

Gaining Product Insights from your Test Data

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SystemLink Product Manager

SystemLink Enterprise Overview

SystemLink™ streamlines lab operations and amplifies engineering insights as an integrated, scalable, enterprise solution.

Specification Compliance

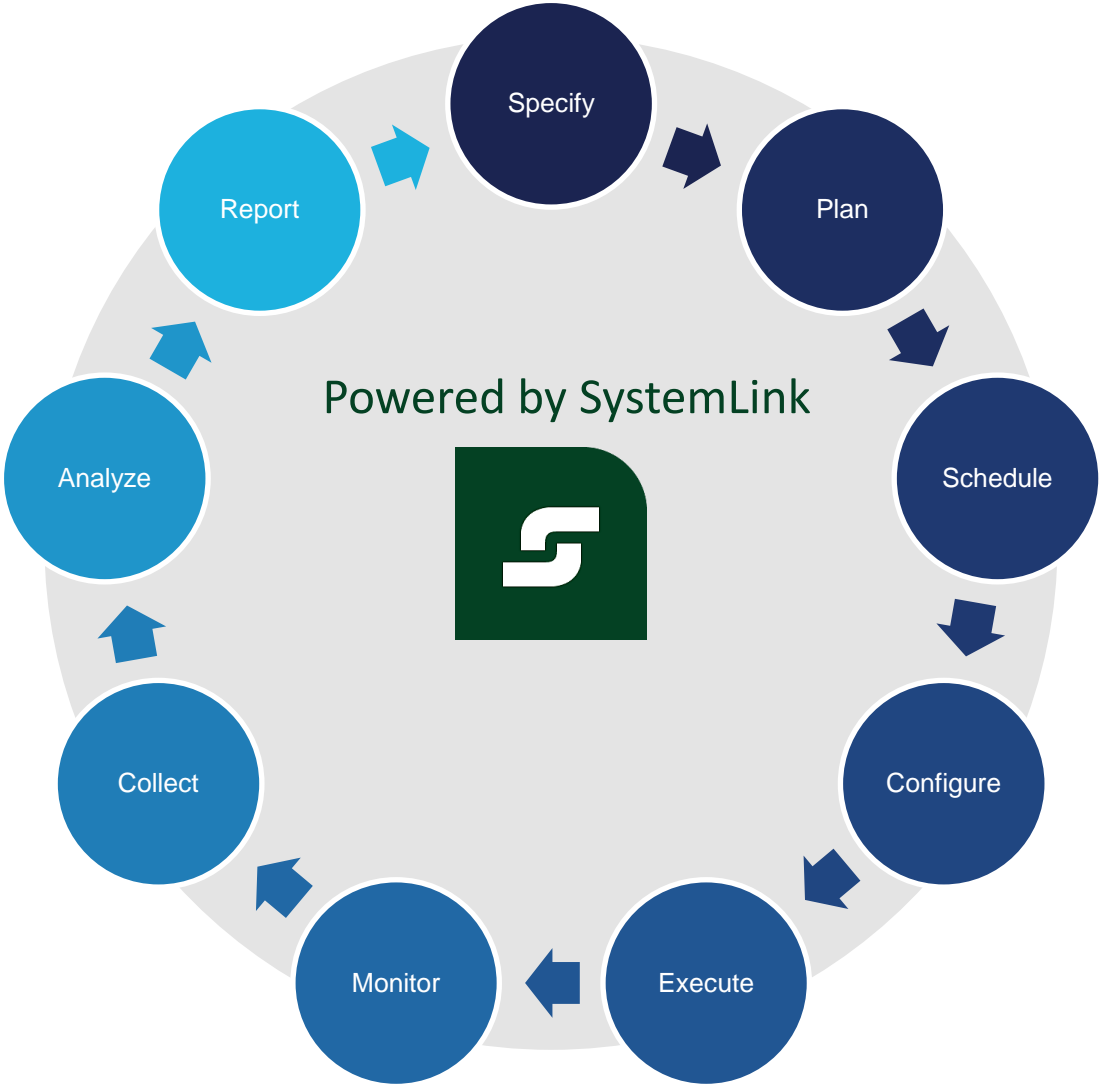
Elaborate requirements into engineering specifications to drive test consistency, quickly discover product issues, and track test progress.

Analysis Automation & Reporting

Fully integrated Jupyter Notebook development environment to create Python scripts to extract, transform, and analyze data.

Test Monitoring & Insights

Collect and view test results, files and parametric data; filter data for additional insights and track KPIs with dashboards and customizable analytics.



Work Orders & Test Plans

Track incoming test requests, define test requirements, schedule, deploy, and remotely execute tests.

Systems & Asset Management

Manage and install software for your entire test fleet, monitor test system health, and manage and track the assets connected to your test systems.

Asset Traceability & Utilization

Automatic asset tracking for NI and 3rd party LXI, USB-TMC, GPIB instruments to maximize utilization and optimize spend.



Agenda

A Product Lifecycle Perspective



Product Engineering
Lifecycle



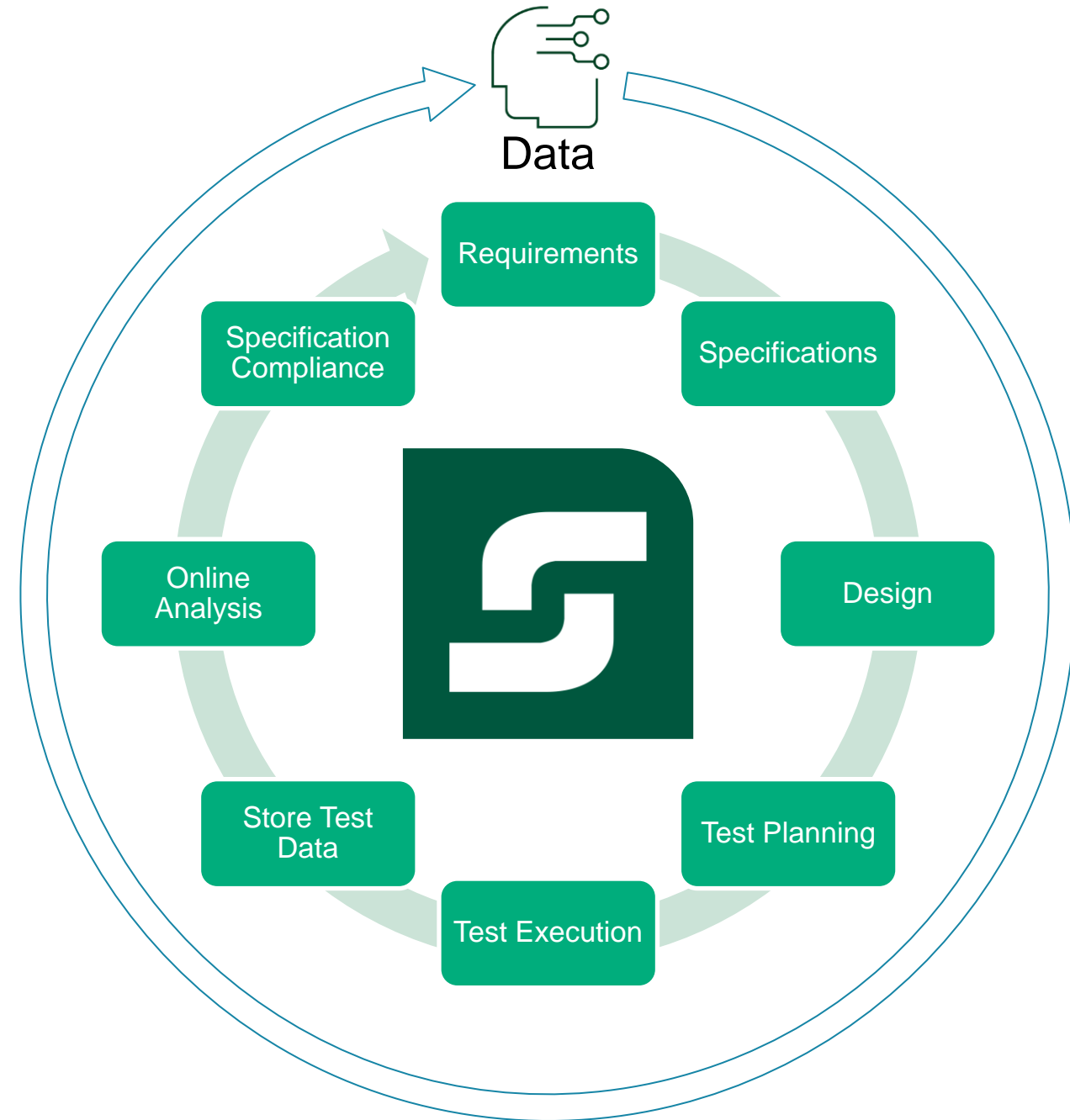
The Role of Data



Where SystemLink Fits

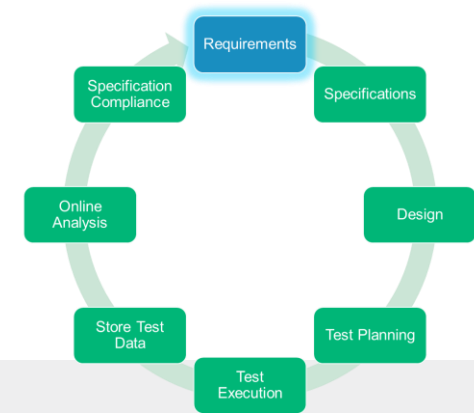


The Product Engineering Lifecycle



Requirements

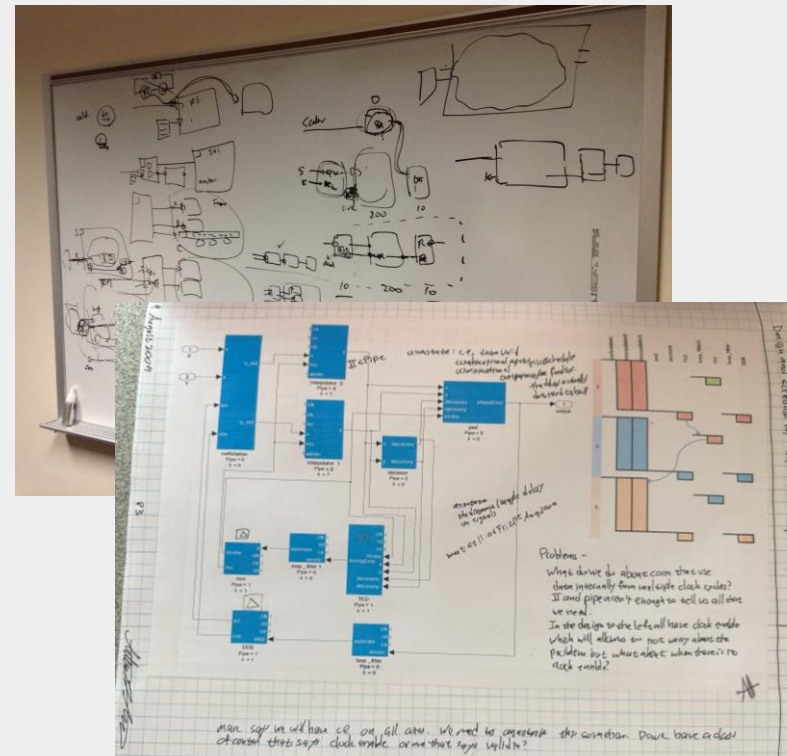
What is the product supposed to do?



Gather from Customer



Whiteboard + Paper

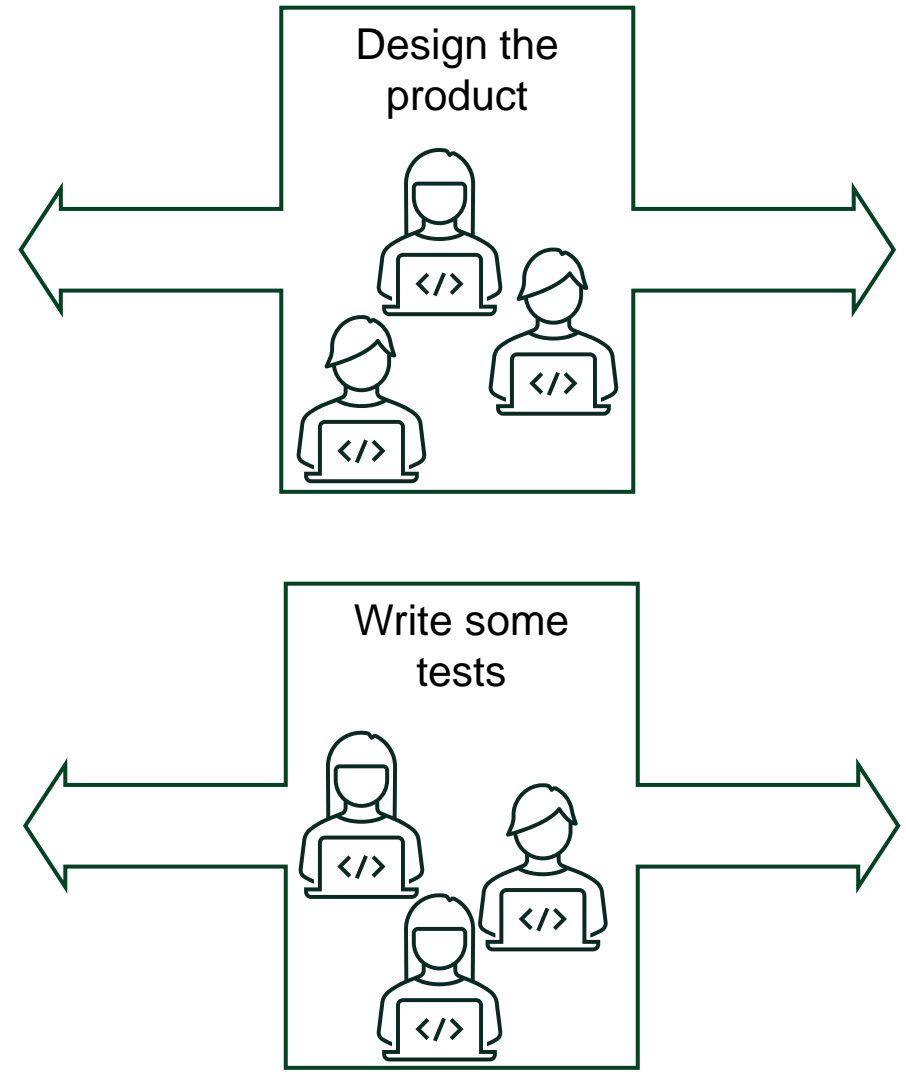
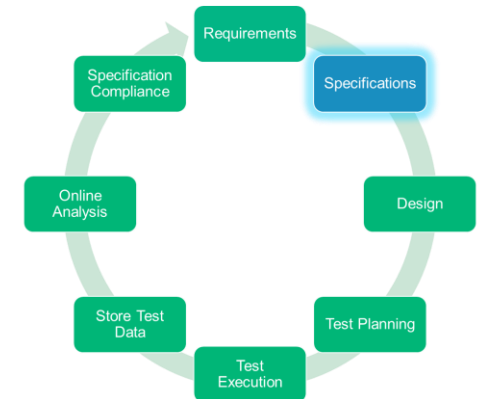


Software Tools



- General Purpose
- Not engineering centric
- Tools not integrated with test systems.
- Often mandated by legal or corporate for standards compliance (ex. ISO 26262)

“Just Write Some Code...”



cādence[®]
SYNOPSYS[®]
Ansys

SOLIDWORKS

A
CAD

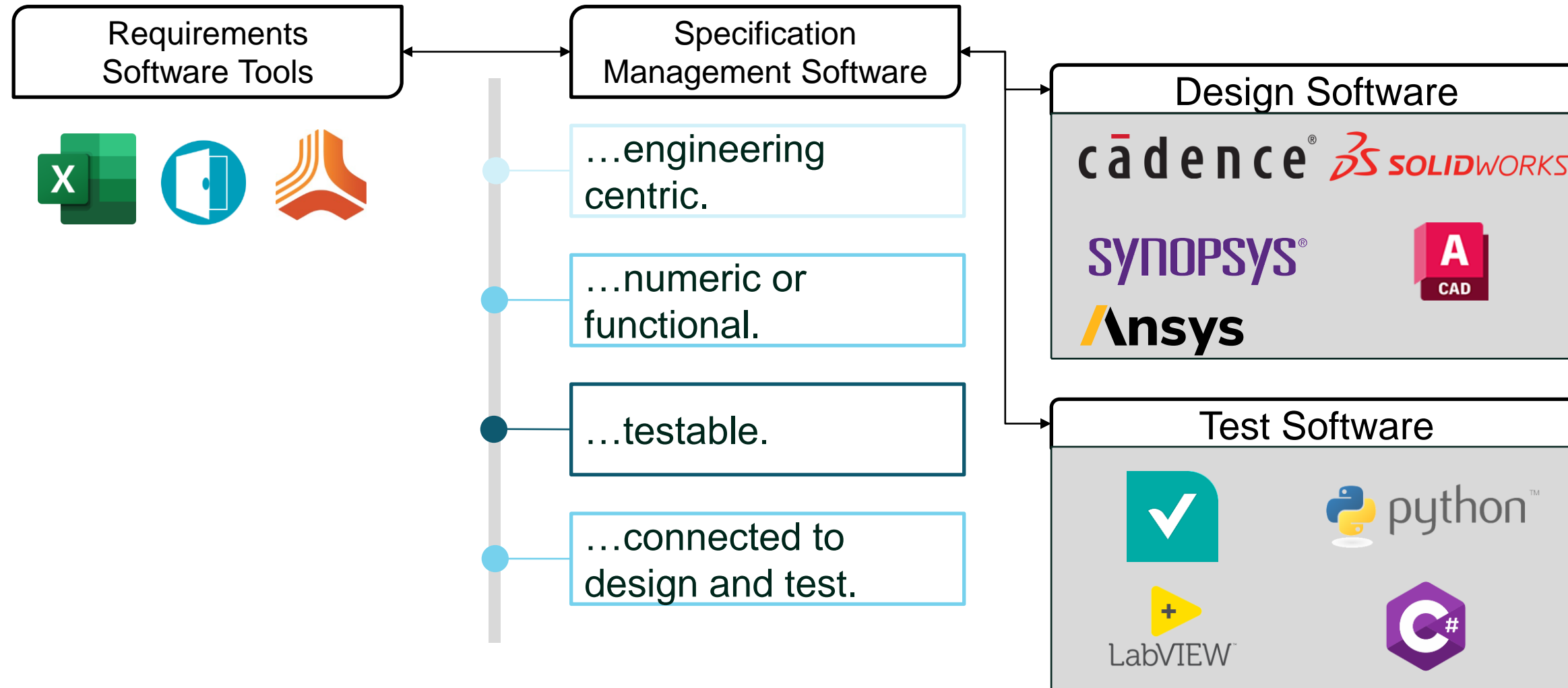
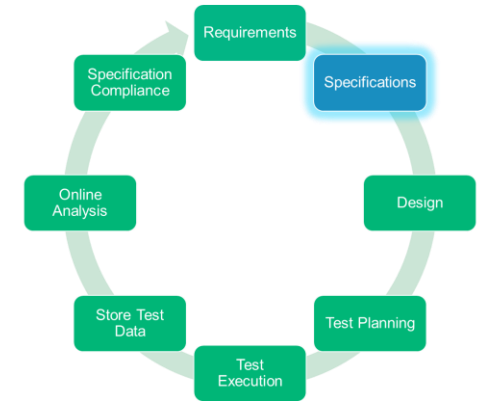


python[™]

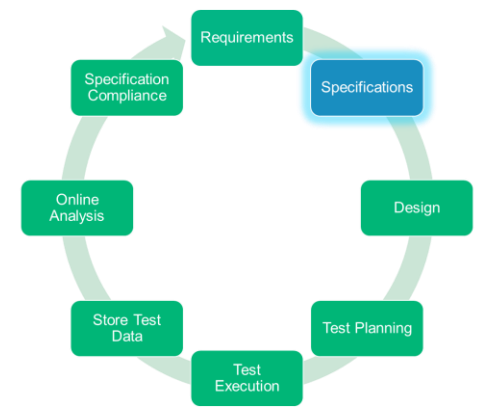
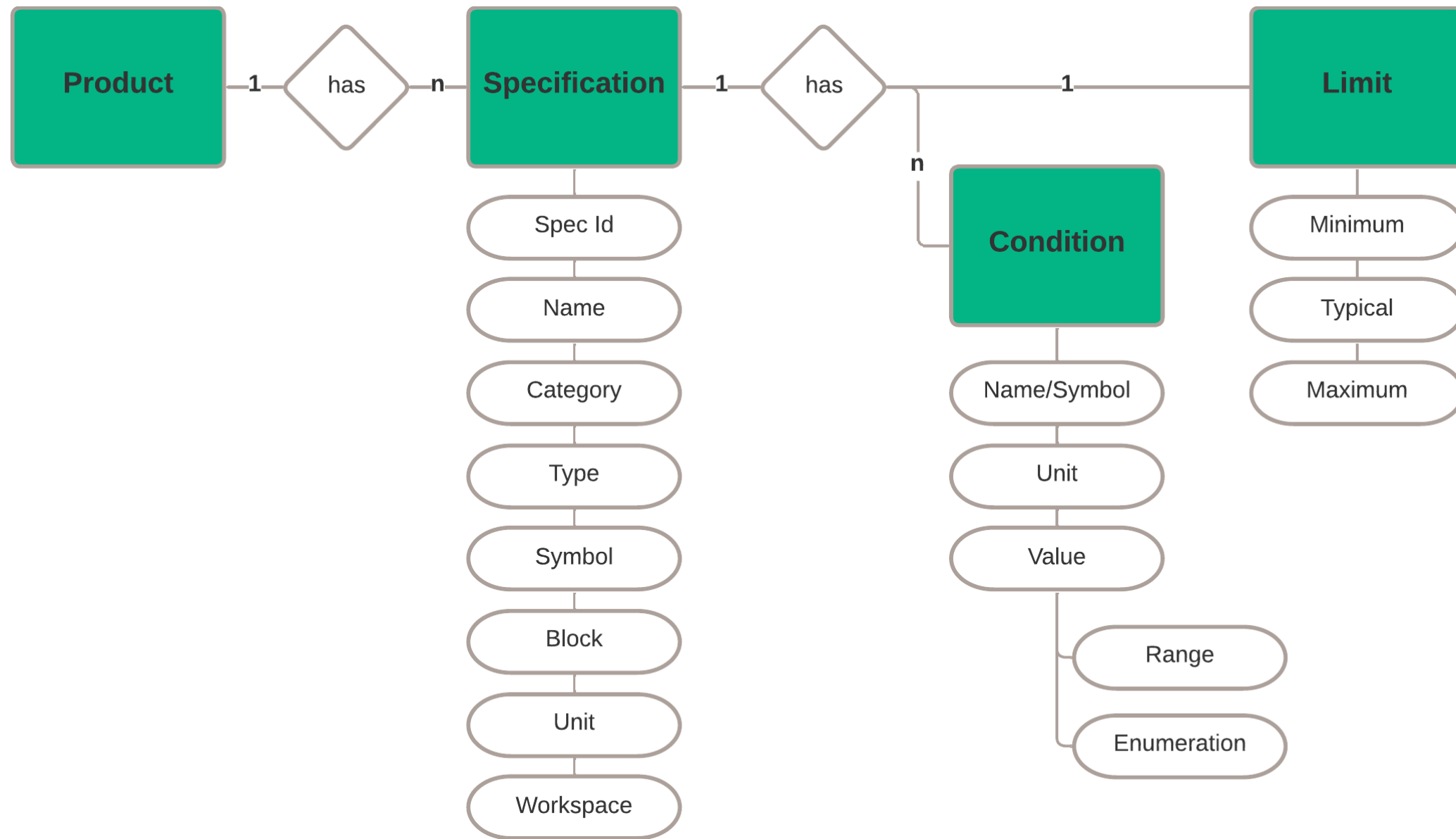
LabVIEW[™]



Specifications – A better way

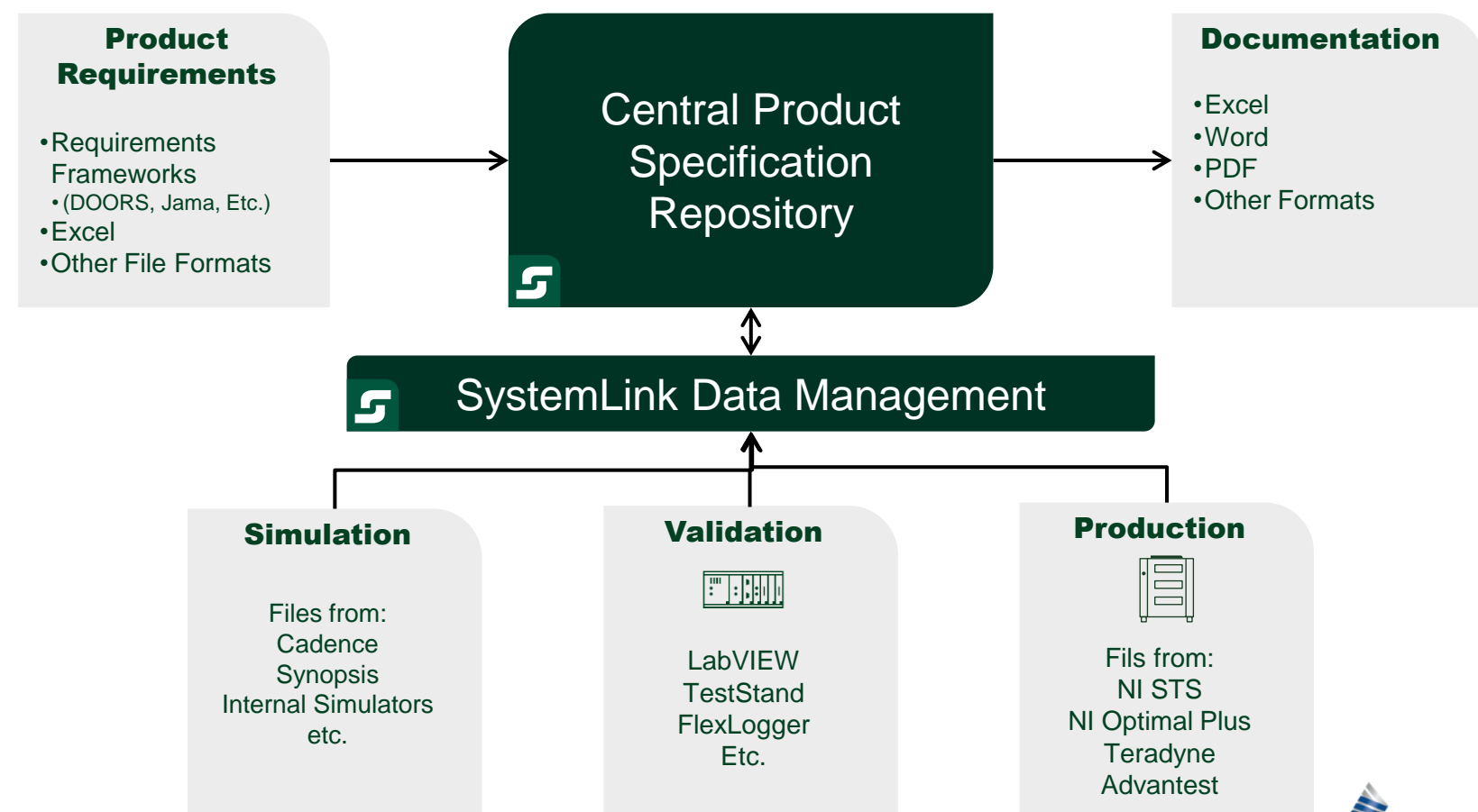


The Spec Data Model





- Central repository for specifications
- Connect to and analyze measurements from across the product lifecycle
- Specification compliance and coverage reporting
- Custom measurement & specification analysis.



SCM Edition Summary



	SCM Server	SLE Spec Compliance Module
Use-case	Small Teams, Pilots, Isolated Networks	Product Design, Multiple Labs, Production Test
Deployment	On-prem, private cloud	On-prem, private cloud
Environment	Single Windows Server	Module on SystemLink Enterprise (Kubernetes Service)
Scalability	Vertical (requires larger server)	Horizontal (requires more servers)
Test Data Integration	Dedicated MSSQL Database + File Ingestion SLS or SLE can push data with custom Jupyter integration	SLE Parametric Data in Test Monitor Waveform Data in Data Tables
Data Format Support	BDC Format	API or ETL-based ingestion of parametric data to Test Monitor
Users	< 50	50 – 1000+

Products / Voltage Regulator Demo 1 (Voltage Regulator 4.23.24)

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Overview

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Dashboards

Explore

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Systems Management

Systems

Assets

Feeds

States

Tags

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Operations

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Product Insights

Products

Data Spaces

Test Results

Files

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Analysis

Scripts

Routines

Executions

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Access Control

Roles

Workspaces

Users

Name

Voltage Regulator Demo 1

Family

Demo

Results

Files

Specs

Test Plans

DUTs

<input type="checkbox"/>	<input type="checkbox"/>	SPEC ID	SYMBOL	NAME	UNIT	M		
<input type="checkbox"/>	▼	Group1 (7)						
<input type="checkbox"/>		7805_Spec_001	VO	Output Voltage	V	4.		
<input type="checkbox"/>		7805_Spec_002	Regline	Line Regulation	mV			
<input type="checkbox"/>		7805_Spec_003	Regload	Load Regulation	mV			
<input type="checkbox"/>		7805_Spec_004	IB	Quiescent current	mA			
<input type="checkbox"/>		7805_Spec_005	ΔIB	Quiescent current change	mA			
<input type="checkbox"/>		7805_Spec_006	RR	Ripple Rejection	dB			
<input type="checkbox"/>		7805_Spec_007	VI - VO	Dropout voltage	V			
<input type="checkbox"/>	▼	NameYourGroup (1)						
<input type="checkbox"/>		Sample P Spec ID		Some Parametric Spec	Santhosh			
<input type="checkbox"/>	▼	JustAnotherGroup (1)						
<input type="checkbox"/>		Sample F Spec ID		Some Functional Spec				

Demo

1. Create Specs in Excel
2. Upload specifications
3. View specifications
 1. Basic Properties
 2. Limits
 3. Conditions
4. Spec APIs

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CATEGORY [🔍]

Group1

Group1

Group1

Group1

Group1

Group1

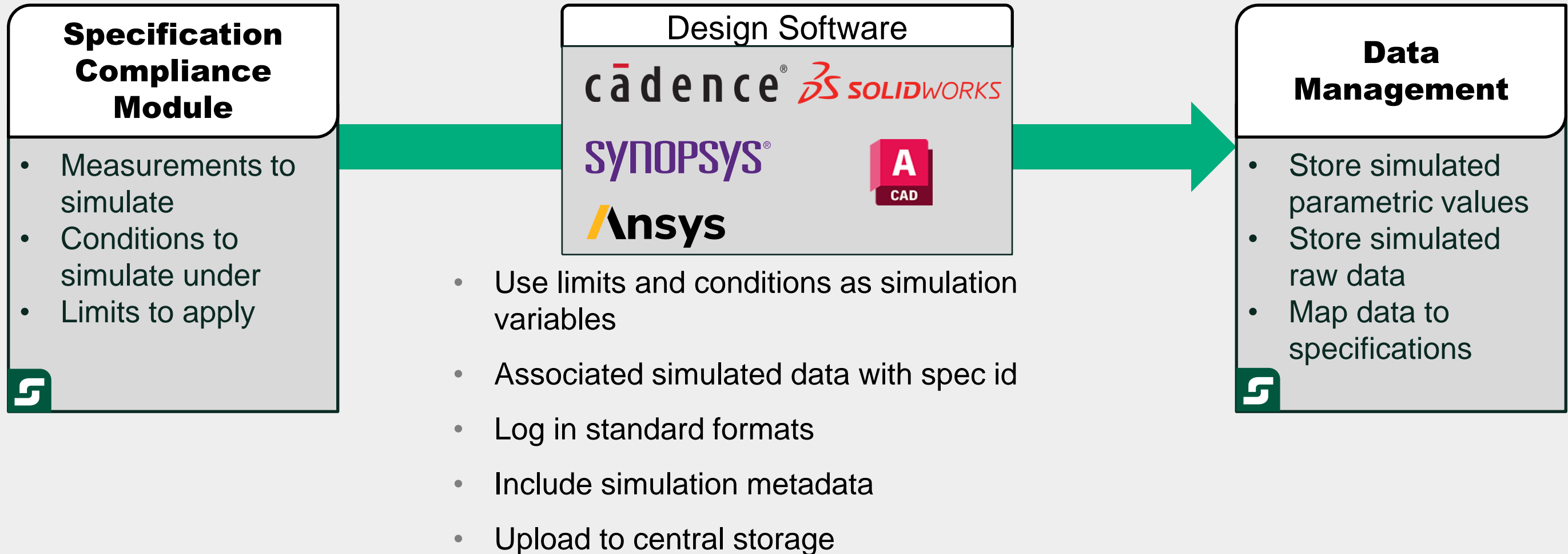
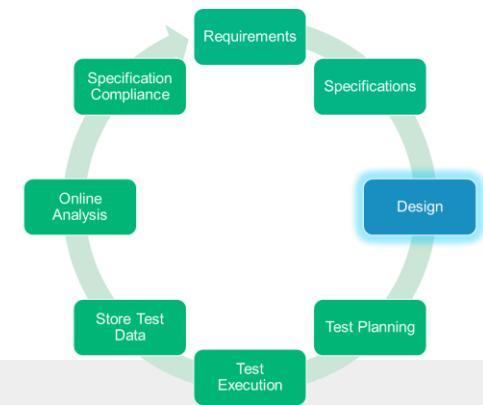
Group1

Group1

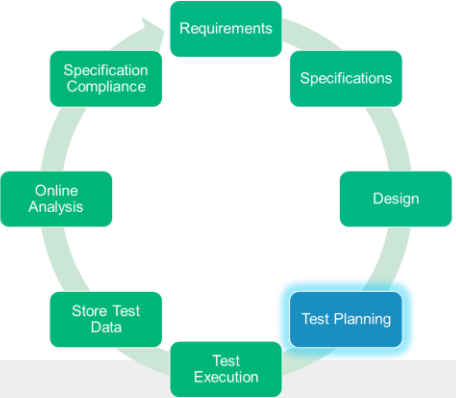
NameYourGroup

JustAnotherGr...

Data During Product Design



Planning Tests during Validation



- What specs do I need to test?
- What conditions need to be covered?
- What test code will I use?
- What system will I deploy to?
- When will I schedule it?
- Who will execute the test?

Products / Demo Regulator (Voltage Regulator 4.18.24)

Name

Demo Regulator

Family

Demo

Part number

Voltage Regulator 4.18.24

Updated

May 10, 2024, 4:55:26 PM

Results

Files

Specs

Test Plans

DUTs

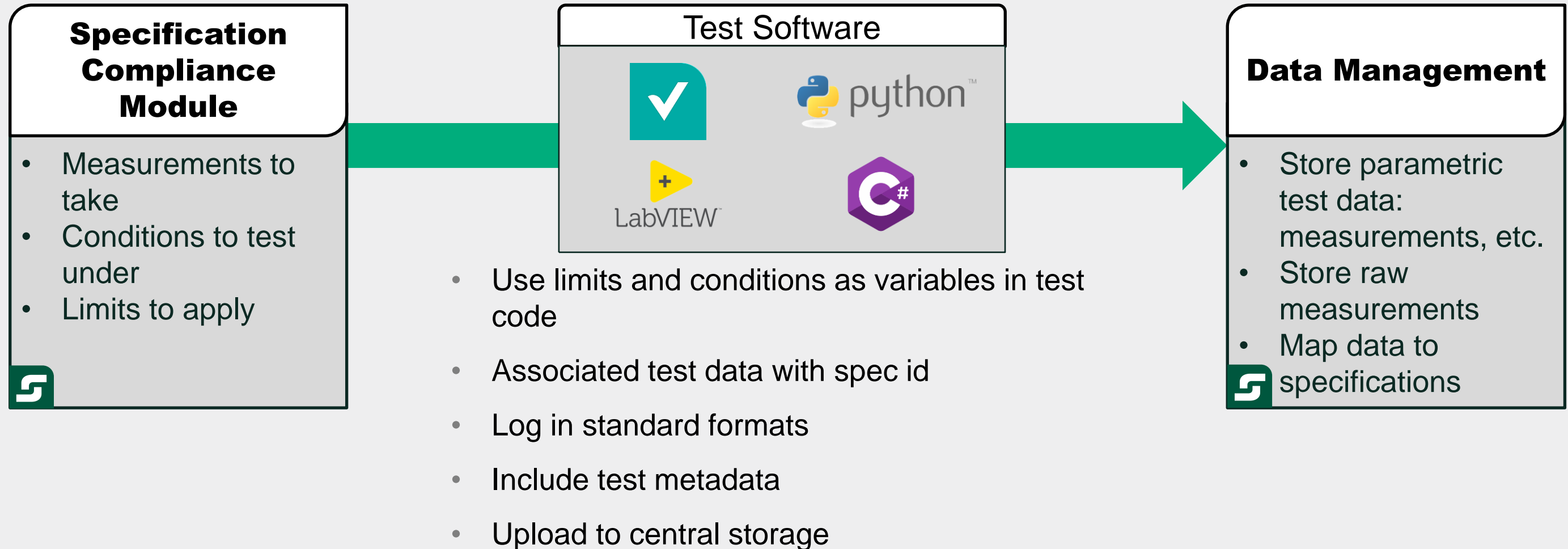
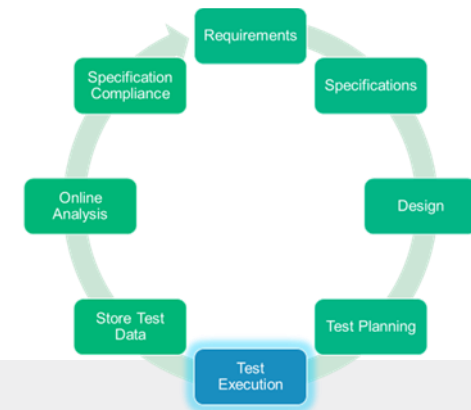
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Generative AI to Accelerate Test Workflows
Tues 2:00 - 3:00

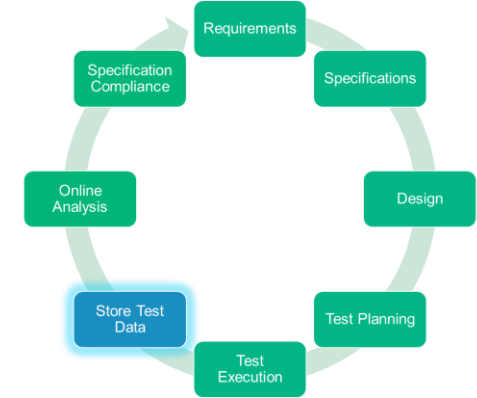
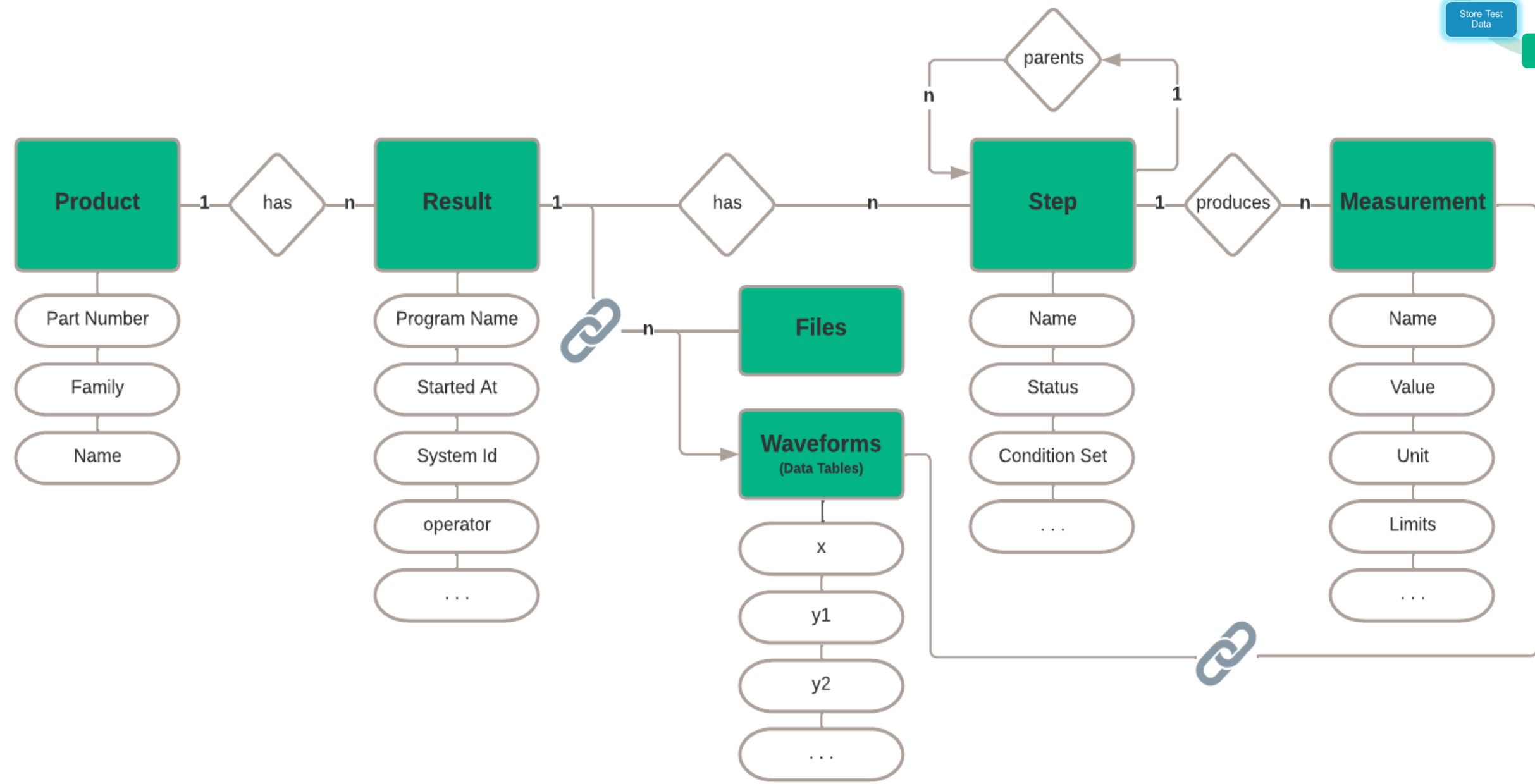
Maximize Your Lab with SystemLink Software
Tues 3:15 - 4:15

Modernizing Your Lab Operations
Wed 11:30 - 12:30

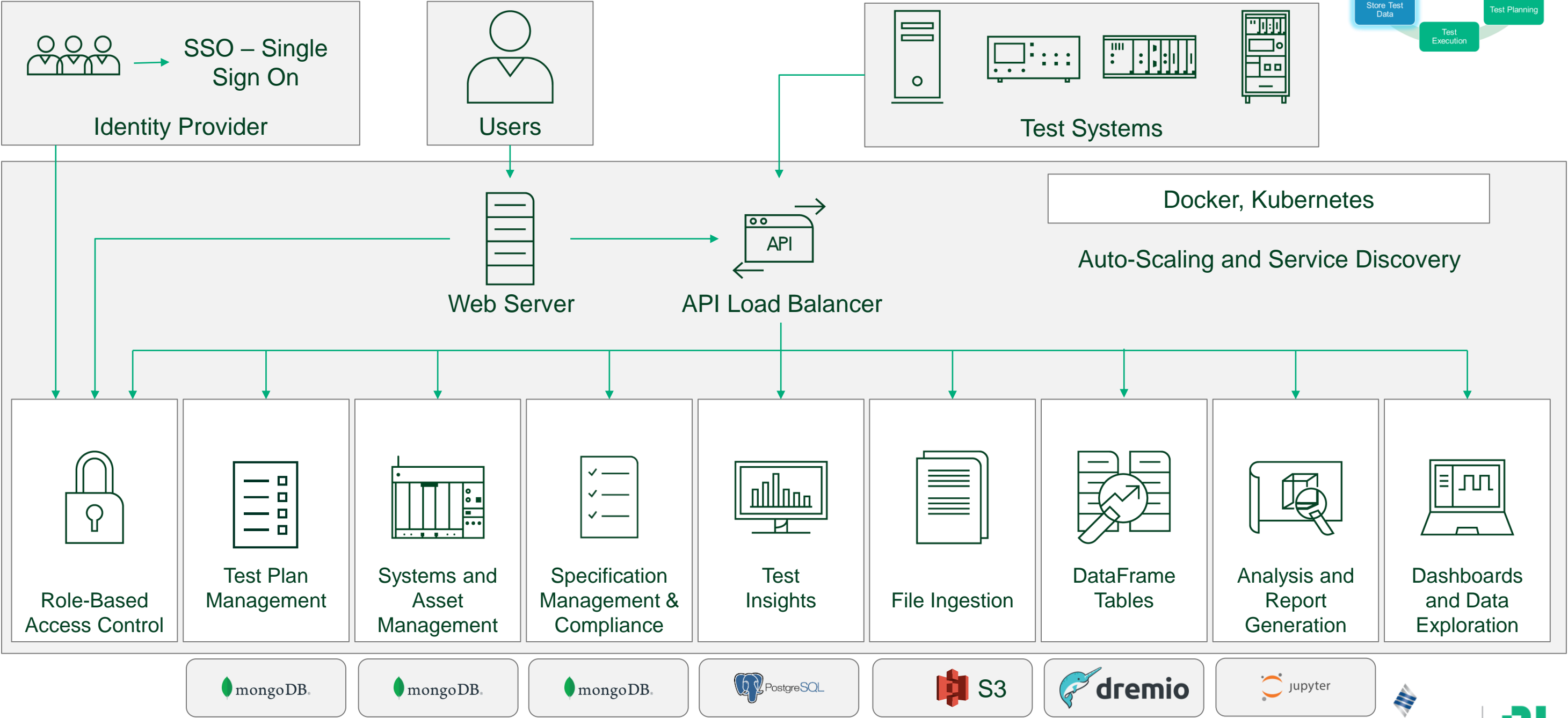
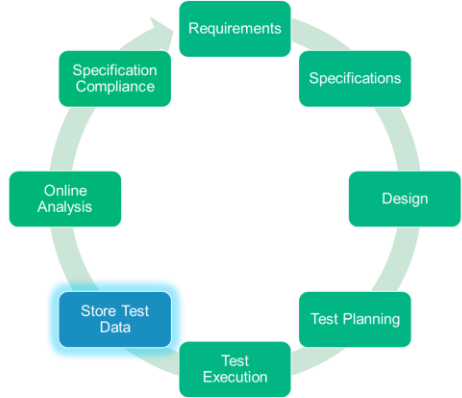
Data During Product Validation



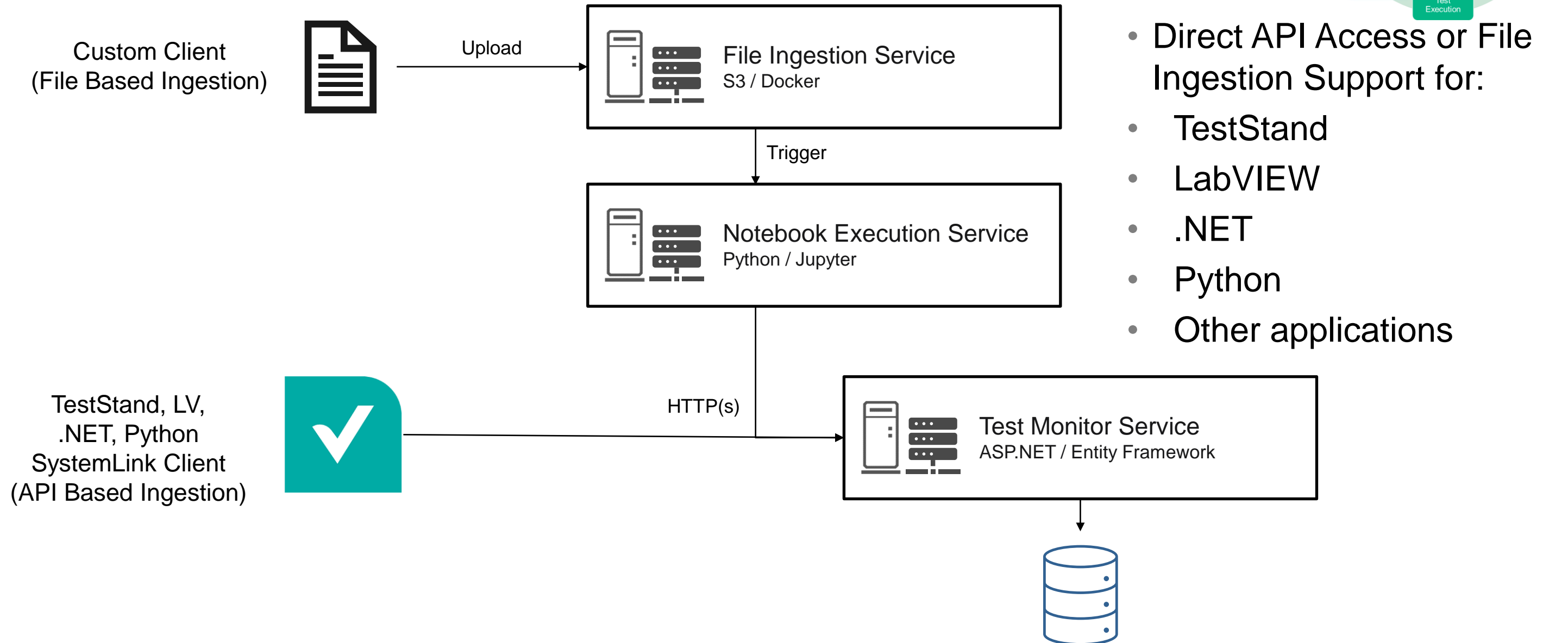
Test Data Model

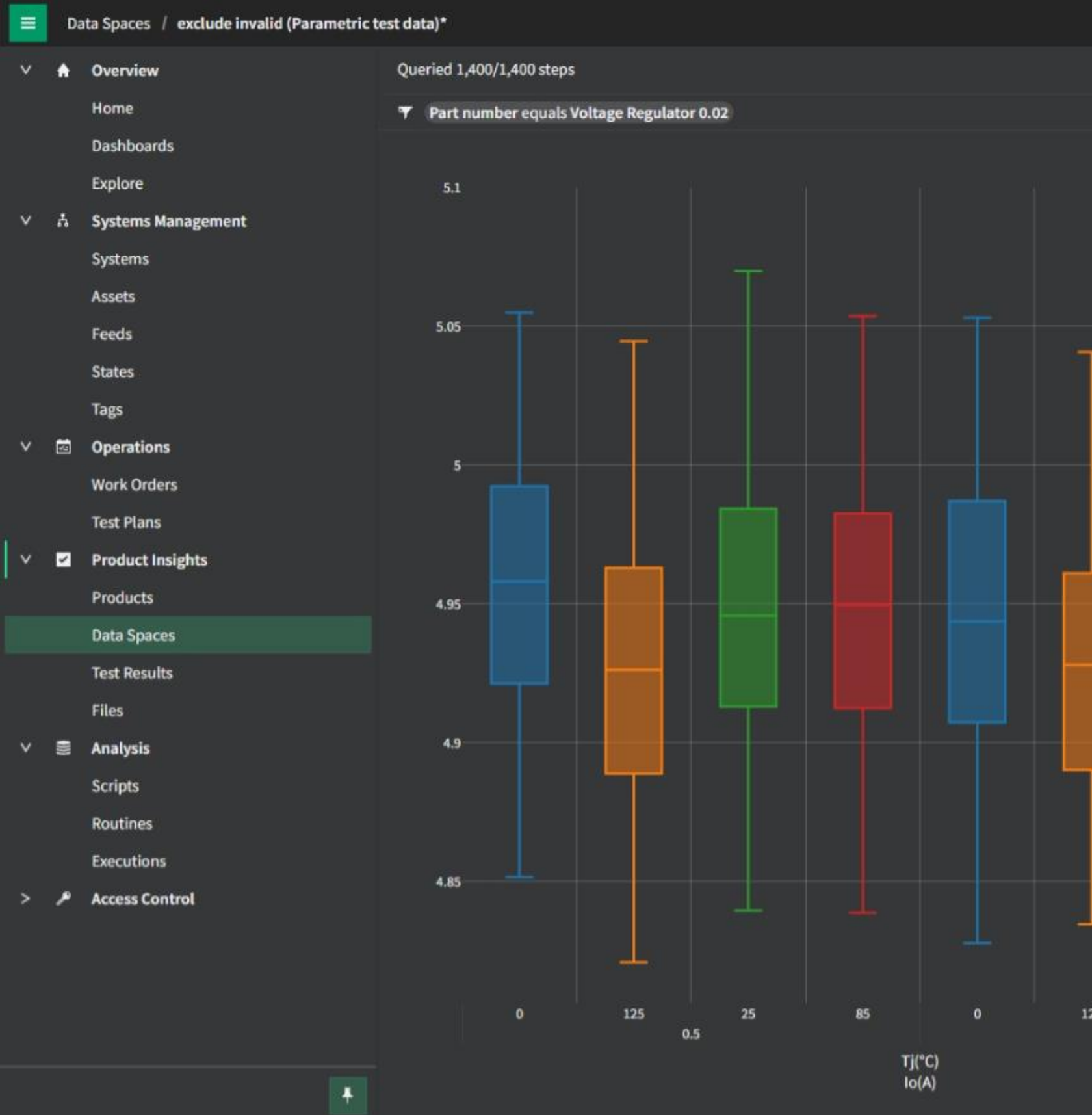


SystemLink Enterprise Architecture



Parametric Data Ingestion





Demo

1. Upload and Ingest Test Data
2. Compute Specification Compliance
3. Visualize Test Data
4. Remove Outliers
5. Re-compute Compliance

Data . . .

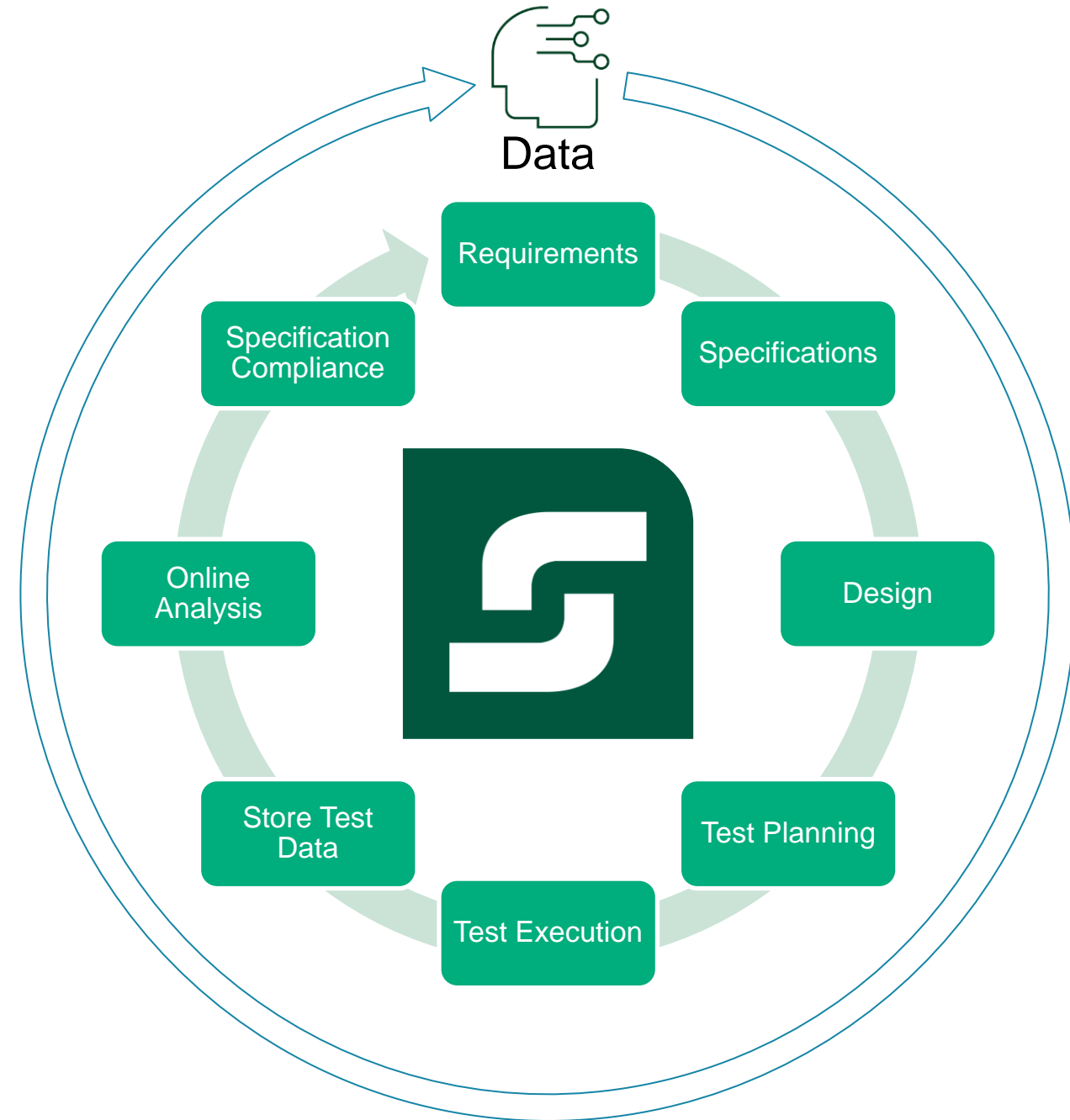
...is the common thread through the product lifecycle.

...should be considered before, during, and after each phase.

... should be managed with connected management systems.

... scale requirements need to be well understood.

... should conform to a structured, intentional model.



Questions



Other “Connectivity, Data, and Insight” Activities

May 21

Modernizing Your Lab Operations
10:15-11:15

Automating the Lab with SystemLink (Automotive Track)
Gaining Product Insight From Your Test Data
11:30-12:30

Generative AI to Accelerate Test Workflows
2:00-3:00
Modern Lab Operations with SystemLink: Hands-On
2:00-4:15

Maximize Your Lab with SystemLink Software
3:15-4:15

May 22

Analytics From Wafer To Reel To Strip (Semiconductor Track)
10:15-11:15
Modern Lab Operations with SystemLink: Hands-On
10:15-12:30

AI at the Edge
1:30-2:30

Modernizing Your Lab Operations
11:30-12:30

From Concept Through Execution: Analytics in Action
Analytics From Wafer to Reel to Strip
SystemLink Ask Me Anything
2:45-3:45



May 23, NIC 9:00-1:00
SystemLink User Group Meeting O+ User Forum

New SystemLink Learning Courseware (V/ILT)
Managing Systems and Assets with SystemLink Enterprise



NI is now part of Emerson.