

Harmonizing Architectural Dissonance in REST-based Architectures

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Abstract

REpresentational State Transfer (REST) guided the creation and expansion of the modern web. What began as an internet-scale distributed hypermedia system is now a vast sea of shared and interdependent services. However, despite the expressive power of REST, not all of its benefits are consistently realized by working systems. To resolve the dissonance between the promise of REST and the difficulties experienced, we sought insights from numerous architectures in both web and non-web domains. Our investigation yields a set of extensions to REST, an architectural style called Computational REST (CREST), that not only offers additional design guidance, but pinpoints, in many cases, the root cause of the apparent dissonance between style and implementation. Furthermore, CREST explains emerging web architectures, such as mashups, and points to novel computational structures in domains such as distributed computation and multimedia streaming.