The Role and Task of the System Architect

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Abstract

The role of the system architect is described from three viewpoints: deliverables, responsibilities and activities. This description shows the inherent tension in this role: a small set of hard deliverables, covering a fuzzy set of responsibilities, hiding an enormous amount of barely visible day-to-day work.
Deliverables of the System Architect

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RSAdeliverables
List of Deliverables

Customer and Life-Cycle Needs (what is needed)

System Specification (what will be realized)

Design Specification (how the system will be realized)

Verification Specification (how the system will be verified)

Verification Report (the result of the verification)

Feasibility Report (the results of a feasibility study)

Roadmap
Responsibilities of the System Architect

- Balance
- Consistency
- Decomposition
- Integration
- Overview
- KISS
- Elegance
- Simple
- Integrity
- Fitting
- satisfied stakeholders
- system
- context

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RSA responsibilities
### Examples of Secondary Responsibilities

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Primary Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>business plan, profit</td>
<td>business manager</td>
</tr>
<tr>
<td>schedule, resources</td>
<td>project leader</td>
</tr>
<tr>
<td>market, saleability</td>
<td>marketing manager</td>
</tr>
<tr>
<td>technology</td>
<td>technology manager</td>
</tr>
<tr>
<td>process, people</td>
<td>line manager</td>
</tr>
<tr>
<td>detailed designs</td>
<td>engineers</td>
</tr>
</tbody>
</table>
What does the System Architect do?

- think, analyze
- listen, talk, walk around
- design, brainstorm, explain
- assist project leader with work breakdown, schedule, risks
- present, meet, teach, discuss
- test, integrate
- write, consolidate, browse
- read, review
- travel to customer, supplier, conference
- provide vision and leadership
### From Detail to Overview

<table>
<thead>
<tr>
<th></th>
<th>Quantity per year (order-of-magnitude)</th>
<th>architect time per item</th>
</tr>
</thead>
<tbody>
<tr>
<td>consolidation in deliverables</td>
<td>10</td>
<td>100 h</td>
</tr>
<tr>
<td>meetings</td>
<td>(10^2)</td>
<td>1 h</td>
</tr>
<tr>
<td>informal contacts</td>
<td>(10^4)</td>
<td>0.5 – 10 min</td>
</tr>
<tr>
<td>sampling scanning</td>
<td>(10^5 - 10^6)</td>
<td>0.1 – 1 sec</td>
</tr>
<tr>
<td>product details</td>
<td>(10^7 - 10^{10})</td>
<td></td>
</tr>
<tr>
<td>real-world facts</td>
<td>infinite</td>
<td></td>
</tr>
</tbody>
</table>
Abstractions only exist for concrete facts.
Visible Output versus Invisible Work

From Manager perspective

Decreasing Visibility

Deliverables

Responsibilities

Activities

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RSApyramid