The Mythical Adequate Level of Details
Bundling Requirements for Large Scale
Market Driven Engineering

31/08/2011    SHORT PAPER INDUSTRY SESSION

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• 15 years embedded software industry
• Chair of mobile phone governance boards (feature & release)
• In charge of the specification of a mobile phone product line
• co-founder of exibri
Bundling Requirements for Large Scale Market Driven Engineering

- Requirements bundle:
  - Needed to manage complexity
  - Has multiple dimensions
- 5 engineering concerns
- 5 associated requirements bundles
- Issues and pending problems

Goal of the paper: raising interest in requirements bundles as an important industrial issue
Bundling Requirements for Large Scale Market Driven Engineering

Large Scale Market Driven Engineering

- Complexity
- Structure
- Requirements bundling

10,000 to 100,000 unitary requirements?
The Mythical Adequate Level of Details

What is the adequate feature scope for:

- input requirements capture,
- governance and release planning,
- assets reuse,
- variability management,
- project management?

Five engineering concerns

<table>
<thead>
<tr>
<th>Concern:</th>
<th>Purpose:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Input</td>
<td>State the problem (customer &amp; market</td>
</tr>
<tr>
<td>requirements</td>
<td>requirements, etc.)</td>
</tr>
<tr>
<td>2 Governance</td>
<td>Decide (change control, release planning, etc.)</td>
</tr>
<tr>
<td>3 Architecture</td>
<td>Develop &amp; maintain the reusable assets</td>
</tr>
<tr>
<td>4 Variability</td>
<td>Customize the platform into a customer</td>
</tr>
<tr>
<td>5 Project</td>
<td>Manage resources and milestones</td>
</tr>
</tbody>
</table>
Five requirements bundles

<table>
<thead>
<tr>
<th>Concern:</th>
<th>Requirement bundle:</th>
<th>Unit of:</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 Request</td>
<td>Documentation of the market requirements</td>
<td>need, goal, requirements document, e-mail, phone call</td>
</tr>
<tr>
<td>2</td>
<td>2 Delta (as in [2])</td>
<td>Decision, commitment, governance</td>
<td>release, feature, change request</td>
</tr>
<tr>
<td>3</td>
<td>3 Component</td>
<td>Organisation of the reusable assets</td>
<td>reusable specification document</td>
</tr>
<tr>
<td>4</td>
<td>4 Variation point</td>
<td>Documentation of the variability</td>
<td>variant, parameter, option, flex</td>
</tr>
<tr>
<td>5</td>
<td>5 Task</td>
<td>Allocation of the resources</td>
<td>task scope specification, project plan</td>
</tr>
</tbody>
</table>

TIM strategy is: more picture data transfer

Telefonica requests to promote picture upload to www.flickr.com

Vodaphone requests « one click picture upload from camera to picassa »

Application « Picture Capture »

Media transfer server

Product line governance board decides to invest in the delta « one click picture upload »

Variation point « target picture server »

Variation point « picture upload »

Variation point « user entry » (softkey / menu)

MMDIA Mid term improvement: project tasks T1 T2 & T3
Issue B: is “feature” a smurf word?

Feature as a “selling unit” ([6]) => request

Feature as a “unit of decision” in release planning => delta

Feature as unit of variability (as in FODA’s “feature model” in [7]) => variation point

Application « Picture Capture »

Media transfer server
Issue A: is “requirement” a smurf word?

“Requirement” used both for the low level, unitary system requirement, as for the high level market requirement, goal, or feature. This did confuse me in the past. Ex. “prioritization”:

- Training: « each requirement shall be prioritized »
- Tooling: « standard attribute scheme »
- Prioritization -> tool for decision -> governance concern -> focus on deltas (units of decision), not on “requirements”
Issue C : Scoping requirements bundles

Bundles scoping : key of overall planning and governance
Issue C : Scoping requirements bundles

Figure 1: Extract of the media management solution’s feature tree (notation [21]).

Issue D: Keeping them all together

How to maintain consistency across those multiple interrelated requirements bundles?
REFERENCES


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11. A. van Lamsweerde, "Requirements Engineering - From System Goals to UML Models to Software Specifications" Wiley 2009
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