

Hello my name is Petros and I'm
a declaraholic

NetDB 2009

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Searching and Fearless Inventory

- Member of the P2 group since its beginning
- Dubious distinction of having been the world's foremost OverLog expert for a few years
- Lots of exciting declarativeness: networking, overlays, classic algorithms, BFT systems
- Proof of concept deliriously successful: **systems can be distributed views!**

Admit Nature of Wrongs

- First-system syndrome: unintuitive semantics
 - State updates non atomic, not ordered, etc.
 - Soft-state across nodes muddy at best
 - Soft & hard state: multiple intuitive meanings
 - Fix: find actual semantics and publish it!
 - High ground of ostentatious correctness
- Programming intuitiveness more important than heroic semantic prowess

Make Direct Amends

- Sorry!
- Help with features that no programmer enjoys
 - Messaging, data rendezvous, security, privacy
- In environments where optimization is tedious
 - Non-uniform networks, computation, trust, policy

Evolve steadily and let the mores catch up

Carry the Message to Addicts

MOMMIE: Middleware for Optimized mMessaging in Insecure Environments

Enough declarativity to bring distributed
algorithmic designs to life efficiently

Carry the Message to Addicts

- Traditional, even imperative (GASP!) computation but abstracted coordination
 - Event-driven, with guards declared as conditions on ephemeral object graphs
 - Data types, content, authentication, confidentiality, privacy
 - Data model monotonic without negation
 - Not about application state, but about immutable “messaging” data
- Transitions are black-box, with side-effects
 - Implemented in C++, python, Erlang, Basic, punch cards
 - If computation formal (e.g., in +Cal), can compose proof with coordination!
- Runtime provides componentized implementation of semantics
 - Crypto for security/privacy, Transports, Caching discipline, Garbage collection
 - Safe transformations thereof: batching, amortization, refinement, escalation
 - Optimize choice using deployment characteristics, measured and configured