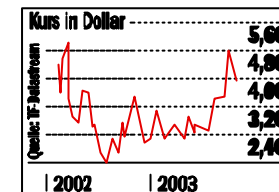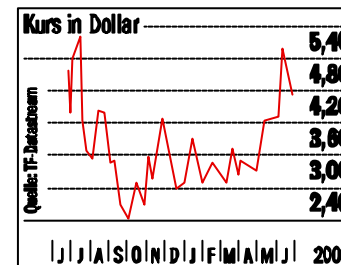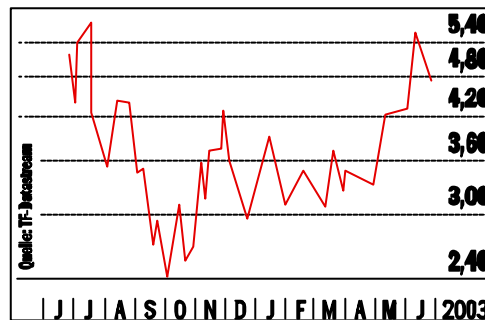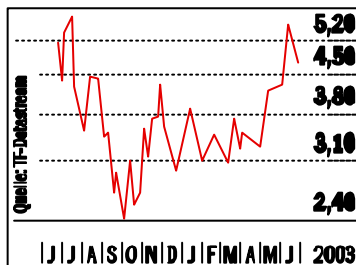# smallCharts®

Its Development and Design

Christian Haider

Overview

- The problem

- The solution: smallCharts 1.0

- Next customer: version 2.0

- Packages and packaging

- Development process

- Challenges ahead

The Problem

- **Many simple standardized charts**

- **Charts are copied by hand**
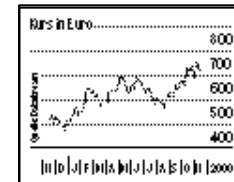 - tedious, expensive, error prone
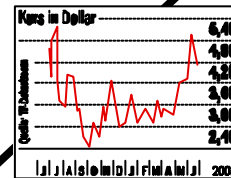
The Workflow

Editor

1. Idea for a chart
2. Get raw chart

Info Graphic

Copy into template

Layout
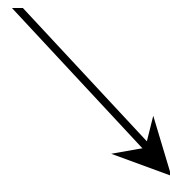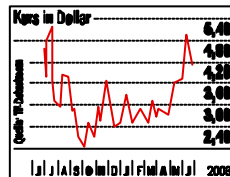
Place on page

The Workflow with smallCharts

Editor

1. Idea for a chart
2. Get raw *data*
3. Make a smallChart

Info Graphic
Art work and repairs

Layout
Place on page

smallCharts 1.0 - Surface
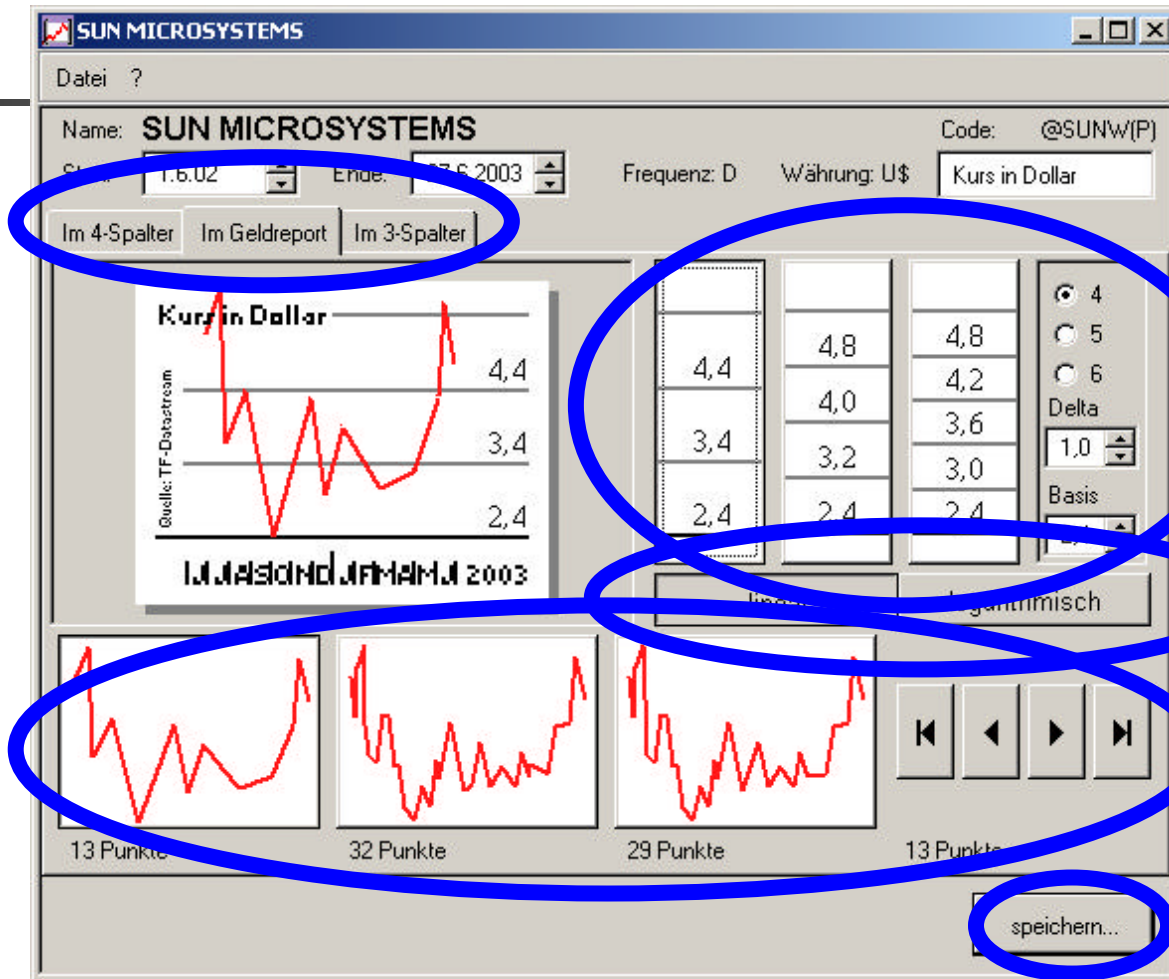
It's simple

- **Desktop application/Tool**
- **One user**
- **No Database**
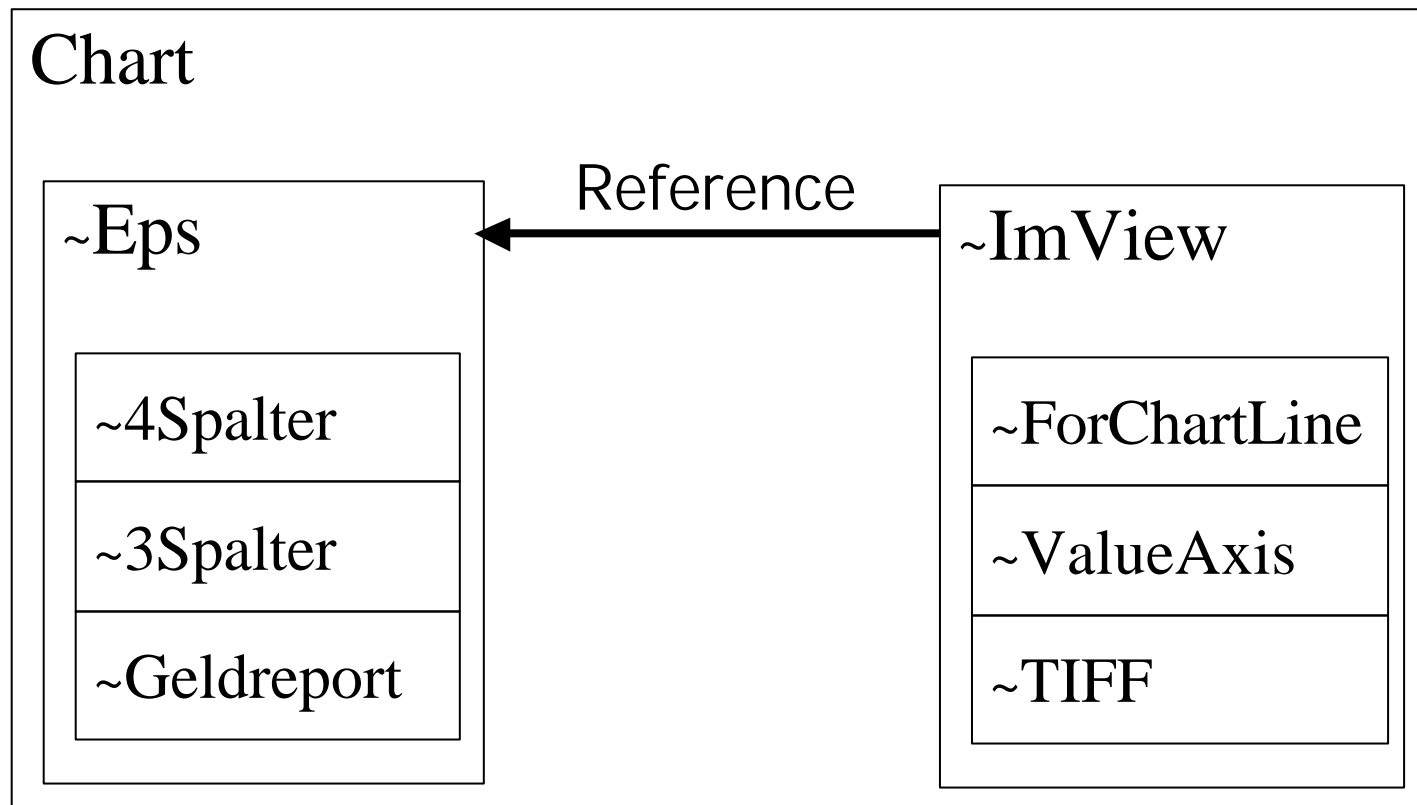- **No Connectivity**
- **No Host**
- **No Concurrency**

But… some Challenges

- Line smoothing
- Good scaling (the value scale)
- Output format (eps for FreeHand)
- Fonts
  - Matching Type-1 fonts with screen fonts
  - encodings

Structure

smallCharts

Chart

~Eps
- ~4Spalter
- ~3Spalter
- ~Geldreport

~ImView
- ~ForChartLine
- ~ValueAxis
- ~TIFF

GUI

ChartTool

ChartView

Picker
- Scale~
- Chart~

Editor
- Scale~
- Chart~

Chartable

DataPoint

FileReader

ChartLineMaker
- Logarithmic~

ChartLine
- ~Segment
- ~Point

ChartScale

Scale

Tick
- Major~

Telebörse

SmallCharts

Haider   DELocale   PostScript   TIFF

VisualWorks 5i.3   Windows Goodies   PSFontDeply5i

Win32   Datastream   FreeHand

Core Model

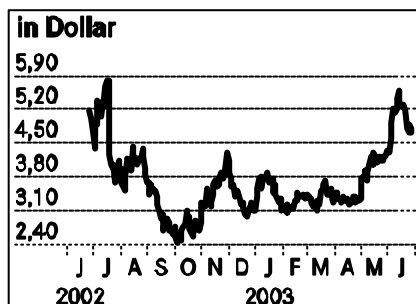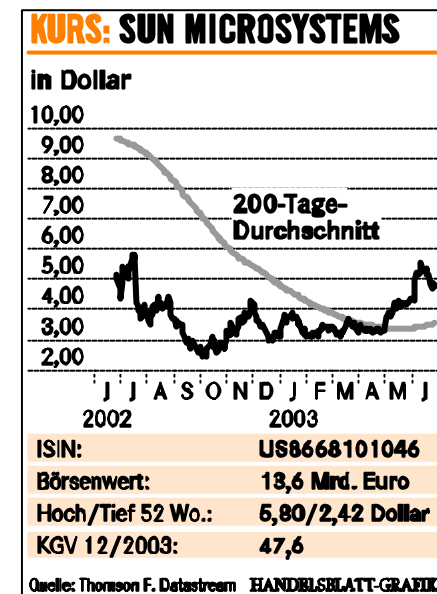| Chart		
~Eps	Reference	**~ImView**
~4Spalter		~ForChartLine
~3Spalter		~ValueAxis
~Geldreport		~TIFF

smallCharts 2.0

- Variable dimensions
- Many more editable texts
- Moving average
- Movable text
- Multicolor text

More new Formats…

…and more…

- Online (automatic) Charts
- Tables with shared Texts

...and other demands

- **Intraday Charts**
- **Updatable charts**
- **Spot colors**
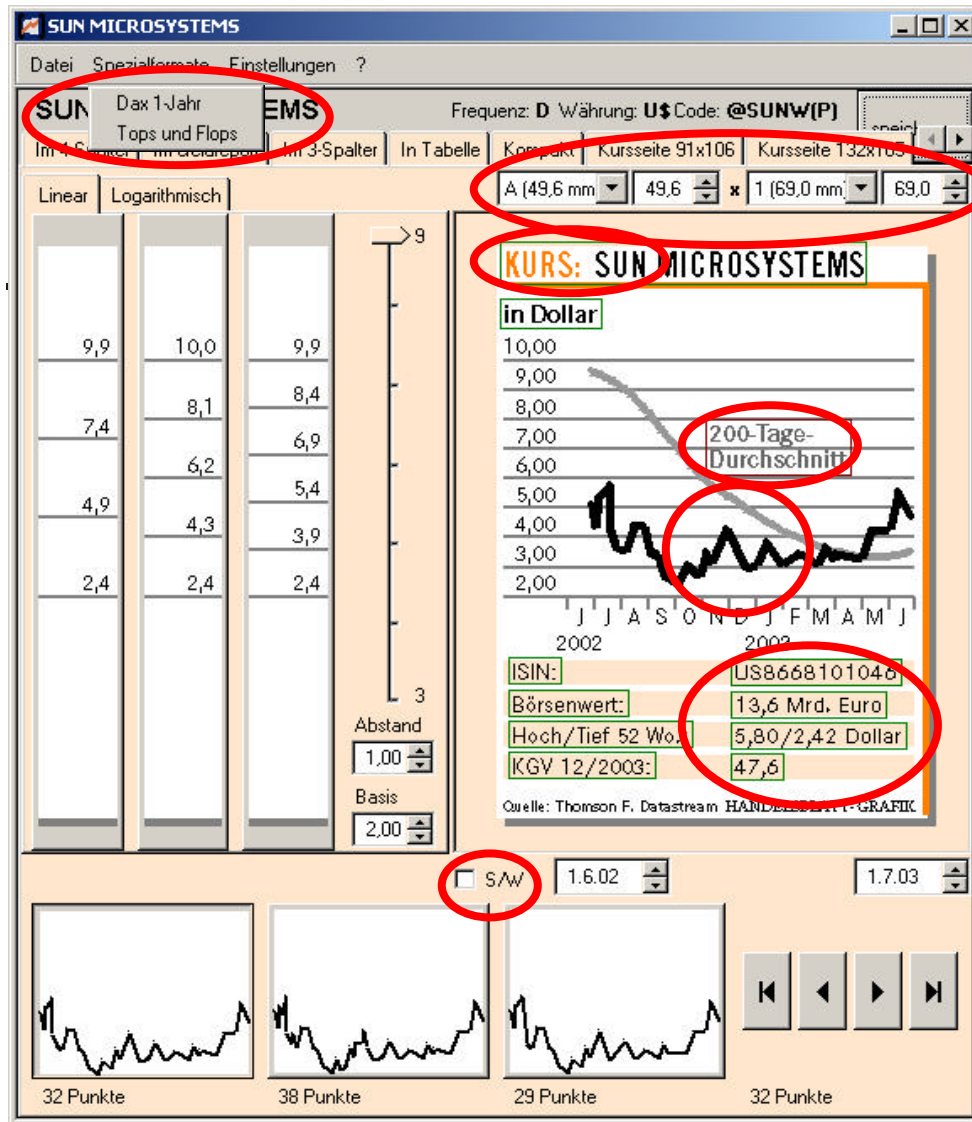
Surface 2

- Online formats
- Variable dimensions
- In-place editing
- Movable labels
- Multiple chartlines
- Color
- Multi-color text

Challenges

- **In-place editing**

- **Movable labels**

- **GUI event order**

- **Matching PostScript fonts with Screen fonts**

  - Found the magical factor:

  ```
  magicScalingFactor
        ^self textSize / Screen default defaultFontPolicy defaultFont pixelSize * 1.14
  ```

Structure 2

Handelsblatt

Telebörse

ChartTool

smallCharts

Format   Chart

Chartable

DataPoint   Text

Presentation

GUI

Choice

ChartChoice

3Button&Edit~

Info~   Time~

ChartView

Editor

Data Reading

Reader

Scales

ChartScale

Chartlines

Painter

PostScript Font   TIFF

SmallCharts

VisualWorks 7   DELocale   Windows Goodies

Win32   Datastream   FreeHand
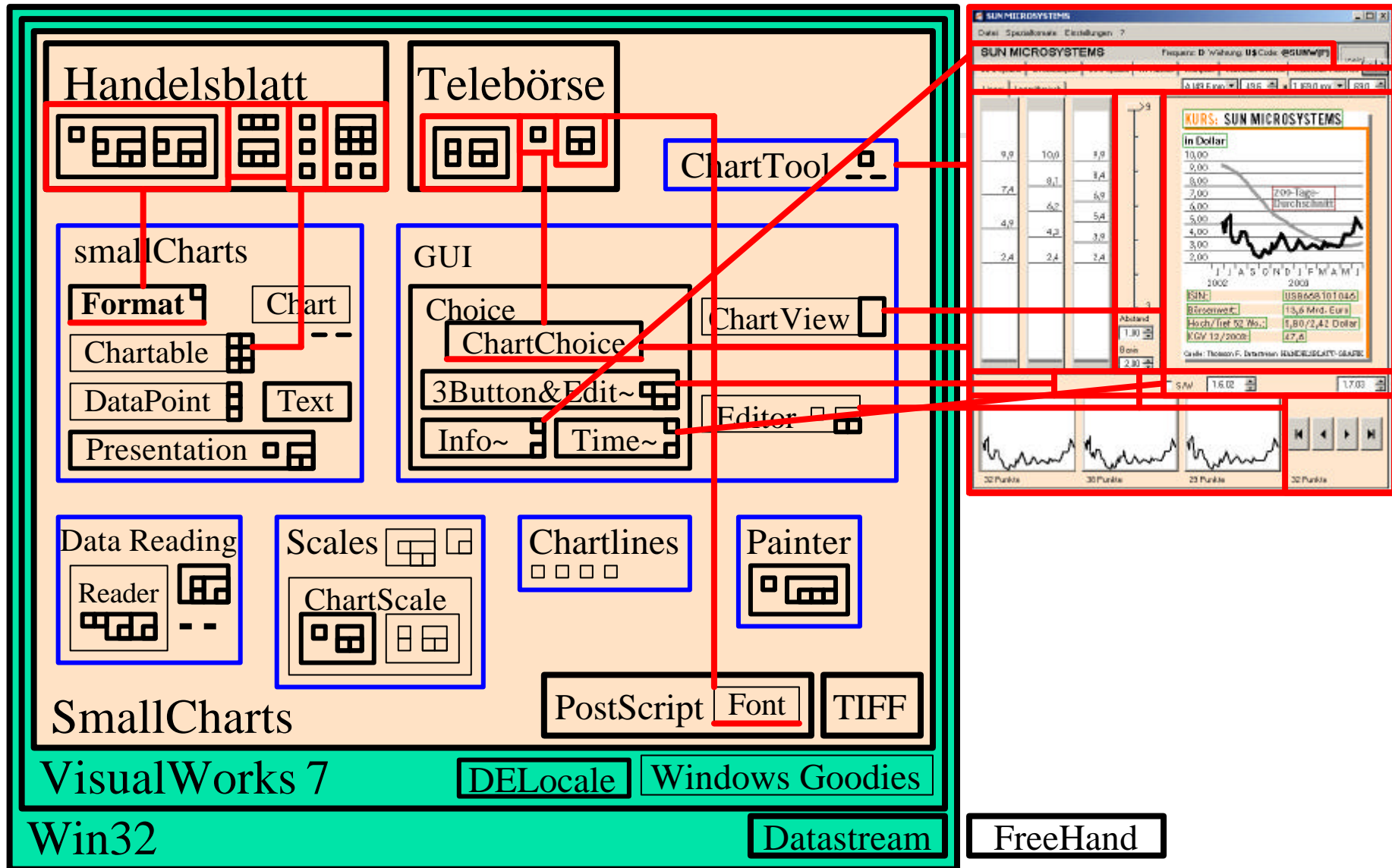
Core Model
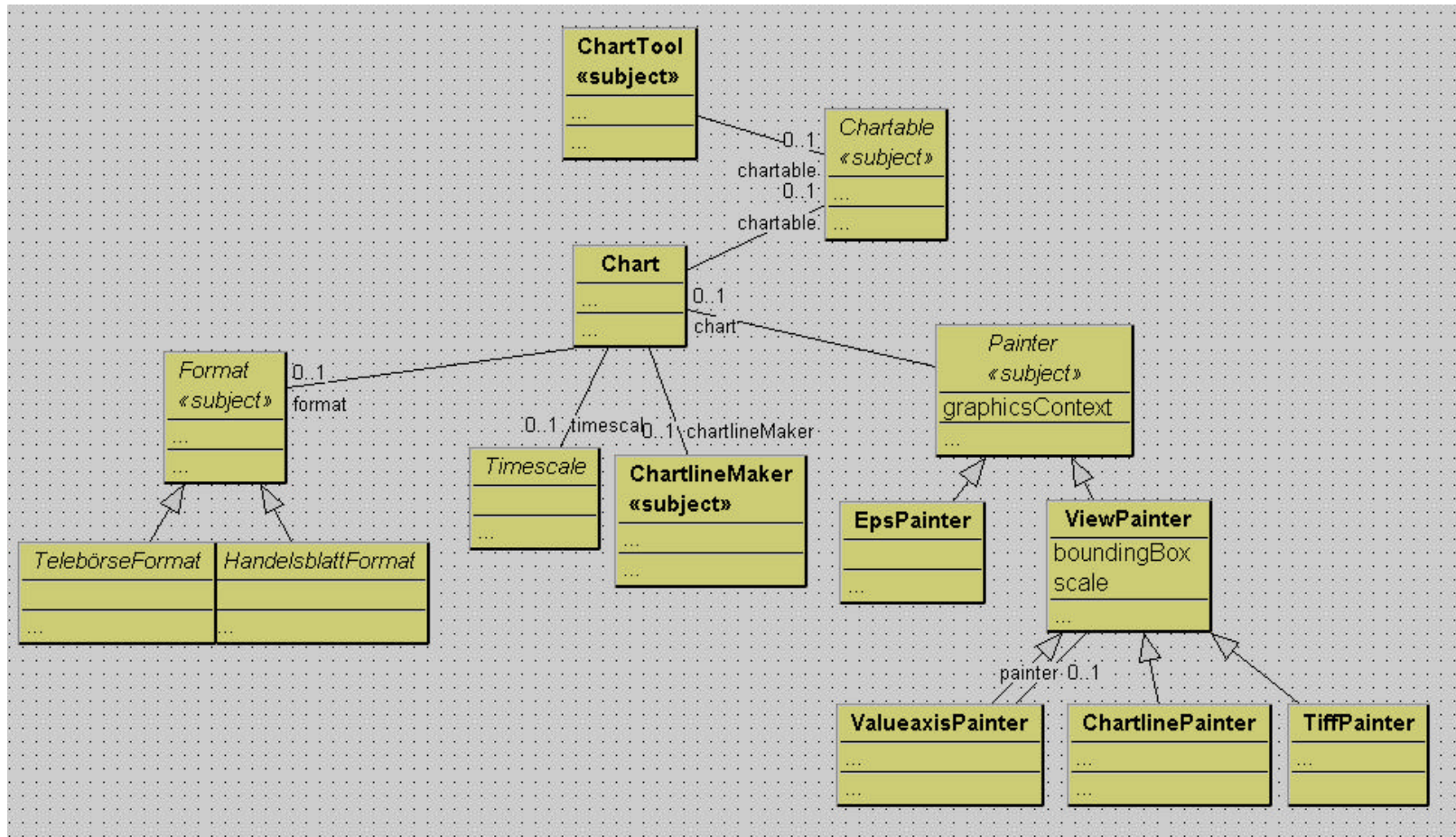
Packages

- **Packaged from pundles**
- **Tight packaging – Fat Free Runtime**
- **Code (without Source):**
  - 1.0:   311 KB
  - 2.0: 1030 KB
- **Big literal strings**

Packages
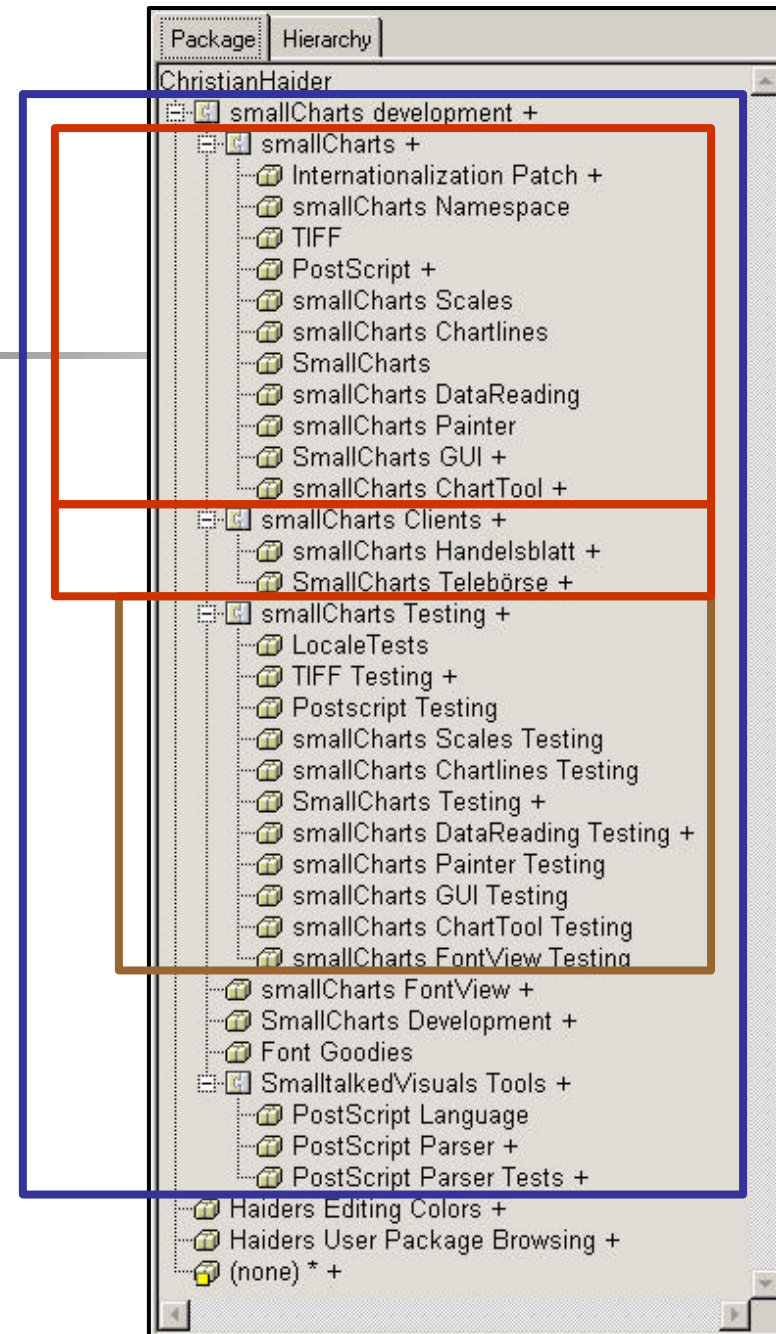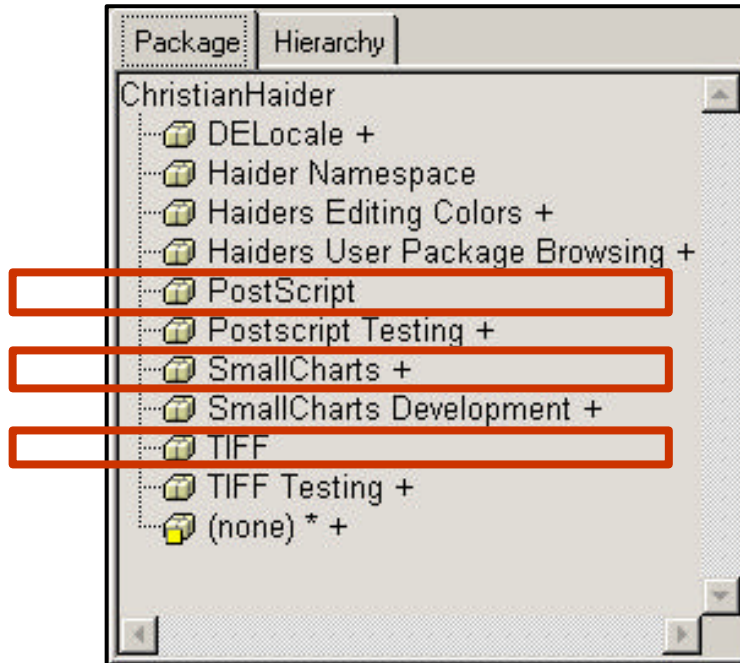
Deployment

- **Single smallCharts.exe**
  - 1.0: 2.88 MB
  - 2.0: 3.84 MB
- **Lauch with desktop link from a file server**
- **User specific settings**
  - lastDirectoryForOpen
  - lastDirectoryForSave
  - lastFormatSaved
  - 2.0: Window size and position for each format

Development Process

- Simple solutions for concrete demands
- Early deliveries
- Relentless refactoring (old versions work)
- Relentless repackaging
- Checklists
- Tools (eps viewer)
- Testing

Smelly places

- **Format determination for input files - open**

- **Updateable formats - responsibility mixup**

- **GUI-Events - complex, hard to maintain**

- **Redisplaying**

- **Model: Format, Chart, Painter - Multicharts**

- **Format constants - Methods or variables?**

- **Fonts in VisualWorks**

Challenges ahead

- COM connection to Datastream

- Web graphics (WebServices, SVG)

- Eps-Parser

- Format editor

- Feature based Structure

- Bugmails and Automatic update

- Internationalization

Thank You!

Questions?

Contact: www.smallCharts.com