Dynamic Slides using OpenOffice and Python

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Universitat Pompeu Fabra, Barcelona

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Dynamic presentations using OpenOffice Impress

SQL queries and high-level API

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Agenda

Part 1: General overview

- What is it
- How it works
- Past and present

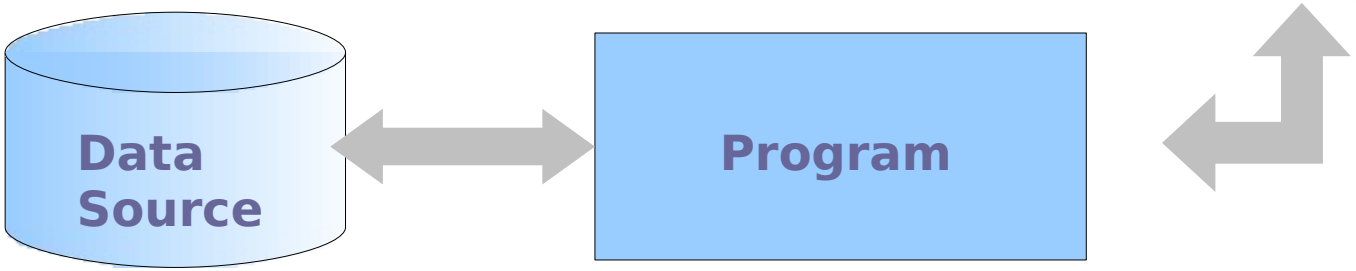
Part 2: Technical part

- The template
- The set-up


What
is it?

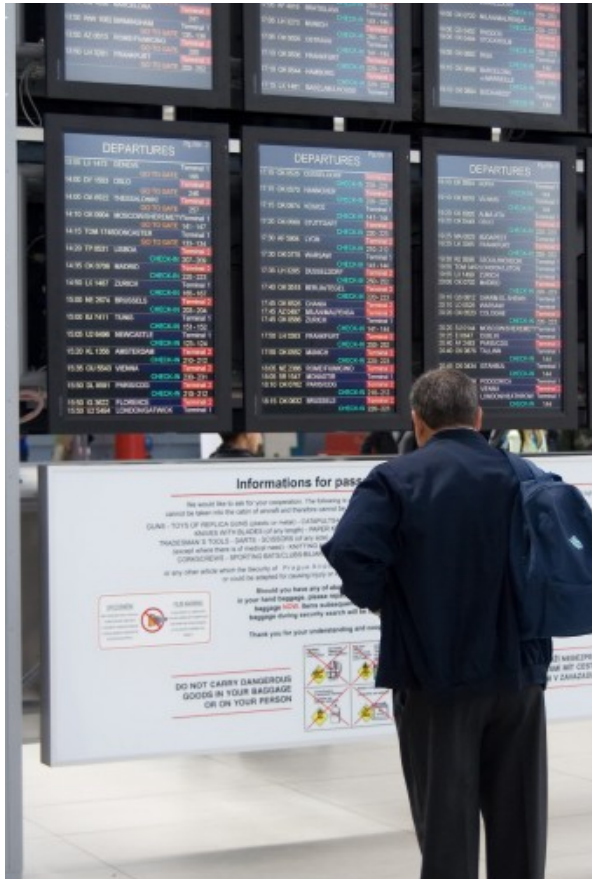
What is a dynamic slide?

- OpenOffice Impress Template
- Data behind it updated every several seconds, automatically
- Data from external source:
  - Mysql (implemented)
  - Any Python code (implemented)
  - Webservices
  - Serial port



Practical Applications

- Information Desks
- Point of Sale



- Airport
- Train Station
- Any waiting room

- Real Time Monitoring

Any place where up-to-date information is critical.

Quick win:

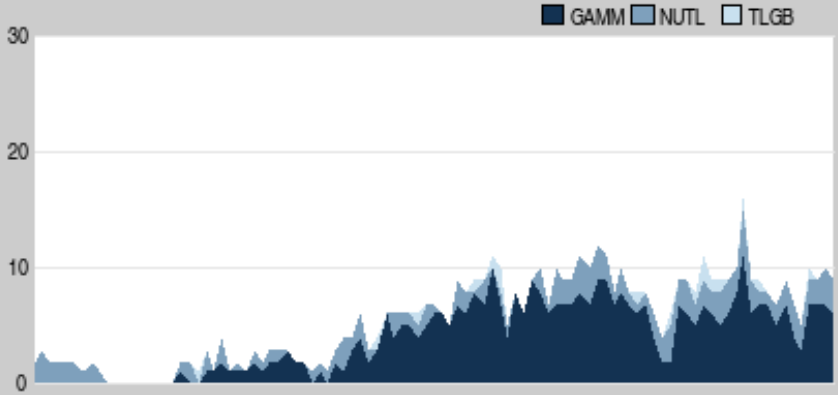
After this presentation you will be able to:

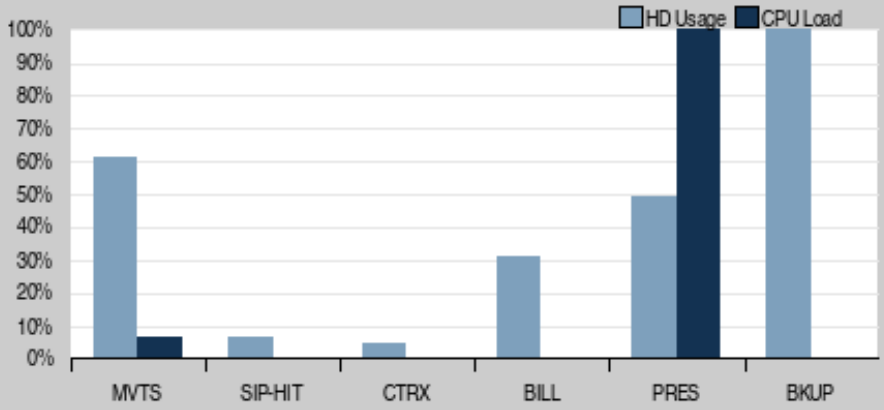
- Grab the code (http://www.lexatel.com/slides)
- Make an OpenOffice Impress template
- Write the config.py file using:
  - Mysql username and password
  - Mysql host
  - Write some queries
- Execute it!

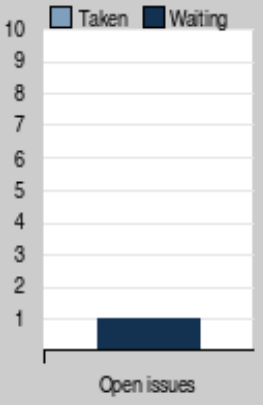
lexatel TECHNOLOGIES

Today	Time now	Active Calls	Issues
30 Aug 07	11:21	9	1 (1)

Central Node







Automatically refreshed

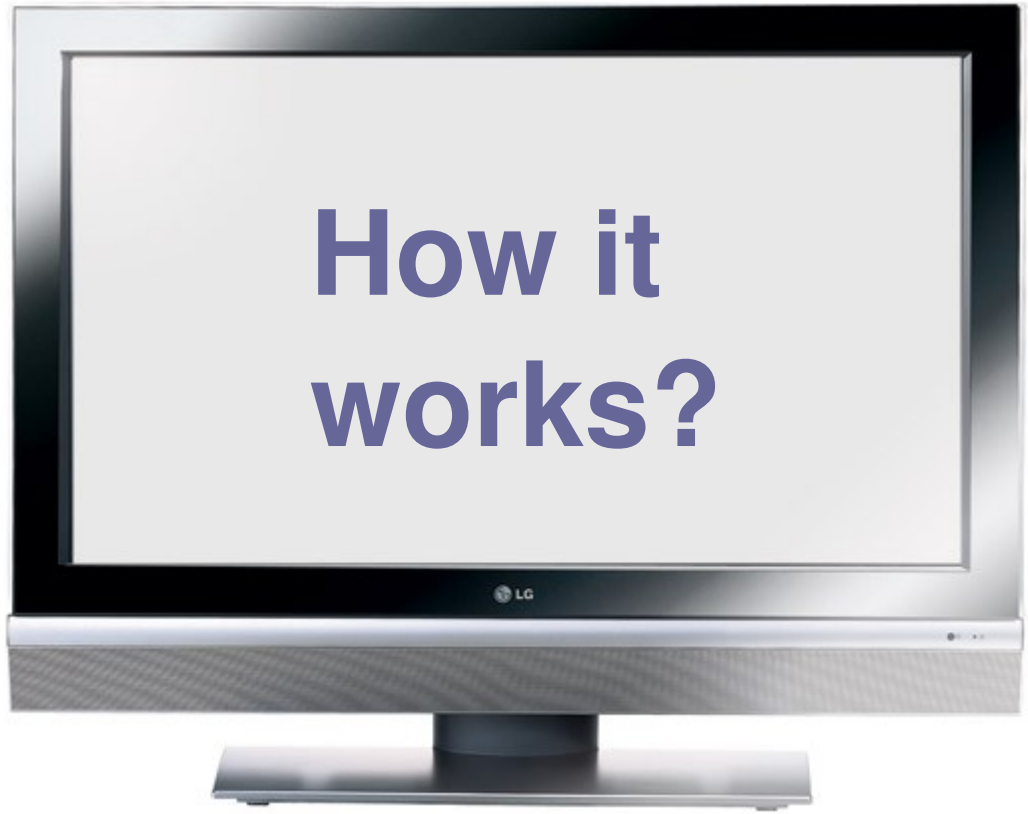
Remote Nodes

Business Rationale

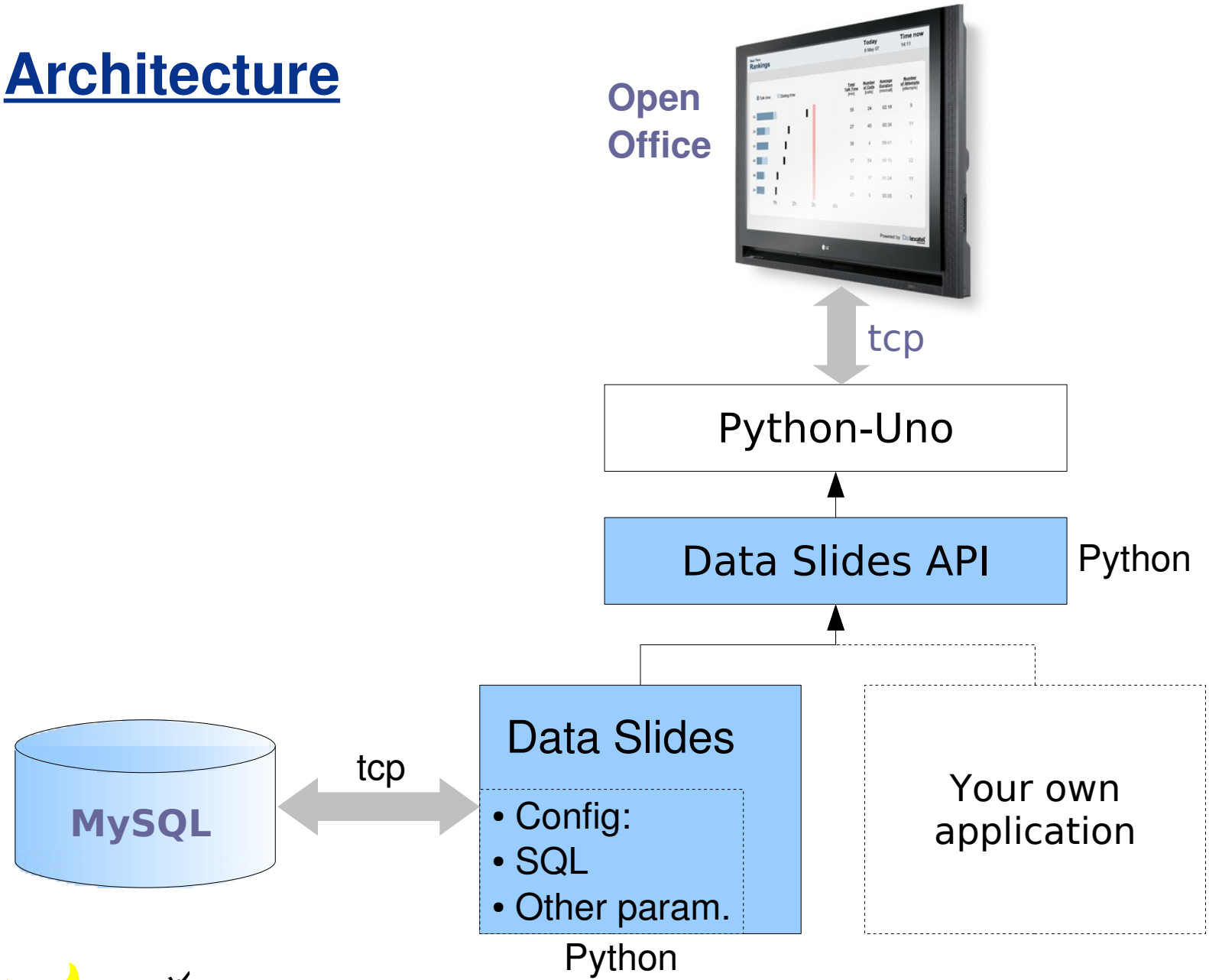
Entire business models are based solely on building dynamic presentation applications:

- Datapoint (www.datapoint.com) - MS Power Point
- On-location dynamic advertising screens...

- Now for all layers there is free software:
  - Kernel
  - glibc
  - X-Window
  - Window manager (icewm)
  - OpenOffice
  - Dynamic Presentations


How it
works?

Architecture



Data Slides API: Higher-level Abstraction

- We developed an API Layer (Uno is powerful but arduous)
- Our API is for humans, not for machines
- For example, to setup a textbox:

```
code{“code1”}=””””
variable=SomeFunction()
SetText(“tickets”,variable)
””””
```

- And much more!

Features

- Allows complete separation between interface design and system administration, databases, etc. Graphics designers can have fun!
- 100% remote administration.
- You can use several screens (Dual Head, replicate the same image, etc.)

- CPU load: on average: 0%
- Multiplatform!

Problems

- OpenOffice v2.2 crashed often (New version 2.3 released 17-Sep is much more stable). We implemented watchdog to restart OO if needed.
- Python and Mysql do not communicate well over a network (low-level design problem). Using sql-relay (or similar utilities) could avoid the problem.

Future

- We will share it with everyone interested
- We will support it to the extent of our business needs.
- We will adapt it for OpenOffice 3.0
- We will coordinate development effort from contributors around the world.

The design allows to configure the system for each business, sharing the code but not the particular algorithms/configuration

Business Benefits for Lexatel

- All customers are impressed
  - great functionality,
  - real time information (automatic refresh),
  - aesthetic design
- We have control in all layers
- We saved money for a similar application where we would not have had so much control.
- Multiplatform and flexible (solaris, windows, freeBSDs, etc.) - not the case with similar solutions.

Part II
Technical

Download

- Download code from http://www.lexatel.com/slides
- Setup the follow variables in config.py:
  - dbhost, dbname, dbuser, dbpassword
- Assign odpfile1 and odpfile2 to some .odp file (if one fails, try another one)

Setup your mysql user

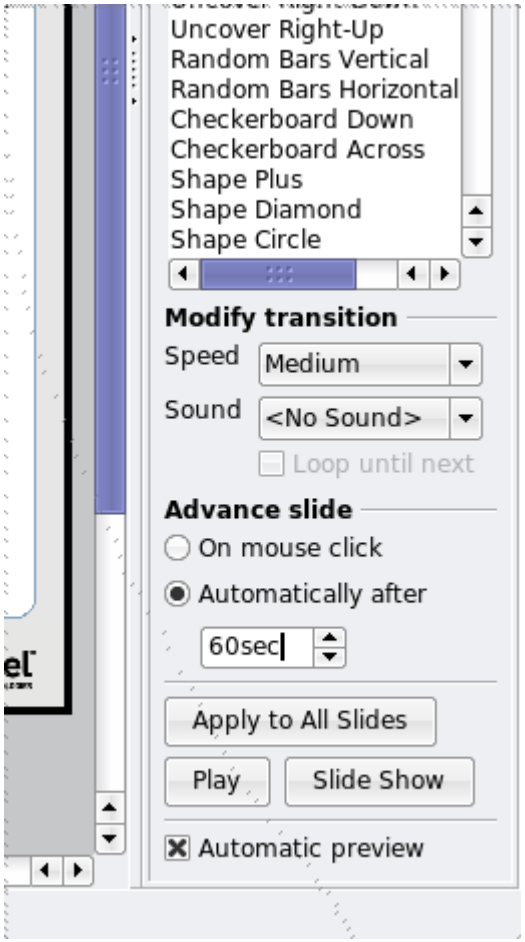
- Add some user in your Mysql installation. You only need reading permissions
  - grant ...
- Firewall, etc.
- Careful: Use VPN's, Mysql+SSL, mysql-relay, SSH redirect, etc. if you feel like it

Open “example.odp”

- Draw any chart, textbox, etc.
- If it is a chart: right click on it, setup how many columns and rows you want (and graphic style)
- In all objects that you want to make dynamic: right click and “Name object”. This name will be used in configuration file

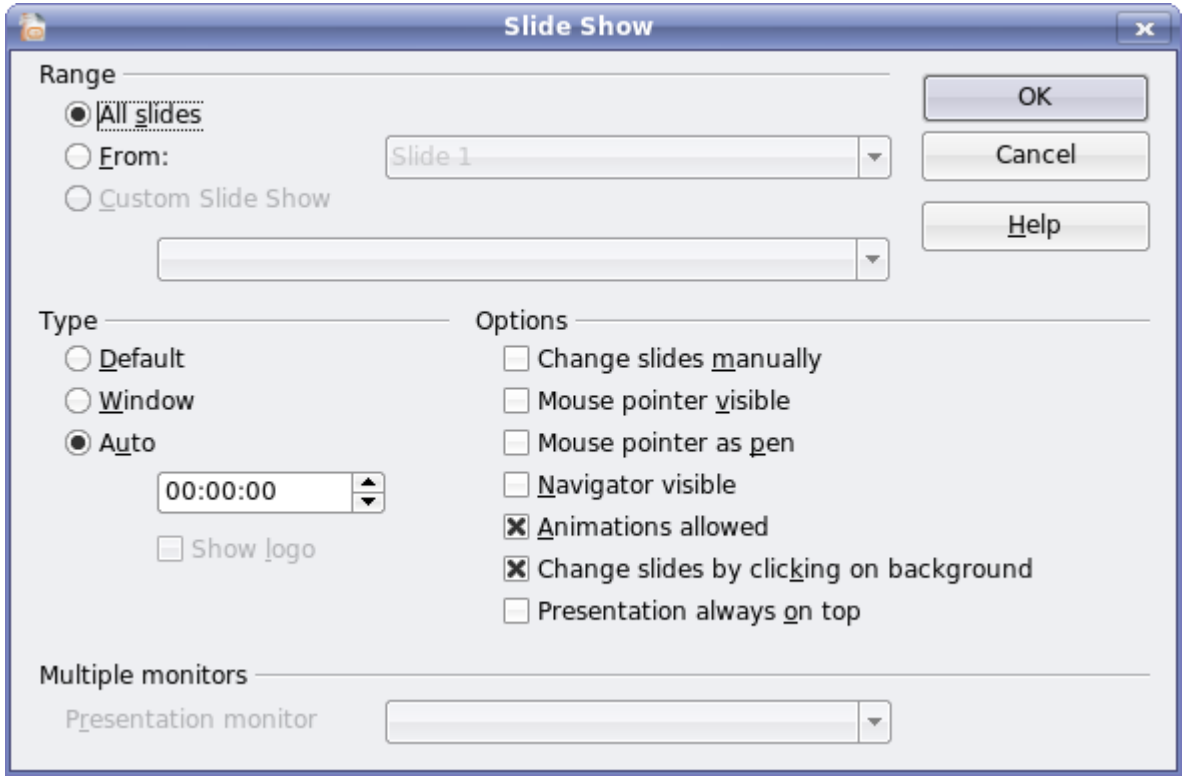
What makes example.odp so special? (1/3)

- Slideshow: forwards automatically every minute



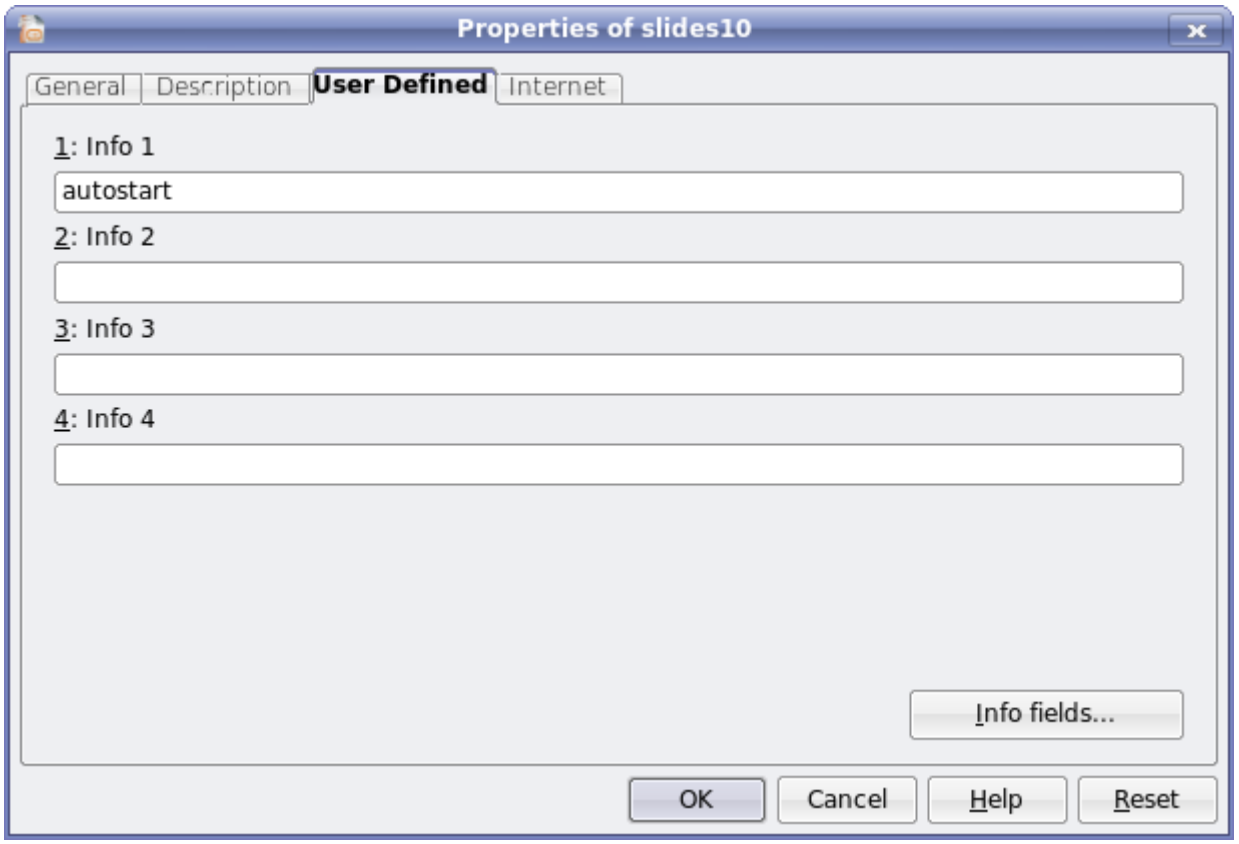
What makes example.odp so special? (2/3)

- Automatically restarts (without pause)



What makes example.odp so special? (3/3)

- Autostart:



Autostart

- ImpressRunner-1.0.oxt
- http://oooconv.free.fr/impressRunner/ImpressRunner-1.0.oxt
- Tools – Package Manager (Install)

Simple kiosc

- **Mouse**: Disable in /etc/X11/xorg.conf (don't use mouse InputDevice or use /dev/null as the device)
- **Keyboard**: map all key codes to 0, using xmodmap (xorg requieres a keyboard input) (disablekeyboard.sh)

Disable power saving

- Yes, OpenOffice disables it. But one time...
- Remove all references about DPMS in /etc/X11/xorg.conf
- In .xinitrc (for example):
  - `xset -dpms`
  - `xset -dpms s off`

.xinitrc

- **/home/slides/disablekeyboard.sh**
- **xset -dpms**
- **xset -dpms s off**
- **nice -n +15 /home/slides/slides/Launch &**
- **/usr/bin/icewm**
  - (iceconf, “Hide task bar”)

Xorg permissions

(Debian based)

- By default, only console users (not ssh or cron) can startup a new X interface
- /etc/X11/Xwrapper.config:
  - Before: **`allowed_users = console`**
  - After: **`allowed_users = anybody`**

Automatic X-Window start up

- Using “slides” user:
  - `crontab -e`
  - `@reboot startx`

Remote screenshot

- crontab -e (slides user)

```
*/1 * * * * import -window root -display :0.0
  /var/www/file.png
```

Note: of course, feel free to upload to other server (scp), setup login and password, etc.

SQL queries (1/3)

- Example from config.py:

```
sql[“graphic_name”]=”select param_value from table
  order by date desc limit 1”
```

- This will “offset” graphic_number graphic and will insert this value at beginning
- Also works with double graphics (one and other column):

```
sql[“double_graphic”]=”””select param_value from
  table order by date desc limit 1;
select param2_value from table2 order by date desc
  limit 1;”””
```

SQL queries (2/3)

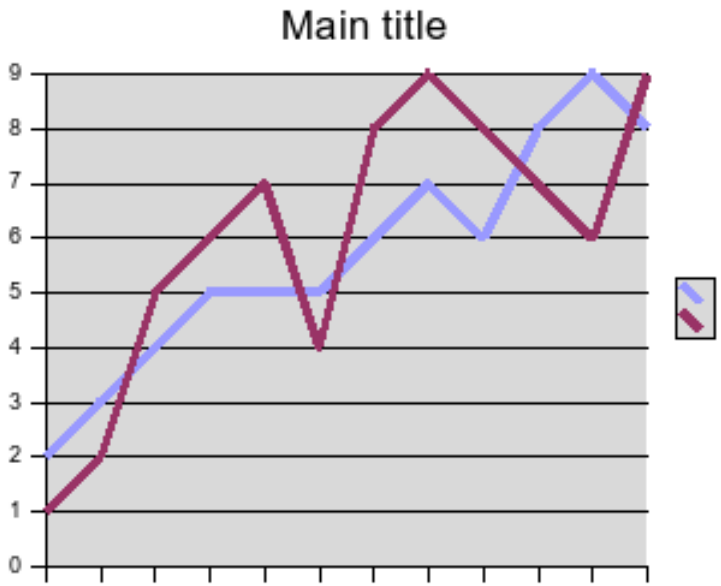


Chart Data

	A	B	C
1			
2		2	1
3		3	2
4		4	5
5		5	6
6		5	7
7		5	4
8		6	8
9		7	9
10		6	8
11		8	7
12		9	6

SQL queries (3/3)

- To text box:
  - `sql["time"]="""select date_format(now(),"%H:%i");"""`

Yes, the system will get the object's type (introspection)

Code

- code[“any_name”]=””””
  any python
  code can be used
  here
  SetText(“name”,”hello”)
  SetCellGraphicsXY(“name2”,1,4,”cell_content”)
  ””””

- As you see, you can use our API in this point E.g. SetText(“name”,”hello”)

Code_step

- `code_step[“any_name”]=”””config.ret=str(config.asr_originator(401))”””`

- Moves the graphic leftwards
- Executes the code, assigns the result (config.ret) to column n

Other config.py variables

- Timeout before restart OO (after network or OO problem)
  - **`timeout=500`**
- Sleep before get next data
  - **`getdata=60`**
- Support for multiple slides
  - **`nslides=1 #default, more information in the documentation`**

Log

- You can find a log (Mysql Warning messages, OpenOffice messages, some debug, when is launching OpenOffice, etc.) in:
  - **`/var/tmp/slides.log`**

Thank you for your attention

Questions?

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