Architecture Review in Agile Development

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Agenda

• Problem statement
• Proposed solution
• Evidence from the field
Historic One Phase Architecture Review Process
Historic One Phase Architecture Review Process

Development Team Perspective
Historic One Phase Architecture Review Process

Review Team Perspective
Agile Software Development Model

• The main characteristics of agile development:
  ○ Flexibility
  ○ Minimalism
  ○ Collaboration

• Emphasizes rapid and flexible development

• Transforms the development process from being process-centric to human-centric

• Favors operating software over documentation
The Proposed Solution


2. Two phase review process
AAS: Brief Reminder

Abstract Architecture Specification (AAS)

• An automatically generated short (4-6 pages) architecture document aligned with Agile’s expectation for minimalism, flexibility and collaboration.

• Includes the most relevant and updated information regarding the proposed architecture

• Kept short by employing elevator speech concepts
Two Phase Agile Architecture Review

Concept Phase
- Project start
- Requirements are gathered & Backlog is prioritized
- DE contact assigned
- Project Architects produce AAS with support / help from DE / Architect
  "Architecture Envisioning"

Plan Phase / Sprint 0
- Other planning documents are generated by the project team
- Phase 1 Review: Small group of DEs or other SME review AAS with team and feedback is provided

Build Phase / Sprint 1
- Investment Review is conducted
- DE contact reviews at each sprint planning for architecture impacts and updates appropriate artifact

Build Phase / Sprint N
- Phase 2 Review: Project conducts a cross BU review with several DEs
Two Phase Review Process—Phase 1
Initial Peer Review (during planning sprint)

AAS (Abstract Architecture Specification) Delivered

Feedback provided to project architects

AAS is a summary of the main principles of proposed architecture. AAS is generated from the AAS tool

Participants:
- 2-3 DE/Chief Architects from the DE council
- 1 DE from the product’s BU
- 1 or 2 DEs MUST be from another BU

Propose:
1) Provide sanity check & general correctness
2) Provide multi-BU insight

Participants:
- 2-3 Project team members & BU DE/Chief Architect

Propose:
1) To receive & incorporate peer feedback
2) Review for correctness & compliance to company standards

Is the AAS ready for DE review?

Yes

Should there be a presentation to the DE Council?

Yes

Present architecture to full DE Council and additional, selective SMEs

No

Continue with planning and implementation

Is the AAS ready for DE review?

No

Feedback provided to project architects

Participants:
- 2-3 DE/Chief Architects from the DE council
- 1 DE from the product’s BU
- 1 or 2 DEs MUST be from another BU

Propose:
1) Provide sanity check & general correctness
2) Provide multi-BU insight

Software Architecture Lab.
Two Phase Review Process—Phase 2
Cross Business Unit Review (prior to end of Planning Sprint)

Participants:
- All Members from the team
- The DE/Chief Architect of the BU
- 4-5 DE’ from other Bus (NOTE: all DEs MAY participate)

Propose:
1) Ensure consistency in feedback received by teams in different BUs
2) Provide multi-BU insight

Participants:
- All Members from the team
- The DE/Chief Architect of the BU
- Technical Community (invited)

Propose:
1) Information sharing of the design of critical components
2) General education on design best practices & expectations

Conduct an open Architecture Peer Review

Continue with planning and implementation
Two-Phase Review Process in Practice

We observed and analyzed review processes for 90 projects:

- 48 based on previous review process & documents,
- 42 based on two-phase review process & documents
Two-Phase Review Process in Practice
Experience and Result

- Shortened “start of project to architecture approved”
  - “Versions” averaged 4.4 months versus 6.5,
  - “Releases” 6 months versus 7.7

- Reduced significant final review comments from an average of 7 to 3
  - The phase 1 review identified 15 projects where no phase 2 review was required
    - Saving hundreds of staff hours of senior level participants over the course of a year

- Reduced the time required to conduct multi-BU reviews
  - From 120 minute typical to less than 90 typical action than the TLDS

- Teams reported that the process was less stressful
  - Even “enjoyable” because of ongoing interaction with senior members of the technical community
Some extended team members felt they now lacked some information that they received in the previous format

- Technical Publications, Field Support
- AAS contains less “tutorial and background” information than the TLDS.
Two Phase Review Process: The benefits

- Ongoing “mentoring” as part of architecture review process
- Collaborative and constructive review
- Project team (internal) review as a formal part of architecture review process
- Ongoing DE engagement simplifies and facilitates the communication among architects and reviewers
Questions?

Thank You