Software Architecture
Architecturally Significant Requirements

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Requirements

Architectures exist to build systems that satisfy requirements.

But, to an architect, not all requirements are created equal.

An *architecturally significant requirement* (ASR) is a requirement that will have a profound effect on the architecture.

How do we find those?

ASRs and Requirements Documents

An obvious location to look for candidate ASRs is in the requirements documents or in user stories.

Requirements should be in requirements documents!

Unfortunately, this is not usually the case.

Why?

ASR

Many projects don’t create or maintain the detailed, high-quality requirements documents.

Standard requirements pay more attention to functionality than quality attributes.

Most of what is in a requirements specification does not affect the architecture.

No architect just sits and waits until the requirements are “finished” before starting work. The architect *must* begin while the requirements are still in flux.

ASR from Business Goals

- In house use
- Use Only Open Source
- Align with Legacy Product
- Ahead of Competition
- Development to be outsourced
- Multi Generational Product Road Map
- Huge Number of customers
- International customers
- Deployed as SaaS Model
- Customer specific Configuration (ERP)

ASR from Quality Attribute Scenarios

Discuss with Stake holders

Elaborate Requirements with Scenarios

Create Questionnaires based on Quality Attributes

ASR from Design Decisions

Architecture is the result of applying a collection of design decisions.

- **Allocation of responsibilities** - functional decomposition
- **Coordination model** - communication among functional modules
- **Data model** - Data representation
- **Management of resources** - CPU, Memory, Network Bandwidth
- **Mapping among architectural elements** - Allocation of data to data-models, execution modules to processors
- **Binding time decisions** - through lifecycle / runtime / deployment
- **Choice of technology**

Look for Requirements that will affect theses design decisions