## 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

