Modeling and Analysis: Application Models

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Abstract

The enterprise and its application is a complex system in itself. Specification and design decisions can have a significant impact on this system. We show a number of relevant application models with the purpose to be able to reason about specification and design in relation to the impact on the enterprise.

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September 1, 2020
status: planned
version: 0.1

logo
TBD

Understanding Usage and Life Cycle Context

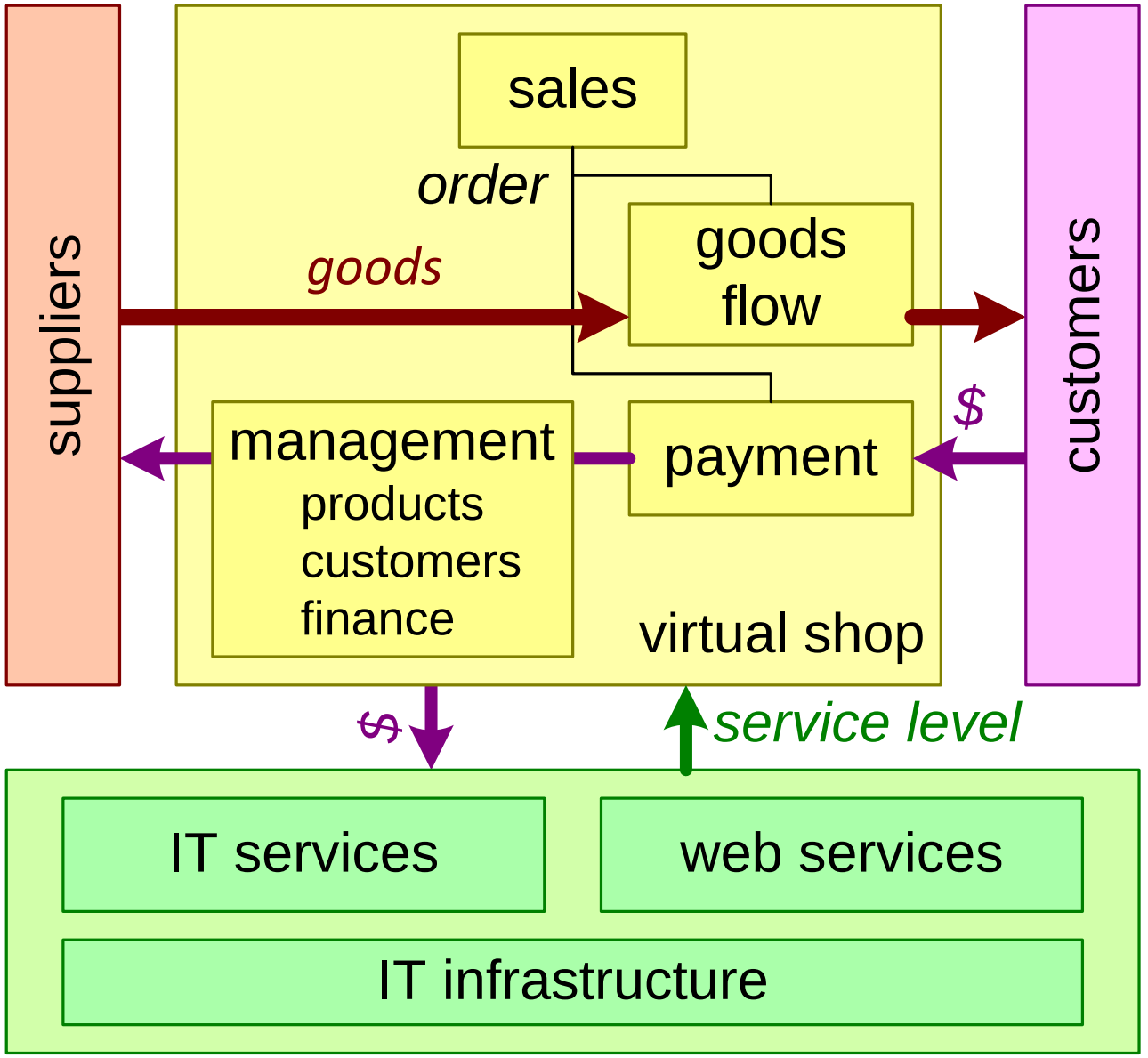
High Level Visual Models

+ value chain
+ map of competitors, partners, suppliers
+ context diagram
+ stakeholder diagram
+ infrastructure diagram
+ aspect diagrams e.g. security, data integrity, ..
+ customer key driver graph
+ life cycle key driver graph

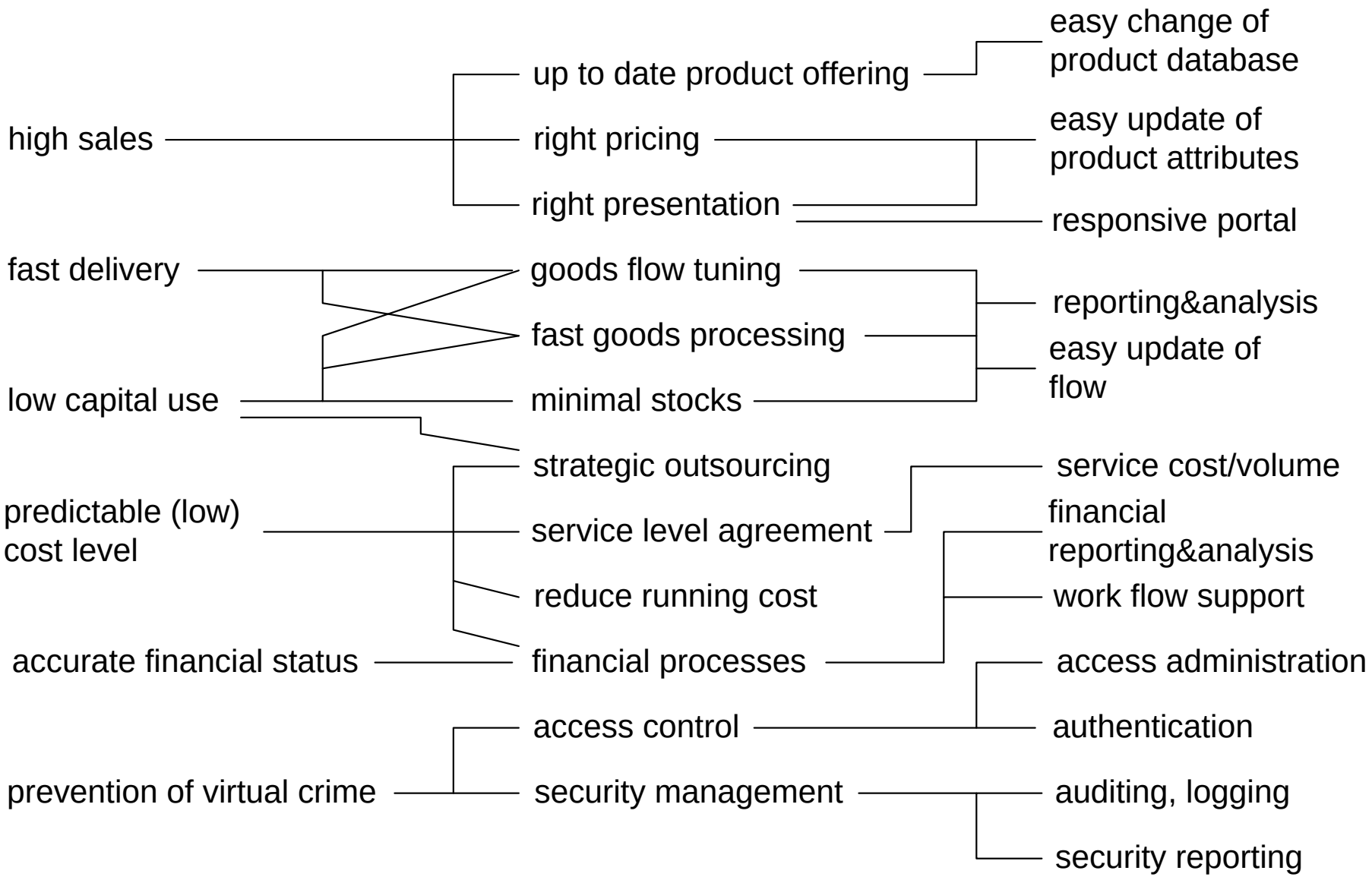
commercial
financial
legal
strategic
tactical
operational
social
technical

relations beyond actual system!

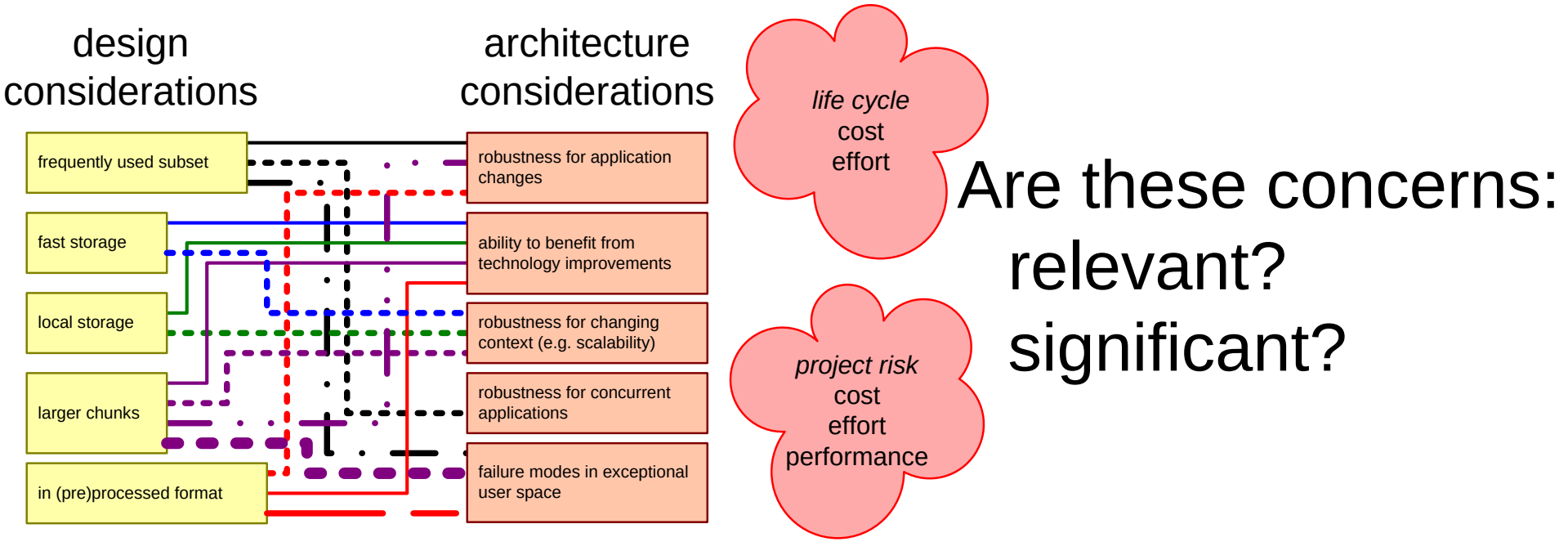
Simplified Web Shop Value Chain



Simplistic Customer Key Driver Graph



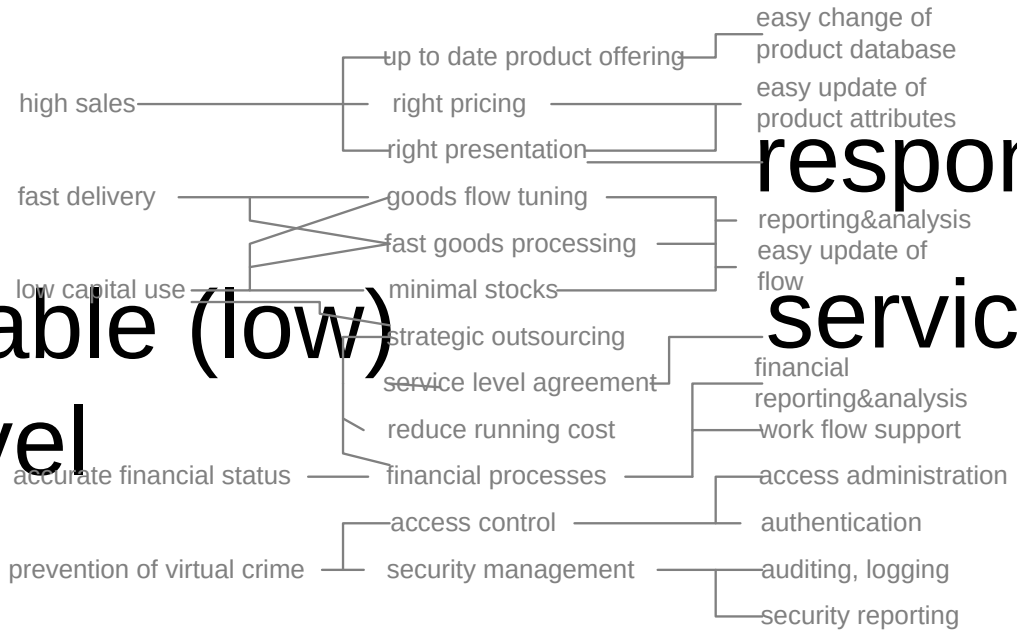
Example Assessment of Design Choices



What is the impact at enterprise level?

Example Zero Order Problem Statement

How does the
picture cache design
impact



responsive portal

predictable (low) cost level

service cost/volume

Zero Order Cost Model

total cost = f + s(v) + p * v + g * v

where

f = fixed base cost

s = service cost, see below

p = personnel cost including overheads

v = volume

g = goods flow handling

service cost s(v) = b + c * v

where

b = fixed base cost

c = cost / volume

v = volume

all including provider margin

Example Low Volume, Labor Intensive, Shop

low volume, labor intensive, shop

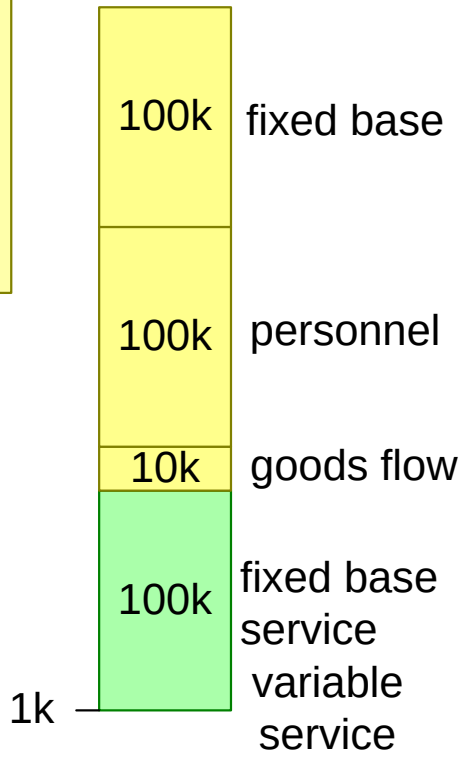
fixed costs and personnel cost dominate:
service cost changes have negligible impact on total cost!

total cost = f + s(v) + p * v + g * v
where
f = fixed base cost
s = service cost, see below
p = personnel cost including overheads
v = volume
g = goods flow handling

f =	100k
p =	1
v =	100k
g =	0.1
s(100k) =	101k

service cost s(v) = b + c * v
where
b = fixed base cost
c = cost / volume
v = volume
all including provider margin

b =	100k
c =	0.1



Example High Volume, Highly Automated, Shop

high volume, highly automated, shop

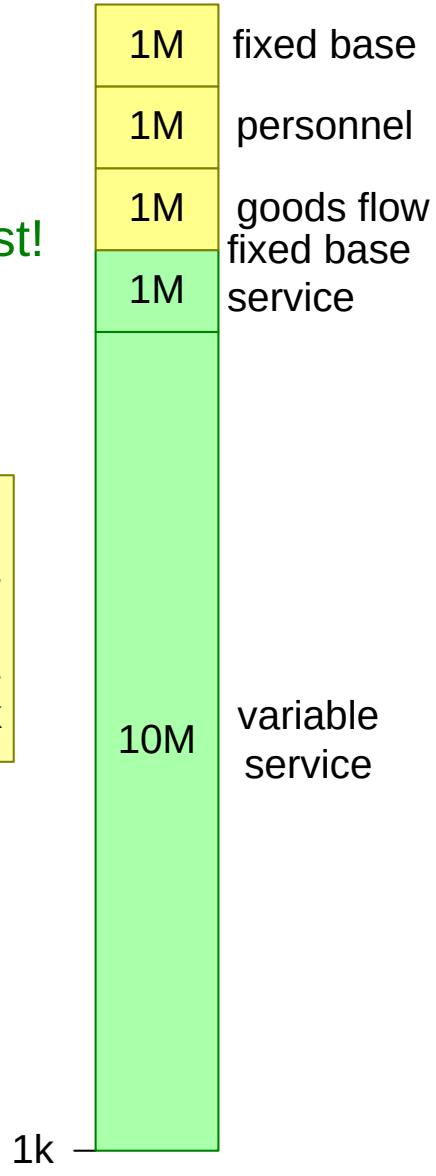
variable service costs dominate:
service cost changes have big impact on total cost!

total cost = f + s(v) + p * v + g * v
where
f = fixed base cost
s = service cost, see below
p = personnel cost including overheads
v = volume
g = goods flow handling

f =	1M
p =	0.01
v =	100M
g =	0.01
s(100k) =	101k

service cost s(v) = b + c * v
where
b = fixed base cost
c = cost / volume
v = volume
all including provider margin

b =	1M
c =	0.1



Conclusion Zero Order Models

Very simple, very coarse, zero order models

provide insight in relevance of

specification and design issues.

These models are used to identify relevant issues