How to Create an Architecture Overview

by Gerrit Muller University of South-Eastern Norway-NISE

e-mail: gaudisite@gmail.com

www.gaudisite.nl

Abstract

A short specific overview of an architecture is a powerful means during product creation. This article addresses how to create such an overview. One of the main issues is the need for breadth, what needs to be included and for whom, and the balancing act of providing sufficient depth, what are crucial details that are part of this top-level description. Also the way of describing is discussed, from stakeholder needs to ambiguity and the level of formalism.
Approach to Create Architecture Overview

<table>
<thead>
<tr>
<th>Top-down identify stakeholders, concerns, views and models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom-up fact finding and quantification</td>
</tr>
<tr>
<td>Determine most relevant issues: important, valuable, critical, costly, ...</td>
</tr>
<tr>
<td>Define overview structure and presentation</td>
</tr>
</tbody>
</table>

- Iterate and communicate many times
What does Customer need in Product and Why?

Customer What: Customer objectives

Customer How: Application

Product What: Functional

Product How: Conceptual, Realization

internal Operational view (process, organization, people, sales, service, purchasing, manufacturing, suppliers)
Bottom up fact finding and quantification

Customer objectives
- figures of merit
- patients/physician
- physician income
- success rate
- failure rate
- integral cost

Application
- typical quantities
  - # patients
  - # physicians
  - # exams/day
  - # exams/patient
  - # information/patient

Functional
- critical specs
  - productivity
  - response time
  - capacity

Conceptual
- working ranges
  - # transactions
  - # queries
  - peak&average

Realization
- critical numbers
  - network speed
  - CPU speed
  - memory size
  - power consumption
  - query duration
  - transaction overhead

Internal Operational view
- market size
- market share
- growth rate
- product life cycle
- business model
- market segments
- maintenance effort
- update frequency
- service crew
- # suppliers
- partners
- competitors
- effort
- cost
- time
- project size
- # engineers/discipline
- # teams

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IEEE 1471 top level

- **environment** influences **mission**
- **mission** fulfills **system**
- **system** has **architecture**
- **architecture** described by **rationale**
- **architecture** provides **architecture description**
IEEE 1471 view level

System has Architecture

Described by Architecture Description

Stakeholder has concern covers viewpoint

Consists of viewpoint conforms to view

defines model

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VCieee1471model
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Architecture Overview

Architecture

Subset of which architect is aware

Flattened into

overview

Architecture description

Actually written by architect(s)
Role of Architecture Description

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SAFSOParchitectureDescription
Stakeholder of an Architecture Overview

- **Customer** objectives
- **Application**
- **Functional**
- **Conceptual**
- **Realization**

- **Customer Operations**
  - customers
  - application experts
  - marketing, sales

- **Maintainers**
  - other systems

- **Architecture overview**

- **Auditors**
- **Quality officers**
- **Managers**

- **Production engineers**
- **Service engineers**
- **Purchasing managers**

- **Internal Operational view**

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OHT stakeholders
Form and Medium

- Architecture description
- Mock-up
- Prototype
- active content
- dynamic content

The system
static view
dynamic view
The wonderful view on ...

Mozilla Firefox

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OHToverviewForm
Language Recommendations

* Keep your sentences short
* Prefer active verbs
* Use 'you' and 'we'
* Choose words appropriate for the reader
* Don't be afraid to give instructions
* Avoid nominalisations
* Use positive language
* Use lists where appropriate

from Plain English Campaign
http://www.plainenglish.co.uk/files/howto.pdf
Ideal Structure does not Exist

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OHTstructure