

# Ground System Architectures Workshop

## GMSEC SERVICES SUITE (GSS)

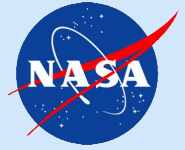
### An Agile Development Story

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Session 11E:  
Adopting Agile Ground  
Software Development  
March 15th 2017  
Los Angeles, California

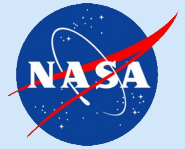
# Agenda

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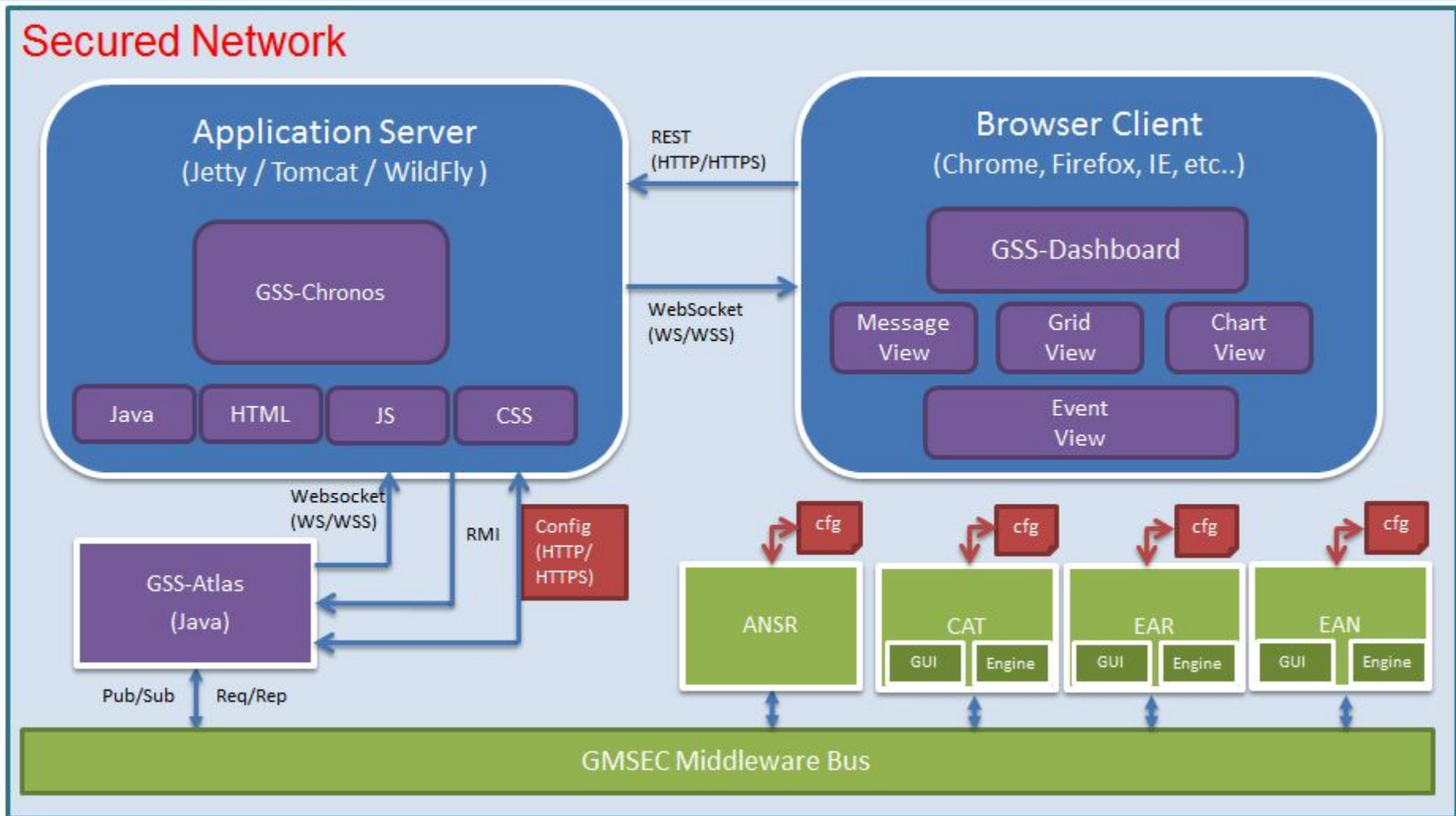


- GSS Background
- Brief Intro to Agile
- Why Agile and GSS Challenges
- Takeaways

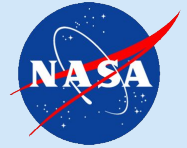
# GMSEC Services Suite (GSS)



## Secured Network



# Intro to Agile



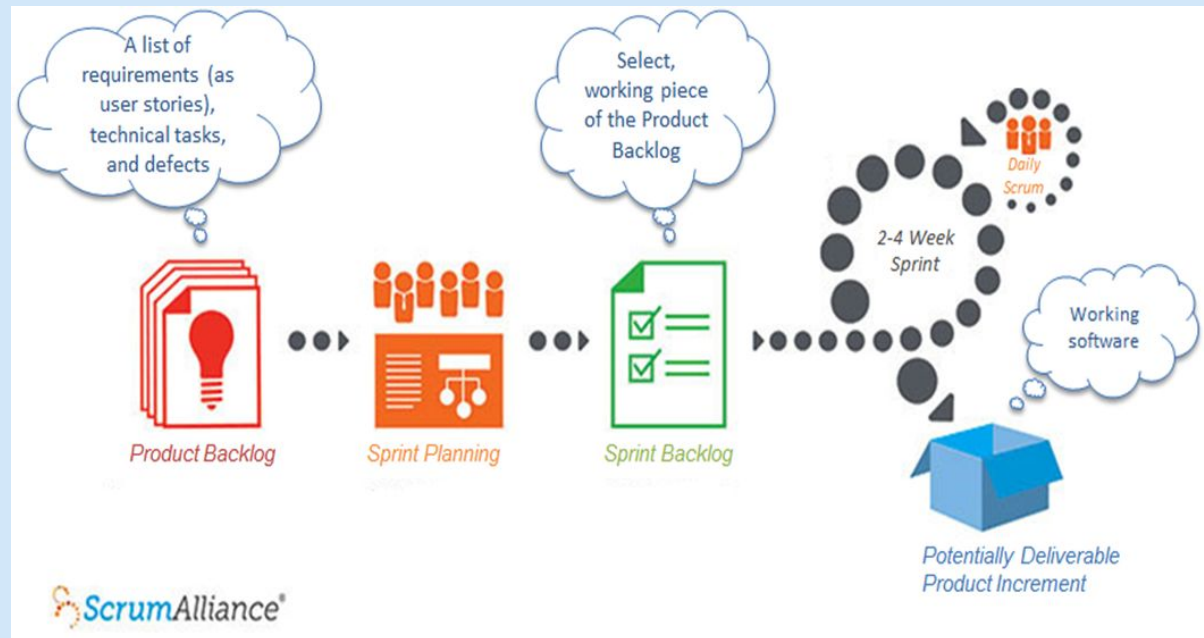
- What is Agile Software Development?

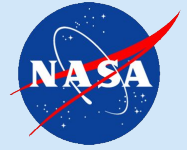
*“Describes a set of principles for software development under which requirements and solutions evolve through the collaborative effort of self-organizing cross-functional teams. It advocates adaptive planning, evolutionary development, early delivery, and continuous improvement, and it encourages rapid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

Source: [https://en.wikipedia.org/wiki/Agile\\_software\\_development](https://en.wikipedia.org/wiki/Agile_software_development)

- Methodologies

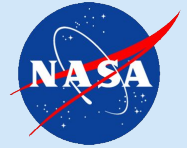
- Scrum
- Kanban
- Feature Driven Dev.
- Adaptive System Dev.
- Dynamic Systems Dev.
- Lean Software Dev.
- Crystal Clear





- 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

dev Portal v1.1.0 Home Dashboard Support User

Widget

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Config Play Pause Clear Screen

PUBLISH-...	MESSAGE...	MESSAGE...	COMPON...	SUBJECT	FACILITY	SEVERITY
2017-038-...	MSG	C2CX	GSS-ECHO	GMSEC.T...	TEST-FACI...	
2017-038-...	MSG	MVAL	RoomAlert...	GMSEC.S...	MOC	
2017-038-...	MSG	LOG	ITOS	GMSEC.O...	MOC	1
2017-038-...	MSG	MVAL	RoomAlert...	GMSEC.S...	MOC	
2017-038-...	MSG	LOG	ITOS	GMSEC.O...	MOC	1
2017-038-...	MSG	C2CX	GSS-ATLAS	GMSEC.T...	TEST-FACI...	
2017-038-...	MSG	LOG	ITOS	GMSEC.A...	MOC	3
2017-038-...	MSG	C2CX	GSS-ECHO	GMSEC.T...	TEST-FACI...	
2017-038-...	MSG	LOG	ITOS	GMSEC.O...	MOC	3
2017-038-...	MSG	MVAL	RoomAlert...	GMSEC.S...	MOC	
2017-038-...	MSG	MVAL	RoomAlert...	GMSEC.S...	MOC	
2017-038-...	MSG	MVAL	RoomAlert...	GMSEC.S...	MOC	
2017-038-...	MSG	C2CX	GSS-ATLAS	GMSEC.T...	TEST-FACI...	
2017-038-...	MSG	LOG	ITOS	GMSEC.A...	MOC	4
2017-038-...	MSG	C2CX	GSS-ECHO	GMSEC.T...	TEST-FACI...	

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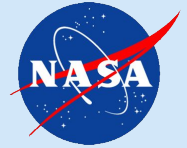
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2017-038-...	MSG	C2CX	GSS-ECHO	GMSEC.T...	TEST-FACI...	

Display a menu

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## Row Highlighting vs Cell Highlighting

# Why Agile?



dev Portal v1.1.0

Home Dashboard Support User

Widget

note-widget-1486434784665 x

**Note**

**GPM GPM Nominal**

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

☐ 'Enter' to Submit

Submit

**Hide Settings**

**Severity** Nominal

**Time** 2017-038-02:43:07

**Mission** GPM

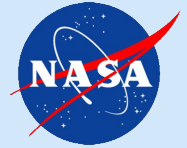
**Satellite** GPM

Display a menu

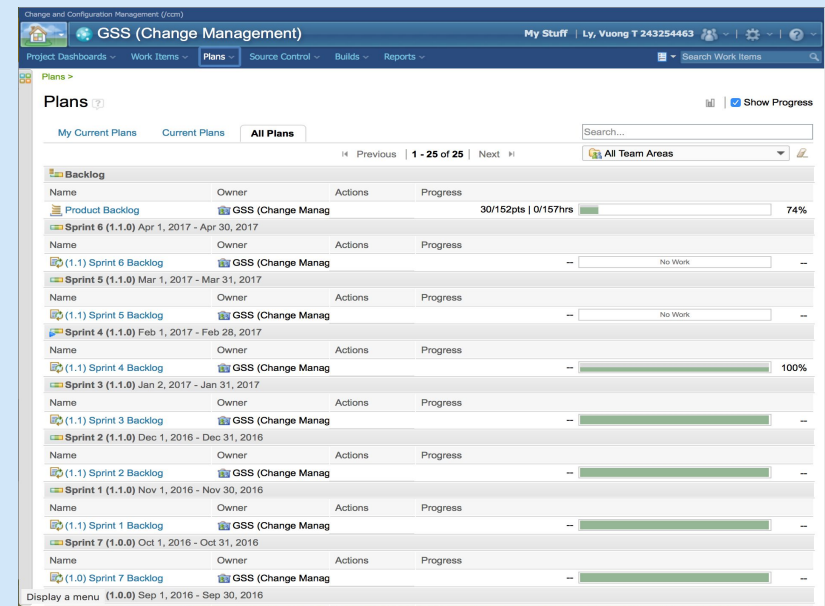
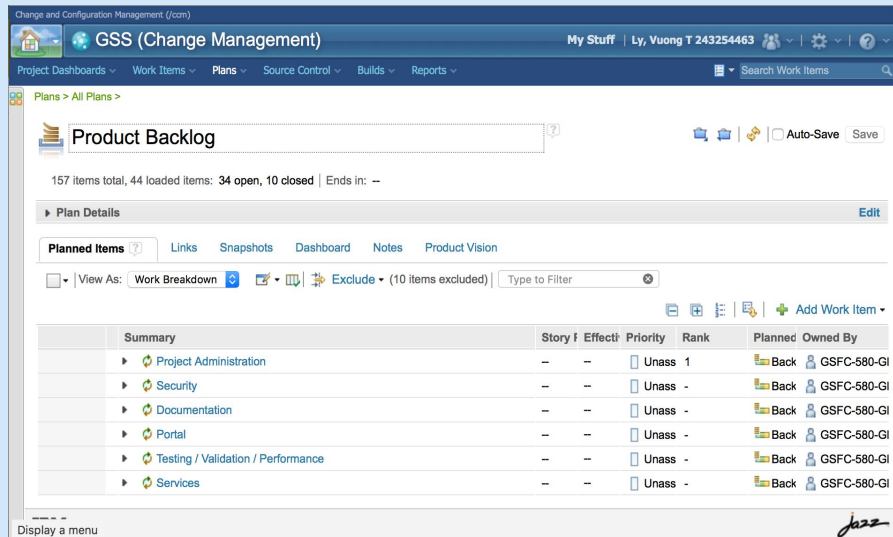
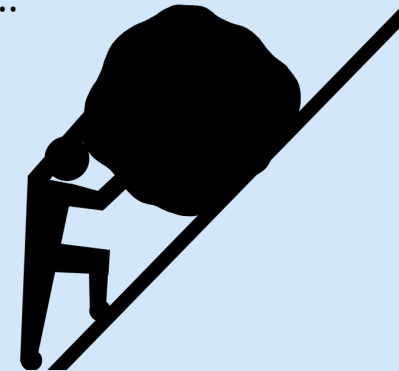
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Enter to Submit or Click to Submit

# Challenges

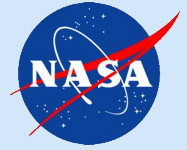


- If one of your stakeholders had a bad pre-conceived notion of Agile...
  - Then the team needs to prove the value of the process
- Some common misunderstandings
  - Agile is anti-planning and undisciplined
    - Where's your 18 month plan?
  - Agile teams don't do documentation
    - Where are your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

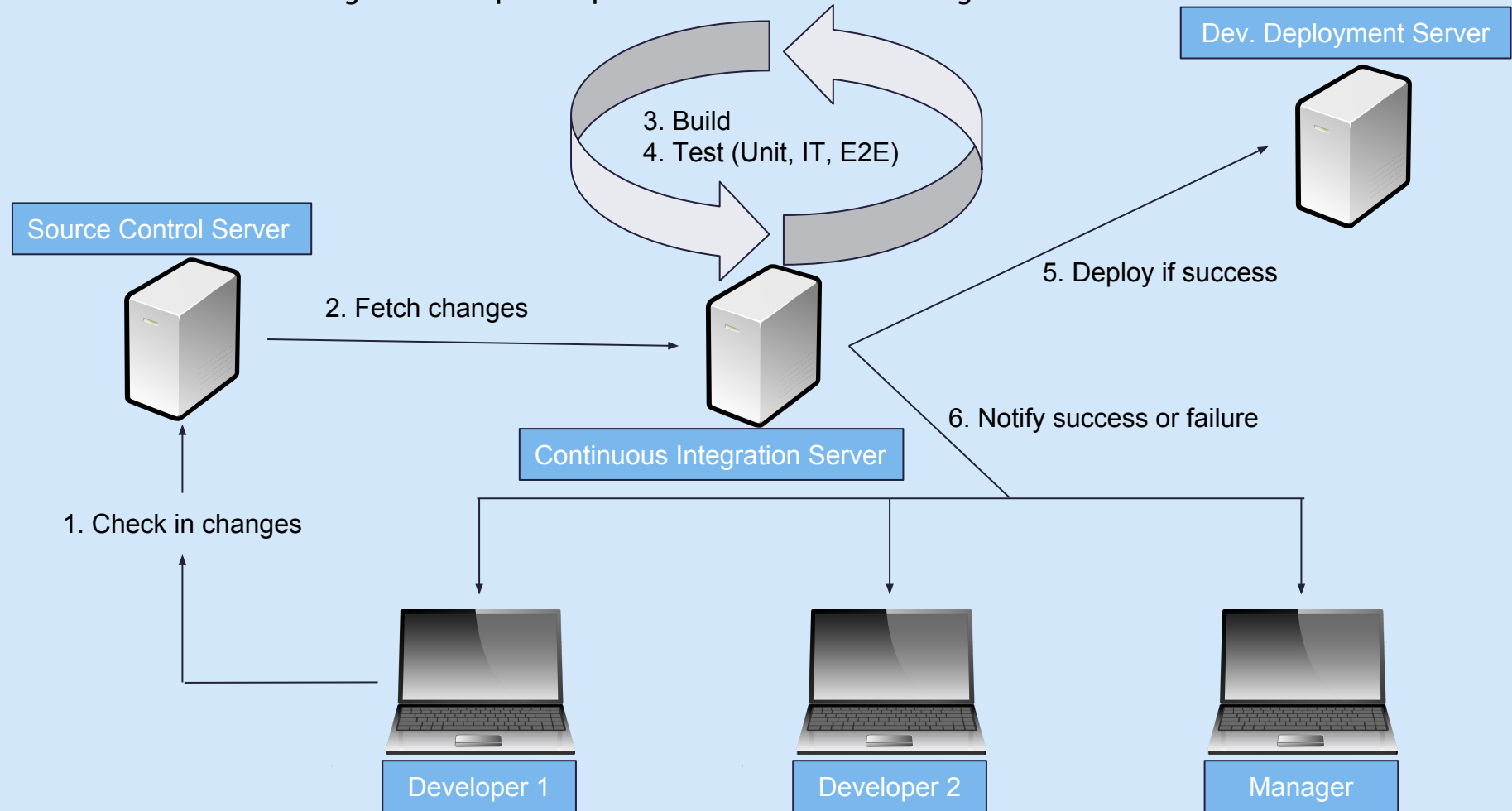




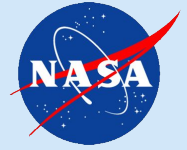
# Continuous Integration



- At the heart of our Agile development practice is Continuous Integration



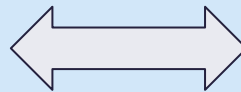
# Why Agile?



- 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

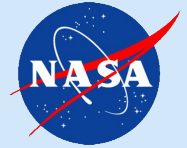


Customer

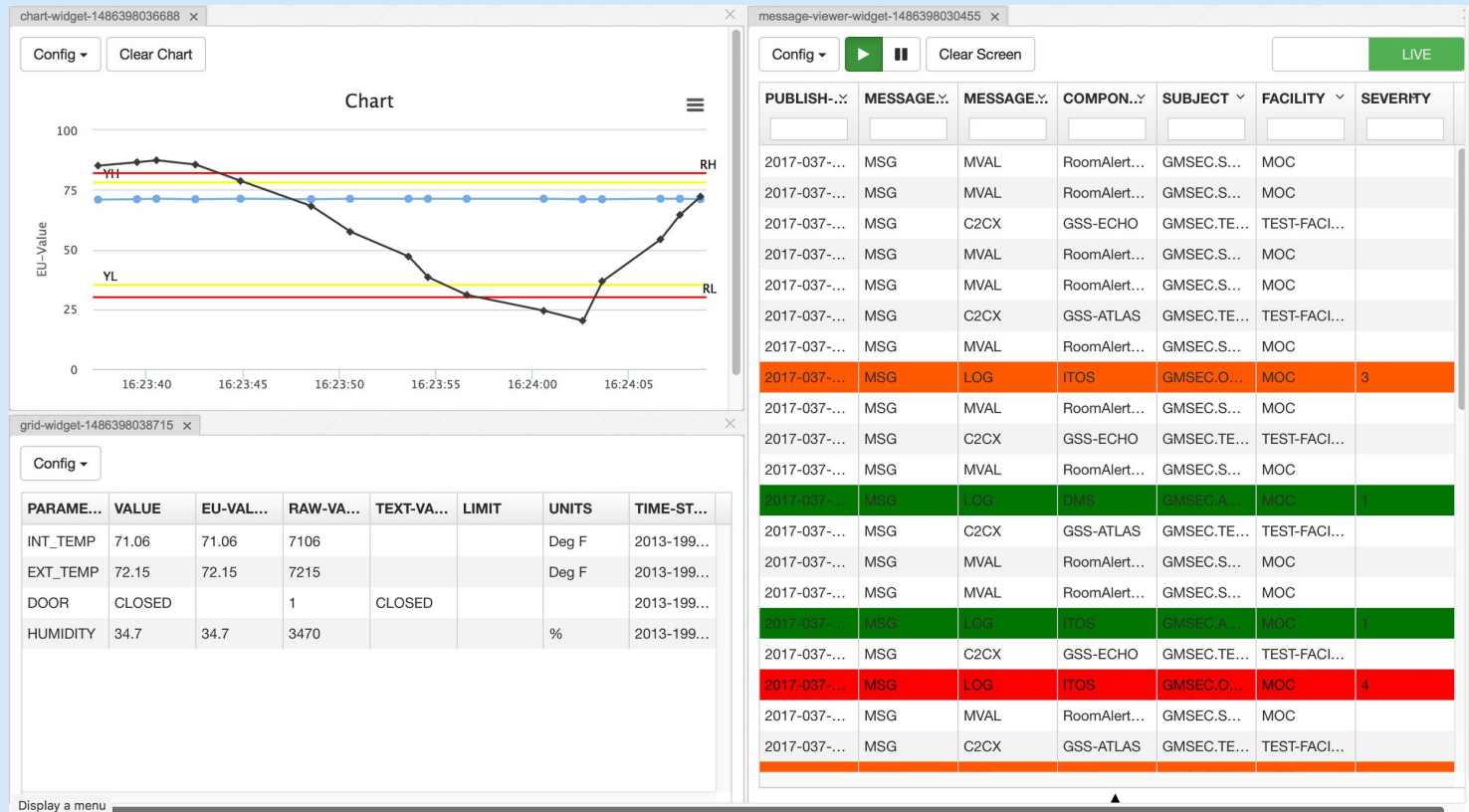


Team

# Why Agile?



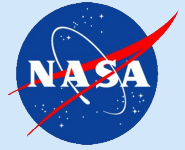
- Focus on users and providing them business value
  - Stakeholders! Stakeholders! Stakeholders!



Is that what you called a Demo?

# Challenges

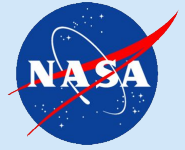
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- Maintaining up-to-date documentation
- Maintaining up-to-date automated testing environment
- Ensuring stakeholders consistent involvement
- Helping management to understand the benefits of the Agile methodology

# Takeaways

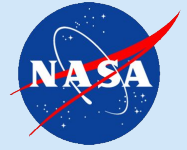
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- Early and frequently stakeholders involvement and buy-in is essential
- Use agile techniques to build in quality and automate processes
- Happy development teams produce better software
- Agile is not the wild-west: it requires a lot of leadership, communication, and discipline to be successful

# Acronyms

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ANSR	Alert Notification System Router
CAT	Criteria Action Table
E2E	End-to-End
GEDAT	GMSEC Environment Diagnostic Analysis Tool
GOTS	Government Off-The-Shelf
GPD	GMSEC Parameter Display
GRASP	GMSEC Remote Data Access Tool
GREAT	GMSEC Reusable Event Analysis Toolkit
IT	Integration Test
RAA	Room Alert Adapter
SA	System Agent