

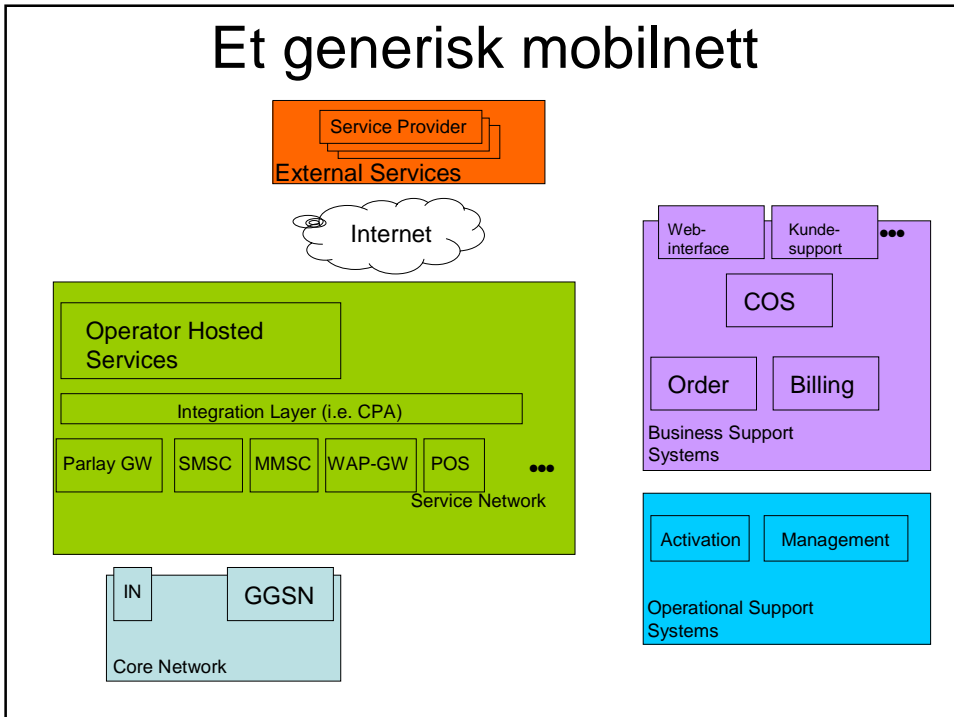
Legacy System Exorcism by Pareto's Principle

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Et generisk mobilnett



COS

- Telenor Mobile Norway's component based middleware system for:
 - Integration
 - Common Business Logic
- 350.000.000 calls a month (summer 2005)
- Developed by 30-40 resources over the course of 9 years
- Integrates with about 30 back end systems (Ordre, Billing, Nettverksaktivering, Datavarehus, osv)

COS – Technical

- Large Java-based system
 - Weblogic application servers
 - Sybase og Oracle databases
 - Over 8.000 classes
 - 2-300 database-tables
 - 1500 services
 - 2000 stored procedures
 - Non-Generated 160K NCSS
- Integration Technolgy
 - Message Queues
 - Data bases
 - Web services
 - CORBA
 - Screen Scraping Cobol-systemer
 - Batch-solution
 - And more.

Agenda – Pareto Excorsism

- The Principle
- The Project
- The Results



The Pareto Principle



Vilfredo Pareto
(1848-1923)

80 / 20 Rule:
Twenty percent of the people own eighty
percent of the wealth

”The vital few and trivial many”

The Pareto Project

Business Case:

Increase the productivity in the development organization by 25% without lowering the quality.

Task:

We needed to find the 20 percent most pressing system problems that would create this effect

Measurement Program

- Productivity
= Change Requests per
(Day * Resource)
- Error Proneness
= Critical Defects per
(Day * Resource)
- Internal Quality
= 0.35 * Architectural Quality +
0.30 * Code Quality +
0.35 * Test Quality

Monitor for quality: XRadar

- Analysis of all Java-systems
- Open source under a BSD licence
- Current Build and System History



Pareto Hypothesises I

Architecture

– 20 percent of the system functionality constitutes 80 percent of the system value



Refactor

– 20 percent of the system architecture problems causes 80 percent of the observed system problems



Modularize

Pareto Hypotheses II

Code and Tests

- 20 percent of the code is given 80 percent of the maintenance
- 20 percent of the maintained code produces 80 percent of system defects



Monitor and detect bad code

Remove and deprecate code

Deliver an automatic Unit test framework

Deliver an automatic acceptance test framework

Introduce test first!

Pareto Hypotheses III

Culture and Process

- 20 percent of the developers' possess 80 percent of the system knowledge
- 20 percent of the formal process elements cause 80 percent process inefficiencies.



New configuration management

Interview program for new consultants

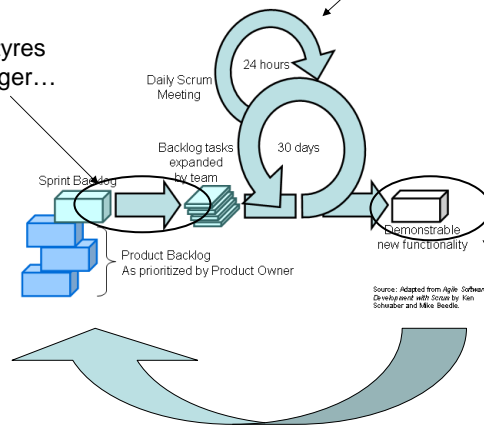
Introduce an agile iterative process (Scrum) instead of waterfall

Remove inspections and introduce pair programming

Scrum Prosesser

Sprint Planning:

- Alle roller deltar
- Team "committer" seg til leveranse
- Team kan ikke styres igjen før om 30 dager...



Daily Scrum (Standup):

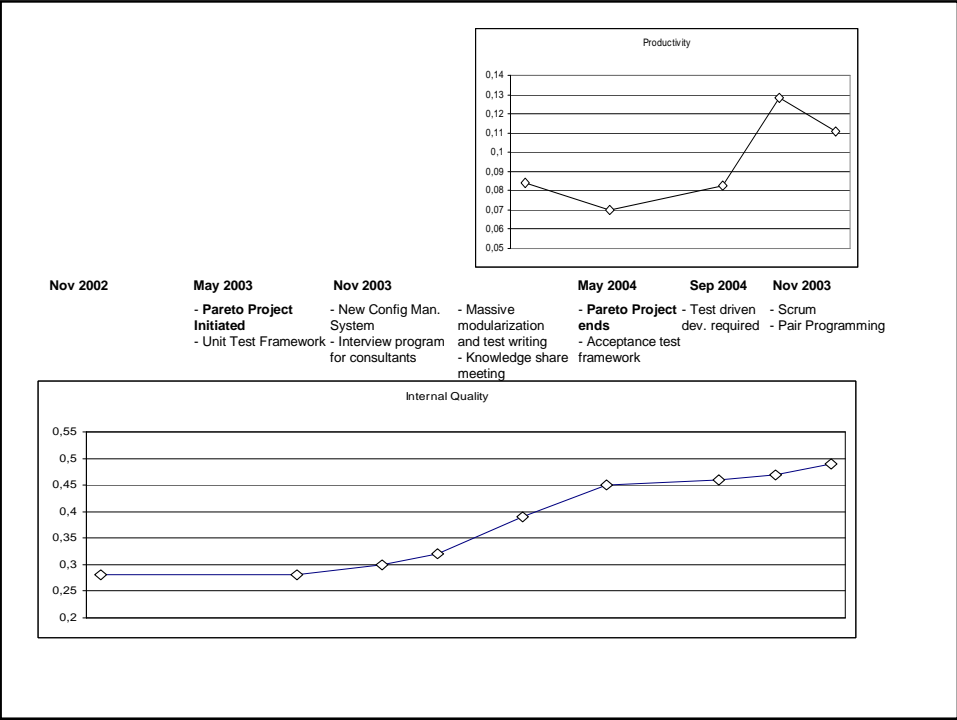
- Kun Team og Scrummaster får snakke
- Maks 15 min
- Innhold:
 - Hva har du gjort siden sist?
 - Har du hatt noen problemer
 - Hva skal du gjøre til neste møte?

Sprint review:

- Overlevering av ferdig funksjonalitet
- Evaluering og prosessforbedring

Teamdynamikk

- 5-8 medlemmer for å skape ansvarlighet, lagånd og synlige medlemmer
- Bred sammensetning for å sikre autonomitet
- Gjennomtenkt sosial/kulturell sammensetning for å sikre effektiv teamdynamikk



Conclusions

- Cultural change was probable necessary prerequisites for the change
- Productivity increase by:
 - Agile process (Scrum) instead of a phased plan-driven process
 - Pair development instead of formal inspections
- Reengineering to quality
- Weakly : Modularization and test driven development reduced error proneness in our system



Hva lærte vi

- Etablerte sannheter må utfordres
- "Tracerbullets" fungerer bedre enn "bduf"
- Oppfølgingsystem var nødvendig
- Kulturendringer er krevende
- Sterk støtte i ledelsen avgjørende
- God kommunikasjon med tilknyttede systemer avgjørende

Hva skjedde videre

- De som deltok i Pareto-prosjektet ble fordelt på nye prosjekter
- Kravene, kulturen og arbeidsmåtene ble spredd med menneskene
- Scrum ble innført på utviklingsprosjektene
- XRadar ble videreutviklet og brukt til overvåkning av COS utviklingen

Spørsmål

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