

Maximize your test operations with SystemLink

Wednesday 9:00 AM

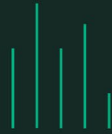
connect

2

0

2

2



SystemLink Product
Manager



Josh Prewitt

Test Operations Challenges

Asset Management

Low visibility of equipment utilization, health, and traceability

Systems Management

Inefficient, error-prone process for test system configuration deployments and updates

Test Monitoring

Difficult to catch small problems before they disrupt production – lack of early warning indicators

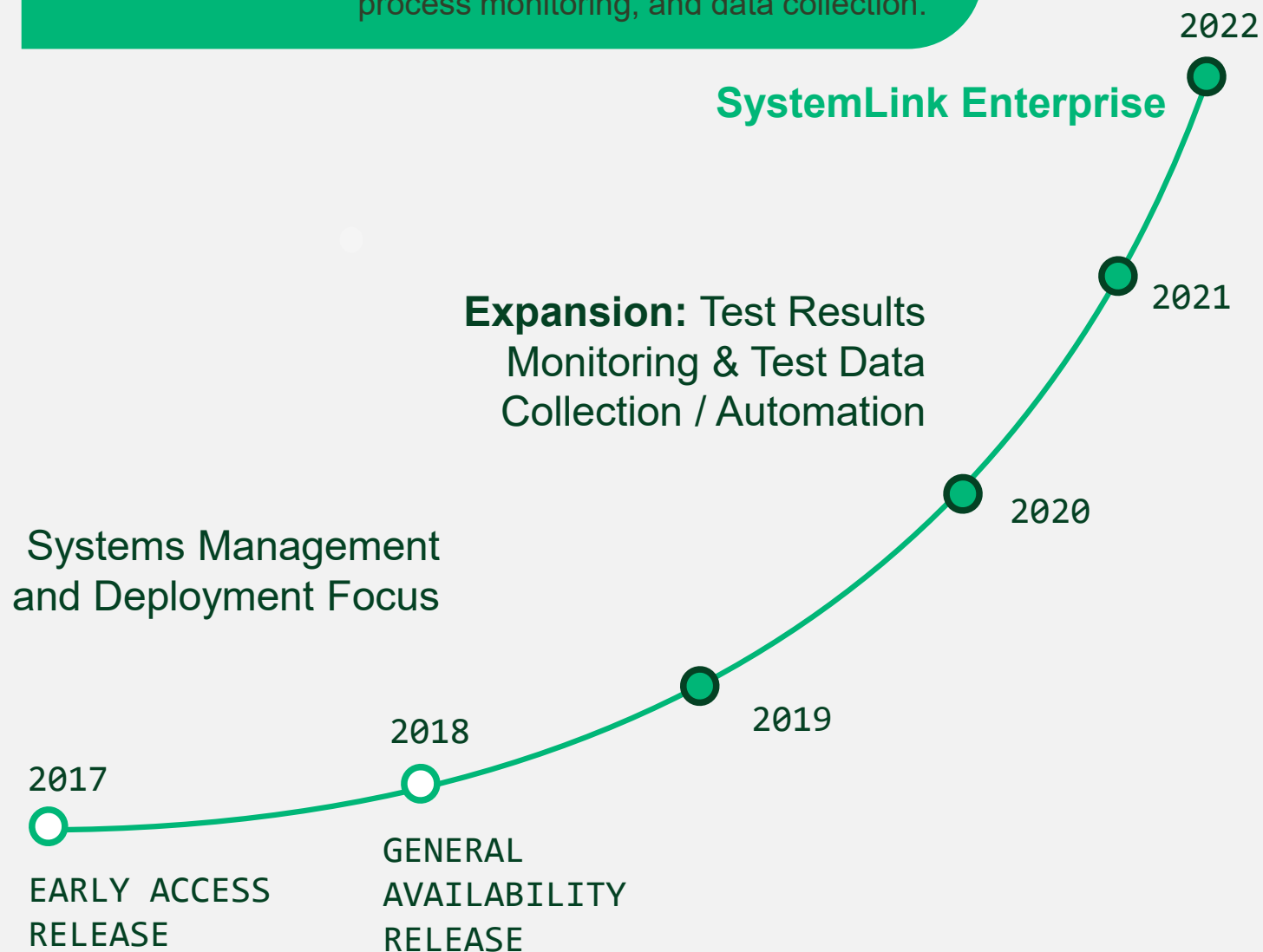
Data Collection and Processing

Expensive and time consuming for engineers to develop data collection architectures to connect to enterprise data sources



The Evolution of SystemLink

VALIDATION | PRODUCTION
A central “command center” to manage test resources and processes, as well as establish a connection to enterprise best practices in systems automation, asset management, process monitoring, and data collection.





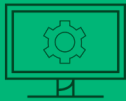
Design Validation

VALIDATION & VERIFICATION TEST

Product Manufacturing

MANUFACTURING TEST ENGINEERING

Test Operations



SOFTWARE
CONFIGURATION



ASSET
TRACKING



TEST DATA
COLLECTION



TEST
INSIGHTS

CONNECTING TEST ENGINEERING TO ENTERPRISE STANDARDS & BEST PRACTICES



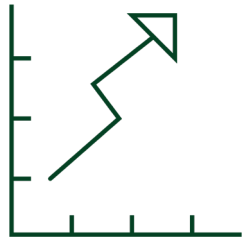
Test Systems and Test System Software



SystemLink | Driving Excellence in Test Operations

SystemLink improves **connectivity and collaboration** experiences for test engineering teams in both the design validation and production phases of the manufacturing process.

Business Impact of Test Operations Improvements



Accelerate Test Schedules
with Remote Automation



Reduce Cost of Test through
Improved Asset Allocation



Improve data analysis through
Automated Report Generation



SystemLink for Validation

Connect validation test assets to a central tracking database for location, health, and utilization reporting

Streamline system configuration tasks for lab systems and bench-level systems.

Collect and monitor test results generated by LabVIEW, TestStand, or 3rd party software.

Automate and centralize test reporting with integration to DIAdem or Python.





CASE STUDY

Automotive Validation Labs

5-15X

MORE TEST SYSTEM ITERATION

2 Weeks

REDUCTION IN PROJECT TIME

50%

DECREASE IN DATA ANALYSIS TIME



SystemLink for Production

Monitor production tester health metrics, such as calibration status, and track tester utilization.

Automate production test code deployments at the fleet-level and manage tester state configurations.

Collect production test data for MTE teams to track KPIs and troubleshoot via interactive visualization interfaces.

Route test data to enterprise data lakes and analytics systems, such as NI Optimal+.



CASE STUDY

Cree Lighting

13%

REDUCTION IN DOWNTIME

120%

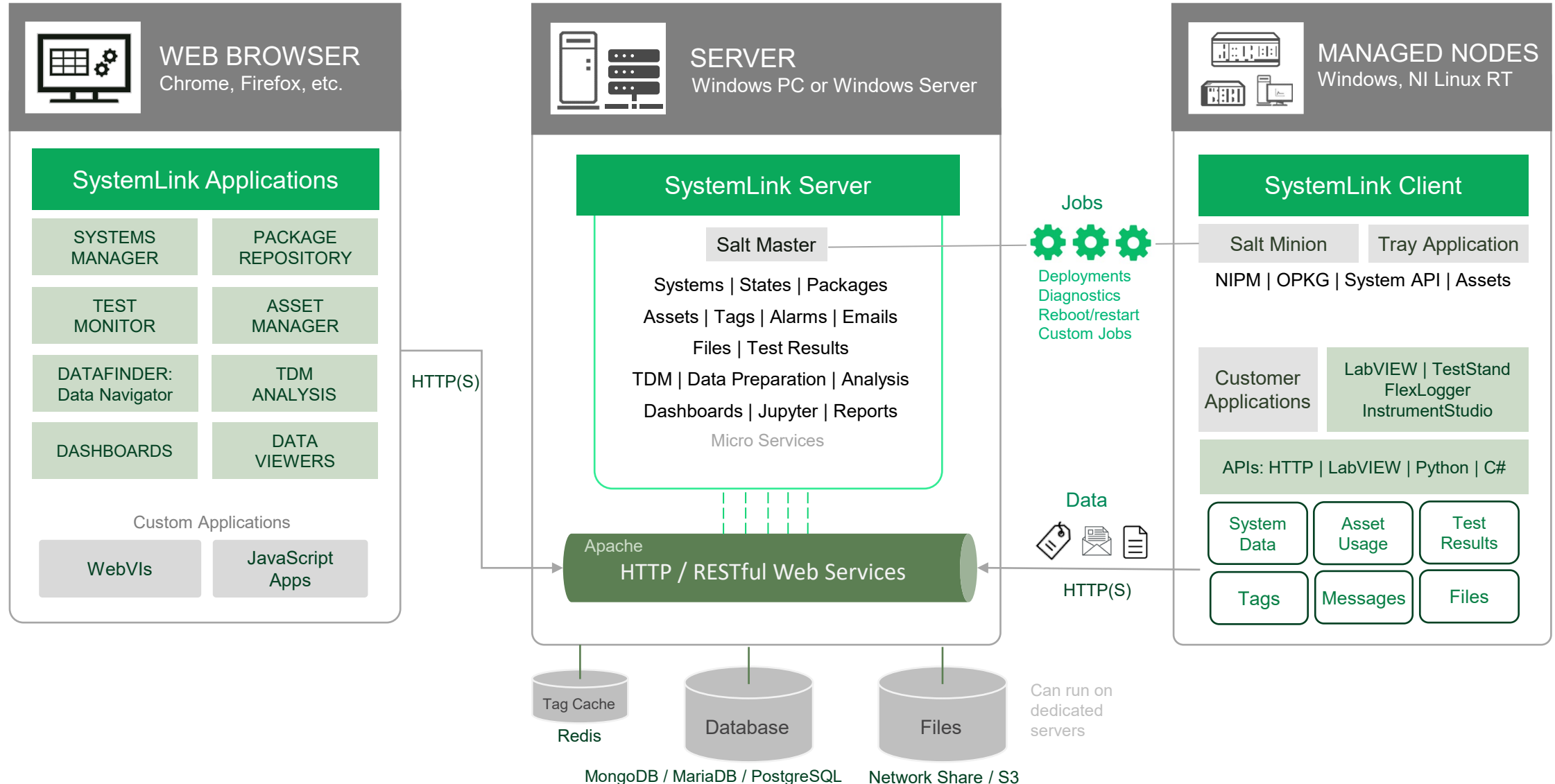
INCREASE IN FIRST PASS YIELD

100%

USER ADOPTION



Architecture Component View



SystemLink New Features

Unified Application Design

SystemLink 2021 provides an integrated user interface to enable more efficient navigation.

Configurable Tester Fleet Views

Create multiple customized fleet views to show tags, custom properties, and Jupyter-based analytics for each of your test systems.

Python Report Automation

SystemLink TDM Analysis offers Python Notebooks for data processing and reporting, in addition to DIAdem scripts.



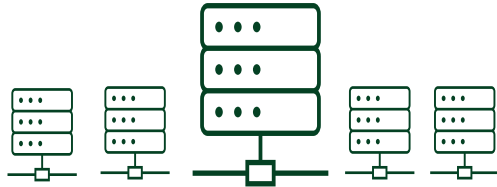
SystemLink Demo



SystemLink Roadmap

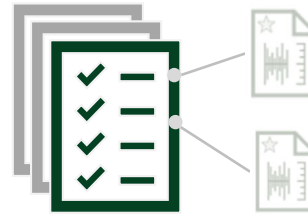
SystemLink Roadmap

2022 Priorities



Hyper-Scalable Architecture

Support 1000s of users, systems, and large data volumes with clustered-container architecture. Align with IT best practices and expectations



Streamline Test & Measurement Insights

Improve product insights by providing a pipeline to easily extract, transform, and load measurement data



Dashboards and Data Visualization

Improve the ability for customers to visualize their data and analytics

2023-2024



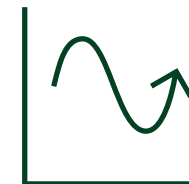
SaaS Expansion

Improve customer adoption and eliminate the requirement for customers to install and maintain their own server



Test Planning and System Scheduling

Reduce cost of test through coordination and standardization of test lifecycle activities

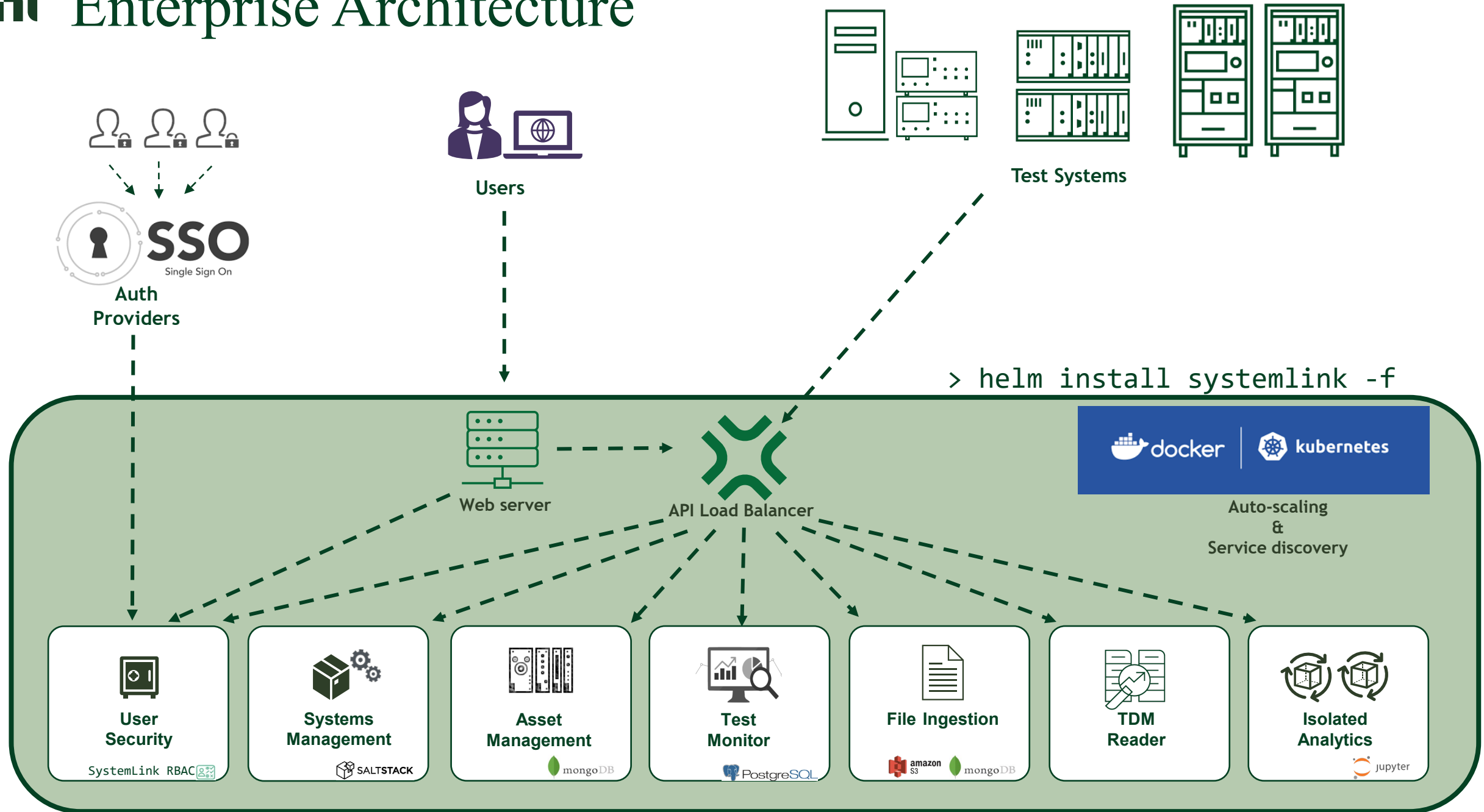


Web-based Waveform Visualization

Enable web support for interactive inspection and analysis of measurement data

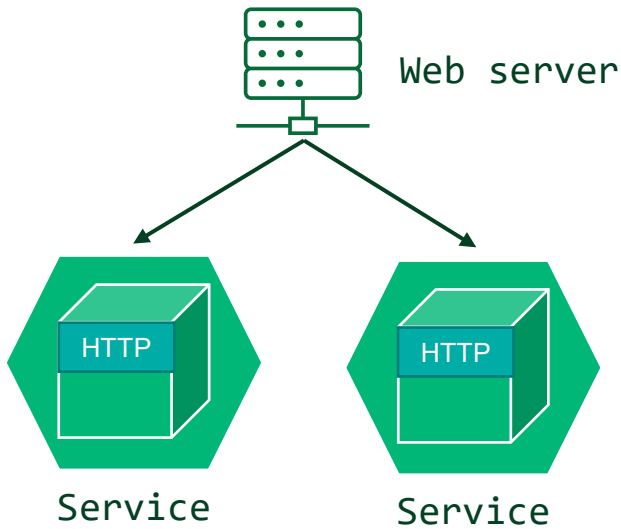
Enterprise Architecture

ni.com

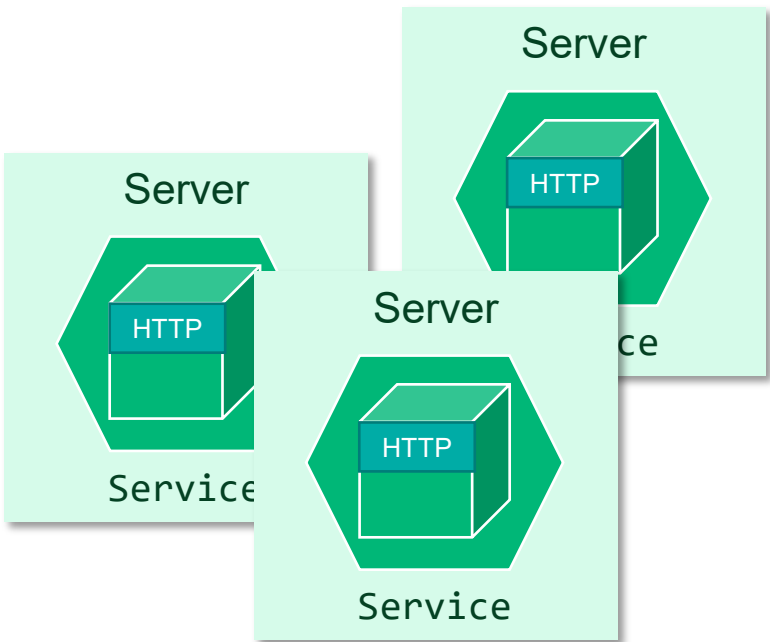


Microservice Architecture

Load
Balance
Requests



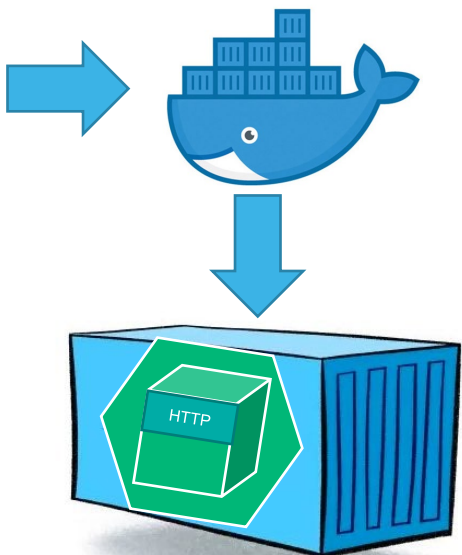
Distributed
Services



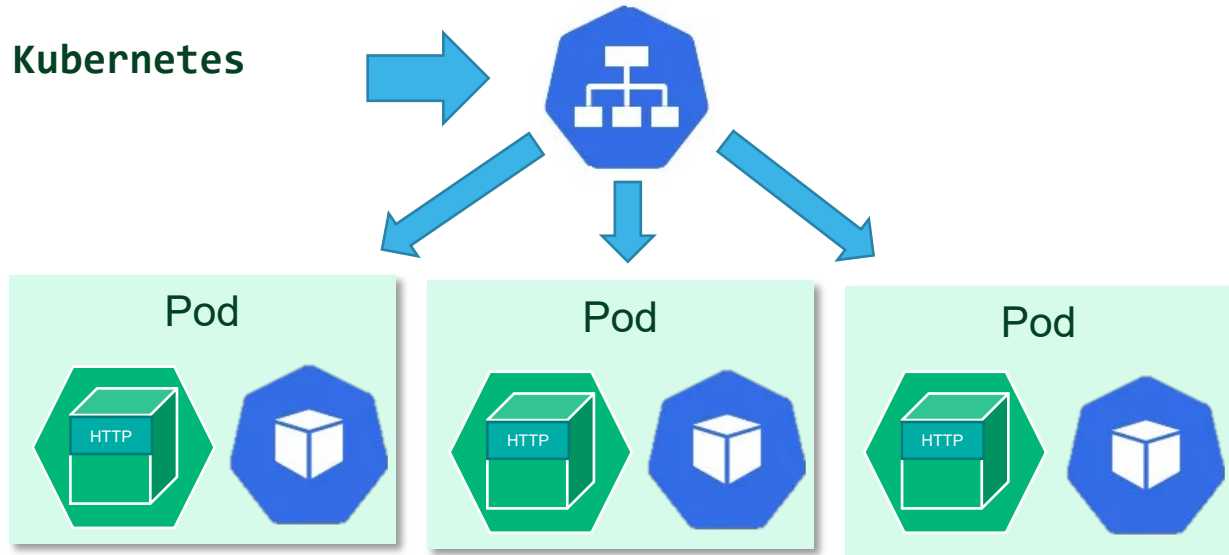
Containerized

```

Dockerfile.Linux X
SystemsManagementService > Dockerfile.Linux > ...
1 FROM mcr.microsoft.com/dotnet/core/sdk:3.1-focal AS builder
2 COPY NuGet.Config /app/
3 COPY NuGet.Config /root/.nuget/NuGet/
4 COPY VersionInfo.targets /app/
5 COPY BuildTools/ /app/BuildTools/
6 COPY *.csproj /app/SystemsManagementService/
7 COPY *.sln /app/SystemsManagementService/
8
9 WORKDIR /app/SystemsManagementService
10
11 RUN dotnet restore
12
13 COPY SystemsManagementService/ /app/SystemsManagementService/
14 RUN dotnet build
15
16 FROM mcr.microsoft.com/dotnet/core/aspnet:3.1-focal
17 WORKDIR /app
18 COPY --from=builder /app/SystemsManagementService/SystemsManagemen
19
20 EXPOSE 13100
21 CMD ["./app/NationalInstruments.SystemsManagementService.WebApi"]
  
```

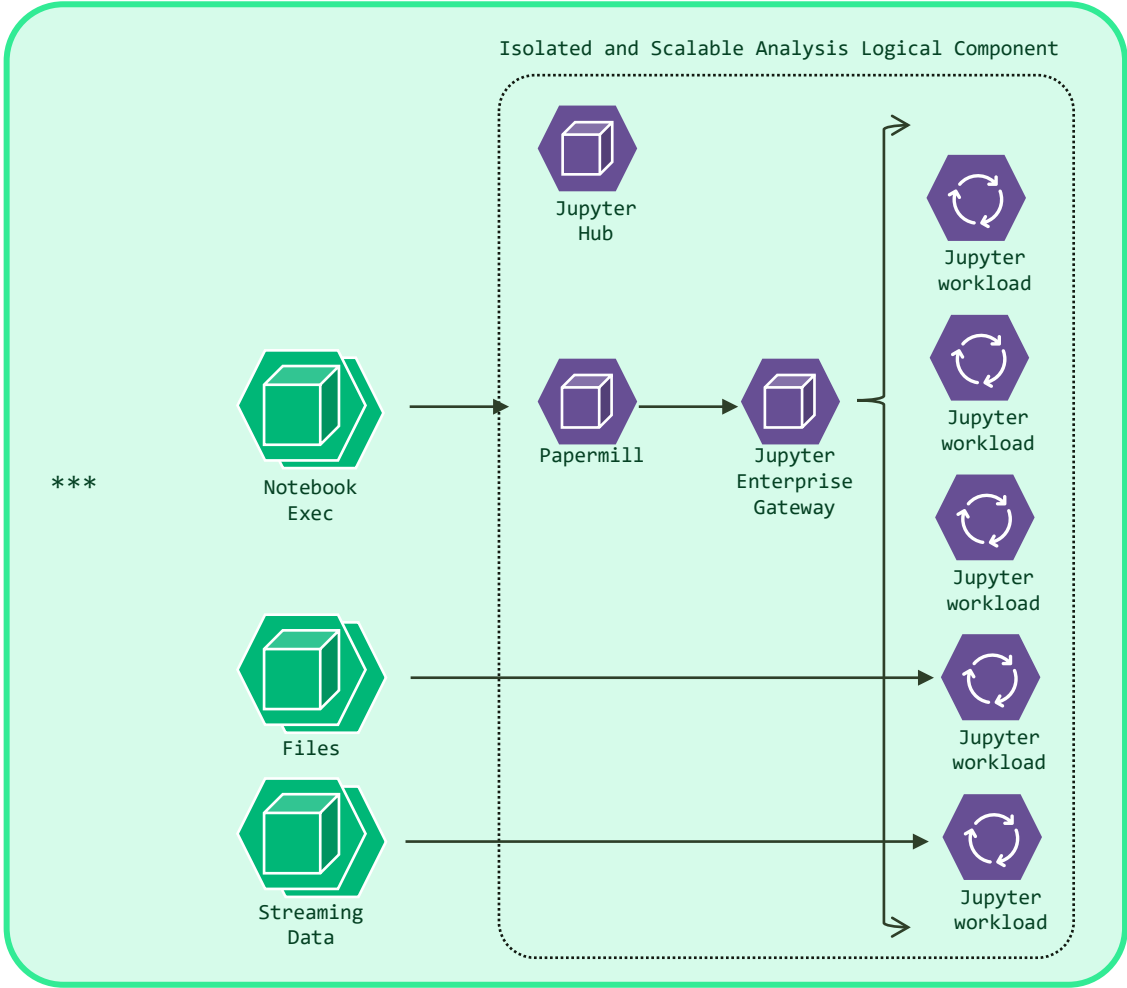


Kubernetes



Isolated and Scalable Analysis with Jupyter Notebook

SLE Namespace in K8s



- Python is the preferred analytics tool of choice by most data scientists
- Jupyter provides off-the-shelf tools with first class K8s integration

***Other SLE services not shown

Questions

