

WRITING GREAT CODE THAT SURVIVES HYPES, CUTBACKS AND TAKEOVERS

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Writing great code that survives hypes, cutbacks and takeovers



They knew why!

路路線才外線站編

What will his coding be like?

LIVE FREE OR DIE



Writing great code that survives hypes, cutbacks and takeovers

Session overview

- Design
- The Team
- Documentation
- The Work
- Continuous testing
- My favorite quote



IT'S THE DESIGN, STUPID!

"DESIGN, IN ITS BROADEST SENSE, IS THE ENABLER OF THE DIGITAL ERA - IT'S A PROCESS THAT CREATES ORDER OUT OF CHAOS, THAT RENDERS TECHNOLOGY USABLE TO BUSINESS. DESIGN MEANS BEING GOOD, NOT JUST LOOKING GOOD." CLEMENT MOK

"ART HAS TO MOVE YOU AND DESIGN DOES NOT, UNLESS IT'S A GOOD DESIGN FOR A BUS." DAVID HOCKNEY



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It's the design, stupid!

- Well thought through design from day one.
- Security built in from the beginning.

Quality must be designed in at the start, it cannot be added later...

... but even quality software can erode if care is not observed continuously



THE TEAM

"A GROUP IS A BUNCH OF PEOPLE IN AN ELEVATOR. A TEAM IS ALSO A BUNCH OF PEOPLE IN AN ELEVATOR, BUT THE ELEVATOR IS BROKEN!" BONNIE EDELSTEIN

"WILD DUCKS MAKE A LOT OF NOISE, BUT THEY ALSO HAVE THE SENSE TO BENEFIT FROM OCCASIONALLY FLYING IN FORMATION."



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Team

- Culture: more than just a job
- Experienced engineers
- Recognized experts
- Informal organization
- Old-timers mentor new engineers
- Developer-user community



DOCUMENTATION

/* IF THE NEW PROCESS PAUSED BECAUSE IT WAS SWAPPED OUT, SET THE STACK LEVEL TO THE LAST CALL TO SAVU(U_SSAV). THIS MEANS THAT THE RETURN WHICH IS EXECUTED IMMEDIATELY AFTER THE CALL TO ARETU ACTUALLY RETURNS FROM THE LAST ROUTINE WHICH DID THE SAVU. YOU ARE NOT EXPECTED TO UNDERSTAND THIS. */ BELL LABS V6 UNIX (1975)



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Documentation

- Design specifications
- In-code (why was this done this way?)
- IDSM



THE WORK

"I LOVE DEADLINES. I LIKE THE WHOOSHING SOUND THEY MAKE AS THEY FLY BY." DOUGLAS ADAMS

"WHILE IT IS A KNOWN FACT THAT PROGRAMMERS NEVER MAKE MISTAKES, IT IS STILL A GOOD IDEA TO HUMOR THE USERS BY CHECKING FOR ERRORS AT CRITICAL POINTS IN YOUR PROGRAM." **ROBERT D. SCHNEIDER**



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Workflow

- Problem
- Design
- Prototype
- Implement
- Test
- Document
- Release
- Strong focus on quality



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Problem statement

• As much detail as possible



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Design

- Design specification (multiple approaches)
- Design review
- Committees for major decisions



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Prototype

- Verify design against reality
- Produce test cases
- Meeting to discuss results of prototyping



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Implement

- Code
- Integrate into current development stream
- Code review upon checkin
- Code review meetings for larger changes



Test

- Unit tests handed over to Quality Test & Verification
- Incorporated into standard set of tests
- Everything we say we support, we test
- Continuous testing (discussed in detail later)



Document

- Description handed off to Documentation team
- Documentation team writes/changes documentation
- Documentation review before release



Release

- Release manager has authority to accept/reject changes
- Team of builders is in control of master code streams



Strong focus on Quality

- Don't ship it if it doesn't meet the quality criteria
- Never break old functionality for new features
- Be prepared to stop forward development in favor of fixing bugs
- Customers rely on the quality of your work
- Design software so it captures enough meaningful details in the event of a failure
- Procedure-driven: code and design reviews slow down development, but lead to higher quality



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"Fashion is a form of ugliness so intolerable that we have to alter it every six months." OSCAR WILDE





Continuous testing

- OS, utilities and products built from scratch weekly
- Installed on many servers by Quality Test & Verification
- Regression tests
- Day-to-day work (e-mail, notes, testing)



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"On two occasions I have been asked, 'Pray, Mr. Babbage, if you put into the machine wrong figures, will the right answers come out?' I am not able rightly to apprehend the kind of confusion of ideas that could provoke such a question." **CHARLES BABBAGE**