Agenda

- Welcome & Introductions
- “Snapshots”
- S2P Data Call discussion
- Action Team Discussions
  - Agile + Waterfall
  - Hybrid Cloud Adoption & Business Model
  - System Level Integration & TTO
- Government Perspective (as applicable)
- Open Dialog
USGIF Programs Team Update

April 2020
Joint NAWG-NIAWG Working Session
June 2, 2020

Focus on Combined Experience and Information Sharing

1. Improving Software Acquisition
   - NIAWG References: S/W Make-Buy, S/W Licensing, S/W Business 101

2. Impact of OCI Policy on Acquisition
   - NIAWG Reference: Framework vs Services OCI impacts

3. System Level Integration, Accelerating TTO
   - NIAWG Reference: joint Action Team in work

Leverage Pre-Existing Work to Mature Practices across NRO-NGA
NIAWG Data Call: S2P Future Investment

- Purpose: capture needs, ideas and recommendations regarding future S2P investments.
- 1. What investments and improvements should the government consider in order to ensure S2P is able to evolve through upgrades to enhance developer user experience and overall results? Specifically:
  - a. needed functionality
  - b. automation to achieve speed to mission goals
  - c. platform stability and security
  - d. documentation, on boarding, and user training
- 2. COVID19 impacts and perennial challenges in hiring cleared talent increase the importance of unclassified "low-to-high" development. What recommendations do you have for approaches and improvements to accomplish this? Specifically:
  - a. tooling
  - b. CONOPS
  - c. Security
  - d. Cross-domain code migration

Survey Will Be Going Out Soon…Let’s Start the Dialog NOW!
NRO
Industry Advisory Working Group
Hybrid Cloud Adoption & Business Model Action Team

Chris Arroyo  Romano Romani
Keith Barber  Al Stewart
John Farrell  Ron Alford
Scott Lawler  Marc Kriz
Tim Stewart  Michael Rudd
Hybrid Cloud Adoption & Business Model Action Team Charter & Overview

• Objectives:
  1. Build a *decision framework* to guide government/industry on path to hybrid cloud
  2. Characterize “as a Service” business and acquisition models
  3. Identify alternatives for deciding which cloud and how (centralized vs distributed decisions)

• Approach & Ground Rules
  • Unbiased, research-driven best-practice recommendations
  • We may NOT recommend virtues of one cloud over another!
  • Different agencies identify decision criteria levels based on own mission requirements

• Aspects to Consider:
  • Operating Models – who makes the decisions? At agency level or program by program?
  • Business Models- cost (i/o performance, data storage and compute) and data rights
  • Acquisition Models- [need to explore]
1. Decision Framework
   • Brainstorm criteria list
   • Group / consolidate criteria into “like things” (Business, Performance, etc)
   • Vett against an industry standard of like scale (highly regulated industry)

2. As-a-Service Business & Acquisition Models
   • Crowd source existing industry and government alternatives
   • Crosswalk vs NRO operating model and mission types
   • Develop pros and cons, intended and unintended consequences of each

3. Decision Operating Models:
   • Brainstorm options for decision authority, e.g. agency level vs. PM level vs. Prime contractor
   • Flesh out a “Day in the Life” of each option, what it would take, what it would mean
   • Develop pros and cons, intended and unintended consequences of each
April Update - Taxonomy

- Taxonomy - Update Definitions to Better Map to Government
  - GOCO - Government Owned, Contractor Operated
    - Example: MUE
  - COCO - Contractor Owned, Contractor Operated
    - Example C2S
      - Increased remote work

- What are the requirements that you have to meet?
  - Depends on what needs to be in the Cloud?
    - Data?
    - Applications?
    - Desktop/VDI?
April Update - Customer Education

- Stories from the Public Sector
  - NGA - NCL wanted to move to C2S. More cost effective to use the stay in place.
  - MPO on of the largest consumers of cloud services
  - Milcloud 2.0

- Story from the Private Sector: Goldman Sachs
  - Private Cloud (on-prem):
    - Applications that create and store sensitive information
    - Low latency, mission critical analytics (time = money)
    - Sensitive, or proprietary data sets
    - Sensitive app development
  - Public Cloud (Commercial Cloud Offerings)
    - Important, but less critical back-office applications
    - General app development
    - Web based applications such as marketing campaigns (surge, less sensitive data)
April Update - Remote Work: Considerations

• Data
  • Raw data - does the government need to see every data point before it’s fed into an algorithm?
  • Results - Is it more valuable to see the end result of that data?
  • Mechanisms - what levels of service are expected wrt data storage and handling?
  • Does data collection and resulting data have to be certified (e.g., EO 12333)?

• VDI
  • VDI as a cloud workload

• Development?
  • Do all developers require clearances? Can we start the clearance process and have people working in unclass space until cleared?

• Trend
  • As remote work is becoming essential, increased adoption of CSfC (commercial solutions for classified) for remote workers is likely, as well as hi-side executive comm kits.
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Accelerating System-Level Integration &
Transition to Operations (TTO)

Action Team
Accelerating System-Level Integration & Transition to Operations (TTO)

Jason Dever – Excelity
Jeff Goerges – Virtus Tech Solutions
John Hays – GD Mission Systems
Matt Madigan – ESRI
Mike Manning - Centauri
Nick Miller – AWS
Curt Nare – CSW Superior IT
Seth Wambold - LM

Marlu Oswald – Seed Innovations
Renard Paulin - TKO
Sonny Sarkar - Palantir
Steve Sharp - GDIT
John Sutton - IC
Fred Turman - Peraton
Eric Viglione* - Perspecta

* Study Group Lead
Challenge:
System Level Integration, Test, and TTO Timelines

Current Agile implementation has improved the development cycle but not the integration, test, and TTO cycles.
Why we Formed this Action Team

• NRO is in the process of changing the way they procure ground systems
  • Moving away from “Black Box” segment developments with well defined and well controlled interfaces
  • Moving towards smaller application developments, and micro services running on a common framework
  • The transition to date has focused on moving from waterfall development to agile development
• End-to-end integration and transition to operations should be reviewed and adjusted to account for development changes

• Two Optics on the topic:
  • Developers
    • SECDEVOPS security reviews impede transition to operations
    • Accepting risk increases speed, fail fast mentality
    • Large developers still limit and impede small developers innovation
  • SETA/SI
    • The new development approach creates an explosion in interfaces that are poorly documented
    • Issues don’t get discovered until late in the process resulting in significant DRs and stability issues
Topics to assess

• Integration – No single organization tasked with Ground integration
  • Pros and Cons to Top-Down Integration Approach
  • Pros and Cons to Diversified Integration Approach
  • What is the level of integration responsibility between Govt and Industry

• How does the Government Incentivize to deliver fast

• How to Sync CI/CD between NRO and NGA

• Thoughts on how MOD can participate in CI/CD
  • How to deliver assured mission. How much risk is too much
Open Dialog

Additional Topics for Consideration

Actions & Next Steps

No-Host Social
2020 NRO IAWG Objectives & Goals

- **Objective 1**: communicate existing material across Community
  - Goal 1: Community engagement: 1 per quarter per team
  - Goal 2: Major conference/event beyond GEOINT
  - Goal 3: NRO Government attendance at GEOINT 2020 Joint Session
  - Goal 4: obtain GED feedback on Agile Dev Guide comments

- **Objective 2**: broaden our collective voice
  - Goal 1: increase engagement across IAWG membership
  - Goal 2: increase & enhance interactions with USGIF Board and leadership

- **Objective 3**: Refresh Charter

- **Objective 4**: Establish Joint NAWG/NIAWG Action Team
NRO IAWG Contact Information

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Backup
NRO
Industry Advisory Working Group

Accelerating System-Level Integration &
Transition to Operations (TTO)

Action Team
Future: System Level Continuous Integration & Delivery (CI/CD)

- Parallelization across all phases enables new capabilities to reach operations faster … but still has imposed limits from SI, test, and TTO
  - Also requires that changes are identified at “byte-sized chunks” vs. the large knife-switch style cutover events that predominate govt programs
- Progression takes into account current scope of national programs and differing organizational requirements/limitations involved in delivering new capabilities to an operations group

New Capability to Ops
(U) Functional Equivalency

<table>
<thead>
<tr>
<th>Process</th>
<th>GED Waterfall Events</th>
<th>Agile Ceremonies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements and Design</td>
<td>SRR, PDR, CDR</td>
<td>Solution and Program Increment Planning Events</td>
</tr>
<tr>
<td>Configuration Management</td>
<td>GED Level Request for Change (RFC)</td>
<td>Pre-Planning Phase, Solution and Program Increment Planning Events, Deployment Checklists (after Initial Installation RFCs)</td>
</tr>
<tr>
<td>Test and Evaluation (T&amp;E)</td>
<td></td>
<td>Sprint, Program and Solution Level demonstrations</td>
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(U) There is not a one-to-one mapping between Agile ceremonies and method and Waterfall events. The risk mitigation that drives the traditional Waterfall Readiness Events is still accomplished in Agile, however; the mitigation is done iteratively instead of in “big bang” events.
GED Agile Development Day 2019: Agile Integration with Traditional Milestones
(U) Requirements Trace

* (U) Solution Epics are not decomposed from Function Level requirements. The Solution Epics will be mapped to the Function Level requirements they cover to provide a trace to the allocated baseline.

GED Agile Development Day 2019

Development Contracts

Graphic is Unclassified
(U) Program Increment Demos

- Pre-Planning Increment for Release Train X
- Pre-Planning Increment for Release Train Y
- Release 1
  - Integrate, Test and Demonstrate
  - Simulators or Early Releases
- Release 2
  - Integrate, Test and Demonstrate

Graphic is Unclassified
GED Agile Development Day 2019

(U) Solution Demonstrations
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Focus Area 1: Terms of Reference & Taxonomy

- Commercial definitions: “private” = on-prem, “public” = external
- Government definitions to coordinate: Public, Private, Hybrid
- Variations to consider
  - “Public cloud provider on-prem” vs Government IaaS/PaaS: are both “Private”?
  - Does fielding to a commercial data center = on-prem or public?
- Multi-Cloud:
  - Single-Cloud services available from multiple vendors
  - “I have multiple cloud infrastructures to choose from”
  - “I want the cloud that matches my mission and business objectives”
- Hybrid-Cloud:
  - Mix of cloud services provided by different vendors and/or on-premise.
  - “Some of my workloads exceed cloud provider offering so I need on-premise IaaS”
  - “I use cloud for intermediate processing but store my finished data in IC Gov Cloud”
Focus Area 2: Public/Private Sector Models & Trades

- Define what costs exist in hybrid cloud architecture
  - What is the cost of exfiltrating your data?
  - How much is compute?

- Story from the Public Sector: Capitalization – Usage cost trade
  - NGA - NCL proposed move to C2S. Customer deemed more cost effective to use the stay in place.
  - NRO AUE/MUE

- Story from the Private Sector (Goldman Sachs): performance & security trade
  - Private Cloud (on-prem):
    - Applications that create and store sensitive information
    - Low latency, mission critical analytics (time = money)
    - Sensitive, or proprietary data sets
    - Sensitive app development
  - Public Cloud (Commercial Cloud Offerings)
    - Important, but less critical back-office applications
    - General app development
    - Web based applications such as marketing campaigns (surge, less sensitive data)

- Crosswalk: Look for intersections & incompatibilities
Focus Area 3: Mission/Enterprise Data as a Decision Driver

- **Driver: Data conops**
  - Data - What is the end goal?
  - Raw vs intermediate vs finished data bear different cost profiles

- **What is most important to the mission?**
  - Raw data – does government need to “see” every data point before it’s fed into an algorithm?
  - Finished data & Results - Is it more valuable to see the end result of that data?
  - Mechanisms - what levels of service are expected wrt data storage and handling?