Object Monitor

An Open Extensible Flexible Framework For Building Distributed Event Monitoring Systems

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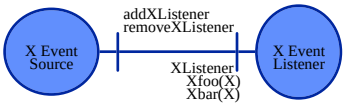
An Extension of the Java Beans Event Model

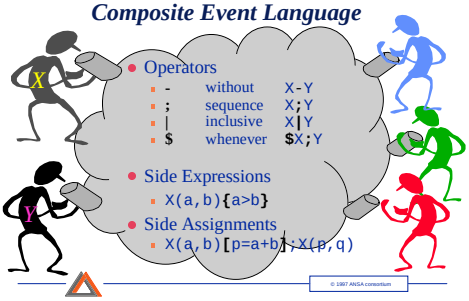


- Typed Events → Generic Events
- Decouple Sources and Sinks
  - View
  - Location
- Primitive Events → Composite Events

Events

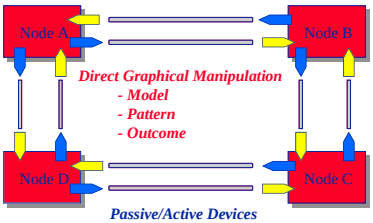
- Advantages ...
  - Loose coupling
  - Simple programming model
- But ...
  - Low level of abstraction
  - Understanding implications of low-level events
- So …
  - Composite event patterns

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)`

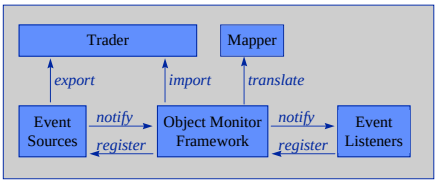
Network Management Demonstrator



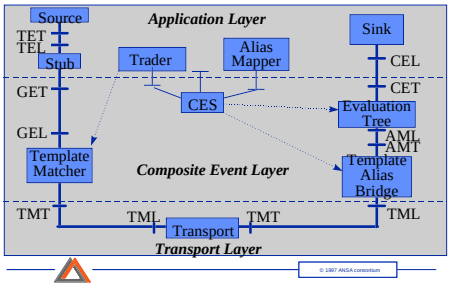
Event Patterns

- 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}`

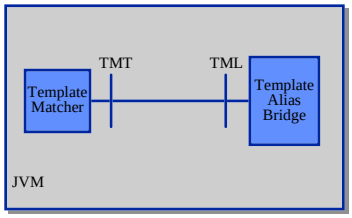
Event Sources , Event Listeners - the Object Monitor Framework



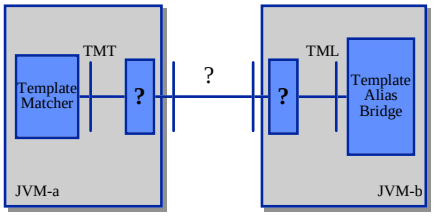
Layers of Bridges



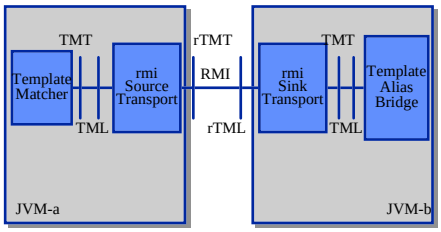
Non-Distributed Transport



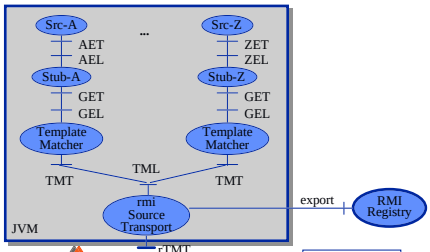
Distributed Transport



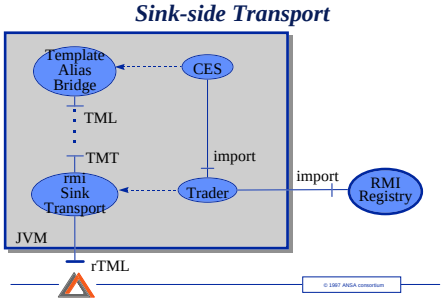
Remote Proxy Classes



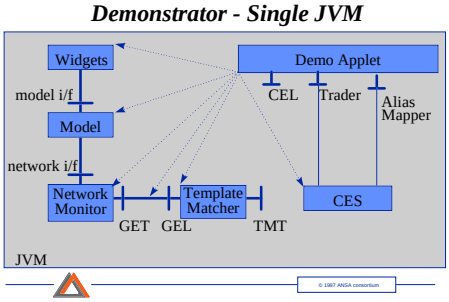
Source-side Transport



Sink-side Transport



Demonstrator - Single JVM



Demonstrator - Multiple JVMs