Agile Processes: Scrum

Introduction

- The two dominant Agile approaches are Scrum and eXtreme Programming (XP).
- XP was arguably the first method deemed to be "Agile".
- We will start with Scrum very popular and in very wide use today!

Terms

- Scrum: a definite project management emphasis.
- Scrum Master: A Scrum project Is managed by a Scrum Master, who can be considered as much a consultant or coach as a manager.
- Sprint. Scrum has a fundamental 30-day development cycle called a Sprint, preceded by
 - pre-Sprint activities and post-Sprint activities.
- Daily Scrum: A short (less than 30 minutes) daily Scrum Meeting allows the team to monitor status and communicate problems.

Product Backlog for Planning

- Project planning is based on a Product Backlog, which contains
 - functions and
 - technology enhancements
- envisioned for the project.
- Two meetings are held
 - one to decide the features for the next Sprint and
 - the other to plan out the work.

Scrum - Queues

- Product Backlog → Sprint Backlog → Sprint →
 Working increment of the Software
- Scrum uses lightweight queue-based management and work-breakdown mechanisms.
- Product Backlog queue: a low-tech customermanaged queue of demand requests for products.
- **Sprint**: At launch time, a Sprint (30-day time-boxed iteration) does **just-in-time planning**
- Sprint Backlog: queue for Sprint work-mgmt.

Scrum - Management

- Daily Scrum: Very notable and very visible
- Is a daily standup,
 - except that it is the team that is participating and sharing coordination information not a central project manager.

Scrum Master

- holds daily scrum and
- acts more as a facilitator and runs interference for the core team when blocks or issues arise.
 (Kennaley, SDLC 3.0, p. 31)

Core Roles

Three core roles and a range of ancillary roles

- Core roles:
 - -Core roles are those committed to the project in the Scrum process
 - –Core roles: those producing the product

Core Roles - Product Owner

- The Product Owner represents stakeholders and is the voice of the customer.
- Product Owner is accountable for ensuring that the team delivers value to the business.
- Product Owner
 - writes customer-centric items (typically user stories),
 - prioritizes them, and
 - adds them to the product backlog.

Note:

- Scrum teams should have one Product Owner.
- May also be a member of the development team
- Not recommend this person be Scrum Master.

Core Roles – Development Team

- The Development Team is responsible for delivering potentially shippable product increments at end of each Sprint.
- Team = 3–9 people with cross-functional skills.
- Team does actual work
 - (analyze, design, develop, test, technical communication, document, etc.).
- Team is <u>self-organizing</u>, even though they may interface with project management organizations (PMOs).

Core Roles - Scrum Master

- Scrum is facilitated by a Scrum Master –
- Accountable for removing impediments for team to deliver sprint goal / deliverables.
- Scrum Master is not the team leader, but acts as a buffer between the team and any distracting influences.
- Scrum Master ensures <u>process</u> is used as intended.
- Scrum Master is the enforcer of rules.
- Scrum Master's role: protect the Team and keep it focused on the tasks at hand.

The Sprint (1 of 4)

- Sprint: basic unit of development in Scrum.
- Sprint duration: one week to one month;
- "Time Boxed" effort of a constant length.
- Each sprint:
- Preceded by a planning meeting,
 - where the tasks for sprint are identified and an
 - estimated commitment for the sprint goal made, and followed by
 - a review or retrospective meeting, where the progress is reviewed and lessons for the next sprint are identified.

The Sprint (2 of 4)

- During Sprint, team creates finished portions of a product. (an <u>increment</u>)
- Features going into a Sprint come from the product backlog: a prioritized list of requents.
 - Which backlog items go into sprint (sprint goals) determined during Sprint Planning Mtg.

Sprint Goal

- sets up minimum success criterion for the Sprint and
- keeps the team focused on the broader picture rather than narrowly on the task at hand.

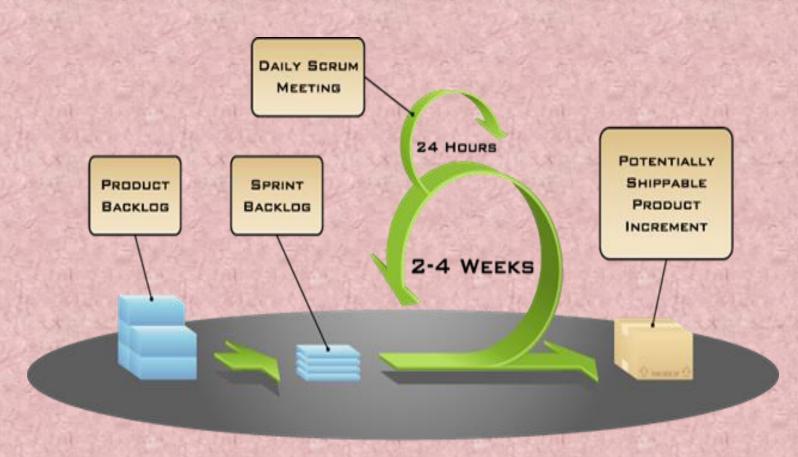
The Sprint (3 of 4)

- The team then determines how many selected items can be completed during the next sprint.
- These then go into the **Sprint Backlog**.
- Sprint Backlog is property of the development team, During a sprint, no one is allowed to edit the sprint backlog except for development team.
- Development: <u>time-boxed</u>; Sprint <u>must</u> end on time;
- Requirements not completed for any reason?
 are omitted and returned to Product Backlog.
- When Sprint is done, team demonstrates software.

The Sprint (4 of 4)

• Scrum enables self-organizing teams

Encourages <u>co-location</u> of all team members,



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Artifact: Product Backlog

- Product backlog is an ordered list of "requirements" that is maintained for a product
- Contains Product Backlog Items ordered by the Product Owner based on
 - considerations like risk,
 - business value,
 - dependencies,
 - date needed, etc.
- Features added to backlog commonly written in story format
- The product backlog is the "What" that will be built, sorted in the relative order it should be built in.
 - Is open and editable by anyone,
 - Product Owner is ultimately responsible for ordering the stories on the backlog for the Development Team.

Artifact: Product Backlog

- The product backlog contains rough estimates of both business value and development effort, these values are often stated in story points
- Those <u>estimates</u> help the Product Owner to gauge the timeline and may influence ordering of backlog items.
 - Example, if the "add spellcheck" and "add table support" features have the same business value, the one with the smallest development effort will probably have higher priority, because the Return on Investment is higher.

Artifacts – The Product Backlog 2

- Product Owner: responsible for the product backlog and the business value of each item listed.
- Development Team: responsible for the estimated effort to complete each backlog item.

 Team contributes by estimating Items and User-Stories, either in "Story-points" or in "estimated hours."

Artifacts: Sprint Backlog

- Sprint Backlog: list of work the Development Team must address during the next sprint.
- List derived by selecting stories/features from the top of the product backlog until the Development Team feels it has enough work to fill the sprint.
- Thinking: This is done by the Development Team asking "Can we also do this?" and adding stories/features to the sprint backlog.
- History: Development Team should note velocity of previous Sprints (total story points completed from each of the last sprints stories) when selecting stories/features for the new sprint.
- Use number as guide for "effort" they can complete.

Artifacts: Sprint Backlog

- Stories/features: broken down into tasks by Development Team
- Should normally be between four and sixteen hours of work.
- With this level of detail the Development Team understands exactly what to do, and potentially, anyone can pick a task from the list.
- Tasks on sprint backlog are never assigned; tasks are signed up for. by team members during daily scrum, according to priority and member skills.
- Promotes self-organization of Team, and developer buy-in.
- Sprint backlog is property of Team, and all included estimates are provided by the Development Team.

Artifacts - Increment

- The "increment" is sum of all Product Backlog Items completed during a sprint and all previous sprints.
- At end of a sprint, Increment must be done according to Scrum Team's definition of done.
- The increment must be in usable condition regardless of whether the Product Owner decides to actually release it.

Artifacts: Burn Down

- The sprint burn down chart is a publicly displayed chart showing remaining work in the sprint backlog.
- Updated every day; gives a simple view of the sprint progress.
- Other types of burn down:
- Release burn down chart: shows amount of work left to complete the target commitment for a Product Release
 - This normally spans multiple iterations

- **Sprint burn down chart**: Daily progress for a Sprint over the sprint's length.
- (User) Story: A feature added to the backlog is commonly referred to as a story; has a specific suggested structure.
- Done so development team can identify user, action and required result in a request; simple way of writing requests anyone can understand.
- Example: As a wiki user I want a tools menu on the edit screen so that I can easily apply font formatting.

- A story is an
 - independent,
 - negotiable,
 - valuable,
 - estimatable,
 - small,
 - testable requirement
- Despite being independent, stories have no direct dependencies with other requirements.
- Stories may be clustered into epics (a group of related stories) when represented on a product roadmap or further down in the backlog.

- Tasks: Added to story at beginning of a sprint and broken down into hours.
 - Each task should not exceed 12 hours, but it's common for teams to insist that a task take no more than a day to finish.
- Definition of Done (DoD): The exit-criteria used to determine whether a product backlog item is complete.
- In many cases the DoD requires that all regression tests should be successful.

- Velocity: The total effort a team is capable of in a sprint. The number is derived by adding all the story points from the last sprint's stories/features.
- This is a guideline for the team and assists them in understanding how many stories they can do in a sprint.
- Impediment: Anything that prevents a team member from performing work as efficiently as possible.

Roles



Product Owner: Set priorities



ScrumMaster: Vlanage process, remove blocks



Team: Develop product



Stakeholders: observe & advise

Key Artifacts

Product Backlog

- List of requirements &issues
- · Owned by Product Owner
- · Anybody can add to it

Sprint Goal

- · One-sentence summary
- · Declared by Product Owner

Sprint Backlog

- List of tasks
- · Owned by team

Blocks List

- List of blocks & unmade decisions
- · Owned by ScrumMaster

Increment

- · Version of the product
- Shippable functionality (tested)

Key Meetings

Sprint Planning Meeting

- Hosted by ScrumMaster; 1/2-1 day
- In: Product Backlog, existing product, business &technology conditions
- Select highest priority items in Product Backlog; declare Sprint Goal
- Team turns selected items into

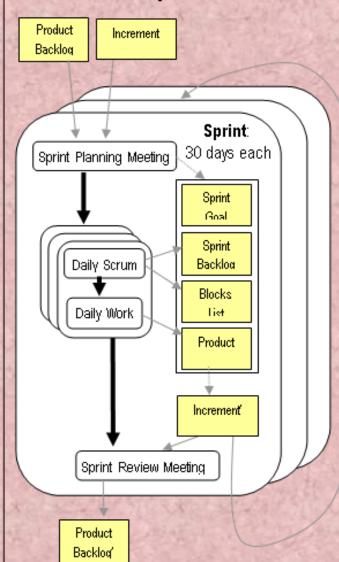
Daily Scrum

- Hosted by ScrumMaster
- Attended by all, but Stakeholders don't speak
- Same time every day
- Answer: 1) What did you do yesterday? 2) What will you do today? 3) What's in your way?
- Team updates Sprint Backlog;

Sprint Review Meeting

- · Hosted by ScrumMaster
- Attended by all
- · Informal, 4-hour, informational
- · Team demos Increment
- All discuss
- · Hold retrospective
- Announce next Sprint Planning

Development Process



XP