

2013 DHS S&T/DoD ASD (R&E)
CYBER SECURITY SBIR WORKSHOP

Multiplatform Static Analysis and
Supply-chain Risk Management

GammaTech, Inc.

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7/23/2013



Homeland
Security

Science and Technology



Company Profile

- **Core Competency**
 - Static and dynamic analysis of source code and binaries
- **Founders**
 - Tim Teitelbaum, CEO (Professor Emeritus at Cornell U.)
 - Tom Reps (Professor at U. Wisconsin-Madison)
- **Staff**
 - 51 employees, including 15 PhDs working in program analysis
- **Products and Services**
 - CodeSonar static-analysis tool
 - GrammaTech research
- **Financials**
 - Founded in 1988, profitable every year



Customer Need



- Can you trust your software supply chain?
 - Security vulnerabilities?
 - Programming defects?
- Either you:
 - Trust your supplier, or
 - Check the software

Approach

- Starting point: *CodeSonar*® - advanced static analysis for C/C++
 - Scope extended to analyze x86 binaries
 - Retargetable to other instruction sets
- Make more accurate for specific platforms of interest
- Improve performance by harnessing clouds of computers
- Advanced User Interface for understanding warnings

- DHS/DoD support
 - DHS D11PC20009 “Multi-platform Program Analysis”
 - Navy N00014-10-C-0054 “Deep Understanding of Complex High-Assurance Hypervisor Source Code”

Benefits

- Find serious bugs in source and binary code
 - Sensitive to platform-specific defects
 - High-quality user interface for assessing analysis results
 - Allows integrators to check the integrity of the software supply chain
 - Allows developers to find more bugs earlier in the development cycle

Current Status

- Some functionality already shipping
 - Both for source and binary analysis
 - One binary analysis pilot project in place
- Next releases:
 - Q4 2013
 - More accurate analyses for multiple platforms
 - Cloud of homogeneous machines
 - Q2 2014
 - Cloud of heterogeneous machines

Next Steps

- Finish planned functionality
- Integrate with SWAMP

- Looking for pilot projects for binary analysis
 - x86 projects
 - preferably for supply-chain risk management role

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