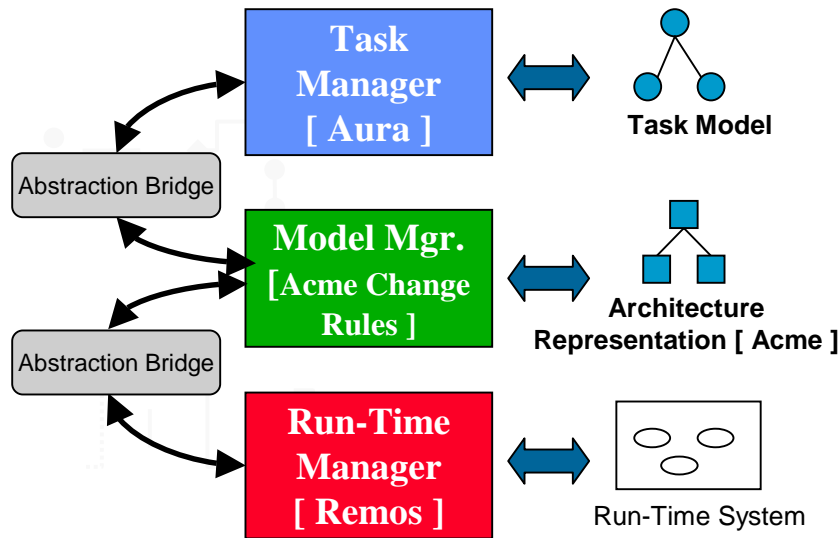


# Rainbow: Architecture-based Adaptation of Complex Systems

David Garlan and Peter Steenkiste



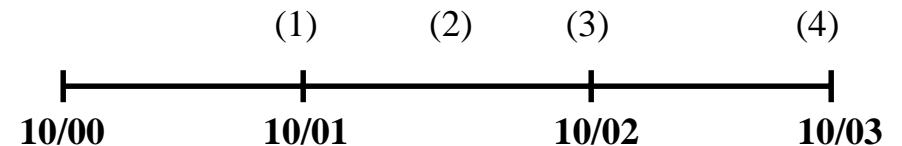
## New Ideas

- Monitor satisfaction of architectural constraints via explicit run-time architectural model, including constraints
- Establish target architectural requirements via explicit task model
- Adapt architecture using verified, style-specific change strategies
- Generate new connectors by transforming existing connector mechanisms, such as RPC

## Impact

- Instead of breaking or performing unacceptably, systems automatically adapt to changing environments
- Dramatically reduce cost of producing interaction mechanisms supporting high performance, reliability, security

## Schedule



- (1) Language for style-based repair strategies
- (2) Tool for generation of composable connectors
- (3) Demonstration of adaptive system that responds to changes in performance-based resources
- (4) Task modeling supported by tools

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