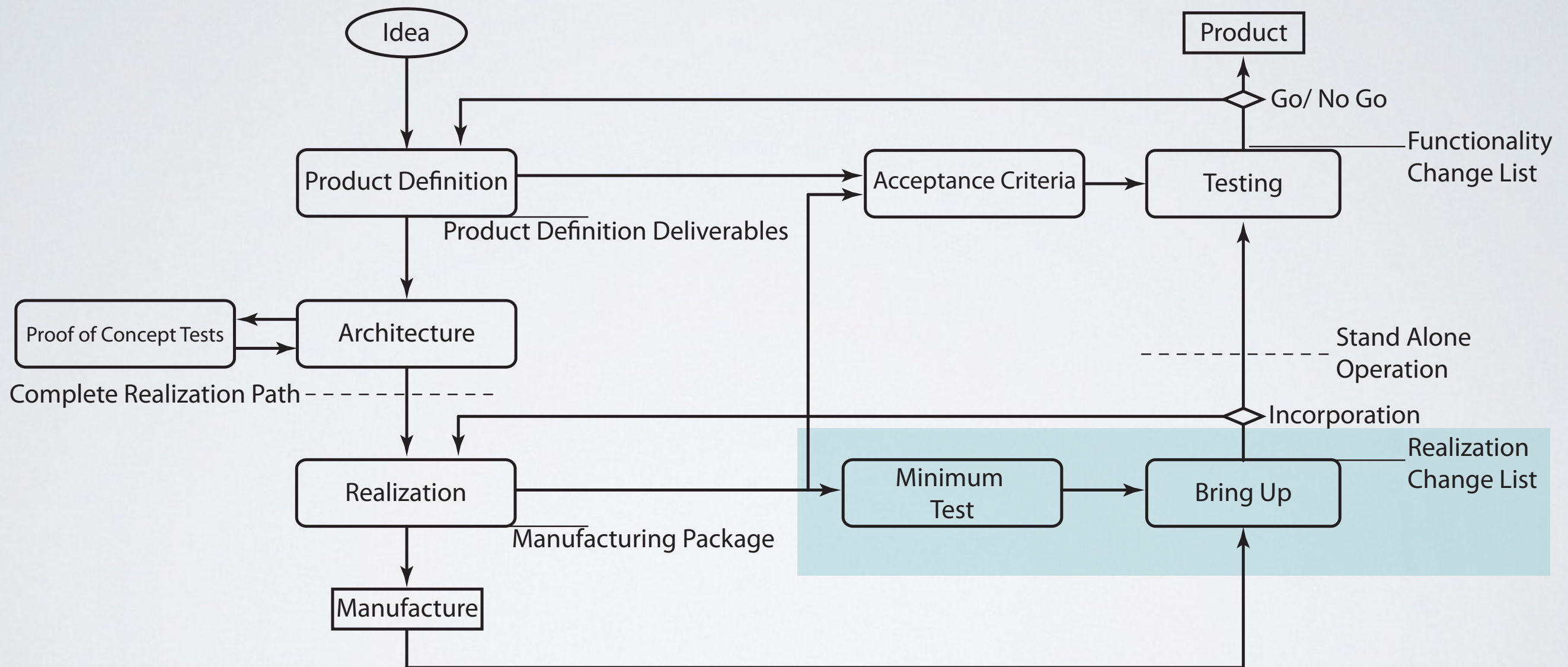


BRING UP PHASE

The Engineer Accelerator
Malcolm Knapp
8/27/15

DEVELOPMENT PHASE

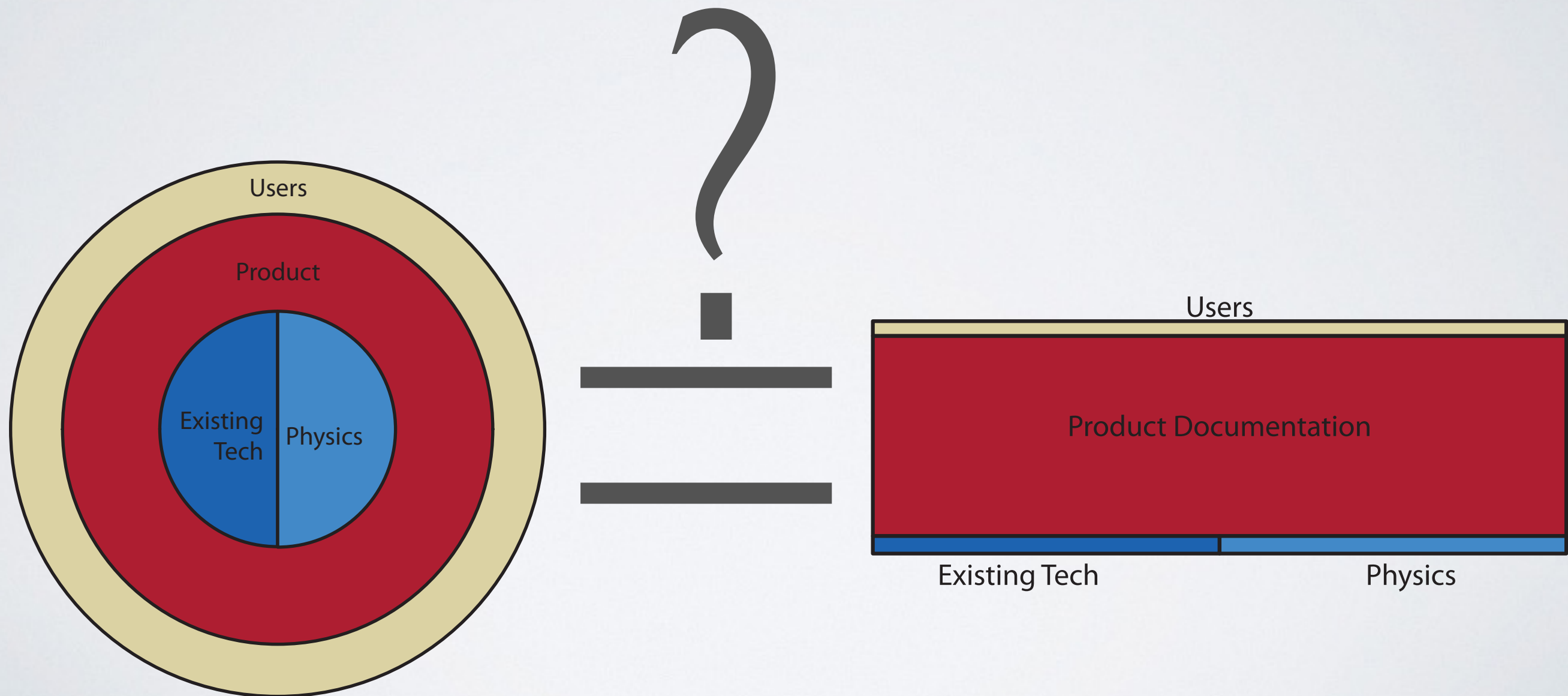


GOAL

STAND ALONE OPERATION

PROCESS

Verification of Features and Interfaces



CHARACTERISTICS

Bring Up	Testing
Emulated operation	Stand alone operation
Information is changing quickly	Information is changing slowly
Informal Documentation	Formal Documentation
White Box	White Box - Black Box
Unbounded	Bounded
Uncontrolled Environment	Controlled Environment

BRING UP ACTIVITIES

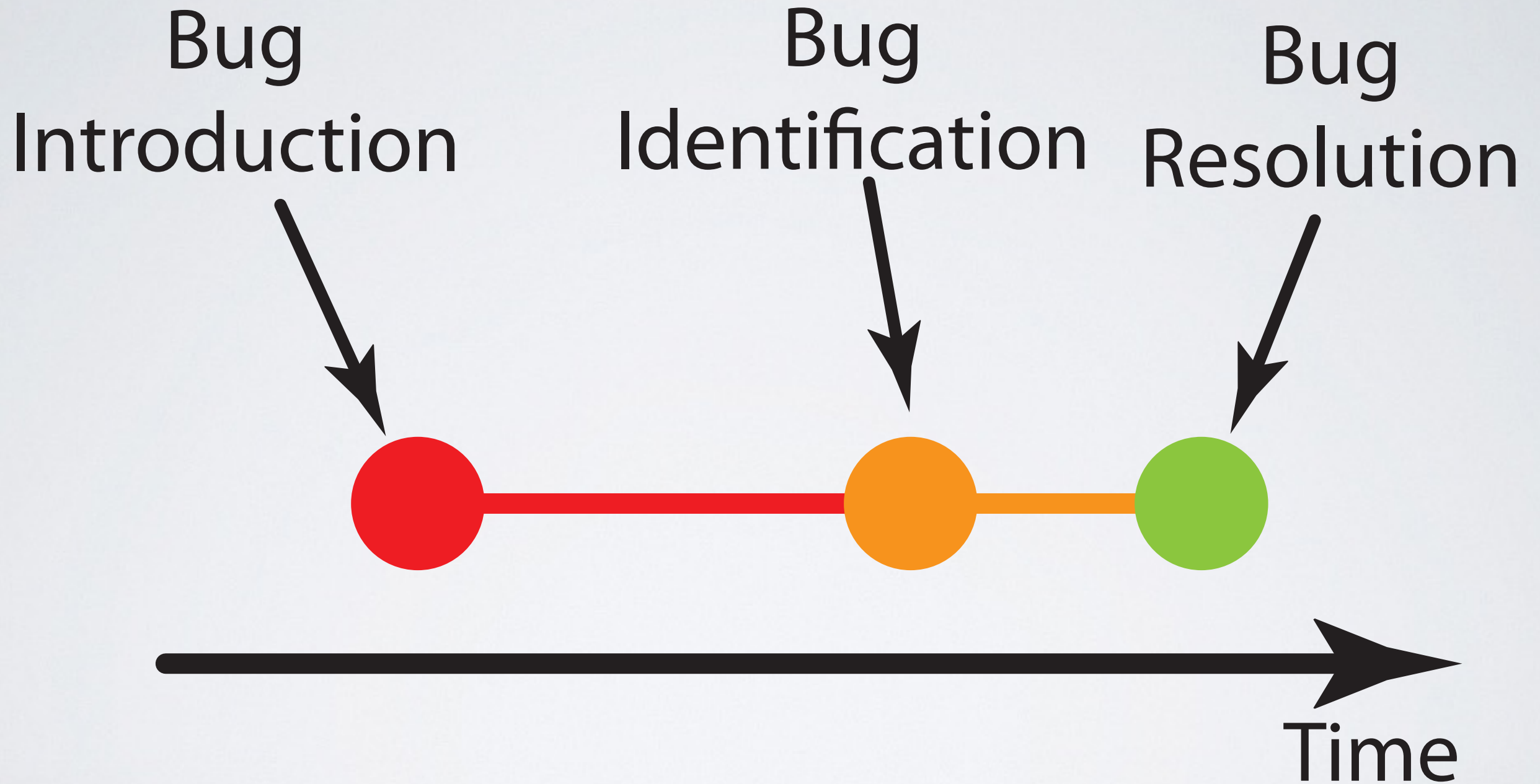
- Set Up
- Base Line Existing Hardware
- Board Induction
- Smoke Test
- Debug Cycle

DEBUGGING

BUG CLASSIFICATION

- Types
 - Catastrophic
 - Edge Case
 - Statistical
 - Random

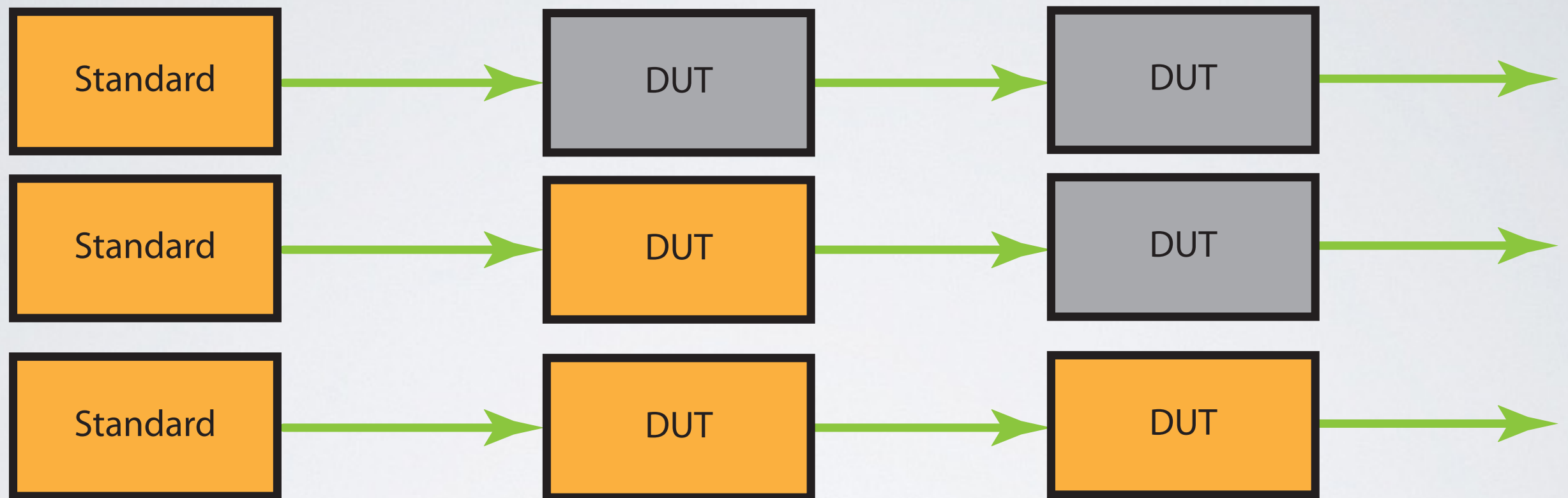
BUG LIFE CYCLE



BUG IDENTIFICATION

- Error replication
- Two board comparison
- Steps to recreate

BUG ISOLATION



All tests must start from a known point

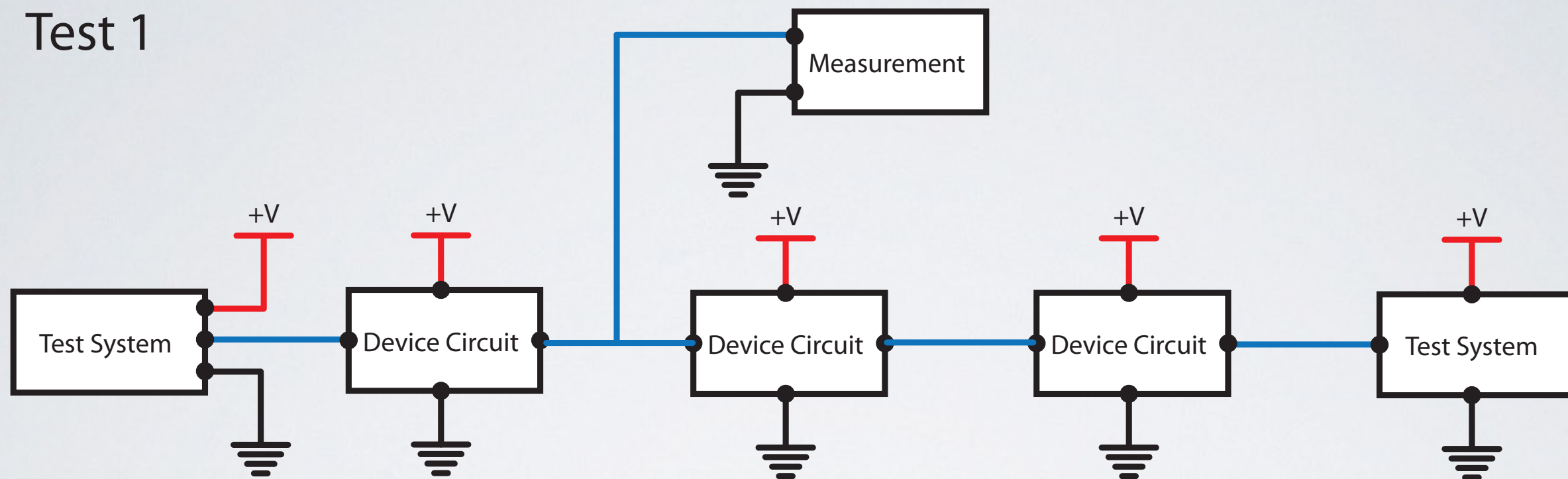
Calibration Standard

3rd Party System

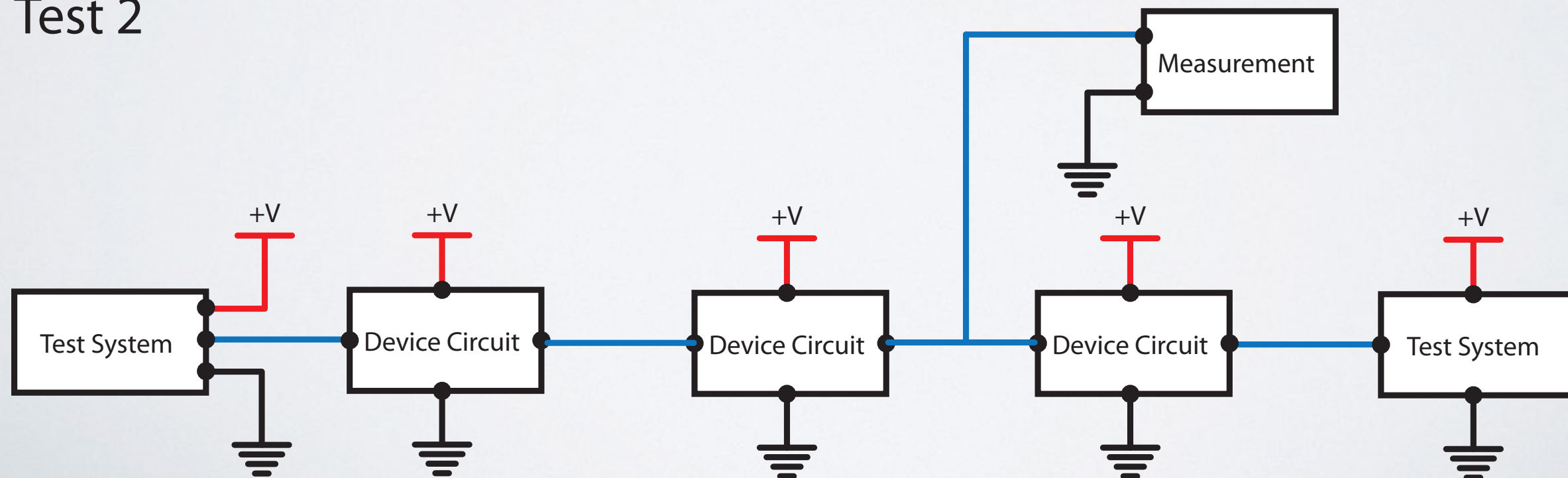
Golden Board

FEATURES

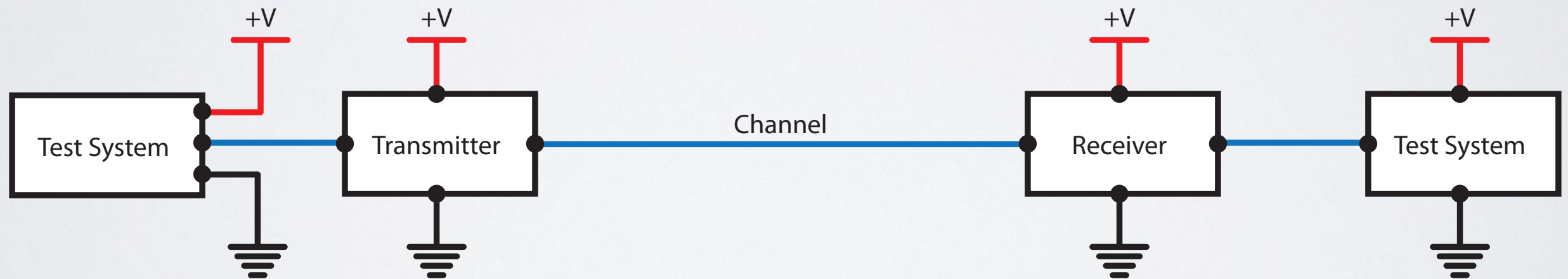
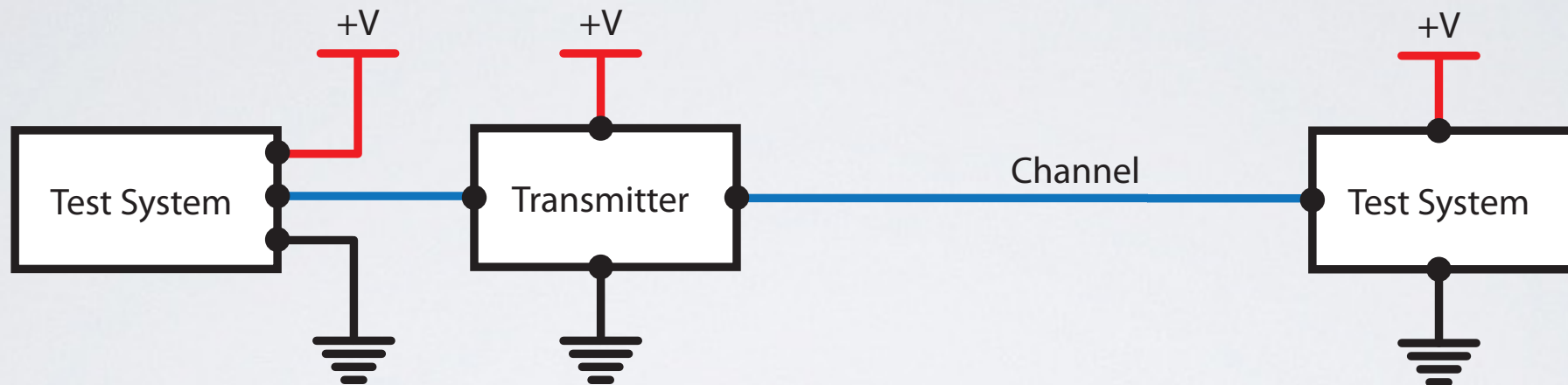
Test 1



Test 2



INTERFACES



CAUSATION LIKELIHOOD

- Test System Error
- Calculation Error
- Component Value Error
- Connection Error
- Interference
- Component Error
- Something Completely Obvious

REWORK

- Rework Tracking
- Techniques
 - Cutting Traces
 - Blue Wires
 - Value Swapping / Tombstone
 - Lifting pins

DELIVERABLES

- Rework tracking
- Bring Up Change List

PHASE TRANSITION

- When all major components are functioning