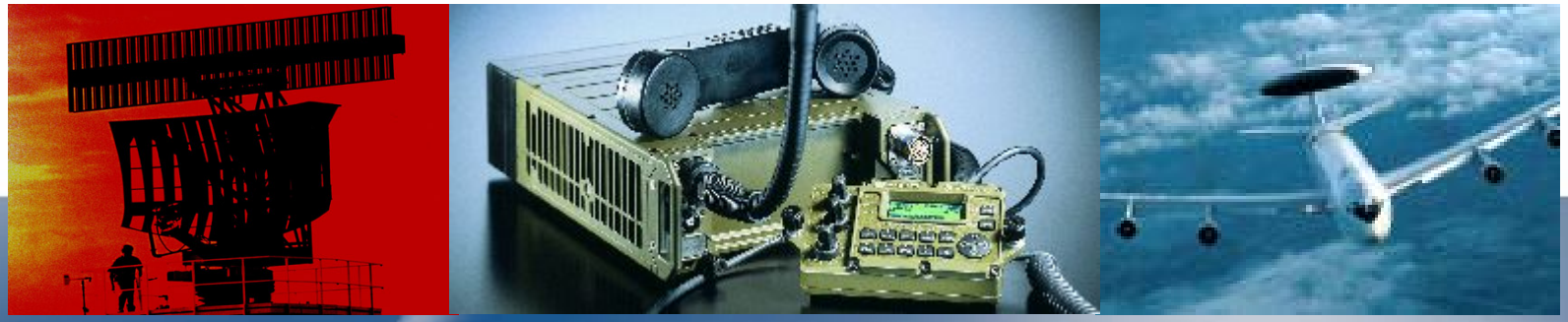
Control-Based Mobile Ad-Hoc Networking Using MATLAB and Simulink



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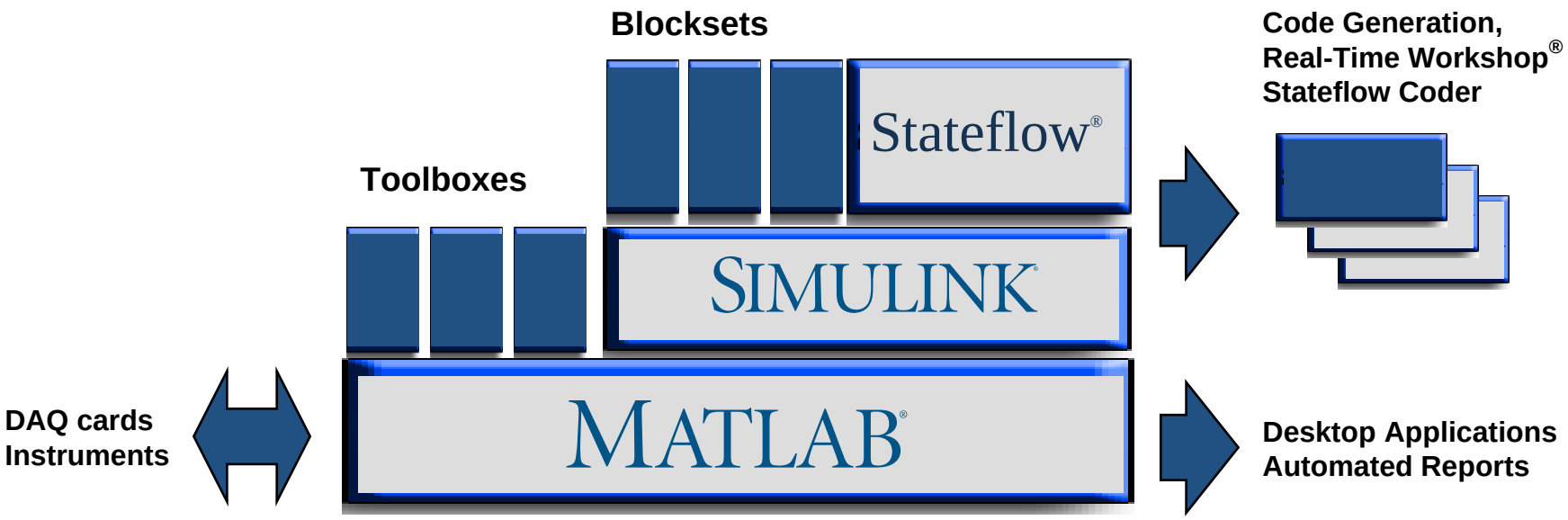
The MathWorks Product Family

More than 80 different products in total

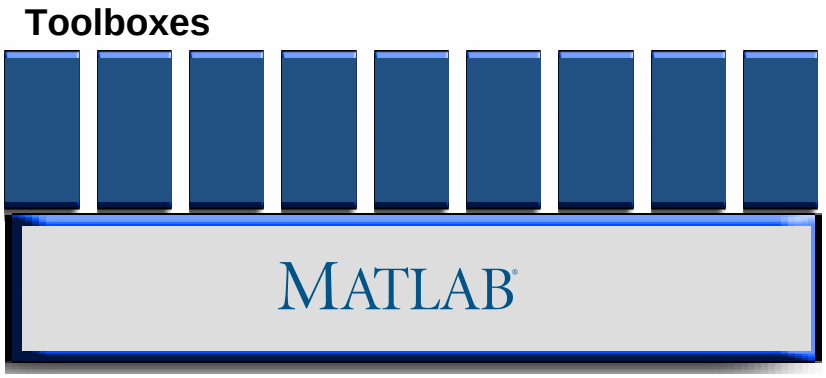


The MathWorks Product Family

Toolboxes for Modeling, Analysis, and Computation

Specific functionality for data analysis, modeling, design, and other capabilities

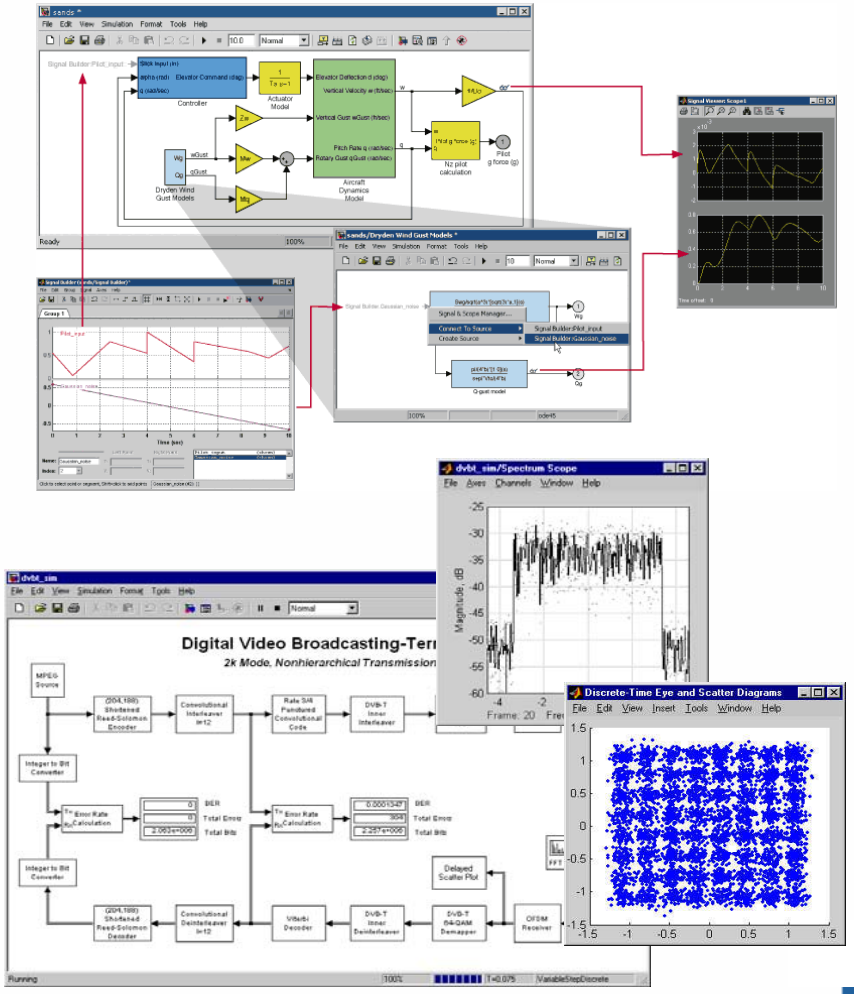
- Bioinformatics
- Statistics
- Image Processing
- Neural Networks
- Optimization
- Compiler
- Symbolic Math
- Curve Fitting
- Wavelet
- Genetic Algorithms
- Signal Processing
- Fuzzy Logic



SIMULINK®

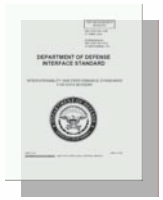
The leading environment for modeling, simulating, and implementing dynamic and embedded systems

- Linear, nonlinear, discrete-time, continuous-time, hybrid, and multi-rate systems
- Foundation for model-based design, including physical-domain modeling, automatic code generation, and verification and validation
- Open architecture for integrating models from other tools
- Applications in controls, signal processing, communications, and other system engineering areas



Model-Based Design

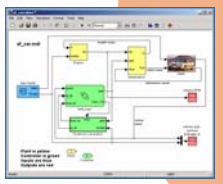
Requirements and Specifications



Design

Implementation

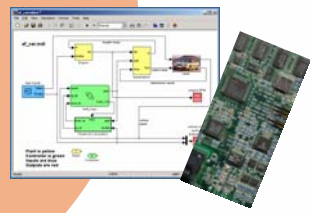
Test and Verification



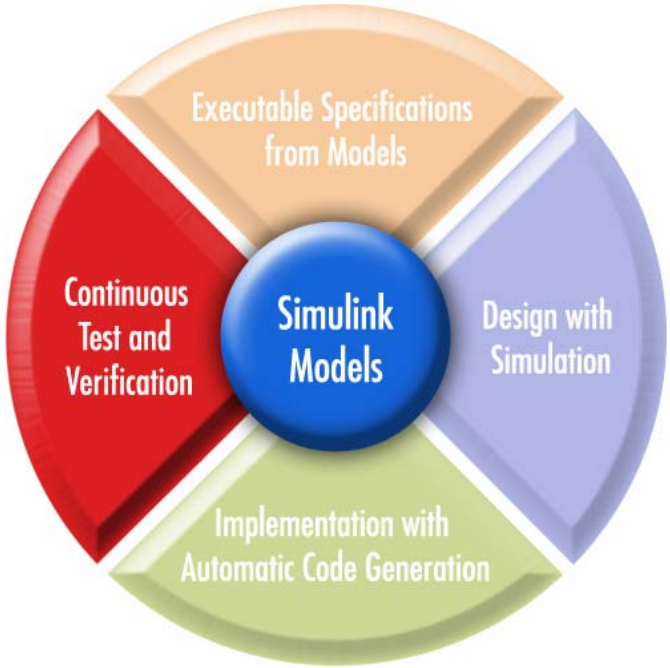
Executable Specifications
Reduce ambiguity
Avoid re-work

Design with Simulation
Rapid design iterations

Automatic Code Generation
Minimizes coding errors



Continuous Verification
Detect errors earlier

Model-Based Design with Simulink

- **Executable specifications**
  - Unique reference
  - Reduce ambiguity
- **Design with simulation**
  - One tool, one model
  - Rapid design iterations
- **Implementation with code generation**
  - Save time
  - Reduce design errors
- **Continuous test and verification**
  - Detect errors early