VARIABILITY MANAGEMENT IN AN UNAWARE SOFTWARE PRODUCT LINE COMPANY: AN EXPERIENCE REPORT

DAVID BENAVIDES AND JOSÉ A. GALINDO

VARIABILITY UNAWARE – RESEARCH MOTIVATION

Studies;
Mechanisms;
…

Techniques;
Advantages;

How variability is managed before transitioning to a SPL company

THE COMPANY

Government Tax agency : “Servicio de rentas internas”.

- More than 100 software programs are being developed.
- Around 200 employees.

Variability contexts inside Ecuador’s tax agency

- Tax laws change almost every year.
- Shared software artifacts between different government agencies.
- Dependencies between software artifacts.
- Enterprise architecture variability.

THE COMPANY

Government Tax agency : "Servici… …as internas".

- More than 100 software pro… …developed.
- Around 200 employees

Variability contexts i… …icy

- Tax laws cha…
- Shared so… …different government agencies.
- Dependencie… …tware artifacts.
- Enterprise archi… …variability.

Variability management unaware

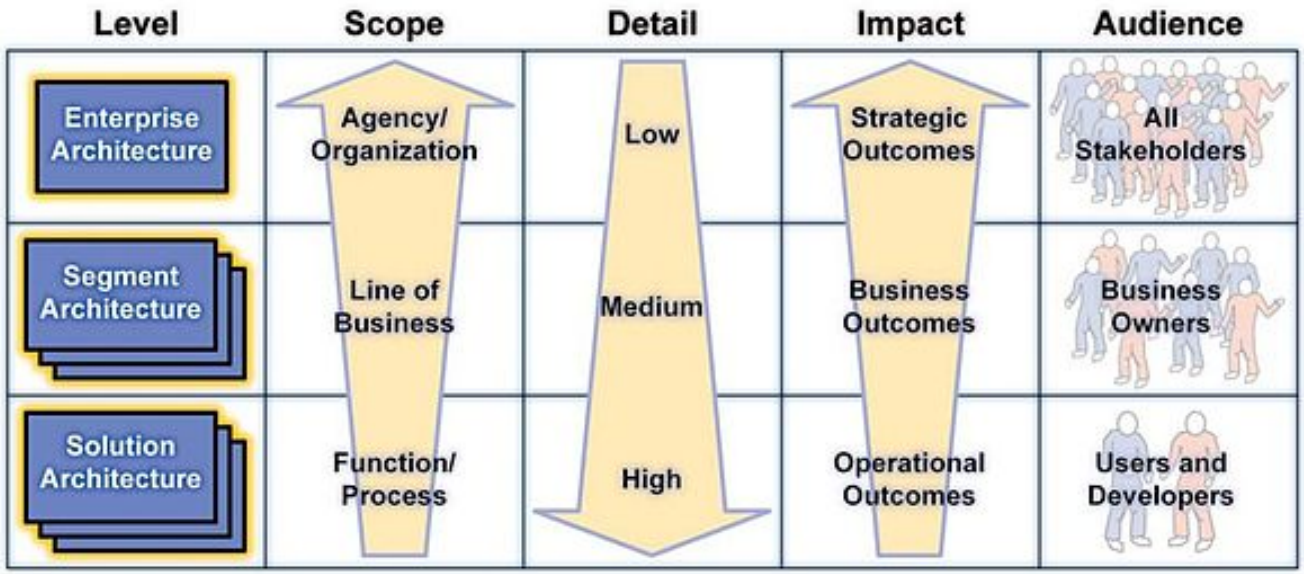
AGENDA

Different places where apply variability aware techniques.

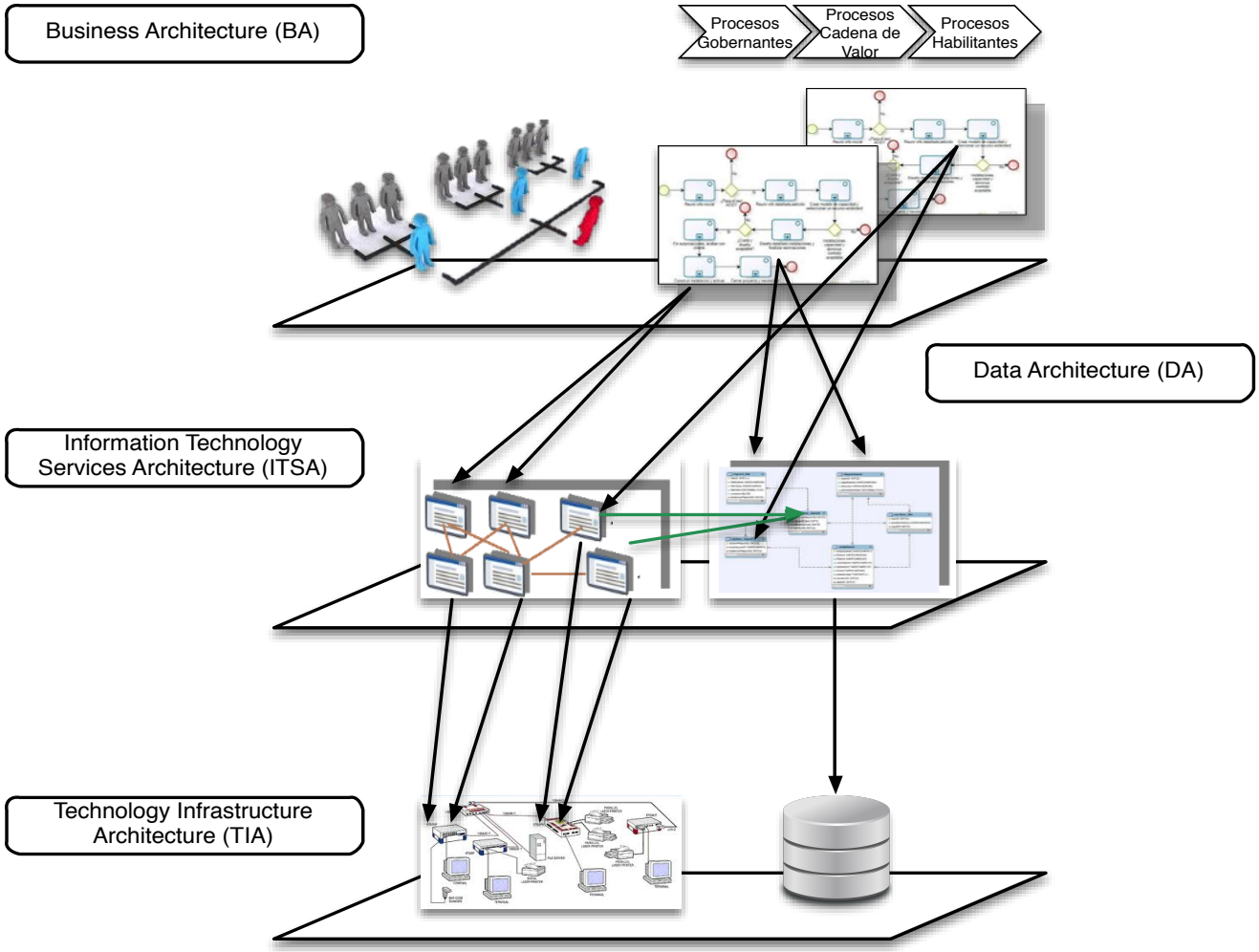
- Enterprise architecture
  - Business administration <-> Information technology services.
- Assets management
  - Artifacts reuse.
- Common base architecture
  - Negative variability
- Dependency among assets

ENTERPRISE ARCHITECTURE

A well-defined practice for conducting enterprise analysis, design, planning, and implementation, for the successful development and execution of strategy. These practices utilize the various aspects of an enterprise to identify, motivate, and achieve these changes.



VARIABILITY IN ENTERPRISE ARCHITECTURE - TOGAF



VARIABILITY IN ENTERPRISE ARCHITECTURE.

Improvement and opportunities

Opportunities

How to integrate software product line modeling with enterprise architecture models such as TOGAF.

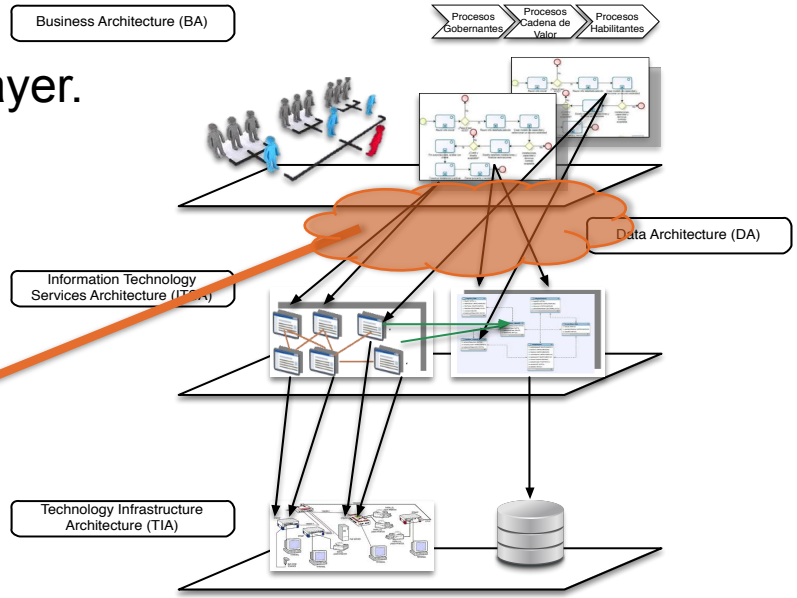
Improvements

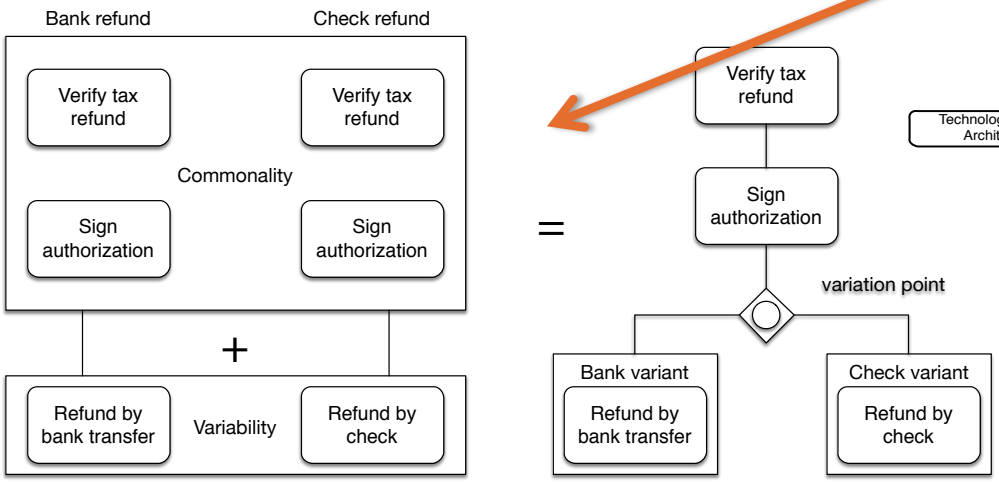
Use configurable business process to decouple the tax laws (BA layer in TOGAF) from the IT processes (ITSA).

HOW TO IMPROVE

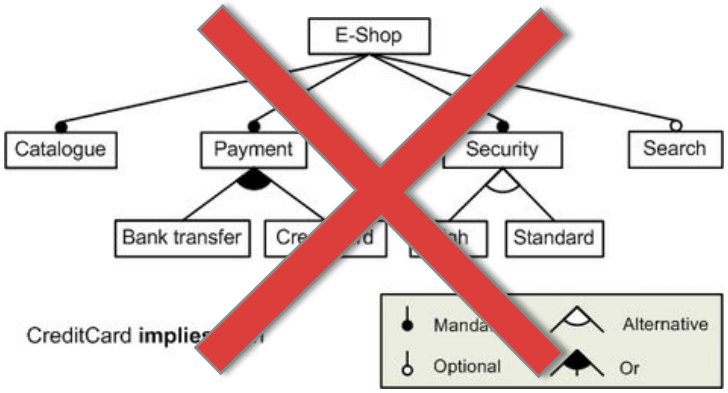
Using configurable business process to Manage the variability existing in the BA layer.

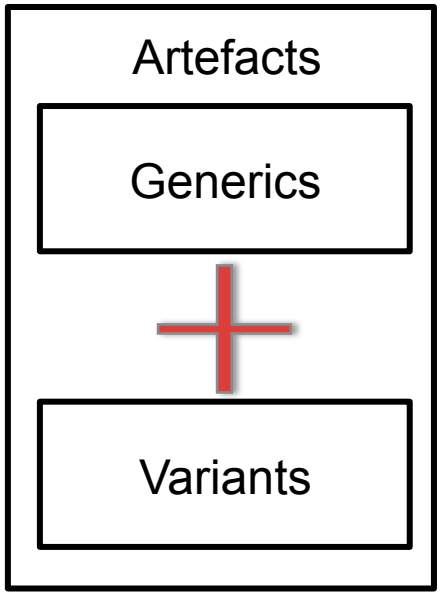
This decouple the business rules from the Business processes in the IT



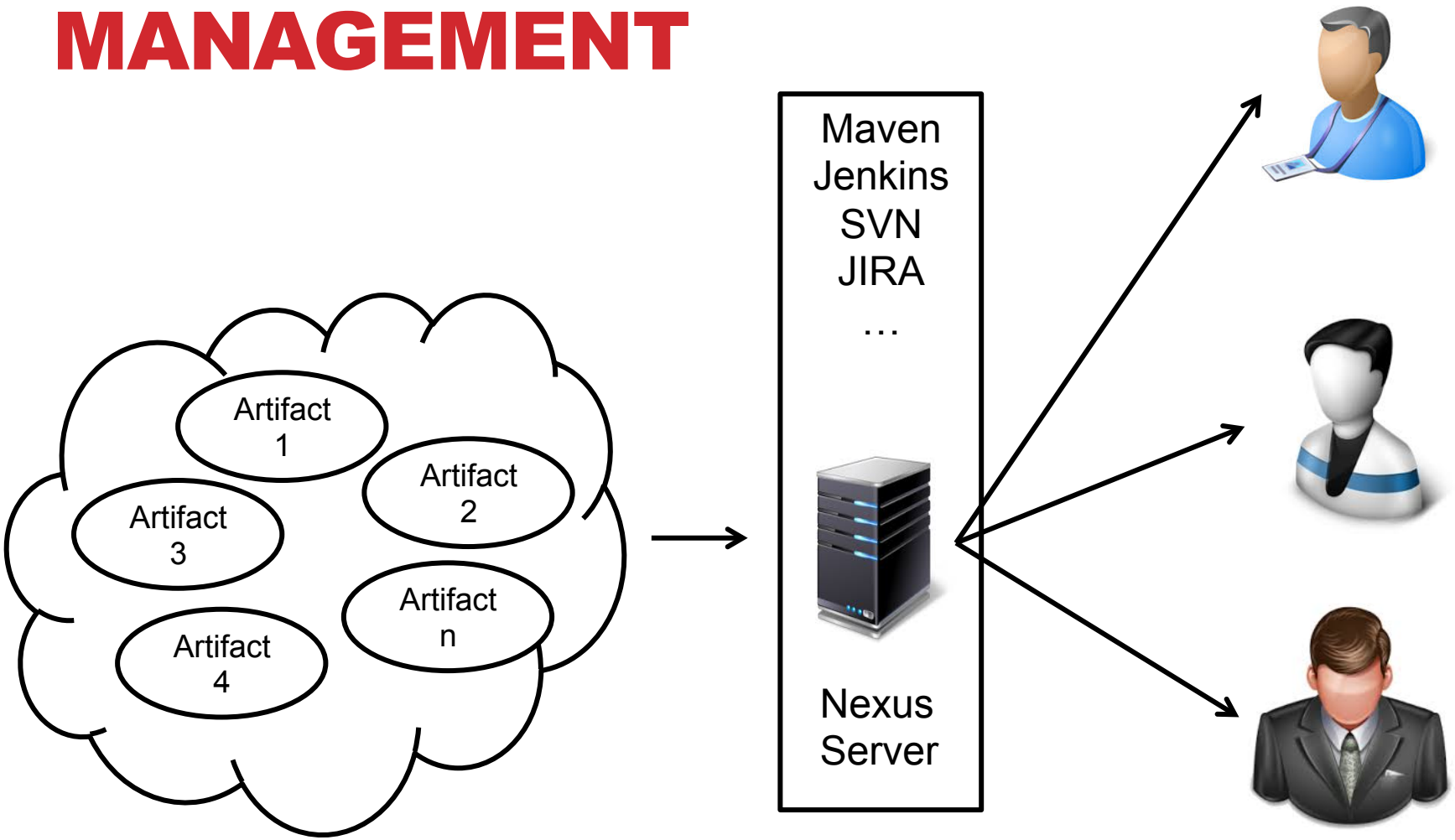


ASSETS MANAGEMENT





ASSETS MANAGEMENT



ASSETS MANAGEMENT

Improvement and opportunities

Opportunities

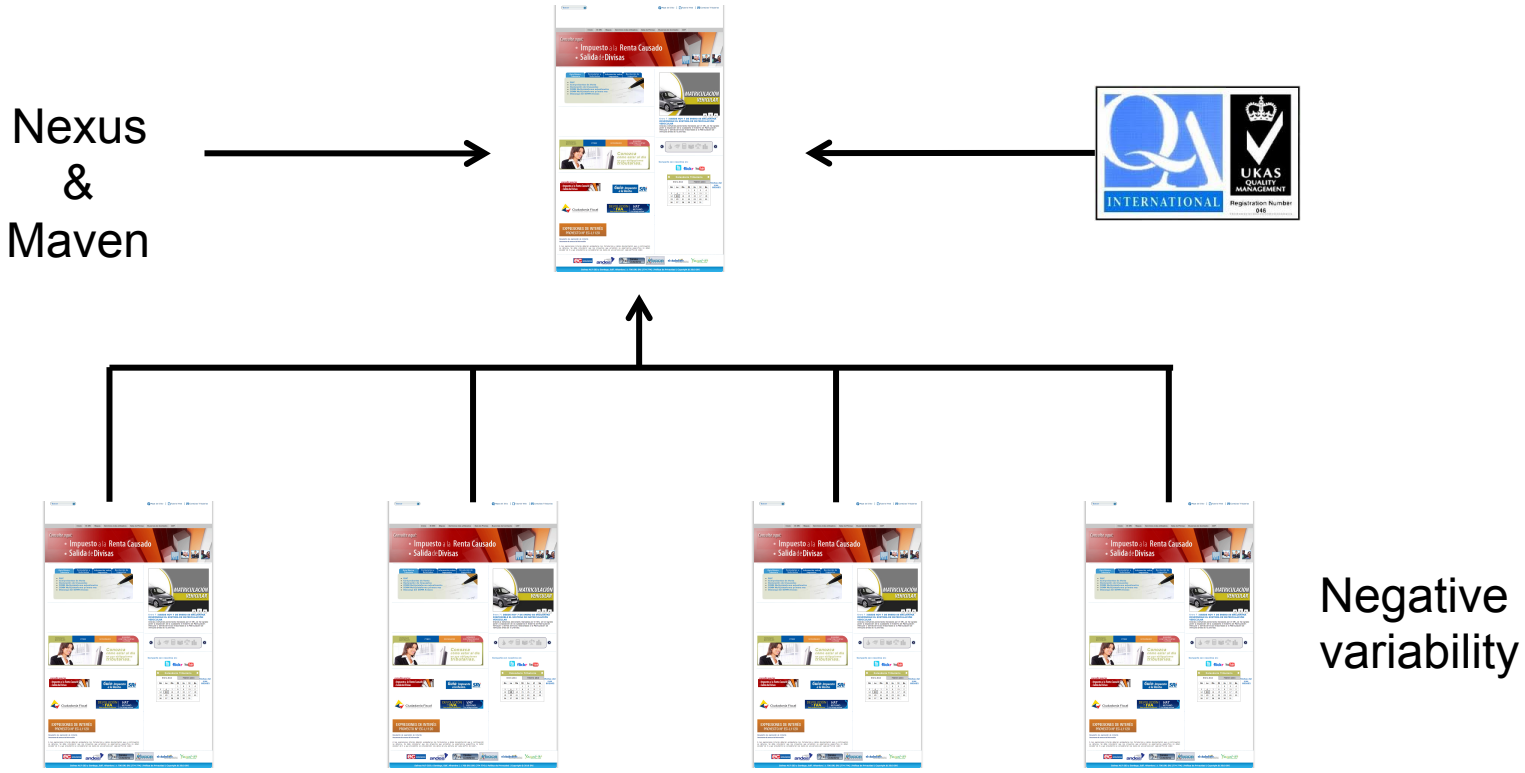
Study how combine solutions such as NEXUS with SPL techniques.

Improvements

Coevolution of generics cause lots of commits and merges into the CVS. We proposed to use a master/owner role to ease off the amount merges.

COMMON BASE ARCHITECTURE

Common base web project for a large set of projects.



COMMON BASE ARCHITECTURE

Improvement and opportunities

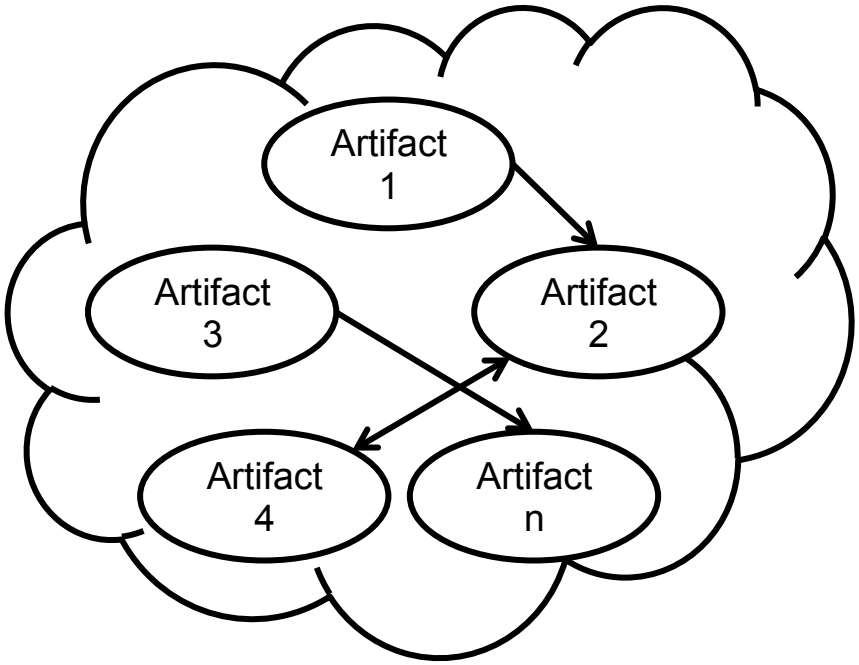
Opportunities

Automated mechanisms for product line and assets evolution.

Improvements

have in the base project a configurator allowing the selection and de-selection of he different modules to derive concrete projects.

DEPENDENCY AMONG ASSETS



LOW DETAIL LEVEL

- All dependencies are documented
- A catalogue of projects is being created
- No hierarchical structure between generics relationships

HIGHT DETAIL LEVEL

- Maven dependencies.
- Maven configuration file ± Debian, ecos … configuration files

DEPENDENCY AMONG ASSETS

Improvement and opportunities

Opportunities

How feature models can trace to build management tools such as maven or Make.

Improvements

Use structured techniques to determine the assets domain. Therefore, retrieve a variability model describing them.

OPEN QUESTIONS

- How to perform a more systematic approach to report current practices in non variability aware companies?
- How to apply current SPL techniques in companies already using SPI-smellish approaches.
- Is It worth to develop maven like applications to support variability models.

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