Princípy tvorby softvéru
Agile

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M-255

Agile software development

Čo hovorí Wikipédia?

> *Agile software development describes an approach to software development under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customer(s)/end user(s). It advocates adaptive planning, evolutionary development, early delivery, and continual improvement, and it encourages rapid and flexible response to change.*

História

- Iterative and incremental development methods (1957)
- Evolutionary project management (1970's)
- Adaptive software development (1970's)

Všetky tieto veci už existovali, avšak začiatkom 90-tych rokov vo vývoji softvéru dominovali "heavyweight methods that critics described as overly regulated, planned, and micro-managed".

História

90-te roky: nové lightweight metódy

- Rapid application development (1991)
- Unified process (1994)
- Dynamic systems development method (1994)
- Scrum (1995)
- Crystal Clear (1996)
- Extreme programming (1996)
- Feature-driven development (1997)

2001 - Manifesto for Agile Software Development - toto je definicia agile.

Scrum

Scrum je management framework.

- Mnohé agilné metodológie riešia vývoj softvéru komplexnejšie.
- Scrum sa zoberá naozaj len menežovacou časťou, technologické aspekty necháva na tím.
- Scrum nepredpisuje technické postupy to necháva na tím.
- Dobré technické postupy sú pre úspech dôležité.

Scrum

- Scrum - II vývoj, iterácia sa volá šprint a má fixnú dĺžku max. 30 dní,
- Tím má 3-9 členov, samoorganizujúci, zabezpečuje všetky aspekty vývoja produktu.
- Špeciálne role: Product owner a scrum master.
- Scrum definuje plán meetingov.
- Scrum definuje tri artefakty: product backlog, sprint backlog a inkrement. Tieto artefakty nenahradzujú dokumentáciu. Dozhodnutie o tom, čo je dobré zdokumentovať je nechané na tím.
- Na konci šprintu by mal byť dodaťeľný inkrement produktu.

Scrum - Product owner

Product owner (zdroj):

- Single person responsible for maximizing the return on investment (ROI) of the development effort
- Responsible for product vision
- Constantly re-prioritizes the Product Backlog, adjusting any long- term expectations such as release plans
- Final arbiter of requirements questions
- Decides whether to release
- Decides whether to continue development
- Considers stakeholder interests
- May contribute as a team member

Scrum - Scrum master

Scrum master (zdroj):

- Works with the organization to make Scrum possible
- Ensures Scrum is understood and enacted
- Creates an environment conducive to team self-organization
- Shields the team from external interference and distractions to keep it in group flow
- Promotes improved engineering practices
- Has no management authority over the team
- Helps resolve impediments

Scrum - Meetings

- Sprint planning
- Daily scrum
- Sprint review
- Sprint retrospective
- Backlog refinement (Optional)
- Sprint cancellation (Optional)

Scrum - Meetings

Sprint planning

- Zúčastňuje sa aj product owner.
- Tím je zodpovedný za estimáciu úloh z product backlogu.
- Product Owner je zodpovedn za prioritizáciu úloh.
- Tím si volí rozsah šprintu, vybrané položky sa presúvajú do sprint backlogu.
- Ak sú najprioritnejšie úlohy v product backlogu priveľké, tím ich rozbije, v prípade potreby sa pred Sprint planingom môže konať Backlog refinement.
- Na konci meetingu tím rozdelí niektoré položky zo sprint backlogu na sprint tasky.
- Pre 30-dňový šprint max. 8 hod.

Scrum - Meetings

Daily scrum

- Sledovanie progresu, reportovanie problémov.
- Stand-up meeting, max. 15 min.

Sprint Review Meeting

- Prezentácia funkčného produktu.
- Meeting môžu navštíviť aj napr. budíci používatelia produktu. Možnosť adaptovať produkt.
- Product owner rozhoduje čo je done.
- Nedokončené úlohy sa vrátia na product backlog.

Scrum - Meetings

Sprint retrospective

- Vylepšovanie procesov vo vnútri týmu.
- Vylepšovanie technických postupov.
- Je potrebné prekonávať psychologické a komunikačné problémy.
- Scrummaster má usmerňovať diskusiu.
- Keďže scrummaster je mimo bežných pracovných činností vidí prácu tímu z iného pohľadu (niektorí navrhujú, že scrummaster by mala byť rotujúca pozícia, iní certifikujú scrummasterov)

Scrum - Artifacts

Product backlog (zdroj)

- Prioritized list of desired functionality
- Visible to all stakeholders
- Any stakeholder (including the Team) can add items
- Constantly re-prioritized by the Product Owner
- Constantly refined by the Scrum Team
- Items at top should be smaller than items at bottom

Scrum - Artifacts

Product Backlog Item (zdroj)

- Often written in User Story form
- Has a product-wide definition of done to prevent technical debt
- May have item-specific acceptance criteria
- Effort is estimated by the Development Team, ideally in relative units (e.g., story points)

Sprint Backlog

- Consists of selected PBIs negotiated between the team and the Product Owner during the Sprint Planning Meeting
- Initial tasks are identified by the team during Sprint Planning Meeting
- Team will discover additional tasks needed to meet the Sprint Goal during Sprint execution
- Visible to the team
- Referenced during the Daily Scrum Meeting

Scrum - Artifacts

Ďalšie

- Increment
- Sprint task (optional)
- Sprint burndown chart
- Product/release burndown chart

Scrum values

- *Commitment*: Team members individually commit to achieving their team goals, each and every sprint.
- *Courage*: Team members know they have the courage to work through conflict and challenges together so that they can do the right thing.
- *Focus*: Team members focus exclusively on their team goals and the sprint backlog; there should be no work done other than through their backlog.
- *Openness*: Team members and their stakeholders agree to be transparent about their work and any challenges they face.
- *Respect*: Team members respect each other to be technically capable and to work with good intent.

Niektoré problémy

- Prioritizácia práce je veľmi dôležitá. V Scrume to má na starosti jeden človek - Product owner.
- Technická kvalita sa v Scrume explicitne nespomína, je to nechané na tím.
    - Ignorovanie technickej kvality vedie k technickému dlhu a spomaleniu až zastaveniu vývoja (obrázok) - flacid scrum
- Ťažká škálovateľnosť (pozri napr. Scrum of scrums)

Extreme programming

Zaujímavé practices

- Pair programming
- Extensive code reviews
- Test driven development
- Planing poker
- Oproti scrumu pridáva do plánovania rozmer rizika
- Continuous integration
- Sustainable pace

Lean

Lean software development - Wikipédia - zaujímavé sú najmä princípy a zdroje odpadu.

Kanban

Kanban is an approach to process change for organizations which uses visualization with a kanban board, allowing a better understanding of work and workflow. It advises limiting work in progress, which reduces waste from multitasking and context switching, exposes operational problems and stimulates collaboration to improve the system.

- Kanban board examples: manufacturing, software

Lean startup

- Lean Startup: Why it Rocks far more than Agile Development - Joshua Kerievsky
- The Lean Startup - Eric Ries

Zdroje

- Agile software development - Wikipédia
- Scrum Reference Card
- Scrum - Wikipédia
- Extreme programming - Wikipédia
- Kanban - Wikipédia