Examining BPEL's Compensation Construct

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What is WS-BPEL (née BPEL4WS)?

- Business Process Execution Language
- Web Services language
- Aimed at modelling the behaviour of
 - participants in business processes
 - the visible message-level behaviour of business protocols
- Under development by an OASIS Technical Committee
- Includes "compensation"



What is Compensation?

- It is:
 - Situation recovery
 - Post-completion
 - "Integrity" preserving
- It is not necessarily:
 - State rollback
 - Strict reversal
 - ACID
 - Error recovery



BPEL and Compensation

One outer scope with three nested scopes

outer body:	
	$\frac{\langle \text{body 2} \rangle}{\langle \text{compensator 2} \rangle} \\ \overline{\langle \text{fault handler 2} \rangle}$
	$\frac{\langle \text{body 3} \rangle}{\langle \text{compensator 3} \rangle}$
	$\overline{\langle \text{fault handler 3} \rangle}$
$\overline{\langle outer compensator angle}$	
$\overline{\langle outer fault handler angle}$	



BPEL and Compensation

The 1^{st} and 3^{rd} scope succeed, and the 2^{nd} scope fails.

Only the 1^{st} and 3^{rd} compensators are installed.

outer body:	$\frac{\langle \text{body 1} \rangle}{\langle \text{compensator 1} \rangle} \\ \overline{\langle \text{fault handler 1} \rangle}$
	$\frac{\langle \text{body } 2 \rangle}{\langle \text{compensator } 2 \rangle} \\ \overline{\langle \text{fault handler } 2 \rangle}$
	$\frac{\langle \text{body } 3 \rangle}{\langle 1 \rangle}$
	$\frac{\langle \text{compensator } 3 \rangle}{\langle \text{fault handler } 3 \rangle}$
(outer compensator)	
$\langle outer fault handler angle$	



Conclusion

- Exception handling construct
 - Modularized
 - Reorderable
- It is not generalized compensation
 - Invocation restricted
 - Scope restricted

