Inferring Networked System Models from Behavior Traces

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Motivating question

A developer often asks..,

Why does my system behave in a certain manner?
One solution: logging

1. Log important events
2. Re-run system
3. Look at the log
4. Gain insight
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Another formulation

Developer wants to check her mental model against what the system is doing
Another formulation

Developer wants to check her mental model against what the system is doing.

But, for this we need a model of the system!
Bridge logging and modeling

Model inference

Input

Output

Client State Diagram

N/A

Send RDC back

Send IC

Set state to IN

Send WC back

Set state to RW

N/A

WDS

Send RC back

RDS
Bridge logging and modeling

Synoptic

Input

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Output
An exciting research space

• What is the right model type?
• What is the right inference algorithm?
• How accurate is the resulting model?
• Is the model more insightful than the log?
• How big/diverse must the log be?
• ...

synoptic.googlecode.com