# Artus Protocol
## Protocol Feature Identification and Removal

STTR Topic N18-T018

Office of Naval Research

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Business Development

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Slide 1

# PJR Corporation

- Security and optimization tools for software and networks.
- Office of Naval Research (ONR) SBIR/STTR projects
  – Static analysis tools to remove bloat and unwanted features.
  – ArtusProtocol-removed unused features/vulnerabilities.
  – ArtusJava-no source code required.
- Accomplishments
  – Alpha release of ArtusJava
    • Tested with high-profile applications for the Navy.
- Ongoing Award
  – Navy Information Warfare Command Pacific (NIWC PAC)
  – Multiple Award Contract with $50M ceiling
  – $10M per year for 5 years

# The Challenge: Protocol Feature Identification and Removal

- Operational Need and Improvement
  - Protocol Features that are not enabled in configuration need to be identified as potential targets and removed.
  - Existing Navy customers
    - Government-Wide issue
  - Automation Modification of Source Code
  - Removal of Port Forwarding from Secure Shell (SSH)

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# Operational Need & Improvement

- Warfighters rely upon the accuracy and availability of information.  Compromised software and data can adversely affect the outcome and even cost lives.



- Phase 1: Research and development (R&D) with University of Florida for the creation and demonstration of a software modification tool able to automatically remove protocol features based on user-selected macros which acted as a "seed" in the protocol source code.

Artus:  Latin for "compaction" or "to make smaller".

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# The Solution – Artus Protocol
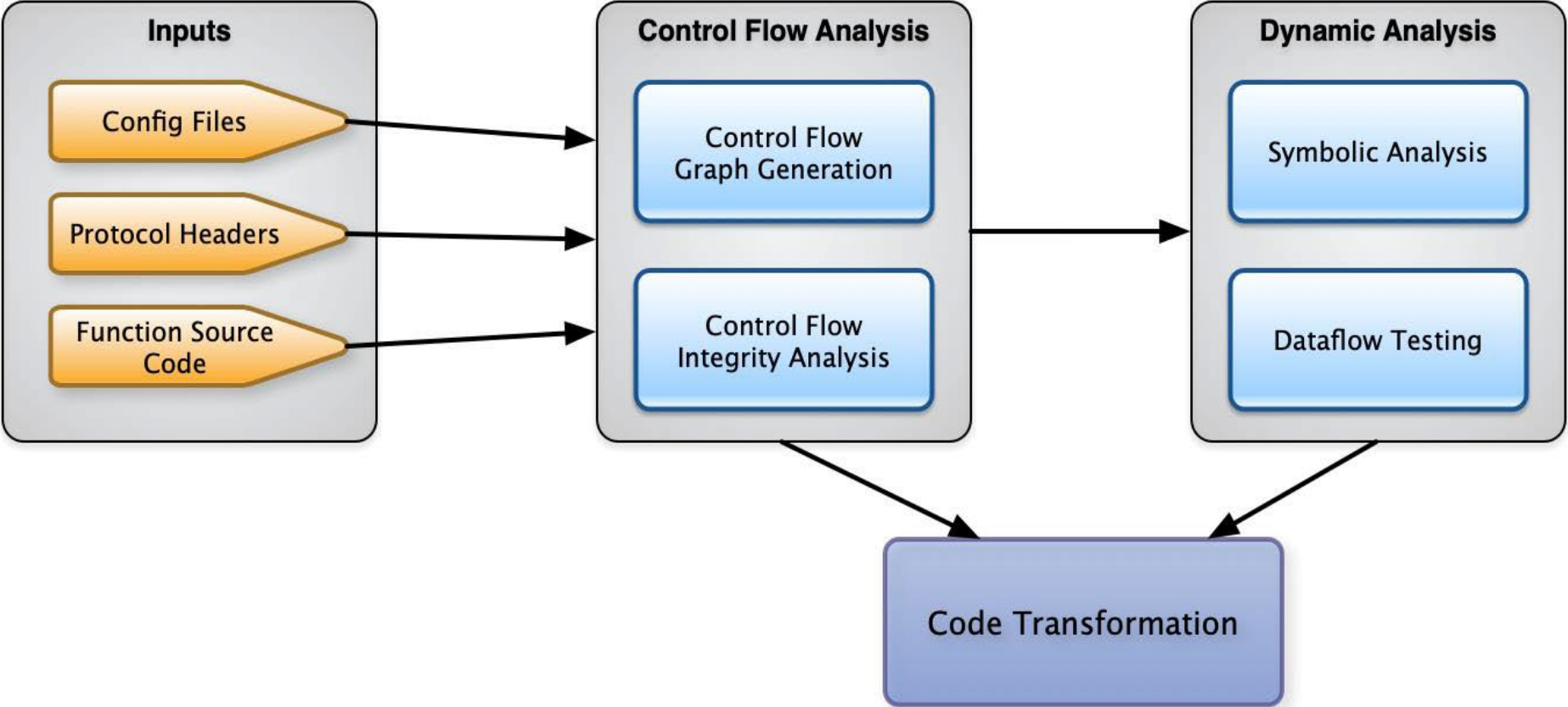
# Artus Protocol Today

- Artus Protocol Contract award date: 19 September 2019
  - Increment Funding $750,000 on 19 September 2019
  - Remaining Funding $249,999 on 15 October 2020
  - Technology Progression
    - Research & development to create successful prototype completed
    - Continuation of Featured Identification & Source Code Mapping.
    - Integrate and test functions
    - Generate Control-Flow Graph of Modified and/or Removed Features
    - Provide Beta version of tool use for Navy personnel and refine product for integration with existing orchestration and deployment tools.

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# Artus Protocol-A Necessary Tool

- Successful build of Prototype 1

- Progression: Generalize and Mature Tools
  - Continuations of Feature Identification and Source Code Mapping
  - Integrate and test functions
  - Generate Control-Flow Graph of Modified and/or Removed Features

- Removing unwanted features, dead code and Cyber Vulnerabilities and Exposures (CVEs) can reduce the available attack surfaces while improving the simplicity, reliability and efficacy of software systems used by warfighters.

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# Transition to the Fleet

- What do we need to mature Artus Protocol
  - Additional testing/time to mature tool
  - Waiting for Phase II Option –(not awarded)
    - Additional time/funding needed to refine the tool


- Artus Protocol a tool for Navy Government
  - FNC Avalanche
  - FNC Endor

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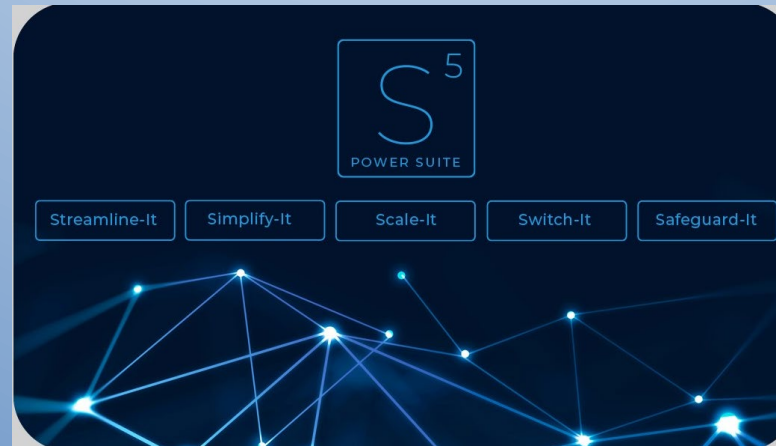
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# Market Analysis

- Additional Commercial Opportunities
  - Large System Integrators (LSIs) for delivery on major programs within the Navy, Department of Defense (DoD)
  - Municipalities using Supervisory Control and Data Acquisition (SCADA) Controls
  - Commercial companies needing secure / customized protocols
- Artus Protocol will be open source and PJR will offer a fully supported version and services to facilitate integration with customer Continuous Integration and Continuous Development (CICD) models.

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Slide 8 - option

# Transition/Partnership

- Next steps:
  - Phase II/Phase III funding/time.
  - Maturity of Artus Protocol

- Artus Protocol is part two of a suite of tools being developed by PRJ Corporation.
  - Artus Java is the first of the suite and Artus Protocol will be shown to current customers(Artus Java) who have expressed an interest in the suite.

# For your Optimization, Networking and Cybersecurity Needs

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