

ASMG

**ADVANCED SYSTEMS
MANAGEMENT GROUP**

Information Sharing (OMG/C4I DTF)

June 08

**Presented by: M. Abramson, ASMG, President
Co-chair C4I DTF**

The CRO shared information environment envisioned by the SOPES initiative is categorized by services and/or capabilities supporting:

- **A broad cross-section of crisis response organizations, including:**
 - ✓ **First Responders (e.g., Police, Fire Department and Emergency Medical Personnel);**
 - ✓ **Government Agencies (Federal, Provincial/State, and Municipal);**
 - ✓ **Non-Government Organizations (NGOs);**
 - ✓ **Private Volunteer Organizations (PVOs);**
 - ✓ **Para-military and security agencies; and**
 - ✓ **Military (Land, maritime, air, and space).**

- **A shared representative operational picture across organizations, agencies and communities of interest (e.g., Situational Awareness (SA) in support of a Common Operational Picture (COP), resource support, Urban Search and Rescue, Health and Medical Services, and transportation, and finance.**

- ❑ Information Exchange Data Model (IEDM)
- ❑ Information Exchange Mechanism (IEM)
- ❑ Information Exchange Policy Management
- ❑ Logging and Auditing for Information Exchange Environments;



Promoting Interoperability through the JC3IEDM

Other Government
Departments
(OGDs)

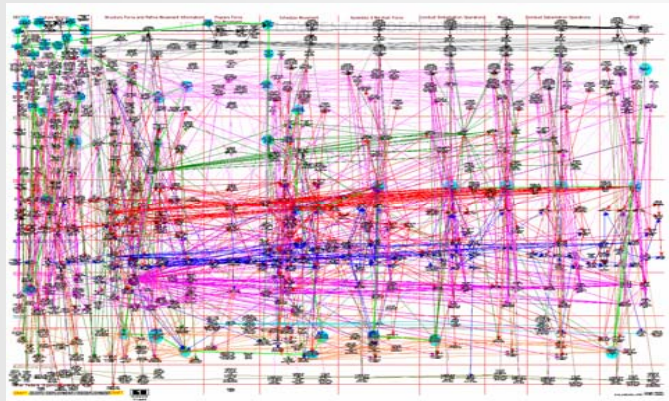
Private Volunteer
Organizations
(PVOs)

Non-Government
Organizations
(NGOs)

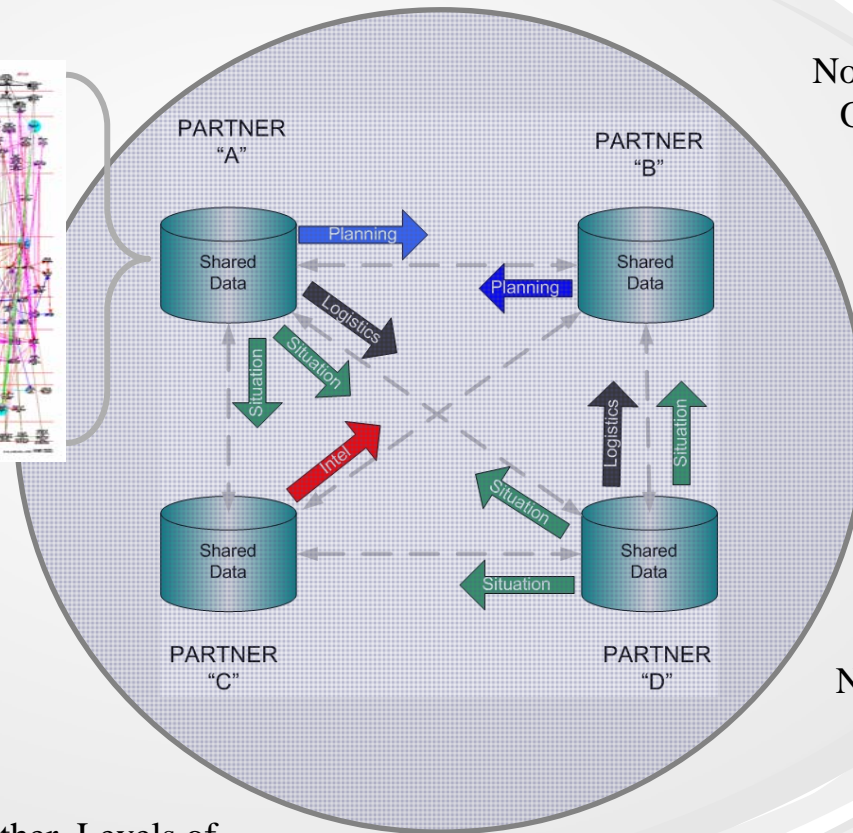
Non-MIP
Nations

Non-MIP
CoIs

Other Levels of
Government



Reach back to National Domain



Describing a Community of Interest (Col)

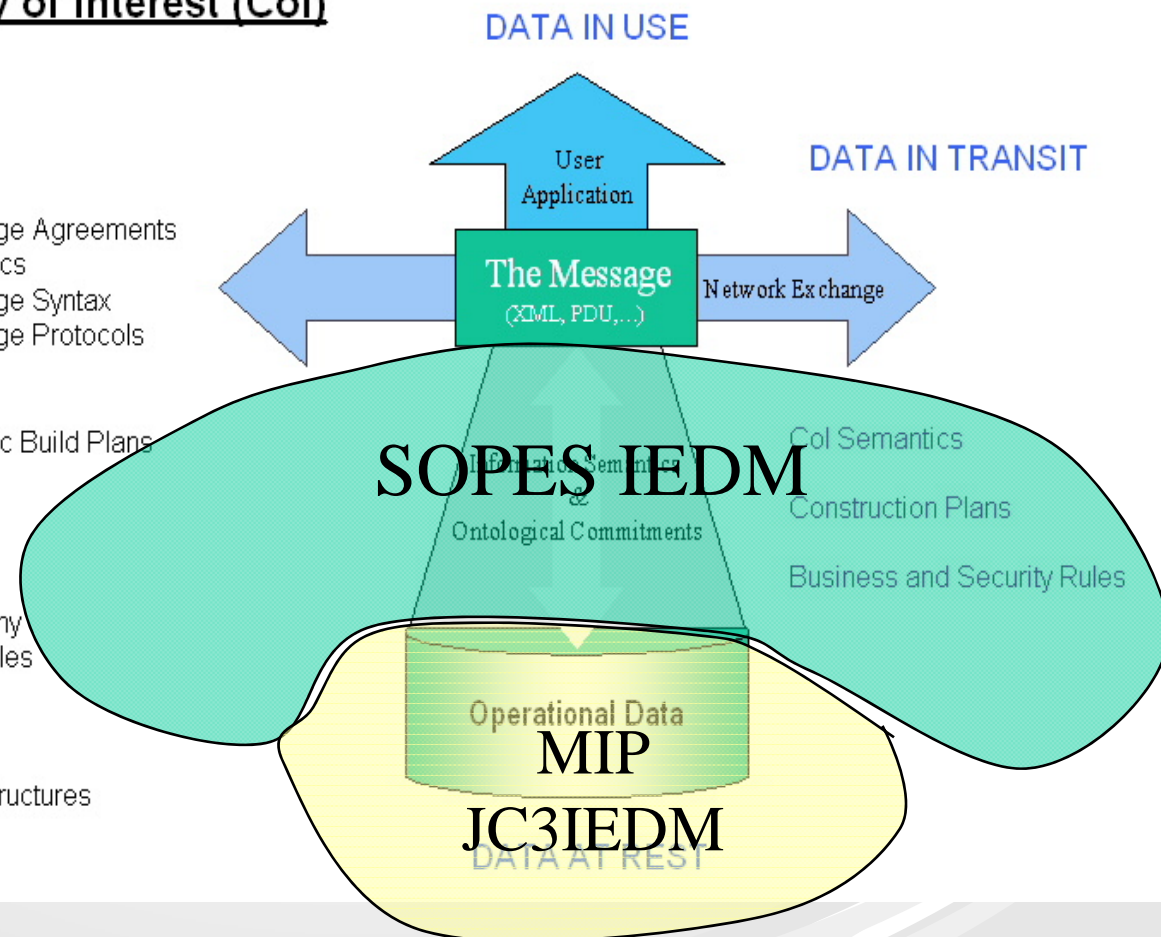
User Semantics
User Exchange Syntax

Community of Interest Exchange Agreements
Community of Interest Semantics
Community of Interest Exchange Syntax
Community of Interest Exchange Protocols

Community of Interest Semantic Build Plans
- Navigation Plans
- Semantic Guards
- Domain Filters

Community of Interest Taxonomy
- Domain Business Rules
- Domain Values
- Domain Attributes
- Tags and Labels

Community of Interest Data Structures



- ❑ Reusable Architectural Component for Crisis Management Interoperability
 - Common Transactional Ontology
- ❑ Alignment to OMS's Information Exchange Framework (IEF)
- ❑ Alignment to Formal Architecture Frameworks
 - DODAF
 - MODAF
 - DNDAF
 - NAF
 - ZACKMAN
 - SABSA
- ❑ Provide an extensible modelling paradigm for transactional ontologies
- ❑ UML Profile that supports the needs of Stakeholders , Analysts and Engineers
- ❑ Alignment to Model Driven Architecture
- ❑ Multiple Platform Specific Models
 - XML (XSD provided in Annex 6)
 - Serialized Objects (Used for Testing)
 - Code Classes (C++, JAVA, ...)
 - OWL RDF

□ Communities of Interest

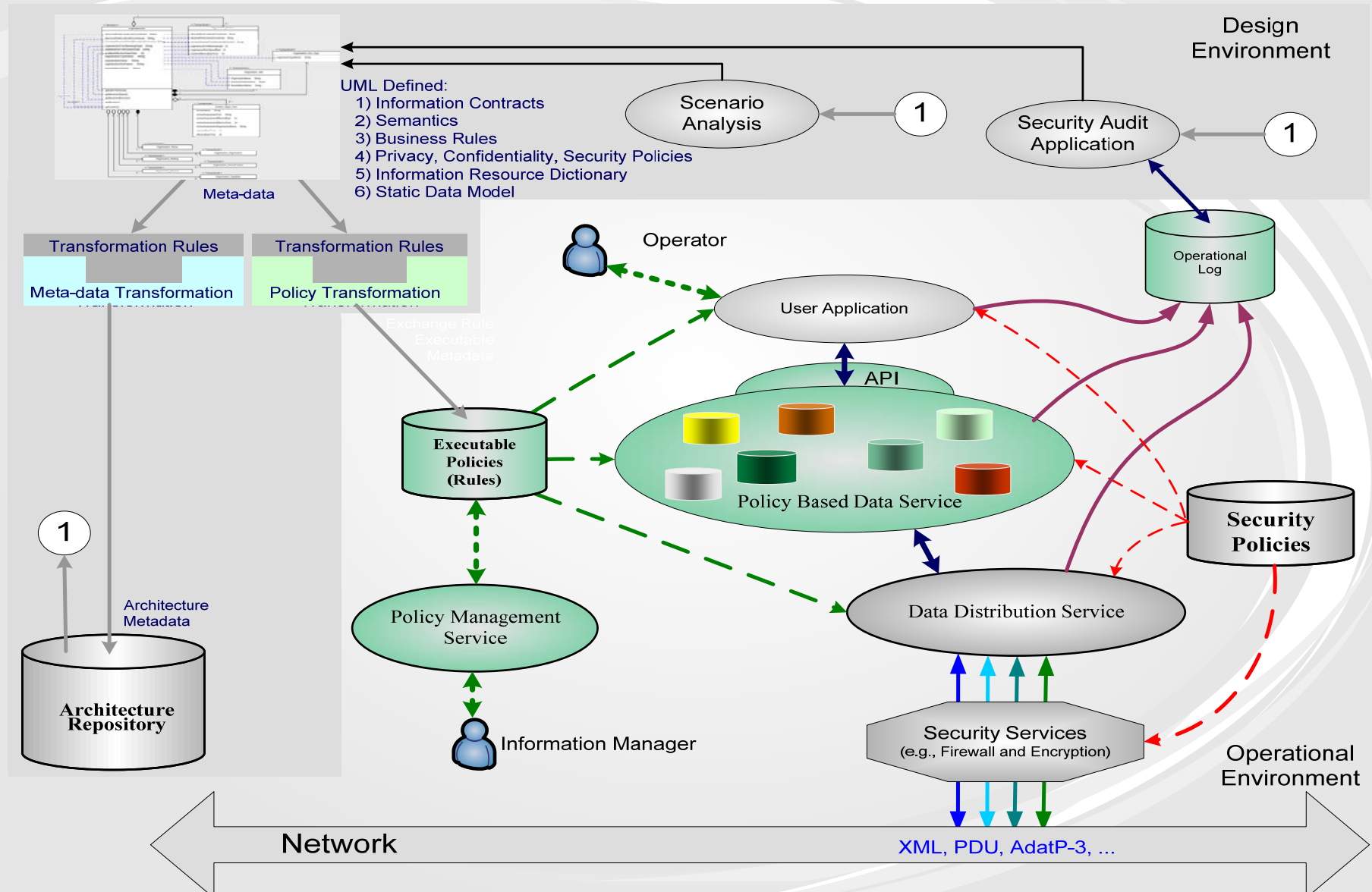
□ Described in:

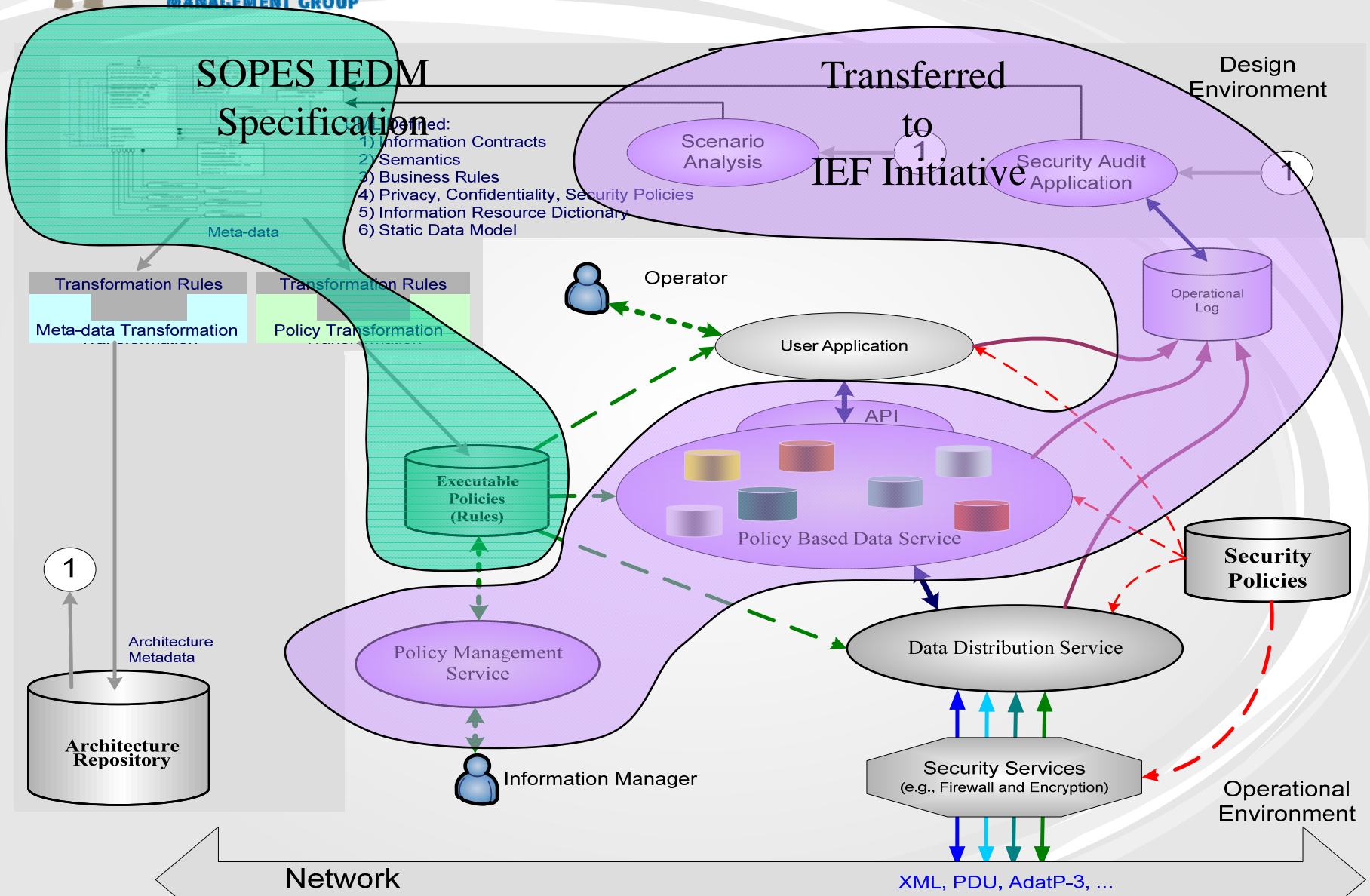
- Legislation
- International Agreements
- Policy/Doctrine
- Memoranda of Understanding
- Strategic Partnership Agreements
- Operating Procedures

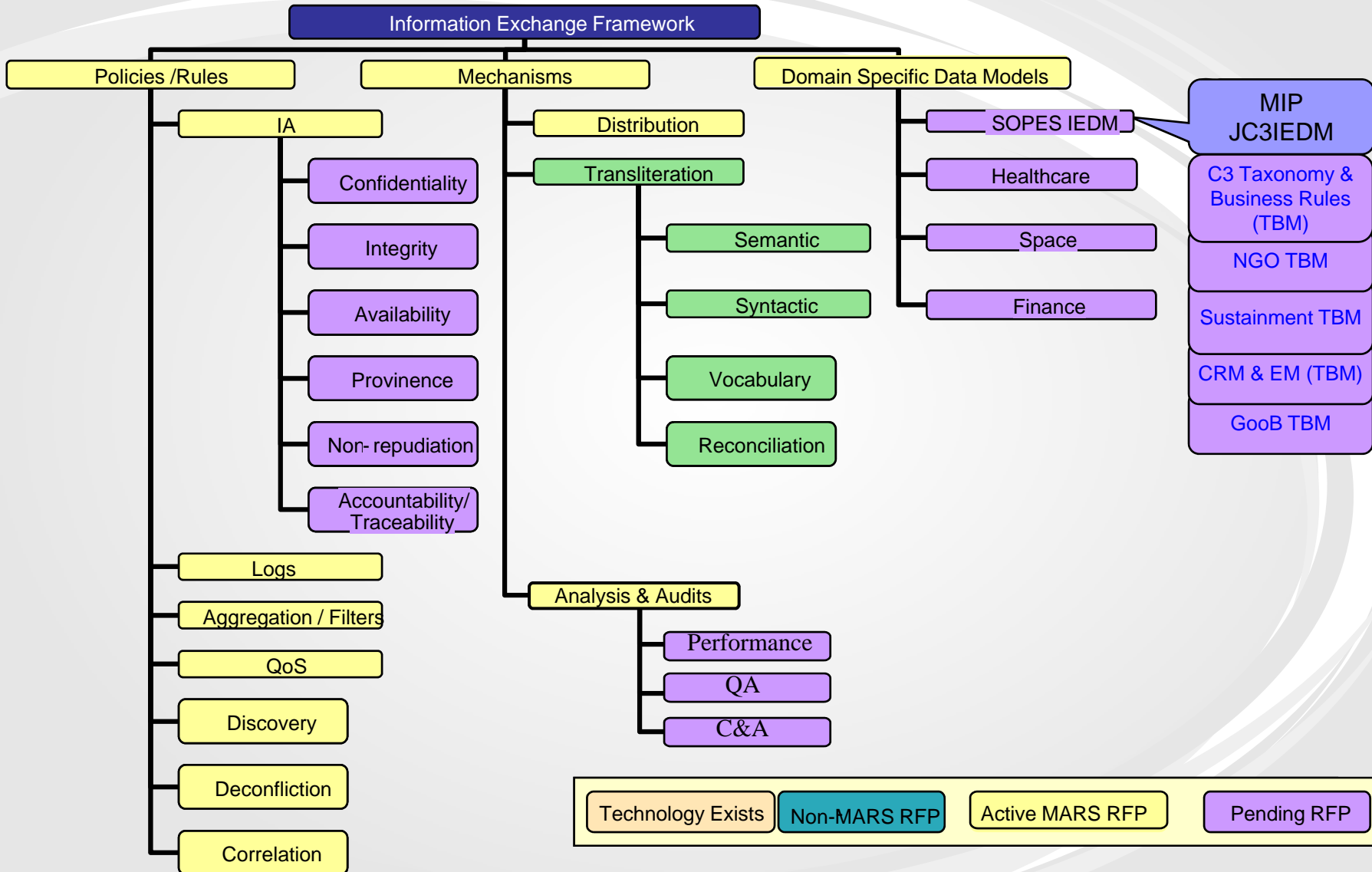
□ Designed as:

- Contracts (Agreement to share information)
- Semantics (Agreed meaning of the shared information)
- Business Rules (Business rules for constructing semantics from data elements/stores)
- Ontology (Allowable domains for data elements)
- Guards and Filters (Selective removal of data from a semantic)
- Runtime Parameters/Properties

Original SOPES Overview

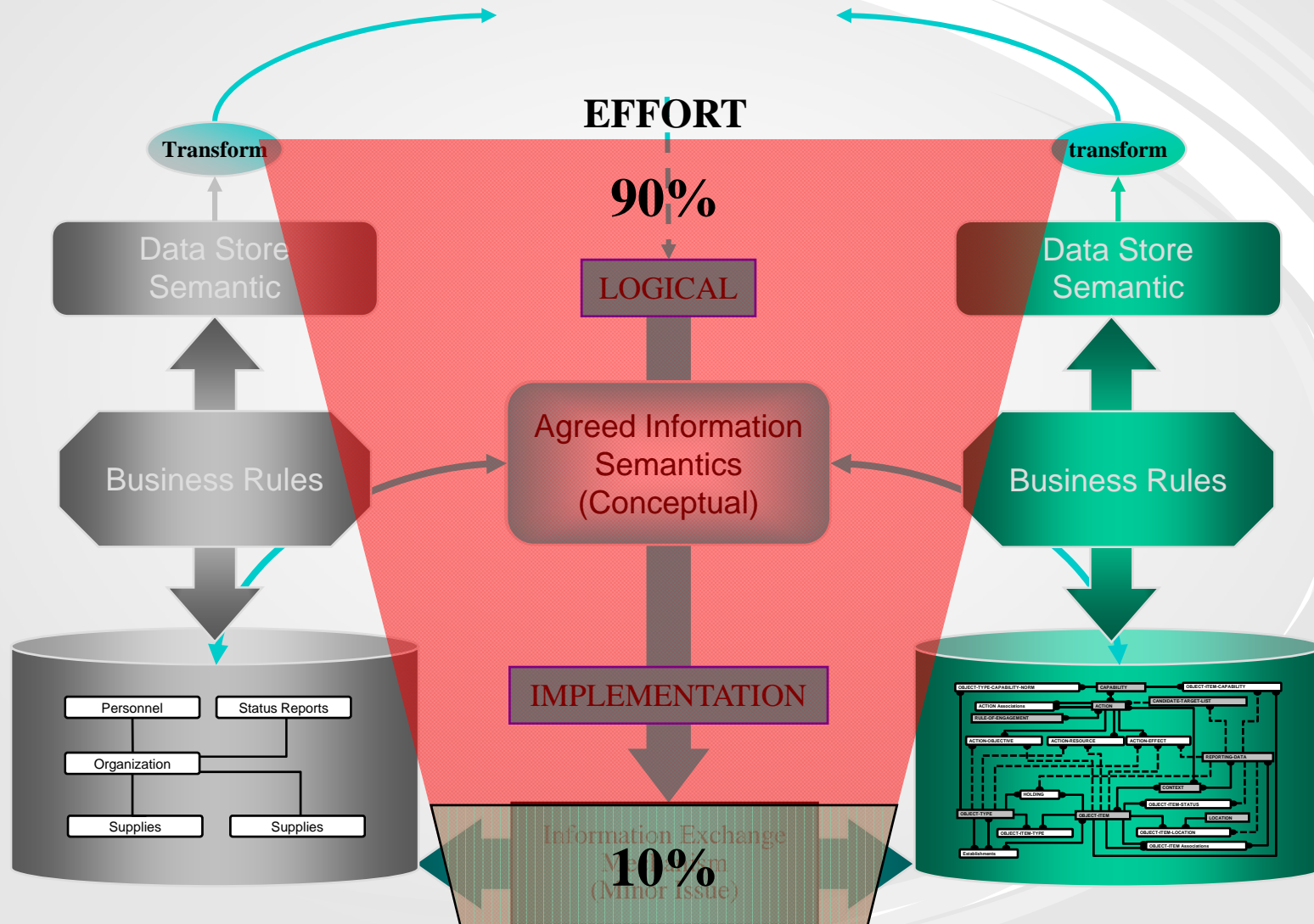




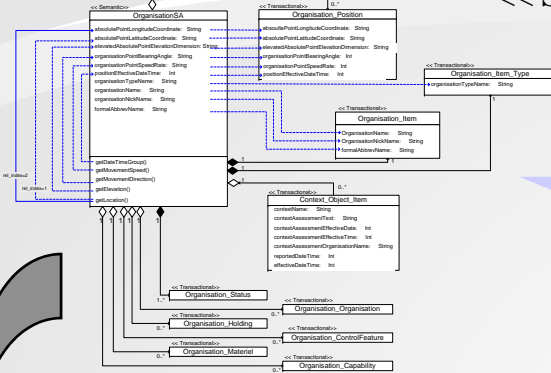


White paper being developed by MARS

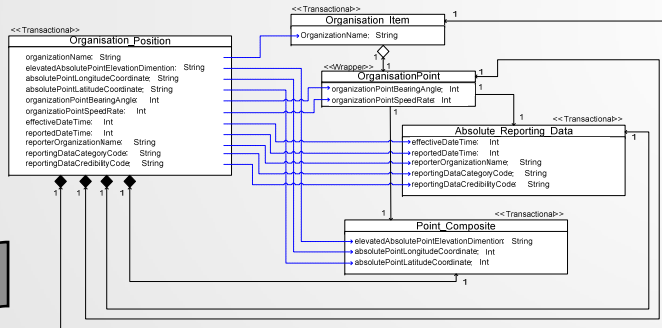
Information Exchange/Usage



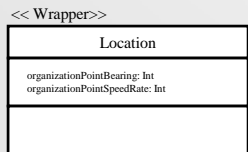
<< SEMANTIC >>



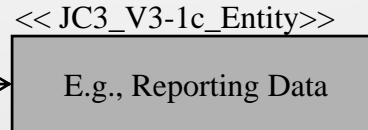
<< TRANSACTIONAL >>



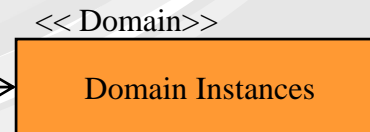
<< WRAPPER >>



Logical Definition

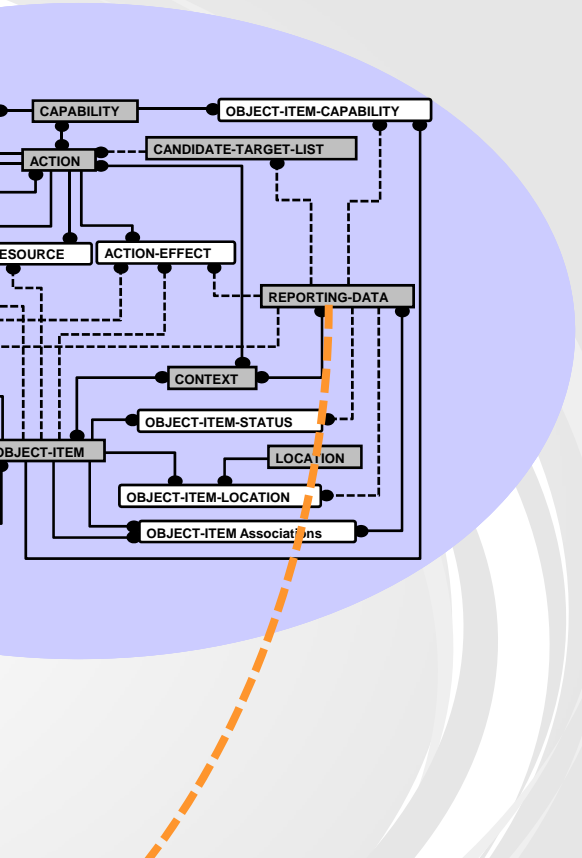
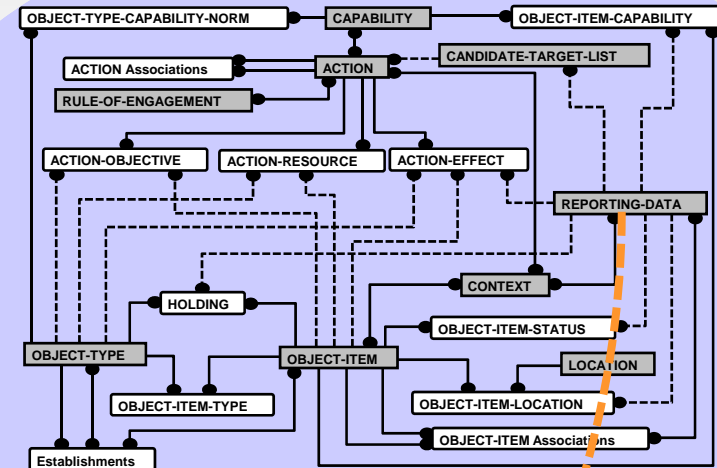


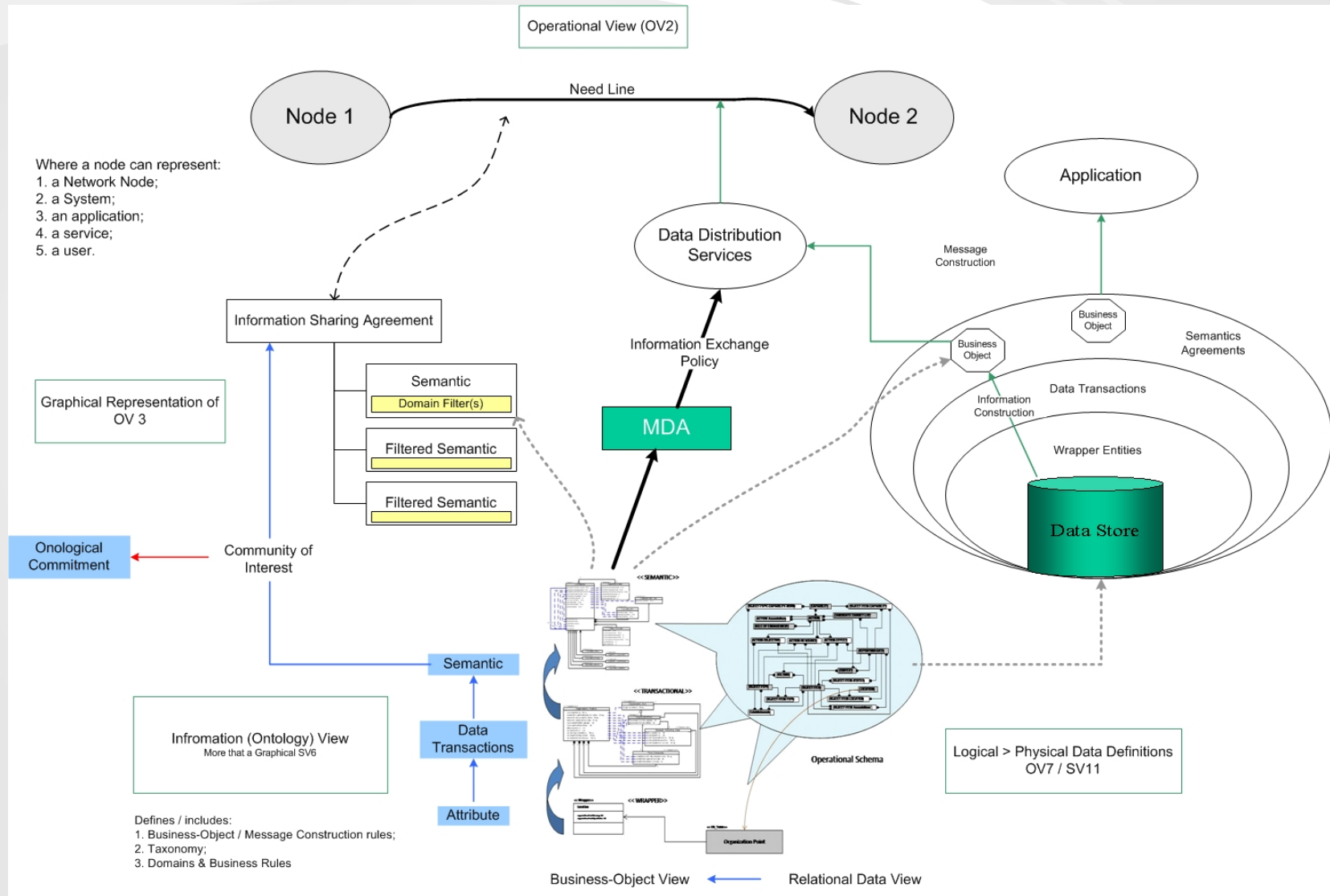
Physical Definition



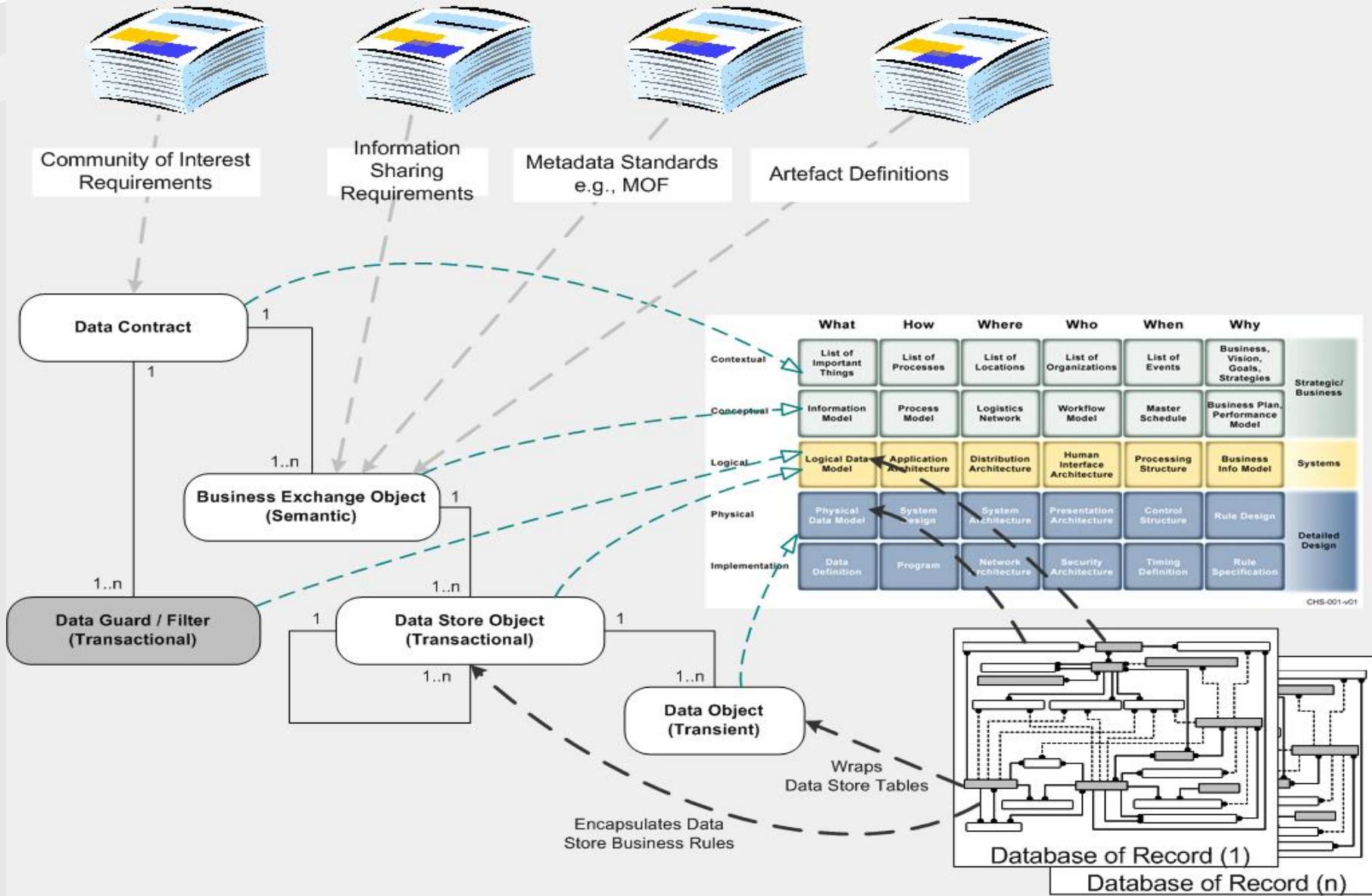
<< Domain >>

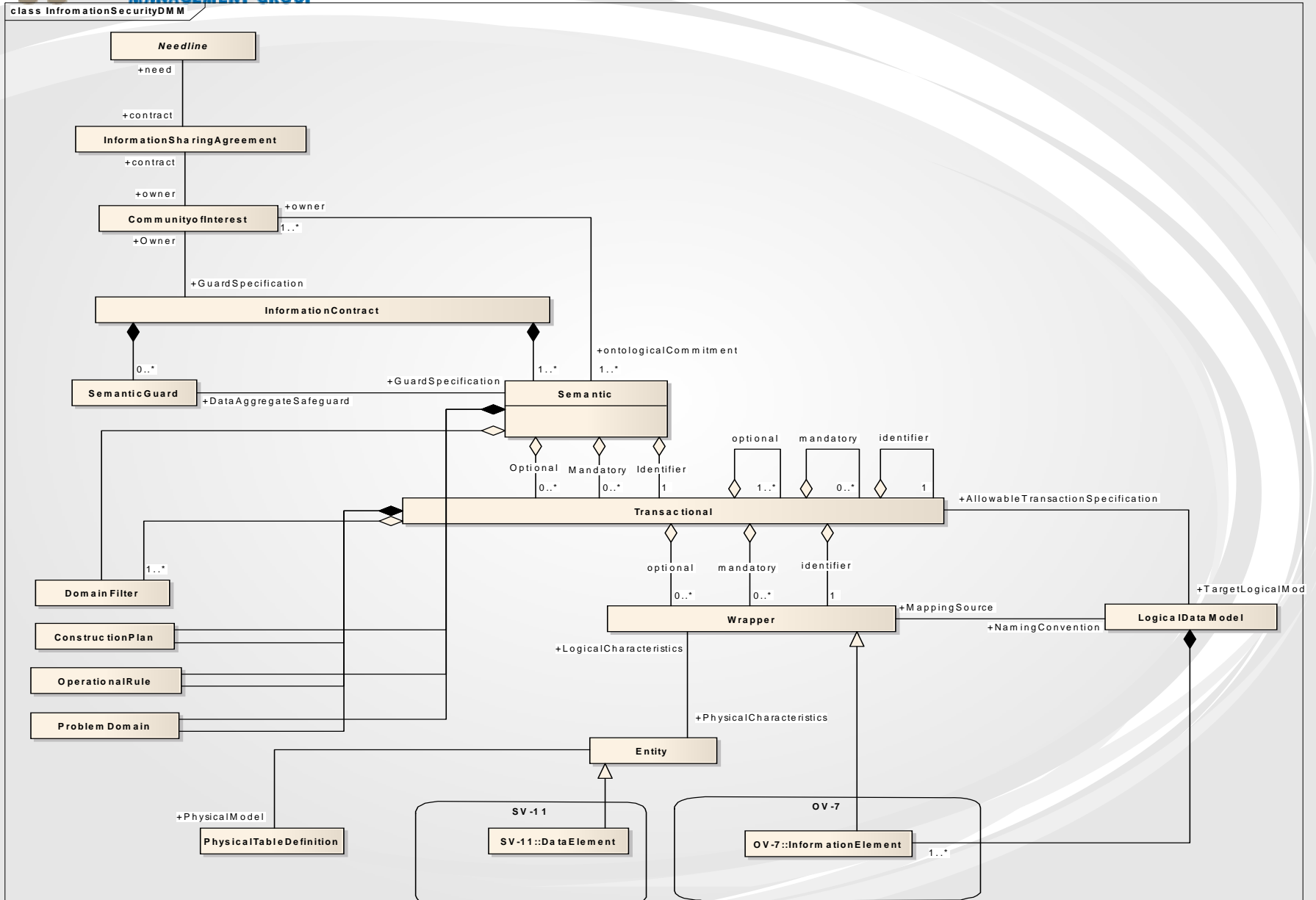
Domain Instances

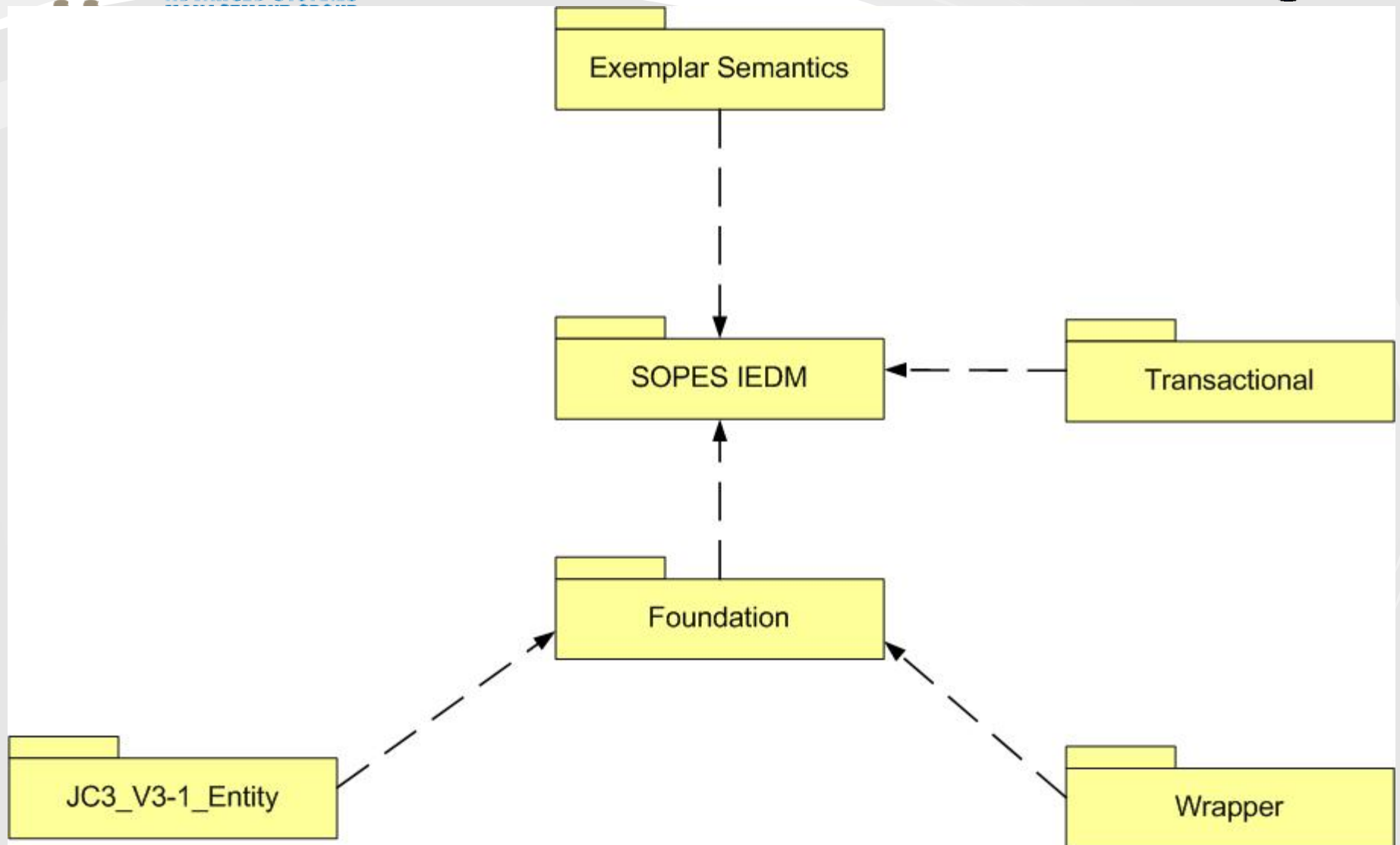




Architecture Based Approach







Statistics

- ❑ 16 Transactional Packages
- ❑ 184 Defined Transactions
- ❑ 271 Wrappers and Corresponding JC3IEDM Entities

- ❑ ~2500 pages
- ❑ 10 Annexes

Transactional Packages

1. *Action* (45)
2. *Capability* (2)
3. *Context* (12)
4. *ControlFeature* (5)
5. *Facility* (21)
6. *GeographicFeature* (5)
7. *Holding* (2)
8. *Location* (22)
9. *Materiel* (8)
10. *MeteorologicalFeature* (2)
11. *ObjectItem* (12)
12. *ObjectType* (6)
13. *Organisation* (20)
14. *Person* (7)
15. *Plans & Orders* (13)
16. *Report* (2)

Action::

- ❑ Action_Effect Action_Effect_Type
- ❑ Action_Objective_Item_Marking
Action_Objective_Item_Target_Personnel_Protection
- ❑ Action_Resource_Employment_Aircraft
- ❑ Action_Resource_Employment_Electronic_Warfare
- ❑ Action_Resource_Employment_Maritime
- ❑ Action_Resource_Employment_Reconnaissance
- ❑ Action_Resource_Item
- ❑ Action_Resource_Type
- ❑ ActionEvent_CBRN
- ❑ ActionEvent_ChemicalBiological
- ❑ ActionEvent_Nuclear
- ❑ ActionEvent_NuclearWeapon
- ❑ ActionEvent_Radioactive
- ❑ ActionEvent_Radiological
- ❑ Candidate_Target_Detail_Item
- ❑ Candidate_Target_Detail_Type
- ❑ Action_Context Action_Context_Status
- ❑ Action_Effect_Item
- ❑ Action_Functional_Assoc Action_Location
- ❑ Action_Objective Action_Objective_Item
- ❑ Action_Objective_Task
- ❑ Action_Objective_Type
- ❑ Action_Reference_Assoc
- ❑ Action_Required_Capability
- ❑ Action_Resource
- ❑ Action_Resource_Employment
- ❑ Action_Temporal_Assoc
- ❑ ActionEvent_Composite
- ❑ ActionEvent_Detail
- ❑ ActionEvent_Status
- ❑ ActionTask_Composite
- ❑ ActionTask_ROE ActionTask_Status
- ❑ Candidate_Target_Detail
- ❑ Candidate_Target_Detail_Assoc
- ❑ Candidate_Target_Detail_Authorisation
- ❑ Candidate_Target_List
- ❑ Candidate_Target_List_Assoc
- ❑ Candidate_Target_List_Authorisation
- ❑ Request_Answer

Capability::

- Capability_Composite
- Capability_Reference_Assoc

Context::

- Context_Element_Reporting_Data_Item
- Context_Assessment
- Context_Context_Assoc_Status
- Context_Element
- Context_Element_Status
- Context_Object_Item_Assoc_Status
- Context_Reporting_Data_Assoc
- Context_Specification
- Operational_Information_Group_Organisation_Assoc
- Operational_Information_Group_Organisation_Assoc_Stat
us
- Operational_Information_Group_Plan_Order_Content
- Reference_Assoc

ControlFeature::

- ControlFeature_Item
- ControlFeature_Item_Type
- ControlFeature_Position
- ControlFeature_Status
- ControlFeature_Type

Facility::

- ❑ Facility_Item Facility::Facility_Item_Type
- ❑ Facility_Position Facility::Facility_Status
- ❑ Facility_Type
- ❑ Medical_Facility_Status_Composite
- ❑ MFS_Casualty_Bed_Occupancy
- ❑ MFS_Pending_Casualty_Evacuation
- ❑ MFS_Pending_Surgery
- ❑ MFSI_Casualty_Group
- ❑ MFSI_Casualty_Type
- ❑ MFSI_Evacuation Facility::Military_Obstacle
- ❑ Minefield_Maritime_Casualty_Estimate
- ❑ Minefield_Maritime_Sustained_Threat_Measure_Of_Effectiveness
- ❑ Network_Facility_Capacity
- ❑ Network_Facility_Frequency
- ❑ Network_Facility_Item
- ❑ Network_Facility_Service
- ❑ Network_Facility_Service_Status
- ❑ Runway_Approach_Direction_Assoc

GeographicFeature::

- ❑ GeographicFeature_Item
- ❑ GeographicFeature_Item_Type
- ❑ GeographicFeature_Position
- ❑ GeographicFeature_Status
- ❑ GeographicFeature_Type

Holding::

- ❑ Holding
- ❑ Holding_Transfer

Location::

- ❑ Cartesian_Point Location::Cone_Volume
- ❑ Geographic_Point
- ❑ Relative_Coordinate_System
- ❑ Relative_Point Location::Sphere_Volume
- ❑ Surface_Volume Location::Absolute_Point
- ❑ CorridorArea_Surface Location::Ellipse_Surface
- ❑ FanArea_Surface
- ❑ Geometric_Volume_Item Location::Line_Item
- ❑ LinePoint_Item Location::Location_Composite
- ❑ OrbitArea_Surface Location::Point_Item
- ❑ Point_Reference Location::PolyarcArea_Surface
- ❑ PolygonArea_Surface Location::Surface_Item
- ❑ TrackArea_Surface

Materiel::

- ❑ Consumable_Materiel_Type
- ❑ Equipment_Type Materiel::Materiel_Item
- ❑ Materiel_Item_Type
- ❑ Materiel_Position Materiel::Materiel_Status
- ❑ Materiel_Type Materiel::Vessel_Type

MeteorologicalFeature::

- ❑ MeteorologicalFeature_Position
- ❑ MeteorologicalFeature_Item

ObjectItem::

- ❑ Object_Item_Address
- ❑ Object_Item_Affiliation
- ❑ Object_Item_Assoc
- ❑ Object_Item_Assoc_Status
- ❑ Object_Item_Capability
- ❑ Object_Item_Group_Account
- ❑ Object_Item_Group_Account_Detail
- ❑ Object_Item_Hostility_Status
- ❑ Object_Item_Object_Type_Establishment
- ❑ Object_Item_Reference_Assoc
- ❑ Object_Item_Type
- ❑ Object_Reference

ObjectType::

- ❑ Object_Type
- ❑ Object_Type_Establishment
- ❑ Object_Type_Establishment_Detail
- ❑ Object_Type_Affiliation
- ❑ Object_Type_Capability_Norm
- ❑ Object_Type_Reference_Assoc

Organisation::

- ❑ Executive_Military_Organisation_Type
- ❑ Government_Organisation_Type
- ❑ Military_Post_Type
- ❑ Task_Formation_Type
- ❑ Unit_Type
- ❑ Unit_Type_Recursive
- ❑ Military_Organisation_Type
- ❑ Organisation_Action_Assoc
- ❑ Organisation_ActionTask_ROE
- ❑ Organisation_Item
- ❑ Organisation_Item_Type
- ❑ Organisation_Materiel_Type_Assoc
- ❑ Organisation_Plan_Order_Assoc
- ❑ Organisation_Plan_Order_Assoc_Status
- ❑ Organisation_Position
- ❑ Organisation_Reference_Assoc
- ❑ Organisation_Status
- ❑ Organisation_Structure
- ❑ Organisation_Structure_Detail
- ❑ Organisation_Type

Person::

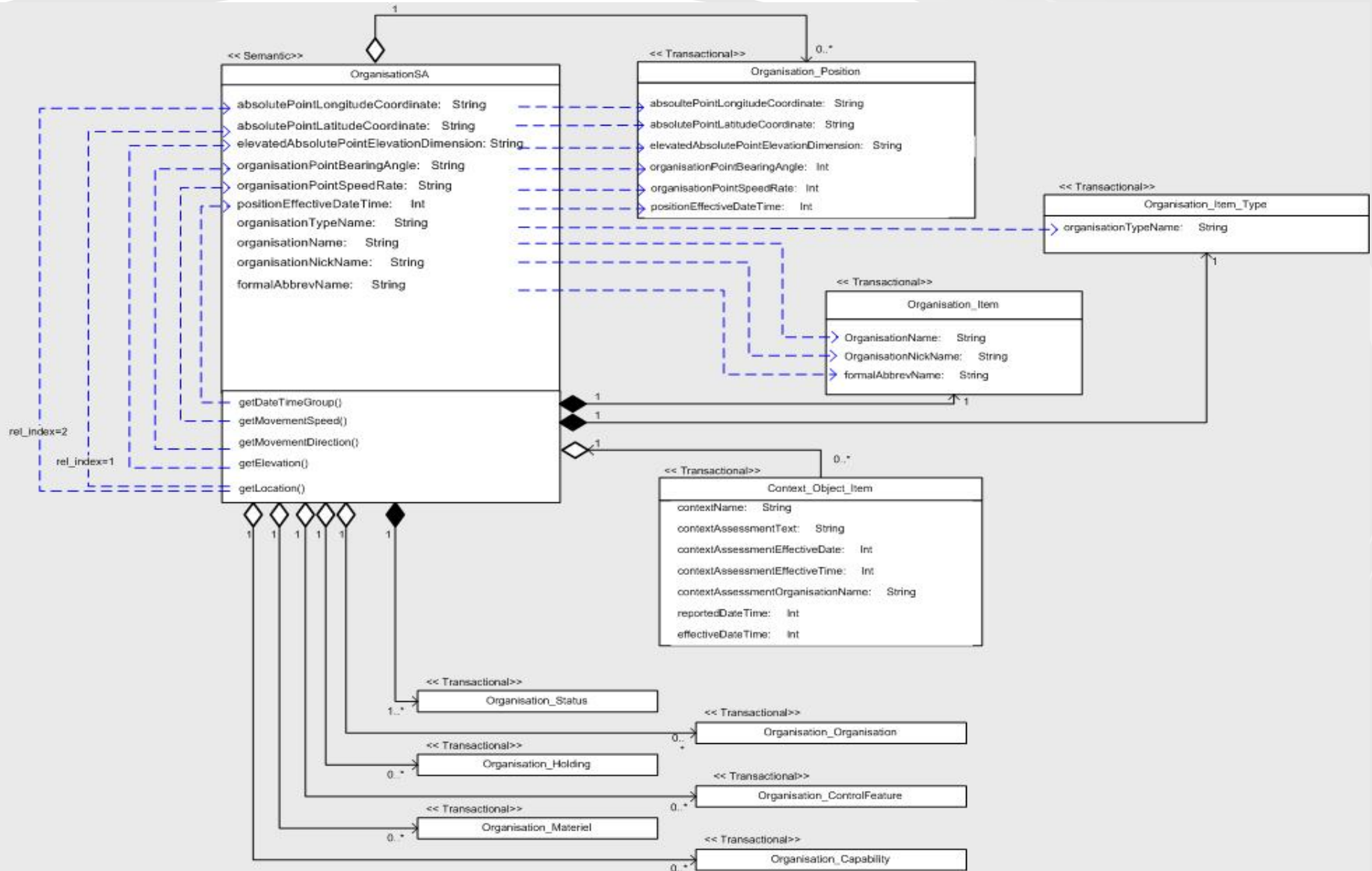
- ❑ Person_Identification_Document
- ❑ Person_Item
- ❑ Person_Item_Type
- ❑ Person_Language_Skill
- ❑ Person_Position
- ❑ Person_Status
- ❑ Person_Type

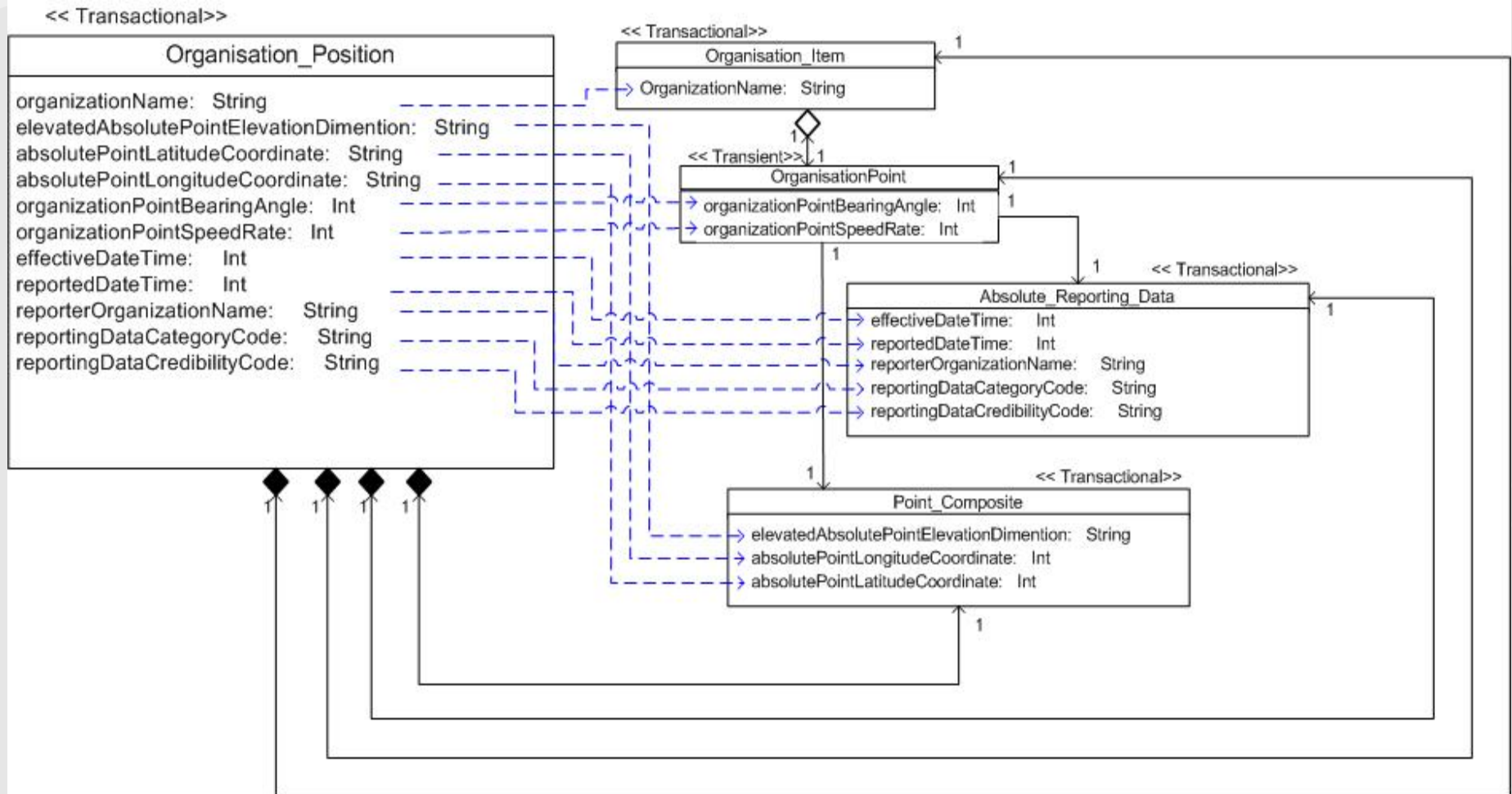
Plans & Orders::

- ❑ Plan_Order_Component_Header_Content
- ❑ Order_Item
- ❑ Order_Status
- ❑ Plan_Item
- ❑ Plan_Order_Assoc
- ❑ Plan_Order_Component
- ❑ Plan_Order_Component_Content
- ❑ Plan_Order_Component_Content_Reference
- ❑ Plan_Order_Component_Structure
- ❑ Plan_Order_Distribution
- ❑ Plan_Order_Distribution_Acknowledgement
- ❑ Plan_Order_Header_Content
- ❑ Plan_Status

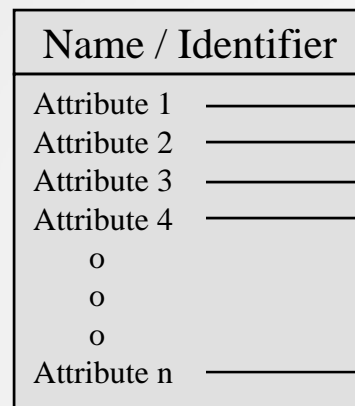
Report::

- ❑ Absolute_Reporting_Data
- ❑ Relative_Reporting_Data

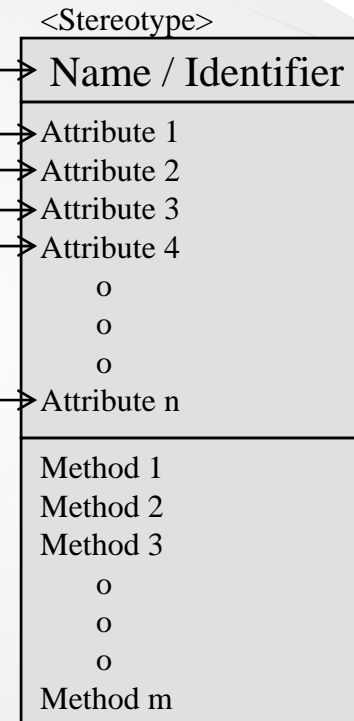




Entity
/ DB Table

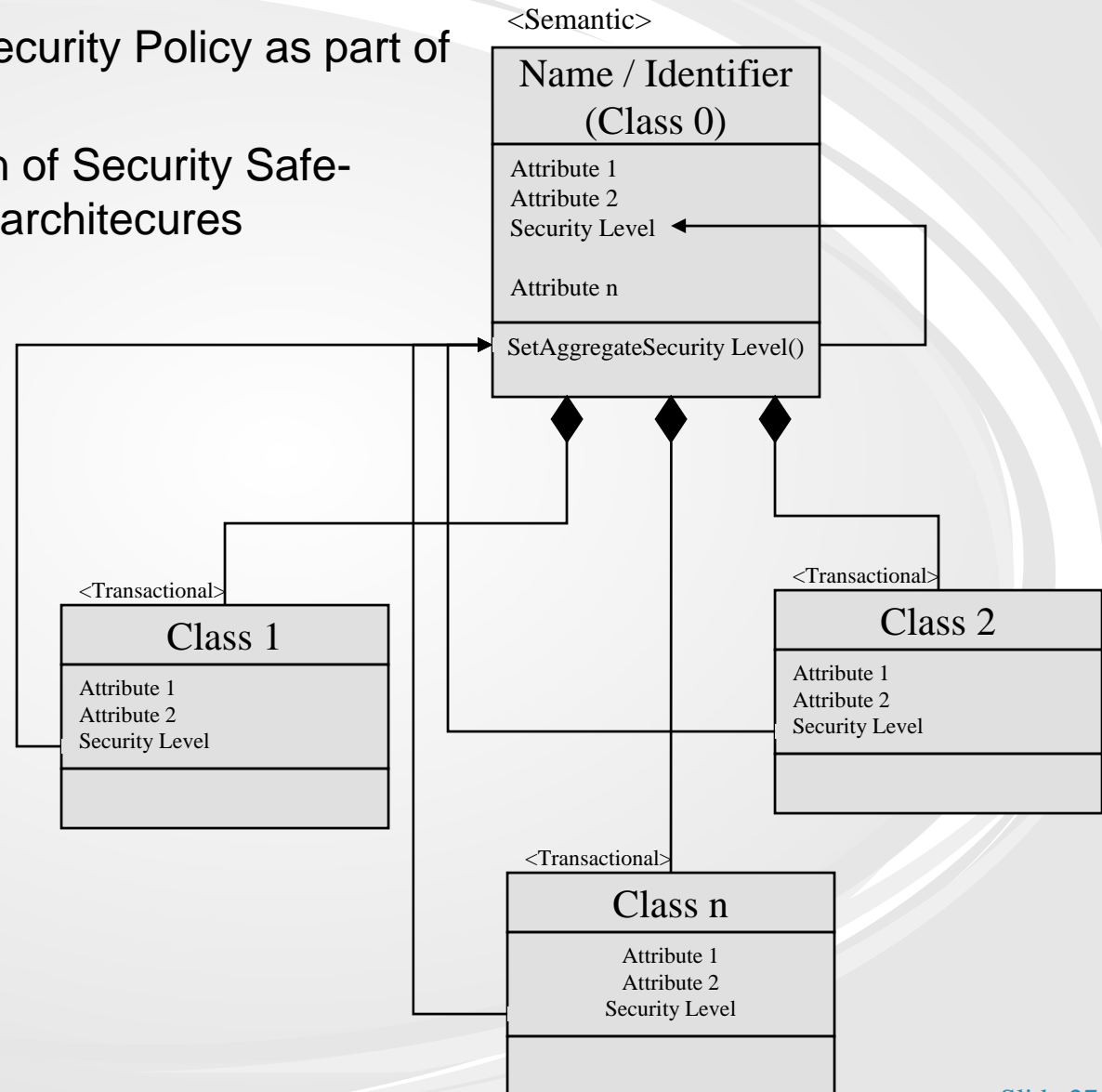


Class
/ Business Object

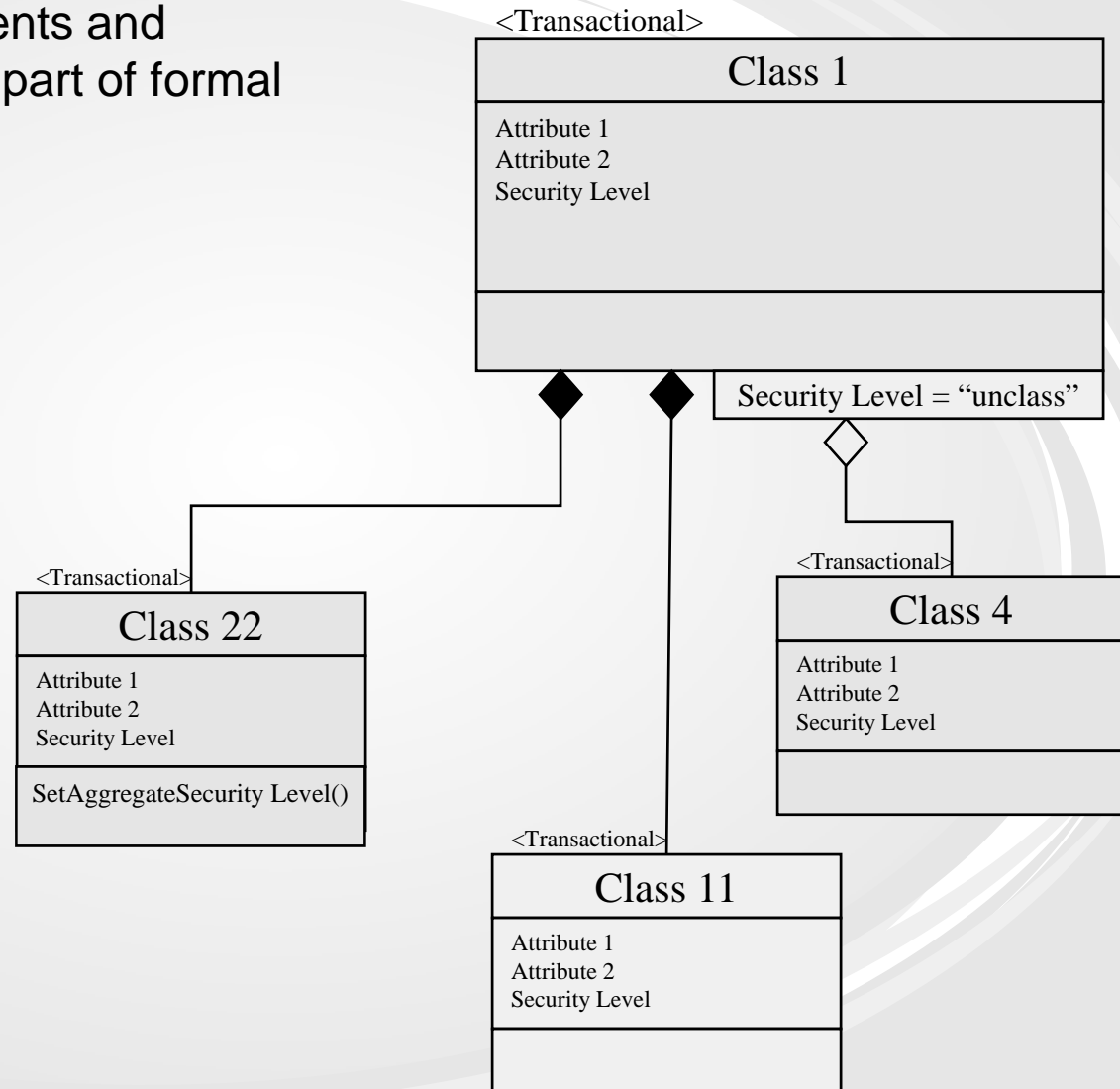


- Building on current practices
- Providing for the future
- Targets interoperability

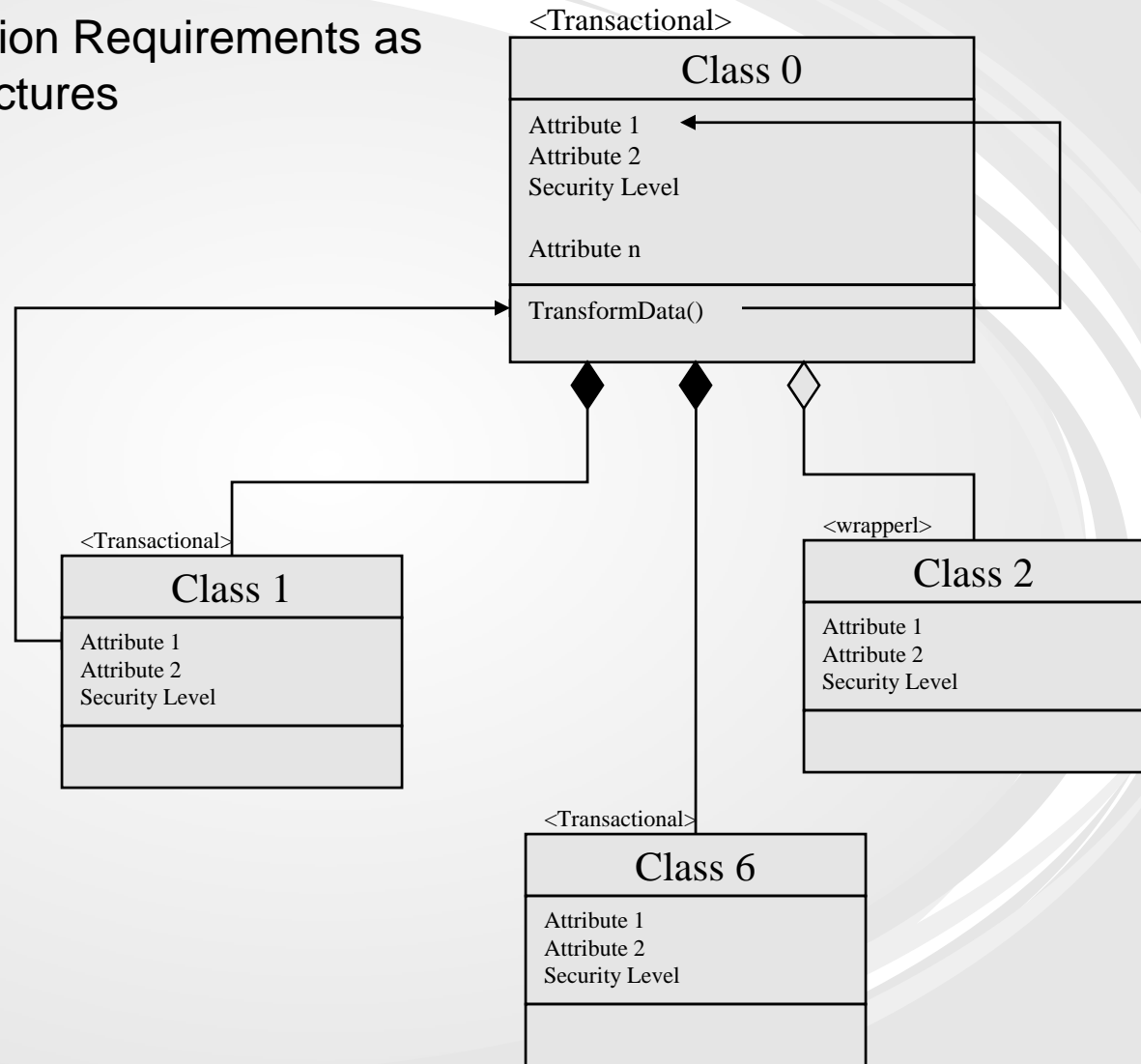
- Highlights Information Security Policy as part of formal architectures
- Enables the specification of Security Safeguards as part of formal architectures



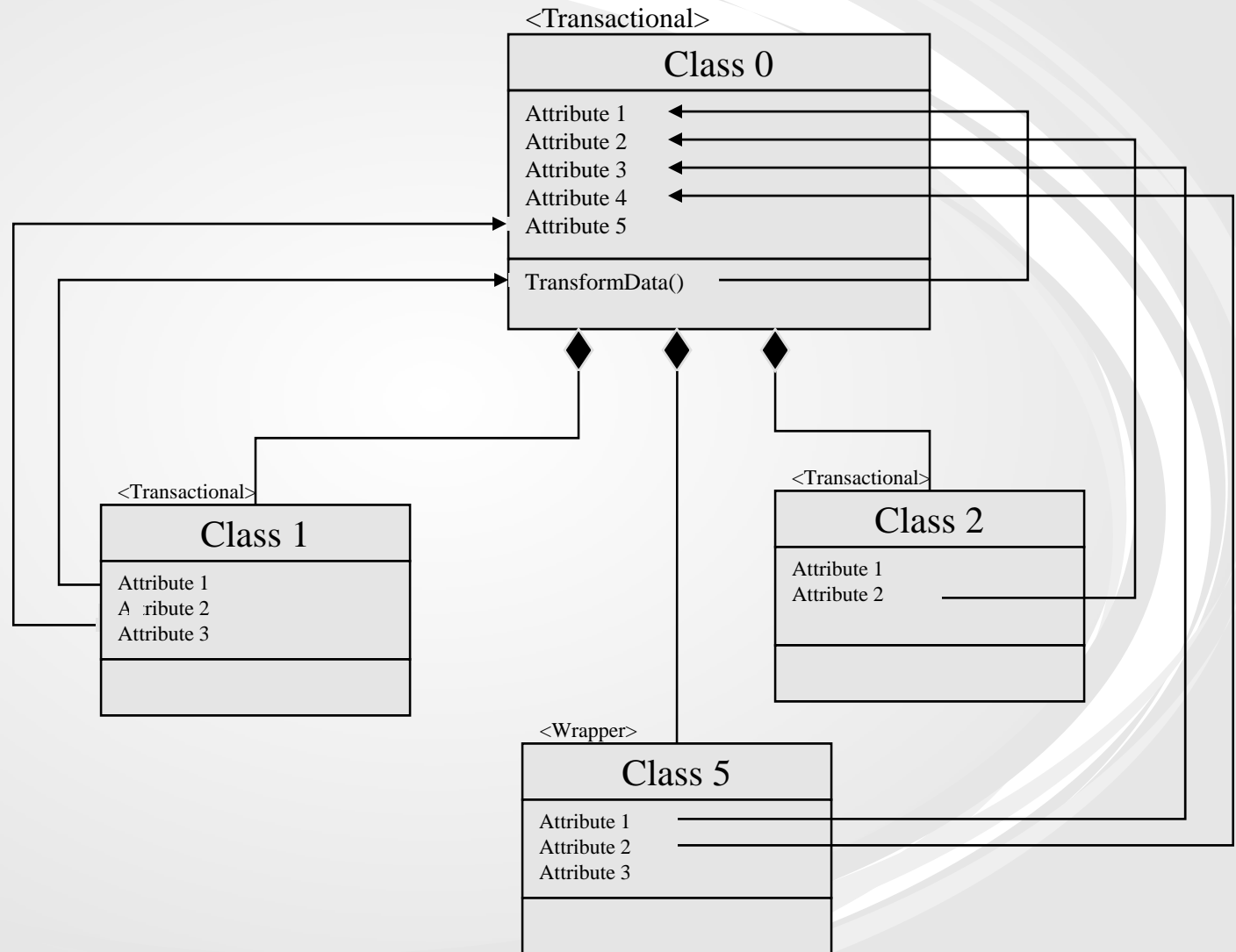
- Highlights security elements and filtering requirements as part of formal architectures



- Captures Transformation Requirements as part of Formal Architectures



Selective Construction

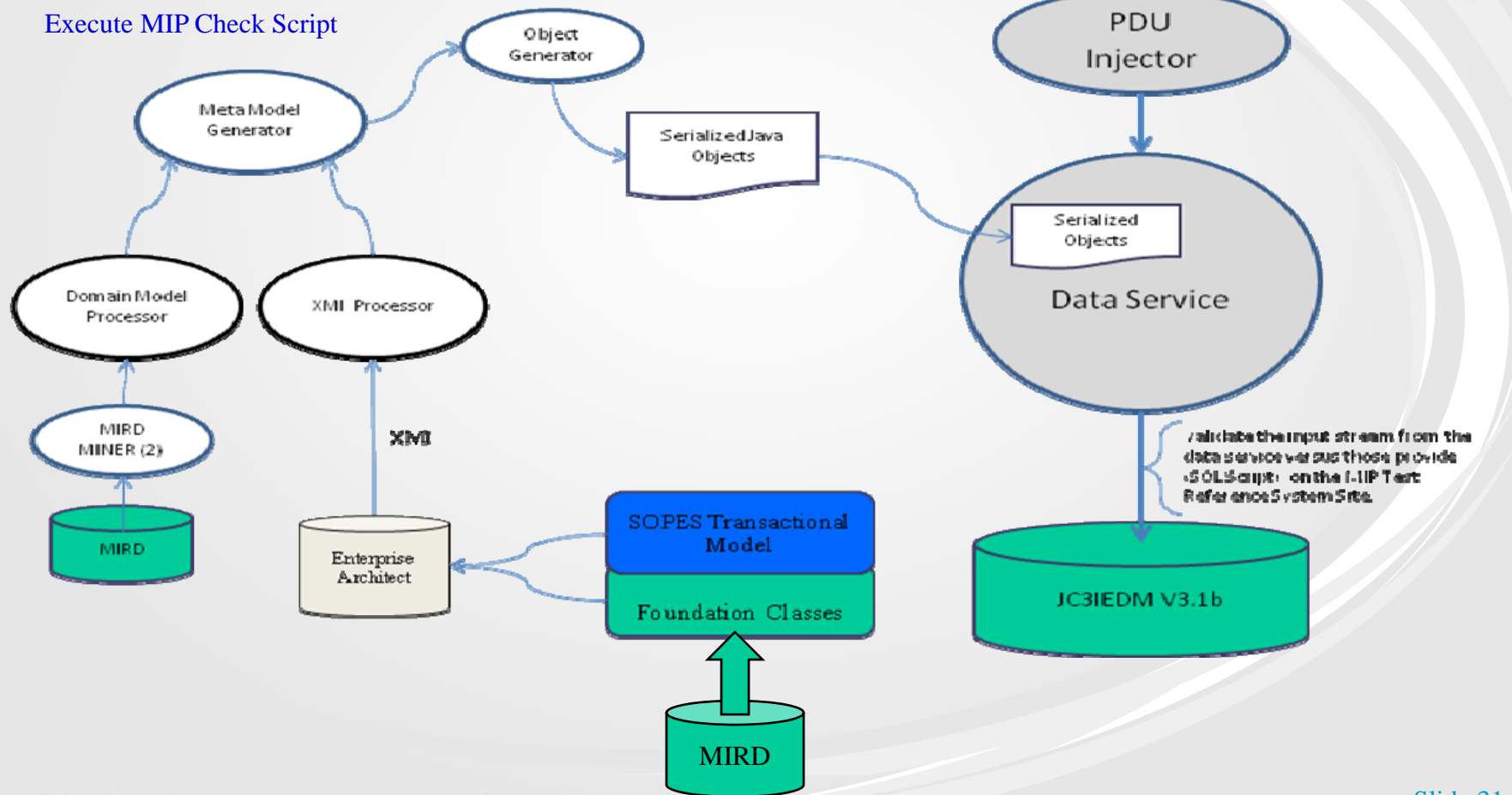


Compare Data Service SQL Inserts

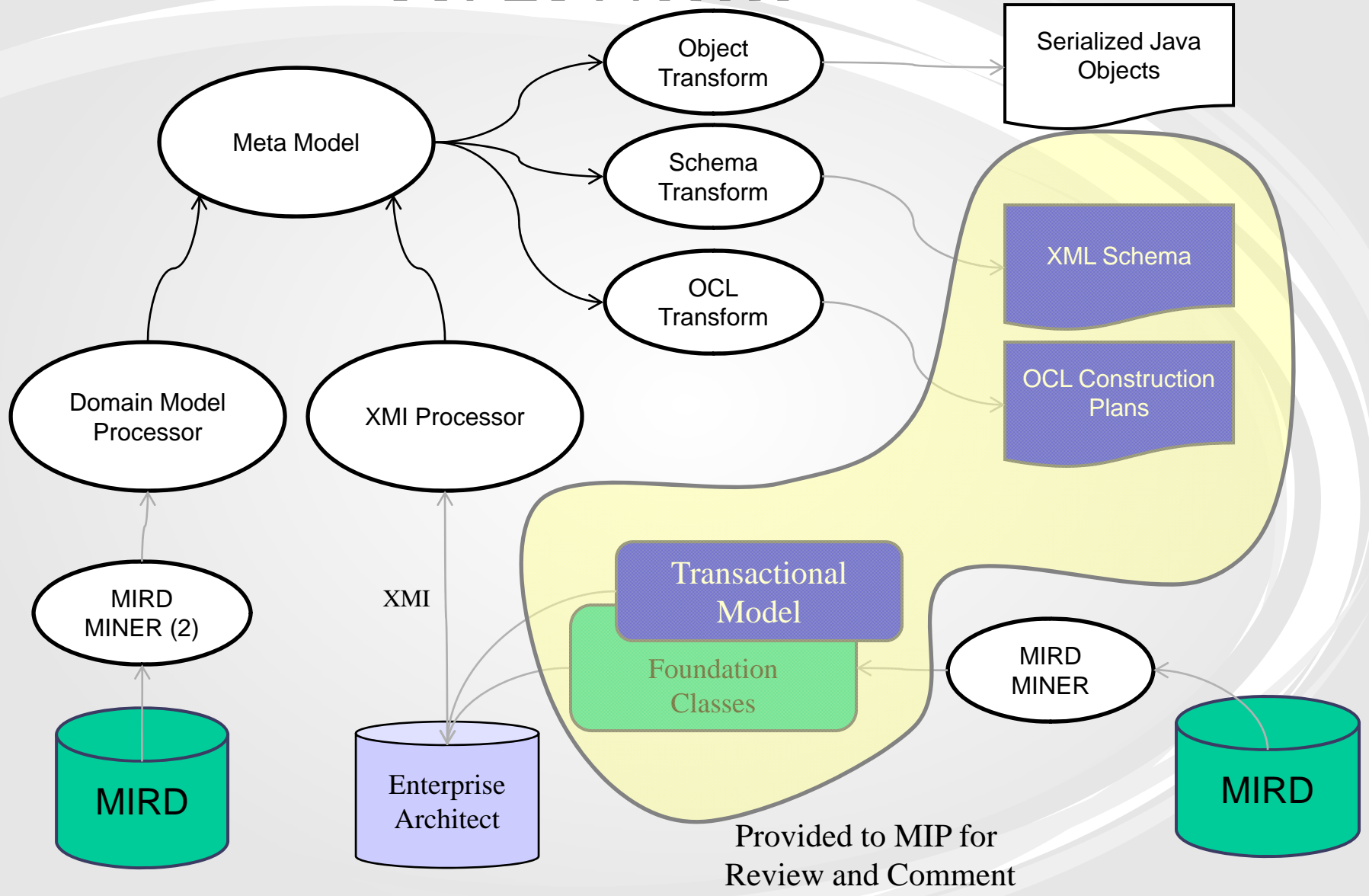
Vs. MIP provided Inserts for each Test

- All inserts present
- All elements present and correct
- Not additional elements or incorrect elements
- No additional inserts

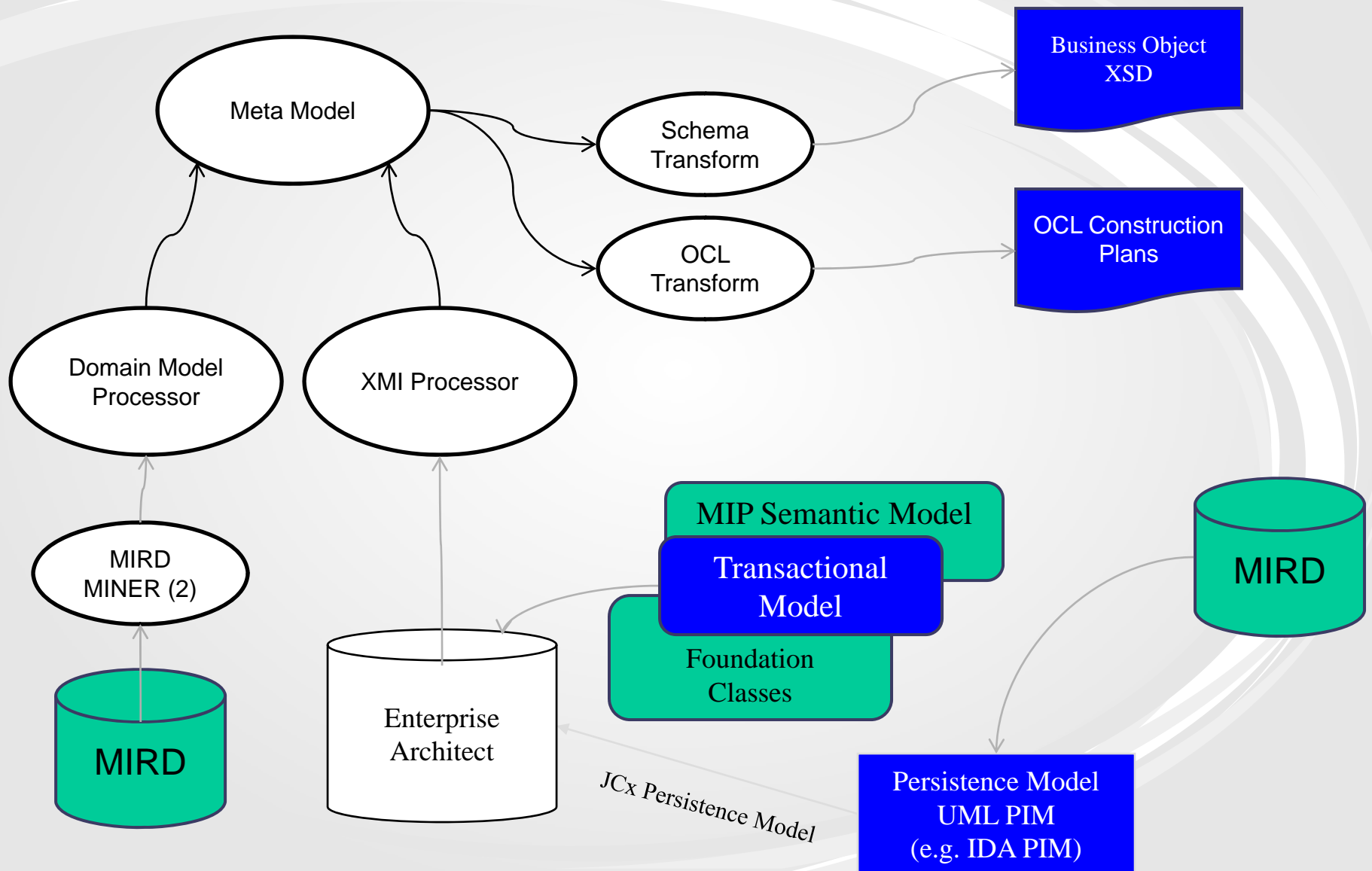
Execute MIP Check Script



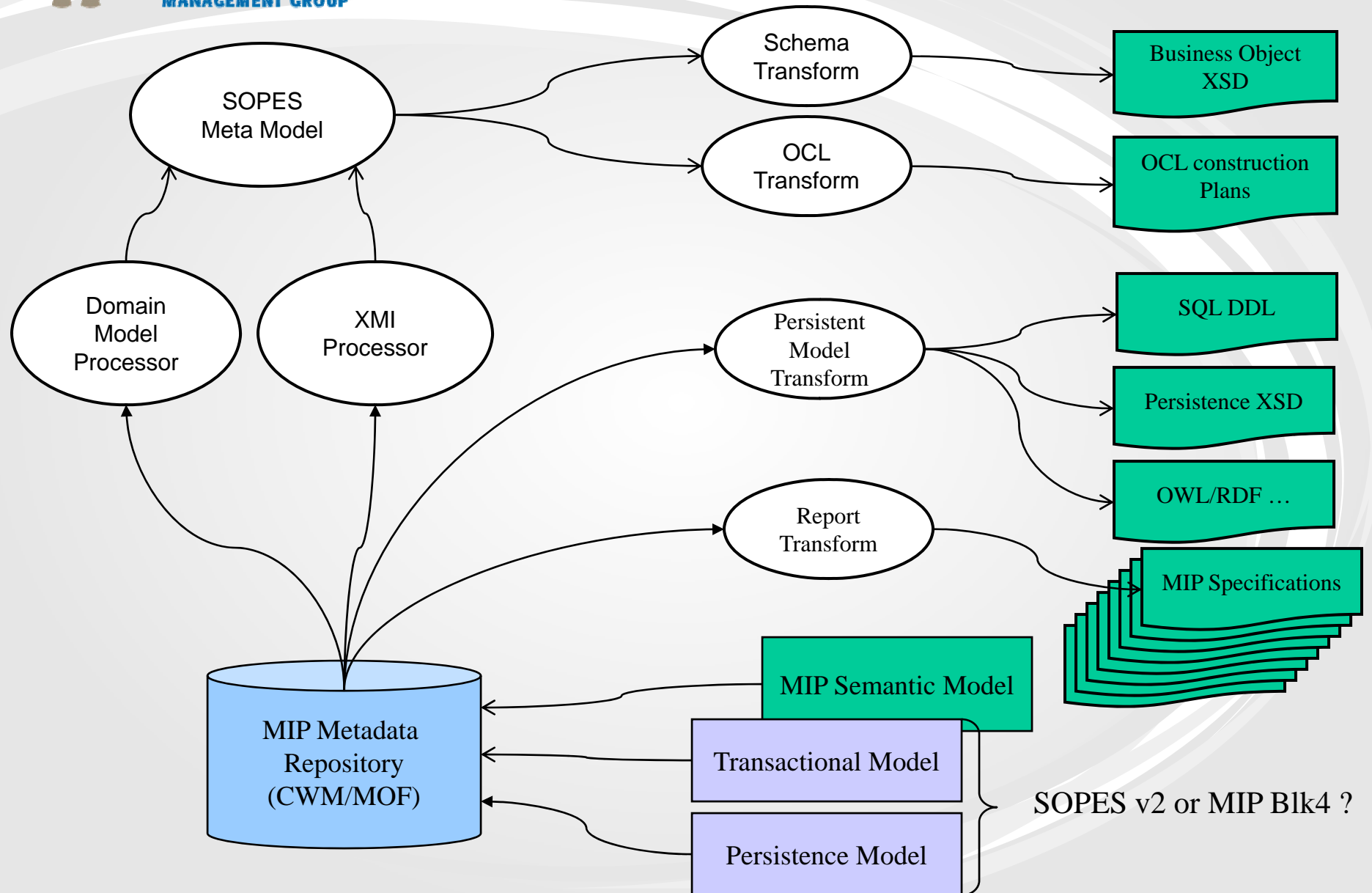
SOPES Process



Interim PIM/SOPES Process



Multiple PSMs



SOPES v2 or MIP Blk4 ?

- ❑ **Final Revised Submission – June 2008**
 - Released to OMG Community
 - Released to MIP Community
 - Released to DoD Sponsor

- ❑ **Vote-to-vote – June 2008**

- ❑ **Updates based on Community Comments**

- ❑ **Taskforce Vote – September 2008**

Questions?

Comments?

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Co-chair OMG C4I Domain Task Force
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Final Revised Submission Materials

- ❑ [c4i/08-05-13](#) (ASMG SOPES IEDM - Model)
- ❑ [c4i/08-05-12](#) (ASMG SOPES IEDM Annex 10 -revised submission)
- ❑ [c4i/08-05-11](#) (ASMG SOPES IEDM Annex 9 -revised submission)
- ❑ [c4i/08-05-10](#) (ASMG SOPES IEDM Annex 8 -revised submission)
- ❑ [c4i/08-05-09](#) (ASMG SOPES IEDM Annex 7 -revised submission)
- ❑ [c4i/08-05-08](#) (ASMG SOPES IEDM Annex 6 -revised submission)
- ❑ [c4i/08-05-07](#) (ASMG SOPES IEDM Annex 4 -revised submission)
- ❑ [c4i/08-05-06](#) (ASMG SOPES IEDM Annex 3 -revised submission)
- ❑ [c4i/08-05-05](#) (ASMG SOPES IEDM Annex 2 -revised submission)
- ❑ [c4i/08-05-04](#) (ASMG SOPES IEDM Annex 1 -revised submission)
- ❑ [c4i/08-05-03](#) (ASMG SOPES IEDS revised submission)

Updates to Revised Submission

- ❑ [c4i/08-05-xx](#) (ASMG SOPES IEDM Annex 5 -revised submission)