Where Our National Security Begins...
NRO
Industry Advisory Working Group

Working Session
February 26, 2019
Agenda

- Welcome & Introductions
- “Snapshots”
- “S2P Corner” & “C2S Corner”
- Action Team discussions
- Government Perspective
- Open Dialog
- No-Host Social
“Snapshots”

NRO Cloud Day: 3/6/2019
IC ServiceNow Users Group
“C2S Corner”

Latest & Greatest...

Topics & Issues Discussion
“S2P Corner”

Latest & Greatest…

Topics & Issues Discussion

Explore on CWAN/JWICS @ https://jportal.S2P.proj.nro.ic.gov
NRO IAWG
Action Teams & Topics

- Government Engagement Planning
- Action Team Planning & Way Ahead
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Agile & DevOps
Action Team Update to GED QUINT SPO
February 2019
Common Theme: Accelerating Speed to Capability across Programs

- 2018 Agile & DevOps Action Team Summary
- 2019 Agile & DevOps Action Team look ahead
- Open Dialog (time permitting)
2018 Agile & DevOps Action Team

Jay Eward (Team Lead)
Clark Van Buskirk
Ken Laskey
Jared Putman
Sam Stollar
Pete Epstein
Shawn Lucas
Suzanne Sincavage
John Farrell
Andy Murren
Jeff York

Observations on Agile & DevOps:
• It is a culture shock to developers, program managers, SED, and MOD
• It has great promise but faces major culture, training, and business process obstacles

Questions:
• Is DevOps fundamental to NRO cloud adoption and Future Ground Architecture?
• How does DevOps impact/change the NRO Operating & Business Models?
• What Contracting approaches are optimal for Agile & DevOps?
DevOps (clipped compound of “development” and “operations”)

• Culture & Practice emphasizing collaboration and communication between stakeholders, including consumers, developers, operators, and testers, to improve software delivery and infrastructure changes
• A convergence of culture, process and automation/tools to achieve faster delivery of robust, correct features in small batches from idea to operations

Scaled Agile describes what is needed
Lean-Agile describes the minimum viable product & how to build it
How do we deliver value faster to the customer? “DevOps”
Agile & DevOps are vital to realizing the NRO Future Ground Architecture vision
- Quality + Resiliency + Data Centricity + Speed to Delivery cannot be met without it
- Next generation of software developers will not know anything else
- Uptake across Industry and Government reflects the maturity of Agile DevOps practices

Both NRO and NGA are demonstrating successful DevOps programs on contract
- NRO S2P providing tooling needed to manage Agile / Dev Ops (eg. Jira, Confluence)
- Both CP and FFPLOE approaches can work...AF and IF components are recommended
- Emphasis on delivery vs FTE, Product Backlog prioritization, and incentivizing speed

GED Primes are implementing Agile & DevOps projects and see business benefits
- DevOps being tried / deployed at factories – not yet mature – but lessons being learned quickly

Challenges:
- Culture: must address process & vernacular conflict between Waterfall, Agile & DevOps
- Operating Models: A&A and Transition to Operations are #1 and #2 process challenge areas
- Contracting: approaches & language must evolve to harness power of Agile & DevOps
- Legacy System Migration: Recognize & address challenge legacy install base presents
- Training: Government CO, PM, COTR, and Engineer training & certification is essential
- Software Procurement: Supply Chain must evolve to support DevOps timelines
2018 Agile & DevOps Team Observations: Scaling out Agile & DevOps Demands Culture Change

- Shift from Waterfall to Agile & DevOps changes the NRO operating model
  - Transition to Ops & NSIS delivery models are contrary to Continuous Deployment
  - Waterfall requirements definition & decomposition impose “batch constraints” on velocity

- Shift requires culture change and real-time collaboration between:
  - Acquisition
  - Program Management
  - Developers
  - Infrastructure Providers (NISP)
  - Software Service Provider (NASP)
  - Security
  - Operations

- **Leadership Commitment to Changing Culture**
  - Must take place at the Director level and include all echelons
  - Recognize conflict between Waterfall & Agile/DevOps approaches
  - There is a mission opportunity cost to delay. Ensure MOD, Security, and SED share in **desire and accountability** to accelerate speed to operations.
  - Accept a learning component: effectiveness evolves, it’s not pre-designed

**Waterfall process “culture” constrains speed to mission available in Agile & DevOps**
2018 Agile & DevOps Team Observations: Contracting Challenges & Questions

Key Considerations in Agile & DevOps contract implementation
- Active management of staffing mix
- Government partner...no playing “gotcha” on speed #s.
- Govt must focus on product roadmap & priority. Govt MUST own the priorities
- Transparency of tools with criteria
- Regular engagement/rhythm with government, e.g. re-prioritization meetings
- Government discipline to NOT revert to LOE behavior by asking for people or FTE

Must Account for “SE” or “Support” functions (it’s not just scrum teams)

One size still doesn’t fit all: Deliverable based Solutions vs Labor Hour (CP v FFP LOE v FFP)

Government Observation: Government not trained or experienced in DevOps contracting

Industry Observation: Contracts language, Award Fee approaches can dis-incentivize

Question: How do you pay for speed, independent of contract type?
- IDEA: Incentive fees for deliveries per unit time (sprint team velocity improvements)
- IDEA: Award fees for accurate estimation of velocity (story points) and delivery
2018 Agile & DevOps Team Observations: Must Address “Transition State” Between Legacy & New

- Discussion: Should we combine modes for optimum benefit?
  - DevOps mode can provide capabilities scheduled for waterfall delivery
  - DevOps contributions to waterfall delivery can have benefits of small batch size
  - Do not need Big Bang adoption of DevOps to start seeing DevOps value
  - Recommend starting DevOps with small but significant project
    - Show value, Learn, grow
    - Needs to be a real program… “pilot” project should mean “first” not “trial”
  - Migrate larger Waterfall development to appropriate mix with DevOps

- Challenges:
  - DevOps delivery speed can overwhelm Waterfall transition processes
  - Waterfall time spans drive backlog in DevOps resulting in schedule and cost escalation
  - Waterfall governance models tend toward “one size fits all”
2019 Agile & DevSecOps Action Team
Topical Areas for Discussion

**Area 1: Culture**
- Terminology & Vernacular to foster common understanding & manage conflict
- Evolving (and new) government/industry roles and accountabilities
- Legacy migration to DevOps and relation to Current/Future DevOps programs
- Manage perceptions & expectations: How do you measure ROI of DevOps?

**Area 2: Program Management & Business processes**
- ATO Automation & Continuous Delivery impact to A&A, TTO, NSIS, Op Tempo
- Multi-segment scale out including dependency management & cross-program vs program-specific
- Topic: Incentivizing on “delivered velocity” and accurate estimation of story points in bids?
- Topic: Set CAIV/Price to which bidders respond with how much requirement they can meet?

**Area 3: Contracting for Agile & DevOps programs**
- Acquisition / requirements / contract approaches (e.g. SOO vs SOW, CPAF/IF vs FFPLOE vs FFP/IF)
- Procuring “story points” as a measure of development capacity and velocity.
- Assessing realism based on demonstrated velocity and P/P on relevant developments
- How much should the government specify vis a vis DevOps implementation?
2019 Agile & DevSecOps Action Team
Proposed Topical Area: Cyber Security

Area 4?: Cyber Security for Agile & DevOps programs…DevSecOps

- Security Requirements must be agreed upon by government early in process (STOP if they are not nailed down)
- Integrate security and A&A processes as a flow to continually work down risk but maintain development pace
- Add risk-based management decisions to A&A process to provide an accurate snapshot with workoff plans and verification closing open issues over time
- Consider automated security control verification to speed up the DevSecOps process and add integrity for informed AO risk decisions
- Leverage control inheritance to cover most controls in the cloud infrastructure reducing the burden on individual applications and systems where possible
- Provide inheritable enterprise security services to support and accelerate application and system deployment
Does the current plan capture everything?

Agile & DevSecOps Action Team “Round 2”
Team Lead: Seth Wambold

- GED scaling Agile and DevOps across Program Offices
  - Challenge: how to implement DevOps with cross-program dependencies
  - Challenge: Release prioritization across projects and programs

- Training gaps, standardization, and program-specific implementations
  - Who is training the government, FFRDC, and SETA?
  - Engineering Practice Managers, Thread leads, and Product Owner roles

- Must address terminology gaps: Terms of Reference

- Address expectations and perceptions of what you get out vs what you put in on Agile & DevOps

- Contracting strategies, structures, and language
  - Differences of opinion on CP/AF/IF (deliverable) vs FFPLOE (story point)
  - Traditional CDRL-based approaches must evolve to accommodate DevOps

- E2E System Closure in an Agile & DevOps world
  - Impact of Continuous Delivery & Integration models on TTO
  - “Iron Bar of Enterprise Test”: Mission Partner + NRO Ground Segments + Space Segment

Does the current plan capture everything?
2019 Agile & DevSecOps Action Team

Seth Wambold (Team Lead)

Jay Eward
Joel Doyle
Matt Reider
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Ken Laskey
Rob Manogue
Shawn Lucas
Marc Kriz

Sam Stollar
Scott Lawler
Eric Amberge
Jeff York

John Farrell

Area 1: Culture
Area 2: Program Management & Business processes
Area 3: Contracting for Agile & DevOps programs

Additional Participants Welcome: Industry, SETA/FFRDC, Government

Topic breadth means we will need to create sub-teams…
we need your help!
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Accelerating Speed to Capability:
Topic Plan & Ties to Agile & DevOps team(s)
# Speed to Capability

## Observations & Ideas

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Acquisition/RFP</th>
<th>Contracting</th>
<th>Development &amp; Tech Transfer</th>
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<tbody>
<tr>
<td><strong>“Requirements Lock”</strong> Observation</td>
<td><strong>“Solicitation Bloat”</strong> Observation</td>
<td><strong>No Contracting Metrics</strong> Observation</td>
<td><strong>Waterfall Culture</strong> Observation</td>
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<td>- Inhibits ability for programs to weave in new capabilities</td>
<td>- Drives away qualified performers, creates extra work – on both sides – without necessarily providing benefit</td>
<td>- Lack of specific, shared objectives for improving contract(ing) performance. Lack of concrete actions means status quo wins</td>
<td>- Inconsistent capability delivery chain and clunky transition to operations</td>
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<td><strong>Contributing Factor</strong></td>
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<td>- SOWs that “bake out” innovation or don’t articulate means to innovate (e.g., need to use study CLIN)</td>
<td>- Path of least resistance and lowest risk: “Include everything”</td>
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<td>- Dynamic Reqs Management</td>
<td>- Right-size compliance documentation to effort size</td>
<td>- Measure against STC metrics based on industry standards and tailored to program profiles. [See template]</td>
<td>- Create nexus where technologist, operator/analyst, MSI, and acquirer can ID and advance solutions immediately, then document “requirements”</td>
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<td>- Involve end users up front to define the “what” not the “how”</td>
<td>- Involve security teams in the solicitation creation</td>
<td>- More two-way exchanges</td>
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<td>- Expand use of IDIQs</td>
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**Goal:** *increase throughput, decrease acquisition variances*
## STC Metrics – Template

**Presumed:** STC is inversely proportional to program size

There might be other relevant categories besides size (e.g., environment – legacy, modern, hybrid).

### Time-Based Metrics

Plot each program’s Actual performance relative to its defined Threshold / Objective

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### SPEED TO CAPABILITY

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<th>Capability</th>
<th>Requirement-to-Award</th>
<th>Award-to-First-Capability</th>
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**IAWG might offer an industry benchmark for the class of capability category**

**Track actual performance against pre-determined threshold and objective specific to that program**

1st graphic represents Requirement-to-Award (aka government)
2nd represents Award-to-First-Capability (aka industry)
Government Perspective
Action Tracker

- Co-Chairs: Establish recurring engagement at GED “QUINT SPO” meeting
- Agile & DevOps Action Team Part 2: Form & Kickoff
- Talent: Provide GED leadership with “DevOps Starter Kit” info for clearance sponsorship and IR&D instances on C2S/S2P
- FGA: Identify options for providing industry-wide feedback on FGA architecture in format more useful and open than RFIs
  - Get membership access to FGA 2025 architecture (government stated it was ‘released’)
  - Consider Action team and/or RID to engage
- STC: Engage GED Contracts regarding Contracting Performance” aspects and how industry would propose assessing them. What metrics?
- Potential Action Teams:
  - FGA Integration Model & Cross-Segment/Cross-Program DevOps
  - STC or new team address Waterfall TTO to DevOps Continuous Delivery & Integration
Open Dialog

Additional Topics for Consideration

Actions & Next Steps

No-Host Social
NRO IAWG Contact Information

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- Mike Moran: mmoran07@peraton.com  (571) 524-1184

USGIF coordination:
- Shai Sobrino: shai.sobrino@usgif.org  (571) 392-7205
BACKUP
NGA’s “Top 20” Issues w Industry (1 of 3)

PERFORMANCE
- Overpromising capability and capacity, resulting in protracted vacancies and/or unnecessary turnover/churn in personnel (enterprise contracts)
- Recycling subpar talent and/or passing known problem employees from vendor to vendor, especially on FTE contracts
- Assigning untrained FTE staff who require months of training by NGA before they can perform the task they were expected to do on day one
- Perception that some vendors search for reasons to request extensions to delivery dates
- Invoicing NGA before a deliverable is accepted

BUSINESS PROCESSES
- Overbearing Primes
- Not allowing Subs to innovate
- Exclusive Teaming – Industry practice that locks small businesses into teaming arrangements with single prime. Stifles competition by binding teams together competition after competition, limits government access to small business expertise except through specific primes.
- Requesting green IC badges to support contracts, but instead using them to conduct business development with NGA and, as a result, often restricting access to limited overhead badges from subs who need them
RFI/RFP PROCESS
• Not sending helpful feedback to RFIs
• RFI responses provide marketing pitches regarding overall corporate capabilities rather than thoughtful responses to the questions posed
• Price or cost proposals are lacking in content and detail (e.g., basis of estimates not congruent with technical approach or other volumes of the proposal)
• Incomplete proposals
• Increasing number of protests strains limited government resources

MARKETING
• Guerilla marketing – tendency to haphazardly reach out to anyone within NGA, at any time, at various technical and leadership levels – creates confusion and mixed communication
• Direct marketing to NGA seniors; responding to requests by submitting proposals or white papers directly to Seniors rather than following established processes
• Sending BD people to Tech Days
• Rebranding products without prior notification to NGA, leading NGA to learn of the change at the time of contract renewals.
COMMUNICATION/FEEDBACK

- Inadequate communication during contract administration (e.g., taking action on direction received from the program offices or customers that is outside the authority of the COR or Task Manager)
- Latency in reviewing and signing contractual documentation (e.g., ECPs, bi-lateral modifications, etc.)
- Delays in providing required notices under Limitation of Funds provisions (e.g., alerting the CO when 75% of available funds have been expended)