

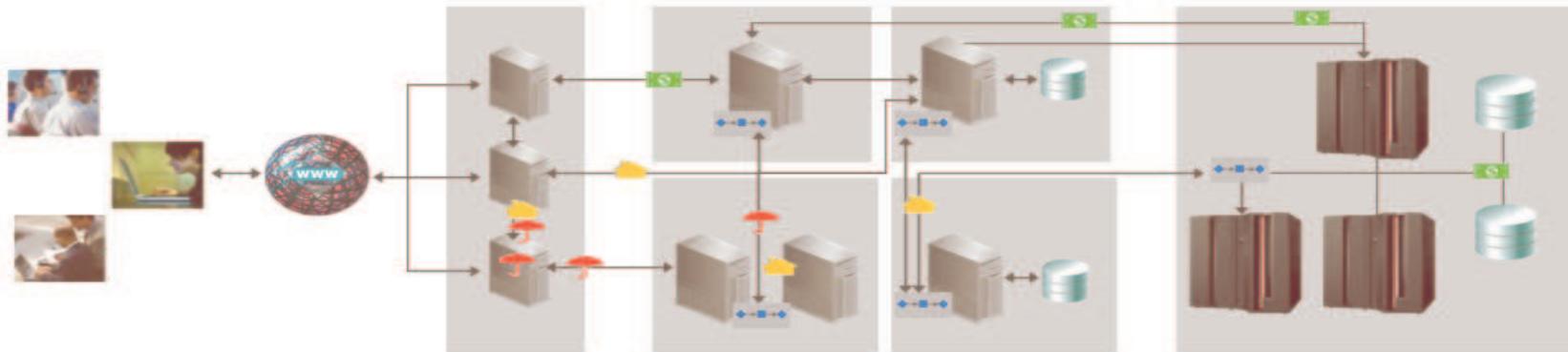
COSMOS Project Overview

DRAFT v0.4

Put together by the COSMOS community
<http://wiki.eclipse.org/index.php/COSMOS>

Challenges of IT Systems Management

Today's applications offer flexibility for business but introduce management challenges ...



“How do we coordinate problem resolution across all parts of the organization?”

“How can we minimize the disparate information we collect?”

“How can we instrument our systems?”

“How can we share resource descriptions in a consistent manner?”

“What industry standards can be applied to help solve the problems?”

“I know something's wrong, but where?”

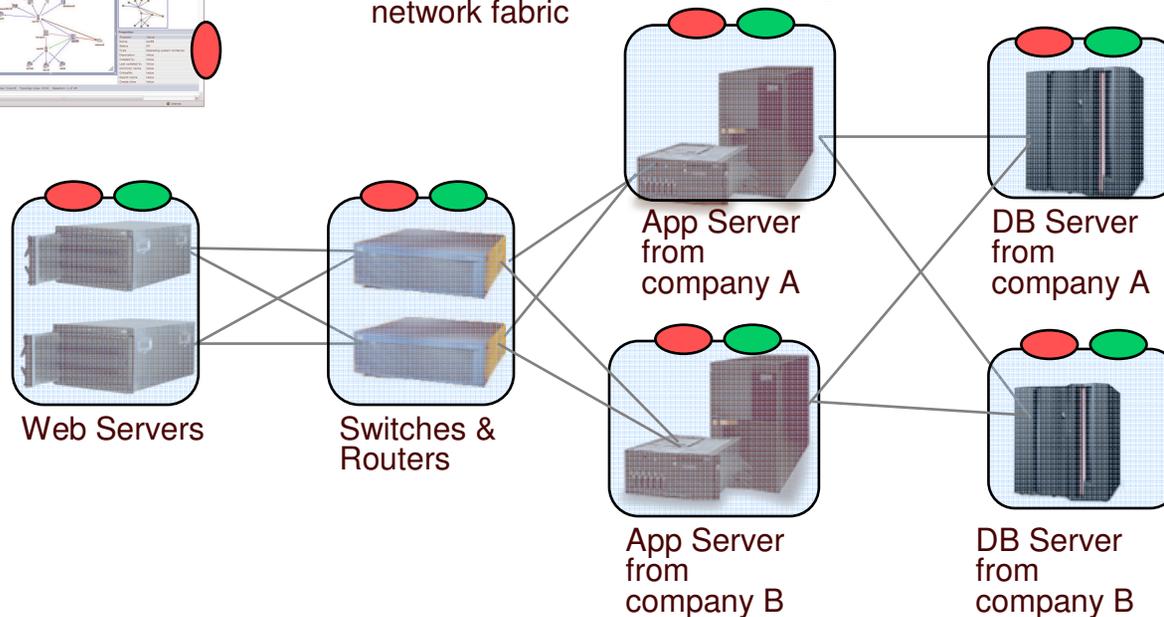
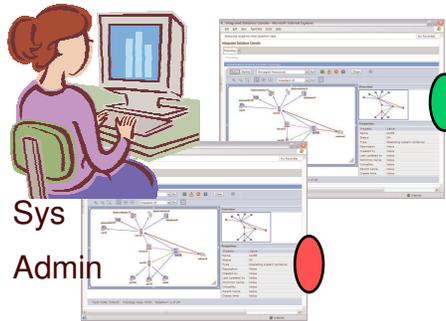
Current pain points

Each admin tool has a distinct way of representing the resources it can manage

Limited interoperability b/t tools (even those from the same company)

Limited co-existence of management tools at runtime

Management tools typically targeted at a specific resource domain e.g. network fabric



Customer Pain Points

- End-to-end problem determination is awkward and difficult
- Response to change in requirements is slow
- Creating higher value analytics difficult b/c of inconsistencies in the way resource information is expressed
- Inefficiencies in management costs displace development work

Often, this translates into custom instrumentation provided by management vendors.

This results in subtle, but important semantic differences in the way a resource is managed

Current pain points



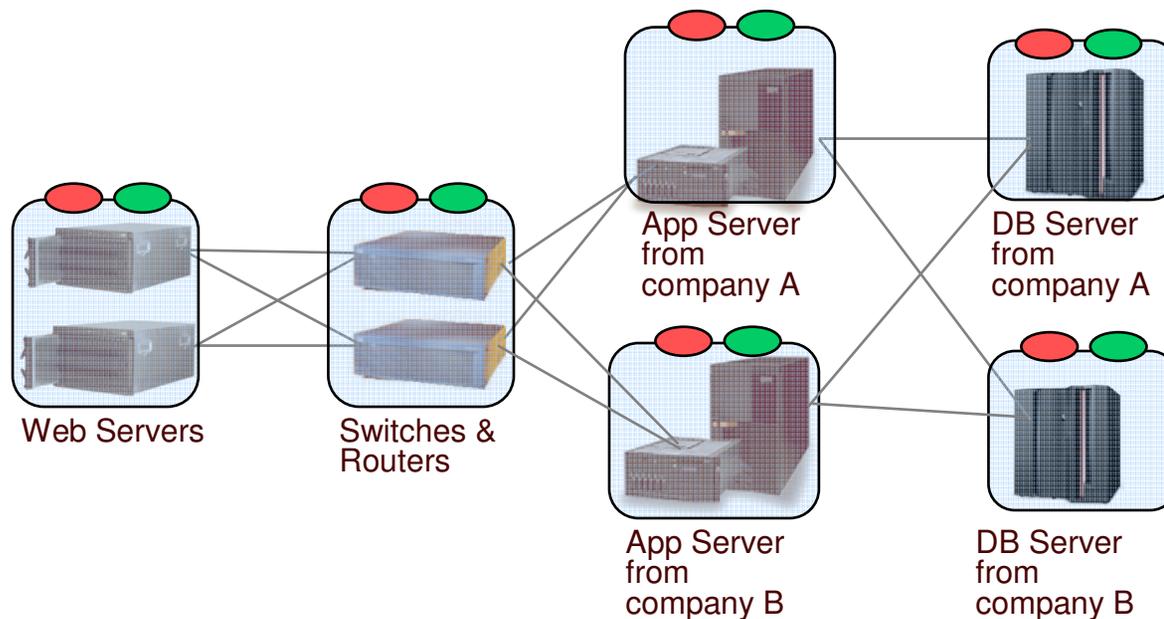
Developer

The developer has no consistent way of looking at all the resources in their environment

No consistent approach to describing the important management information

Customer Pain Points

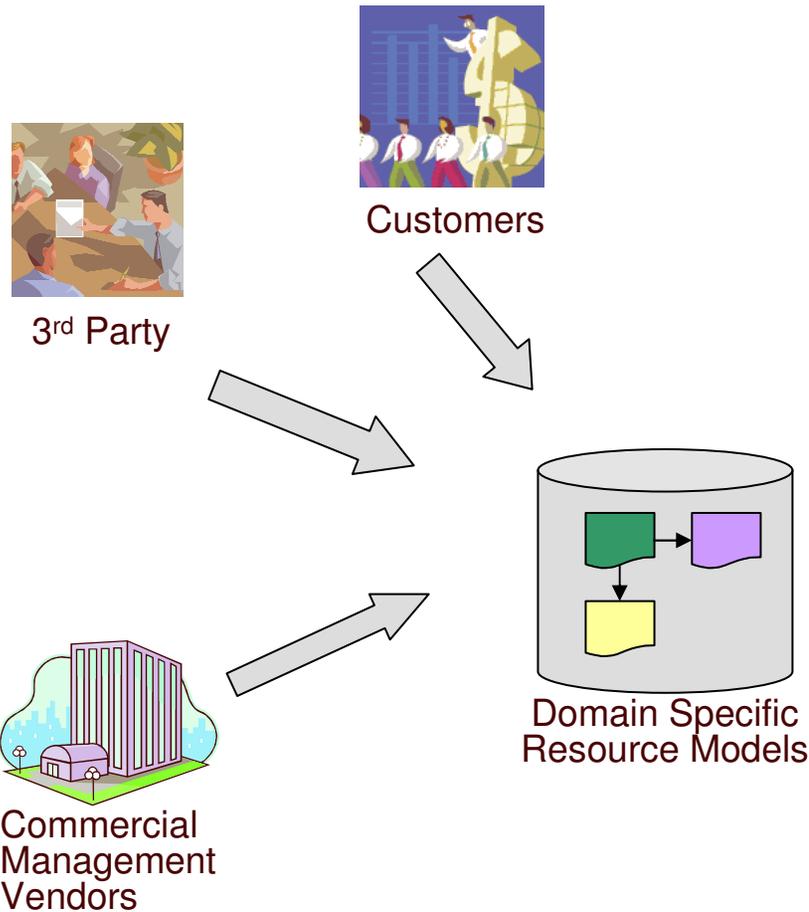
- Difficult to extend existing instrumentation tooling for new roles or management disciplines
- New “kinds” of resources difficult to add



COSMOS Subprojects

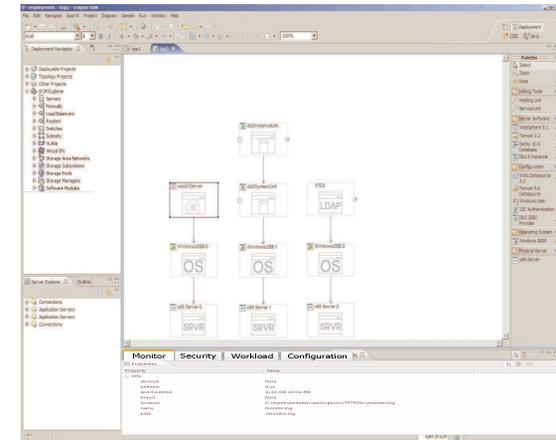
- **Resource Modeling**
- **Monitoring**
 - Data collection
 - Reporting
- **Build to Manage (BtM) a.k.a Enabling Management**

Resource Modeling Landscape



A domain specific model is a fixed set of generic documents and phenic templates

Management Disciplines



- Deployment
- Monitoring
- Security
- Problem Determination
- Performance
- Availability

Each discipline specific tool deals with additional generic constraints and phenic instances

Resource Model Value

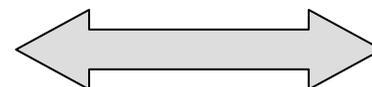
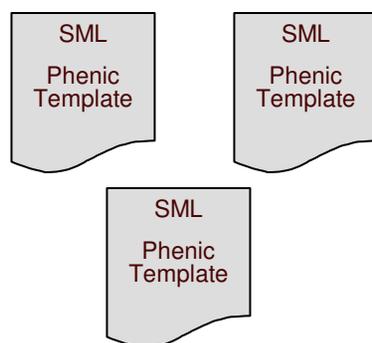
- **Value to Resource Model providers**
 - Decouples the management tools from the resource providers
- **Value to domain model consumers**
 - Decouples from resource provider
- **Value to end user**
 - Vendor neutral, extensible, tooling based upon resource models
 - Deployment and Configuration of resources
 - Simple tools to create complex models
 - Integration of Root Cause & Problem Determination

Requirements for Resource Model Ecosystem

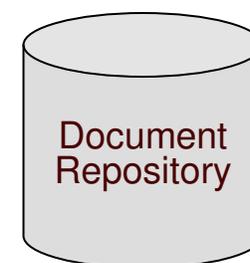
- **Value increases exponentially with # resource models**
 - Enable creation of domain specific models
 - Demonstrate generic consumption as a building block
- **To make the models interoperable, they must be extensible**
 - Must be easy to extend
 - Must provide exemplary framework to enable rapid creation of role specific tooling

COSMOS deliverables related to the creation of domain specific models

- Tooling required to create valid SML-IF documents. These may include both genic and phenic content
- “Templates” can be provided as phenic documents
- Extensible architecture to allow registration of new domain models or extensions to existing models

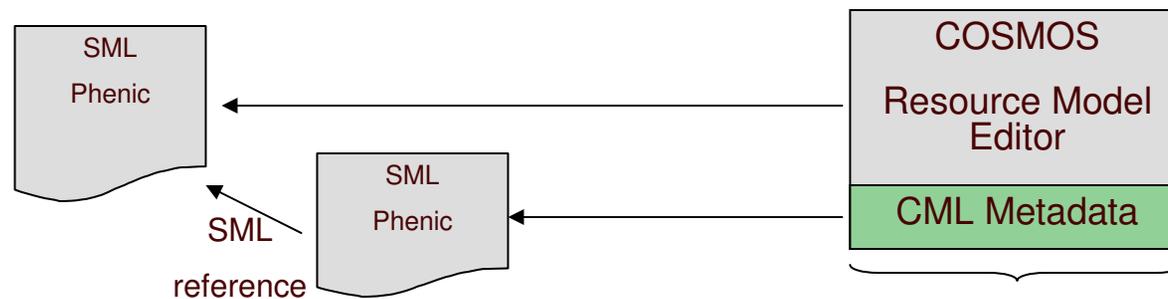


- Standard API for “export”, “importing”



- Open source implementation is a file system

Using SML in the Monitoring life cycle: Annotating what can be observed on a resource

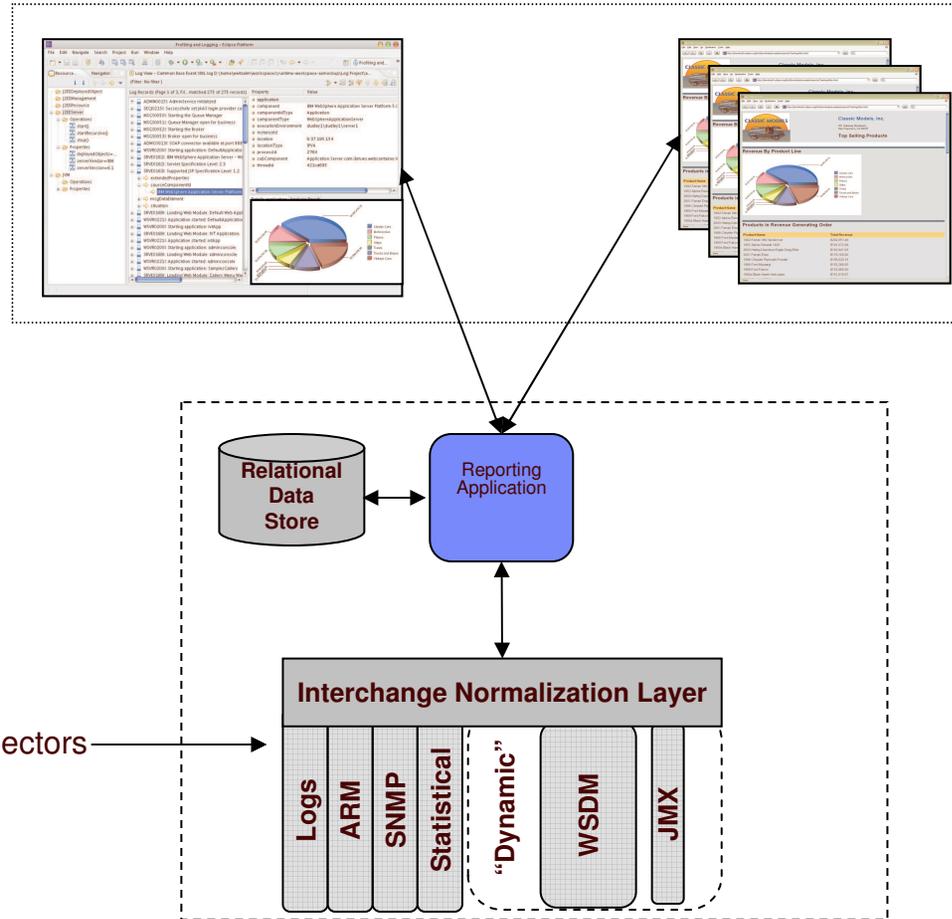


- This creates a SML phenic document that captures the monitoring metadata
- This is a CML proposal**

COSMOS Subprojects

- Resource Modeling
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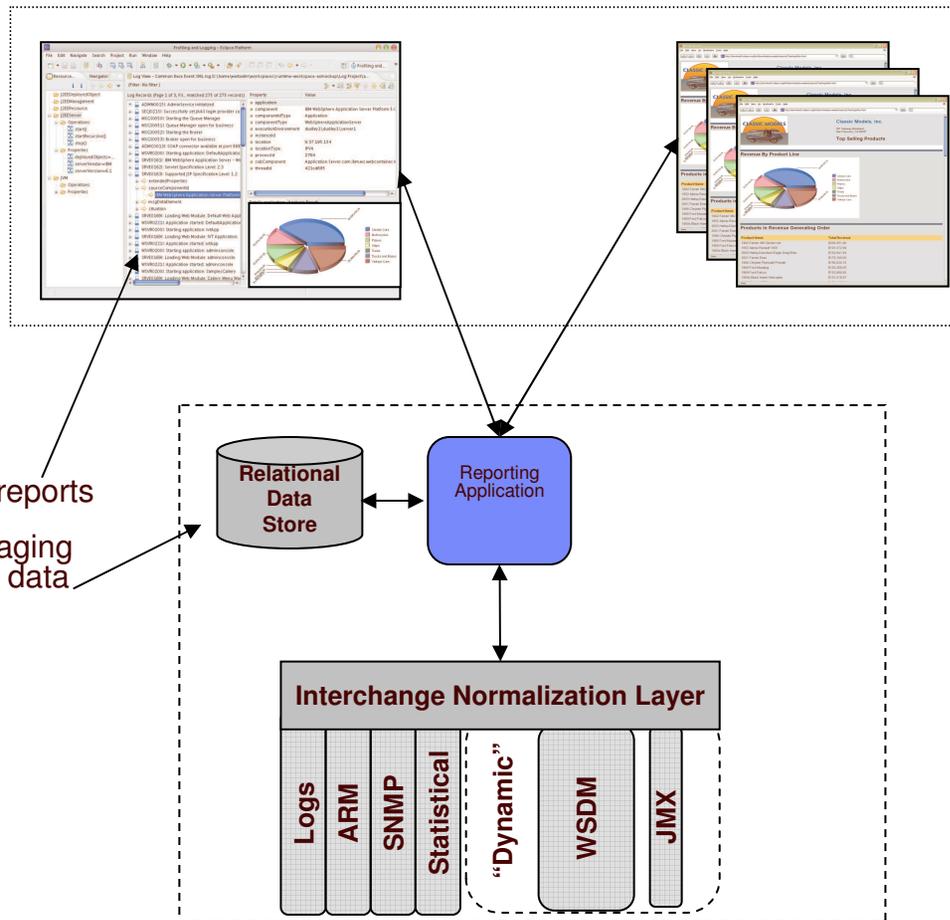
Using BtM in the Monitoring life cycle:



COSMOS Subprojects

- Resource Modeling
- Build to Manage (BtM) a.k.a Enabling Management
- **Monitoring**
 - Data collection
 - Reporting

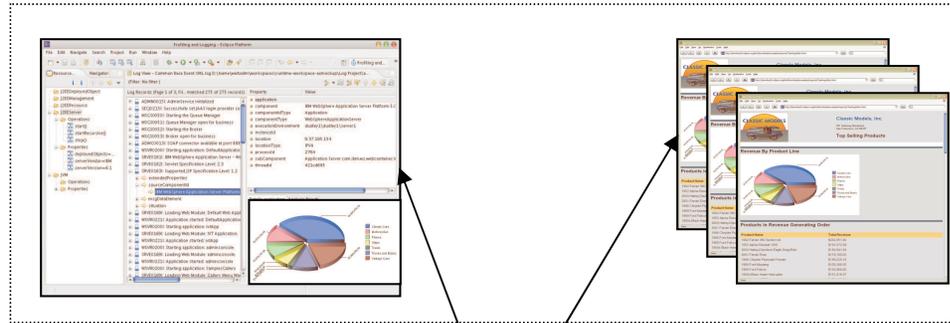
Using Data Collection & Reporting in the Monitoring life cycle:



Commercial monitoring systems can:

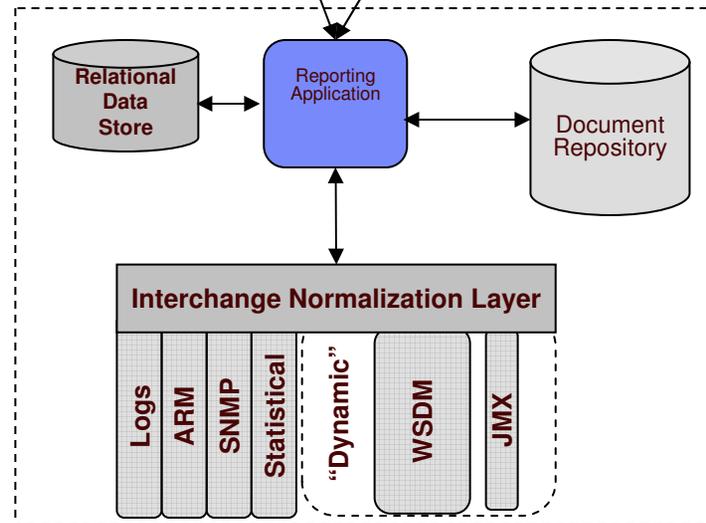
- reuse community created reports
- extend their data by leveraging the content of the relational data store

Using SML in the Monitoring life cycle: Making the observation



Commercial monitoring systems can:

- extend their data by leveraging the document repository



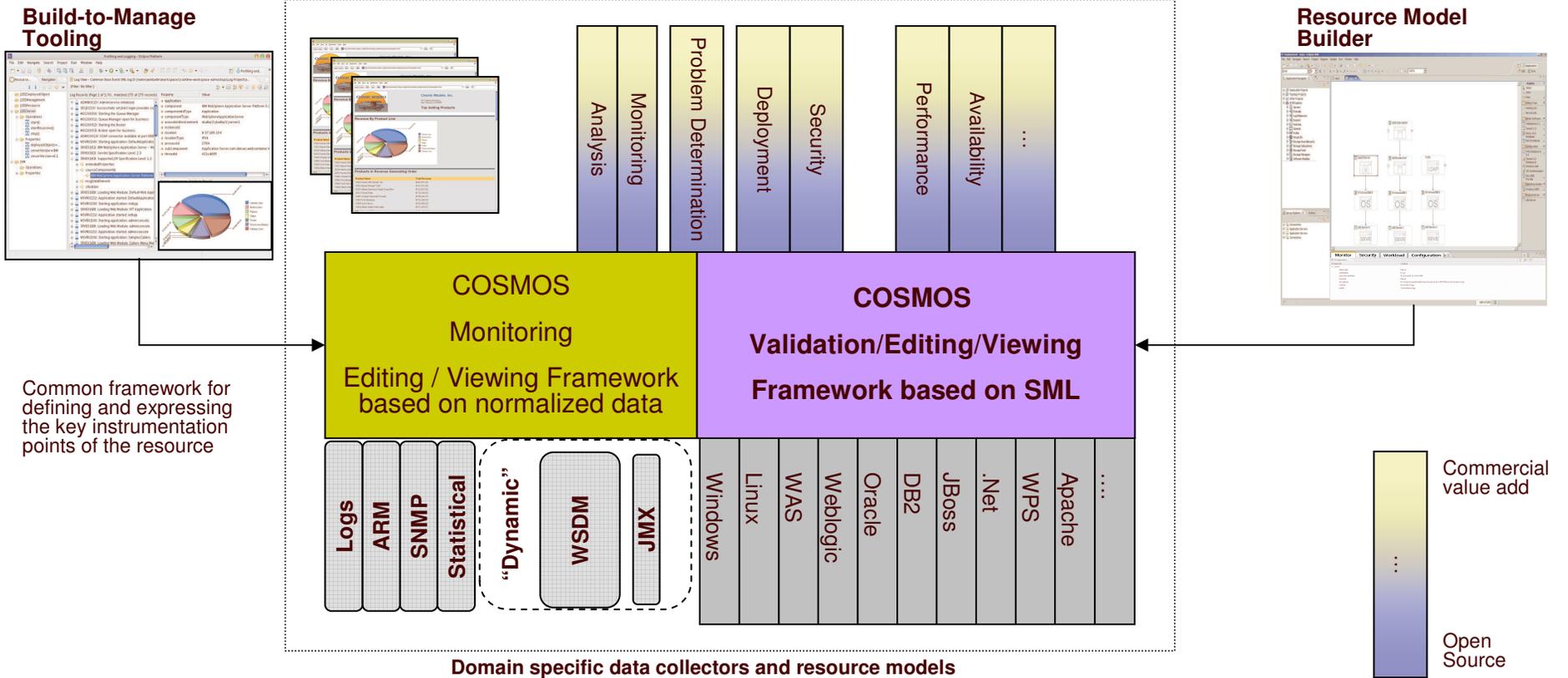
Use phenic documents to indicate

- What to collect
- What information is observable
- Phenic documents used to carry the data

COSMOS Resource monitoring and modeling tools

COSMOS is committed to providing exemplar usage of its APIs without eroding commercial opportunities

Domain specific value add plug ins can be completely in commercial space, with minimal open source capability to demonstrate and prove the framework



Common framework for defining and expressing the key instrumentation points of the resource