Faculté Polytechnique

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Developing Free Software within a Major ICT Company

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Summary

Subject.

Historical context.

Process as planned.

Issues.

Discussion and perspectives.

The Subject

Challenges relative to the free software development within a major ICT company.

Build on an experienced Linux developer's interview (embedded in Nokia).

Focused on the camera subsystem development of the Nokia N900 and N9.

Historical Context

Release of the iPhone in 2007.

- Huge commercial success.

Decline of Symbian :

- Aging.
- Unclear strategy.
- Abandonned by partners.
- Snubbed by customers.

High expectations in Maemo and then Meego operating system.

- Products : Nokia N900 (2009) and N9 (2011).

2011 :

- Elop to the head of the company.
- Abandon of Meego.
- Migration to Windows Phone for smartphones.

Process as Planned (1/2)

High expectations.

- Fast decline of Symbian, rises of Android and iOS.
- Nokia N900 as a trial ballon, hope of strong commercial success for Nokia N9.

Open source philosophy.

- Desire of creating true open source community and fostering external developer participation.
- Recognition of the openess of the project.

Use of subcontractors.

- Three layers : Adaptation, Middleware and Application.
- Adaptation layer (drivers) under the responsability of the processor manufacturer.

Process as Planned (2/2)

Communication between managers.

- Communication between Nokia and the processor manufacturer passed through management in the two entities.
- Developers received feedback from their respective management.

Use of SCRUM-driven methodology.

- Common use : SCRUM master, short development cycle and daily meeting.

Internal strong quality process.

- Use of improved Bugzilla-style bugtracker.
- Use of source code analysis tools.

Issues (1/2)

Difficulties in requirements specifications.

- How to formalize quality aspects relative to corporate and community rules (coding style, architecture, modularity,...) ?

Lack of communication between developers.

- The developers get feedback from their respective managements.

- Difficulties to transmit useful information to solve problems.

Issues (2/2)

Emergency climate.

- Market launch was always « three months away ».
  - Difficulties for pursuing real R&D policy.
    - Re-engineering only possible for the N9 smartphone.

Risk aversion.

- Adaptation layer developed internally for N9 smartphone.
- Project of creating a new framework in close relation with the Linux kernel community.
  - Rejected by management (→ risk).
    - Kind of « intrapreneurship » : pursuit of the work in close relation with the community and...
    - Collaboration made more visible by internal developers when the Adaptation layer reached a functional state.

Discussion

Importance of…

- Key people in development teams,
- fostering collaboration between team and community…
- In respect of corporate rules.

Problems caused…

- By the lack of communication between developers in subcontracting relationships and…
- By the difficulties to express requirements for subcontractors…
- In the context of projects aiming to be compatible with free softwares community rules (tacit knowledge).
- Solution ?
  - Interest of community QA process…
  - In order to facilitate communication between developers and…
  - Stimulate the adoption of good practices waited by communities.

Perspectives

Two specific research questions to deepen :

- How to stimulate « intrapreneurship » behaviors to foster the launch of new open source projects supported by community ?

- What are the best ways to capture tacit knowledge from open source communities ?

Q&A

Thank you for your attention.

Any question ?

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