



# Managing Software Development

Slick Communications

MATTHEW LAZARCHECK

MEGHNA VENKATESHA

AKSHAT SHUKLA

JASON TENG

# Agenda

- ▶ System Functionality

- ▶ Goals
- ▶ Achievement
- ▶ Usability

- ▶ Job Quality

- ▶ Performance metrics
- ▶ Improvement

- ▶ Process and Teamwork

- ▶ Team process
- ▶ Build & test process
- ▶ Transcend adversity

- ▶ Technology Transfer

- ▶ Current State
- ▶ Recommendations

# Sprint 1 - Functionality

## Completed Issues

Key	Summary	Issue Type	Priority	Status
<a href="#">MSD101-2 *</a>	Message Tests	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>
<a href="#">MSD101-3 *</a>	Socket Tests	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>
<a href="#">MSD101-4 *</a>	Scan Tests	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>
<a href="#">MSD101-5 *</a>	Print Tests	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>
<a href="#">MSD101-6 *</a>	Deploy on AWS	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>
<a href="#">MSD101-16 *</a>	Get Jenkins build to work. Merge to master. Clean sonarQube issues.	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>

## Issues completed outside of this sprint

Key	Summary	Issue Type	Priority	Status
<a href="#">MSD101-12 *</a>	ClientRunnable Tests	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>
<a href="#">MSD101-13 *</a>	PrattleMainMethod Tests	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>
<a href="#">MSD101-14 *</a>	ServerConstants Static Method Tests	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>
<a href="#">MSD101-15 *</a>	Merge Print, Scan, Message and Client Runnable Tests.	<input checked="" type="checkbox"/> Task	↑ Medium	<span>DONE</span>

- ▶ A Setup Jenkins and Github Slack integration
- ▶ Used Smart Commits
- ▶ Set up user and groups of users to the system during extension period due to Jenkins issues

# Sprint 2 - Functionality

Completed Issues				
Key	Summary	Issue Type	Priority	Status
<a href="#">MSD101-7</a>	Crud Users and Groups	✓ Task	↑ Medium	DONE
<a href="#">MSD101-9</a>	Message Individuals	✓ Task	↑ Medium	DONE
<a href="#">MSD101-10</a>	Message Groups - Including Reply-All	✓ Task	↑ Medium	DONE
<a href="#">MSD101-21</a>	Switch to using MongoDB	✓ Task	↑ Medium	DONE
<a href="#">MSD101-22</a> *	Add password field and add encryption feature to User	✓ Task	↑ Medium	DONE
<a href="#">MSD101-23</a> *	Add test cases to GroupMongo	✓ Task	↑ Medium	DONE
<a href="#">MSD101-24</a> *	Remove some known bugs and change Mongo project structure	✓ Task	↑ Medium	DONE
<a href="#">MSD101-25</a> *	Change Chatter code in IM and command argument to accept user CRUD keywords	✓ Task	↑ Medium	DONE
<a href="#">MSD101-26</a> *	Change Prattle code to recognize the CRUD keywords in messages for users	✓ Task	↑ Medium	DONE
<a href="#">MSD101-28</a> *	Add Message field to groups and users	✓ Task	↑ Medium	DONE
<a href="#">MSD101-29</a> *	Add message persistence.	✓ Task	↑ Medium	DONE
<a href="#">MSD101-31</a> *	Add login/register functionality.	✓ Task	↑ Medium	DONE
<a href="#">MSD101-32</a> *	Add MessageMongo Tests and Message Model tests	🟩 Story	↑ Medium	DONE
<a href="#">MSD101-33</a> *	Change Chatter code in IM and command argument to accept group CRUD keywords	✓ Task	↑ Medium	DONE
<a href="#">MSD101-34</a> *	Change Prattle code to recognize the CRUD keywords in messages for groups	✓ Task	↑ Medium	DONE
<a href="#">MSD101-35</a> *	Increase test code coverage and clean/refactor code	✓ Task	↑ Medium	DONE

Jenkins

Master Branch

Functionality

Test Coverage

Expectations

# Sprint 3 - Functionality

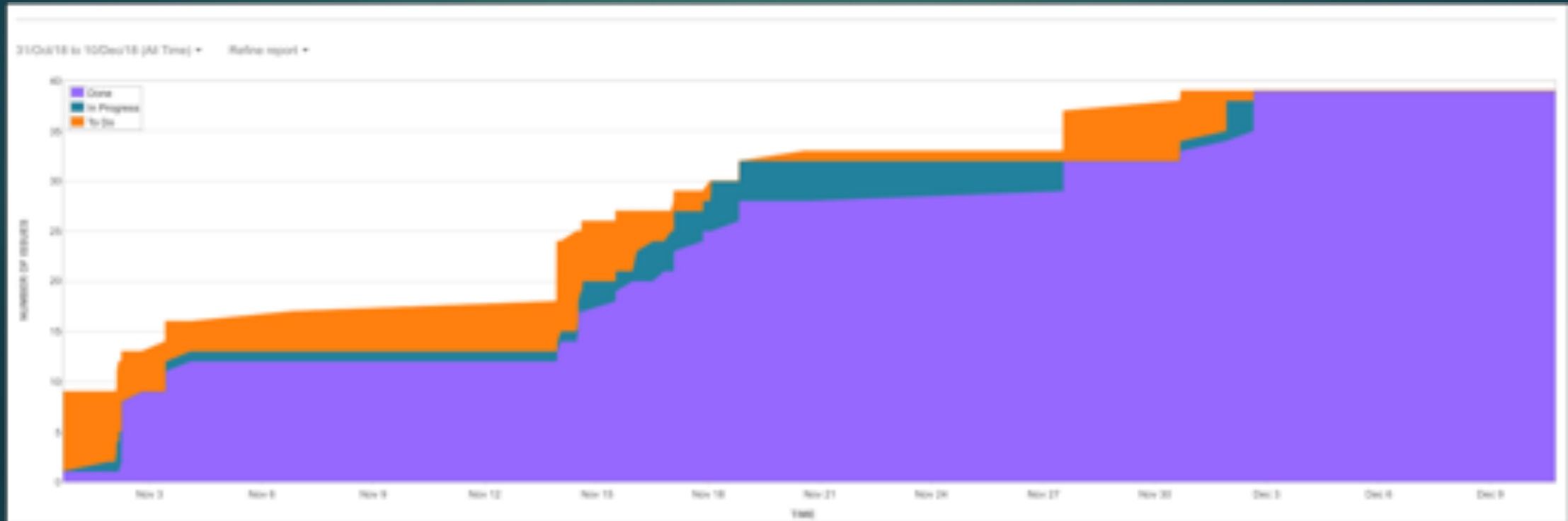
Completed Issues				
Key	Summary	Issue Type	Priority	Status
MSD101-40	Refactor/Clean Sprint 2	Task	Medium	DONE
MSD101-41	Message Queue	Task	Medium	DONE
MSD101-43	Duplicating Messages to 3rd party	Task	Medium	DONE
MSD101-45	Wrap Messages with IP addresses	Task	Medium	DONE
MSD101-46	Add Parental Control	Task	Medium	DONE
MSD101-49	Add dynamic on/off switch for logger in Prattle through Chatter command	Task	Medium	DONE
MSD101-50 *	Fix Chatter bugs	Task	Medium	DONE

- ▶ Refactored code prior to sprint 3
- ▶ Implemented Chatter client to work with Prattle chat server

# Overall Functionality

- ▶ Functionality goals not achieved:
  - ▶ MIME types
  - ▶ Message recall
  - ▶ Message search
  - ▶ System tests for stress and performance metrics
- ▶ Environment goals not achieved:
  - ▶ Slack failure notifications
  - ▶ Slack security notifications
- ▶ Team accurately determined the stretch goals to accomplish each sprint
- ▶ Prattle server is useful for client

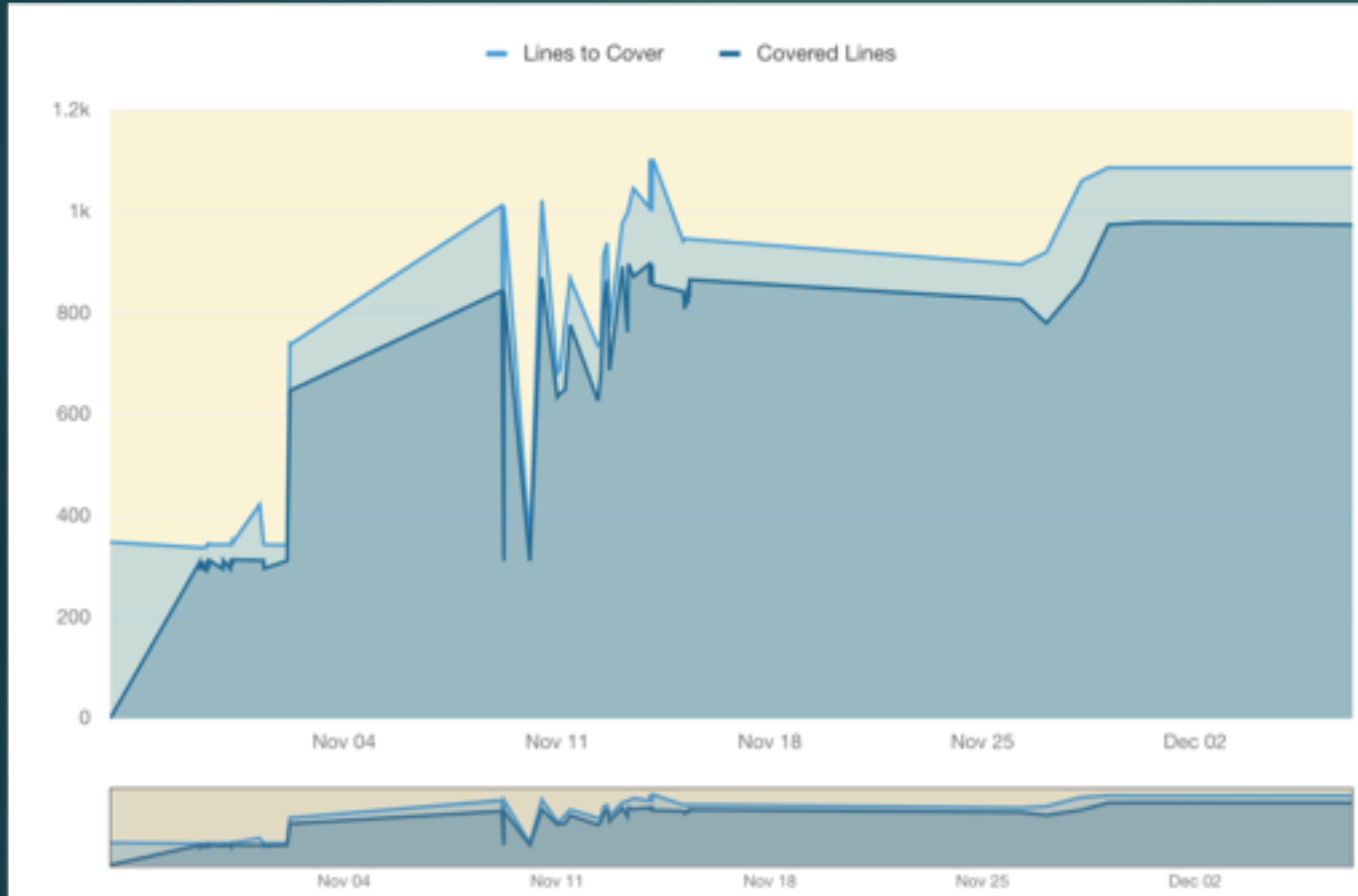
# Performance Metrics



Jira issues graphed over project timeline

- Purple: Done
- Teal: In Progress
- Orange: To Do

# Performance Metrics



Line coverage did not diverge after writing tests for legacy code

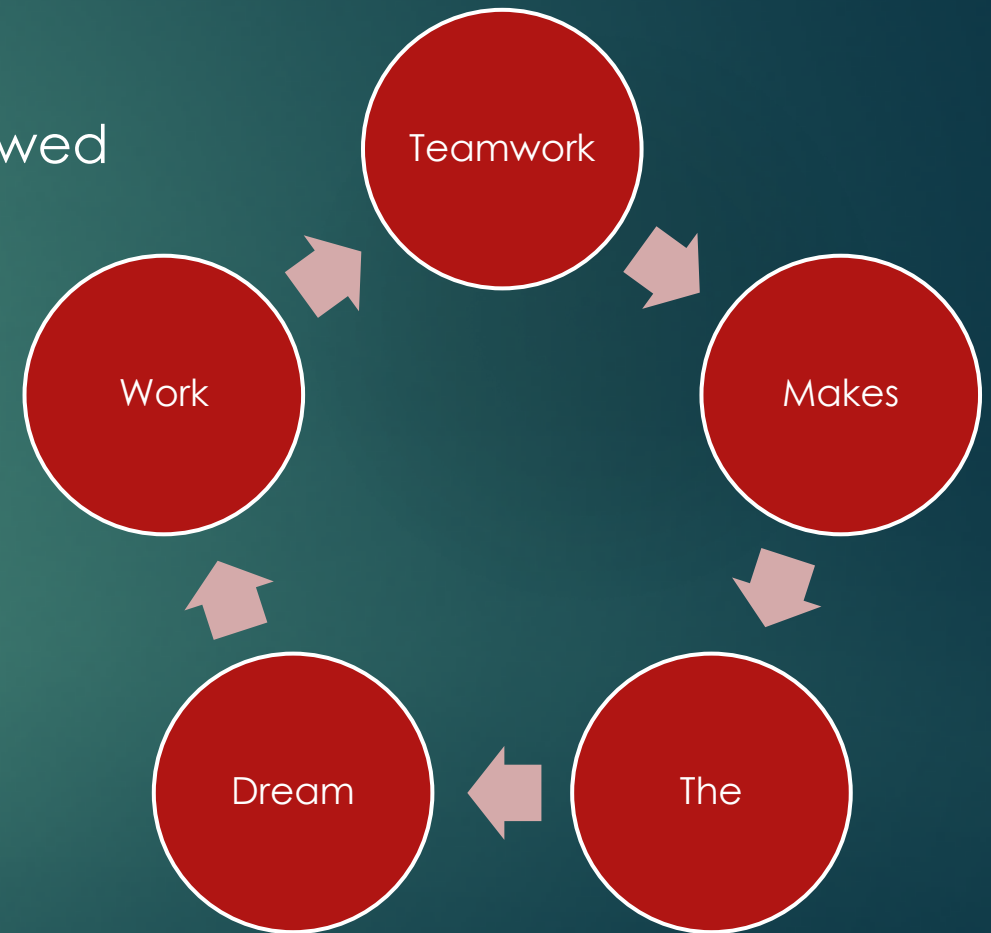


# Improvement

- ▶ We improved from Sprint 1 to Sprint 2 as exemplified by an increase in the percentage of stretches completed
- ▶ Due to extraneous circumstances we did not perform as many stretches in Sprint 3
  - ▶ Implemented Chatter as a Client for our Prattle server
  - ▶ Refactored code from before Sprint 3

# Process and Teamwork

- ▶ Agile software development approach is followed
- ▶ Daily scrums are replaced by daily slack-ups
- ▶ SonarQube password is a derivation of TeamWorkMakesTheDreamWork
- ▶ High collaboration
  - ▶ Divvied tasks based on each members skillsets
  - ▶ Provided assistance to others when beneficial



# Build & Test Process

- ▶ Code is managed in github
- ▶ Work is being managed in Jira
- ▶ Jenkins auto-deploys from master branch to an EC2 instance
- ▶ mLab MongoDB database



# Technology Transfer

- ▶ Our system is in shape to hand over to a client
- ▶ Change the server implementation to be non-blocking. This implementation is memory intensive and not suitable for a chat server
- ▶ Solution? Change the implementation to not use a thread for each client.

# Technology Transfer (continued)

- ▶ Stretches not achieved, but possible to do:
  - ❖ Message recall
  - ❖ Multi-purpose Internet Mail Extension (MIME) type of messages
  - ❖ Add failure notices and security concerns to Slack
  - ❖ JMeter analysis for stress testing

# The End

