The Unnamed Process:
Doing Agile With C++, Python, And A Tailor-made Process

ACCU 2005 Conference
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My Background

- More than ten years of professional experience
  - About five years of agile development experience
- Member of the Agile Alliance
- Certified Scrum Master

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This Session Is About…

- The implementation of a custom agile methodology on a C++/Python project
  - Focus on the human side
  - Mention of the technical side

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Goal

- Share the lessons learned
  - What worked well
  - And what didn't

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Agenda

- Project overview
- Why a custom agile methodology
- The methodology
- Implementation
- What worked and what didn't
- Questions?

Project Overview (1/3)

- Family of C++/Python programs to store/retrieve biological information to/from an Oracle database

- ```
  ID   AB27_CYPCA     STANDARD;      PRT;    19 AA.
  AC   P81925;
  DT   28-FEB-2003 (Rel. 41, Created)
  DT   28-FEB-2003 (Rel. 41, Last sequence update)
  DT   05-JUL-2004 (Rel. 44, Last annotation update)
  DE   27 kDa antibacterial protein (Fragment).
  OS   Cyprinus carpio (Common carp).
  OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
  OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
  OC   Cyprinidae; Cyprinus.
  OX   NCBI_TaxID=7962;
  RN   [1]
  RP   PROTEIN SEQUENCE, AND FUNCTION.
  RC   TISSUE=Skin mucus;
  RX   MEDLINE=96390874; PubMed=8797847;
  RA   Lemaitre C., Orange N., Saglio P., Saint N., Gagnon J., Molle G.;
  RT   "Characterization and ion channel activities of novel antibacterial
  RT   proteins from the skin mucosa of carp (Cyprinus carpio).";
  RL   Eur. J. Biochem. 240:143-149(1996).
  CC   -!- FUNCTION: Has antibacterial activity. It inhibits fish bacterial
  CC       pathogens, A.hydrophila and M.luteus, and also E.coli,
  CC       P.fluorescens and S.aureus. Forms large ion channels responsible
  CC       for disrupting the cellular envelope of bacteria leading to cell
  CC       lysis.
  CC   -!- PTM: Glycosylated.
  CC   -----------------------------------------------------------------------
  CC   This Swiss-Prot entry is copyright. It is produced through a collaboration
  CC   between  the Swiss Institute of Bioinformatics  and the  EMBL outstation -
  CC   the European Bioinformatics Institute.  There are no  restrictions on  its
  CC   use as long as its content is in no way modified and this statement is not
  CC   removed.
  CC   -----------------------------------------------------------------------
  DR   PIR; S74087; S74087.
  DR   GO; GO:0019835; P:cytolysis; TAS.
  DR   GO; GO:0050829; P:defense response to Gram-negative bacteria; TAS.
  DR   GO; GO:0045161; P:ion channel clustering; TAS.
  KW   Antibiotic; Cytolysis; Direct protein sequencing; Glycoprotein.
  FT   NON_TER       19      19
  SQ   SEQUENCE   19 AA;  1966 MW;  6DC0EA343D6F0242 CRC64;
       GIGGKPVQTA FVDNDGIYD
  //
  ```
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Project Overview (3/3)

- Started in 1996, but still not production ready at the end of 2002!
- No tests, no clear architecture, no coding standards, global variables everywhere
- Time was running out!

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Cultural Context

- Command and control management
- No teamwork
- Programming considered a trivial activity

Manifesto for Agile Software Development

We are uncovering better ways of developing
software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on
the right, we value the items on the left more.

Why An Agile Methodology (1/2)

- The official reasons…
  - Low overhead
  - Suitable for frequently changing requirements
  - Incremental
  - Strong focus on quality

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Why An Agile Methodology (2/2)

- …And the real one!
  - A lot more fun

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Why A Custom One (1/2)

- The methodology had to be natural to follow
- It had to evolve according to our needs

Why A Custom One (2/2)

- XP is too prescriptive
- One methodology per project approach

The Methodology (1/3)

- Technical side
  - Iterative and incremental
  - Short iterations
  - Configuration management
  - Merciless refactoring
  - Tests
  - Coding standards
  - Metaphor

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C++ and Python

- "Most people tend to kid themselves that languages are chosen for technical reasons. Languages are chosen for social reasons and justified for technical reasons." **Luke Hohmann**.

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C++ and Python

- We loved them ☺

The Methodology (2/3)

- Human side
  - Collective code ownership
  - Requirements gathering
  - Requirements prioritisation
  - Face to face communication
  - Expectations management
  - Teamwork
  - Daily meetings
  - Accountability

The Methodology (3/3)

- Natural to implement
- *Defined by the entire team*

Implementation (1/4)

- Convincing the boss
- Convincing the customer
- Political and technical problems

Implementation (2/4)

- Clear project goals
- Alignment of personal goals with project goals
- Self-motivation
- Trust

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Implementation (3/4)

- Communication
- Courage
- Never named the process explicitly

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Implementation (4/4)

- Some organisational patterns (Rising and Manns)
  - Personal touch
  - Trial run
  - Just say thanks
  - Shoulder to cry on

How We Convinced The Boss

- Making the customer happy
- Trial run
- "Risking" my career advancement

How We Convinced The Customer

- Trial run
- Face to face communication
- Short iterations
- Walking skeleton

Some Problems (1/3)

- Collaborators in a different country
- Previous technical lead still involved
- Lack of clarity on some duties and responsibilities

Some Problems (2/3)

- Documentation days every six months
- Imposition of some technical choices
- Lack of computing resources

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Some Problems (3/3)

- Shoulder to cry on
- People under pressure tend to revert to the old habits

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What Worked Well

- On time deployment in production
- Satisfied customer
- Satisfied team
- Maintainable code

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…And What Didn't

- Manual acceptance tests
- Wastes of time waiting for customer input
- Some technical compromises for political reasons
- Lack of computing resources

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Questions?

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