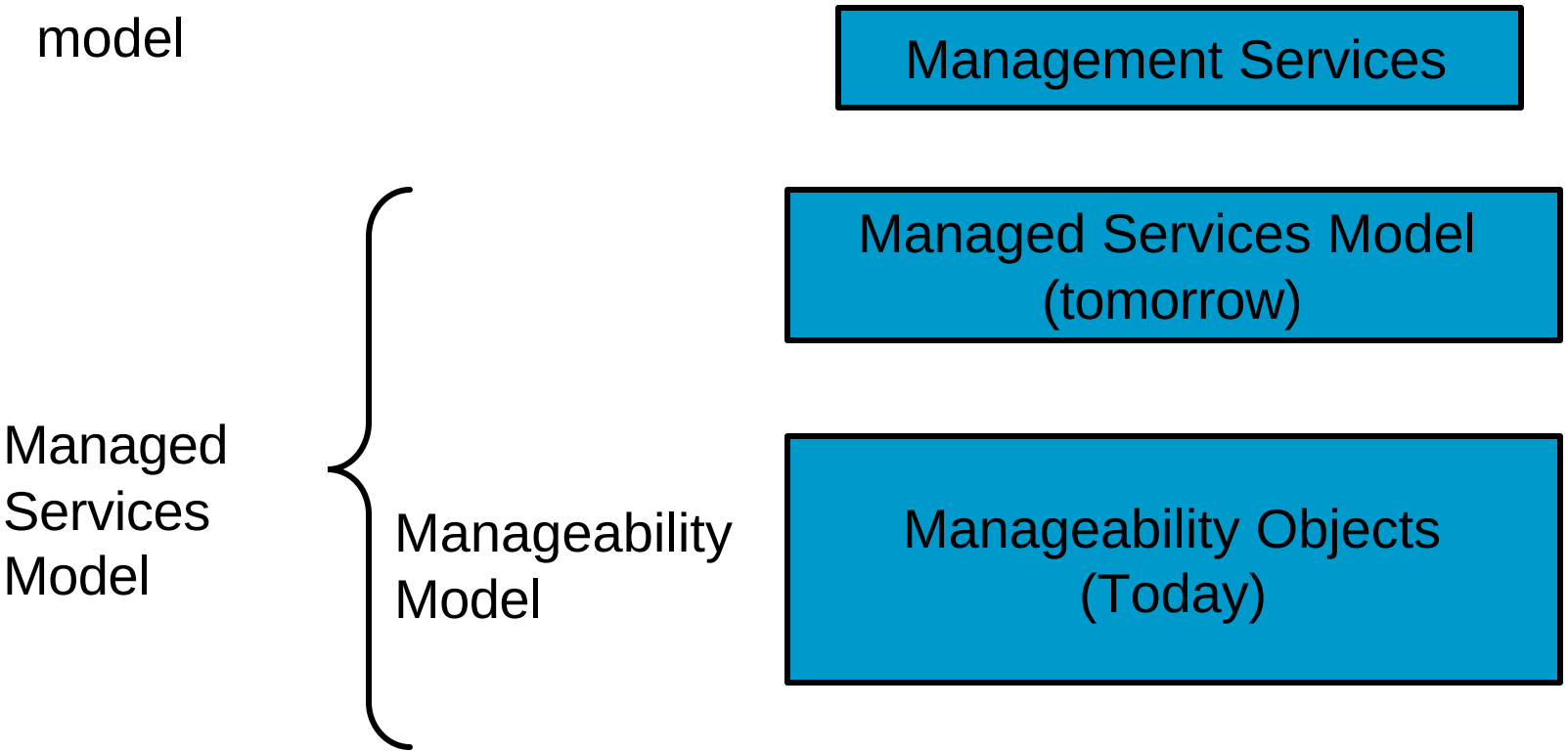
THE Open GROUP

- Must provide a standard definition of the managed resources
- Must be extensible
- Should be based on an Object Model
  - Provides extensibility, encapsulation, etc.
  - Common semantic
- Must be a model that includes relationships between objects as core component of the model
- Based on a model used for management
- Base on model that already has a rich set of defined objects.

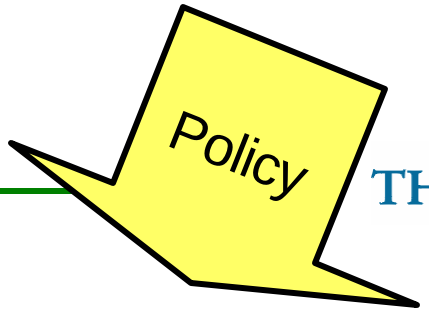
The Evolution of the Information model to a Management model

THE Open GROUP

Managed Services
From Information model
To information and behavior model



The Object Model



THE Open GROUP

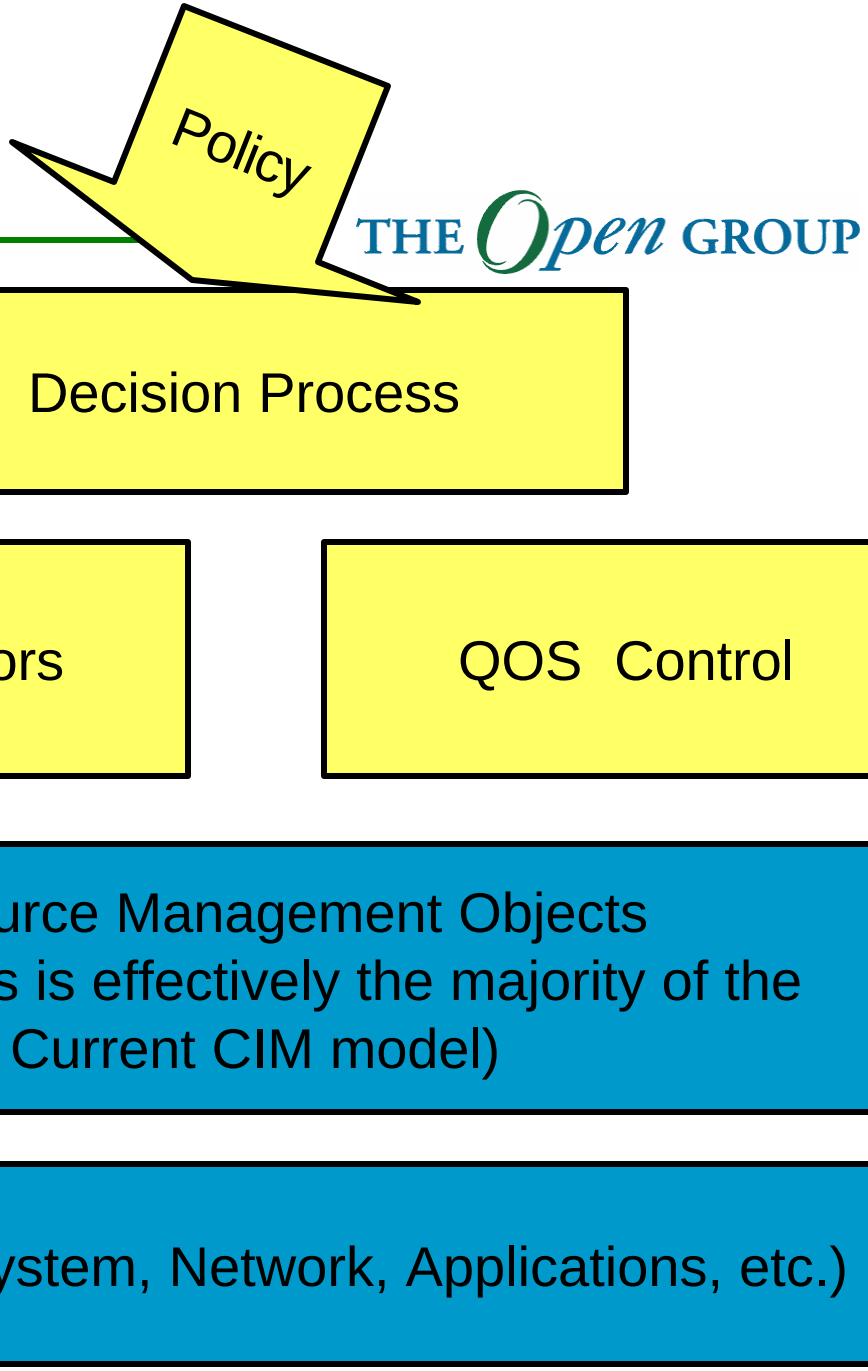
This will be a
Key interface
Between the
QOS objects
And the resource
Objects. Typically
The resource
Objects will be
Dynamically
Created and deleted
And the QOS
Objects must
Support this.

QOS Management
Model

Detailed Resource Management Objects
(NOTE: This is effectively the majority of the
Current CIM model)

Resources

The Object Model



Decision Making at Various Places in the Architecture

THE Open GROUP

- The Decision making should be based largely abstractions that support the QOS concepts and define policies that operate on the controls based on the monitors.
  - Policy Objects
  - Scripts
  - State management

The AQRM Objects

THE Open GROUP

- Represent concepts like;
  - Capacity
  - Throughput
  - Latency
  - Queue Length.
- In effect, the managed environment represents an aggregated set of resources provided by a variety of methods for which contention occurs from a variety of sources (e.g. a network of queues)
- Every step up through the model we are abstracting the information required for QOS. Note: modeling these relationships is the way this is accomplished.