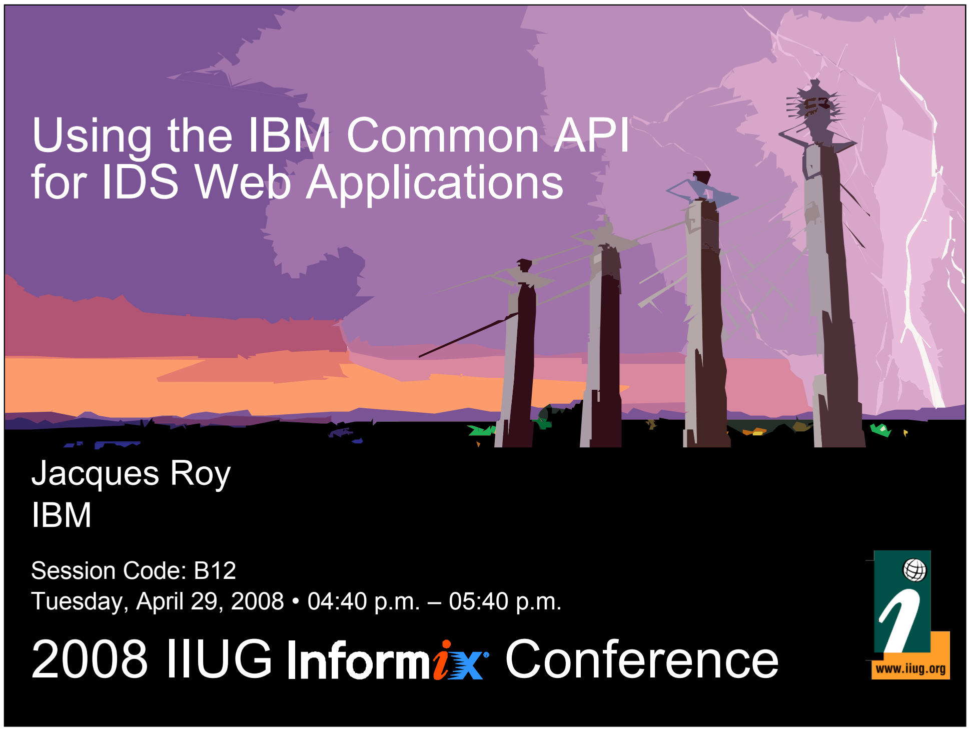

Using the IBM Common API for IDS Web Applications

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Agenda

- What is the IBM common API?
- How to enable IDS for it
- Usage in Java
- Usage in PHP
- Usage in Ruby and Rails

What is the IBM Common API?

- Common API for IBM Data Servers
  - IDS, DB2 LUW, DB2 zOS, DB2 iSeries
- Based on DRDA communication
  - Distributed Relational Database Architecture
- Multiple drivers
  - JDBC, ODBC, .Net, PHP/PDO, Ruby, etc.

- IDS native drivers still supported!

How to get it?

- Part of DB2 version 9.5
- IBM Data Server Client
  - `v9.5_linuxia32_client.tar.gz` (515MB)
  - Suggested download to get the ruby on rails driver
- DB2 Connect Developers Edition for Windows
  - `DB2_Connect_Personal_Ed_Win_x86.exe` (282MB)
- DB2 Connect Developers Edition for Linux
  - `db2_connect_Personal_Ed_Linux_x86.tar` (254MB)
- See: `http://www-306.ibm.com/software/data/db2/ad/`

Enabling IDS

- Requires IDS 11.1 or higher
- Requires a DRDA connection:
  - Add a DBSERVERALIAS to your onconfig
  - Add an entry in sqlhosts using the drsoctcp protocol:

    ```
    drda drsoctcp localhost sqlexec2
    ```
  - Add the proper entry in /etc/services
    - Suggested port number: 9089

Java Interface

- DB2:

```
Class.forName("com.ibm.db2.jcc.DB2Driver");
String URL = " jdbc:db2://localhost:50000/SAMPLE";
Class.forName("com.ibm.db2.jcc.DB2Driver");
conn = DriverManager.getConnection(URL, "db2inst1", "password");
```

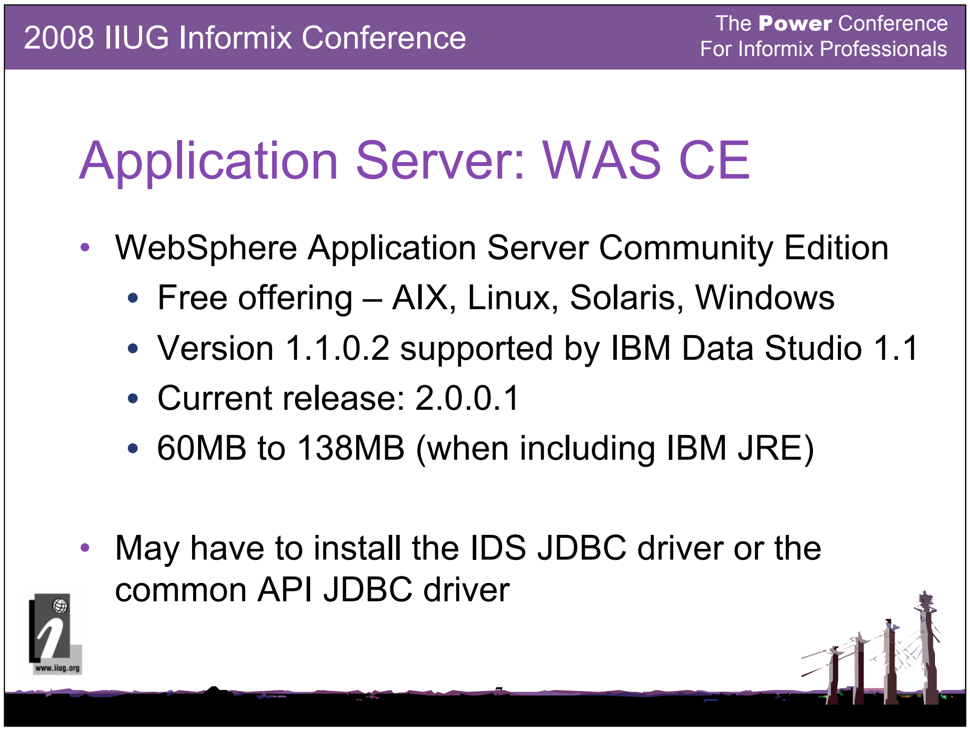
- IDS specific:

```
Class.forName("com.informix.jdbc.IfxDriver");
String URL = "jdbc:informix-
sqli://localhost:9088/demo:INFORMIXSERVER=ids11";
Class.forName("com.informix.jdbc.IfxDriver");
conn = DriverManager.getConnection(URL, "informix", "password");
```

- IDS DRDA:

```
Class.forName("com.ibm.db2.jcc.DB2Driver");
String url = "jdbc:db2://localhost:9088/demo";
conn = DriverManager.getConnection(url, "informix", "password");
```

could be ids



Application Server: WAS CE

- WebSphere Application Server Community Edition
  - Free offering – AIX, Linux, Solaris, Windows
  - Version 1.1.0.2 supported by IBM Data Studio 1.1
  - Current release: 2.0.0.1
  - 60MB to 138MB (when including IBM JRE)
- May have to install the IDS JDBC driver or the common API JDBC driver

http://www-306.ibm.com/software/webservers/appserv/community/index.html?S_TACT=103BGW01&S_CMP=campaign

JDBC Drivers installation

- Create directories:
  - <wasce_home>/repository/co/ibm/db2/db2jcc/9.5
  - <wasce_home>/repository/com/ibm/db2/db2jcc_license_cu/9.5
  - <wasce_home>/repository/com/informix/ifxjdbc/11.10

- Copy and rename jar files:
  - cp <db2_home>/java/db2jcc.jar <dir_above>/db2jcc-9.5.jar
  - cp <db2_home>/java/db2jcc_license_cu.jar <dir_above>/db2jcc_license_cu-9.5.jar
  - cp <informixdir>/jdbc/lib/ifxjdbc.jar <dir_above>/ifxjdbc-11.10.jar

Accessing IDS through WAS CE

- Connect to the administrative console:
  - http://localhost:8080/console
- Create a database pool:
  - Use the Geronimo database pool wizard
  - Identify Informix as the database type
  - Select the appropriate driver
  - Enter the appropriate information including database name and port number

What is PHP?

- PHP (an Open Source general-purpose scripting language that is suited for Web development and can be embedded into HTML.)

- The main target for PHP is server side scripting. You need the following to make this work:
- PHP processor
- a Webserver
- a web browser

- PECL: PHP Extension Community Library
  - Repository of PHP extensions
  - 167 packages in area such as: authentication, databases, mail, multimedia, web services, XML
  - Spun off from PEAR (PHP Extension and Application Repository) in 2003

PHP downloads: http://www.php.net/downloads.php
Documentation: http://www.php.net

What is LAMP?

- Acronym for Linux, Apache, MySQL, PHP/Python/Perl
  - Open-source software stack
- Apache: Web server, since early ’90s
  - As of March 2007, Apache server runs 58% of all websites[1]
- LAIP: Linux, Apache, IBM Data Server, PHP

[1] http://en.wikipedia.org/wiki/Apache_HTTP_Server

Installing LAIP

- Get the source components you need:
  - Httpd (Apache), PHP, PDO_IBM, PDO_INFORMIX
- Install the data servers clients (DB2, IDS)
  - Setup the environment
- Configure Apache
  - ./configure . . .; make; make install
  - Edit httpd.conf to enable php
- Configure PHP
  - Copy drivers (PDO_IBM, PDO_INFORMIX) to the proper location
  - Buildconf…; ./configure …; make; make install
  - Add extensions to php.ini
- Hopefully you are ready to go…

Alternative: ZendCore for IBM

- Free download
  - See: http://www.zend.com/en/products/core/for-ibm
- Certified by both IBM and Zend
- Fully supported by Zend
- Bundled DB2 Express-C (optional)
- PDO support for DB2 Data Servers
- PDO support for Informix Dynamic Server (IDS)
- Support for Linux and PowerPC
- Support for AIX on IBM pSeries

- Current release: 2.0.4

Common Driver PHP PDO Access

- Create a connection:
  - $db = new PDO(‘ibm: HOSTNAME=localhost; PORT=9089; DATABASE=demo; PROTOCOL=TCPIP’, ‘informix’, ‘password’);

- Execute queries:
  - $query = $db->query(‘SELECT * FROM customers’);

What is Ruby?

- Open-Source Object-Oriented Scripting Language
- Created by Yukihiro "Matz" Matsumoto
- Released publicly in 1995

- Available as source code
  - Also as binary for Windows
  - See: http://wiki.rubyonrails.com/rails/pages/HowtosInstallation

- Ruby shell: irb (Interactive ruby)
- Use the “gem” utility to add packages

www.ruby-lang.org

What is Rails?

full-stack framework for database-backed web applications

implements the model-view-control (MVC) architecture

written in ruby

incredibly productive

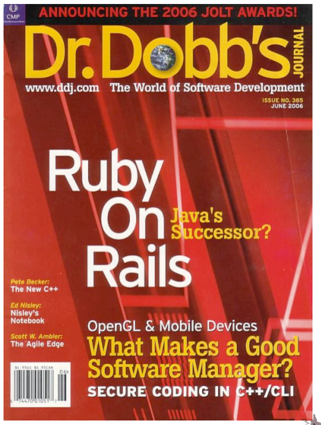
easy to use, conventions over configuration

one of the fastest emerging web framework since 2004

rubyonrails.org

Is Ruby-on-Rails the Next Java?

- Some of the most respected Java people think so
- Enterprise qualities (MVC) but several orders of magnitude more productive
- All-in-one framework: no assembly required, batteries included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Dr.Dobb's
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Ruby On Rails
Java's Successor?
Pete Becker: The New C++
Ed Nisley: Nisley's Notebook
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Ruby-on-rails Momentum red hot!

- Rails:
  - Invented by David Heinemeier Hansson, late 2004 while still in school
  - Rails 1.0 ships December 24, 2005
  - Rails 1.1 ships 3 months later
  - Rails 1.2 released March 14, 2007

- Rails won the Jolt Award for the best web framework. Rails book won the best book award.
- Rails book sold 25K copies in less than a month.
- "Agile Development With Rails" is one of the best selling programming books ever. Every major publisher is releasing a book(s) on RoR.

Installation

- For ruby:
  - Ruby 1.8.6
  - Rubygems 0.9.4
  - Rails 1.2.3
  - Updates to several modules
- For Data Servers:
  - ibm_db-0.8.5.gem or later
    (//rubyforge.org/frs/?group_id=2361 or DB2 V9.5)
  - ruby-informix-0.5.0.gem, rails-informix-0.1.0.tar.gz
    (//rubyforge.org/frs/?group_id=1378,
    //rubyforge.org/projects/rails-informix)

Driver for Ruby/Rails

- Installation of the ibm_db driver
  - `. /home/db2inst1/sqllib/db2profile`
  - `export IBM_DB_DIR=/opt/ibm/db2/V9.5`
  - `export IBM_DB_LIB=/opt/ibm/db2/V9.5/lib32`
  - `gem install ibm_db`
  - Edit `..activerecord-*/lib/active_record.rb`
    Add `ibm_db` to the list of
    `RAILS_CONNECTION_ADAPTERS`

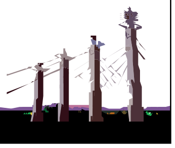
Rails Connectivity

- config/database.yml

```
Development:
  adapter: ibm_db
  database: stores
  username: optional
  password: optional
  schema: optional
```

- Active record: (Change the class definition to define the connection)

```
ActiveRecord::Base.establish_connection (
  :adaptor  => "ibm_db",
  :database => “stores",
  :username => “informix",
  :password => "password"
)
```



Conclusion

- IDS continues to support the native drivers
  - Limited drivers
- IBM has created a group to provide state-of-the-art drivers
- Future client connectivity is going toward DRDA connectivity

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