Wt, The Witty Web Toolkit

FOSDEM – Lightning talk

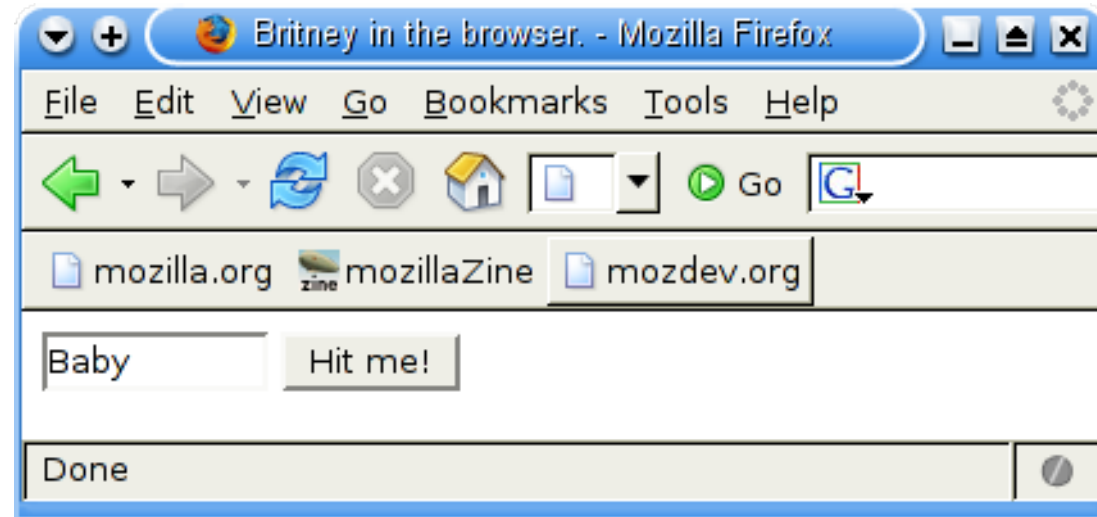Koen Deforche – Wim Dumon – Pieter Libin

Wt Basics

- Library to develop web applications
  - Rich Internet Applications
  - Web 2.0

- Available for C++ (now), and Java (soon).

- Object Oriented Widget tree model
  - API is inspired by existing GUI libraries

- Provides abstraction of web technologies
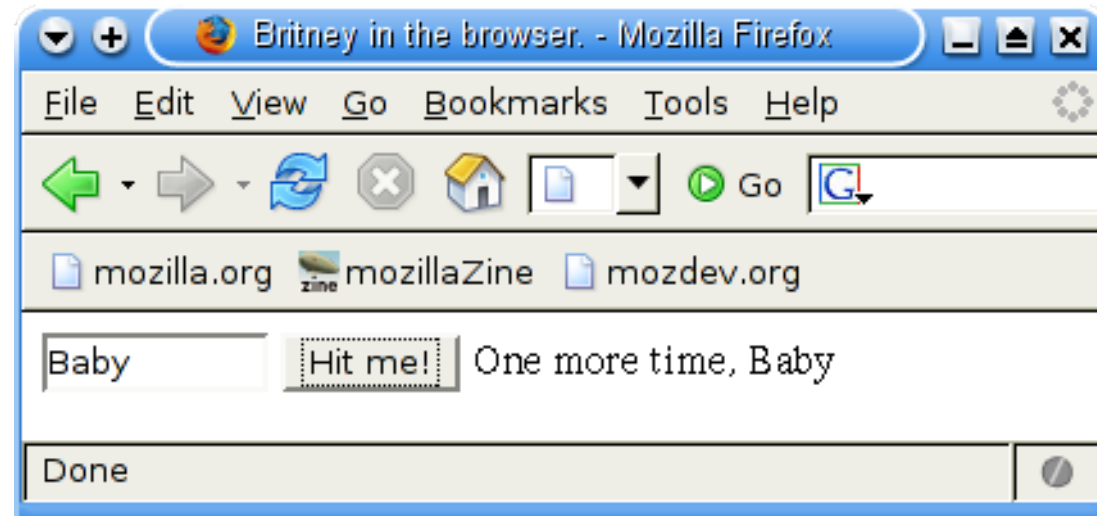 - CGI/HTML/AJAX/JavaScript/Forms/DOM

Hello Britney!

Hello Britney!

Is Britney Witty or a Cuty?


```cpp
HitMeWidget::HitMeWidget(QWidget *parent)
    : QWidget(parent)
{
    nameEdit_    = new QLineEdit("", this);
    hitButton_   = new QPushButton("Hit me!", this);
    oneMoreTime_ = new QLabel("", this);
    connect(hitButton_, SIGNAL(clicked()), this, SLOT(oneMoreTime()));

    QHBoxLayout *layout = new QHBoxLayout(this);
    layout->addWidget(nameEdit_);
    layout->addWidget(hitButton_);
    layout->addWidget(oneMoreTime_);
}

void HitMeWidget::oneMoreTime()
{
    oneMoreTime_->setText("One more time, " + nameEdit_->text());
}
```
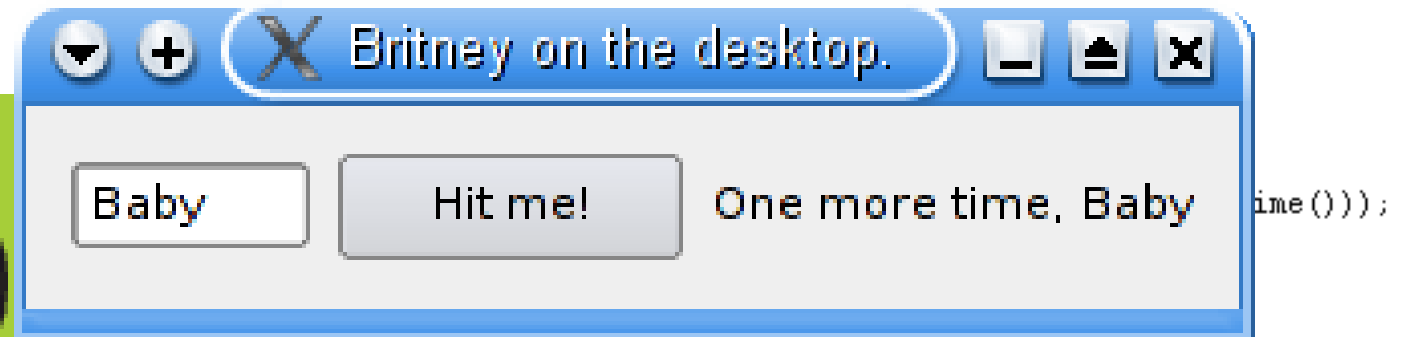
```cpp
HitmeWidget::HitmeWidget(WContainerWidget *parent)
    : WContainerWidget(parent)
{
    nameEdit_    = new WLineEdit("", this);
    hitButton_   = new WPushButton("Hit me!", this);
    hitButton_->setMargin(WLength(5), Left | Right);
    oneMoreTime_ = new WText("", this);
    hitButton_->clicked.connect(SLOT(this, HitmeWidget::oneMoreTime));
}

void HitmeWidget::oneMoreTime()
{
    oneMoreTime_->setText("One more time, " + nameEdit_->text());
}
```

Wim Dumon

Browser and Desktop

Britney on the desktop.

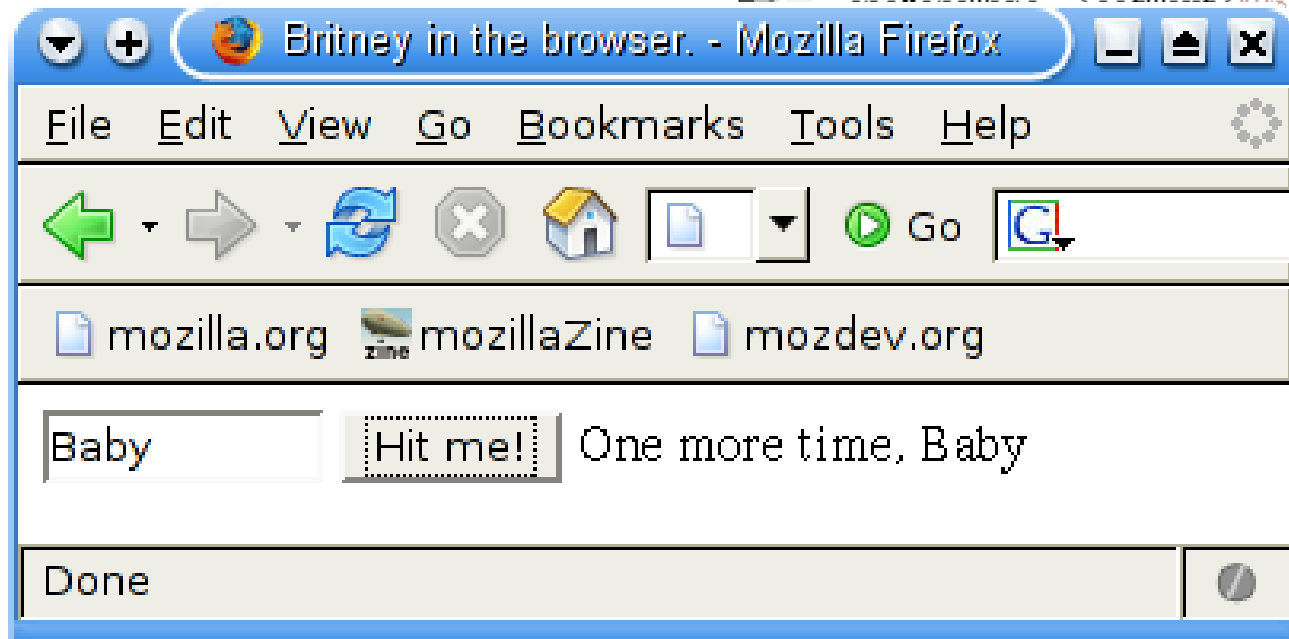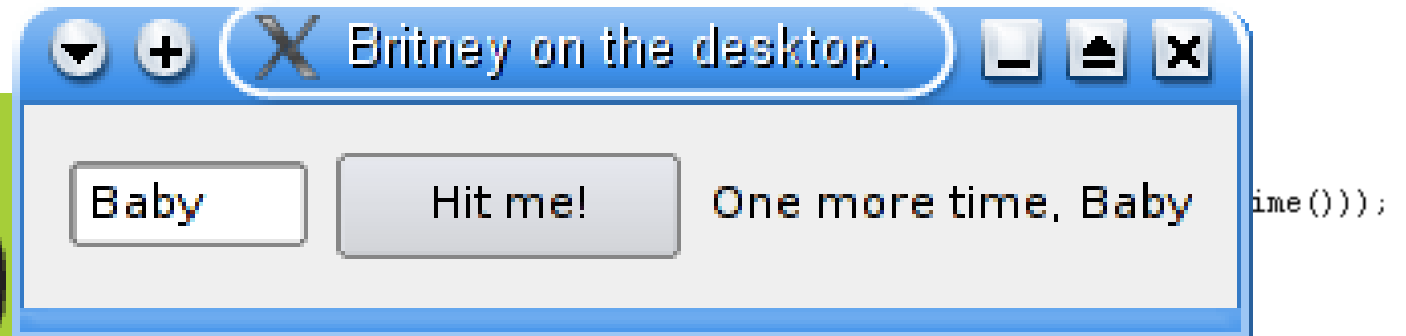Baby   Hit me!   One more time, Baby

```
    layout->addWidget(oneMoreTime_);
}

void HitMeWidget::oneMoreTime()
{
    oneMoreTime_->setText("One more time, " + nameEdit_->text());
}
```

```
HitmeWidget::HitmeWidget(WContainerWidget *parent)
    : WContainerWidget(parent)
{
    nameEdit_ = new WLineEdit("", this);
    hitButton_ = new WPushButton("Hit me!", this);
    hitButton_->setMargin(WLength(5), Left | Right);
    oneMoreTime_ = new WText("", this);
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}

void HitmeWidget::oneMoreTime()
{
    oneMoreTime_->setText("One more time, " + nameEdit_->text());
}
```
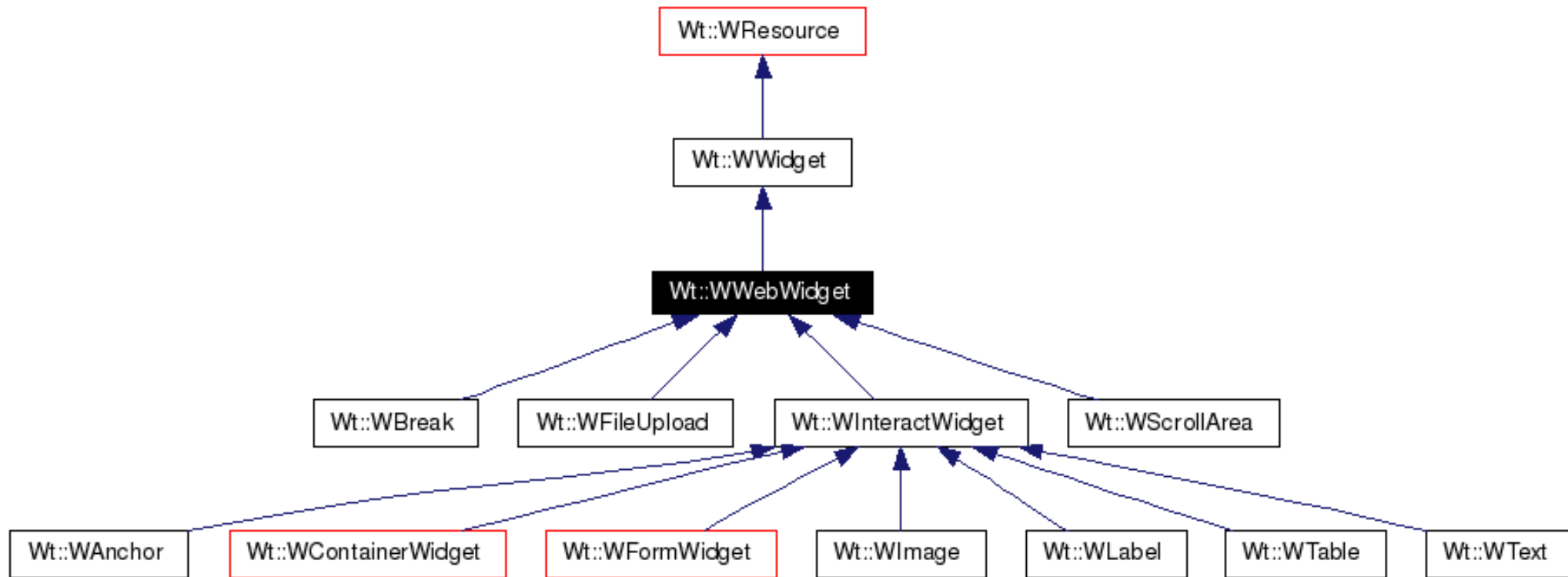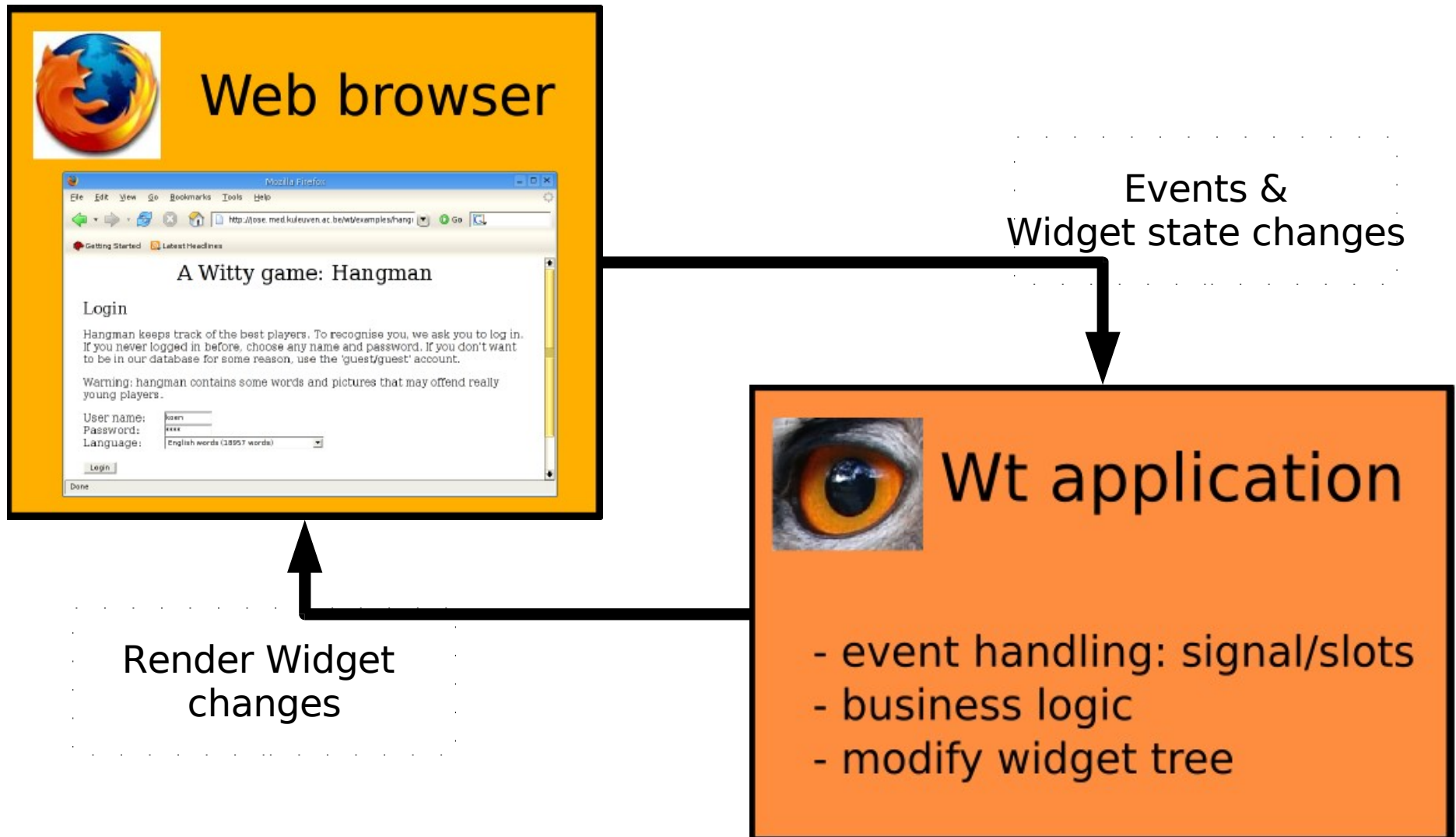
Wim Dumon

Browser and Desktop

Wim Dumon

Standard Wt Widgets

WLabel interface

Public Member Functions

	WLabel (WContainerWidget *parent=0)* *Construct a WLabel with empty text and optional parent.*
	WLabel (const **WString** &text, **WContainerWidget** *parent=0)* *Construct a WLabel with a given text.*
	WLabel (**WImage** *image, **WContainerWidget** *parent=0)* *Construct a WLabel with an image.*
WFormWidget *	**buddy** () const *Return the buddy of this label.*
void	**setBuddy** (**WFormWidget** *buddy) *Set the buddy of this label.*
void	**setText** (const **WString** &text) *Set the label text.*
const **WString** &	**text** () const *Get the label text.*
void	**setImage** (**WImage** *image) *Set the image.*
WImage *	**image** () const *Get the image.*

Wt: Event Handling

Web browser

A Witty game: Hangman

Login

Hangman keeps track of the best players. To recognise you, we ask you to log in. If you never logged in before, choose any name and password. If you don't want to be in our database for some reason, use the 'guest/guest' account.

Warning: hangman contains some words and pictures that may offend really young players.

User name:
Password:
Language: English words (18957 words)

Login

Events &
Widget state changes

Wt application

- event handling: signal/slots
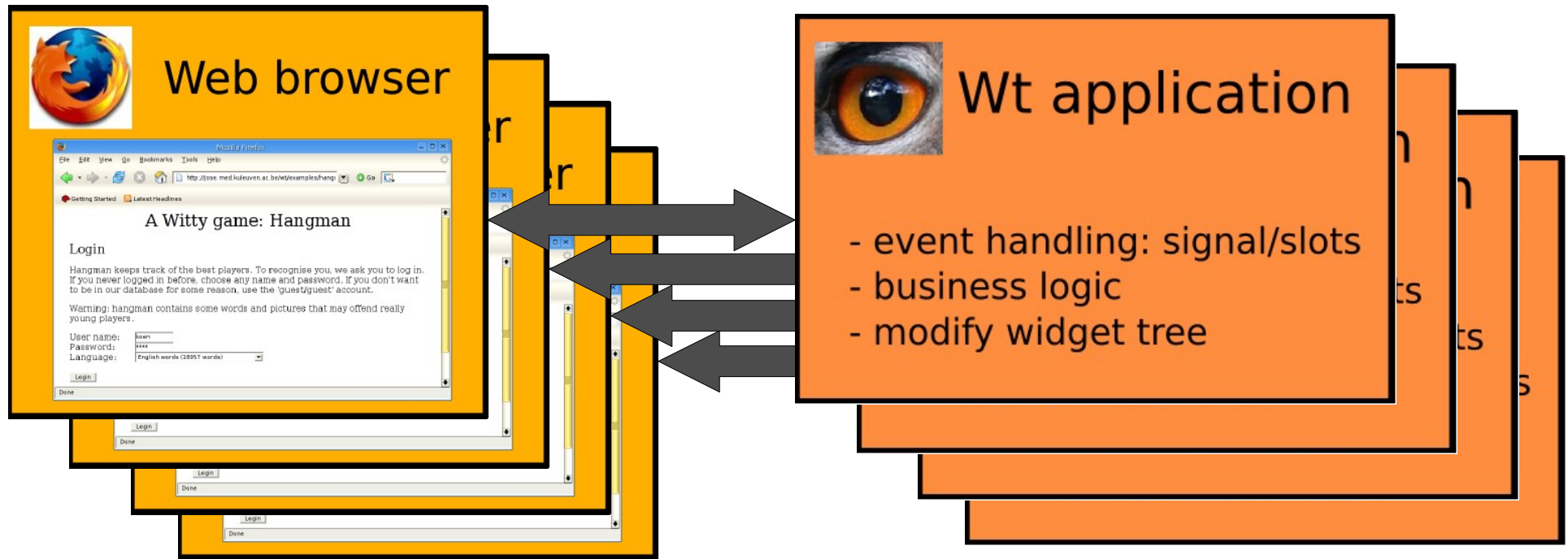- business logic
- modify widget tree

Render Widget
changes

Wt: Session Architecture

- Wt manages multiple sessions
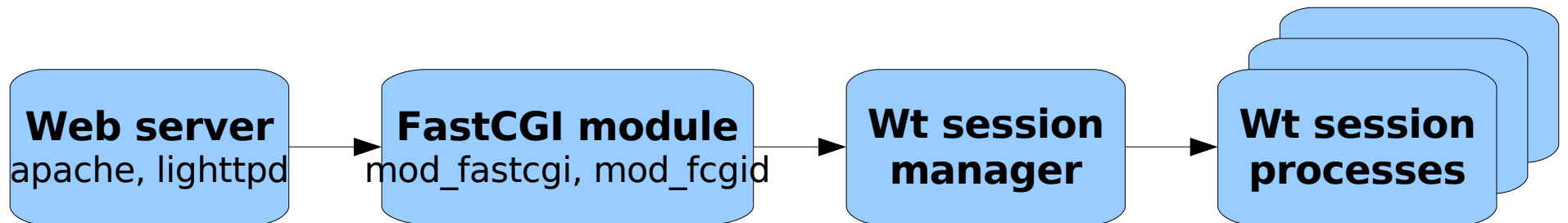
Wt: Session Management

Two modes (runtime option):

- Dedicated processes
    - One process for each session
    - High session cost
    - Kernel-level isolation between sessions
        - Suitable for application like e-banking
    - Easy to debug

- Shared processes
    - Fixed number of processes handle all sessions
    - Multi-threaded request handling
    - Low session cost
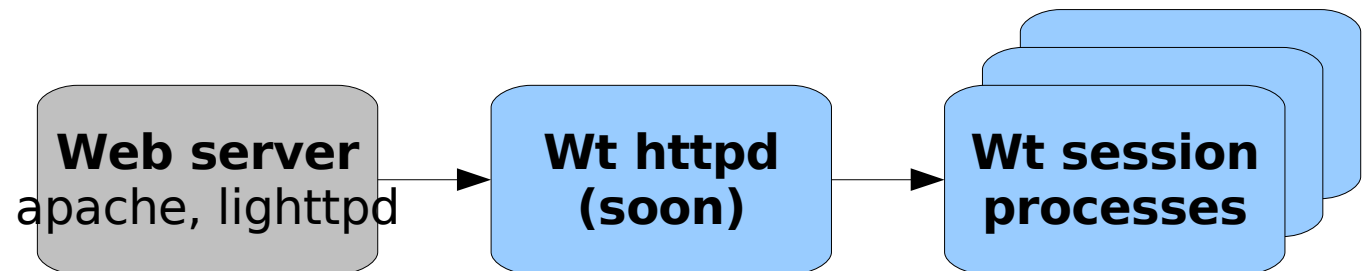   - Suitable for 'open' applications like google maps.

Wt: Deployment

- Linux & Unix:

| Web server
apache, lighttpd | → | FastCGI module
mod_fastcgi, mod_fcgid | → | Wt session
manager | → | Wt session
processes |

- Linux, Unix & Win32:

| Web server
apache, lighttpd | → | Wt httpd
(soon) | → | Wt session
processes |

Wt: Abstraction of web technologies

- Specify what the page should look like, not how it should be updated

- Specify event handling in C++

- Library tries t̶ ... ... not available use ...

- Wt may optim̶ ...

GMail Composer Example

We could have, but did not send the following email:

To: "Koen Deforche" <koen.deforche@gmail.com>
To: "Koen alias1" <koen.alias1@yahoo.com>

Cc: "Bartje" <jafar@hotmail.com>

Subject: "That's cool! Want to start your own google?"

Attachment: "uiloog.jpg" (image/jpeg), was in spool file: /tmp/wtx62RG5

Message body:
Witty message

Wt: sample applications

Wt: sample applications

Wt: sample applications

Rega DB Software
HIV Data Management and Analysis Environment
Clinical Edition

RegaDB
  Patient
    Select
    Add
    Patient [ ]
  My account
    Login

Select Patient

Hide filter			
Dataset⌄	Patient ID⌄	Name⌄	Surname⌄
No filter ▾	No filter ▾	No filter ▾	No filter ▾	Apply filter

PT	9903
PT	9889
PT	9881
PT	9861
PT	9859
PT	9856
PT	9855
PT	9760
PT	9728
PT	9674

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Wt: development status

- Wt 2.0.0 (C++): stable

- JWt (Java)
  - Runs in Java Application Servers
  - First release planned in March.

Wt: developers

- Koen Deforche
  - Initial developer, maintains C++ Wt.

- Wim Dumon
  - Documentation
  - Windows port

- Abdiel Janulgue
  - First template based signal/slot implementation

- Pieter Libin
  - Port to Java, maintains Java JWt.

Wt on the web

Availability, documentation, etc...

http://witty.sf.net

Thank you!

http://witty.sf.net/   Wim Dumon