

Zope and RDBMS

*A beginner's guide to working with relational
databases from Zope*

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Speaker Introduction: Charlie Clark

- Sales & Support eGenix.com Consultant
 - More than 10 years web production experience
 - MA, DESS in Film & TV production
 - Specialist in CMS in general and Zope in particular
 - Contact: charlie@egenix.com
- eGenix.com Software GmbH, Germany
 - Founded in 2000
 - Core business:
 - **Consulting**: helping companies write successful Python software
 - **Product design**: professional quality Python/Zope developer tools (mxODBC, mxDateTime, mxTextTools, etc.)
 - International customer base

Agenda

1. Introduction
2. Who is this for ?
3. Zope has everything you need
4. Why ODBC ?
5. ACME Training
6. Applicability
7. Lessons

Introduction

This talk contains nothing new

Introduction

But some things are worth repeating

Who is this presentation for ?

- Zope / Plone beginners
 - Around since 1997 and still going
 - There are a lot of us:
 - Larger userbase than Zope 3
 - Lots of non-programmers use Zope. Plone effect
- Content managers who need RDBMS
 - Use Zope/Plone based CMF for content
 - Need access to other data sources
 - Anyone who needs to access an RDBMS from the web

Zope has everything you need (1)

- Pretty good documentation
 - Fully documented API but there is a lot to learn
 - Hasn't really been updated since 2001
- PageTemplates
 - Virtually enforces presentation only
- PythonScripts
 - Harness the power and simplicity of Python for application logic
 - Support modularity

Zope has everything you need (2)

- ZSQL
 - Test SQL away from the application
 - Copy & paste SQL between browser and DB app
 - Don't have to worry about SQL injection
- ExternalMethods
 - PythonScripts have some restrictions
 - Use ExternalMethods for non-Zope stuff
- Through the web (TTW)
 - Just needs a browser
 - Who needs Web 2.0?
- Immediate success, maintainable code

Why ODBC ? (1)

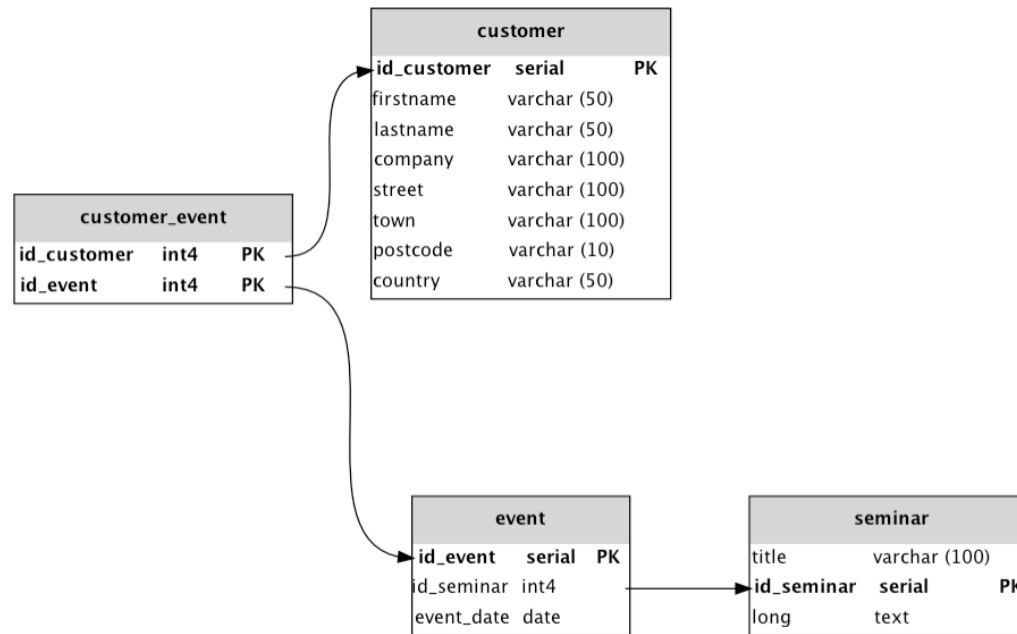
- Almost universal compatability
 - Drivers for Oracle, MS SQL, DB2, PostgreSQL, Informix, Sybase, etc.
 - MS Windows, Linux, Solaris, AIX, BSD, Mac OS
- Well-maintained and up to date
 - Python 2.5, 64-bit

Why ODBC ? (2)

- Setup can be complex...
 - Python ODBC driver, ODBC manager, ODBC bridge, database ODBC driver, network, permissions
 - Usually straightforward for development
- Catalog(ue) methods
 - Standardised access to database meta data

Catalog(ue) methods

- Document your application



mxODBC Database Model for CASI

Data modelling is your friend

- Data definition isn't programming
 - What not how
 - More than just storage
 - Let the database manage the data based on what you tell it
- Take time to understand your data model
 - A primer on modelling and data definition is more important than a handbook for a particular RDBMS
 - There is no O/R silver bullet
- Queries are easy
 - Once you've mastered basic syntax
 - JOINS, GROUP and ORDER
 - Application independent

ACME Trading

- Screens
 - What you expect to see and do
 - First HTML
 - Iron out HTML / CSS errors
 - Then PageTemplates
 - Tie design to application
- Control
 - Provide access to your screens through scripts
 - One place to control what happens next
- Data access
 - Individual methods for querying, adding or altering data
 - Test at anytime

ACME Trading screens

What fields are required and what feedback is necessary

ACME Trading

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ACME Trading management

Familiar filesystem type environment

Zope interface showing a file browser for the `/ACME/training` directory. The interface includes a navigation pane on the left, a top status bar with "Logged in as SuperUser", and a main content area with a table of files and various action buttons.

Type	Name	Size	Last Modified
<input type="checkbox"/>	customers_only	1 Kb	2007-07-06 12:01
<input type="checkbox"/>	index_html	1 Kb	2007-07-06 12:18
<input type="checkbox"/>	register	1 Kb	2007-07-06 12:11
<input type="checkbox"/>	thankyou	1 Kb	2007-07-06 11:39
<input type="checkbox"/>	validate	1 Kb	2007-07-06 12:54

Action buttons: [Rename](#) [Cut](#) [Copy](#) [Delete](#) [Import/Export](#) [Select All](#)

ACME Trading controller

Try and fit the logic in one screen

```
required = ['firstname', 'lastname', 'email']
errors = []
options = {}

if request.form.get('action') == 'register':
    for field in required:
        if not request.form.get(field):
            errors.append(field)
    if errors:
        return context.register(errors=errors)
    # check to see if it is a customer
    customer = context.validate(request.form)
    if customer:
        # call method to enter the request into the seminar
        # send e-mail to customer, etc.
        # will raise an error if customer already registered
        context.SQL.iCustomer(id_customer=customer, id_event=request.form['seminar'])
    text = context.thankyou
```


ACME Trading database

Naming convention essential

Folder at [/ACME/SQL](#)

Type	Name
<input type="checkbox"/>	dCustomerEvent (Remove a customer from an event)
<input type="checkbox"/>	iCustomer (Add a customer to an event)
<input type="checkbox"/>	qCustomer (Check for an existing customer in the sales database)
<input type="checkbox"/>	qEvent (List customers by events)
<input type="checkbox"/>	qSeminar (List all seminars taking place after today)

Rename Cut Copy Delete Import/Export Select All

ACME Trading database

Develop queries in a query editor

Z SQL Method at /ACME/SQL/qSeminar

Title: List all seminars taking place after today

Connection Id: DB

Arguments:

```

SELECT id_event, event_date, title
FROM event
INNER JOIN seminar ON
(event.id_seminar = seminar.id_seminar)
WHERE event_date > now()
ORDER BY event_date
    
```

pgAdmin III Query - ACME auf localhost:5432

```

SELECT id_event,event_date,title
FROM event
INNER JOIN seminar ON
(event.id_seminar = seminar.id_seminar)
WHERE event_date > now()
ORDER BY event_date
    
```

Ausgabefeld

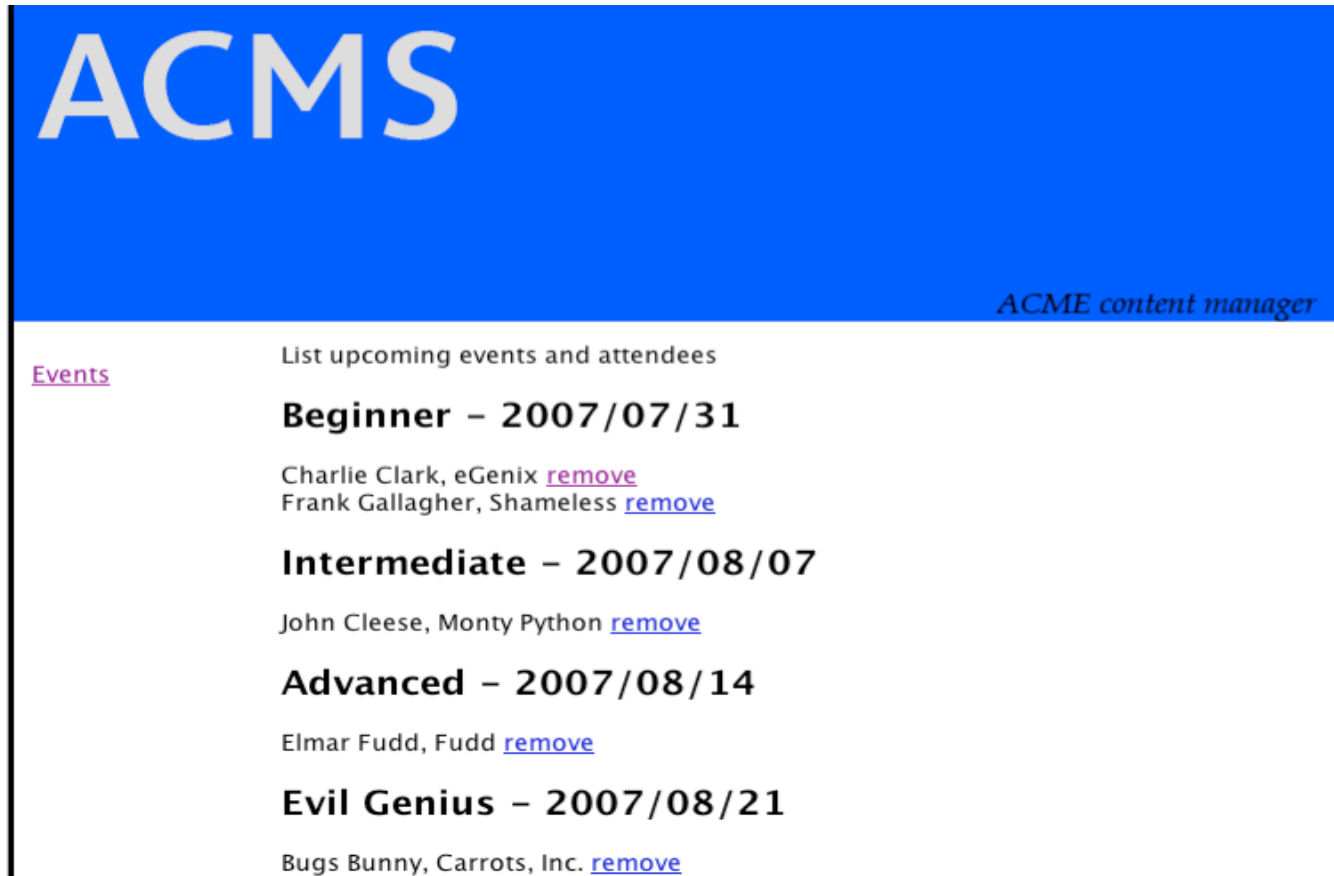
Datenanzeige Zerlegung Meldungen Historie

	id_event integer	event_date date	title character varying(100)
1	1	2007-07-31	Beginner
2	2	2007-08-07	Intermediate
3	3	2007-08-14	Advanced
4	4	2007-08-21	Evil Genius

OK. Z 6 Sp 20 Bu 158 4 Zeilen. 2 ms

ACME Trading admin

Use same approach in management screens



The screenshot shows the ACMS (ACME content manager) interface. At the top, there is a blue header with the text "ACMS" in large white letters and "ACME content manager" in smaller white text on the right. Below the header, there is a section titled "Events" with a list of upcoming events and attendees. Each event entry includes a title, date, and a list of attendees with "remove" links.

Event Title	Date	Attendees
Beginner	2007/07/31	Charlie Clark, eGenix remove Frank Gallagher, Shameless remove
Intermediate	2007/08/07	John Cleese, Monty Python remove
Advanced	2007/08/14	Elmar Fudd, Fudd remove
Evil Genius	2007/08/21	Bugs Bunny, Carrots, Inc. remove

Applicability

- Where TTW is desirable or requirement
 - Access to Zope instance in the file system might not be possible
 - For many browser-based environment is less intimidating
 - Text editors without syntax highlighting are worse than useless (Notepad)
 - ExternalEdit available if required
- Small-add-ons
 - Extend an existing site rather than build a new application
- Single language
 - Plain Zope2 isn't really suitable for multilingual environments
 - Fortunately this often isn't the case for small projects

Lessons (1)

- Zope encourages divide & rule
 - MVC: model, view, controller approach comes naturally in Zope
 - Delegation encouraged
- Modularity
 - Individual components have well-defined roles and relationships
 - Sensible reuse
 - ZPT macros
 - PythonScripts such as validators might be called by different controllers
 - ZSQL methods can be made flexible with dtml-if

Lessons (2)

- Extremely iterative
 - Beginners don't have a masterplan
 - Learn & adapt as you go on
 - Get immediate feedback
- Victim of your own success
 - Small is beautiful
 - Successful projects tend to grow
 - Learn the limits
 - Use when required: Products, CMF, Zope 3
 - What you've learned in your first projects will be useful
- Don't neglect beginners

Contact

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