Where Our National Security Begins...
Agenda

- Welcome & Introductions
- Snapshots: 2016 In Review
- NGA IAWG “Mock Process”
- Action/Implementation Team Updates
- “C2S Corner”
- 2017 Look Ahead
- No-Host Social
“Snapshots”

• 2016 Activity Summary
• Recent Event Feedback & Sharing: NRO ICITE Day
• GED Leadership changes
• D/GED “FGA Progress Dialog” postponed until Jan 2017
• DoD IG Report on Cloud Procurement
• Software/IP Exchange Rights
NGA
Advisory Working Group (NAWG)
Baseline Mock Acquisition Panel Presentation
for
GeoINT Community Week
Nov 16, 2016
Mock Process

The session starts with each side outlining their participants and roles, and their understanding of the process to include terms & definitions.

The controller would then introduce topics such as:
- B&P and how its managed,
- Impacts of multiple FRIs/RFPs,
- Demos as part of an evaluation,
- OCI,
- Business Size,
- Acquisition strategy and effects on Innovation
- Board structure,
- FAR parts, etc...

...as they effect the lifecycle from idea to DRFP
Mock Aha! Moments

We are not as transparent to one another as we thought
Industry and NGA agree to work to understand each others processes
Industry spends (and must recover) enormous amounts of investment based on engaging with NGA
Industry does not receive the feedback it needs
GSM is misunderstood by industry – not embraced
Industry wants earlier engagement – portfolio or initiative level industry days – RFI solicitation and response are not aligned
Industry capture planning cycle is long
Lack of clarity and promptness impacts quality of industry response, teaming, small business, etc.
No secret decoder ring at NGA
Mock Aha! Moments

- RFI process – objectives drive innovation more than “requirements”
- Industry hears more than what NGA thinks, but often chases red herrings
- If NGA cannot move fast enough, turns to external vehicles (ID/IQs) – focus is EXPEDIENCY (not getting to this vendor or that)
- Fear of protest, hesitation to engage industry drive insular behavior at NGA
- NGA relies on market research and on both industry and customers providing this
- Industry is a stakeholder in requirements
- Lack of awareness of industry capability and government evolving interests
GOTS-COTS-FOSS Business Models:

Action Team Update

Nick Buck
Alternative Segmentation & Integration Models*

- Segmentation model must precede OCI model
- Key OCI Issues:
  - Who writes requirements?
  - Who makes make-buy decisions?
- Mission-specific OCI ok if consistently applied

*For illustrative purposes only. Not intended to reflect govt architecture
## Risk Comparison – COTS/GOTS/Hybrid Models

**Is Hybrid the “Best of Both Worlds”?**

<table>
<thead>
<tr>
<th>RISK AREA</th>
<th>COTS</th>
<th>GOTS</th>
<th>Hybrid</th>
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<tbody>
<tr>
<td><strong>Development</strong></td>
<td>• Developed in anticipation of market need</td>
<td>• Requirements must be well defined upfront to control risk. • Purpose built, custom coding.</td>
<td>• Lowest baseline risk. Development baseline risk focused on extending COTS with new GOTS functionality.</td>
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<tr>
<td><strong>Integration</strong></td>
<td>• Dependent on API availability • May require wrapping • Legacy system complexity</td>
<td>• Purpose built integration • End-to-End story boarding • Code can be modified if req’d</td>
<td>• COTS integration points allow use as open platform • Minimize custom integration</td>
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<td><strong>Performance</strong></td>
<td>• Market driven performance • Unique mission configuration or adaption to legacy may be required.</td>
<td>Requirements driven testing and performance. “Have it your way.”</td>
<td>• Requirements driven performance &amp; testing PLUS widely available components</td>
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<td><strong>Cost</strong></td>
<td>• Cost amortized over larger expected market.</td>
<td>• Labor throughout lifecycle. Cost from requirements, testing and service rates.</td>
<td>• Minimize direct labor lifecycle costs. • Leverage available COTS • Maintain OSS</td>
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<tr>
<td><strong>Schedule</strong></td>
<td>• Available off the shelf without modification. May require labor to configure or adapt.</td>
<td>• Minimum 6 months to capability. Timeline driven by requirements, testing and available services.</td>
<td>• “Day 1” capability + Requirements, testing and available services driven</td>
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<td><strong>Maintenance</strong></td>
<td>Services and version control based on licensing parameters.</td>
<td>• Maintenance services. Version Control and promotion to operations. • Sustaining outage</td>
<td>• GOTS &amp; COTS delineated terms • Managed via maintenance model</td>
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<td><strong>Security</strong></td>
<td>• Indemnification and protections, IA are added costs carried by supplier.</td>
<td>• Support to unique security needs. Labor to certify and maintain.</td>
<td>• Indemnifications and protections, w/support to unique security needs.</td>
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Software Integration vs Development Related Issues

- NPS wargame: promoting lock-in vs promoting open competitive ecosystem
  - Finding: software integrators have power to create lock in from the beginning
  - Observation: GOTS can be a form of lock in. Both COTS and GOTS susceptible.
  - Finding: specific steps must be taken to minimize lock in

- Closely related to COTS vs GOTS business model
  - Pure GOTS development using OSS module integration
  - Pure COTS integration using out of the box configurations (incl OSS modules)
  - Hybrid: GOTS “extending” COTS via API/SDK beyond out of box configurations

- Source code vs Executable code
  - Government proscribed deliverables & requirements must address COTS/GOTS
  - Government assumption/preference to GOTS because COTS requires licensing?
Is it Software Integration or Development? Potential Criteria

Criteria: Configuration vs Coding?
- Coding to transform and normalize data
- Coding for functionality
- Configuration of software functionality in executable/run time

Criteria: “Wrapping”? A common practice. In terms of integration vs development:
- Am I abstracting/concealing vendor IP?
- Am I removing/reducing visibility of sub-components?
- Is the resulting baseline CM controlled at the bundled level or at the component level?
- Is wrapper code maintained separate and distinct from components or as an integrated unit?

Criteria: Testing approach?
- Single item (dev) vs multiple item (int) e.g. unit test vs Multi-segment testing
- Performance testing vs functional testing vs load testing
Software Integration vs Development Roles Discussion

- What are the tradeoffs?
  - Requirements: individual products may not meet requirements or fit architecture even when config’d
  - Support tail: COTS & GOTS wrap components; COTS amortizes maintenance cost
  - Integration risk: government assumes more risk when wrapping not permitted
  - Security: component level control brings higher viz to code security but may result in exploits; bundled software may enhance code security and reduce inter-component exploits
  - Testing differences between an integrated software baseline vs a collection of components

- Role of Source code vs Executable code

- “Web Development”…does it redefine or reframe the questions?

- RECOMMENDED ACTION: assemble scenarios showing the spectrum
  - No COTS available to meet requirements
  - COTS ubiquitous to meet requirements
  - Hybrid mix of COTS/GOTS to meet requirements
Addressing GOTS-COTS Make Buy: IDEAS FOR DISCUSSION

- Government can change the model: shift toward buy vs build
  - Hawkeye as an example: identifying proprietary interfaces as the culprit in vendor lock-in
- Socialize concept of an ODC line for licenses in RFPs
- Recommend that every contract award include requirement for prime to complete a market survey and make/buy assessment for government approval
  - Include life cycle costs and the various factors identified by the IAWG COTS/GOTS/Hybrid matrix
  - Market survey...Life Cycle Costs...Risk Factors
- Recognize make-buy tradespace as a requirements trade space...government should include ALL requirements in RFPs.
  - Stop allowing programs or primes to cherry pick the requirements in order to justify a “Create” (vs “Adopt”/”Buy”)
  - Require programs to determine what portion of the requirements have viable commercial solutions prior to deciding on the acquisition/procurement strategy.
- Implement an “outcome based” requirements model
  - NEED IAWG THINKING ON HOW TO DO THIS
- Encourage PMO to consider incremental capability approach
  - Stress “Day 1” capability as high value to support “speed to need”
  - If there is an incremental approach does it change the make-buy?
Recommend that every contract award include requirement for prime to include an *independent commercial* market survey and make/buy assessment for government approval

- Include life cycle costs and the various factors identified by the IAWG COTS/GOTS/Hybrid matrix
- Market survey…Life Cycle Costs…Risk Factors

**How?**

- Prime to engage outside market survey via organizations such as COTS vendors, Gartner, IDC, etc.

Silverstein/Kriz: We do not agree with this idea due to the additional cost added to any prime responding (less bidders, not more).

- This responsibility falls directly on the shoulders of the government to do the market analysis of what capabilities currently exist in commercial.
IDEAS FOR DISCUSSION

• Recognize make-buy tradespace as a requirements trade space…government should include ALL requirements in RFPs.
  – Stop allowing programs or primes to cherry pick the requirements in order to justify a “Create” (vs “Adopt”/”Buy”)
  – Require programs to determine what portion of the requirements have viable commercial solutions prior to deciding on the acquisition/procurement strategy.

• How?
  – When writing requirements, compare the list to COTS capabilities (done in the previous recommended market survey of COTS) in that area to better match buy vs. build and to include those additional COTS capabilities that were not previously thought of.
  – Bring in top 3 COTS vendors in this area for demonstrations (can use agency unclass lab for example)
  – Encourage open standards APIs as defined by the commercial marketplace. (i.e. Ozone Widget Framework not picked up by the market)
IDEAS FOR DISCUSSION

- **Encourage PMO to consider incremental capability approach**
  - Stress “Day 1” capability as high value to support “speed to need”
  - If there is an incremental approach does it change the make-buy?

- **How**
  - Implement a phased milestone payment timeline with Phase Zero meeting X% of capabilities at the start.
    - During Phase capabilities milestone review, after X milestone, contract can be directed to a different vendor or re-competed. (would require contract language change)
  - Implement 30 day on-going capabilities review vs. COTS market survey to keep pace with commercial innovation.
  - Require on-going and frequent COTS vendor roadmap presentations to update initial COTS market survey
“C2S Corner”

Latest & Greatest…Fact vs Fiction

Topics & Issues Discussion

Event: AWS Partner Classified SA Hour
Thursdays 11:00-12:00
850-8002, 9342661
C2S IR&D Instances for Industry

• Situation: industry require ability to get IR&D instances on C2S in order to promote uptake and native cloud development.

• Challenge: business model conflicts with Supplementation of Appropriation law
  • Government agencies cannot receive funds in addition to their Appropriation
  • OGC apparently views industry payments to C2S as a supplement to the appropriation

• Alternative Proposal: Umbrella CRADA (USGIF as an option)
  • Standard terms and conditions that have been vetted
  • Equal treatment of all signatories
  • Government may provide data, access to information, or computing resources
  • Industry can retain IP but must provide results from IR&D to government

• Discussion
C2S Questions/Issues List

- ELA Portability: Not clear ELAs are portable based on BYOL (t’s and c’s dependent)
- Procedures for collecting usage data and billing are inconsistent across agencies and opaque to vendor base
- Marketplace use for short-term try-its ("renting") vs long-term (FAR applies)
- Industry IR&D Instances remain a barrier to full uptake
NRO IAWG
2017 Look Ahead and Topics

START THINKING NOW ABOUT HOW YOU CAN CONTRIBUTE!
2017 Activities Projection

- Software Business 101 course first run
- Reporting and Communication
  - GOTS-COTS-OSS
  - Integration vs Development
  - Requirements: Over-Ask & Under-Ask
- GED Leadership Engagement
  - FGA Progress Report Survey
  - Standardizing RFP language on Software & IP Rights
- Systems/Software Integration topics
CALL FOR LEAD

“FGA Progress Report” Industry Survey

CONCEPT: Anonymous survey to gather industry perspective on:
- Understanding of FGA concepts, architecture, acquisition plan
- How GED has (or hasn’t) held to their plan
- Clarity of communication & ways to improve it

Format: Scale of 1 to 5 (Strongly Disagree to Strongly Agree)

“Understanding” questions, such as:
- The government architecture is well documented with DoDAAF and other artifacts
- I understand the FGA objectives, goals, and conops
- The government has increased complexity by “over-componentizing” the architecture

“Progress” questions, such as:
- The government is more or less implementing acquisitions & contracts as planned
- Programs are implementing C2S and S2P as required.
- Government PMs/COs demand open interfaces while allowing COTS software
CALL FOR LEADS

2017 Action Team Topics:

❖ (Wrap up) Requirements: what govt wants vs. what industry can provide

1. Adopting agile methods & DevOps vs Legacy processes:
   – Evolving dev-ops paradigm, workforce knowledge base, changing industry base

2. Viable industry revenue models in an ASP-ISP cloud world;
   – What business model looks like @ 1 year, 4 years, 10 years (roadmap; requires cloud provider participation)

3. Systems integration vs Software integration;
   – Total system prime vs segment integrator model

IAWG Action: Update Topic List for 2017 Discussions
Open Dialog
Additional Topics for Consideration
Actions & Next Steps
No-Host Social
## NASP IAWG Progress
### Addressing Business Model Obstacles to Cloud Adoption

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<thead>
<tr>
<th>ISP-ASP Adoption Challenge Area</th>
<th>IAWG Action Teams</th>
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</table>
| **Acquisition processes**      | ✓ Incentivizing govt/industry behavior  
| - Tech cycles shorter than acq cycles  | ✓ Requirements: Over-ask and Under-Ask  
| - Market research & tech currency gaps | ❑ Cloud business/revenue models |
| **Procurement Models (“ABC” vs “CBA”)** | ✓ Pay-for-Use Licensing & ELA models  
| - Perceived bias against paid licensing  | ❑ GOTS/COTS/OSS Business models  
| - Role of OSS misunderstood  | ❑ Software Business 101 course |
| - Contracts: S/W vs Services | |
| **Integration Models** | ✓ FGA Framework segmentation & OCI  
| - Segmentation & OCI concerns  | ✓ Software Development vs Integration  
| - Integration vs Configuration | ❑ Adoption of Agile & DevOps  
| - Waterfall vs Agile DevOps | ❑ Systems Integration vs Software Integration |
IAWG Contact Info & Additional Information

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Consider a comparison of program costs for a core development of $20M of code – For purpose of comparisons assumptions are:

- **GOTS model** - 5 year development with 5 year overlapping ops and maintenance (O&M)
  - KTR: core code dev, SEIT, and program costs
  - Gov – PMO, SETA and Integration staff
  - Gov and KTR O&M

- **COTS model** (little code modification is required)
  - COTS vendor investment creates and services and maintains the core product
  - Government cost to assess requirement, SI to I&T, and maintenance support and licenses
  - Licenses – assumes vendor costs amortized over 40 enterprise users over 9 years

- **Hybrid model** (80% COTS and 20% GOTS) for modification of code for mission requirements
Steps to Close

- Import Business model charts
- Add lexicon piece and level setting
- Import “Development vs Integration” charts
  - OSS Framework Ecosystem exemplar chart *NEED: in context of the “stack”*
  - Open Source Maturity vs COTS chart *NEED: in terms of functionality*
  - Consolidate & De-dupe “factors to consider”
  - Dialog IDEAS charts… “Findings & Recommendations”
DevOps as an IAWG Topic

- Observations:
  - DevOps is a culture shock to the IC, both developers and programs
  - DevOps has great advantages but faces significant obstacles

- Question: Is DevOps fundamental to cloud adoption by NRO?
- Question: Does DevOps change the software development & integration model?
- Question: Does DevOps change the NRO’s business model?
- Consider where it belongs: Software Business 101 or Software Dev vs Integration

DevOps will be the next Action Team Topic!
Simplified Taxonomy of Software Types

Applications – Software designed to perform a variety of functions

Apps – Software designed for a single purpose and performs a single function

Infrastructure – Software used as a platform for applications (e.g., OS, DB)

Management Tools – Software designed to manage and secure infrastructure

DEVOPS – Software tools used to create software, deploy and evaluate performance
COTS/GOTS Open Source Software Business Models

Body of Knowledge and Industry/Government Dialog Advance Adoption of ISP-ASP Vision