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# Using a generic policy-based infrastructure for implementing business processes

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## Presentation outline



- **Background and open policy issues**
- **Policy concepts**
  - Policy
  - Policy rule
  - Policy group
  - Policy execution environment
- **Policy and Business processes**
  - Policy groups for business processes
- **Example:** SLA Negotiation Policies in the FORM project
- **Conclusions**
- **Future plans**

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## Background and Open Issues



- Background work
  - TMF Policy Group
  - Imperial College work
  - IETF/DMTF: PCIM and CIM
  - IST projects (Tequila, Cadenus, Aquila, etc)
- Open issues
  - Policy taxonomy
  - Generic policy language
  - High/Low level policy organisation
  - Transformation between high and low level policies
  - Policy validation
  - Conflict resolution
  - Policy domains
  - Security concerns

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## Policy concepts



- Event
  - Triggers the evaluation of a condition in a policy rule
- Condition
  - If a policy rule condition evaluates to be true an action will take place
- Action
  - A process that is executed depending on the evaluation of a condition in a policy rule
- Policy rule
  - Expresses policy
  - Format: when <event>, if <condition> then <action>
- Policy group
  - A set of policy rules that concern a particular application area
  - Has the form of a single policy rule
  - Format: when <event>, if <policy rules evaluation> then <policy group actions>

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## Policy group features



- **Conflict free:** no unresolved conflicts among policies of the same policy group
- **Execution unit:** policy group rules can be evaluated and executed in the same process
- **Evaluation unit:** policy group rules can require the evaluation of other policy groups but not of individual policy rules in other policy groups
- **Processing unit:** A policy group can only be processed as a whole. Therefore, no partial evaluation or execution of policy rules within a group is allowed
- **Reusable unit:** A policy group can be reused in different policy execution environments
- **Distribution unit**
- **Deployment unit**

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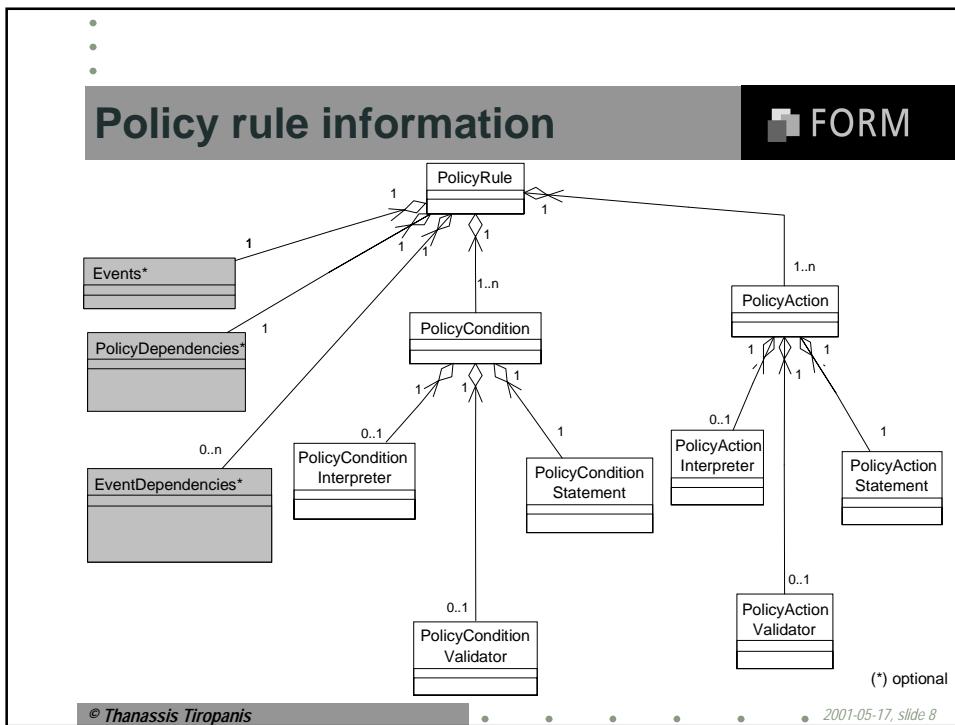
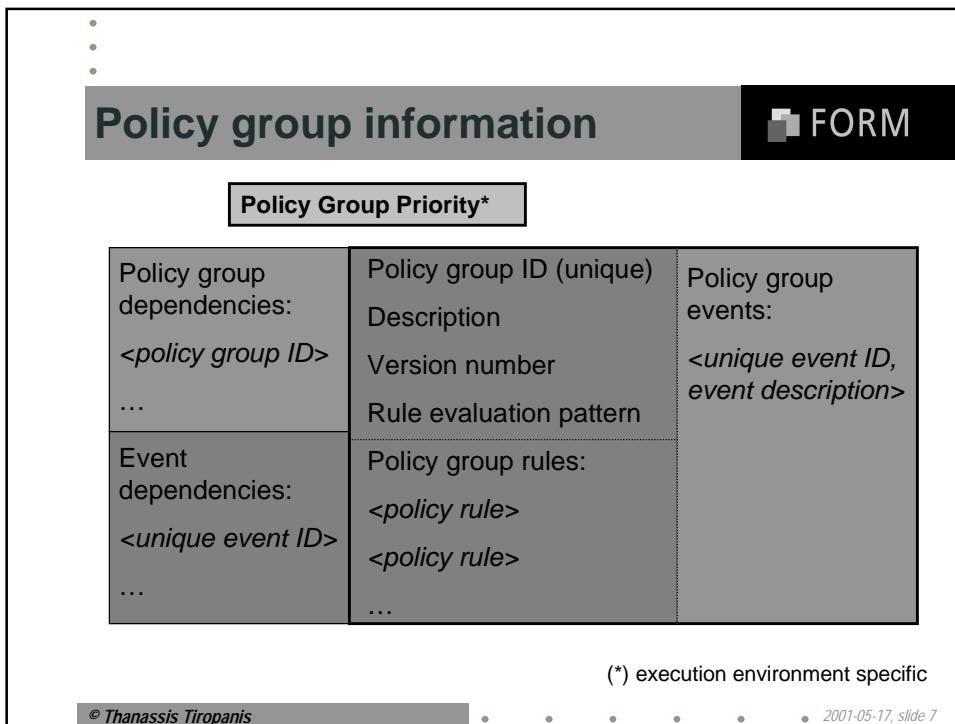
## Policy rule features



- **Processing unit**
- **Evaluation unit**, and
- Provided it comes with the specification of its events and its dependencies on other policy rules:
  - **Reusable unit**
  - **Distribution unit**
  - **Deployment unit**

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## Policy model qualities



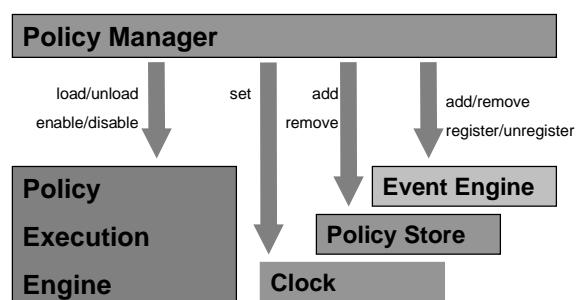
- Policy language independent
- Applies to different application areas
- Policy semantics are out of the model
- Security information can be added
- Compatible with current IETF/DMTF policy models
- A base for the implementation of policy language independent PDP/PEPs
- Separation between PDP/PEP infrastructure and policy specification, interpretation and enforcement

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## Policy execution environment



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## Policy groups & Business Processes



- Business processes can share the same policy execution environment
- Each business process is implemented by one or more policy groups
- A policy group may be reused for different business processes
- Policy rules (together with relevant events and dependencies) can be reused in one or more policy groups.

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## Policy Hierarchy for Business Processes

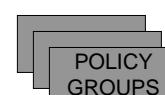


TOP LAYER



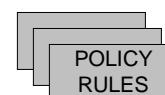
These policies control the policy execution environment and the handling of the lower-level policies and policy groups

MIDDLE LAYER



Conflict-free units of policy distribution, deployment, reusability, processing, evaluation and execution. Contain one or more policy rules. Policy groups are contained in one or more root policies

BOTTOM LAYER



Under conditions units of reusability, distribution and deployment. They can only be contained in policy groups.

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## FORM: Goal and Approach



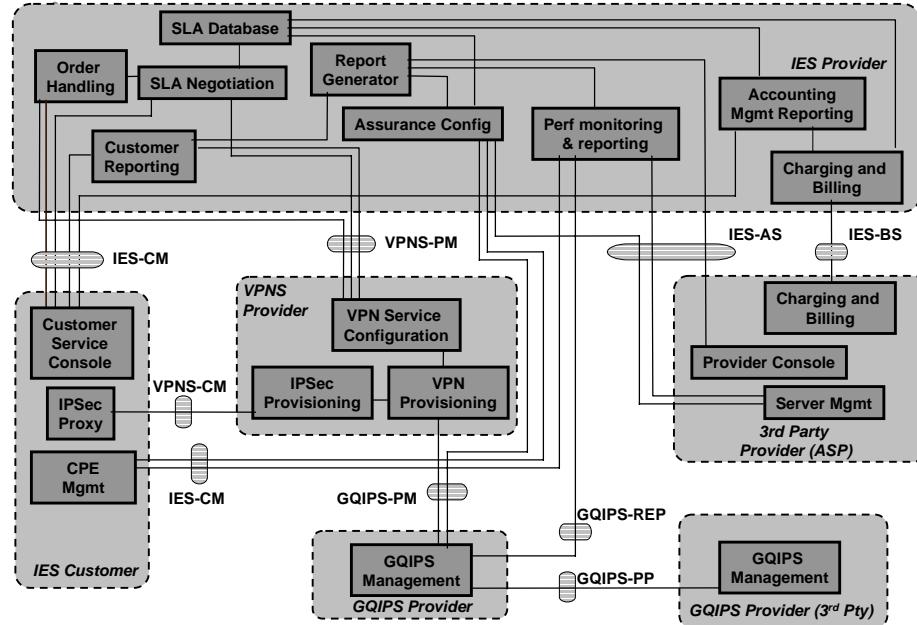
**GOAL:** *To enable FORM's industrial partners to exploit services, software systems and software components for the management of an outsourced Inter-Enterprise Service (IES) supporting B2B communication requirements*

**APPROACH:** *Definition of an Open Development Framework (ODF) addressing operational needs for IES management and development of management systems based on software components (Building Blocks)*

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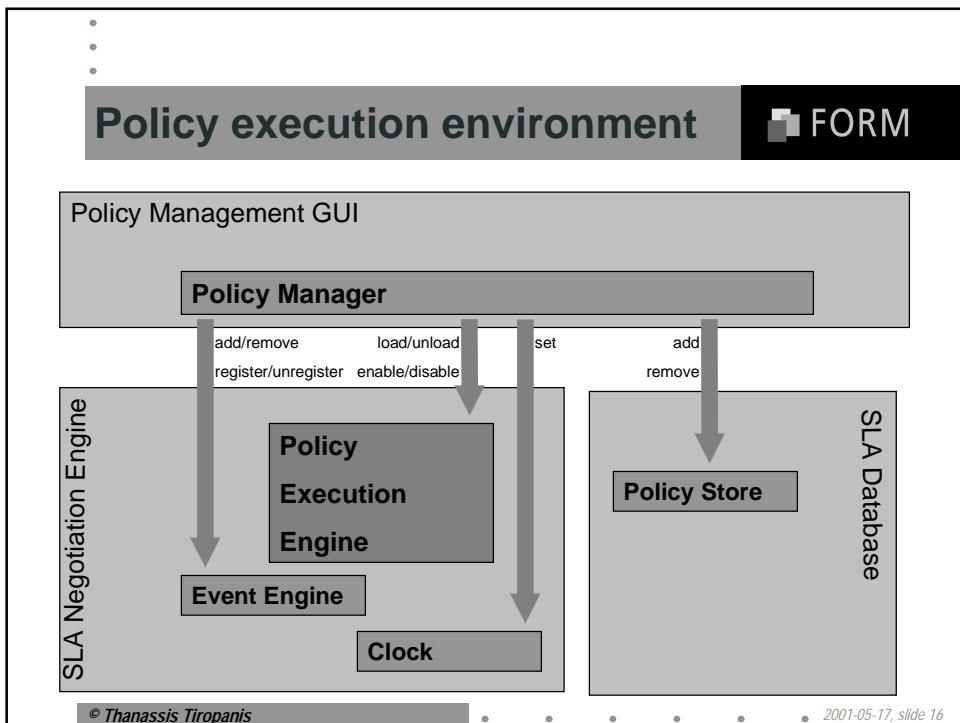
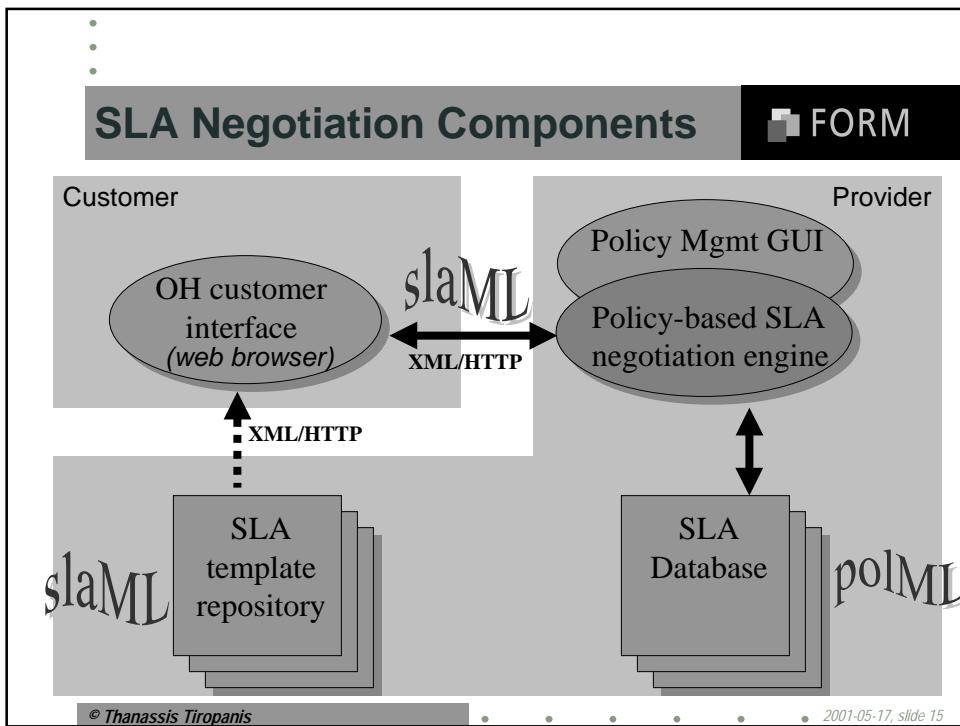
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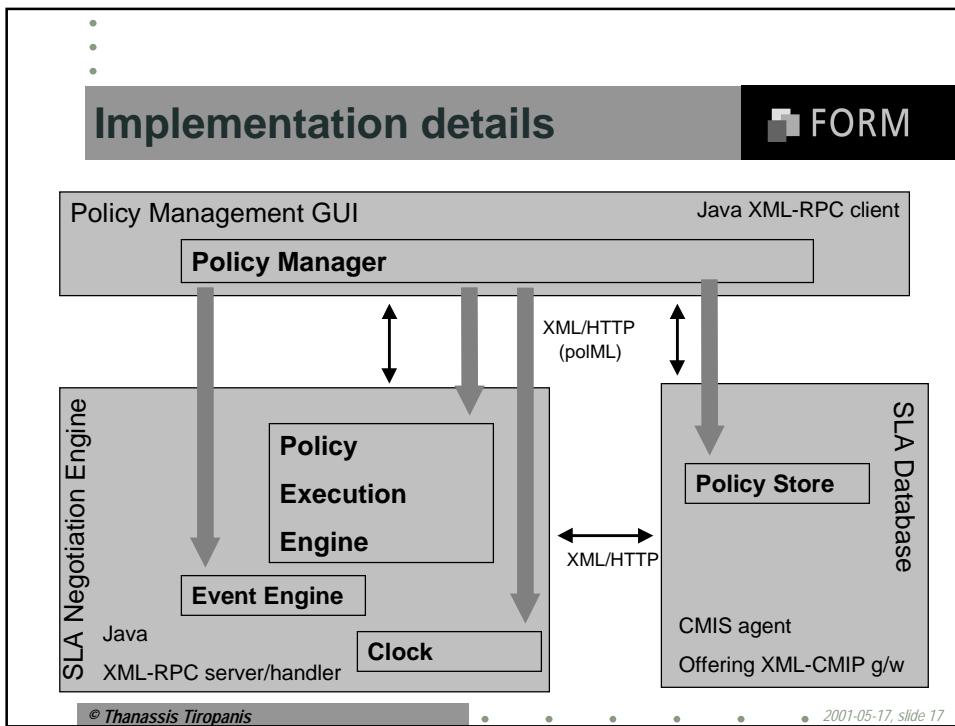
## FORM Business Processes



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## Conclusions



- A common policy execution environment for Business Processes is feasible
- The policy group concept can assist to using a policy based approach for business process implementation
- Added value from policy group reusability
- The generic policy model allows the execution of policies of different languages on the same execution environment
- Policy group specification for SLA negotiation is available

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## Further work



- Policies for business processes
  - Catalogue of events, conditions and actions that relate to specific business processes
  - Catalogue of policy rules
  - Catalogue of policy groups
- Complete the implementation of the policy execution environment
- New policy groups for order handling and other business processes
- Policy domains
- Security concerns

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