NATIONAL ADVANCED MOBILITY CONSORTIUM

Accelerating Industry Adoption of the IOP Standard

April 8, 2015

Frank Lentine

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Why is Interoperability important to Industry?

- Entire Markets
  - Fuels Innovation
  - Increases Competition
  - Reduces Cost
  - Increases upgrade-ability
    - Customers are more likely to move to new technology if it is “plug and play” with existing systems
- System Integrators
  - Means of producing standardized, well-defined Interface Control Documents (ICDs) with little effort.
- Capability Providers
  - Simplifies Integration
  - Allows a single widget to be used across multiple platforms / systems

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Working Group – Core Team

Core Team:

- Danny Kent — *OpenJAUS*
- Frank Lentine — *QinetiQ North America*
- Dave Martin — *Neya Systems*
- Michael Moore — *Southwest Research Institute*

- **Mission:** Recommended a business model to accelerate industry adoption of IOP

Team members representing NAMC -
not their individual companies.

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Process

- Define Interoperability
- Determine Commercial Market Potential
- Evaluate existing interoperability efforts
- Consider options for IOP Management
- Recommend a Business Strategy for IOP

*Government Specific Topics, such as encryption and document classification, were considered throughout the process

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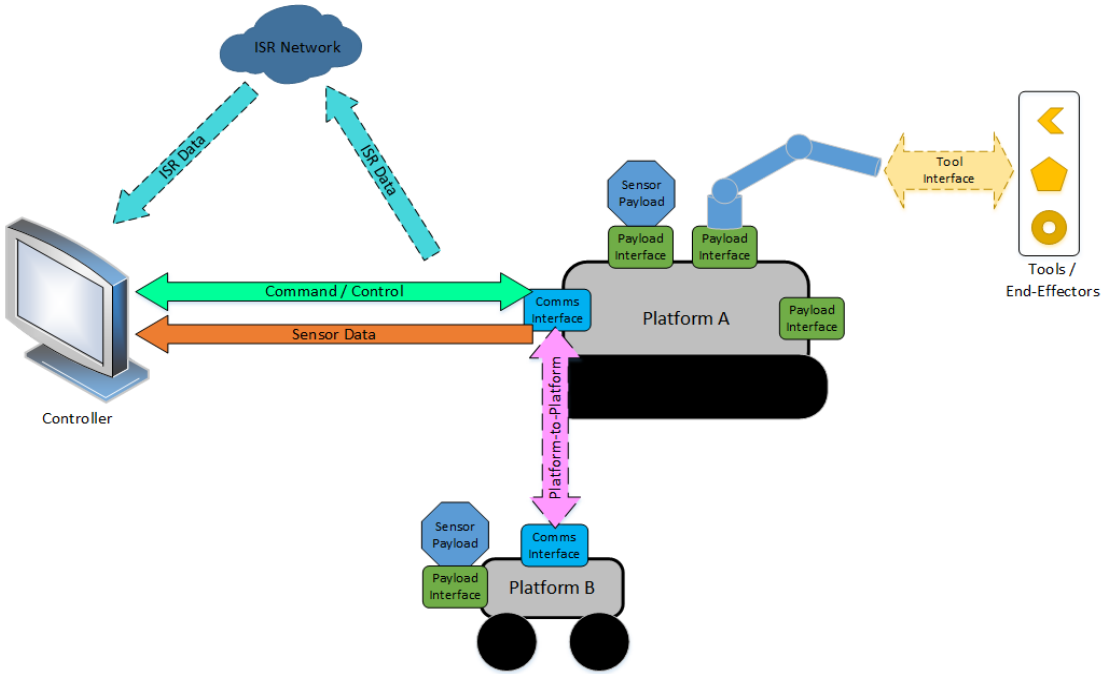
Define Interoperability

- Interoperability: ability to interchange modular components between systems
- Most people understand interoperability, but there are many different views on the level of interoperability required.
- Must consider who, what, where, and how modules can be interchanged.
- A set of use cases were developed
  - These use cases detailed the types of interoperability being considered



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Commercial Market Potential

- Markets Considered:
  - First Responder and Law Enforcement
  - Mining and Agriculture
  - Industrial Robotics
  - Construction

- Benefits to IOP:
  - Linus' Law states "Given enough eyeballs, all bugs are shallow"[1]
  - Increased volume reduces cost

- Benefits to the Commercial Markets
  - Reduced cost
  - Increased competition
  - Increased upgrade-ability

1. Raymond, Eric. (1999). "The Cathedral and the Bazaar"

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Interoperability Efforts

- Efforts Considered:
  - JAUS, VICTORY, AEODRS, IOP, ROS, ORAV, DDS, FACE
- Key Items Considered:
  - Business Model, Tools and Artifacts, Degree of Adoption, Certification Authority / Compliance Test

Analysis → Categorization → Evaluation of potential benefits

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Options for IOP Management

- Standards Organization Types:
  - Traditional Consortia
  - Government Run Standards Body
  - Joint Government / Commercial Consortia
  - Industry Standard Organization
  - International Standards Organization

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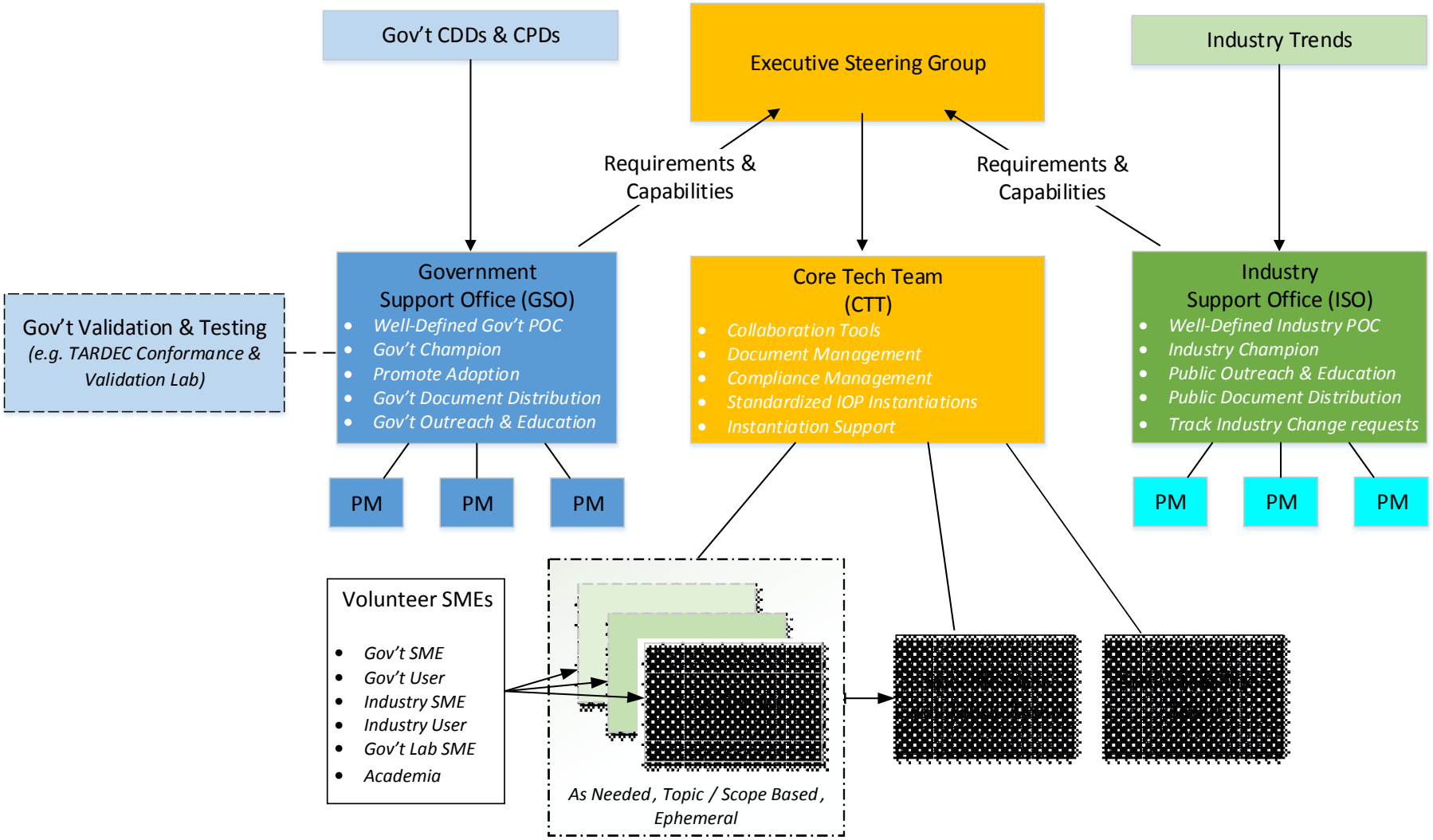
"Strawman" Envisioned Structure



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Short Term Recommendations

- ***Establish the Industry and Government Support Offices***
- ***On-going, Iterative Development of the IOP***
- ***Develop Baseline IOP RDT&E Instantiations***
- ***Investigate IP, Copyright, and Distribution Concerns***
- ***Set up a Website to Facilitate Distribution of IOP Materials***
- ***Transition IOP Industry Working Groups***

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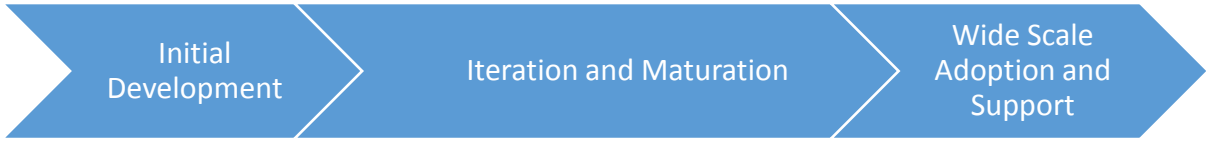
Long Term Recommendations



- ***Transition ownership and control of IOP***
- ***Continue to Develop IOP***
- ***Tools and Processes***
- ***Demonstrate and Validate the Standard***