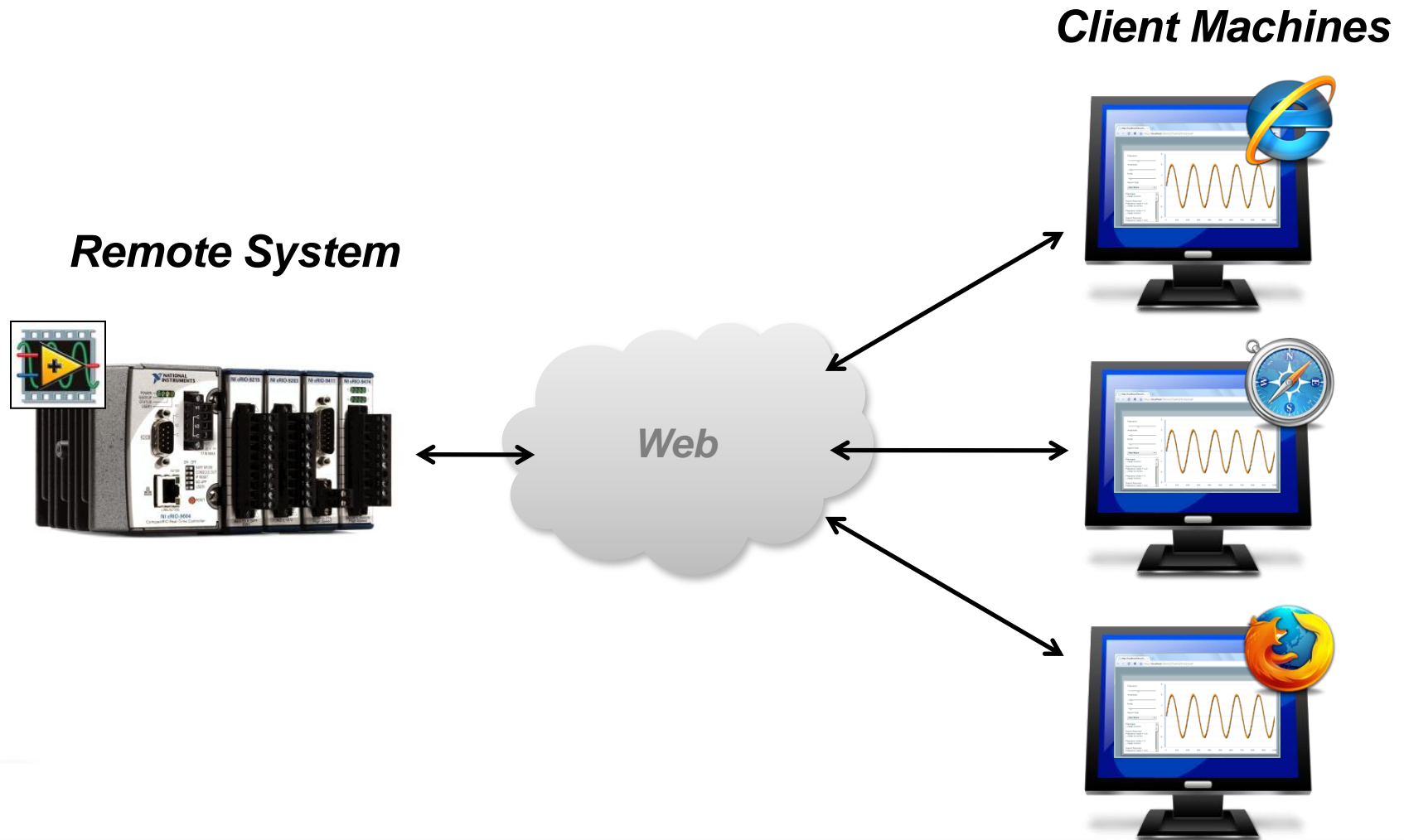


Developing **Web-Based Interfaces** to Control LabVIEW Applications

Session Agenda

- Industry Trends
- Web Services
- LabVIEW Web UI Builder
- Demos
- Early Access Release Details

Web-Based Monitoring and Control



LabVIEW Remote Panels

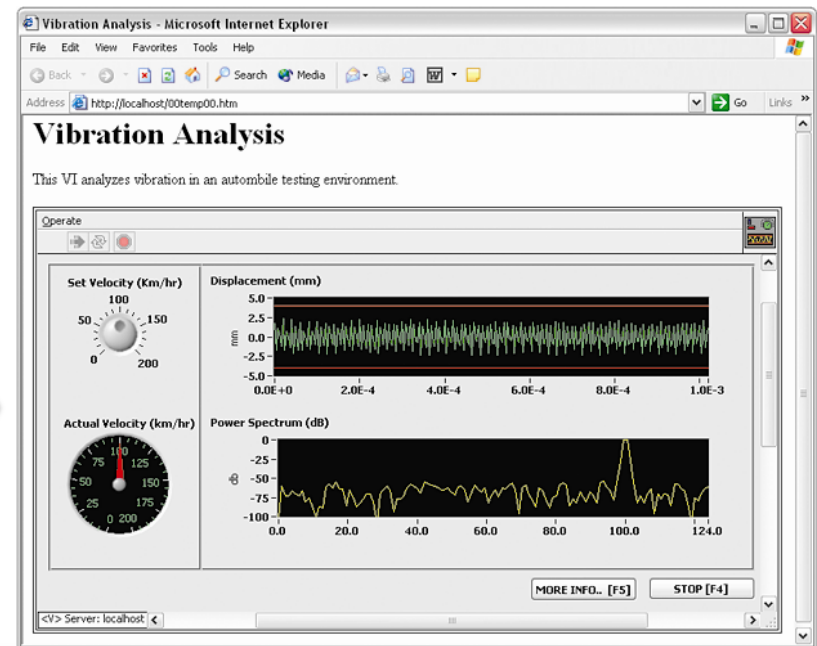
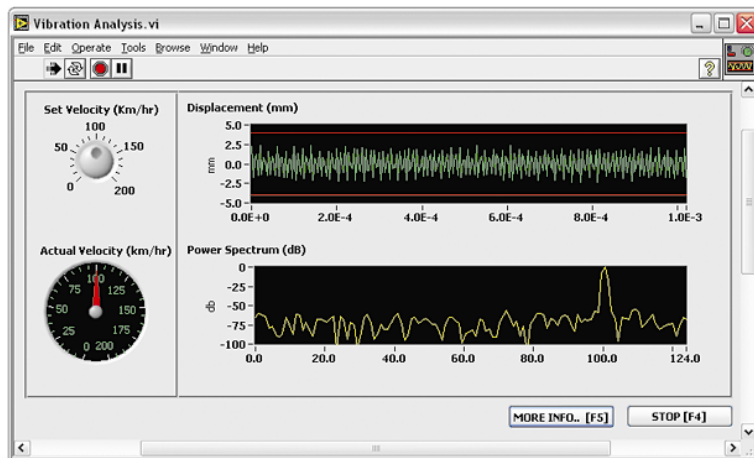
Pros

- Interact with VIs in a browser
- No programming necessary

Cons

- Requires Run-Time Engine
- Traffic is non-standard **Web Browser**

LabVIEW Environment



Transition to Web Services

- LabVIEW 8.6
 - New LabVIEW web server
 - LabVIEW RESTful web services
- LabVIEW 2009
 - Improvements to web services (e.g. SSL support)
- LabVIEW 2010
 - Usability improvements to web server configuration

Web Services

- Web services are web APIs
 - Hosted and executed on a remote system
 - Accessible via HTTP protocol
 - Response is typically formatted as XML
- Web services can be called from nearly all programming languages

Web Services and Thin Clients

**Device with I/O
(Server)**



**Client
Machine**



**HTTP
Request**



XML

```
- <Response>
- <Terminal>
  <Name>Sum</Name>
  <Value>9.000000</Value>
</Terminal>
</Response>
```

Web Programming Languages



Adobe Flex



Adobe Flash



Microsoft
Silverlight



JavaFX

Others include HTML, JavaScript, AJAX

LabVIEW Web UI Builder

- Web-based graphical programming editor
 - Hosted in a browser
 - Can be installed locally “out-of-browser”
- Scoped for building web-based applications
 - Execute inside browser “sandbox”
 - Data exchange through web services
- Built on Microsoft Silverlight web technology
 - Supported in multiple browsers on Mac and Windows

Supported Silverlight Platforms

- Windows and Mac OS X desktop OSes
- All common web browsers
 - Internet explorer
 - Mozilla Firefox
 - Google Chrome
 - Apple Safari (Mac OS X)

Early Access Details

- First version released in November 2010
 - “Early Access” release targeted at early adopters
 - English-only
- Not part of Developer Suite or Partner Lease
- Anyone can evaluate for free
 - Fully functional except for ‘Build and Deploy’
 - License for ‘Build and Deploy’ is \$1,499 per user

Demo

Goal:

Develop a web-based UI for monitoring and controlling a temperature chamber

System:

- CompactRIO connected to thermocouple, fan, lamp
- Web services deployed for monitoring, control

PECOFacet

Gas Quality Monitoring



- Filtration equipment for oil & gas industry
- Laser device and CompactRIO to monitor real time particle distribution, flow rate, process conditions
- Communication via Internet to users
 - Uses MS Silverlight & Web UI application
 - Standard HTTP protocol

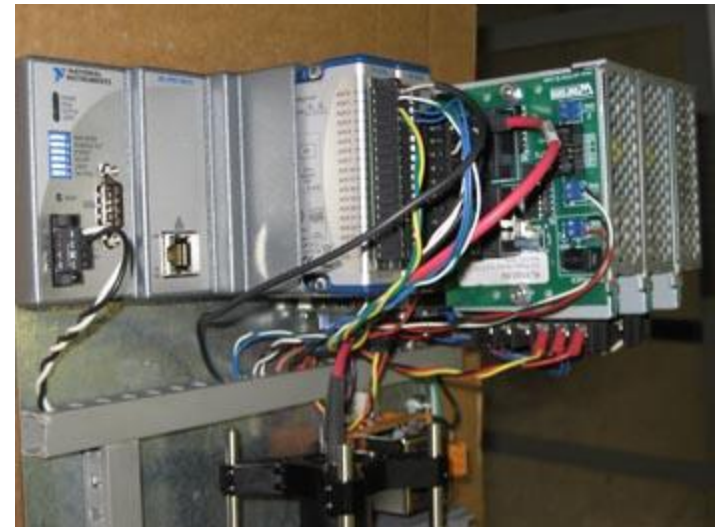
PECOFacet Gas Quality Monitoring



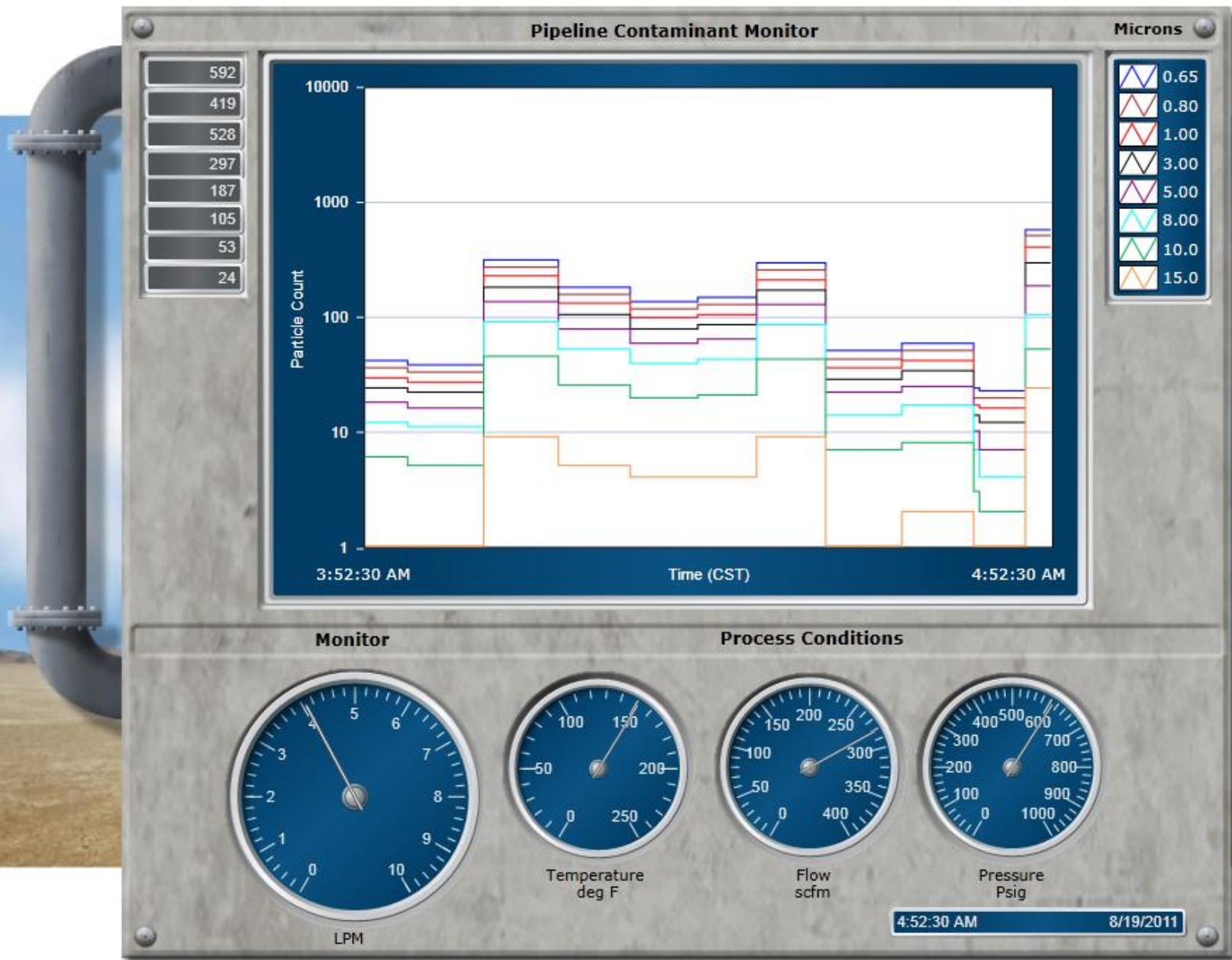
*PlantGard
Demonstration Unit*



*CompactRIO is the “brains” of PlantGard
and is also a WEB server*



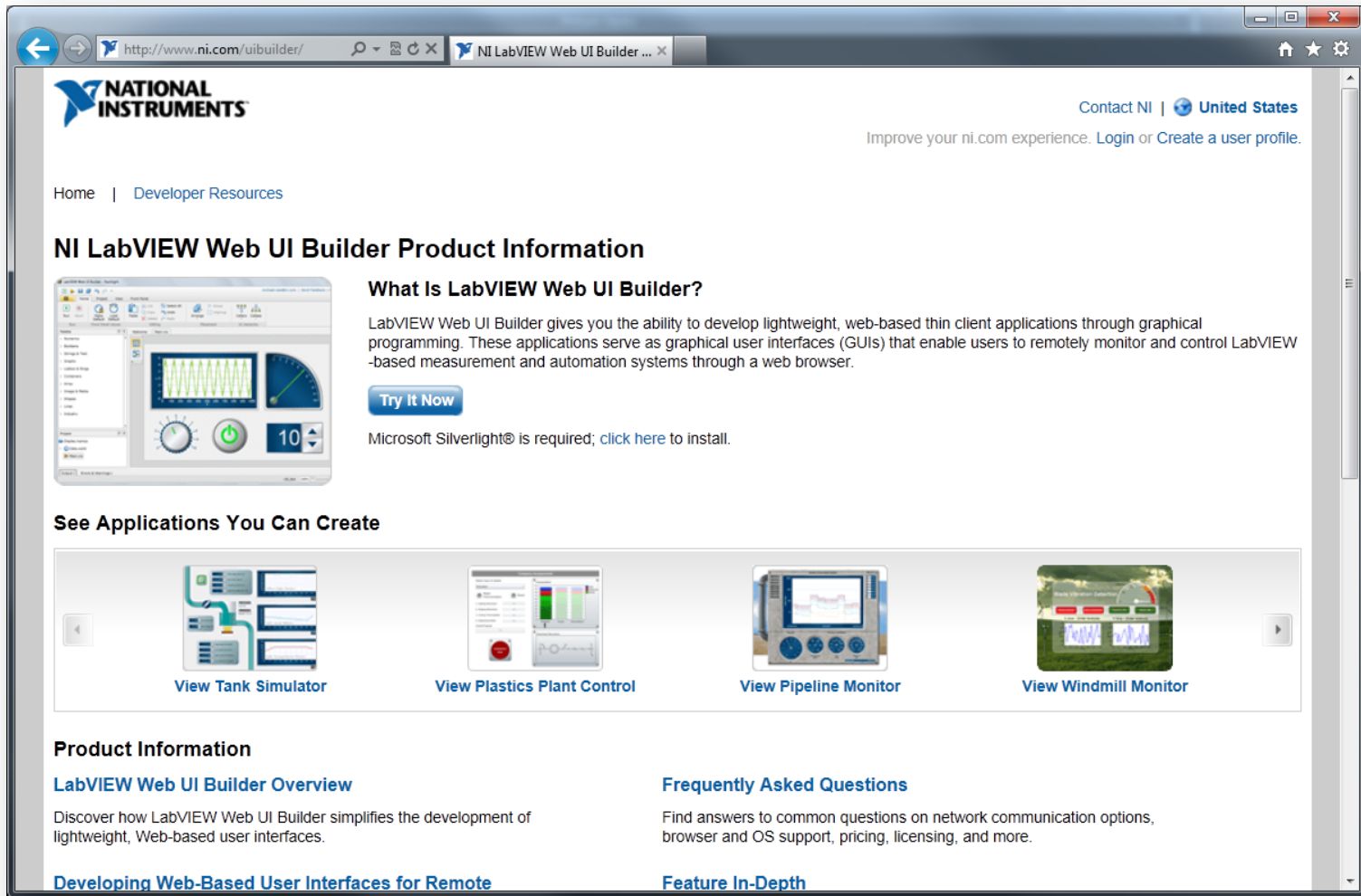
PlantGard Web User Interface



Product Roadmap

- April 2011
 - Support for web service authentication
- Late 2011 (tentative)
 - Additional UI skins
 - Improved performance
 - Code sharing features
 - New graph features (e.g. multi-plot cursors)
- Post-2011 release(s)
 - Events
 - Clusters
 - Waveforms
 - Debugging (e.g. probes and breakpoints)
 - Navigation
 - Mobile device support
 - Concurrent user management

NI.COM/uibuilder



The screenshot shows a web browser window displaying the NI LabVIEW Web UI Builder product page. The browser's address bar shows the URL <http://www.ni.com/uibuilder/>. The page features the National Instruments logo in the top left and navigation links for "Home" and "Developer Resources". A "Contact NI" link with a "United States" location selector is in the top right. The main heading is "NI LabVIEW Web UI Builder Product Information". Below this, there is a section titled "What Is LabVIEW Web UI Builder?" which includes a description of the product's capabilities and a "Try It Now" button. A note indicates that Microsoft Silverlight is required and provides a link to install it. A section titled "See Applications You Can Create" displays four application thumbnails: "View Tank Simulator", "View Plastics Plant Control", "View Pipeline Monitor", and "View Windmill Monitor". The bottom of the page contains links for "Product Information", "LabVIEW Web UI Builder Overview", "Frequently Asked Questions", "Developing Web-Based User Interfaces for Remote", and "Feature In-Depth".

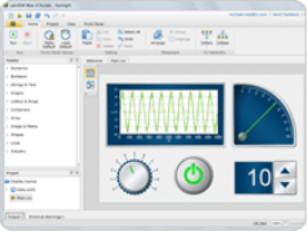
NATIONAL INSTRUMENTS

Contact NI | [United States](#)

Improve your ni.com experience. [Login](#) or [Create a user profile](#).

[Home](#) | [Developer Resources](#)

NI LabVIEW Web UI Builder Product Information




What Is LabVIEW Web UI Builder?

LabVIEW Web UI Builder gives you the ability to develop lightweight, web-based thin client applications through graphical programming. These applications serve as graphical user interfaces (GUIs) that enable users to remotely monitor and control LabVIEW-based measurement and automation systems through a web browser.


[Try It Now](#)

Microsoft Silverlight® is required; [click here](#) to install.


See Applications You Can Create



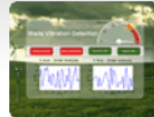
[View Tank Simulator](#)



[View Plastics Plant Control](#)



[View Pipeline Monitor](#)



[View Windmill Monitor](#)

Product Information

[LabVIEW Web UI Builder Overview](#)

Discover how LabVIEW Web UI Builder simplifies the development of lightweight, Web-based user interfaces.

[Frequently Asked Questions](#)

Find answers to common questions on network communication options, browser and OS support, pricing, licensing, and more.

[Developing Web-Based User Interfaces for Remote](#)

[Feature In-Depth](#)