What happens when you build test systems on Linux

Why and What NI customers are doing today

NI Connect, Austin, 2023

Daniel Ousley

Principal Product Manager, Linux SW & HW

slido

Panel Q&A at slido.com #4129983

ⓘ Start presenting to display the joining instructions on this slide.

Agenda:

1. Introductions
2. Why are engineers utilizing Linux?
3. Is Linux for everyone?
4. What is the status of NI support for Linux today?
5. How are customers using the capabilities that are supported today?
6. Q&A with Panel

Introductions

Introductions

Daniel Ousley
NI

Jim Tillett
Endeavor

Tanner Blair
Aliaro

John Harvey
LMCO

Chad Erickson
NI

David Corney
NI

Why are engineers utilizing Linux?

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Why use Linux?

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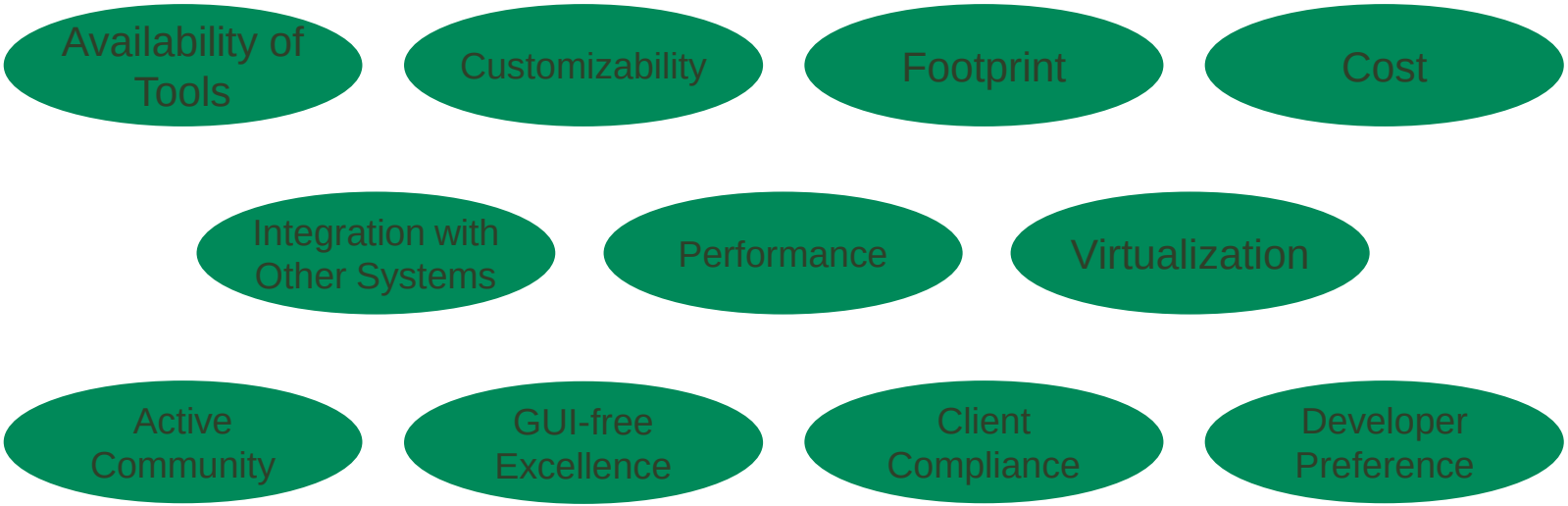
Why are engineers utilizing Linux?



Is Linux for everyone?

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Why not use Linux?

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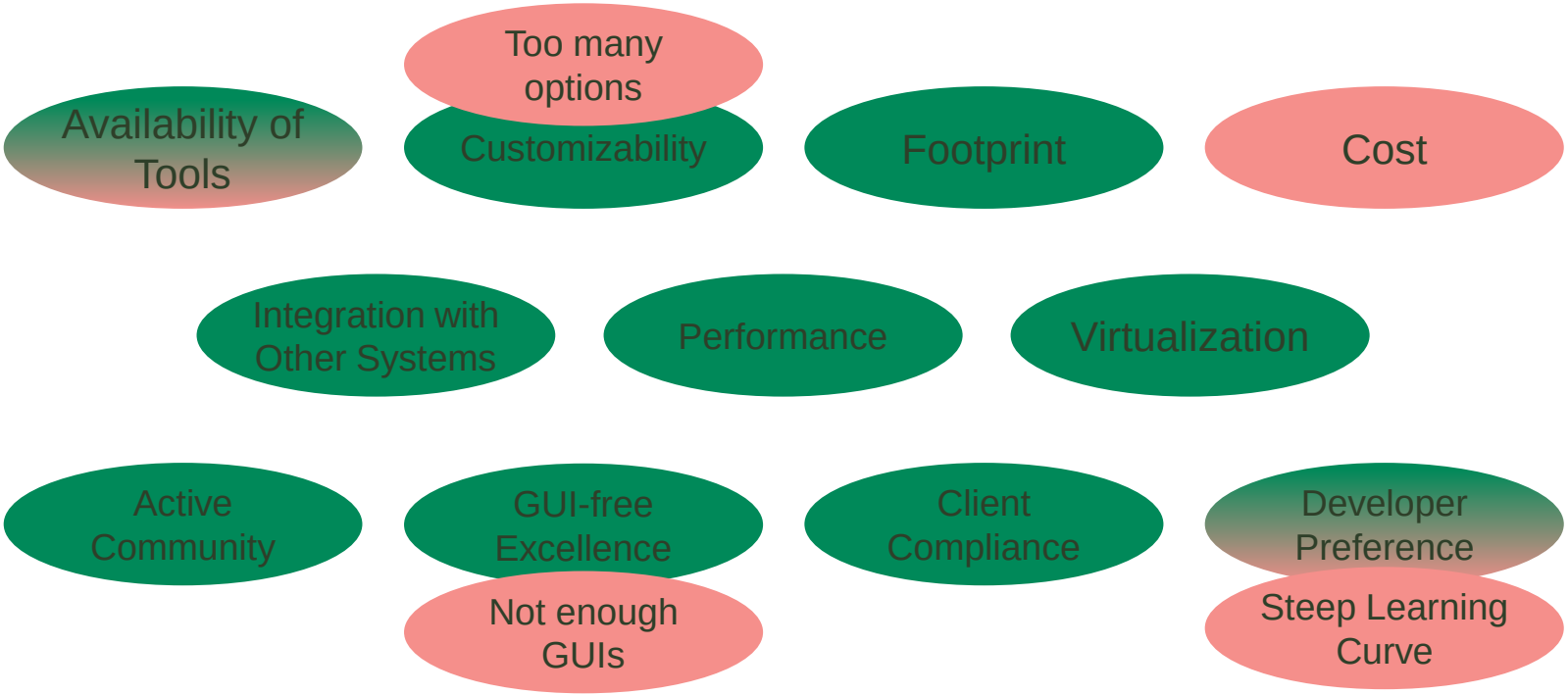
Why are engineers NOT utilizing Linux?



What is the status of NI support for Linux today?

Overview of OS support 2023Q2

	OS Family		
	Windows	**Linux**	**MacOS**
VISA driver	Full	Full	Full
GPIB driver	Full	Majority	Full
DAQmx, PXI Platform Services, System Configuration drivers	Full	Majority	none
Automotive drivers and toolkits	Full	Majority	none
DMMs, Scopes, Switches, Signal Generators	Full	Majority	none
Sync drivers	Full	Majority	none
RF drivers	Full	Partial	none
Communication bus drivers	Full	Partial	none
RIO drivers	Full	Partial	none
LabVIEW	Full	Full	Full
LabVIEW Toolkits	Full	Partial	none
LabVIEW FPGA	Full	Partial	none
LabVIEW RT	Full	none	none
TestStand	Full	none	none
VeriStand	Full	none	none
FlexLogger	Full	none	none
SystemLink	Full	Partial	none
Diadem	Full	none	none

Public NI OS Support Policy

- There's a link on the page to a longer-term view of the roadmap (2+ years)

Link for this page

Operating System	2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Windows								
Windows 11								
Windows 10								
Windows Server 2022								
Windows Server 2019								
Windows Server 2016								
Linux								
Red Hat Enterprise Linux 9								
Red Hat Enterprise Linux 8								
Red Hat Enterprise Linux 7								
CentOS Stream								
CentOS Linux 8								
CentOS Linux 7								
OpenSUSE Leap 15.y								
OpenSUSE Leap 15.x								
OpenSUSE Leap 15.4								
OpenSUSE Leap 15.3								
OpenSUSE Leap 15.2								
OpenSUSE Leap 15.1								
Ubuntu 24.04 LTS (kernel TBD)								
Ubuntu 22.04 LTS (kernel 5.15)								
Ubuntu 20.04 LTS (kernel 5.13)								
Ubuntu 20.04 LTS (kernel 5.8)								

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NI Hardware and Software Operating System Compatibility

Select an NI product from the dropdown list. Please note that some hardware models are supported by multiple drivers and have one entry for each driver that supports them.

Note: For legacy OS support, see the "NI Hardware and Software Operating System Compatibility" file in the **Downloads** section at the bottom of this page.

PXIe-6363 (DAQmx)

The tables below show the earliest version of the driver where support was available.*

Installed by:	NI-DAQmx

	Windows 11 (64-bit)	Windows 10 (64-bit)	Windows Server 2022 (64-bit)	Windows Server 2019 (64-bit)	Windows Server 2016 (64-bit)
Windows	2022 Q3 to latest version	19.1 to latest version	2022 Q3 to latest version	20.7 to latest version	20.0 to latest version

	RHEL 9	RHEL 8	OpenSUSE 15.4	OpenSUSE 15.3	Ubuntu 22.04	Ubuntu 20.04
Linux Desktop	2022 Q4 to latest version	19.1 to latest version	2022 Q4 to latest version	2022 Q4 to latest version	2022 Q4 to latest version	21.0 to latest version

	Linux Real-Time
Linux Real-Time	19.1 to latest version

Notes	▪ Known Issues, Readmes, etc. (Release Notes)

*The table may exclude software versions older than 21.3; support may have been available earlier.

Link for this page

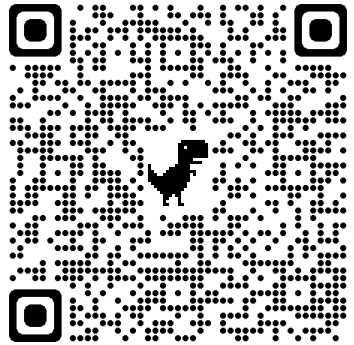


Table of Contents

About the NI Platform on Linux Desktop
Components of a System with NI Linux Desktop Support
System Requirements
NI Platform on Linux Desktop New Features and Changes
Migrating an NI Test System to Linux Desktop
Supported Distributions
When Will NI Support My Linux OS?
How Do NI Installers Handle Kernel Updates?
Installing NI Drivers and Software on Linux Desktop

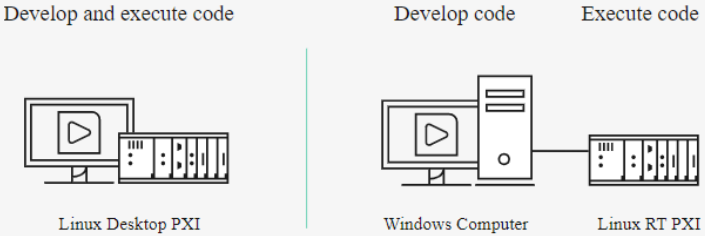
Link for this page

About the NI Platform on Linux Desktop

Updated 2023-04-06 | 2 minute(s) read | # Feature Usage # cDAQ-9179 # NI-SCOPE 2023 Q1.1 + 21 >

The NI Platform on Linux Desktop is a set of hardware, software, and drivers designed for users creating test and measurement applications with Linux.

You can integrate NI instruments into systems running on Linux and program NI instruments using LabVIEW, Python, C, and other programming languages. NI Platform on Linux Desktop allows you to develop and execute code on the same machine running a desktop OS. NI also offers NI Linux Real-Time, a Linux distribution with industrial-grade, real-time capabilities. You can use NI Linux RT on embedded systems that are programmed and maintained remotely from another system running a desktop OS.



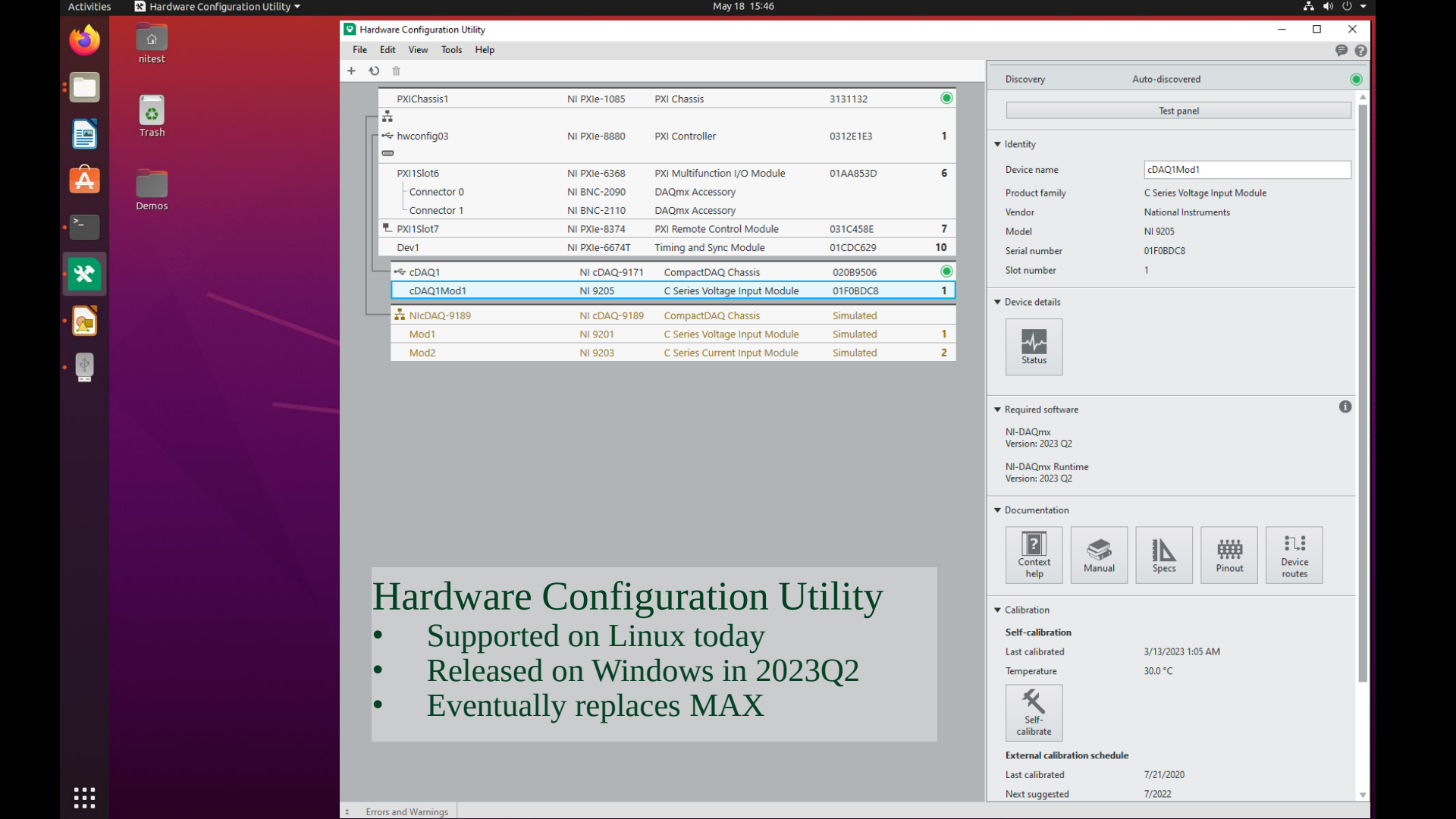
Note
This help applies to Linux desktop only.

In This Section

NI Platform on Linux Desktop Key Features
Who needs the NI Platform on Linux Desktop?

Related Content

Introduction to NI Linux Real-Time


Activities
Hardware Configuration Utility
May 18 15:46
nitest
Trash
Demos
Hardware Configuration Utility
File Edit View Tools Help
PXIChassis1 NI PXIe-1085 PXI Chassis 3131132
hwconfig03 NI PXIe-8880 PXI Controller 0312E1E3 1
PXI1Slot6 NI PXIe-6368 PXI Multifunction I/O Module 01AA853D 6
Connector 0 NI BNC-2090 DAQmx Accessory
Connector 1 NI BNC-2110 DAQmx Accessory
PXI1Slot7 NI PXIe-8374 PXI Remote Control Module 031C458E 7
Dev1 NI PXIe-6674T Timing and Sync Module 01CDC629 10
cDAQ1 NI cDAQ-9171 CompactDAQ Chassis 020B9506
cDAQ1Mod1 NI 9205 C Series Voltage Input Module 01F0BDC8 1
NIcDAQ-9189 NI cDAQ-9189 CompactDAQ Chassis Simulated
Mod1 NI 9201 C Series Voltage Input Module Simulated 1
Mod2 NI 9203 C Series Current Input Module Simulated 2
Discovery Auto-discovered
Test panel
Identity
Device name cDAQ1Mod1
Product family C Series Voltage Input Module
Vendor National Instruments
Model NI 9205
Serial number 01F0BDC8
Slot number 1
Device details
Status
Required software
NI-DAQmx
Version: 2023 Q2
NI-DAQmx Runtime
Version: 2023 Q2
Documentation
Context help
Manual
Specs
Pinout
Device routes
Calibration
Self-calibration
Last calibrated 3/13/2023 1:05 AM
Temperature 30.0 °C
Self-calibrate
External calibration schedule
Last calibrated 7/21/2020
Next suggested 7/2022
Errors and Warnings
Hardware Configuration Utility
• Supported on Linux today
• Released on Windows in 2023Q2
• Eventually replaces MAX

Recent Additions since May 2022

- Support of new LTS versions: RHEL9, Ubuntu22.04, and OpenSUSE 15.3&15.4
- Ubuntu support completed to the same degree as other distro support
- SystemLink Enterprise early access
- Broader HW family coverage in the HW Configuration Utility
- Simulated Device support in HW Configuration Utility
- LV FPGA host interface
- LV support packages for drivers complete on Ubuntu
- LV python support
- LV installation through repo/ standard package managers
- NI & Linux user manual

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How NI customers are using Linux today

A simple self-contained system

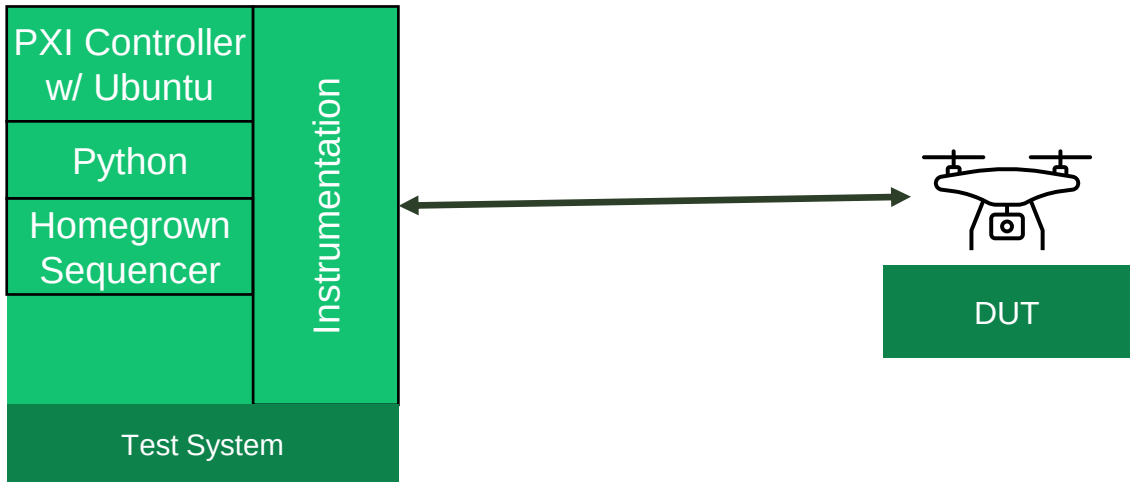
Why?

Client requirements

Initial Cost

Maintenance Cost

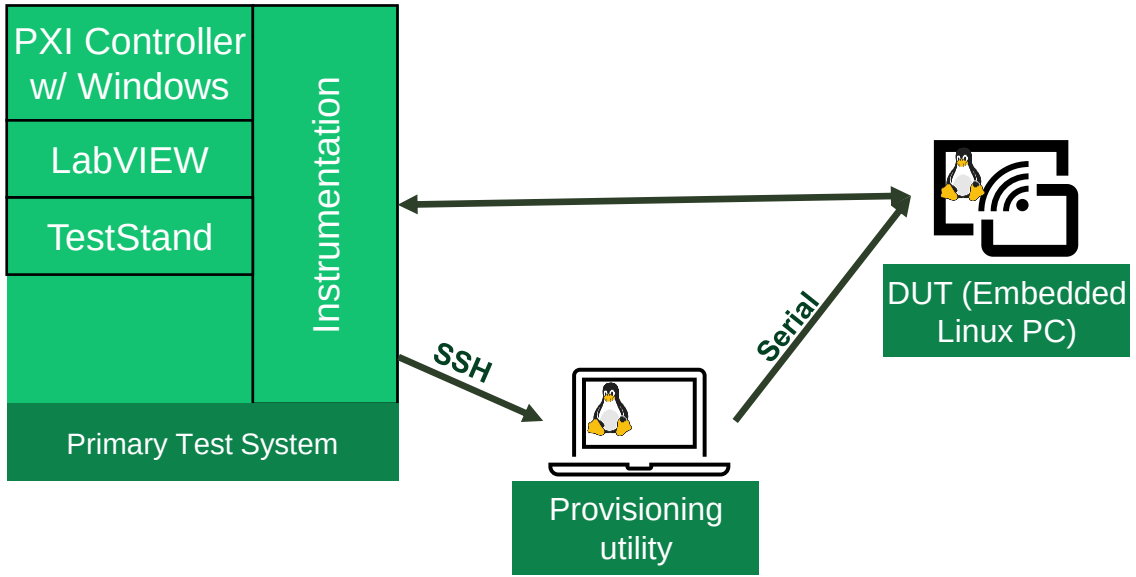
Developer Preference



Couldn’t do it entirely in either Windows or Linux

Why?

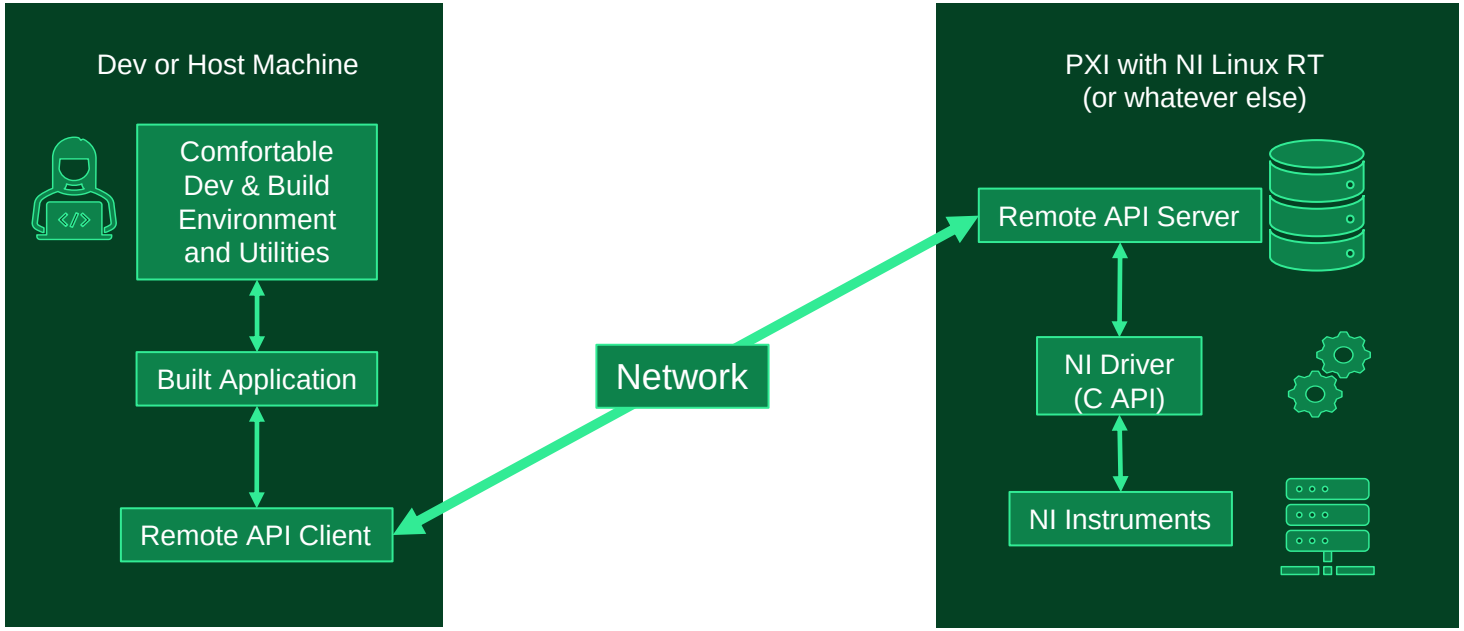
Efficient R&D collaboration



Needed abstraction from the target hardware system

Why?

Customizability



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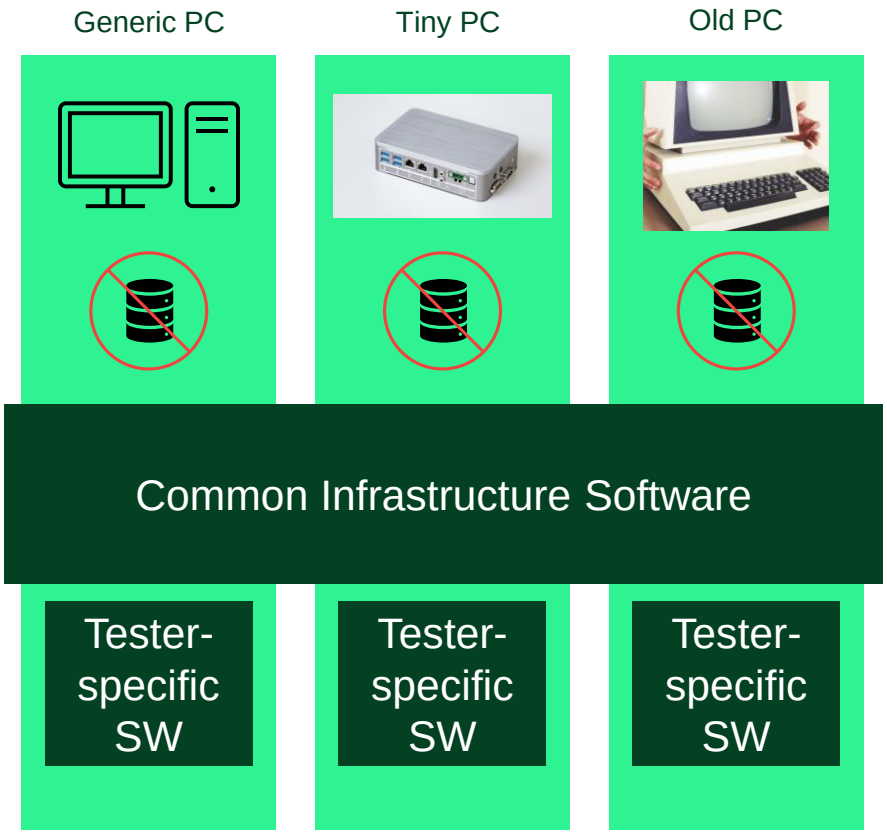
Drastic Customization

Why?

Customizability

Performance

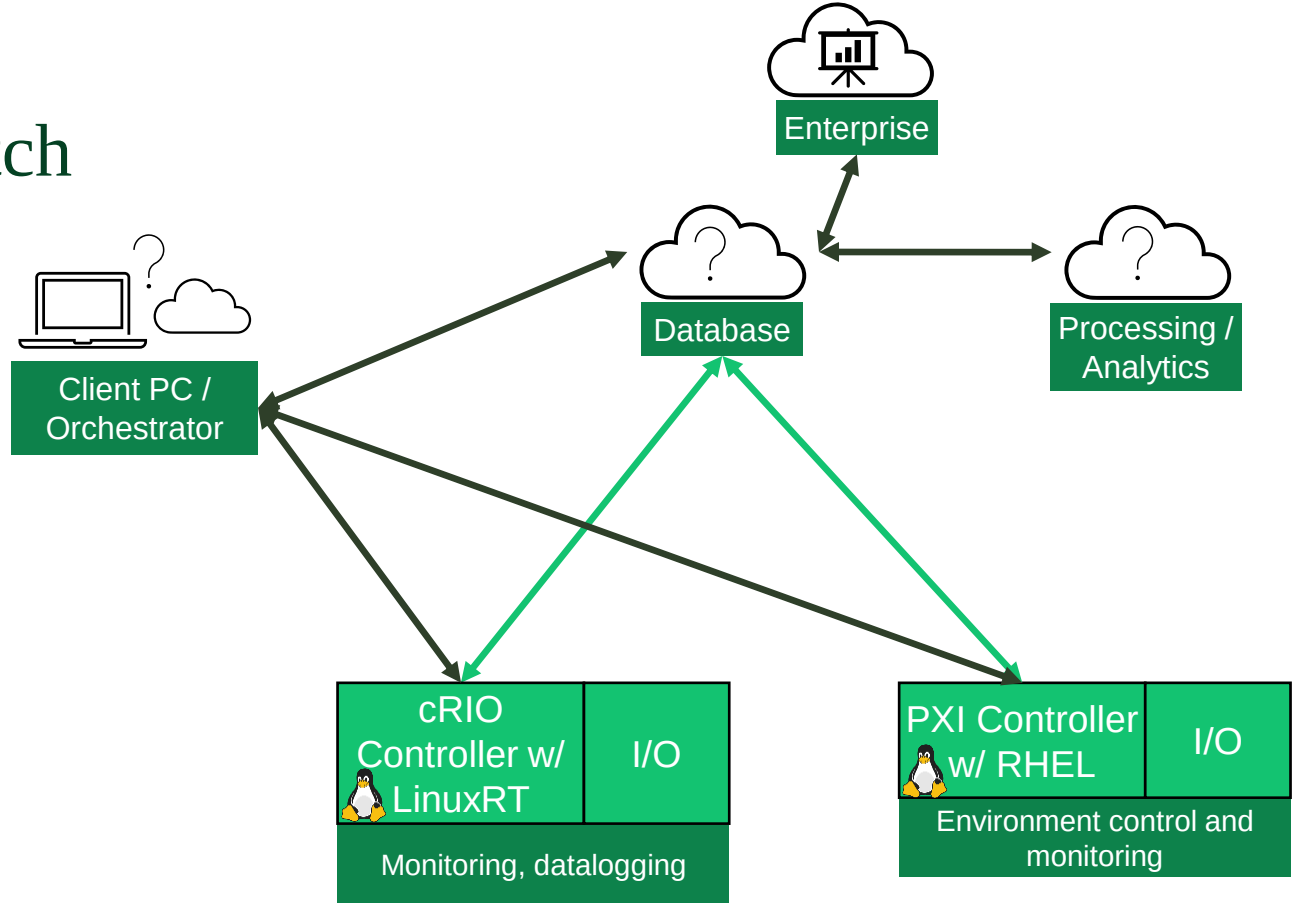
Maintenance Cost



Mix and Match

Why?

Various



Panel Q&A

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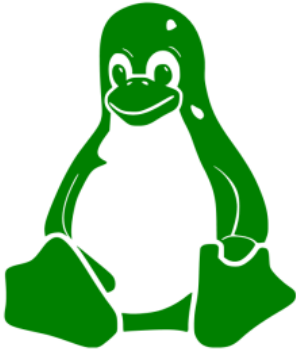
Audience Q&A Session

ⓘ Start presenting to display the audience questions on this slide.

LINUX USERS

GROUP INFORMATION



Linux Users

This community user group is intended for users of Linux desktop distributions (RHEL, CentOS, OpenSUSE, and Ubuntu) and NI software & hardware.

422 members

Organized by RayK-NI, JoeFriedchicken, dousley, Salvador_Santolucito

Open group

Created 11-11-2020

THIS GROUP | Search the community

Welcome to the Linux Desktop User Community!

This community user group is intended for users of Linux desktop distributions and NI software & hardware. Th
supported Linux distributions are documented on the NI Software Platform Roadmap.

We encourage you to review and contribute community discussion topics!

Group image borrowed from icons8.com website.

Link for this page

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Announcing: Linux Device Drivers 2023 Q2

by RayK-NI on 04-27-2023 02:44 PM • Linux Users • 0 Kudos

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