Ground System Architectures Workshop
GMSEC SERVICES SUITE (GSS)
An Agile Development Story

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Session 11E:
Adopting Agile Ground Software Development
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Agenda

• GSS Background
• Brief Intro to Agile
• Why Agile and GSS Challenges
• Takeaways
GMSEC Services Suite (GSS)

Secured Network

Application Server
(Jetty / Tomcat / WildFly)

GSS-Chronos
Java HTML JS CSS

WebSocket (WS/WSS)
REST (HTTP/HTTPS)

GSS-Atlas
(Java)
Pub/Sub Req/Rep

WebSocket (WS/WSS)
RMI
Config (HTTP/HTTPS)

Browser Client
(Chrome, Firefox, IE, etc..)

GSS-Dashboard
Message View Grid View Chart View
Event View

GMSEC Middleware Bus

ANSR CAT EAR EAN
GUI Engine GUI Engine GUI Engine

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What is Agile Software Development?

"Describes a set of principles for software development under which requirements and solutions evolve through the collaborative effort of self-organizing cross-functional teams. It advocates adaptive planning, evolutionary development, early delivery, and continuous improvement, and it encourages rapid and flexible response to change."

Source: [https://en.wikipedia.org/wiki/Agile_software_development](https://en.wikipedia.org/wiki/Agile_software_development)

Methodologies

- Scrum
- Kanban
- Feature Driven Dev.
- Adaptive System Dev.
- Dynamic Systems Dev.
- Lean Software Dev.
- Crystal Clear
Agile Setup

- Manage work items with IBM Rational Team Concert. Specifically the Change Management module leveraging Scrum Agile project template within RTC (Youtube - Rational Team Concert v4.0.2 ALM)
- Team roles:
  - Product Owner
  - Scrum Master
  - Team Member
  - Stakeholder
- Sprint cycle:
  - 4 weeks
  - Starts at the beginning of the month
- M-W-F stand-up meetings (15 mins)
- Story points:
  - On the order of minutes (XS)
  - Up to one day (S)
  - Couple of days (M)
  - Up to one week (L)
  - Up to two weeks (XL)
- Sprint Review - typically at the end of the month or the beginning of the next month
- Post Sprint Review, Sprint Retrospective are combined into one at the end of each Sprint
- Sprint Planning at the beginning of each Sprint
- Align our major releases with GMSEC releases (two times a year)
Why Agile?

- Engage with the stakeholders early and throughout the development process to make sure that the end product meets their expectations.
Why Agile?

GPM GPM Nominal

Successful power on with 120V supply set to 120.5 Volts. Surge current reached 1.7 Amps

Severity: Nominal

Time: 2017-038-02:43:07

Mission: GPM

Satellite: GPM

Enter to Submit or Click to Submit

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Challenges

- If one of your stakeholders had a bad pre-conceived notion of Agile...
  - Then the team needs to prove the value of the process
- Some common misunderstandings
  - Agile is anti-planning and undisciplined
    - Where’s your 18 month plan?
  - Agile teams don’t do documentation
    - Where are your formal requirements, design document, test plans, test procedures?
At the heart of our Agile development practice is Continuous Integration.
Why Agile?

- Allow for change
  - Opportunity to update/reprioritize plans based on customer inputs
  - Personnel flexibility for non-full time team members
- Cross functional teams
  - Encourage team members to take on different roles
  - Minimize the “single expert” problem
- Predictable costs and schedule
  - Understand your team productivity and level of effort to complete tasks
- Immediate feedback - bidirectional
Why Agile?

- Focus on users and providing them business value
  - Stakeholders! Stakeholders! Stakeholders!

Is that what you called a Demo?
Challenges

- Maintaining up-to-date documentation
- Maintaining up-to-date automated testing environment
- Ensuring stakeholders consistent involvement
- Helping management to understand the benefits of the Agile methodology
Takeaways

- Early and frequently stakeholders involvement and buy-in is essential
- Use agile techniques to build in quality and automate processes
- Happy development teams produce better software
- Agile is not the wild-west: it requires a lot of leadership, communication, and discipline to be successful
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<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>ANSR</td>
<td>Alert Notification System Router</td>
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<td>Criteria Action Table</td>
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<td>End-to-End</td>
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<td>GEDAT</td>
<td>GMSEC Environment Diagnostic Analysis Tool</td>
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