



Business Intelligence IBM Cognos on z/Linux

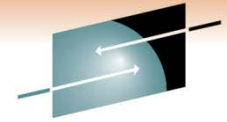
Timothy R. Ondrey
Marist College

Wednesday March 2nd, 2011: 11:00am – 12:00pm
Session #8521

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Marist College Agenda

- A History of z @ Marist
- Academic Initiative
- Cognos on System z
- Virtual Computing Lab (VCL)
- What's next?



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A History of z @ Marist

Marist first installed an IBM System/370™ mainframe with virtualization in 1978.

The first System z mainframe, a z900 was installed over 6 years ago and upgraded to a z9 more recently.

January 2011, Marist installs a z10 mainframe

In addition Marist hosts a z990 for use by the IBM/Marist Joint-Study program.

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The Academic Initiative

What is the IBM Academic Initiative?

IBM Academic Initiative is a global program that facilitates the collaboration between IBM and educators to teach students the information technology skills they need to be competitive and keep pace with changes in the workplace.

Why should you join?

Become a member of the Academic Initiative to get no-charge access to hardware, full-version software, professionally developed courseware, tools, training, books, and discounts. Let us help you keep up with the latest technologies and reap the benefits of open source.

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The Academic Initiative

z-Based Cloud Environment

Build Rational Cloud on z to:

- Determine feasibility of use by internal IBM dev labs

- Support AI use

- Provide POC for Cloud Computing Enablement Team

Once successful with Rational, use for other products:

- Cognos, SPSS, Data Warehousing

Continued AI Support

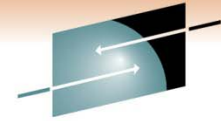
- Course module development via faculty grants, zPDT Evaluation

- Continued support of overall AI program and Marist Enterprise Computing Community

Sakai

- Support of State Bank of India Project – Large scale rollout of Sakai on z10 in 4Q/2010 and 1Q2011.

- Integration with Lotus Connections, SPSS, Cognos. Open Social.



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The Academic Initiative

Learning Management Software

- Management
- Collaboration
- Content



Linux Images
Virtual servers for:

- Research
- Students
- Lii



OS Environment
Knowledge Center

- z/OS Test Drive Images
- RDZ



Collaborative Development Software

- Rational Quality Mgr.
- ClearCase
- ClearQuest



Business Intelligence
Business Analytics Software

- Cognos
- SPSS



Virtual Desktops

- Cognos Framework Mgr.
- TM1
- SQL Server
- More...

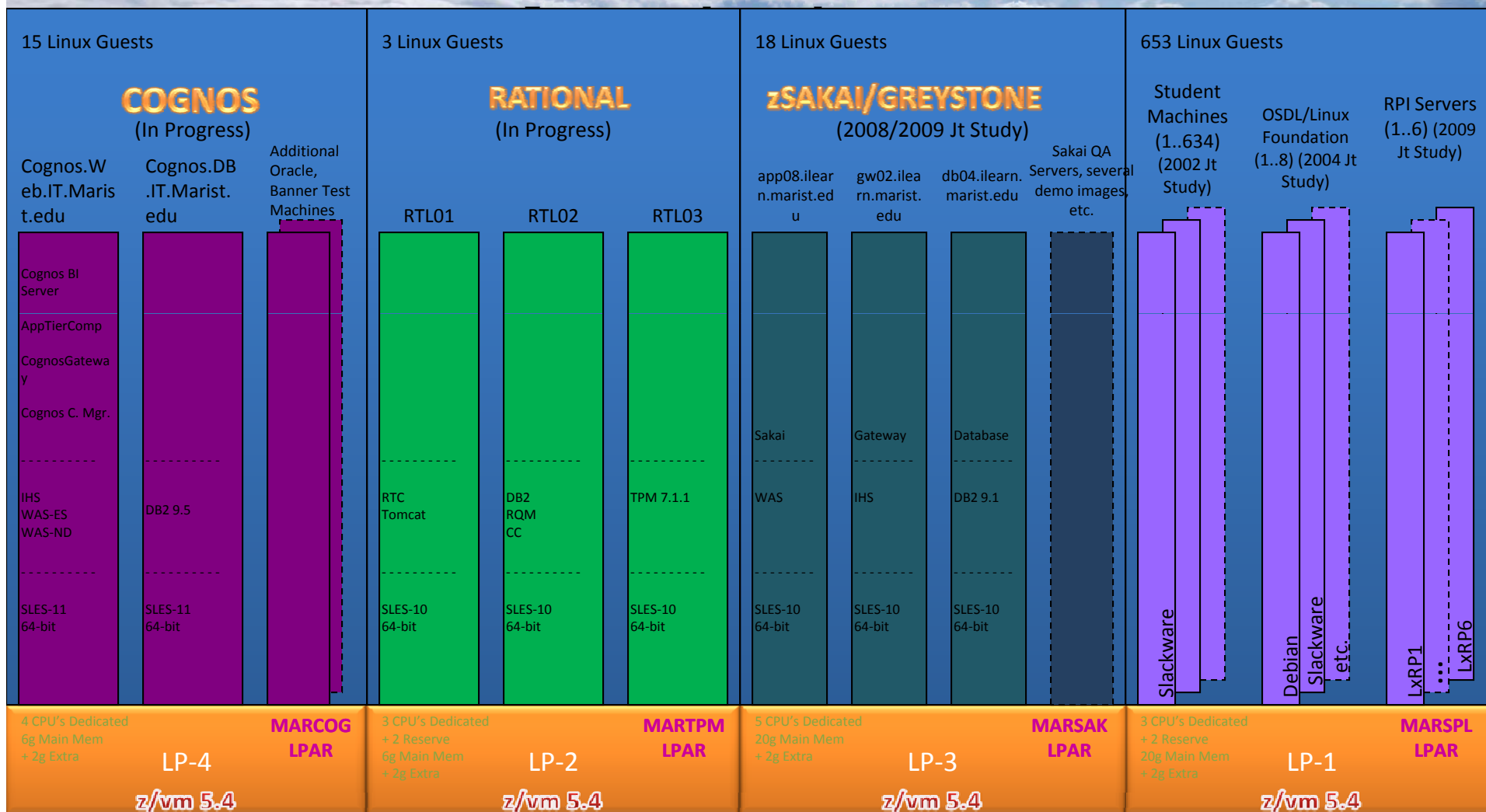


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MARIST/IBM JOINT STUDY

ACADEMIC zCLOUD ENVIRONMENT



z990 – 16 engines, 64g memory

Cognos

In early 2010, Marist Information Technology was tasked with creating a Center of Excellence related to Cognos and modeled after the Knowledge Center

The project's long term goals are:

- Support Faculty BI Courses
- Reporting with Banner Data for Administrative Offices
- Cognos in the Cloud for External Customers

Cognos

Server Configuration

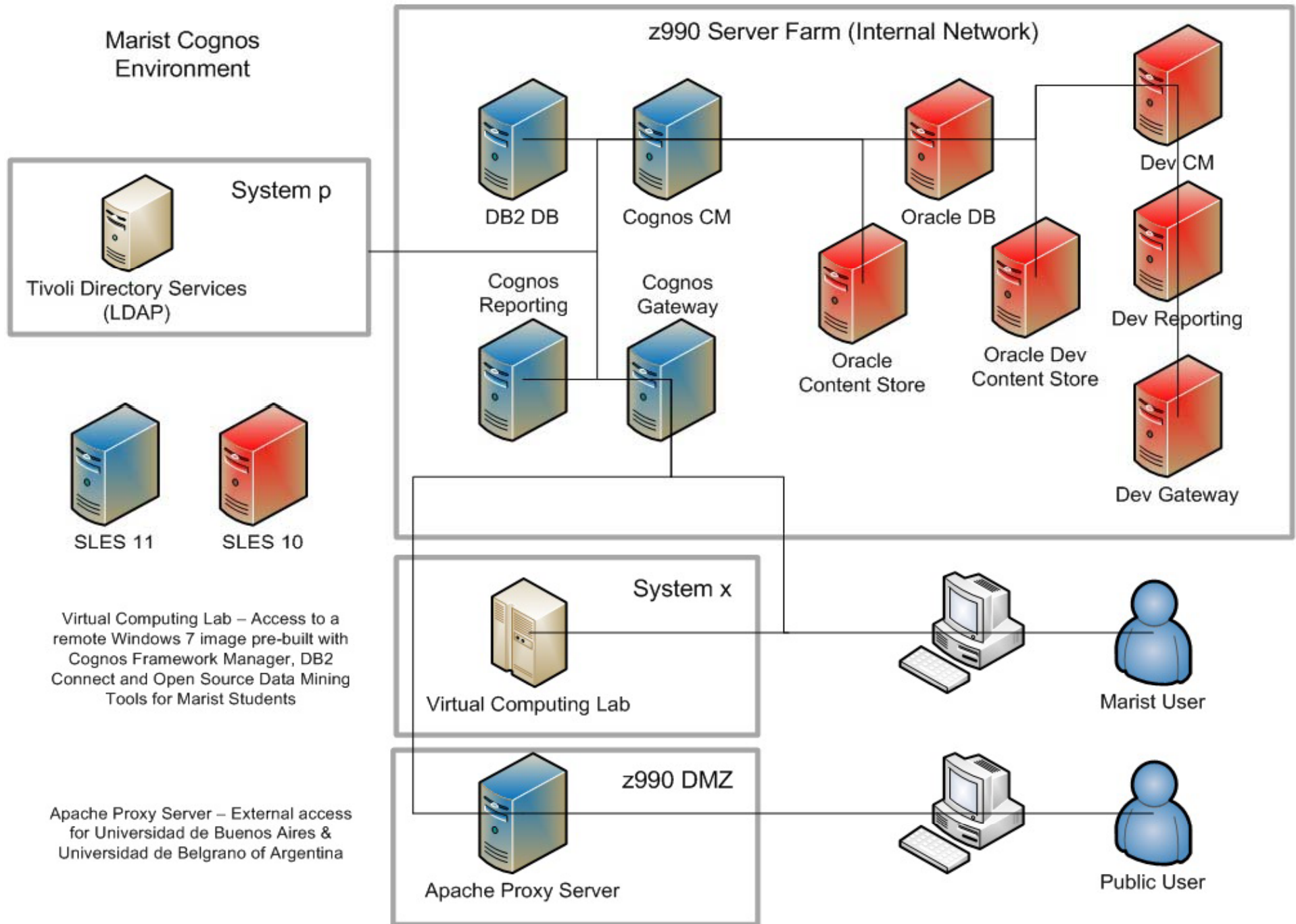
All servers are running on the z990 mainframe on the MARCOG LPAR

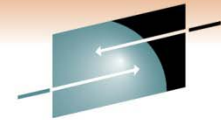
Initial setup consisted of 4 servers, each** running SLES11

- **Oracle DB (Cognos Content Store) – SLES10
- Cognos Content Manager
- Cognos Reporting Engine
- Cognos Gateway

Additions made to accommodate BI courses and external access:

- DB2 Server to host Cognos Sample Data
- Development Server – Single Server Install
- Proxy Server for external access – z990 DMZ





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Cognos

Issue:

Using Apache module, mod2_2_cognos.so on the Cognos Gateway web server on a SLES11 64-bit system.

Error:

Framework Manager unable to connect
Apache Error -> Wrong ELF class: ELFCLASS32

Solution:

Copy the /webcontent directory to the Reporting Server

Cognos

Authentication via Tivoli Directory Services (LDAP)

Running on AIX on System p

Allows us to reach the entire Marist Community
and provide access to external users
via Marist Friend Accounts

User ID – Email Account



Log on [Help](#) ✕

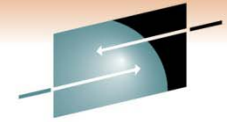
Please type your credentials for authentication.

Namespace:
MarLDAP

User ID:

Password:

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Cognos

Security

Separated Academic users into groups by course or school

Business Intelligence – Fall 2010 (Marist)

Decision Support Systems – Fall 2010 (Marist)

Universidad de Belgrano

Universidad de Buenos Aires

Universidad del Salvador

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Cognos

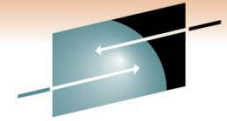
Proxy Server

MARCOG LPAR is located on the Internal Marist Network

Created Apache Proxy Server on z990 DMZ network to pass requests to the Cognos Gateway Server

```
/etc/apache2/conf.d/cogproxy.conf
```

```
ProxyPass / http://CognosGateway/  
ProxyPassReverse / http://CognosGateway/  
CustomLog /var/log/apache2/access_log combined  
ErrorLog /var/log/apache2/error_log
```



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Cognos

Issue:

Connecting Cognos to an Oracle data source

Error:

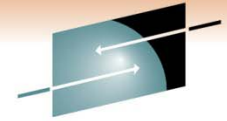
Failed to connect to data source

Solution:

Unknown?

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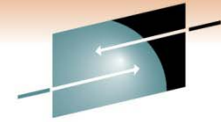
Cognos

Connected Data Sources:

- Oracle 10gR2 - Cognos Content Store
- Oracle 10gR2 - Cognos Sample Data
- DB2 v9.5 - Cognos Sample Data

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Cognos

Cognos Sample Data for Business Intelligence Course

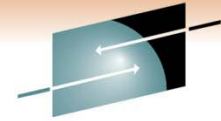
Data Source – DB2 v9.5

Access – Modified:
gs_db_modify.sql

```
connect to cogsam10 user db2inst2 using allyourpswdsarebelongtous
@
--GRANT AUTHORITIES TO USER cogclass
GRANT BINDADD,CONNECT,LOAD ON DATABASE TO USER cogclass
@
--GRANT PRIVILEGES TO USER cogclass
GRANT SELECT ON TABLE GOSALES.BRANCH TO USER cogclass
@
GRANT SELECT ON TABLE GOSALES.CONVERSION_RATE TO USER cogclass
@
GRANT SELECT ON TABLE GOSALES.COUNTRY TO USER cogclass
@
GRANT SELECT ON TABLE GOSALES.CURRENCY_LOOKUP TO USER cogclass
@
GRANT SELECT ON TABLE GOSALES.EURO_CONVERSION TO USER cogclass
@
GRANT SELECT ON TABLE GOSALES.INVENTORY_LEVELS TO USER cogclass
@
GRANT SELECT ON TABLE GOSALES.ORDER_DETAILS TO USER cogclass
@
GRANT SELECT ON TABLE GOSALES.ORDER_HEADER TO USER cogclass
@
GRANT SELECT ON TABLE GOSALES.ORDER_METHOD TO USER cogclass
@
```

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New Data Sources

MS SQL – Issues connecting Cognos z/Linux to MS SQL on x86

- Card Swipe
- Marist Money

MySQL – Untested, VVM solution for MS SQL

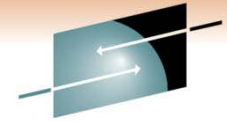
- iLearn – Sakai
- Admissions

DB2 on z/OS – via Infosphere DW

- Supplemental data sources for the Academic Community

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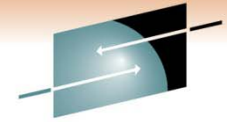
New Data Source – Issues

Microsoft SQL Server 2005 on x86

- Cognos on z/Linux cannot directly talk to an MS SQL Server on x86
- Two solutions attempted
 - unixODBC Drivers
 - Cognos Virtual View Manager

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unixODBC

Install Free TDS – Tabular Data Stream

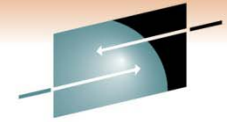
odbc.ini

```
[LENEL]
Driver = FreeTDS
Description = LENEL_CardSwipe database
Trace = no
Server =
Port = 1433
Database = AccessControl
```

odbcinst.ini

```
[FreeTDS]
Description = v0.82 with protocol v8.0
Driver = /usr/local/lib/libtdsodbc.so
```

Cognos Connection unable to locate driver



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Virtual View Manager

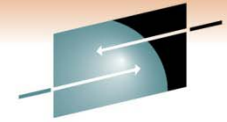
Provides real-time access to data sources existing on different source systems.

Configured Virtual View Manager to use the JDBC driver to connect to the MS SQL 2005 server.

Cognos Connection to MS SQL now connects via VVM connection type

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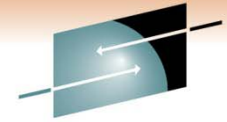
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IBM Launches Cognos 10 on Oct. 25th, 2010



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At the conclusion of the Fall 2010 Semester both Production & Development environments were upgraded to Cognos 10.

The Development Server was upgraded from SLES10 to SLES11 to match production and conform with the supported operating systems for Cognos 10.

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Cognos

Infosphere DW – DB2 for z/OS

Marist Faculty requested new data sources through different connectors like Infosphere.

Faculty will obtain and/or create data suited for their courses, exposing students to a wide range of information: Sales, Healthcare

Currently researching environment requirements for connecting Cognos to Infosphere on z/Linux using DB2 for z/OS back-end

Virtual Computing Lab

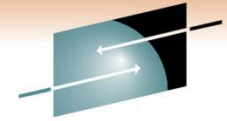
Developed at NC State University beginning in 2004 as a joint project with the College of Engineering & Office of Information Technology

Provides remote access to a multiple computing environments

- Windows
- Linux

Viable replacement for most traditional computing labs

The VCL Source Code was donated in November 2008 to the Apache Software Foundation



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Virtual Computing Lab

Fall 2010 – Business Intelligence & Data Warehousing

VCL Blades (13)

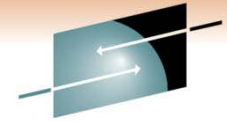
- 1 Control Blade
- 12 Blades available to students and professor

Windows 7 Images

- MS SQL Server 2008
- Cognos 8 Framework Manager
- DB2 Connect v9.1.3
- RapidMiner – Open Source Data Mining
- Cognos TM1 v9.4.1

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Next steps...

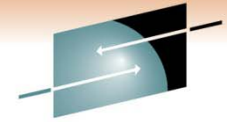
Research and implement a solution to connect to and report off of Marist's SunGard Banner environment

Continue to investigate reporting from multiple new Marist data sources:

- Help Desk Reports
- Admissions

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Next steps...

Fall 2011 at Marist

Continued support of Professor Eitel Lauria's
Business Intelligence & Data Warehousing courses
through Cognos and the Virtual Computing Lab

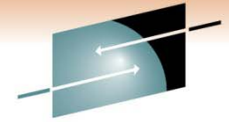
BI Course: 12('10) to 30 students for 2011

DSS: 25+ students

Classes from Argentina: Approx 25 per class

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Q & A

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