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!

Project Management Emphasis based on a Standard 30-day Sprint

- **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 and Scalability

- Scrum: one of the **few agile methods** used to **scale up** for larger projects.
- How done?
  - Accomplished the same way as organizations handle integrated product teams.
  - Individual Scrum team coaches - part of a higher echelon team of coaches spanning several products.
  - This provides for communications to avoid conflicting development issues

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 customer-managed 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)

FYI

- Remaining slides came from Wikipedia
  - Cut, pasted, slightly modified.

- Lots of terms / concepts / jargon…
- Several items repeated for emphasis.

Core Roles

- Three **core roles** and a range of **ancillary roles**

- **Core roles:**
  - **Core roles** are those **committed to the <u>project</u>** in the Scrum process
  - Core roles: those **producing the <u>product</u>**

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 **self-organizing**, 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 **process** 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.

Sprints

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 **increment**)
- **Features** going into a Sprint come from the ***product backlog***: a prioritized list of reqments.
  - **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: time-boxed**; Sprint **must** 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 **co-location** of all team members,

Artifacts

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** using a rounded Fibonacci sequence.
- Those **estimates** 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

- **Alternative Release burn down chart**: basically does the same, but clearly shows scope changes to Release Content, by resetting the baseline.

  - This should not be confused with an earned value chart.

Scrum Terminology

Scrum Team: Have already discussed

- **Product Owner**:
- **Scrum Master**:
- **Development Team**:
- **Product Backlog**
- **Sprint Backlog**
- **Sprint**

More Terminology Used in Scrum:

- **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.

More Terminology Used in Scrum:

- 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.

More Terminology Used in Scrum:

- **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.

More Terminology Used in Scrum:

- **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: Manage 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; ½-1 day
- In: Product Backlog, existing product, business &technology conditions

1. Select highest priority items in Product Backlog; declare Sprint Goal

2. 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