Object Monitor

An Open Extensible Flexible Framework For Building Distributed Event Monitoring Systems

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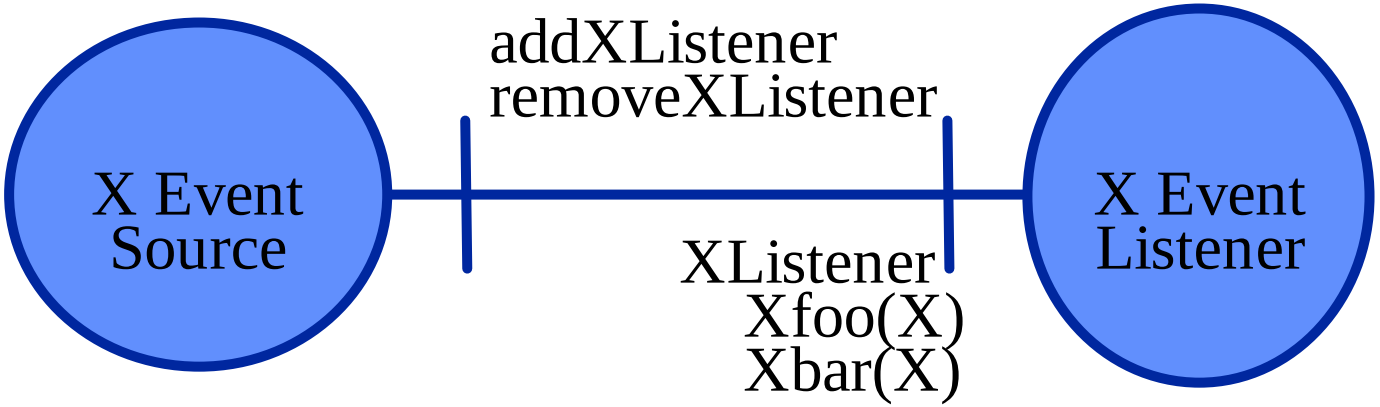
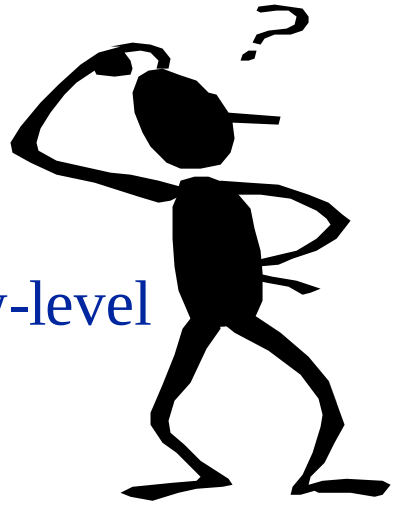
An Extension of the Java Beans Event Model

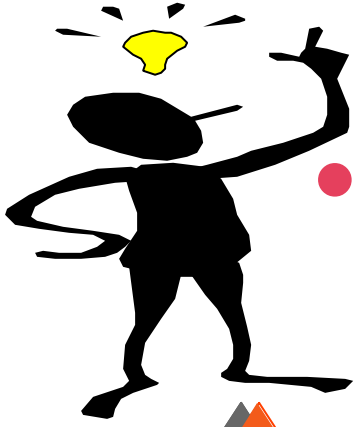


- Typed Events → Generic Events
- Decouple Sources and Sinks
  - View
  - Location
- Primitive Events → Composite Events

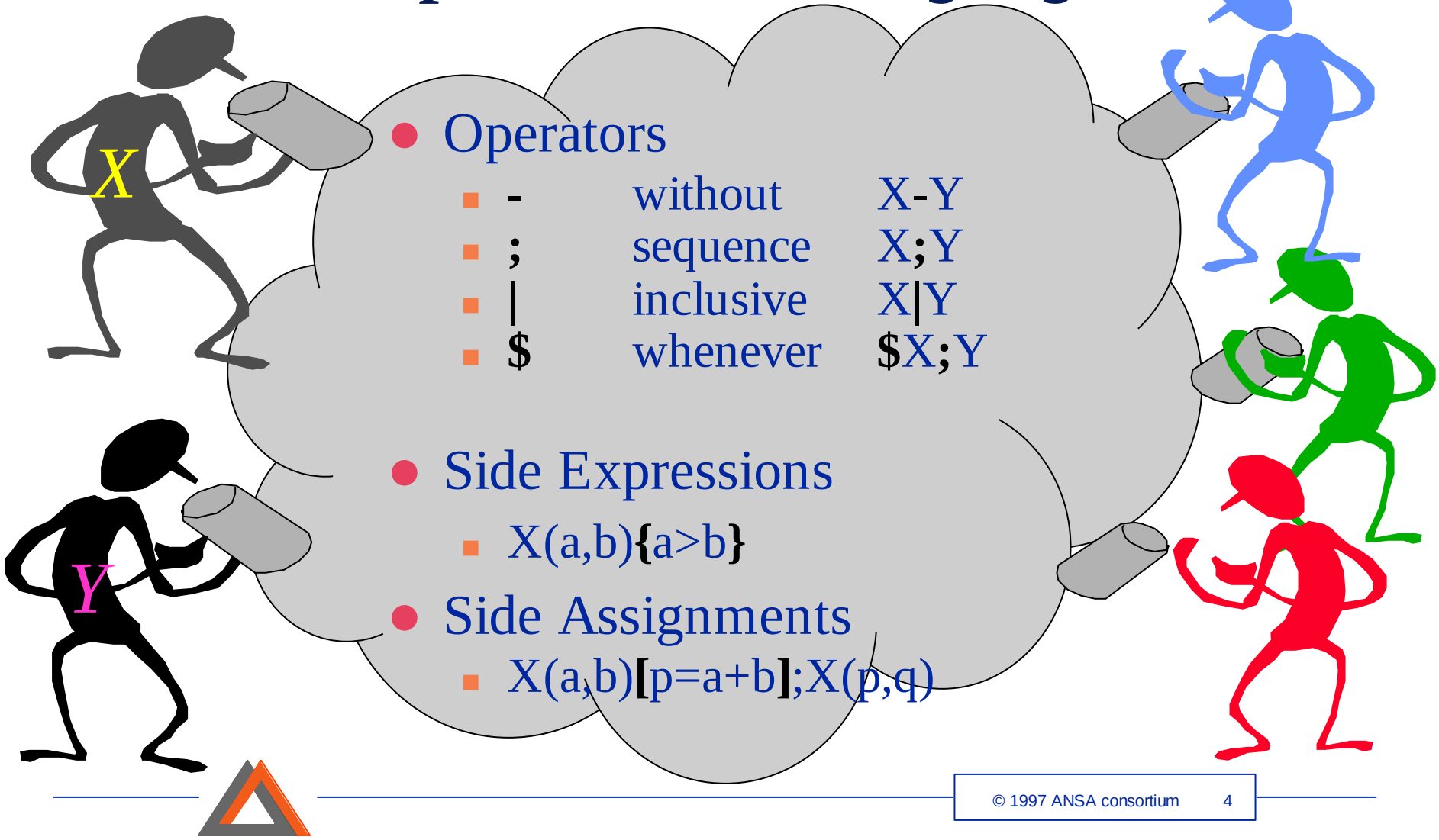
Events

- Advantages ...
  - Loose coupling
  - Simple programming model
- But ...
  - Low level of abstraction
  - Understanding implications of low-level events
- So …
  - Composite event patterns



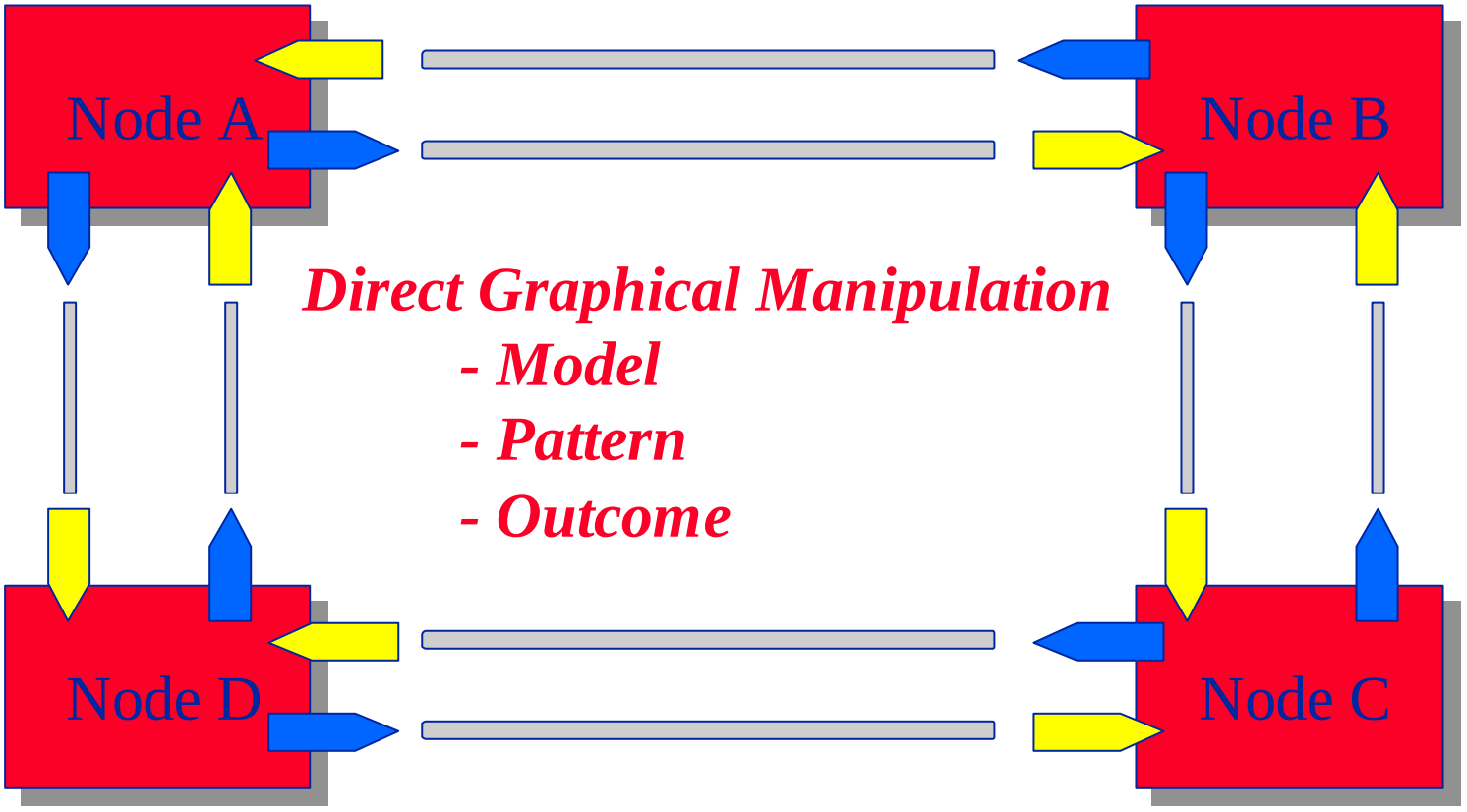


Composite Event Language



- Operators
  - **-** without X-Y
  - **;** sequence X;Y
  - **|** inclusive X|Y
  - **$** whenever **$**X;Y
- Side Expressions
  - X(a,b)**{**a>b**}**
- Side Assignments
  - X(a,b)**[**p=a+b**]**;X(p,q)

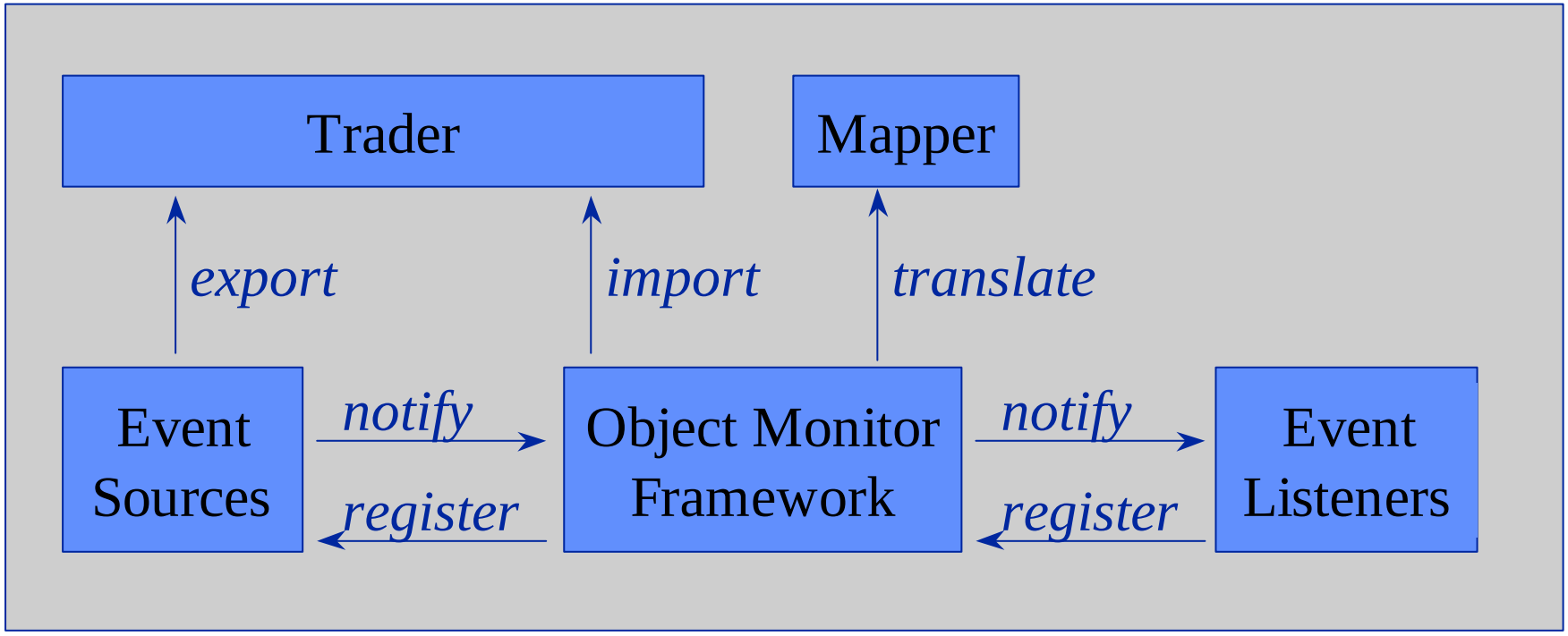
Network Management Demonstrator



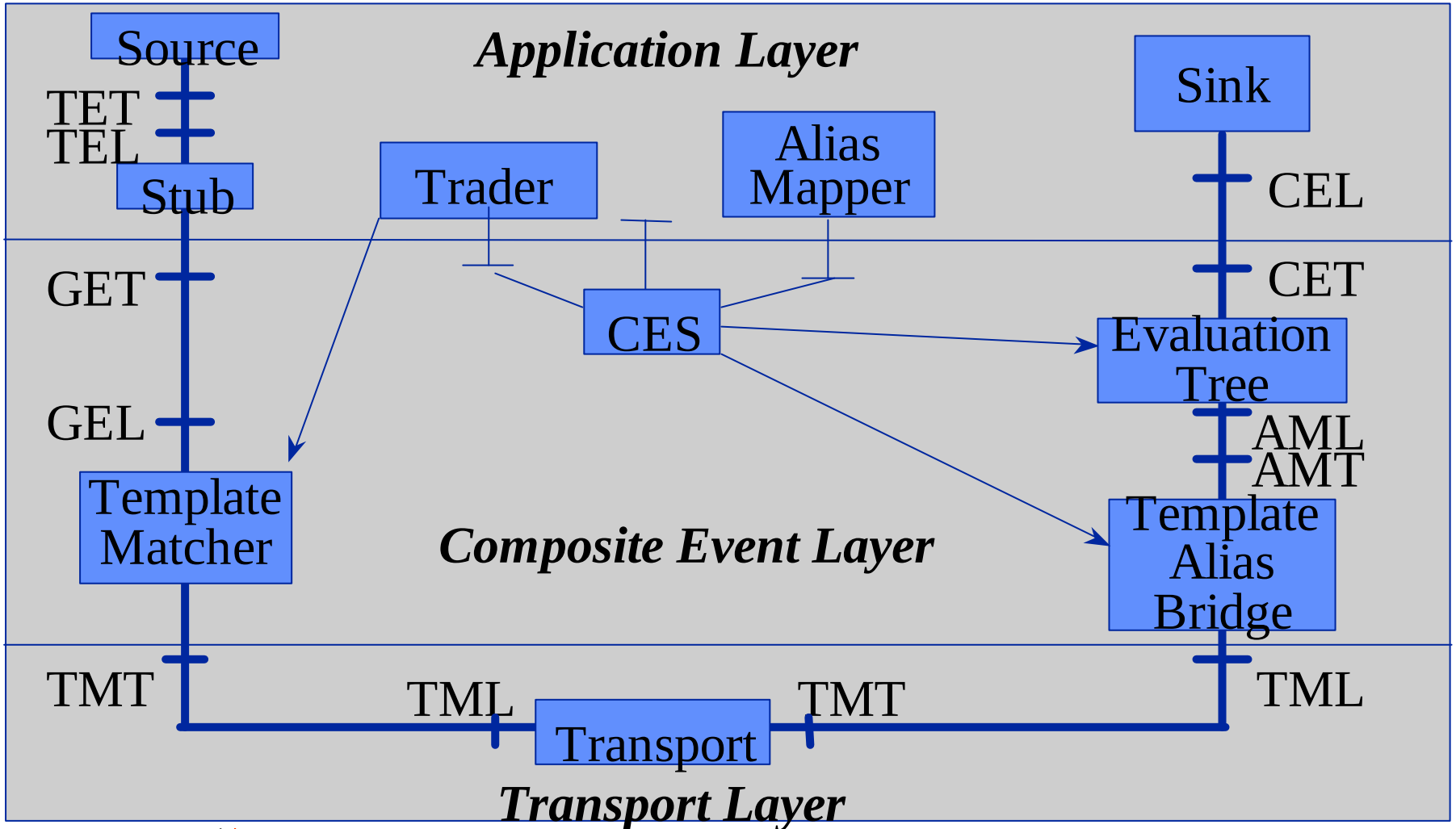
Event Patterns

- Node Failure
  - N(device)= $F(device, code){code==0}
- Security Violation
  - S()=$F(device, code){device==1&&code==1}
- Broken Cable
  - B(devA,devB)=$(F(devA,code){code==2};F(devB,code){!(devA==devB)})
- Loose Connector
  - L(d)=$F(d)[t=@];F(d);F(d);F(d);F(d);F(d){@<t+10}

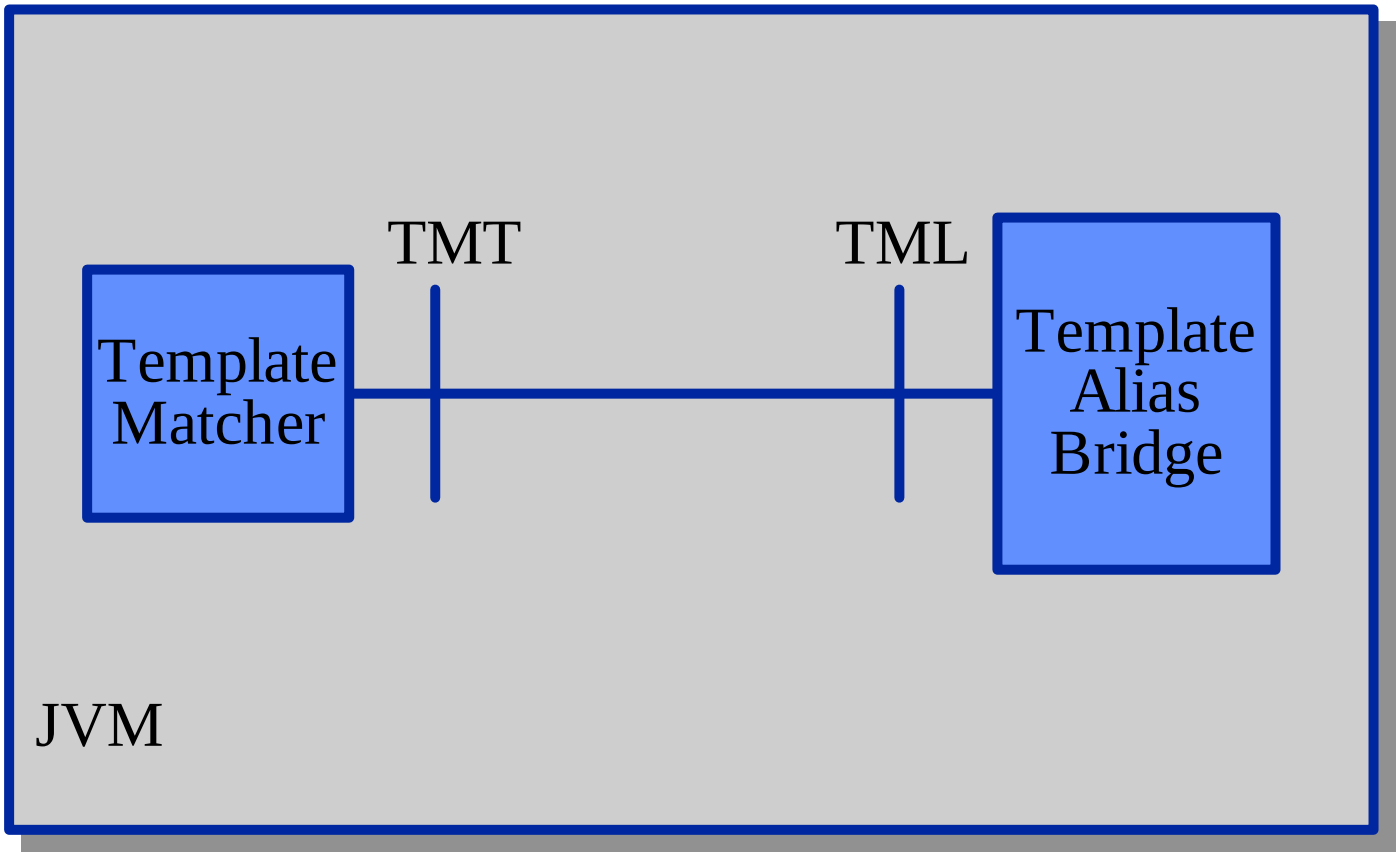
Event Sources , Event Listeners - the Object Monitor Framework



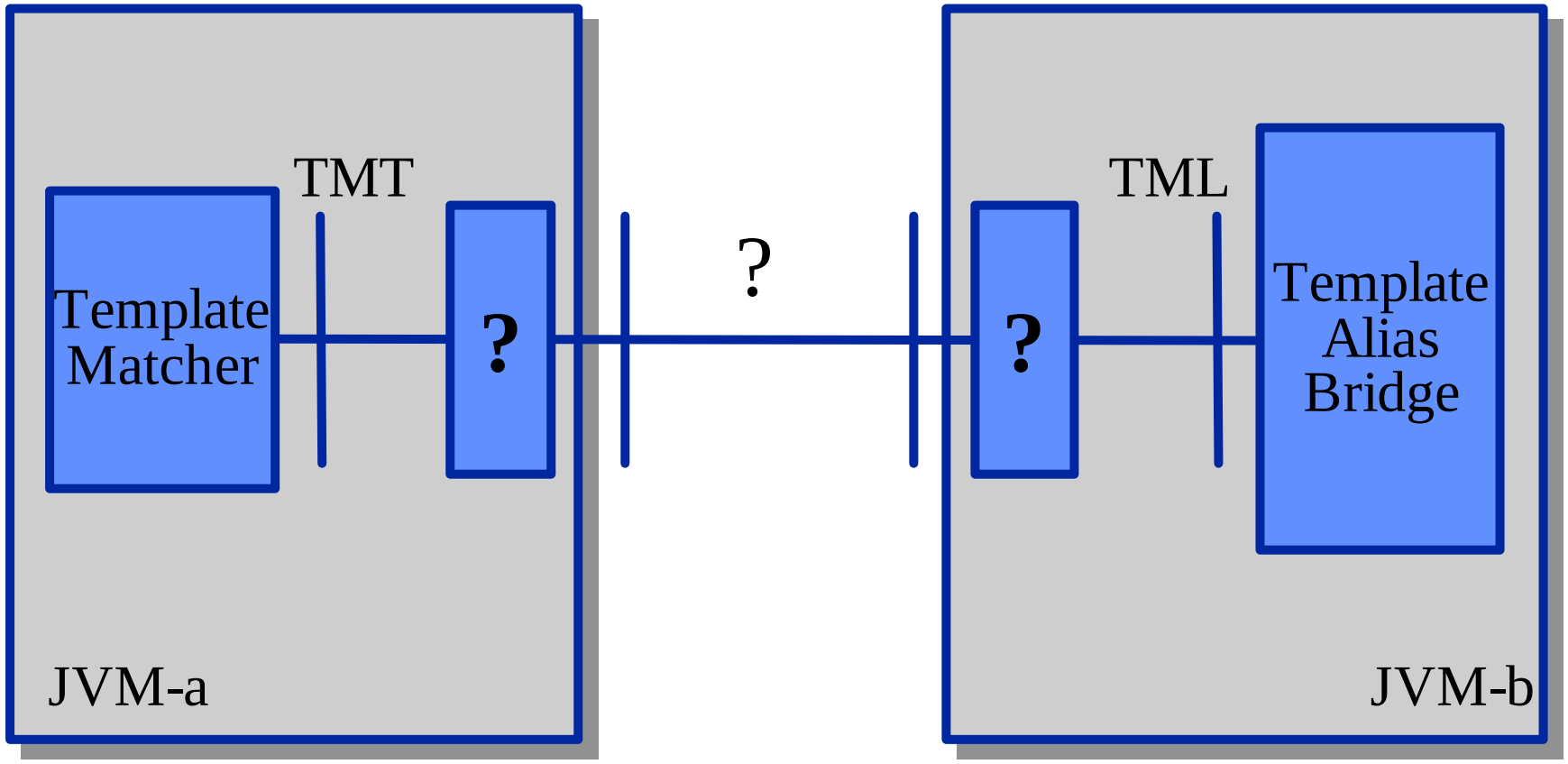
Layers of Bridges



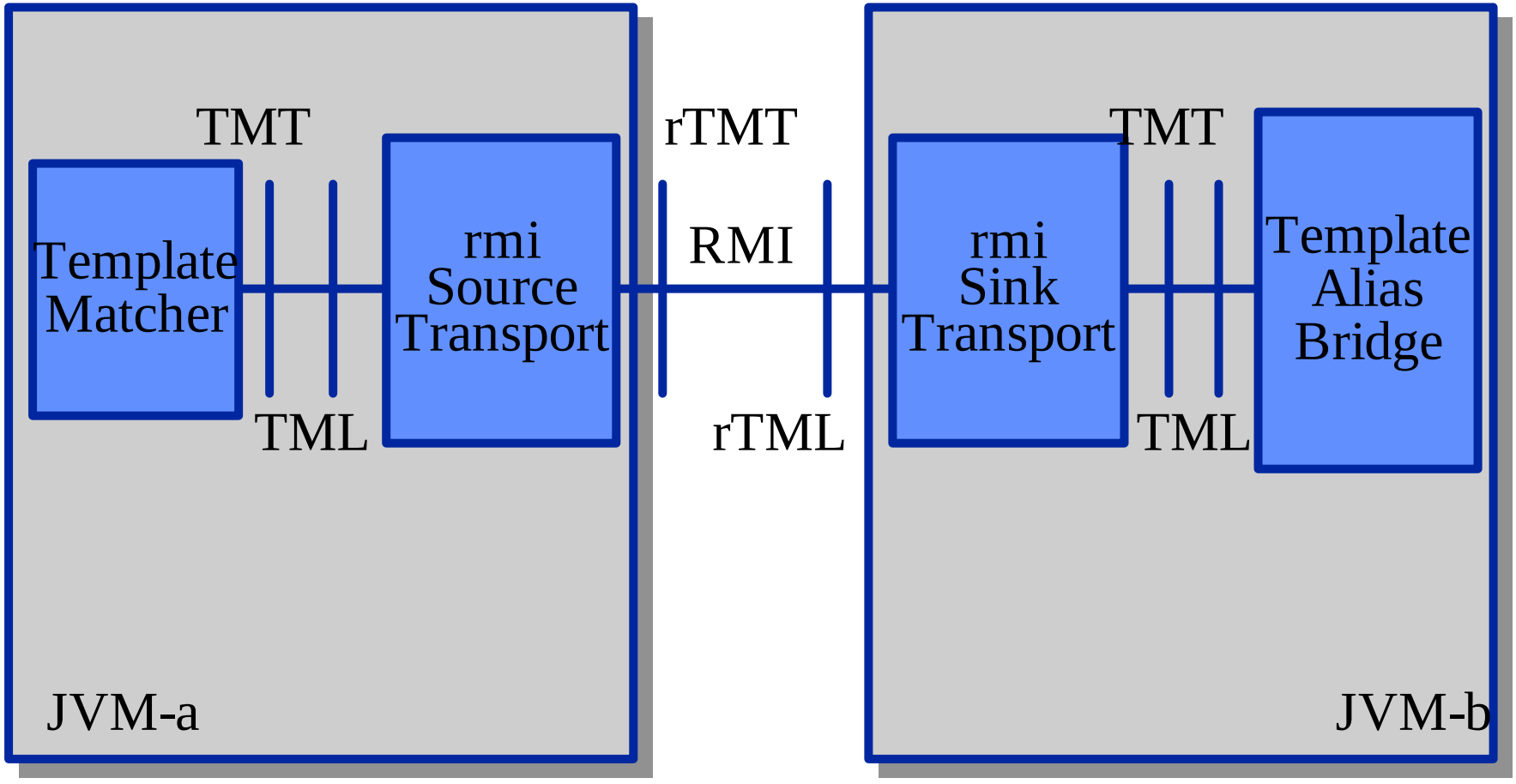
Non-Distributed Transport



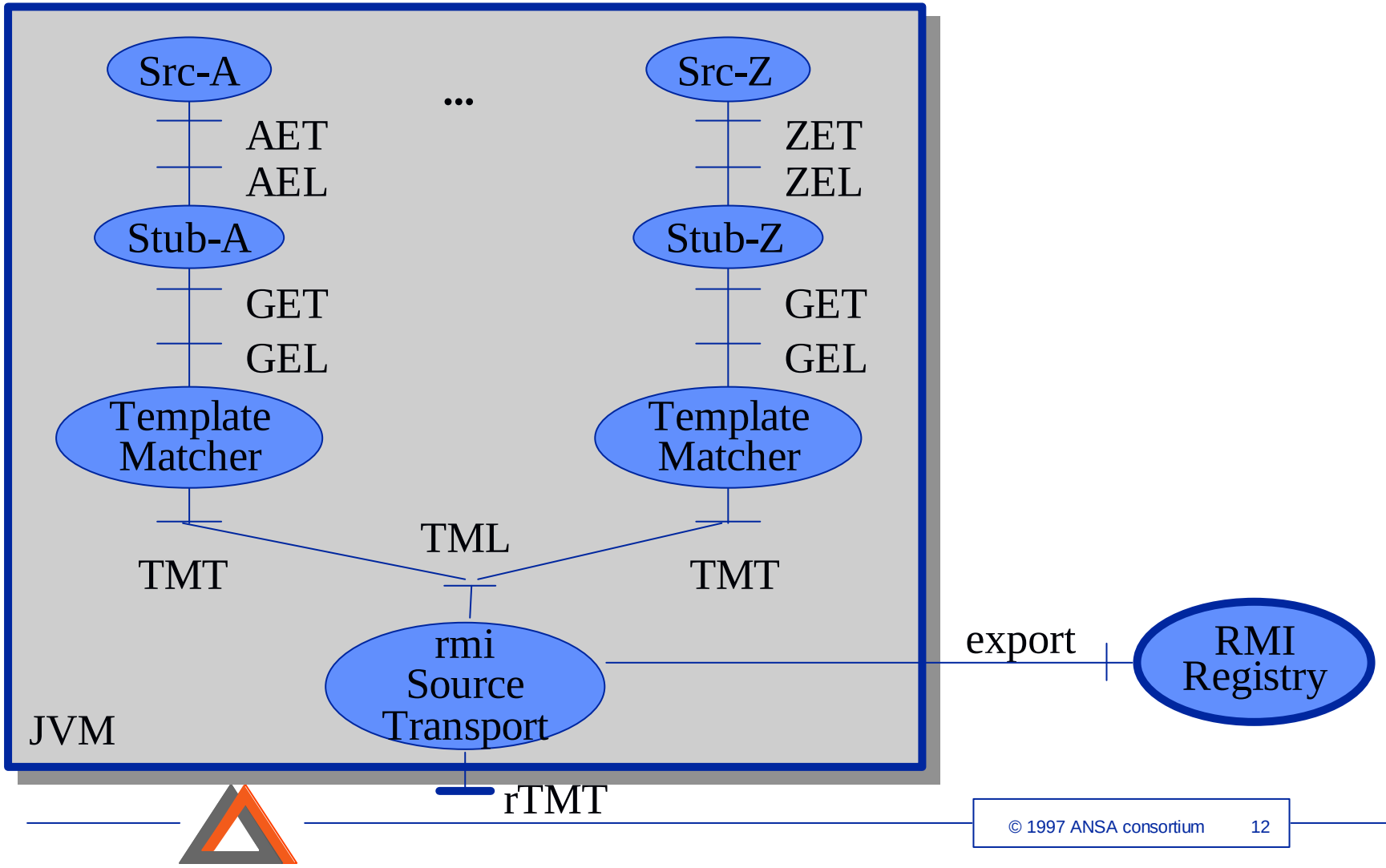
Distributed Transport



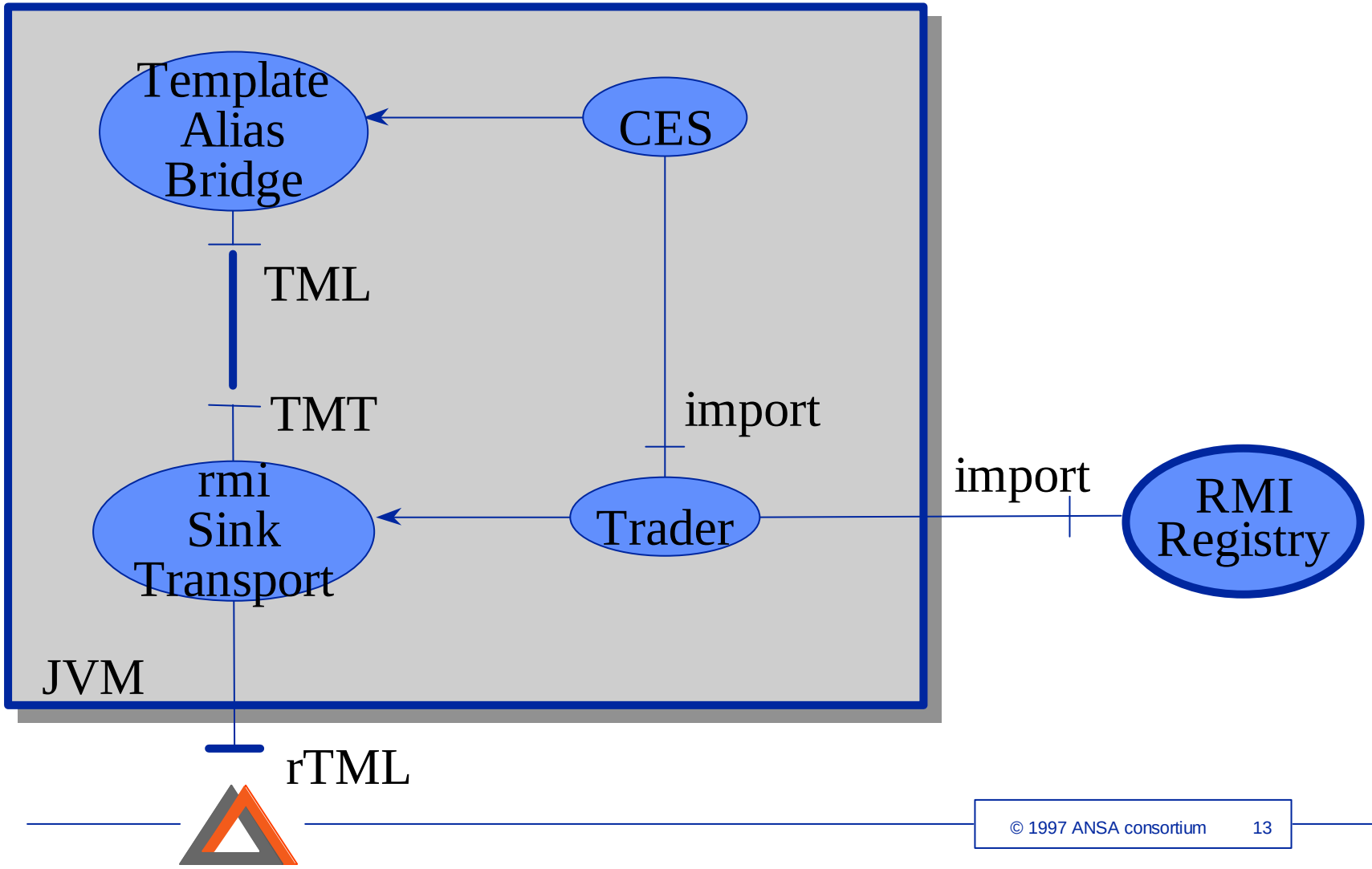
Remote Proxy Classes



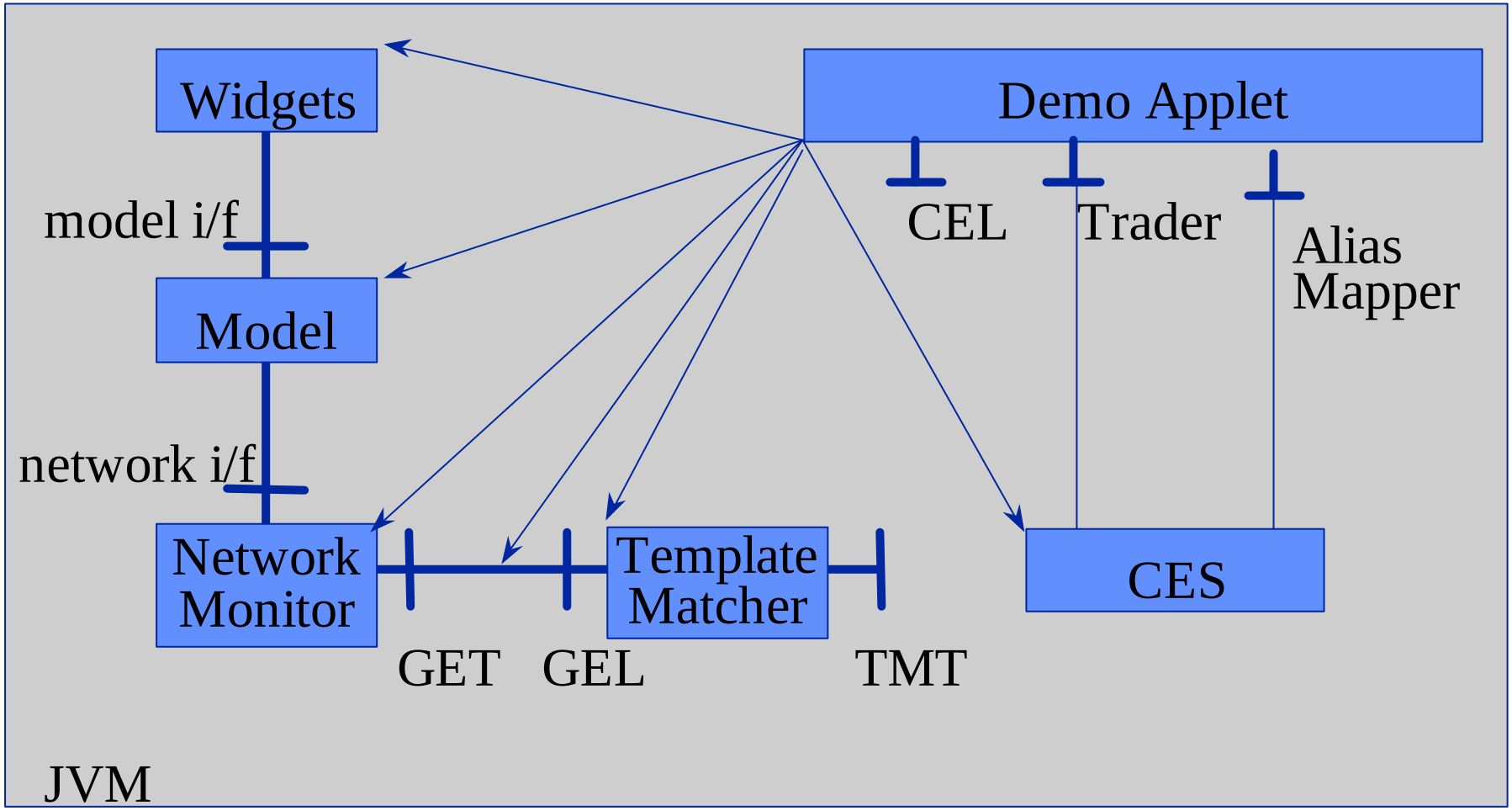
Source-side Transport



Sink-side Transport



Demonstrator - Single JVM



Demonstrator - Multiple JVMs