Oprogramowanie
Naukowo-Techniczne
sp. z o.o.

18.10.2023 r.

Static and Dynamic Code Analysis with Polyspace

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Ariane 5

"The world's most expensive firework"

Overflow error – easily detected by Polyspace

GNC system malfunction.

$500M (uninsured) payload

+ $7B in development costs

$7.5B loss

Agenda

1. What is Polyspace?
2. Code Prover & Bug Finder
3. Polyspace products
4. Example verification

Polyspace

Polyspace is a static code analysis tool that uses abstract interpretation to detect, or prove the absence of, certain run-time errors in source code for the C, C++, and Ada programming languages.

Improve Software Quality

Reduce Development Time

Low Cost of Ownership

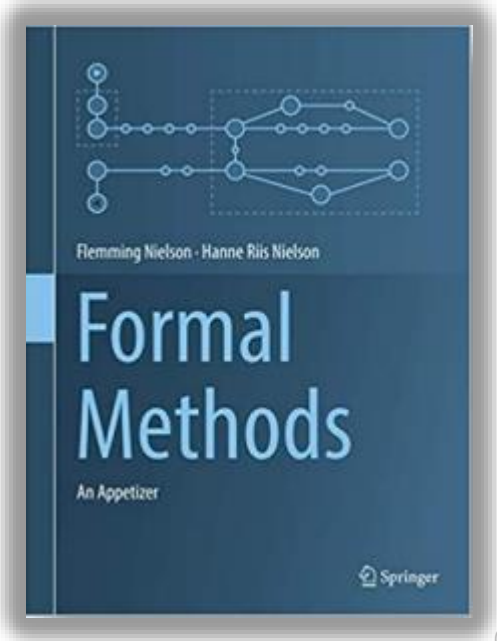
Polyspace

Analyze software source code

- ✓ Semantic checking of source code
- ✓ Report findings as software properties
- ✓ No test, no execution, no target required

Miss no bugs

- ✓ Sound mathematical framework
- ✓ Based on formal methods
- ✓ High-quality (accurate) results



Polyspace Tools

Bug Finder

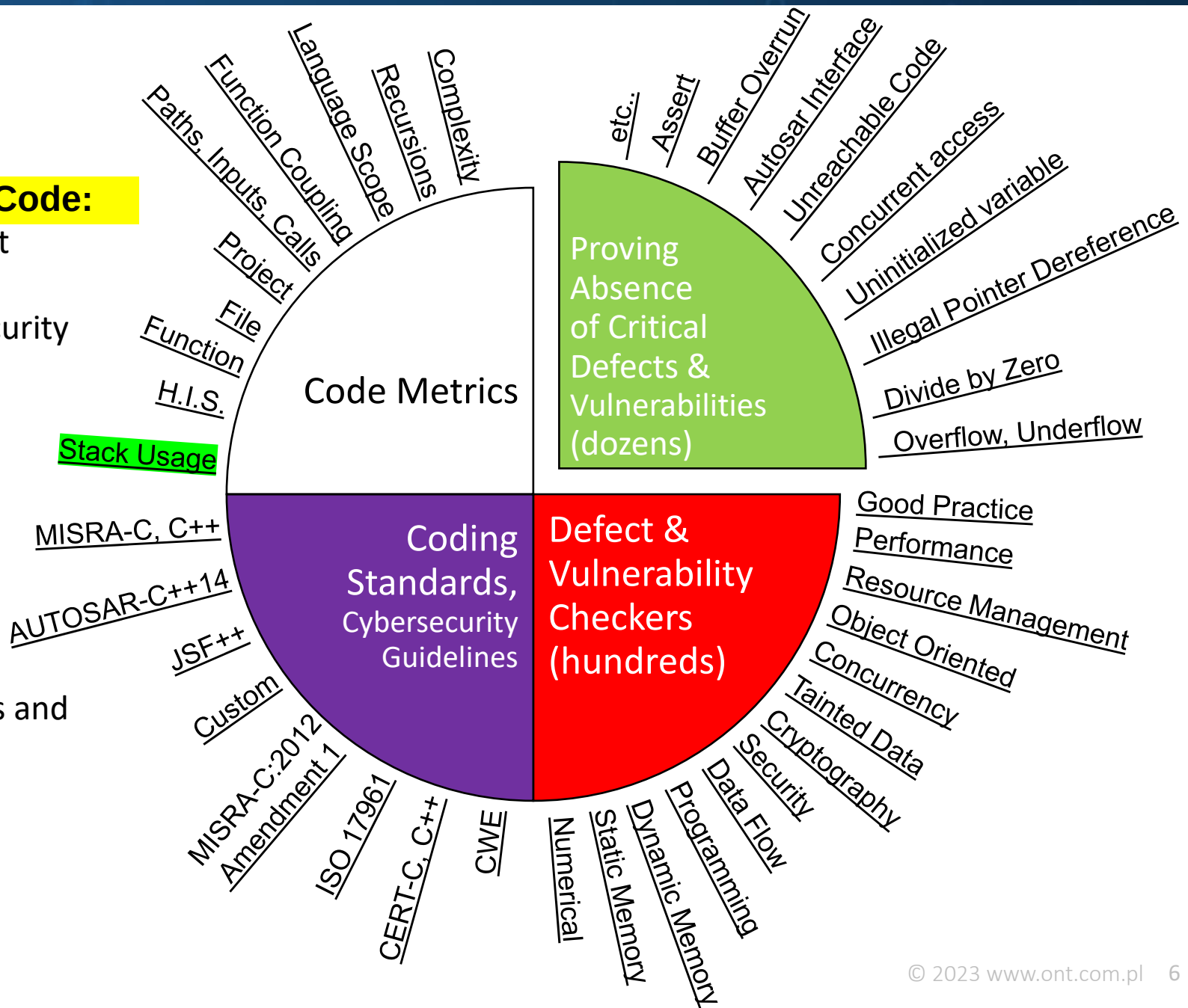
→High Quality, Secure, Compliant Code:

- Measurable, Maintainable, Consistent
- Very few defects or vulnerabilities
- Credits for functional safety, cybersecurity standards.

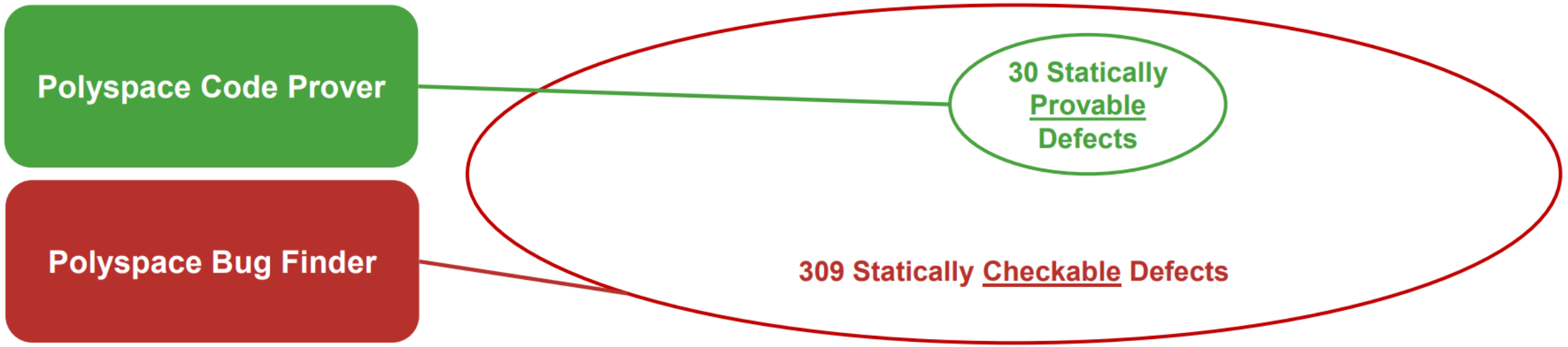
Code Prover

→Fully Trusted Components:

- Robust, Safe, Secure
- Proven free of critical runtime defects and vulnerabilities
- Additional credits for standards.

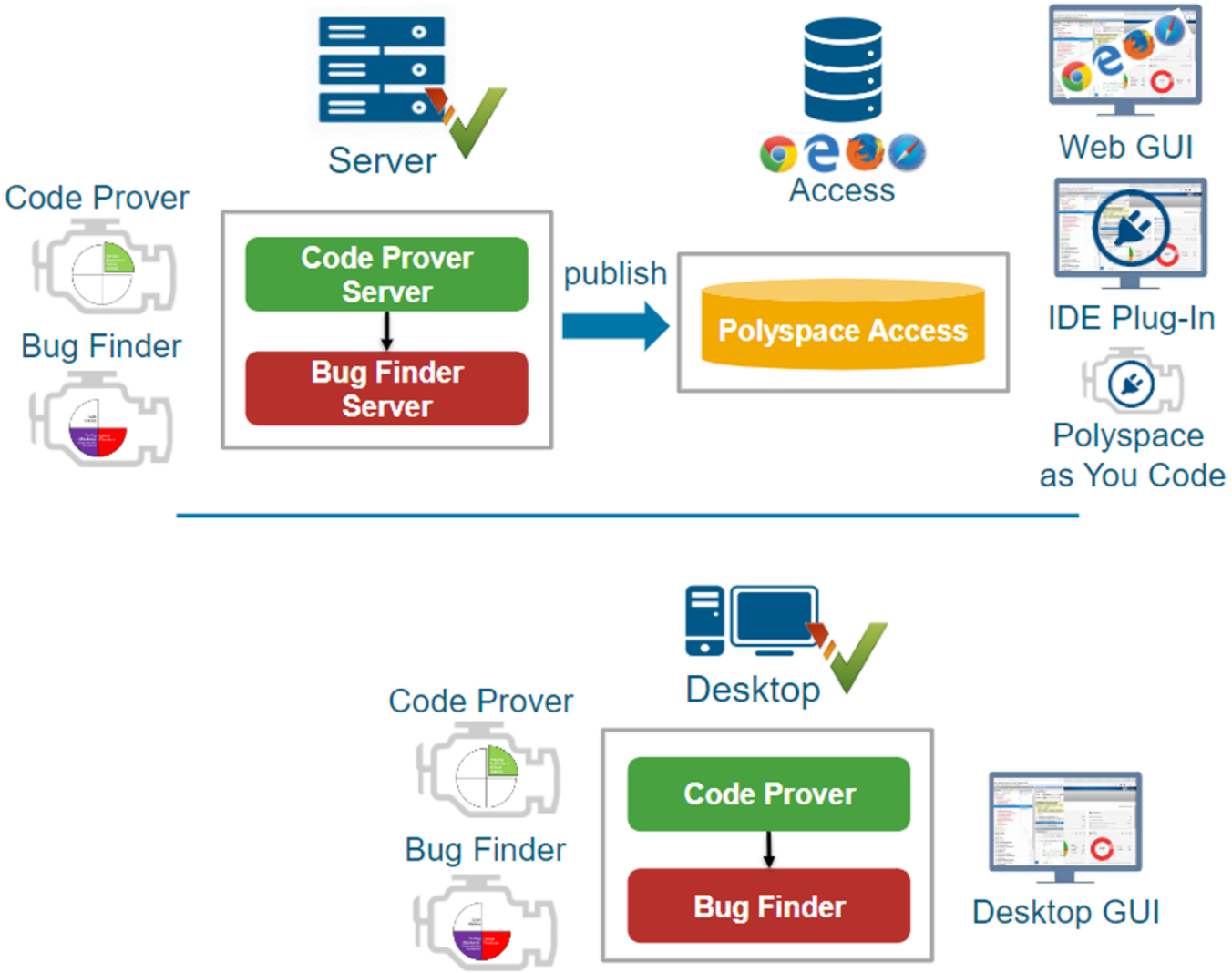


Polyspace Tools – Comparison

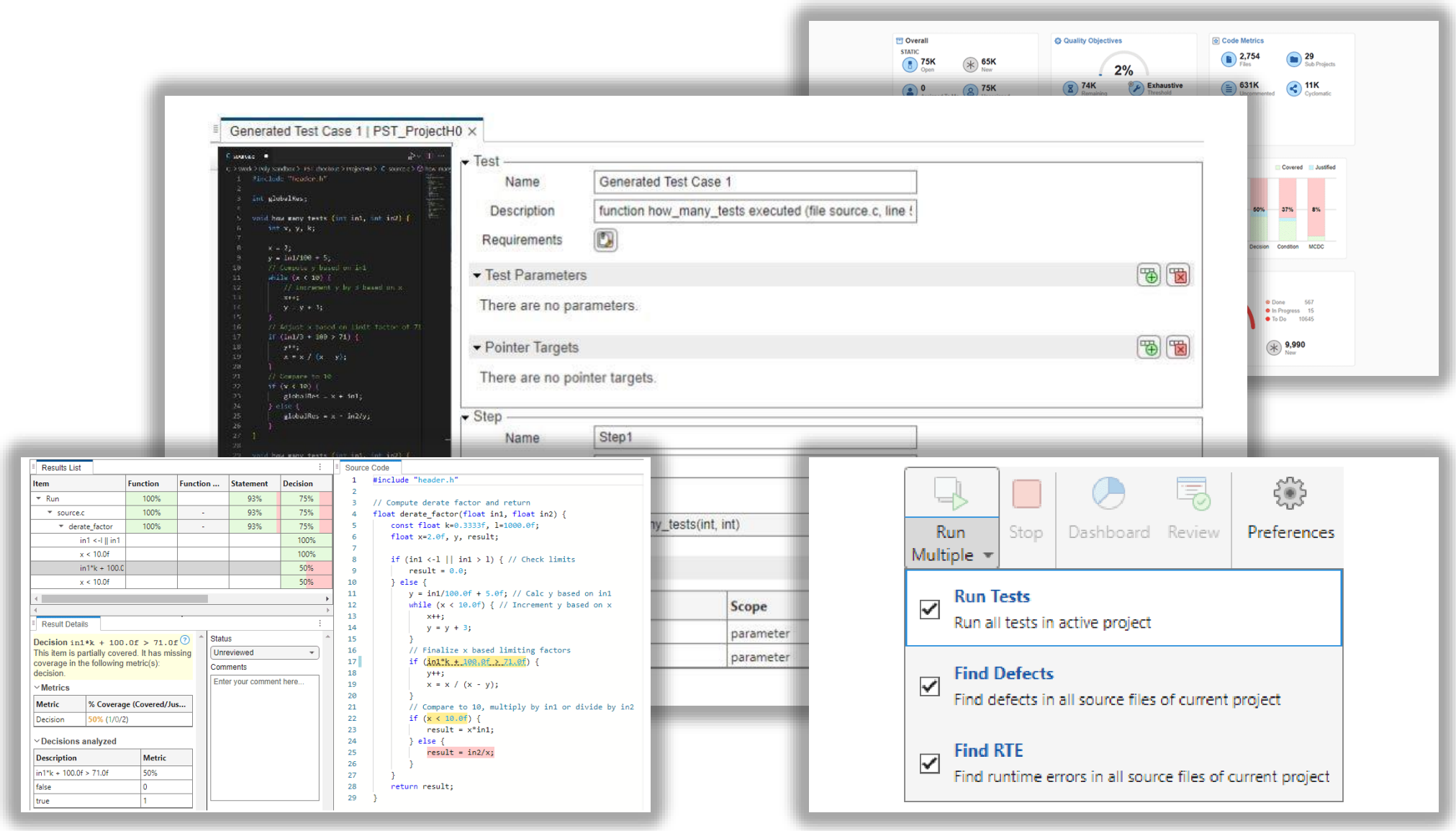


Bug Finder	Code Prover
Wide and shallow *quick*	Narrow and deep *exhaustive*

Polyspace Products



Polyspace Test



Example Analysis

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ONT MATLAB

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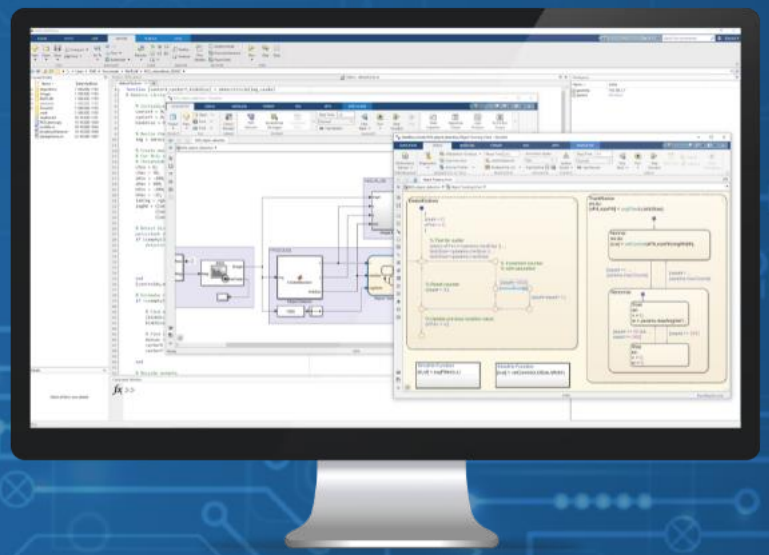

APPLICATIONS

- Robotics and Automation
- Computational Finance
- Autonomous Vehicles
- Electronics
- Artificial Intelligence
- Biomedical Engineering
- Systems Engineering and certification
- Power Electronics and Systems
- Communications and Radar Systems

Let's stay in touch

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