DMTF/TOG and Directions in Application Management

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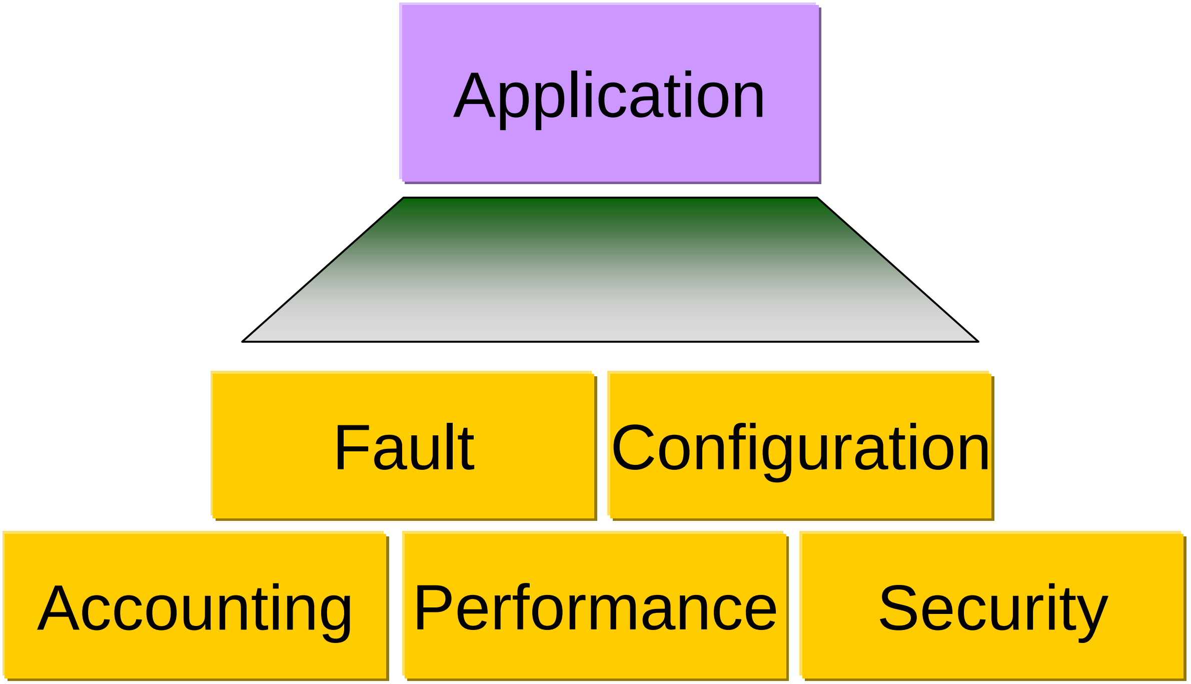
The World of Application Management

FCAPS



Application

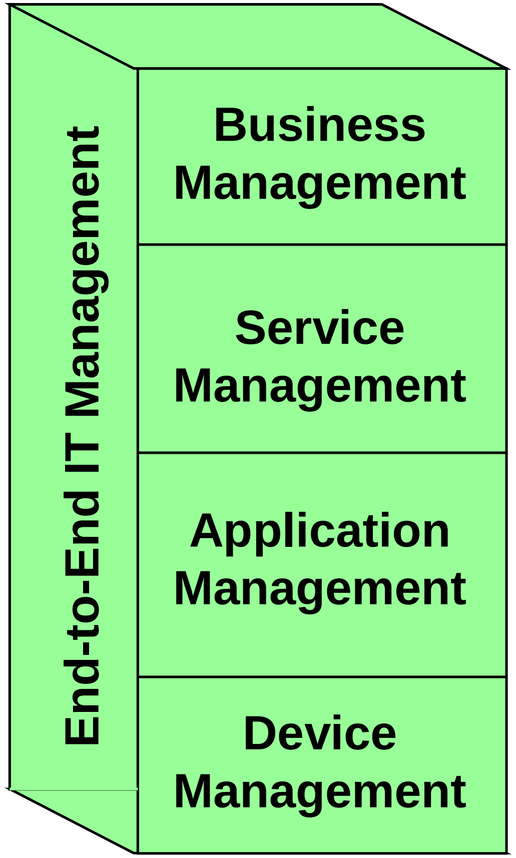
Fault

Configuration

Accounting

Performance

Security



End-to-End IT Management

Business Management

Service Management

Application Management

Device Management

Status Today

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- Models
  - SNMP MIBS
  - The DMTF Applications and Metric Models
- APIs
  - Open Group
    - ARM
      - C and Java APIs for capturing UnitofWork Information
    - AIC
      - Generalized but simple management objects
  - Sun JSR Process
    - JMX
      - Java Beans for management objects
    - Oracle proposed JSR

Key Interoperability Interfaces

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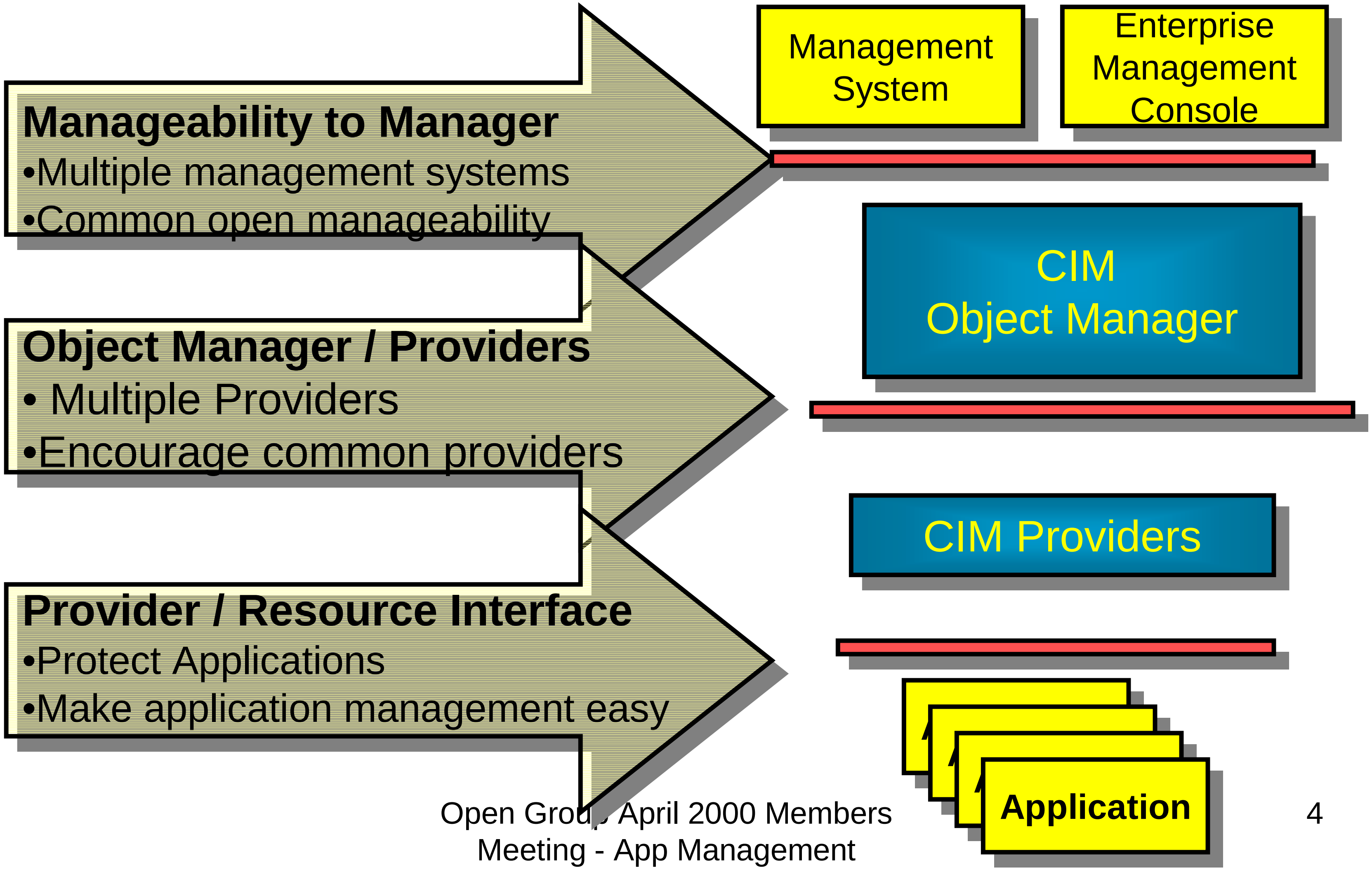


Manageability to Manager
- Multiple management systems
- Common open manageability

Object Manager / Providers
- Multiple Providers
- Encourage common providers

Provider / Resource Interface
- Protect Applications
- Make application management easy

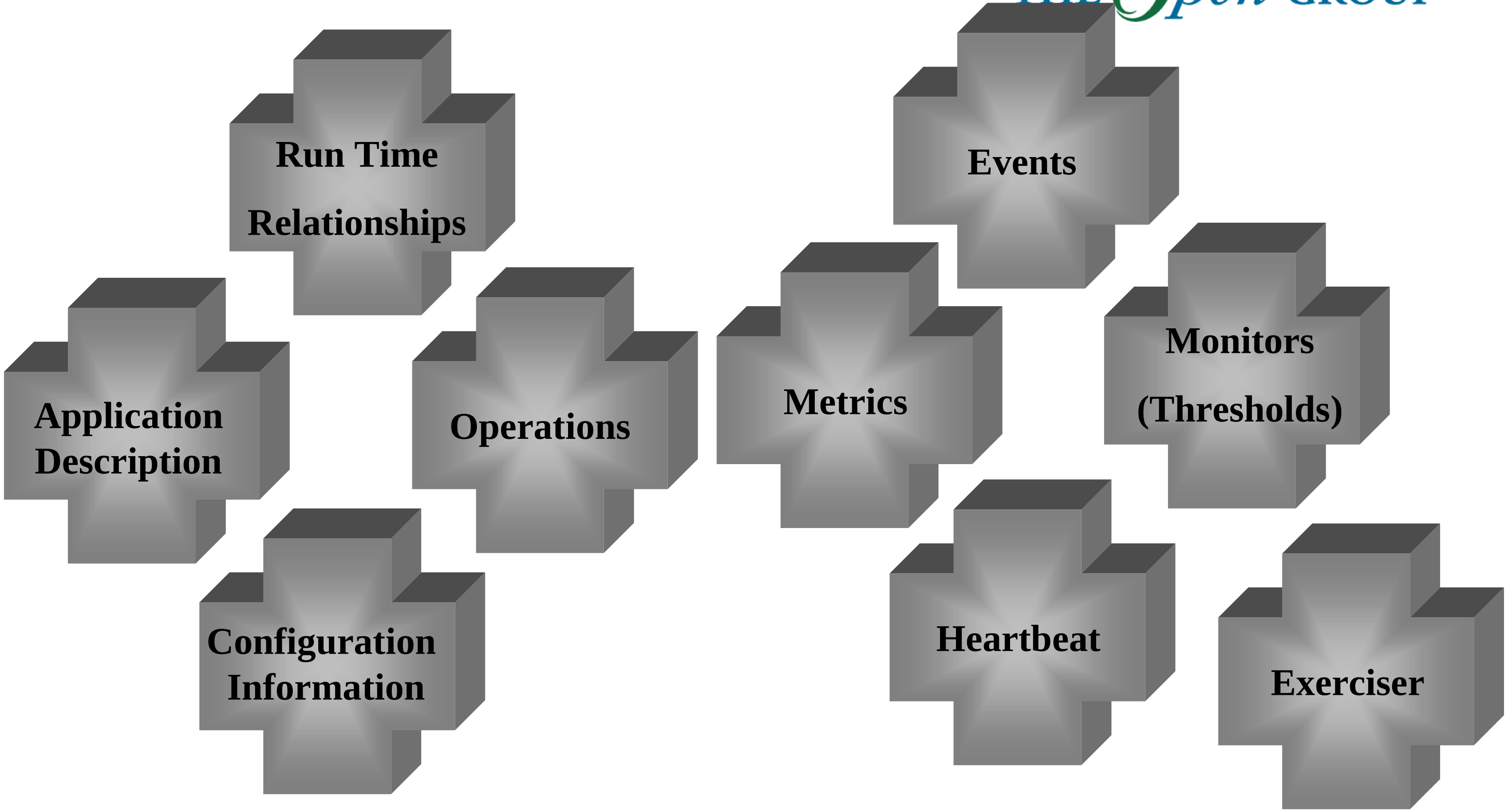
The DMTF Applications Model

- Multiple Aspects to Application Management
  - Asset Management
  - Application LifeCycle (Deployment)
  - Runtime management
    - Availability
    - Performance
    - Recoverability,
    - Etc.
- Today Model has treated Lifecycle
- Current work on Run Time

RunTime Application Management

- Multiple Goals
  - Resource View
  - Service View
  - Business View
- Dynamic Model
  - Multitudes of applications
  - Management information declared dynamically by the application
  - Components dynamically integrate into the application

Running Application Ingredients



Run Time Relationships

Application Description

Operations

Configuration Information

Events

Metrics

Monitors (Thresholds)

Heartbeat

Exerciser

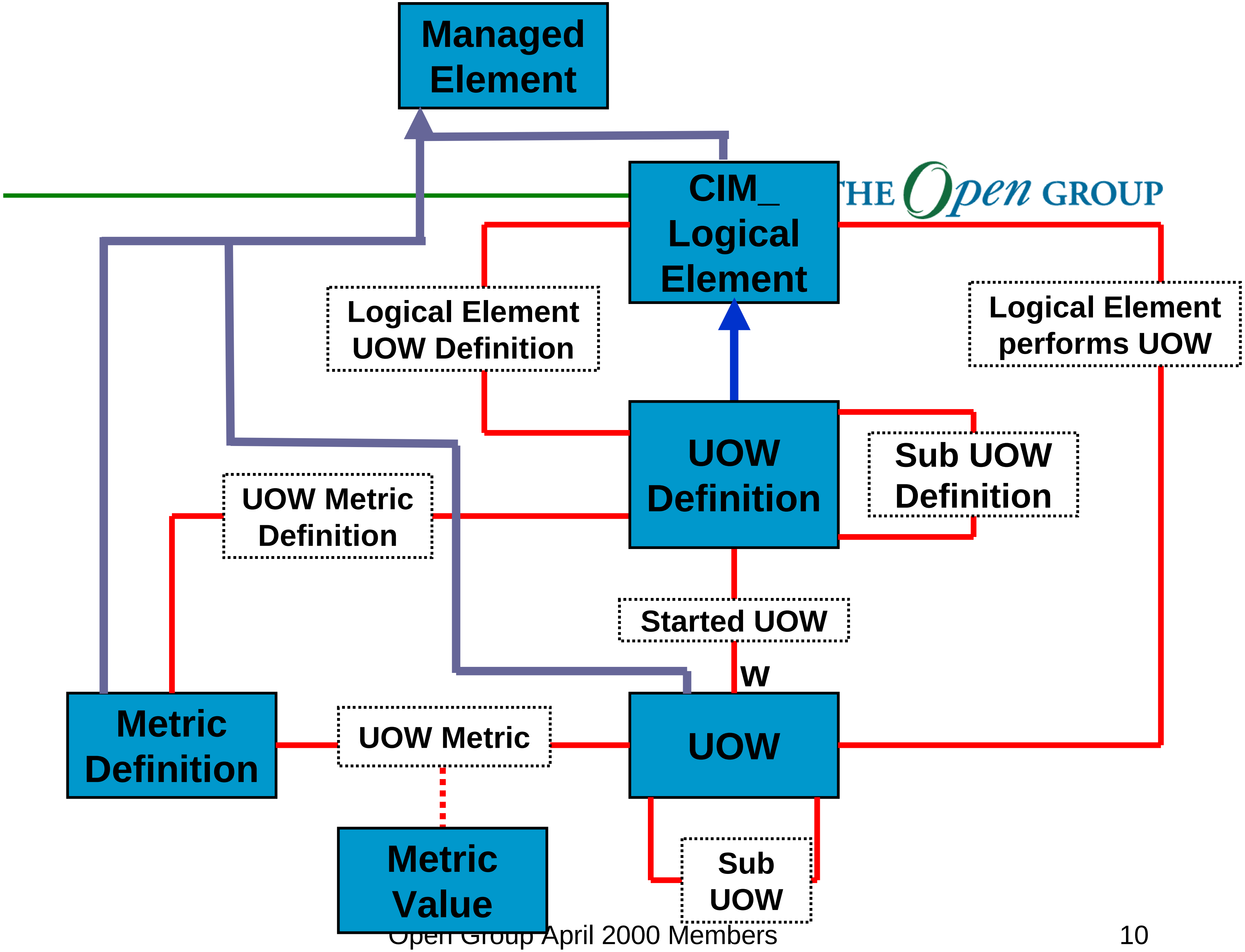
The DMTF Metrics Model

- Originally the “other half” of ARM
- Models the UnitOfWork Metric
- A *unit of work* can be many things, such as:
  - Batch job
  - User-initiated interactive operation
  - Transaction executed by a TP Monitor
  - Short server transactions, such as a database read

Major schema classes

- Definition of unit of work type
- Instances of these unit of work types that have started executing
  - Common measurements are properties
- Definition of metrics associated with the unit of work
- Values of metrics

Note: what has also been added since the last version
was the asociation to CIM_ManagedSystemElement
from the CIM Core Schema.


Managed Element
CIM_ Logical Element
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Logical Element UOW Definition
Logical Element performs UOW
UOW Definition
Sub UOW Definition
UOW Metric Definition
Started UOW
W
Metric Definition
UOW Metric
UOW
Metric Value
Sub UOW

Next Steps in Metrics

- Generalize Metrics from Unit of Work
- Keep the dynamic/definition qualities
- Allow metrics to be used by all Managed Elements
- Begin to incorporate policy to control creation and use of metrics
- Incorporate concepts of computation into metrics

The Next Metrics Model

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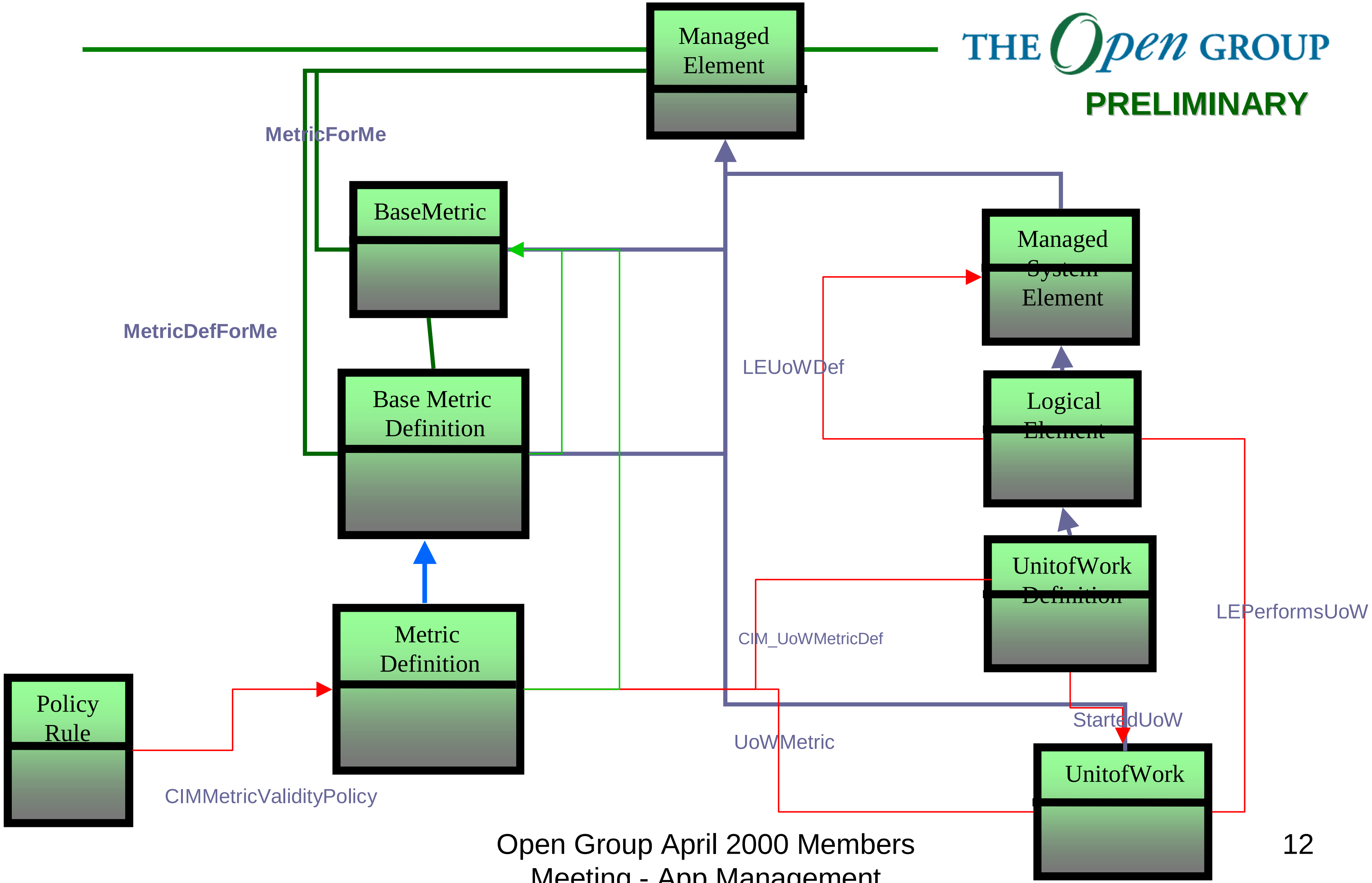
PRELIMINARY



SLA Management

- Monitoring and maintenance
  - Maintenance performed via manual intervention and/or policy
- SLA monitoring and maintenance handled consistently with other management tasks
  - IE, any concepts or attribute can be used independently, or within the context of an SLA
- Necessary concepts:
  - SLA contract for reporting
  - Individual service objectives and definition of compliance
  - Current values and ability to determine compliance with objectives

SLA Maintenance

- Necessary concepts for automated maintenance:
  - Ability to invoke a policy action in the event of non-compliance with a service objective -> Tie to notification and indication mechanisms
  - Ability to identify specific entities where rules apply and actions are enforced
  - Consistent and coordinated notion of the managed environment
    - An element may be managed under multiple SLAs and within several problem/technology domains

Model for SLA Management

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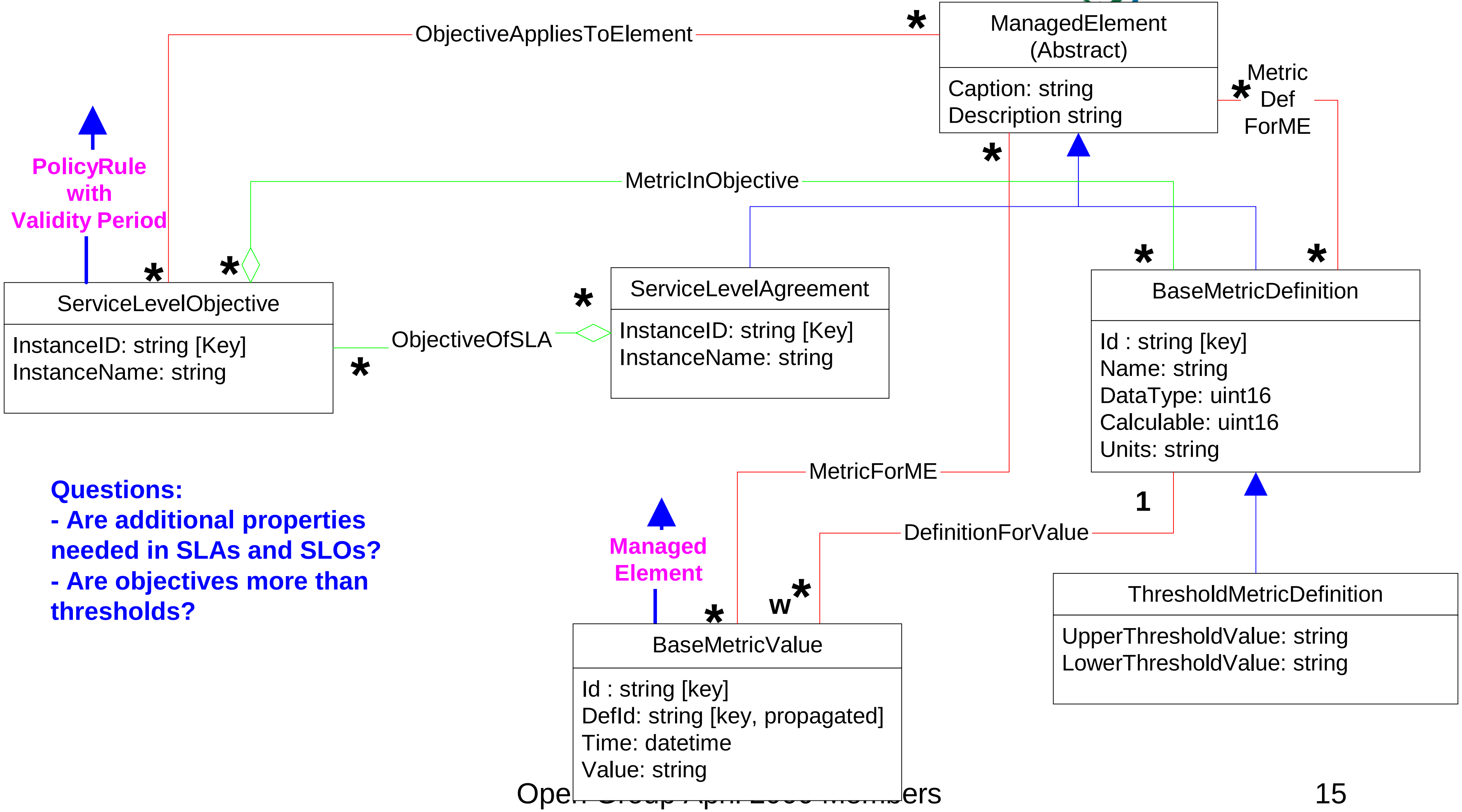


ManagedElement (Abstract)

Caption: string
Description string

ServiceLevelObjective

InstanceID: string [Key]
InstanceName: string

ServiceLevelAgreement

InstanceID: string [Key]
InstanceName: string

BaseMetricDefinition

Id : string [key]
Name: string
DataType: uint16
Calculable: uint16
Units: string

ThresholdMetricDefinition

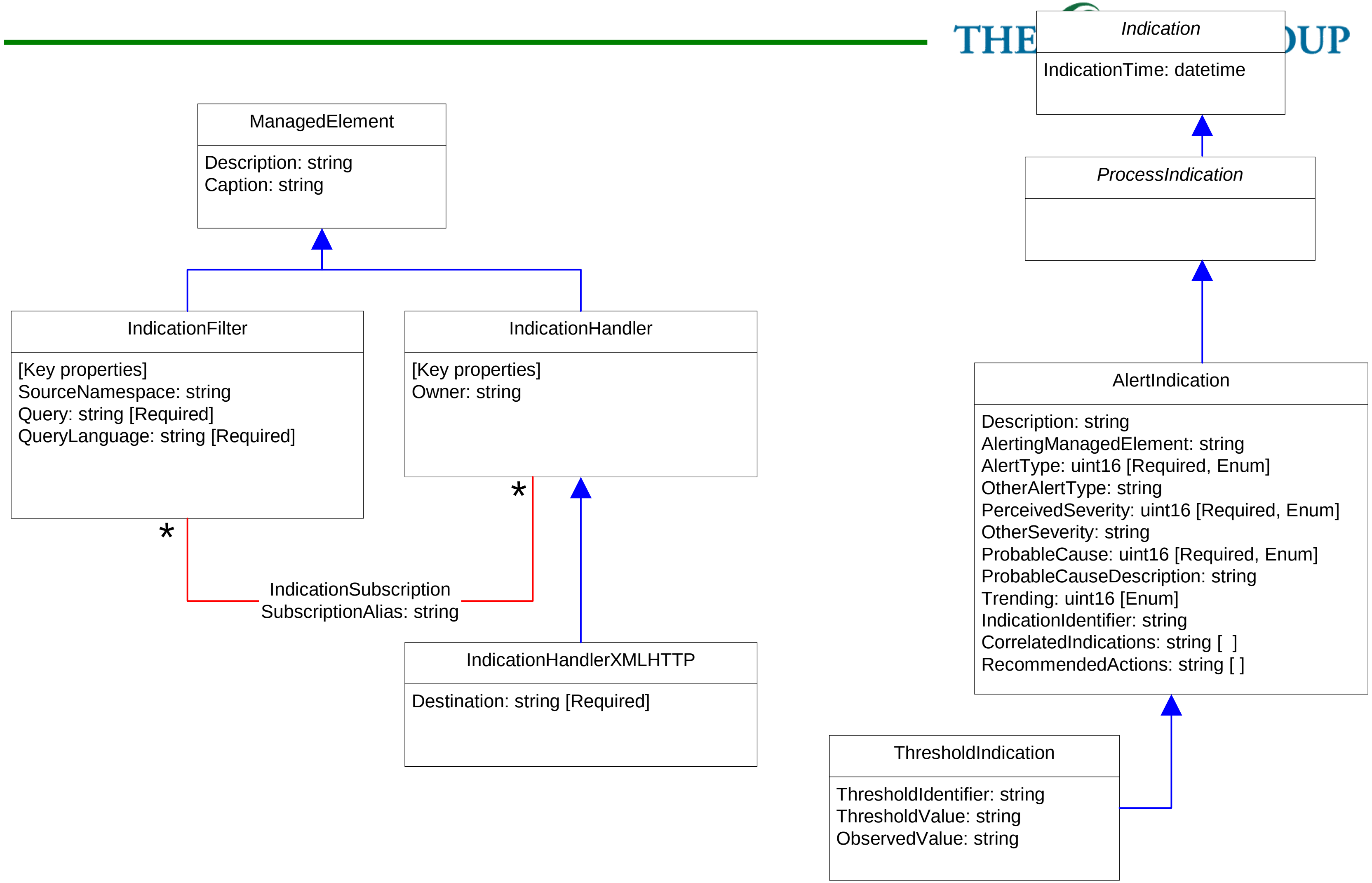
UpperThresholdValue: string
LowerThresholdValue: string

BaseMetricValue

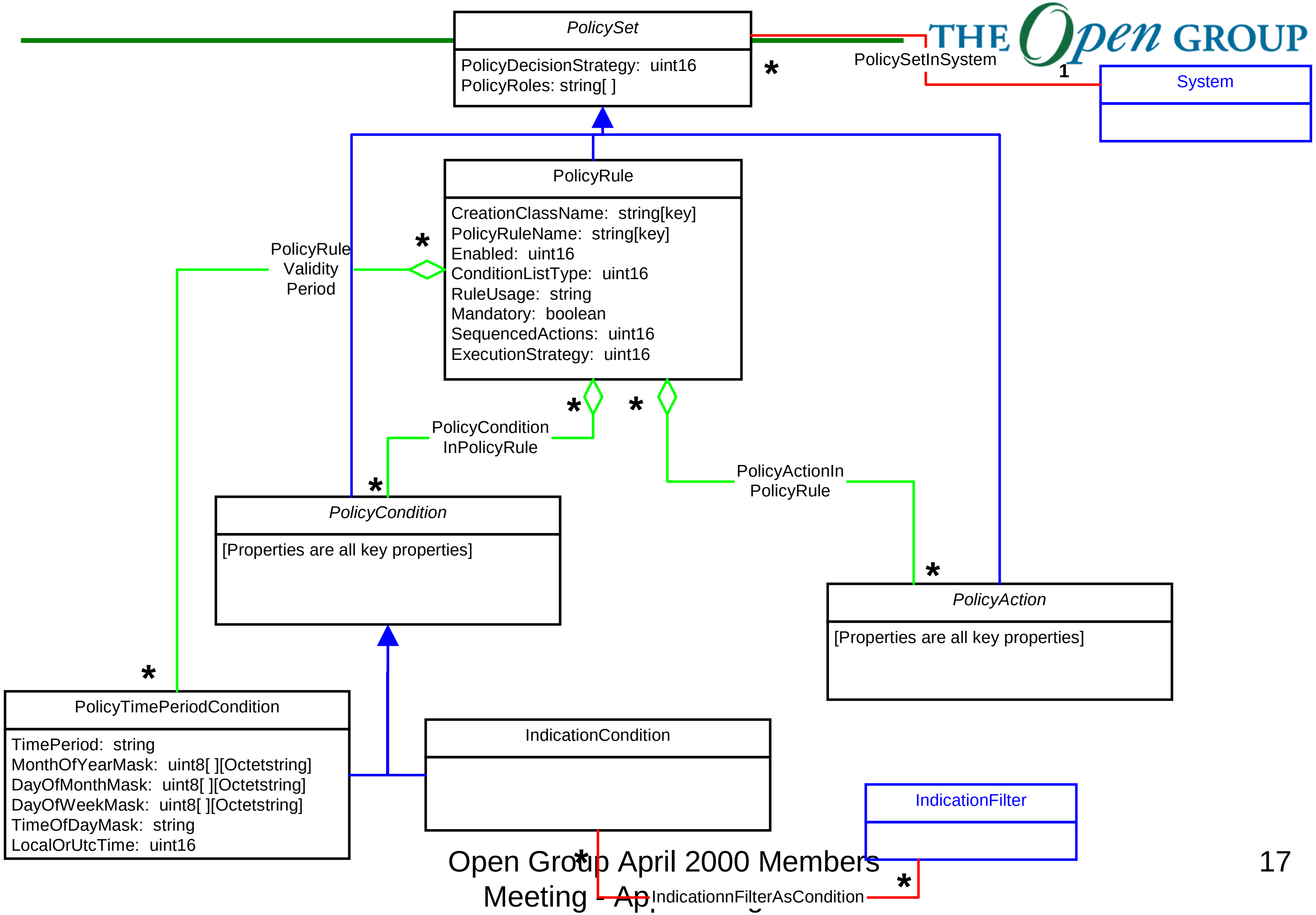
Id : string [key]
DefId: string [key, propagated]
Time: datetime
Value: string

Questions:
- Are additional properties needed in SLAs and SLOs?
- Are objectives more than thresholds?

Model for Indications/Notifications



Model for Policy/SLA Maintenance



PolicySet

PolicyDecisionStrategy: uint16
PolicyRoles: string[ ]

PolicySetInSystem

*

1

System

PolicyRule

CreationClassName: string[key]
PolicyRuleName: string[key]
Enabled: uint16
ConditionListType: uint16
RuleUsage: string
Mandatory: boolean
SequencedActions: uint16
ExecutionStrategy: uint16

PolicyRule Validity Period

*

*

PolicyCondition InPolicyRule

*

*

PolicyActionIn PolicyRule

*

PolicyCondition

[Properties are all key properties]

PolicyAction

[Properties are all key properties]

*

PolicyTimePeriodCondition

TimePeriod: string
MonthOfYearMask: uint8[ ][Octetstring]
DayOfMonthMask: uint8[ ][Octetstring]
DayOfWeekMask: uint8[ ][Octetstring]
TimeOfDayMask: string
LocalOrUtcTime: uint16

IndicationCondition

IndicationFilter

*

IndicationnFilterAsCondition

*