Deploying MATLAB®-based Applications

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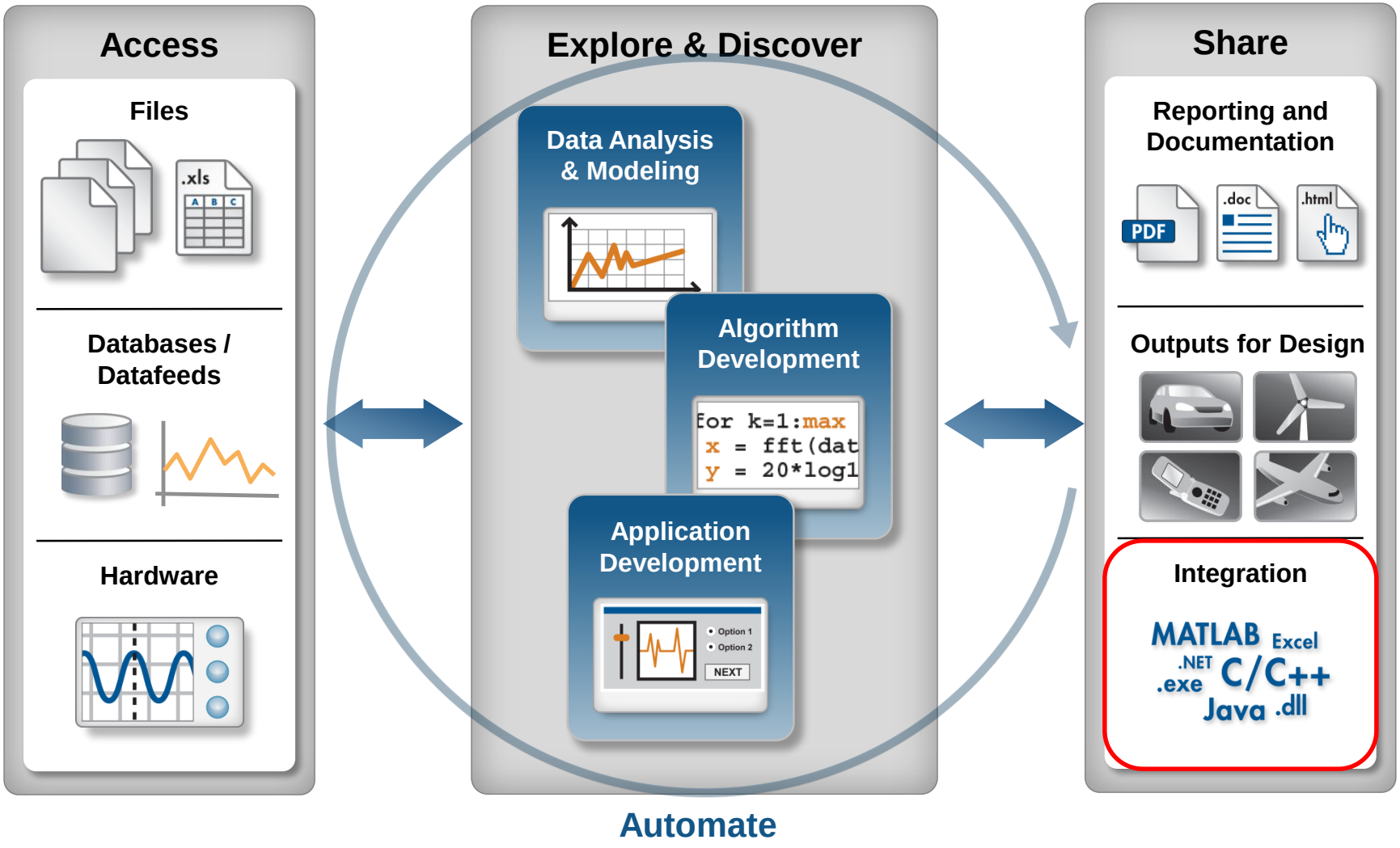
Senior Application Engineer

Data Analytics Workflow

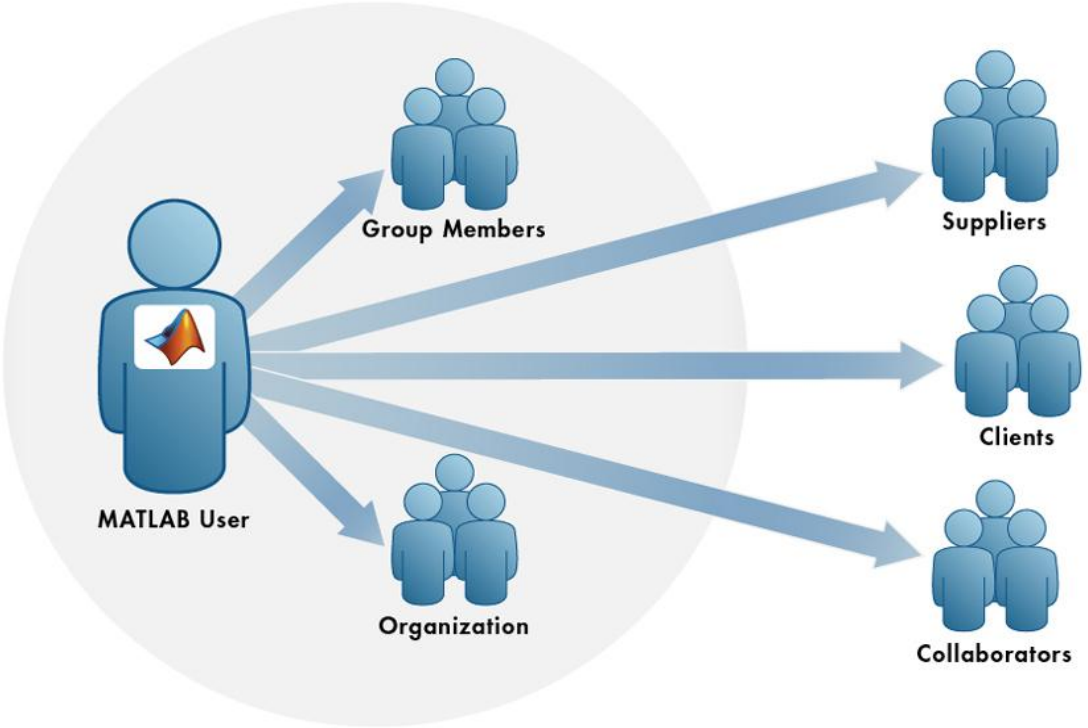


What is *Application Deployment?*

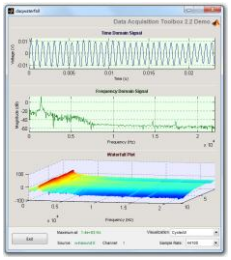
Share MATLAB programs with people who do not have MATLAB

- Royalty-free distribution

Provide MATLAB apps or native files directly to other MATLAB users



Deployment Highlights



Desktop Applications

.exe

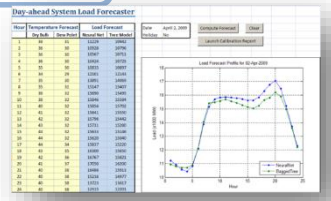
Database Servers

Database Server

COM

Excel

Spreadsheets



.NET

C

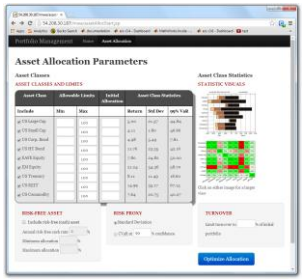
Application Servers

Client Front End Applications

Java

CTF

Web Applications

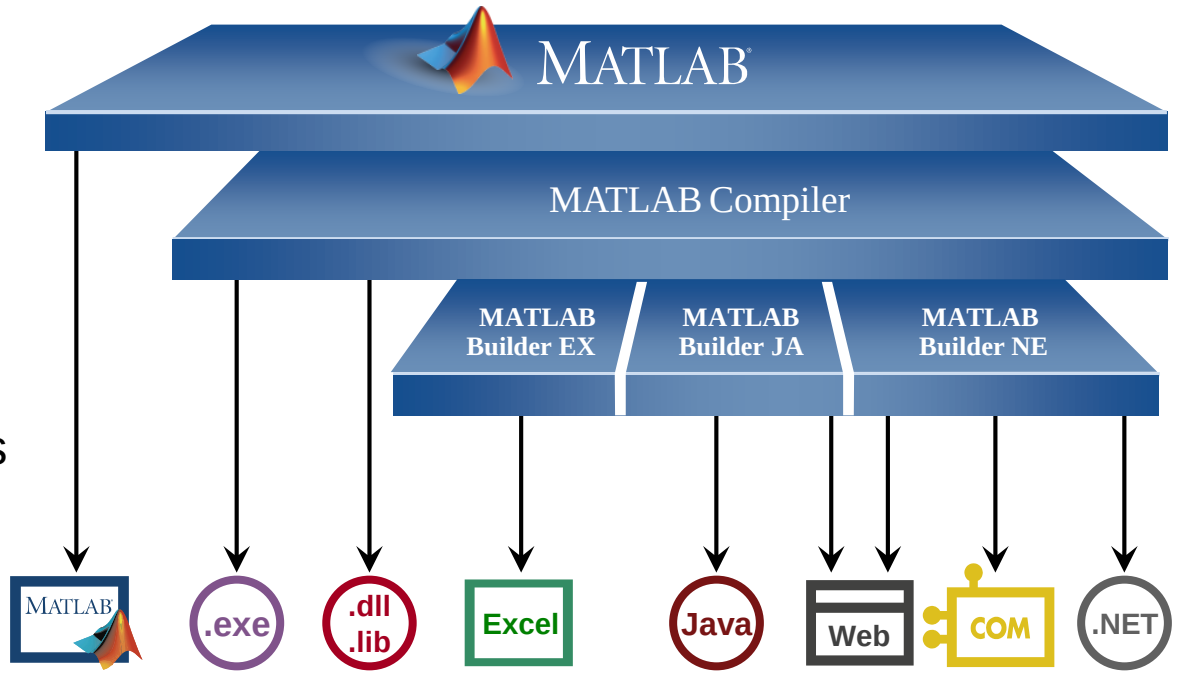


HADOOP

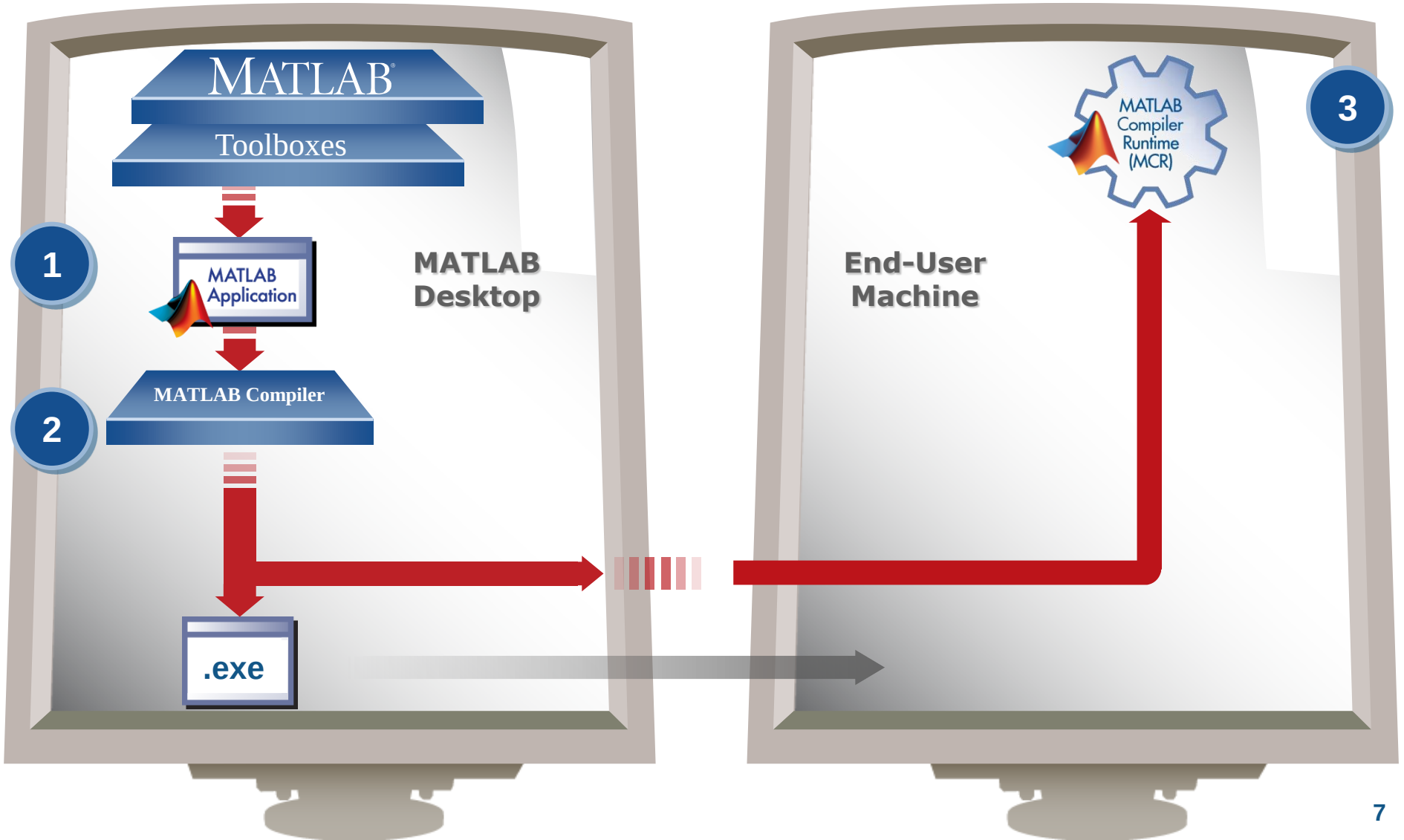
Batch/Cron Jobs

Deploying Applications with MATLAB

- Automated deployment
- Share applications with end users who do not need MATLAB
  - Stand-alone executables
  - Shared libraries
  - Software components
  - Encrypted
- Uses MATLAB Component Runtime Libraries

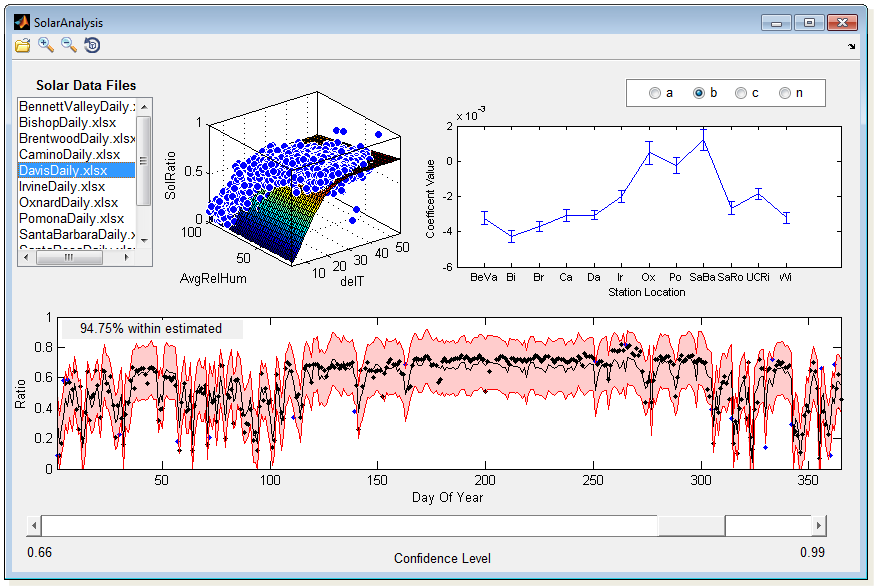


Deploying Applications with MATLAB



Capabilities of MATLAB Compiler™

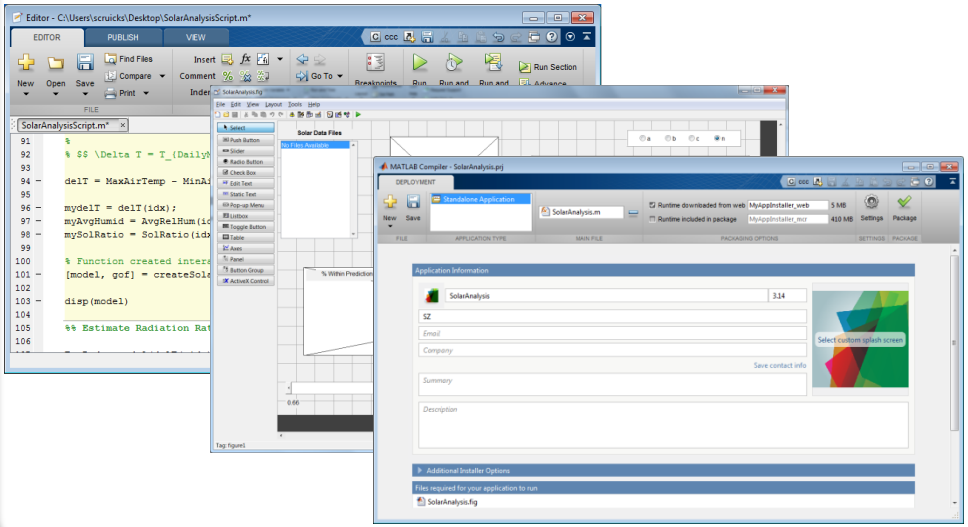
- Package MATLAB programs as standalone applications or shared libraries
- Create professional software with customizable installers, icons, and splash screens
- Encrypt your intellectual property

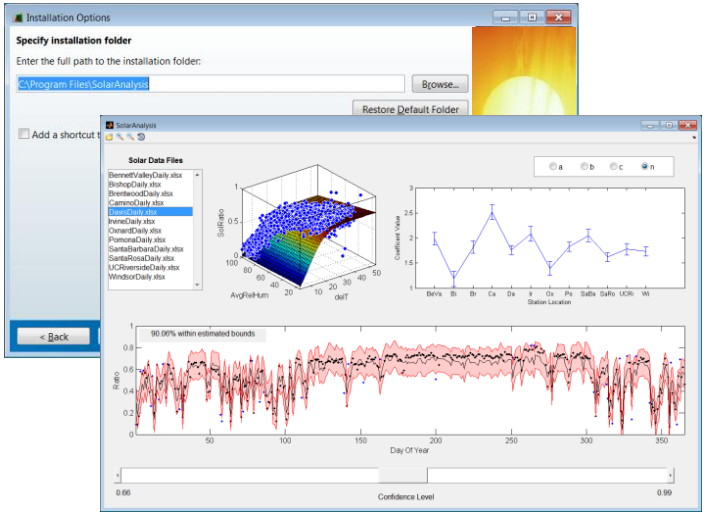


A deployed application created with MATLAB Compiler

Typical Process for Standalone Applications

Application author





1.) Create MATLAB algorithms

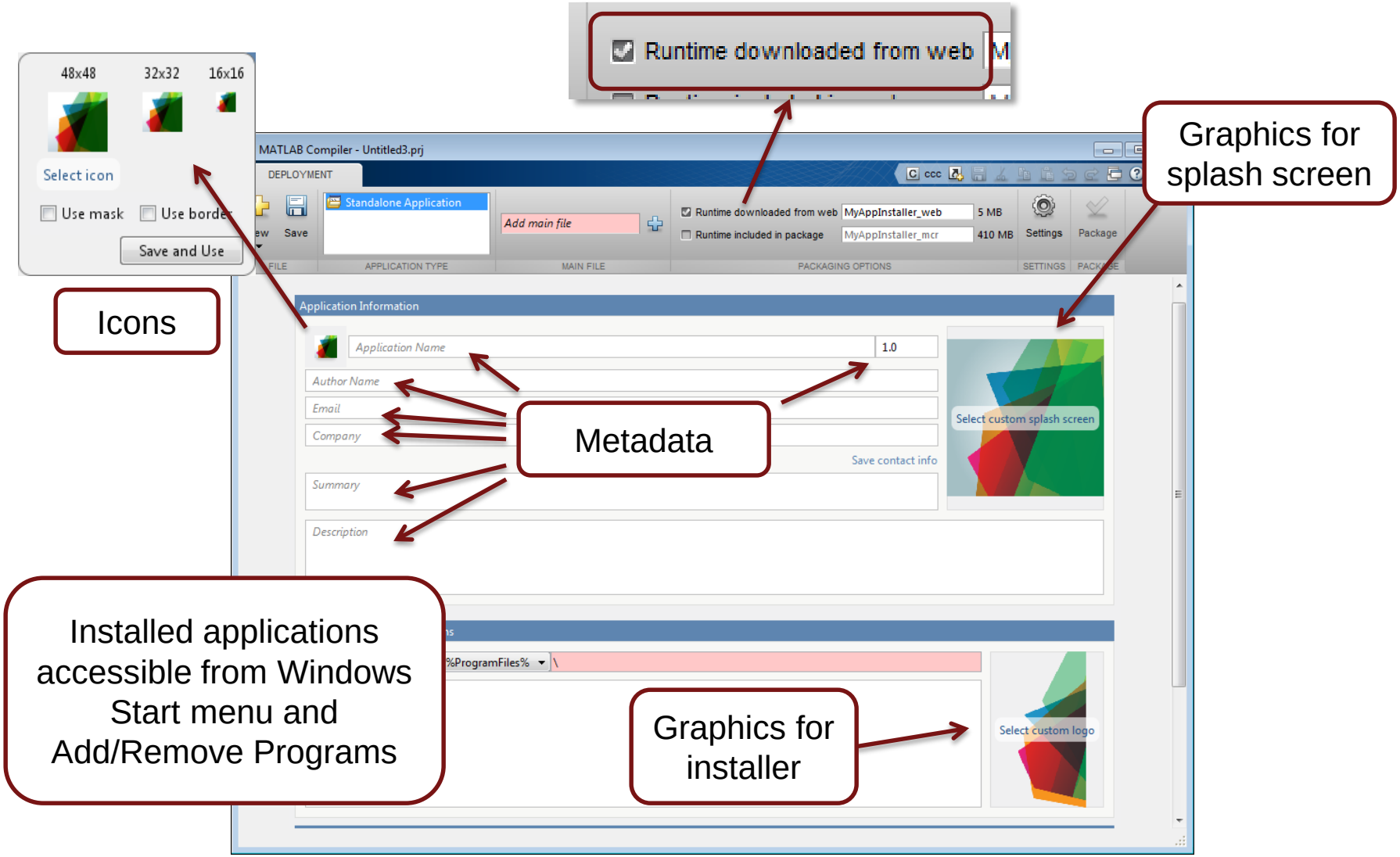
2.) Define the user interface

3.) Package the application using MATLAB Compiler

4.) Give the application installer to someone

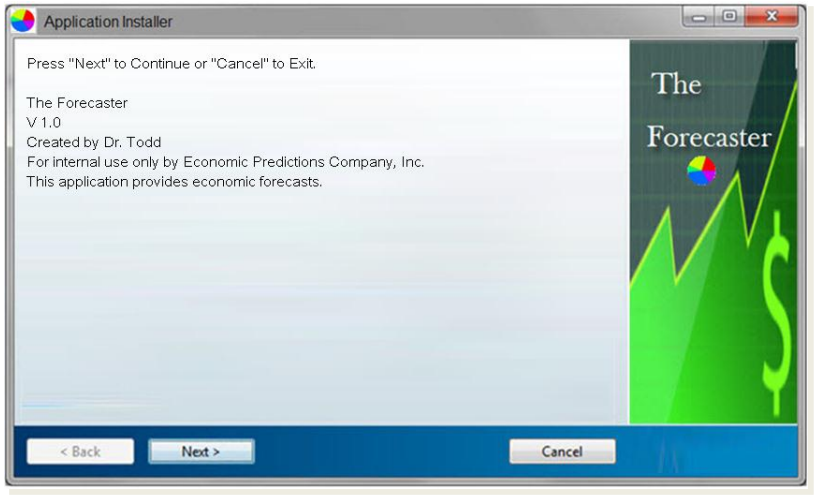
They will install the application … and run it on their desktop

Customizations for your Applications

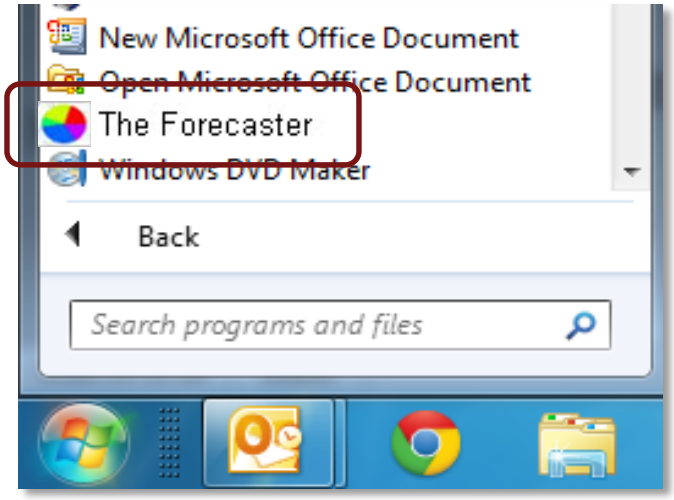


End Customer sees a Professional Application

Installer



Application in Start menu

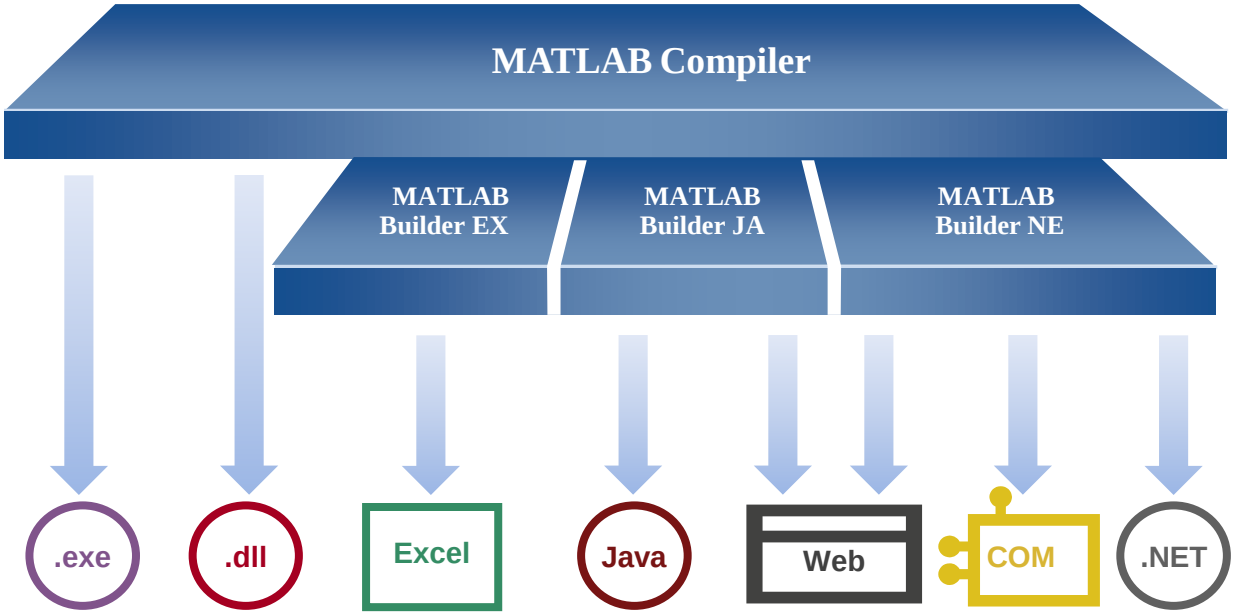


Splash Screen

Icon

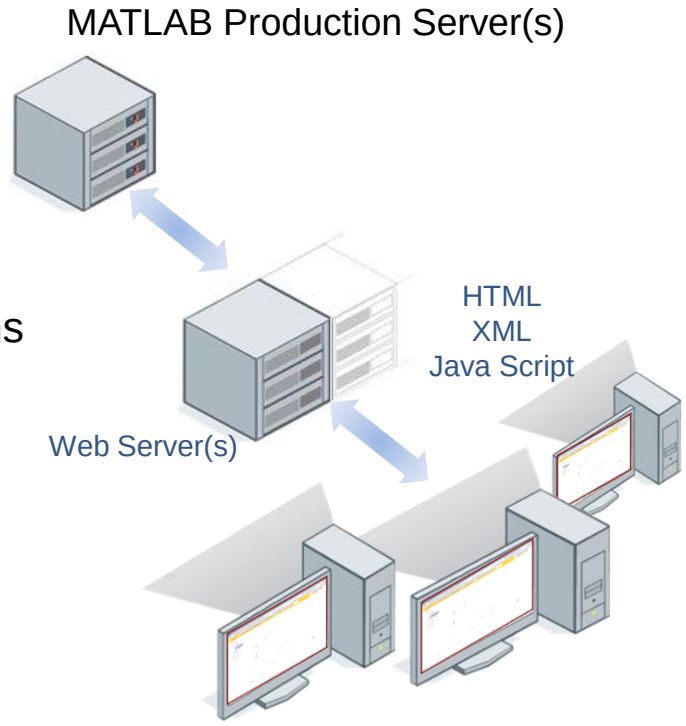
MATLAB Builder™ Products

- Generate add-ins, components, and libraries to integrate with Microsoft Excel®, .NET, and Java™
- Support web technologies such as ASP.NET, SOAP, XML, JavaScript, and HTML
- Scalable applications via Java RMI and .NET remoting

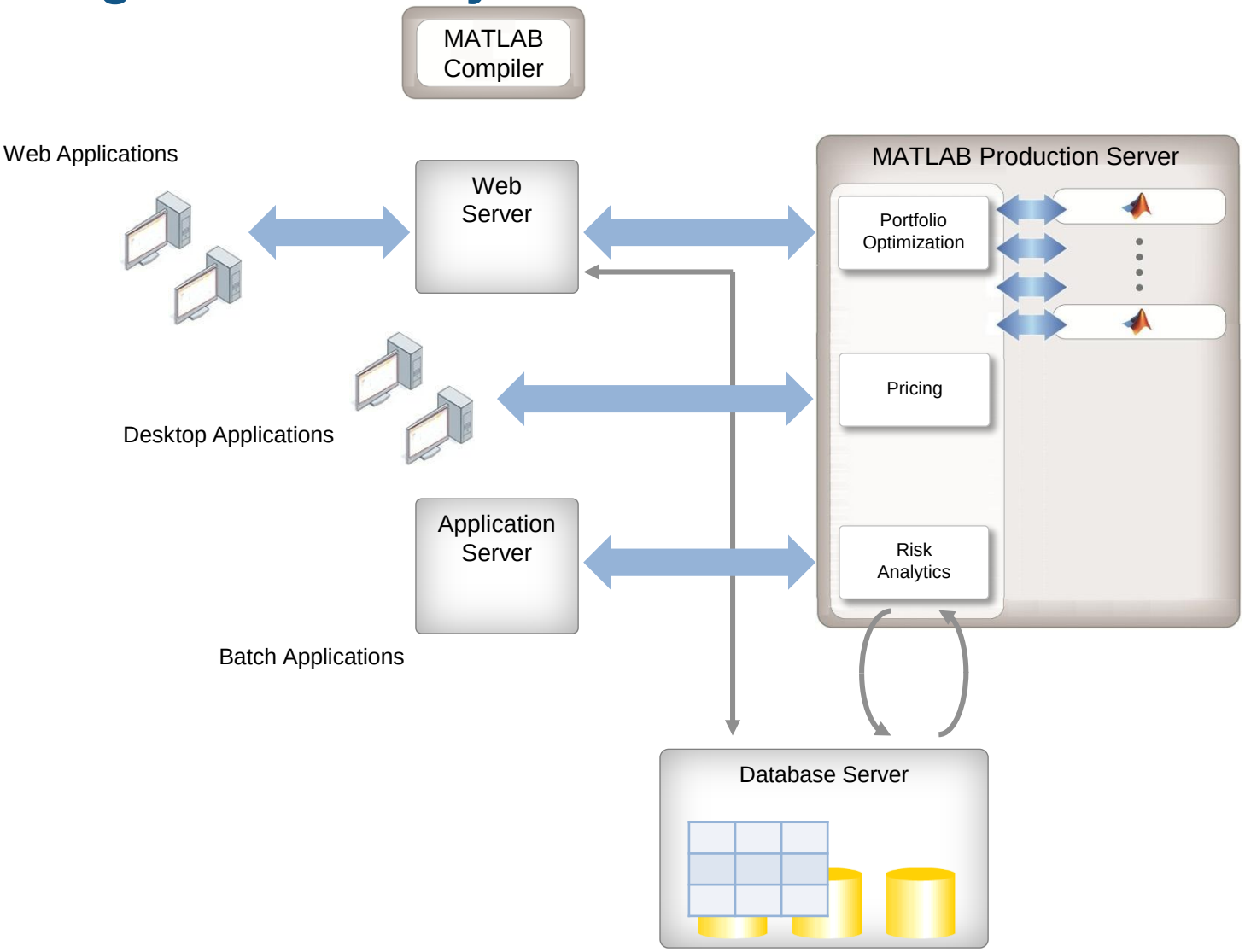


MATLAB Production Server
Scale up & centralize analytics

- Most efficient path for enterprise applications
- Deploy MATLAB programs into production
  - Manage multiple MATLAB programs and versions
  - Update programs without server restarts
  - Reliably service large numbers of concurrent requests
- Integrate with web, database, and application servers

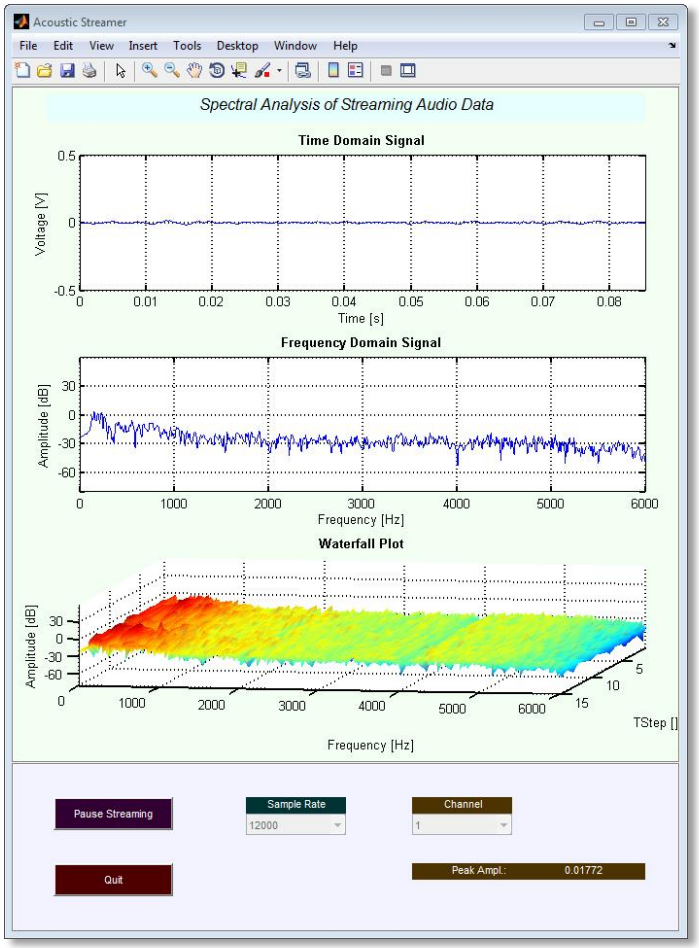


Centralized Analytics
Integrate with IT systems



MATLAB Application Deployment

- Share MATLAB programs with people who do not have MATLAB
  - Royalty-free distribution
- Create both standalone applications and shared libraries
- Deploy to desktop, web, and enterprise applications



Thank you

Customer stories on following slides

UniCredit Bank Austria Develops and Rapidly Deploys a Consistent, Enterprise-Wide Market Data Engine

Zero-coupon yield curve plot in UniCredit Bank Austria's UMD environment.

Challenge

Improve risk management operations throughout a multinational financial institution

Solution

Use MATLAB, MATLAB Compiler, and MATLAB Builder JA to build and rapidly deploy a consistent enterprise-wide data warehouse into J2EE Web Architecture

Results

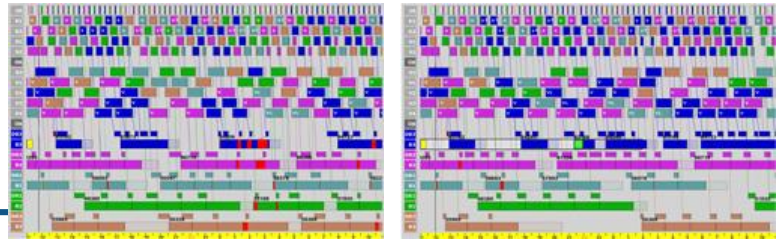
- Development time reduced by 50%
- Risk management improved across the bank
- Operational, audit, and maintenance costs reduced

" With MATLAB, we can focus on business logic instead of implementation details. We can deploy an algorithm in a Java environment the same day, without any additional coding. This approach enabled us to cut our development time in half, if not more weeks, instead of months."

Peter W. Schweighofer
UniCredit Bank Austria

Link to user story

HKM Optimizes Just-in-Time Steel Manufacturing Schedule



Manually reviewed plant schedule (left) and plant schedule automatically optimized with MATLAB genetic algorithms (right). The optimized schedule minimizes schedule conflicts (in red), meets delivery dates, and achieves the target utilization rate.

Challenge

Optimize a steel production process to enable consistent, just-in-time delivery

Solution

Use MATLAB, global optimization, and parallel computing to maximize throughput of more than 5 million tonnes of steel annually

Results

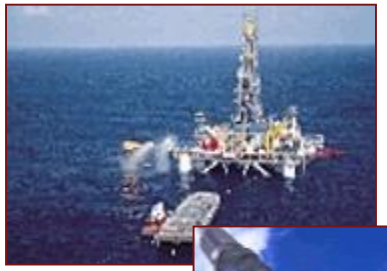
- Algorithm development accelerated by a factor of 10
- Optimization time cut from 1 hour to 5 minutes
- Customer satisfaction increased

"C++, Java, or third-party optimization solutions would have required us to spend significantly more time in development or to simplify our constraints. Only MATLAB provided the flexibility, scalability, development speed, and level of optimization that we required."

Alexey Nagaytsev
Hüttenwerke Krupp Mannesmann

Link to user story

Halliburton Makes Oil Exploration Safer Using MATLAB and Neural Network Toolbox



Challenge

To improve the ability to detect detonation of explosives used to perforate the well bore

Solution

Use MathWorks products to develop an adaptive, predictive neural network filter that cleanses the detonation signal of contaminating noise from onsite machinery

Results

- Authentic simulation on the desktop
- An accurate, production-standard algorithm
- Dramatic time savings

"Using MATLAB and MATLAB Compiler, I can develop an application at least 100 times faster than I could with Visual Basic or C. The time we saved on the very first application that we wrote in MATLAB more than paid for the software."

Roger Schultz
Halliburton Energy Services

Link to user story