CIM Industrial Systems A/S

Advanced Tools and Source Code Control Integration in LabVIEW

By Michael Lund Friis (B.Sc.E.E, CLD)

Personal Data

- Michael Lund Friis
  - Data Engineer from *Engineering College of Aarhus* in 2000
  - LabVIEW since 1999
  - Employed by CIM Industrial Systems A/S since 2009

Advanced Tools and Source Code Control Integration in LabVIEW

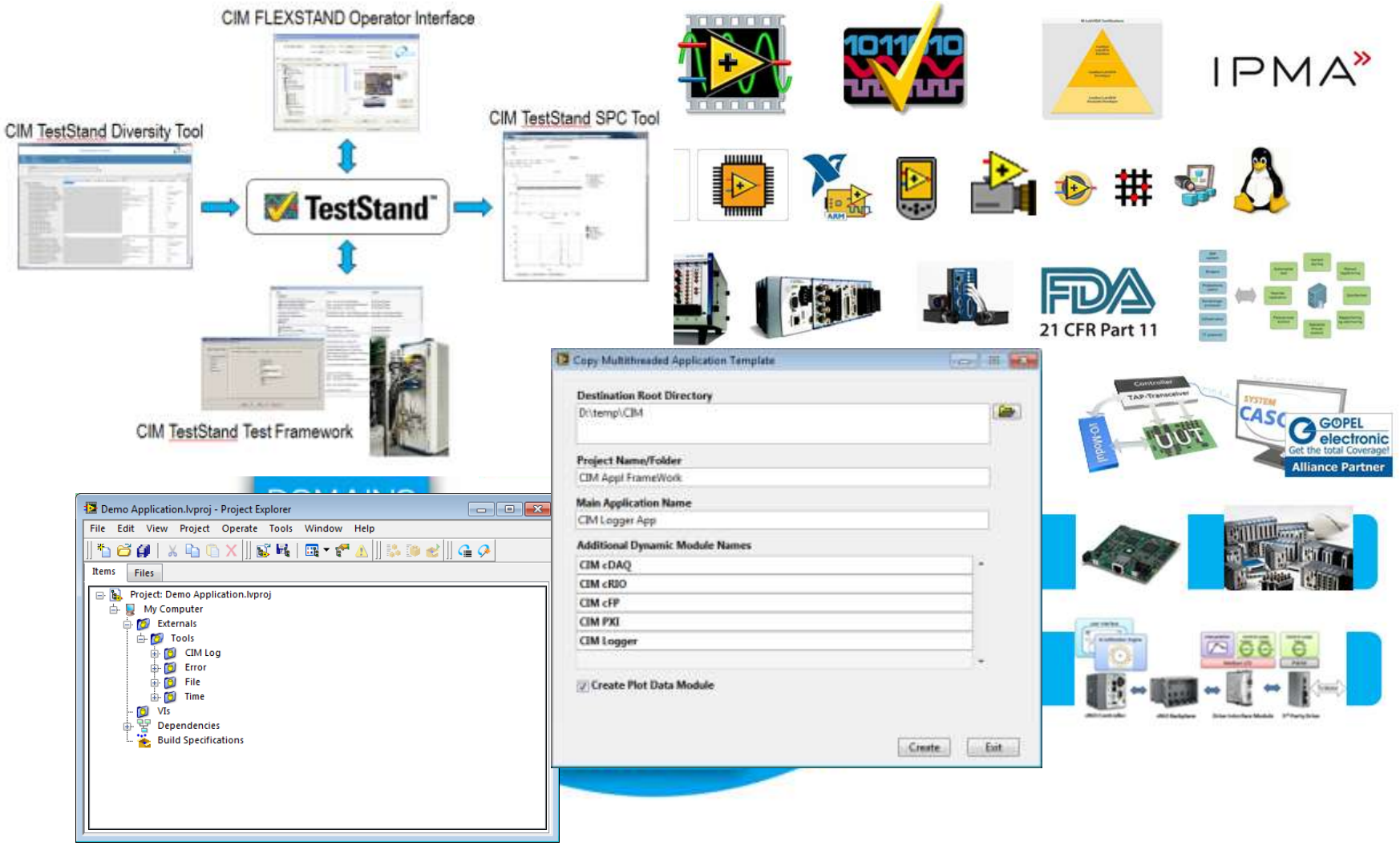
- Agenda
  - CIM Profile
  - Tools integration in LabVIEW
    - Source Code Control
    - LabVIEW Project Providers
  - Demo of our LabVIEW project provider
  - Questions?

Profile

- Part of CIM Group (established in 1998, 65 employees in 9 business units at 3 locations)
- CIM Industrial Systems A/S specializes in designing and implementing custom test, measurement and validation solutions.
- NI Gold Alliance Partner and Partner of the Year 2013
- *CIMs goal is to add technical and economic value to our customers through outstanding test solutions based on NI products (On time, On spec., On price)*

NATIONAL INSTRUMENTS
ALLIANCE PARTNER NETWORK
2013 Alliance Partner of the Year

Profile


CIM FLEXSTAND Operator Interface
CIM TestStand Diversity Tool
TestStand
CIM TestStand SPC Tool
CIM TestStand Test Framework
IPMA
FDA
21 CFR Part 11
Copy Multithreaded Application Template
Destination Root Directory
D:\temp\CIM
Project Name/Folder
CIM Appl FrameWork
Main Application Name
CIM Logger App
Additional Dynamic Module Names
CIM cDAQ
CIM cRIO
CIM cFP
CIM PXI
CIM Logger
Create Plot Data Module
Create
Exit
Demo Application.lvproj - Project Explorer
File Edit View Project Operate Tools Window Help
Items
Files
Project: Demo Application.lvproj
My Computer
Externals
Tools
CIM Log
Error
File
Time
VIs
Dependencies
Build Specifications
GOPEL electronic
Get the total Coverage!
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Advanced Tools and Source Code Control Integration in LabVIEW

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Advanced Tools and Source Code Control Integration in LabVIEW

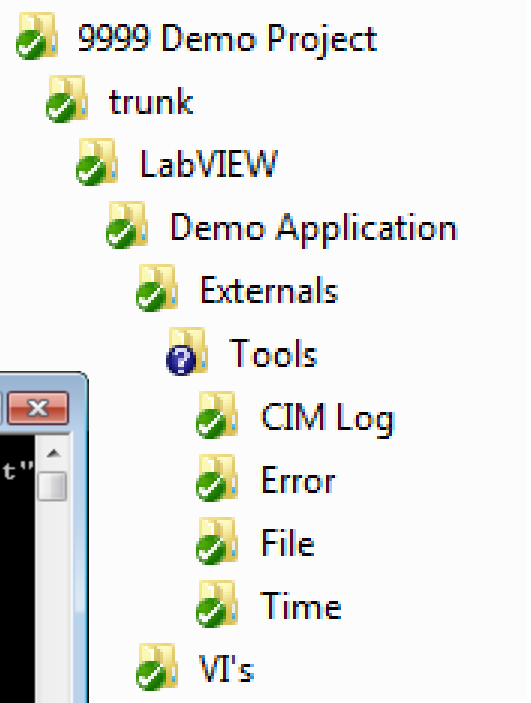
- Share tools between developers
  - Code reuse
- Source Code Control
  - Checkout entire project, *including* tools
- Easy access for the developer
  - Entire work flow in LabVIEW Project Explorer
  - Tools in custom LabVIEW palette

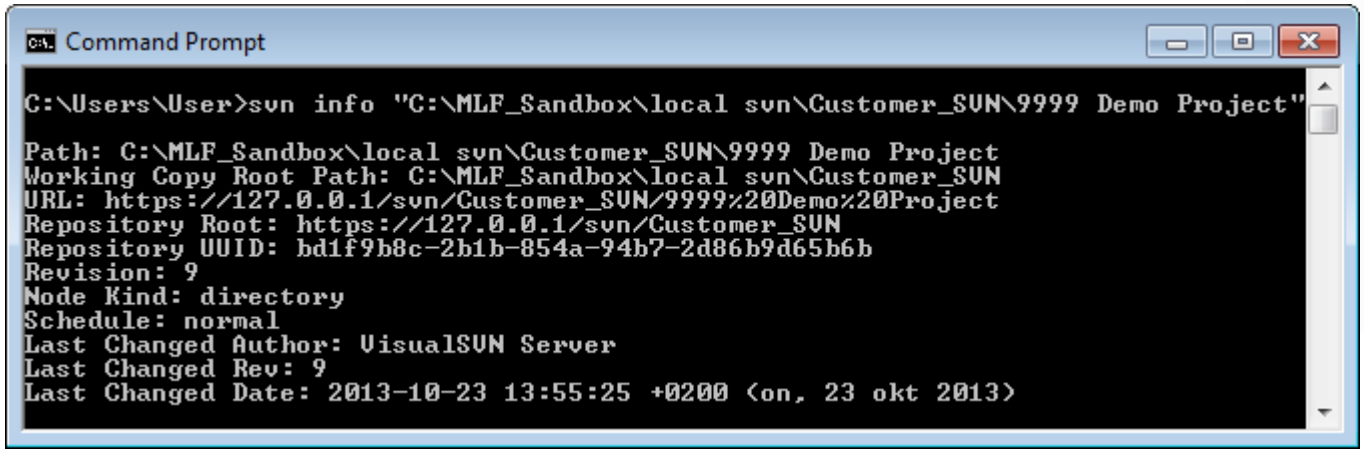
Advanced Tools and Source Code Control Integration in LabVIEW

- Tools Integration
  - Considerations
    - Use JKI VIPM
    - Develop internal tool
      - Use LVOOP
      - Integrate into LabVIEW Project Explorer
      - Project folder structure
      - Tools dependencies
      - LabVIEW Dynamic Palettes
      - SVN externals
      - Release tools - Wizard

Project Folder Structure and SVN Externals

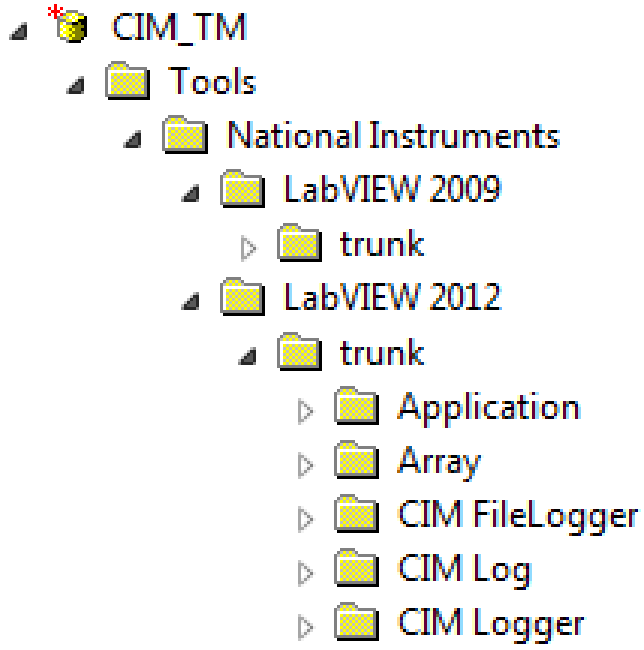
- Tools folder is set up as externals checkout point
- SVN/Tortoise interface
  - CLI



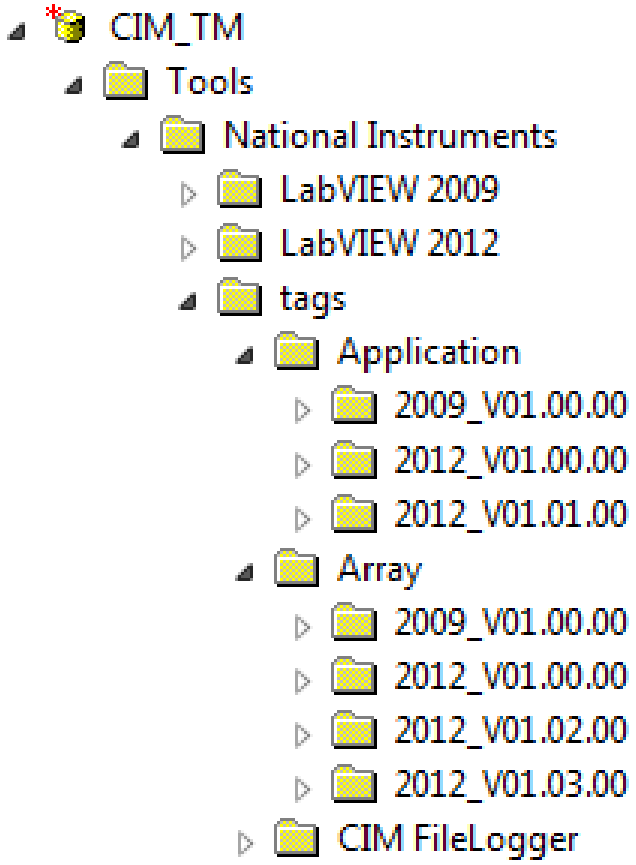


SVN server layout

trunk



tags

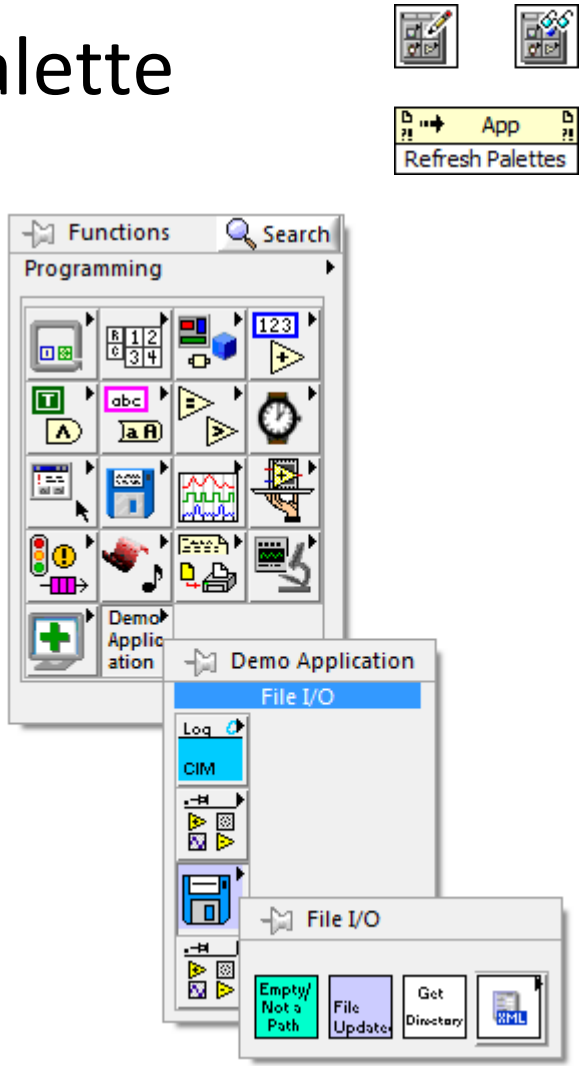


Tools dependencies

- Considerations
  - Tool.info file in the root folder of each tool
    - A list of other tools used in this tool
    - Internal tools only!
    - External tools coming in next version
  - Adding tools
    - Scan dependency
  - Backward compatibility – complex!
    - Detect lowest compatible version
    - Changes to connector panes

LabVIEW Dynamic Palettes

- Refreshing the LabVIEW Palette
- Project dependent palette
- Palette location
  - User Libraries
  - Programming
  - User defined



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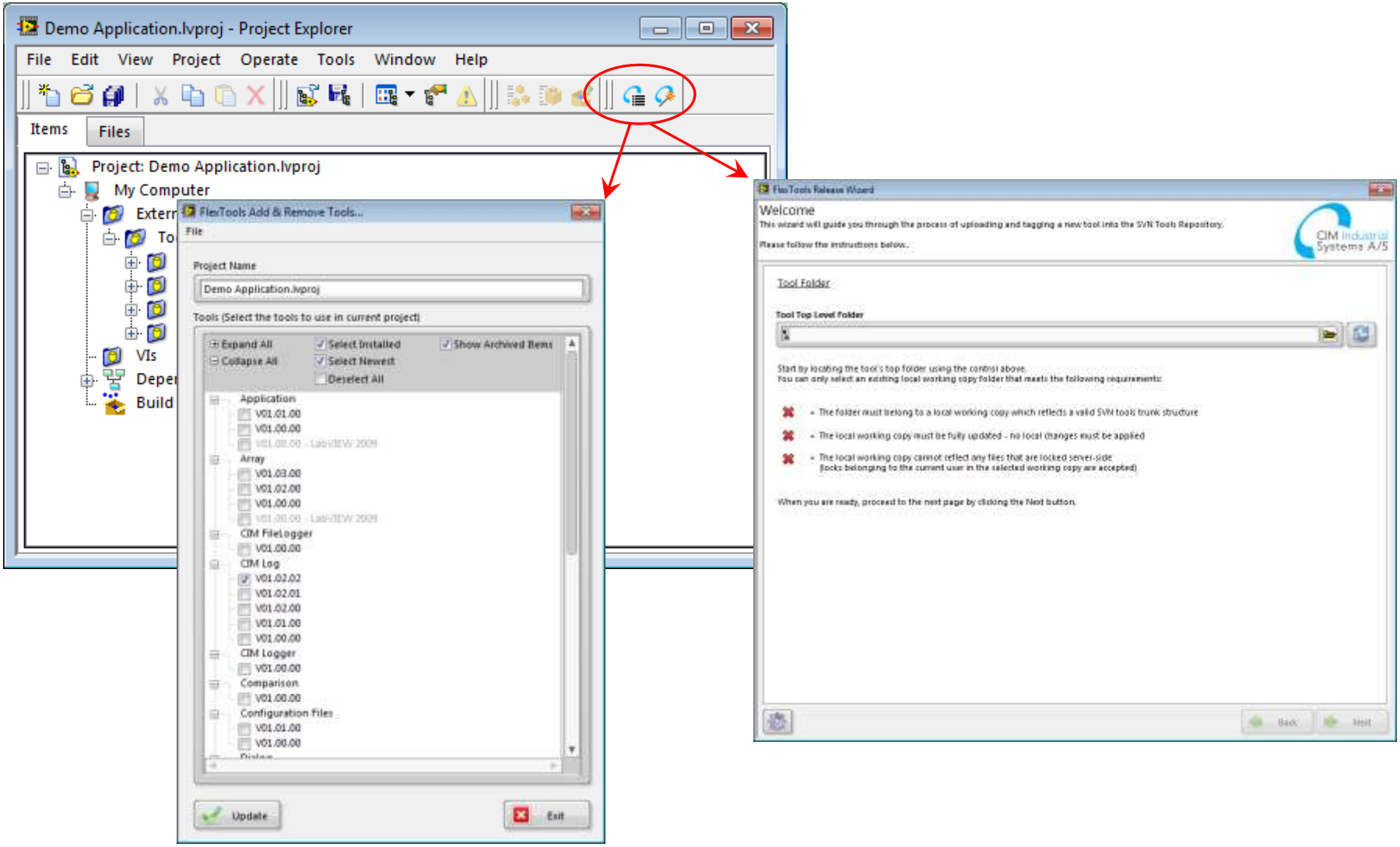
LabVIEW Project Providers

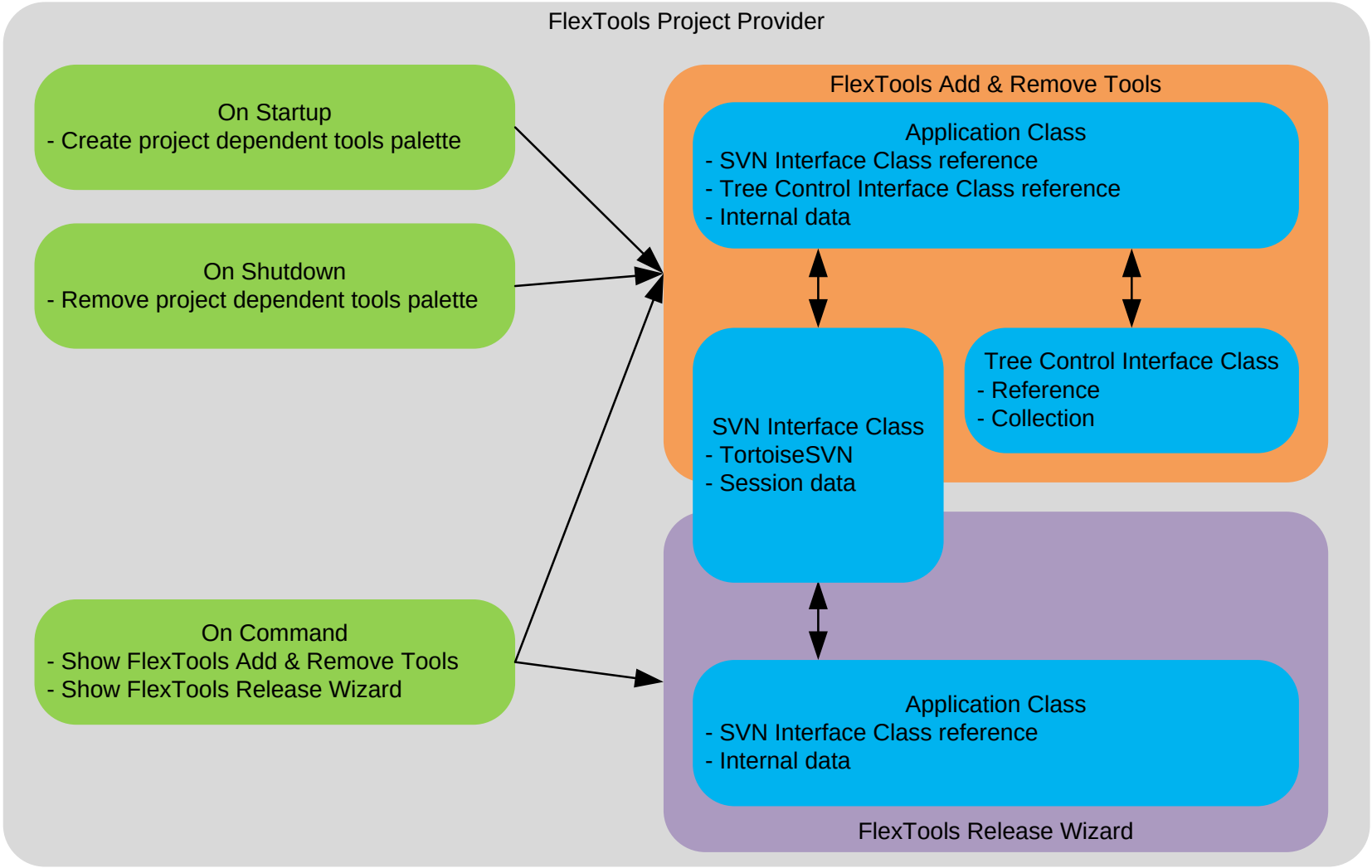
LabVIEW Project Providers

- Adds functionality to the LabVIEW environment
  - Toolbars, open/close behavior, etc.
- Adds functionality to existing project items
  - i.e. VI's, Controls, folders, etc.
- Run code on project startup and shutdown

Integration in Project Explorer



LabVIEW Project Providers



FlexTools Project Provider

- Functionality
  - Add autopopulating folder *Externals*
  - Configure SVN repository
  - Add / Remove tools
  - Update / Cleanup LabVIEW Palettes
  - Release tools

Questions

- http://www.ni.com/white-paper/13921/en
- ?

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Thank you for attending

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