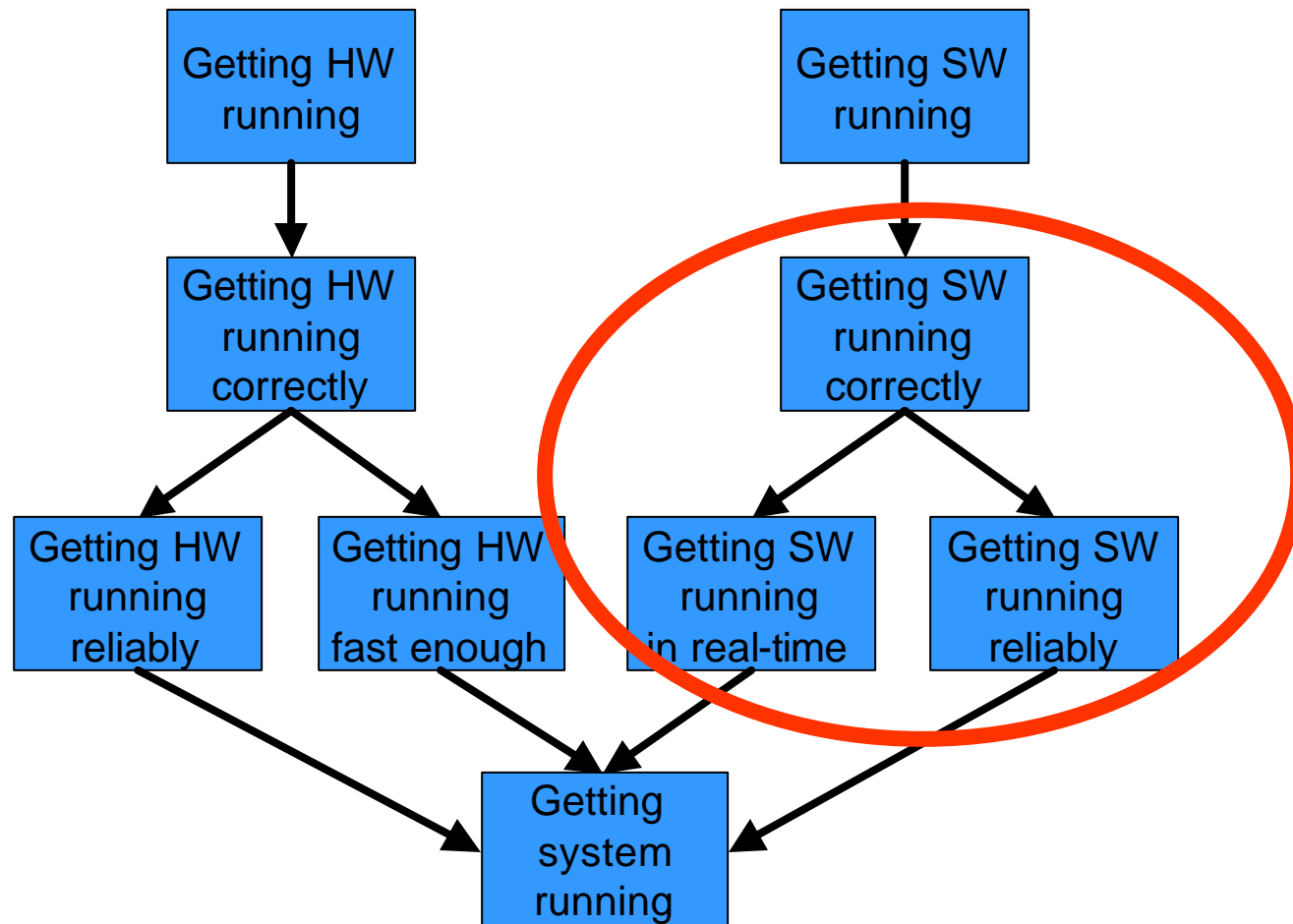


# Architecture, Design and Implementation of Embedded Systems for Real-Time Applications

CpE-450 - Spring 05  
Class 24

Bruce McNair  
bmcnair@stevens.edu

# Correctness, Reliability, and Real-time Performance



# Real-time and Correct Operation

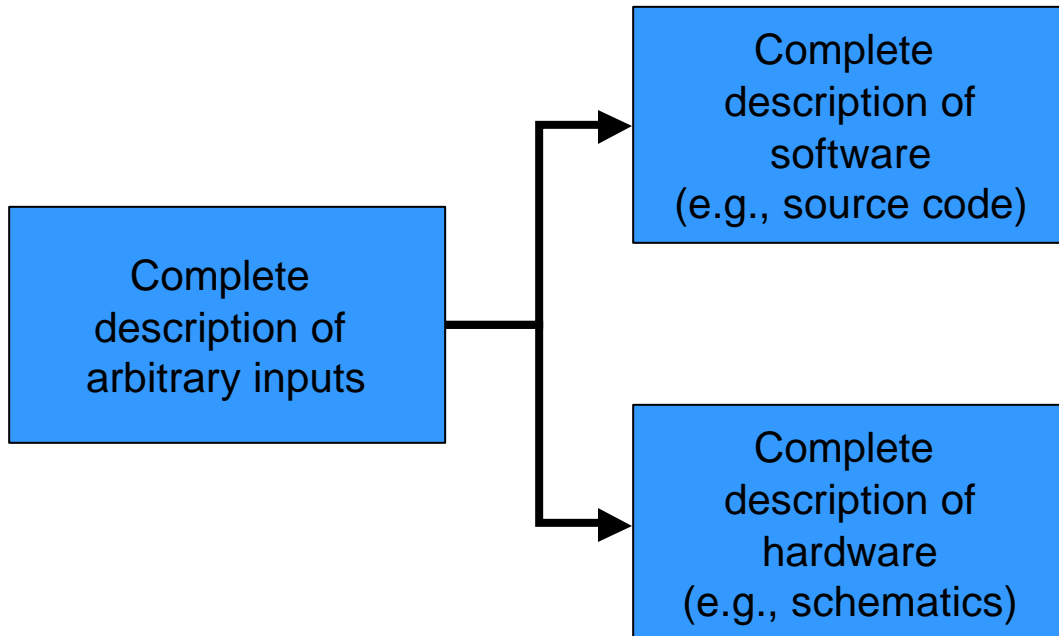
- Consider this system:

Complete  
description of  
software  
(e.g., source code)

Complete  
description of  
hardware  
(e.g., schematics)

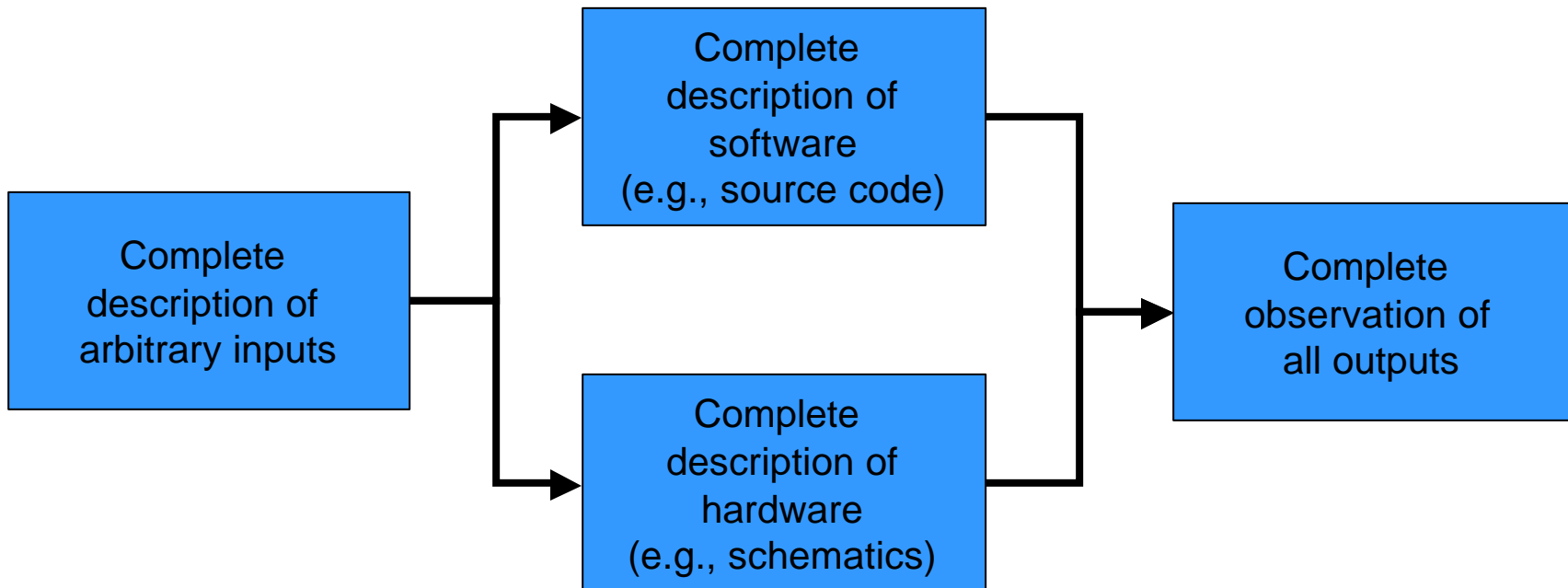
# Real-time and Correct Operation

- Consider this system:



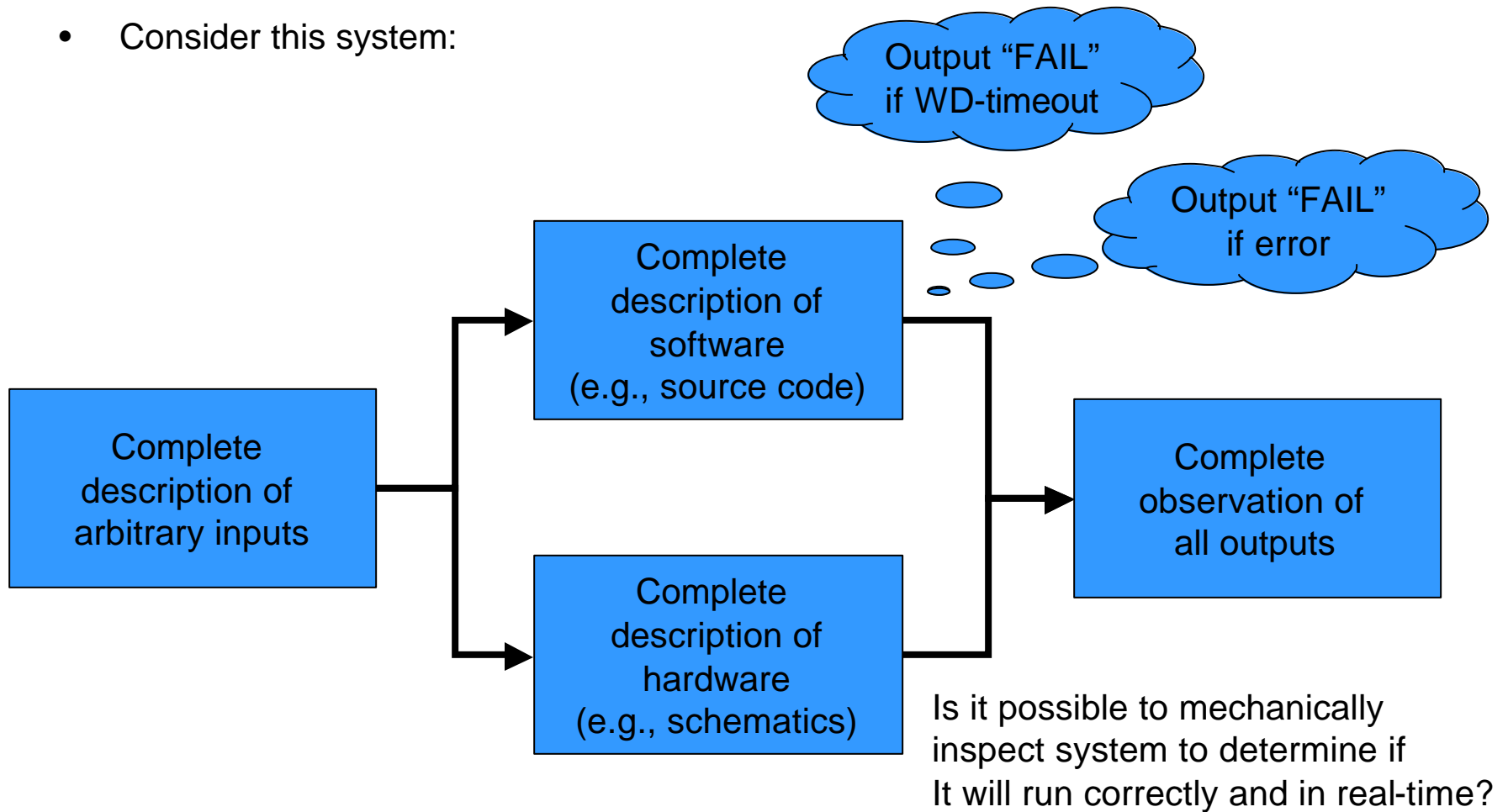
# Real-time and Correct Operation

- Consider this system:



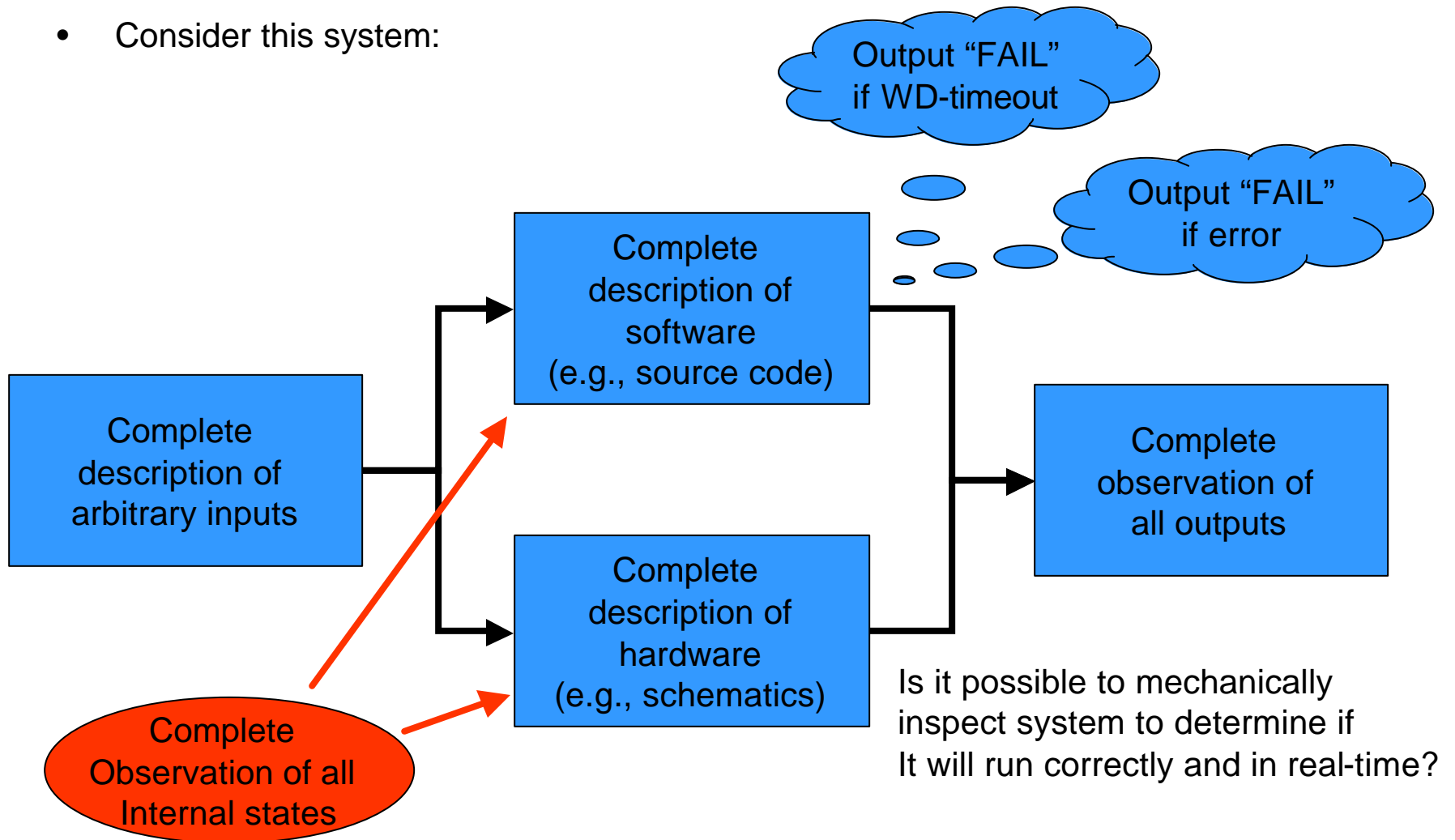
# Real-time and Correct Operation

- Consider this system:



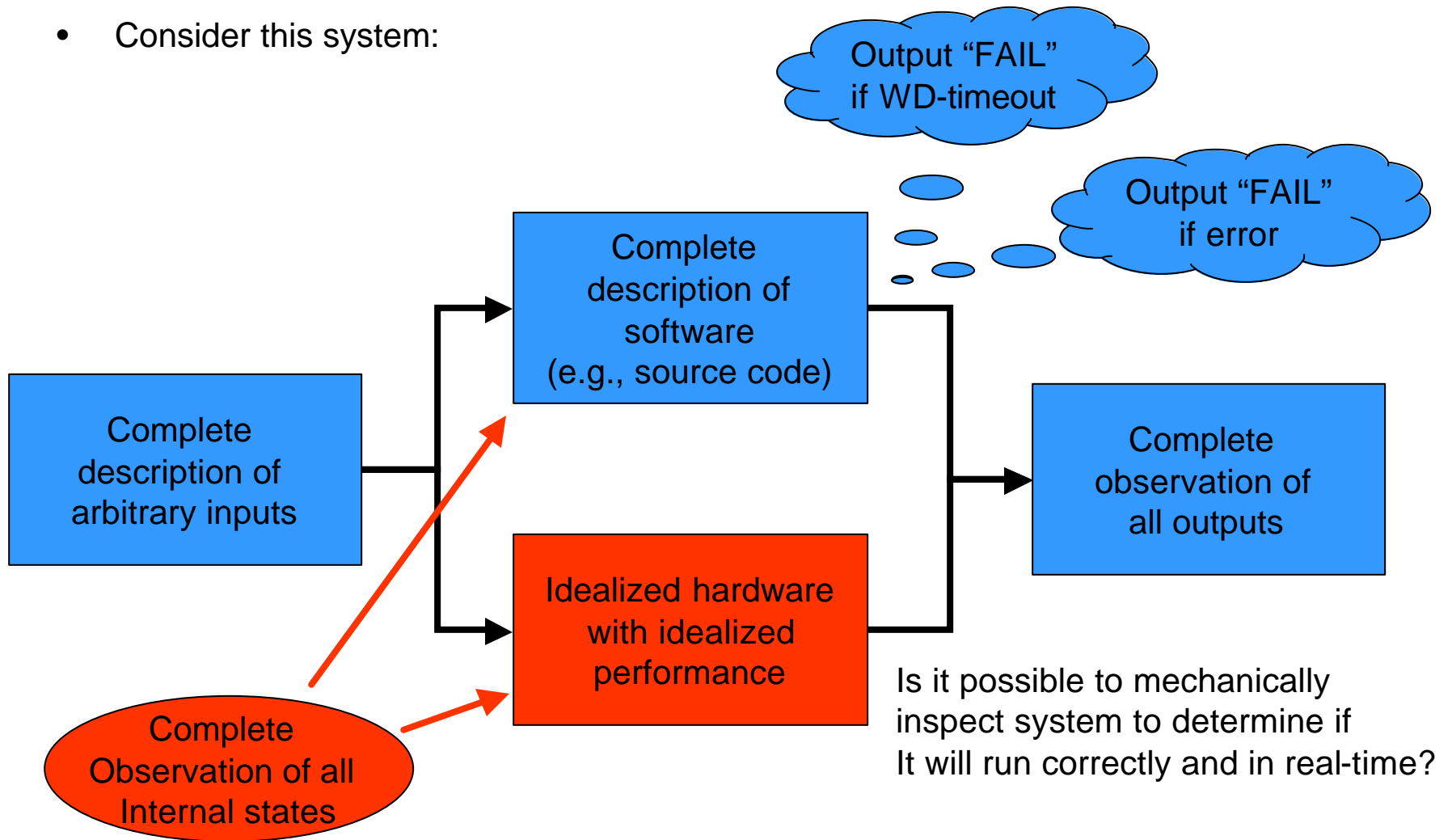
# Real-time and Correct Operation

- Consider this system:



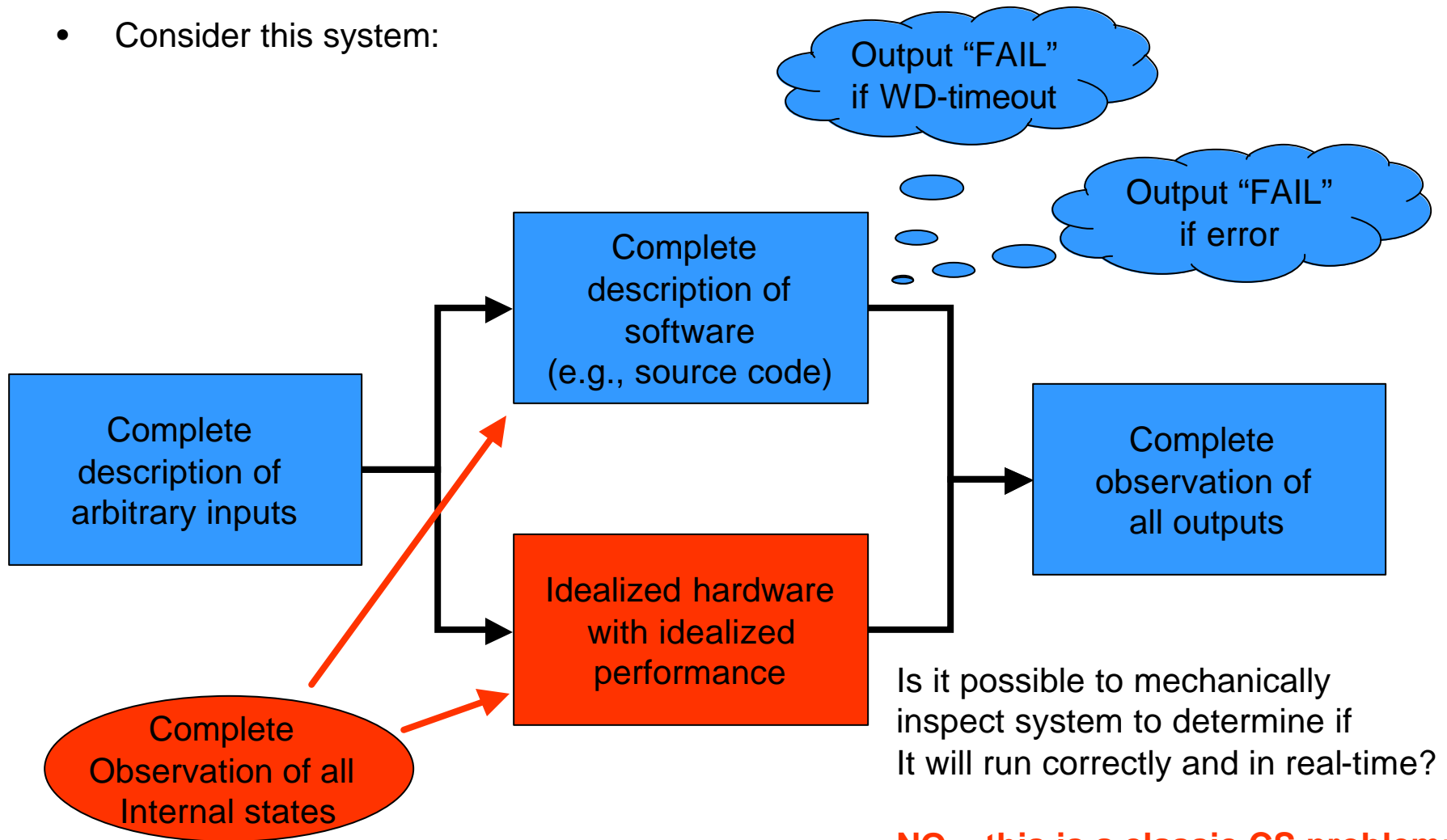
# Real-time and Correct Operation

- Consider this system:



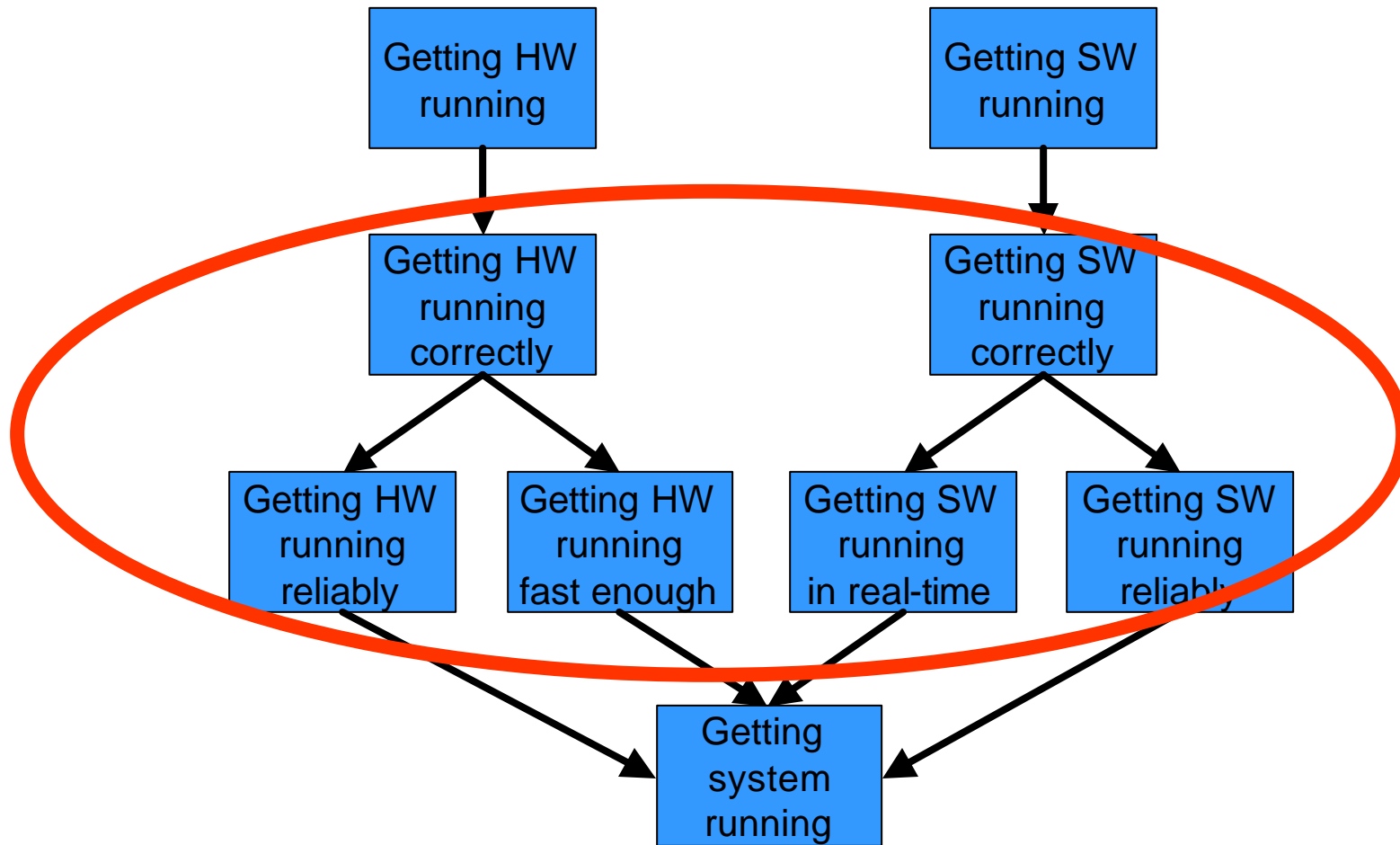
# Real-time and Correct Operation

- Consider this system:

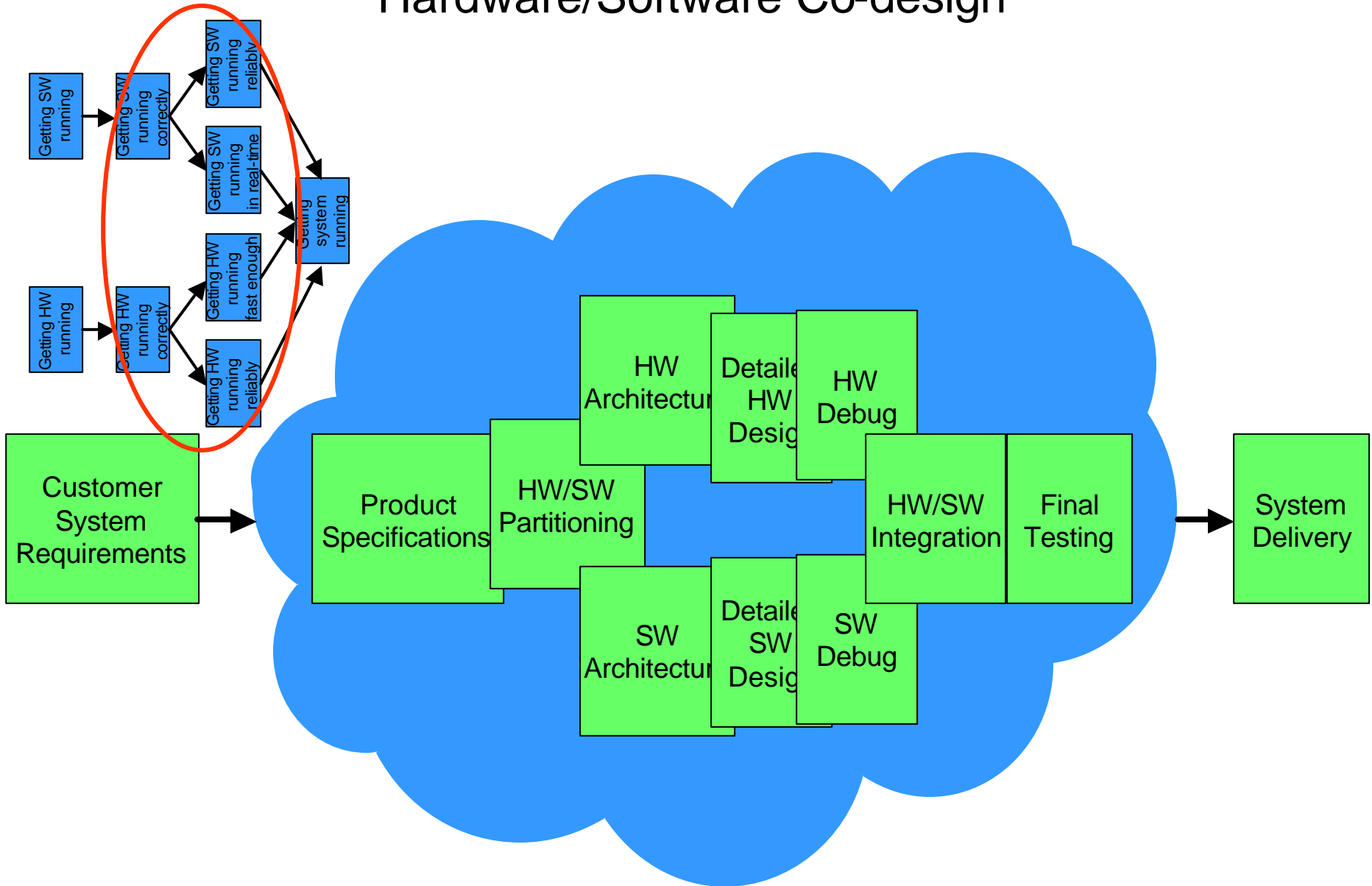


**NO – this is a classic CS problem:  
The Halting Problem**

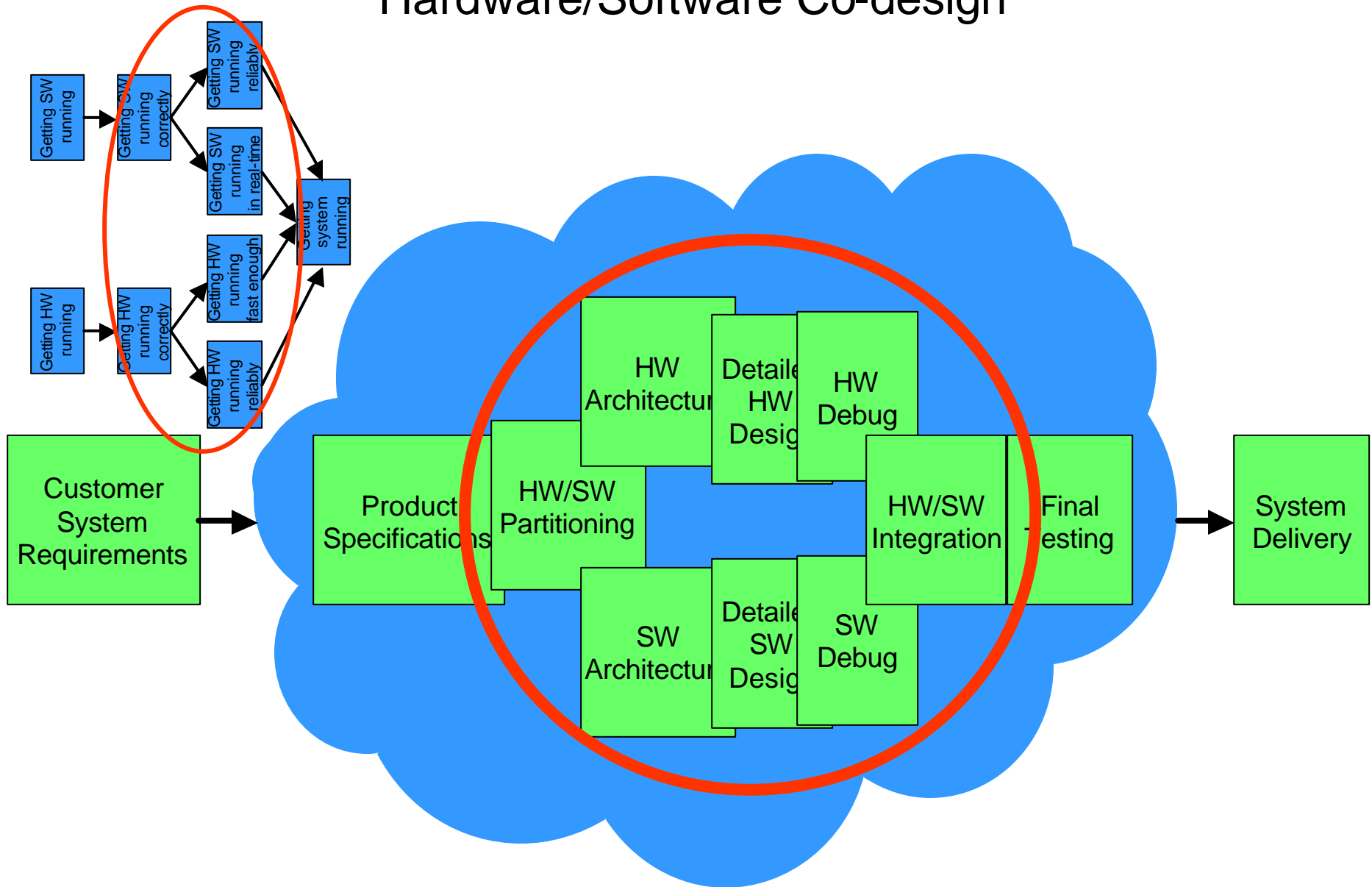
# Hardware/Software Co-design



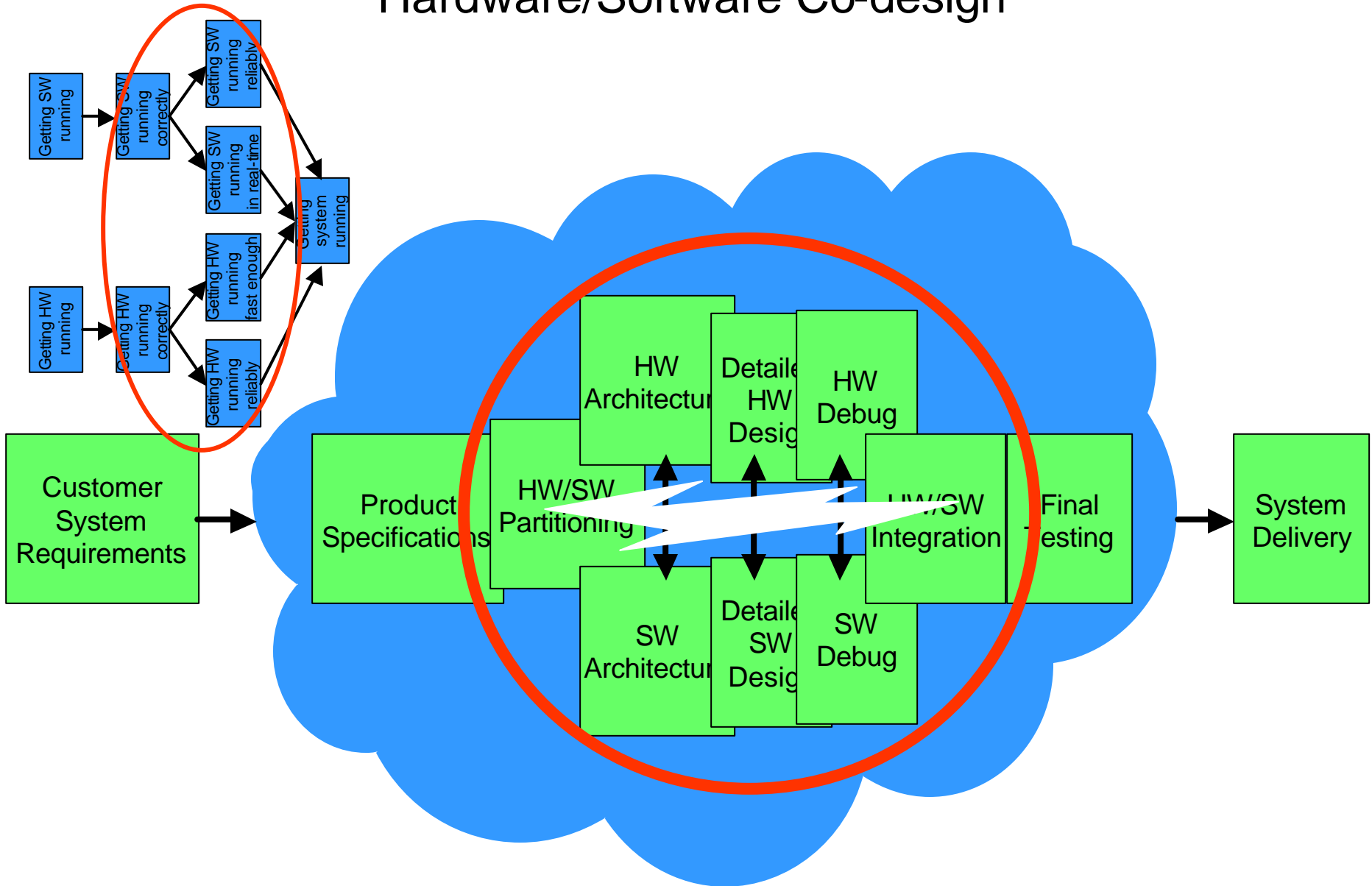
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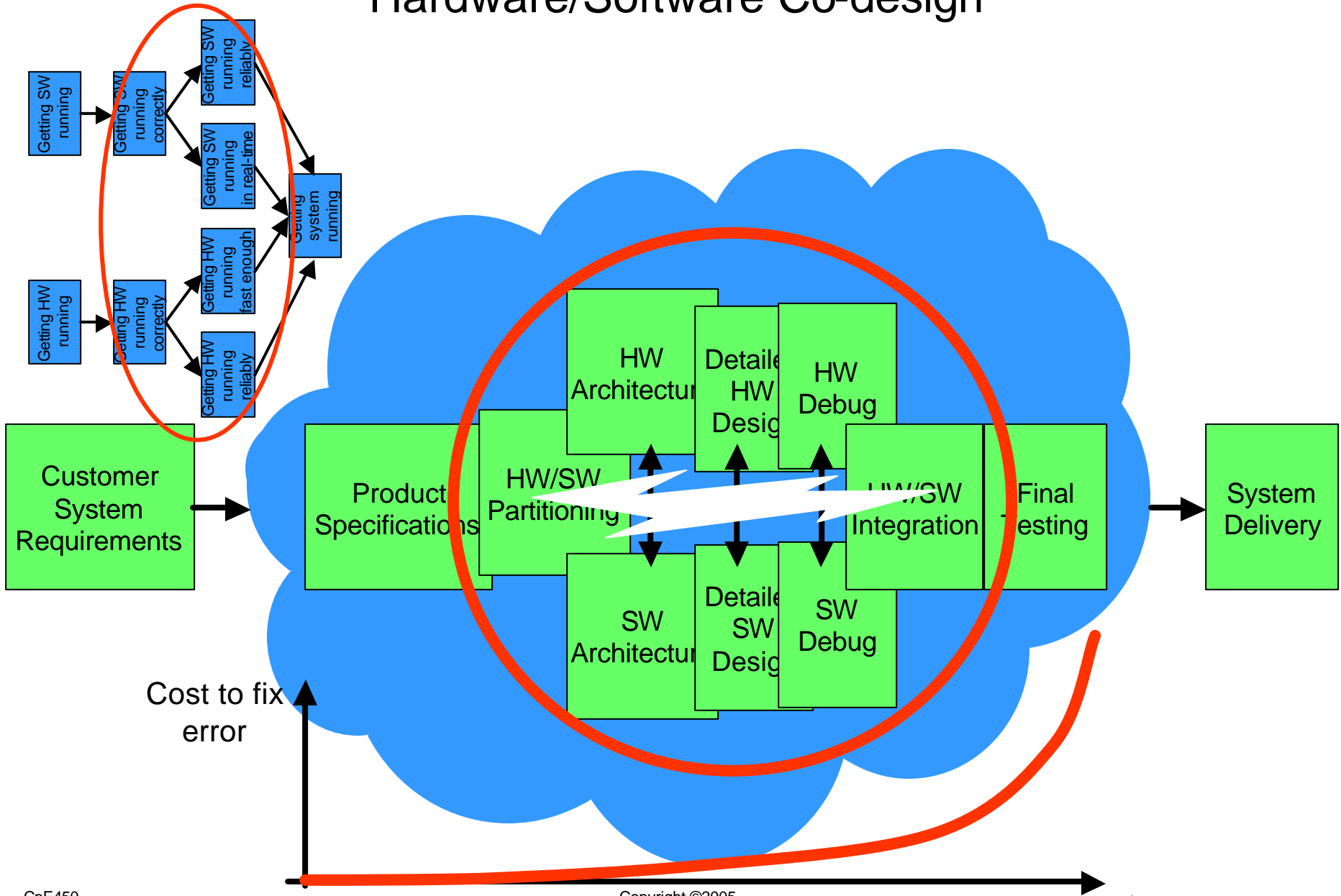
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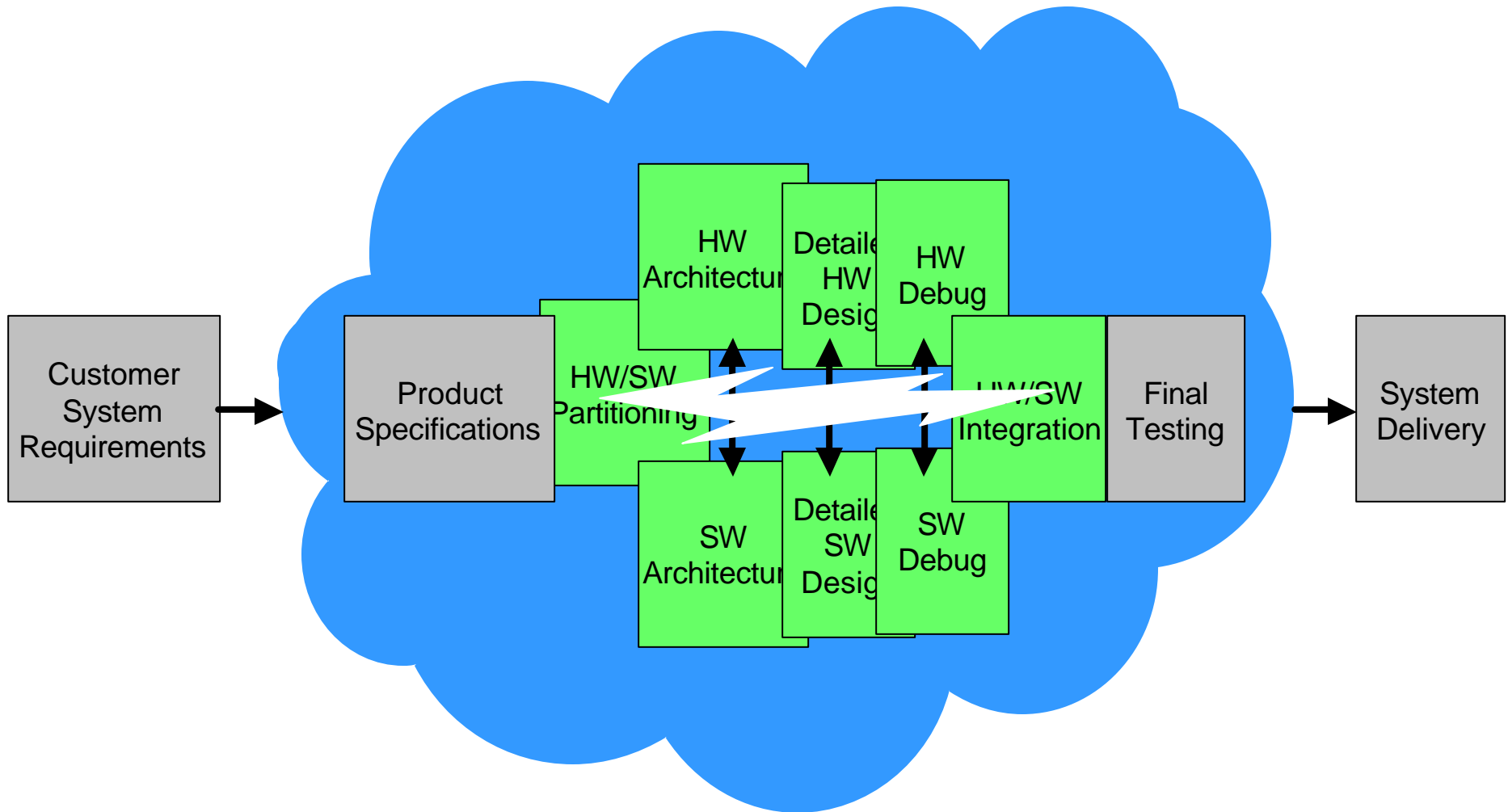
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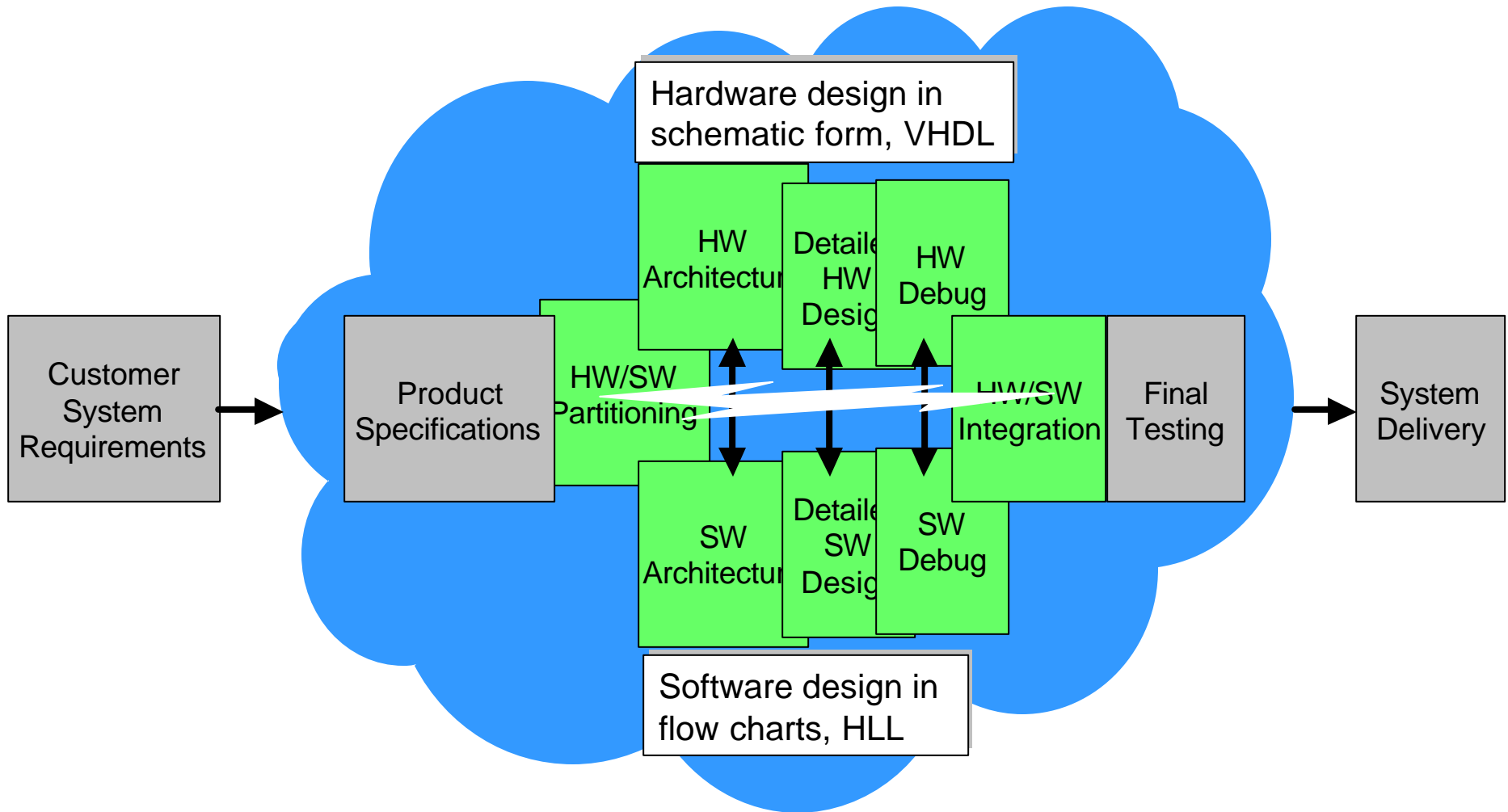
# Hardware/Software Co-design



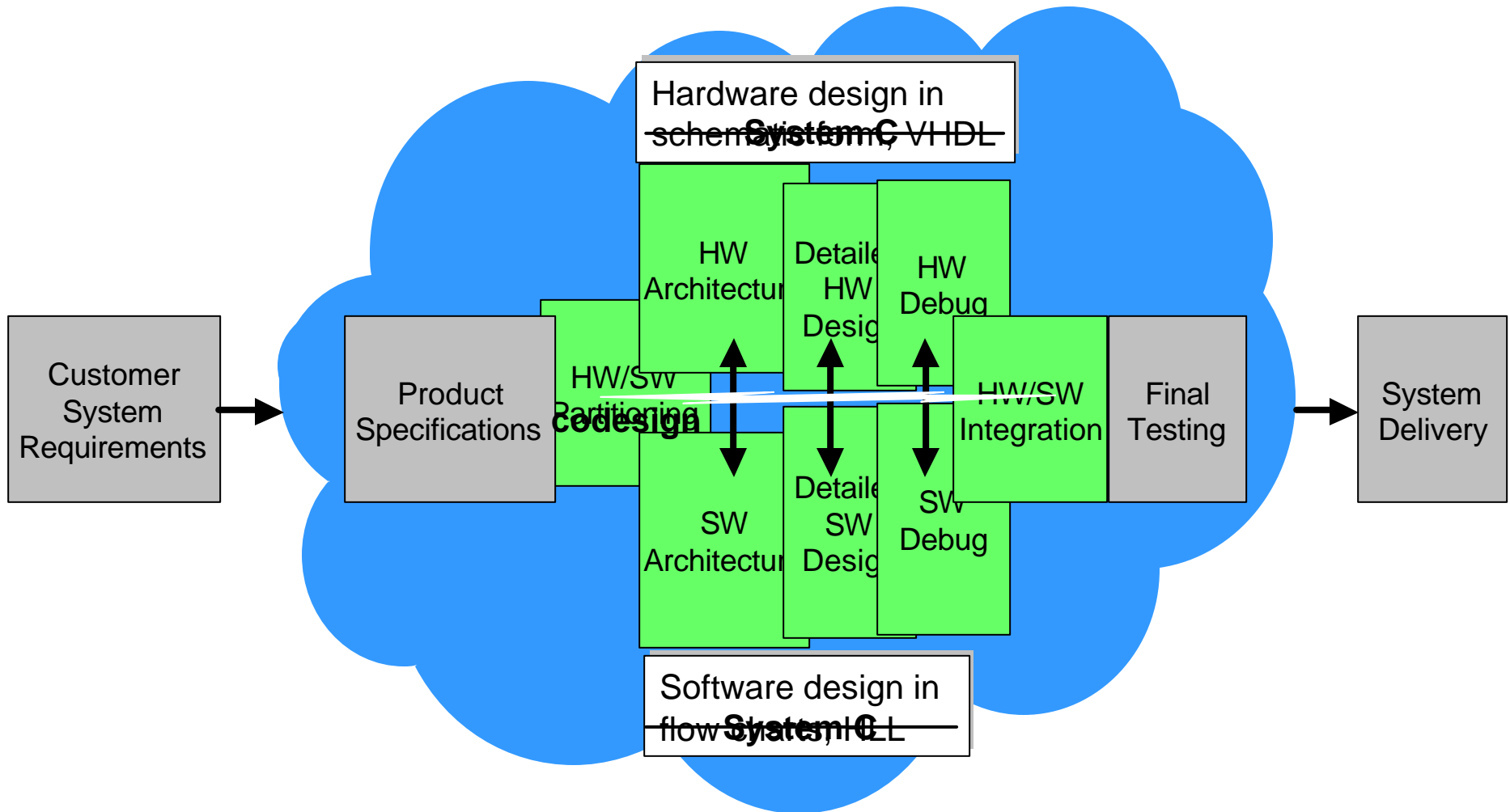
# Addressing the Hardware/Software Co-design Issue



# Addressing the Hardware/Software Co-design Issue



# Addressing the Hardware/Software Co-design Issue



# Addressing the Hardware/Software Co-design Issue

