

# An Enterprise Resource View of Metrology Software Systems

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# Over View

The Problem -

Current Station of Metrology Automation

From the Problem Domain

Metrology Services Architecture

Change the Paradigm

Interaction / Decoupling

How does this solve metrology problems

# The Problem

## **Cal Lab Solutions Automation & Procedure Library**

MET/CAL<sup>®</sup> - Largest Library of Complex Procedures  
Microsoft.NET – Power Sensor Calibration  
MUDCATS – Large Library of Data-Sheets  
Lab View<sup>®</sup> / Rocky Mountain Basic / Other

## **Data has more value than software**

Calibration Results is Data

Calibration Test Points is Data

Uncertainty Formulas / Calculation are Data

## **We had Major Problems**

Islands of data Costs Time & Money

Support cost are multiplied

Cal Lab Solutions is about efficiencies

# Where We are Today

## **Metrology Software & Life Cycle**

20 Years or More

Industry < 5

IT wants to replace our software

It doesn't run on our new computer

## **The world is Changing → *FASTER***

Mobile is taking over

We are moving into the **Internet-of-Things**

## **Recently**

IBM announced – Building software for iPad

Microsoft will layoff 18,000 employees

# Current State of Automation

- A Calibration Technician
- A Calibration Station
  - w/ Multiple Standards
- A Computer
- Some Software
- Perform 1 Calibration  
**in Less time**



# Limitations of Automation

- All Standards have to be Connected
- Tech Runs the calibration from end to end.
- Inflexible
- Very Hardware Specific
- Uncertainty Calculations
- Only 1 UUT at a time



# Business Efficiency?

- Better
- Cheaper
- Faster



# What if we could?

- Move the UUT around the lab.
- Test UUT(s) is Parallel
- Be flexible in how we calibrate
  - Start / Stop / Retest
  - Allow Test Selection
  - Support multiple Configurations
- Detailed Uncertainty Calculations
- Develop Procedures Faster
- Test UUT's Faster
- Integrate with Other Systems





# The Islands of Metrology Software



MET/CAL



SureCal



Your  
Cal



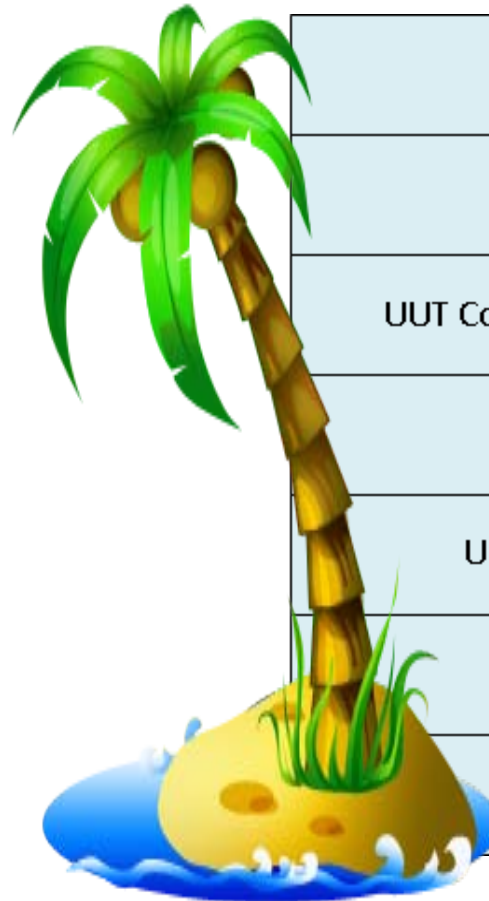
LabView



Rocky MT  
Basic

# Rethinking the Calibration Model

Each One of our  
Islands is an all in one  
Application

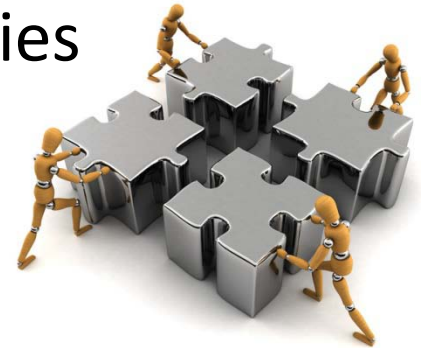


Test Point(s)	
Test Process	
UUT Config	STD Config
Measurement(s)	
Uncertainty Calculations	
PASS/ FAIL	
Results	

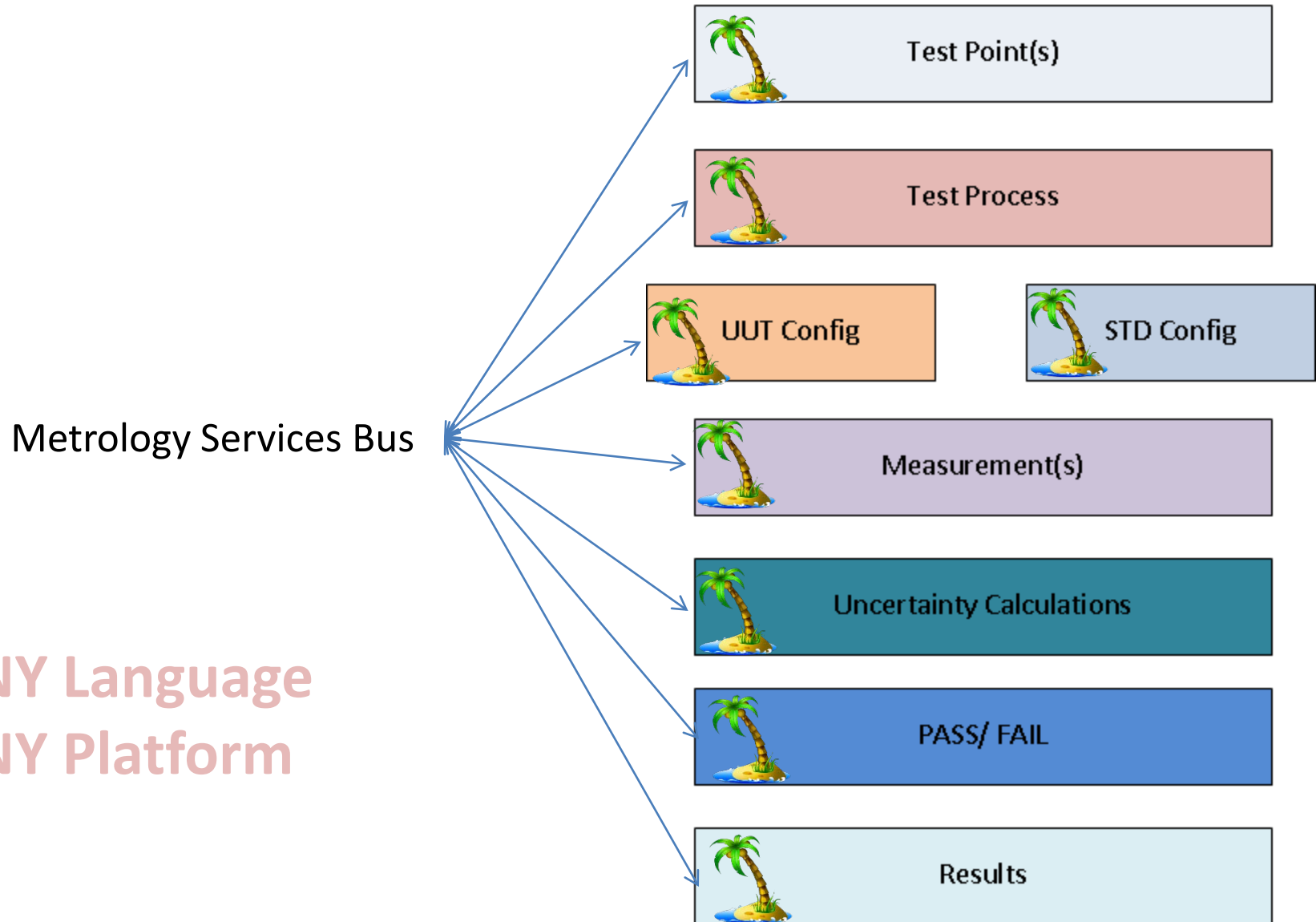
# Metrology NEEDS

## Systems Unification

- Integration Strategy – Point of View
- Work w/ OLD and the NEW Technologies
  - Large Investment in Current Technologies
  - Library of UUT Procedures
- Migration Must be Incremental
  - Small Manageable chunks
- Upgrade Path Must be EASY for Labs

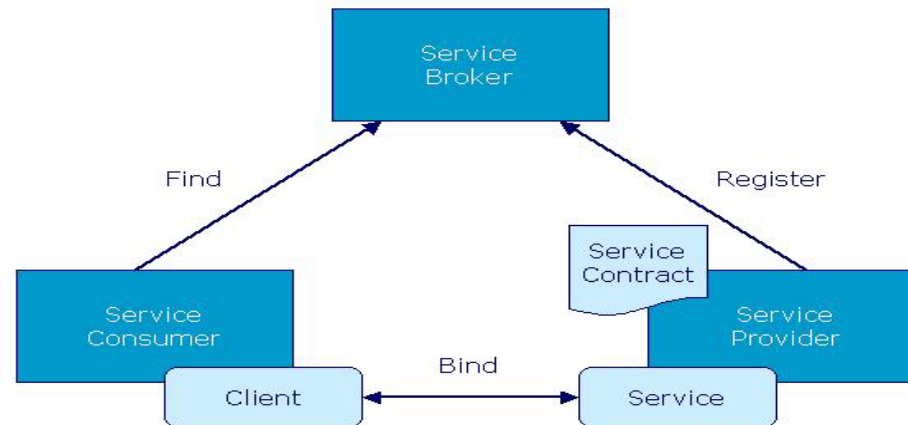


# Decoupling or Software



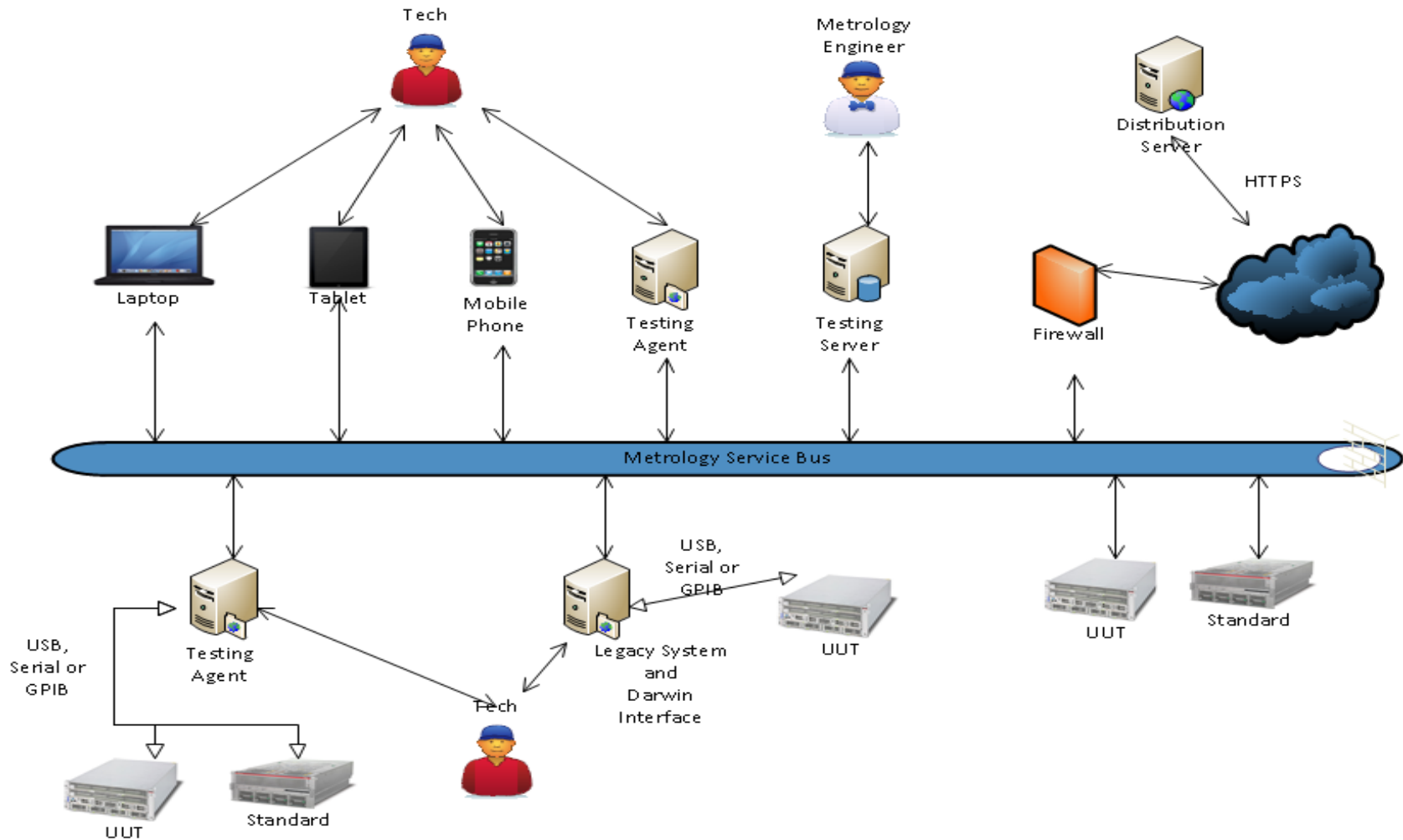
ANY Language  
ANY Platform

# Metrology Services



- A ***Metrology Service*** is an autonomous business object system that accepts one or more requests and returns one or more responses using well defined interface.
- A ***Metrology Service Bus*** is the business control layers that allows providers and Consumers to interact with each other.

# METROLOGY.NET



# Creating an Industry Standard

## **Common Messaging Interface**

Systems of Systems need to Communicate

We chose REST based Communications Standard  
w/ JSON formatted data in the payload  
*-- This is an Industry Standard*

Releasing the Metrology.NET® Standard Formats  
to the Public Domain

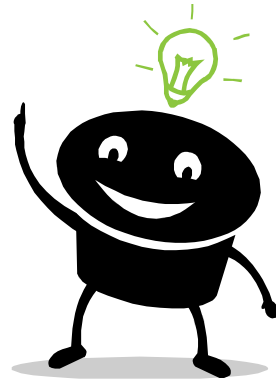
## **Building Tools**

We are building  
Microsoft.NET® Development Tools  
MET/CAL® Development Tools  
Data Migration Tools

## **Partnering & Training**

Creating Training  
Releasing Units of Measure Tools for Microsoft.NET®  
Looking for more Partners

# Questions? / Comments



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