Still TCL after all these years ...

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How i learned to stop worrying and to rely on frameworks, building blocks and tests

A short historical overview how i used TCL through the ages and where it helped me to successfully build industry reliable working software tools.

The dark ages ...

- 1995 founded MATHEMA GmbH
- Sun SPARC 10 for about 12KDM
- C and X11, about 200 lines for window + button + colour stripes
- crash on different colour depth
- wrote little helpers, GUI tools, text processing for admin tasks, generated content for pagemaker layout pgm

New horizons ...

- 1998 joined BIOTRONIK GmbH & Co. KG

- Knowledge on TCL, GUI development helped to being accepted
- Creating tools using Labwindows CVI
- Helped VLSI department on TCL with filters and helpers in chip development

Invention of Home Monitoring

- Development of implantable Pacemaker with transmission antenna for ULPAMI
- Development of Patient Device RUC (remote unit controller), bridge to GSM
- Feasibility shown on XIth World Symposium on Cardiac Pacing and Electophysiology, Berlin, June 27-30, 1999
- Task: write demo application for 6 implants

The big challenge ...

ZDFtext   Multimedia
Service

Herzschrittmacher sendet Daten an Arzt

Das amerikanische Gesundheitsamt hat
einen Herzschrittmacher zugelassen, der
ständig Daten über seine Arbeit sammelt
und per Funk an die Basisstation außer-
halb des Körpers übermittelt. Von dort
gingen die Informationen gesammelt an
den behandelnden Arzt, der so Informa-
tionen über den Zustand des Patienten
erhalte.

Der Arzt könne selbst programmieren,
wie oft der von der deutschen Firma
Biotronik entwickelte Herzschrittmacher
die Daten übermittelt. Zum Datentrans-
fer genüge es, dass sich der Patient in
einem Gebiet aufhielte, in dem Handybe-
trieb möglich sei.

Where TCL helped

- Produce readable and maintainable code
- GUI tools to ease adminstration tasks
- Network transparent operation
- OS independent development (SunOS SPARC -> Linux x86 -> Solaris x86 -> Linux on vmware SUN T4-4)
- Tclhttpd as webserver for monitoring
- Extension crosscompiled for 4 platforms

Some demo views

More demos

- eti -> eti2 -> miniweb editors/wiki
- tool -> tools frameworks
- toolserver -> testserver -> snitwebserver
- moni to produce monitoring dashboard

Building blocks that helped

- tclhttpd tcllib -> everything was prepared!
- Oratcl tequila sqlite -> rock stable! (2 of 3)
- ttk::notebook tablelist -> beautiful GUI
- iTcl Xotcl snit -> understand the java folks
- Freewrap -> apps for inhouse customers
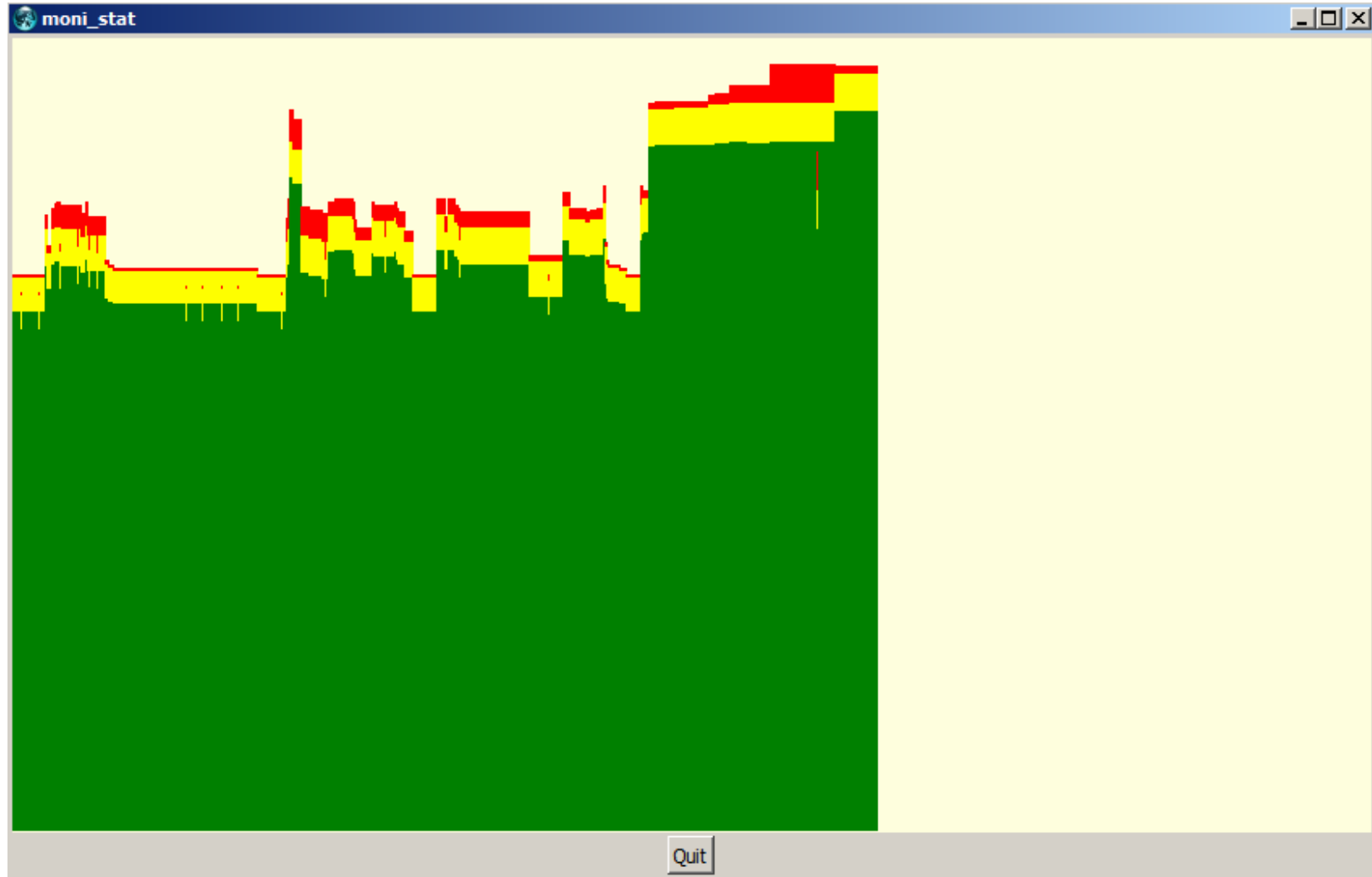- tcltest -> assurance system running, TDD

continuous monitoring

- moni to do tests locally
- testserver to distribute results
- moniweb to produce dashboard as ONE big wiki HTML page

Continous development, TDD

- moni to wrap tcltest for user tests and IT staff
- Test driven development

Development cycles

Why testing?

- Testing makes you aware whether expectations / requirements are met by your implementation

- Gaining intelligence all time during development through tests!

- The problem is not that there are problems. The problem is expecting otherwise & thinking that having problems is a problem. —T. Rubin

Thank you

- for your attention

- for a fantastic community

- for the organization

A wish came true ?

- #!/usr/local/bin/tclsh
- # sas - Small Application server - Snit Application Server
- if {$argv == ""} {puts "appname please!"; exit 0}
- package require snit; package require sqlite3
- sqlite3 db $env(HOME)/etc/dbs/[lindex $argv 0].db
- proc runpage {wiki page} {db eval {select value from tt where wiki = $wiki and key = $page} x {set code $x(value)}; eval $code}
- runpage main boot
- runpage main init

Environment for sas apps

- DB contains "pages" in a wiki with key-value pairs

- Create table for app APPNAME in path $HOME/etc/dbs/APPNAME.db like so:

- CREATE TABLE tt (id id, key text, value text, wiki text, first date, count number, last date)

- Pages main:boot and main:init are started first

- Extensions for jobs, ping tests, wiki, webserver ...

- freewrap sas.tcl to create universal binary