Modernizing Your Lab Operations

Josh Prewitt
SystemLink Product Manager

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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.
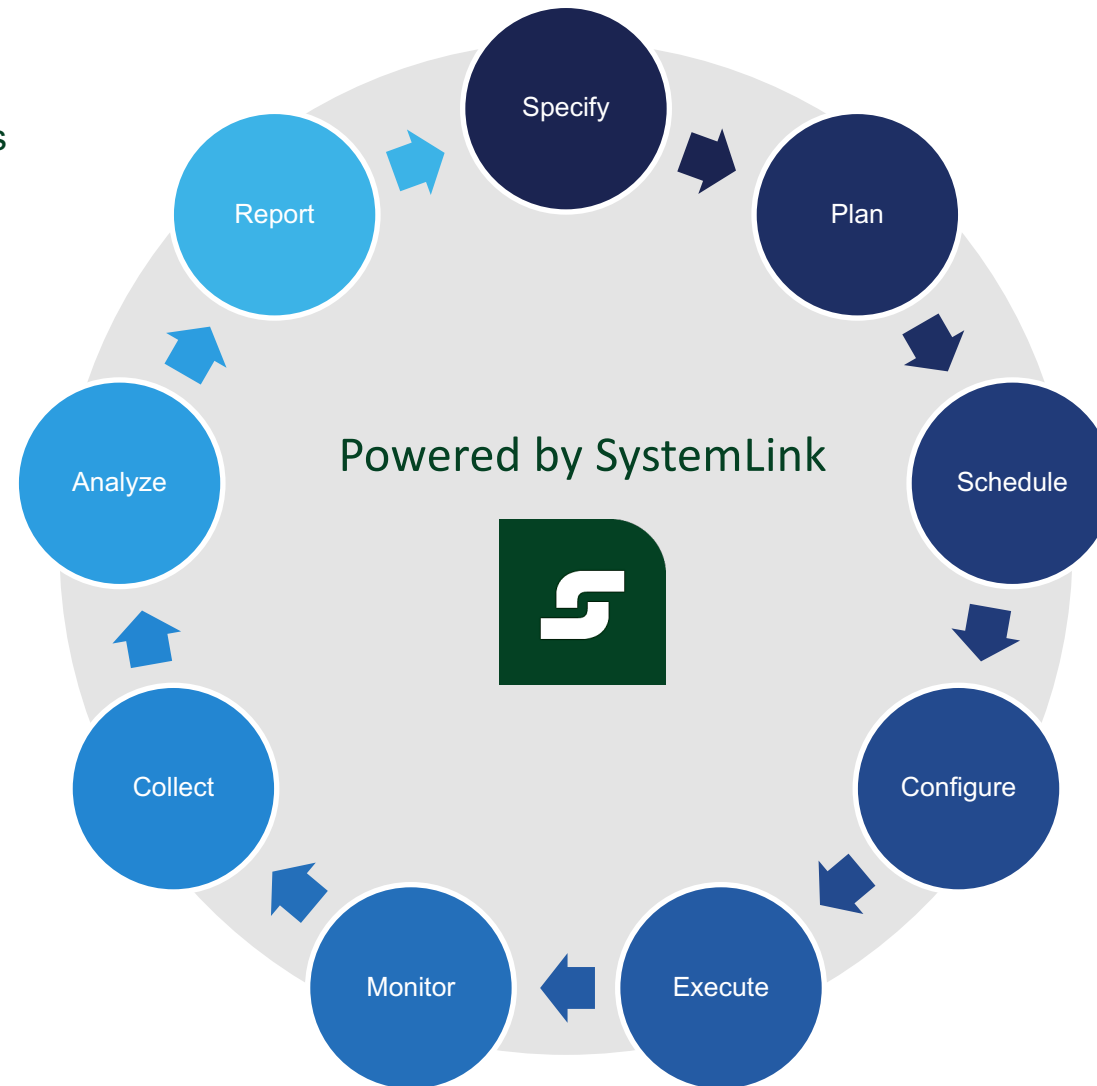
Work Orders & Test Plans
Track incoming test requests, define test requirements, schedule, deploy, and remotely execute tests.

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.

Powered by SystemLink

Specify · Plan · Schedule · Configure · Execute · Monitor · Collect · Analyze · Report

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SystemLink Architecture Fundamentals

Standards-Based

Developed with industry-leading technologies, IP best practices

Scalable

Megabytes to Petabytes of data from 1000s of data sources

Extensible

Config-based dashboards, plug-in applications, open APIs, partners

Secure

HTTPS / TLS data encryption; authentication & access control

Systems Management

Systems

| 32 systems | 11 connected | 21 disconnected | 11 pending | 0 discovered | 17 alarms |

	Name		IP address	Model	Serial number	Workspace	System start time	Pending status	
	Desktop Systems (2)								
	INTEL-NUC-2	○	10.2.74.62			Default	April 13, 2021		🔔
	INTEL-NUC-1	○	10.2.74.63			Default	April 13, 2021		🔔
	Automated Test Systems (3)								
	Tester 1	◇	10.2.74.44	NI PXIe-8133 E...		Default	April 5, 2021		🔔
	Tester 2	◇	10.2.74.32	NI PXIe-8133 E...		Default	October 11, 20...		🔔
	NI-PXIe-8135-1	○	10.2.74.46	NI PXIe-8135 E...		Default	April 21, 2021		🔔
	ECU Testers (1)								
	ECU Tester 4	◇	10.2.96.25	ECU Tester	34563	Default	July 16, 2020		🔔
	NIC (2)								
	RTTEST014	◇	10.2.96.30	Precision T3600	CYKVBX1	Austin	August 13, 2020		
	kevin-fort	◇	10.2.100.10	Precision T3610	1LH7P22	Austin	October 29, 20...	🔒 Locked (chang...	
	Data Loggers (4)								
	Data Logger 1	○	10.2.74.79	cRIO-9068	190CB7B	Default	April 8, 2021		🛡
	Data Logger 2	○	10.2.74.67	cRIO-9068	190D5D5	Default	April 8, 2021		🛡

Web Application

Central Server
(Cloud or On Prem)

Client / Agent

TCP/IP Connectivity

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What is SystemLink?

SystemLink is a scalable, self-hosted enterprise product for managing labs, improving test operations, and analyzing test results.

Manage Specifications & Plan Tests

Collect & Visualize Test Data

Monitor & Manage Systems, Assets, & DUTs
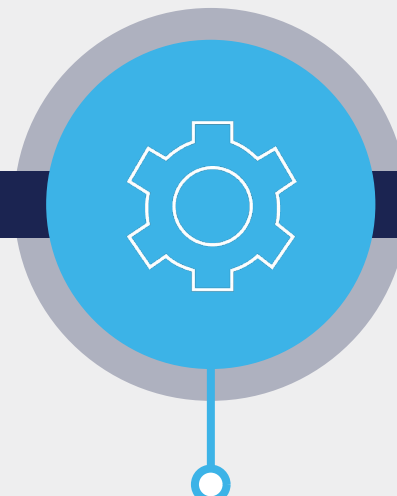
Analyze Test Data & Generate Reports

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Specification Compliance

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

Test Plan Management

- Define, manage, schedule, deploy, start, and monitor tests

  - Notify requestor when results are available

  - Comment on test plans and results to help clarify requirements and improve collaboration with others

- Leverage test plan templates to streamline test planning and scheduling

- Schedule systems, assets, and DUTs to be used for test plan execution

- Ability to remotely deploy and start tests remotely

- Monitor test execution in real-time as well as critical resources and get immediate updates as test result data is available

Systems Management

- Manage and install software for your entire test fleet from a central web interface

  - Reduce time required to keep test equipment up to date

  - View and report job history, including software updates and system errors

- Monitoring test system health with support for alarms and notifications from customizable dashboards

  - Out of the box monitoring for CPU, Memory, and Disk Utilization

  - Extend health and monitoring capabilities with the SystemLink Tag API

- Manage and track the assets connected to your test systems

  - Execute remote diagnostics, such as self-test, self-calibrate, and device reset

  - Manage date/time, network settings, and admin passwords for RT systems

- Track system utilization

Calibration Management

Track calibration status and calibration history for connected and disconnected assets.

- Auto-discovers and reports calibration for NI devices

- Supports 3rd party calibration data via API and web interface

- View past calibration history and attach calibration certificates

- Get notifications when assets are approaching their calibration due date

- Export asset calibration data for offline reporting

Asset Traceability

Automatic asset tracking for NI and 3rd party LXI, USB-TMC, and GPIB instruments

- Search and locate test assets across all systems

- Tracks asset connection and location history over time

- 3rd party assets through programmatic APIs and web interface

- Add custom properties and keywords to assets that can be used when grouping or filtering assets

- Export asset data for external reporting

Asset Utilization Tracking

- Low-level device utilization tracking based on actual instrument usage

- Granular, non-obtrusive, and highly performant

- Does not require modifying existing applications or additional manual user steps

- Supports NI and 3rd party instruments via NI-VISA including LXI, USB-TMC, and GPIB

- Identify types of usage, including testing and maintenance

- New highly customizable dashboards and out of the box reports (e.g., under-utilized assets)

- PXI modules and DAQ support coming soon
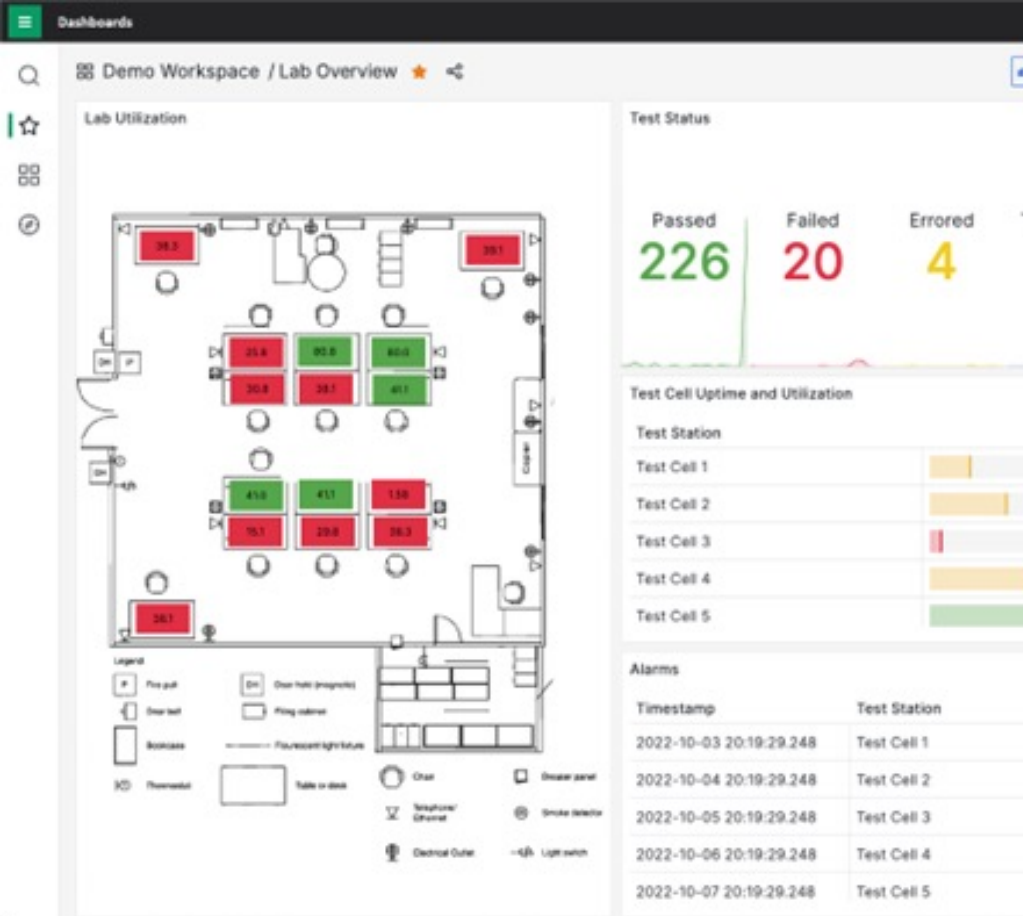
Real-Time Monitoring & Dashboards

- Monitor test systems and key project indicators in real-time through customizable dashboards

- Track lab, system, and product key project indicators

  - Utilization, throughput, quality metrics, etc.

- Over 20+ different visualizations to choose from

  - Line, bar, pie, and scatter charts

 - Heat maps and histograms

  - Geo maps and lab overviews

  - Gauges

  - Stats

  - Etc.
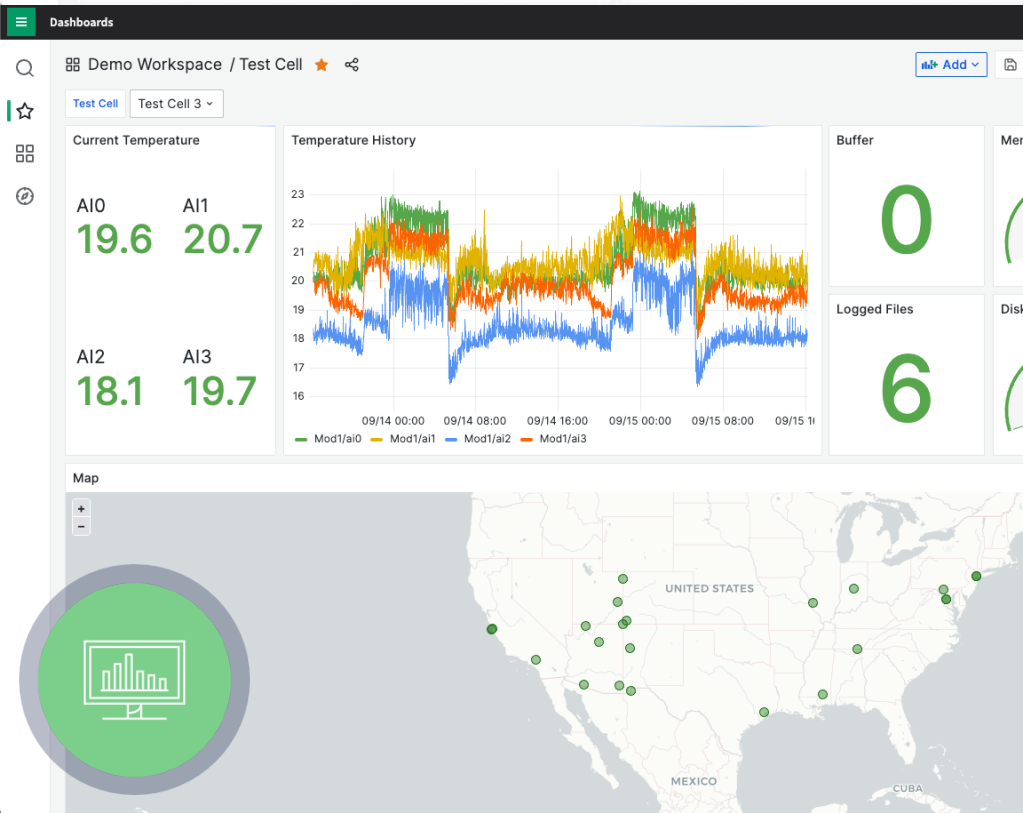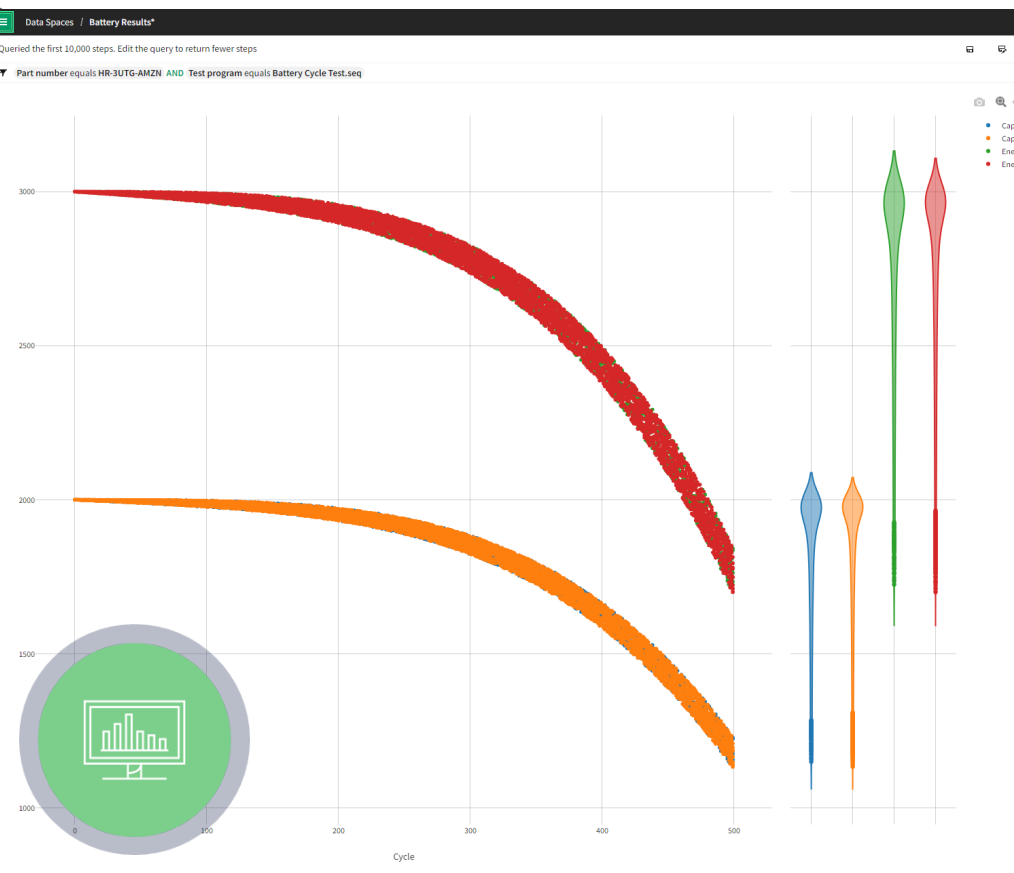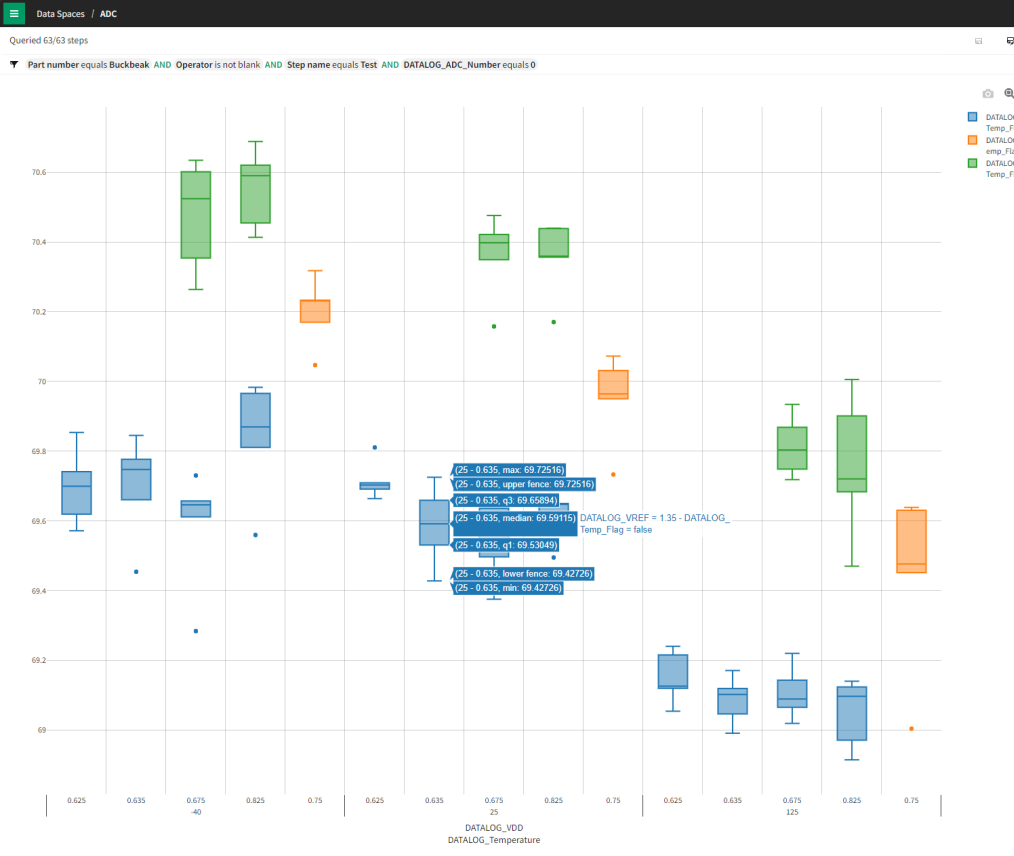
Data Management

- Collect, store and view test results, files and parametric data

  – Ingest data from TestStand or 3rd party sequencers using SystemLink's Test Monitor LV, Python, .NET, or HTTP APIs

- Quickly search and filter data to analyze past results and gain additional insights

  – View waveform and parametric measurement data from a web-based user interface

- Interactive web-based data visualization and analysis

  – Plot and group measurement data across different conditions

  – View distributions using box and violin plots as well as histograms
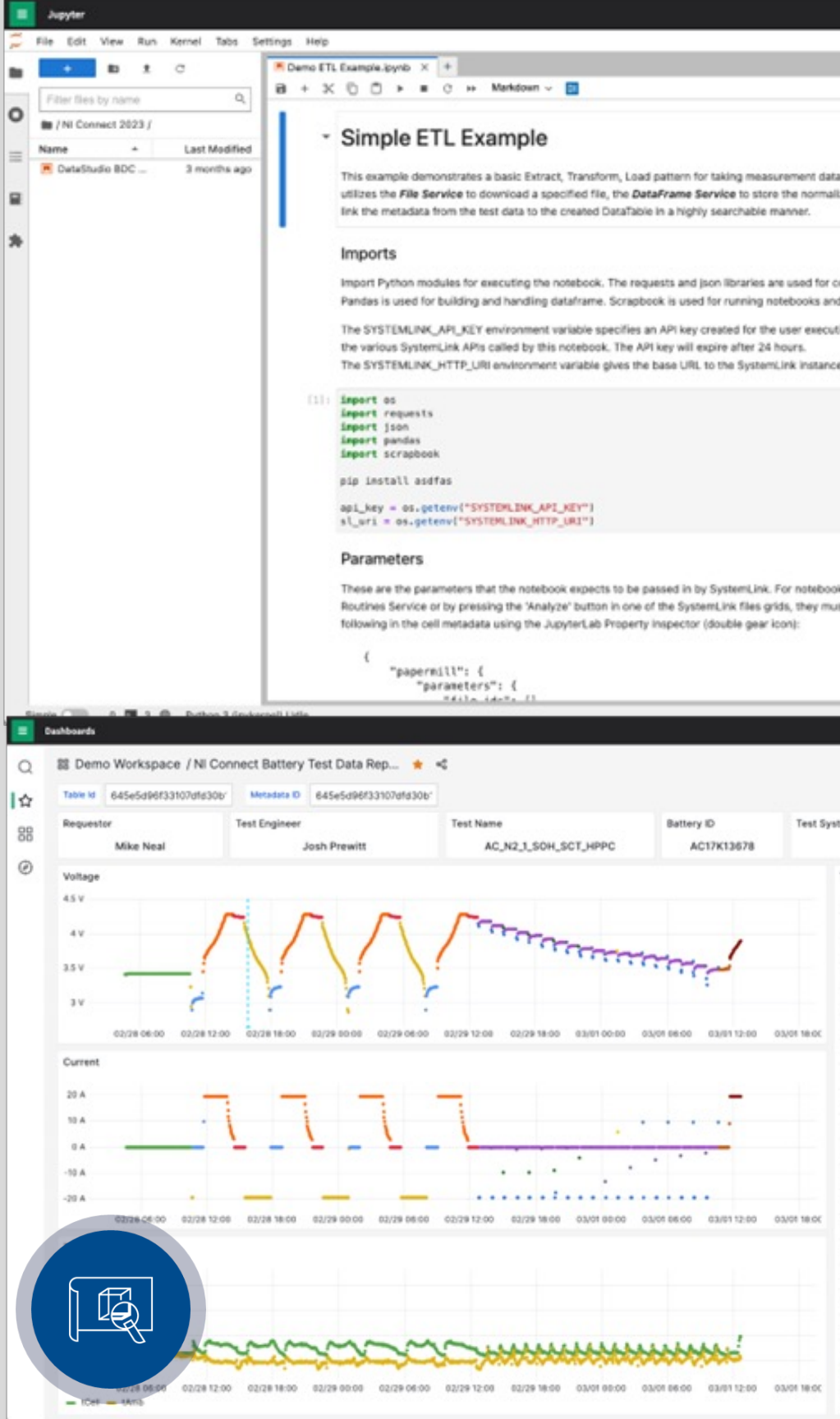
Analysis Automation & Reporting

- Develop analysis routines

  – Leverage SystemLink's fully integrated Jupyter Notebook development environment to create Python scripts to extract, transform, and analyze data

  – Publish notebooks to SL make them available for automated routines

- Automate data transformation and analysis

  – Interactively run notebooks on selected data sets

  – Automatically trigger notebooks when new data arrives

  – Schedule notebooks to run on a periodic basis

  – View notebook analysis in customizable dashboards

- Track key project indicators

  – Leverage dashboard and customizable analytics to track KPIs such as throughput, utilization, first pass yield and overall equipment effectiveness
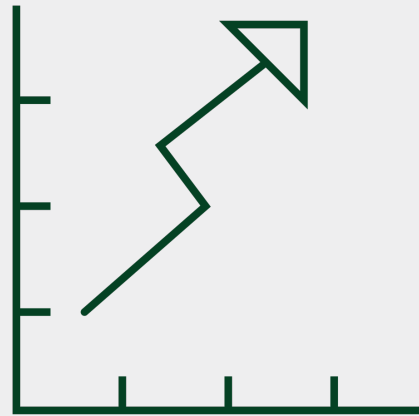
Modernizing Your Lab Operations

Demo

- Create and define your testing specifications

- Plan and schedule your tests

- Deploy your tests

- Remote execute your tests

- Monitor your tests and lab operations in real-time

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Business Impact of SystemLink

SystemLink Benefits

Improve test operations by automating test system configuration and updates

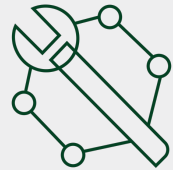Reduce cost of test through improved asset utilization and uptime

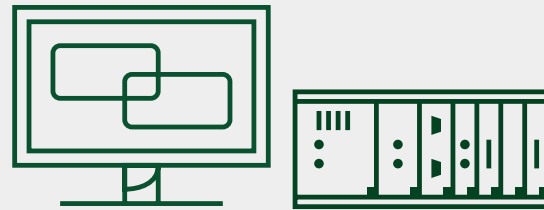Improve product insights through automated analysis

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The right approach for your test operations
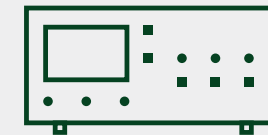
Standardize on an open platform

Fully Customized System	Open Platform-Based System	Closed Turnkey System
"Customer Does Everything"	"Customer Knows Best"	"Vendor Knows Best"
Costly (Time, Upkeep)	Customizable Solution	Fixed Functionality
No Ecosystem	Open, Valuable Ecosystem	Closed Ecosystem
Customer Maintains	Customer Designs	Customer Pays

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Calendar View

Scheduling Assistant

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