Using DB2 and BLU Acceleration on Cloud

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**Rick Swagerman, Host and Today’s Presenter**
DB2 Language Architect

**Today’s technical presenters . . .**

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IBM Champion and Consultant, ScotDB Limited

A few details ....


2. Next steps and troubleshooting guide: click “Attachments” in this webcast window
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Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user’s job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.
Agenda

- DB2 on Cloud – Rav Ahuja
- BLU on Cloud – Rav Ahuja
- Experiences – Phil Nelson
Agenda – Rav Ahuja

- **DB2 on Cloud**
  - Strategy
  - Deployment Options

- **BLU on Cloud**
  - Overview
  - Architecture
  - Demo
  - Tech Preview
New IT Buyers Prefer Cloud

New buyers, influencers and purchasers are emerging and new IT have a preference for cloud.

- CIO, System Admins, IT Managers, Directors, IT Operations
  - Product/platform centric
    - Speeds & feeds
    - Efficiency
    - Lower costs

- CTO, CMO, LOB General Manager, IT Architect, Application Developer
  - Greater agility
  - Optimized customer experiences
  - Innovation focus

By 2016, 80% of new IT investments will directly involve LOB executives

CMO spending on IT will exceed CIO spending on IT by 2017

40% of MSP purchase decisions will be made by business execs by 2016

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Big Data, Cloud & Mobile are of critical importance to IBM
DB2 Strategy for Cloud Computing

- Virtualization
- Multi-tenancy
- Database as a Service
- Workload Management
- Security

- No restriction on virtualization
- Consumption-based or traditional pricing
- Specific workload enablement

- Easy start
- Preserves investment
- Center of Competence
- Easy migration

- Private, Public and Hybrid cloud
- Part of IBM Cloud strategy
- Supports other providers and technologies

CloudReady Technology

CloudReady Solutions & Terms

Risk-free path to the cloud

Open and ready for Any Cloud

Need webcast troubleshooting help? Click attachments
... many reasons clients consider Cloud Computing

We need to reduce our IT costs

We are constrained on space, energy and cooling in our data center

Need to support remote teams

We are always constrained on resources for proper Q&A of our solutions

We need to improve business agility

We need to reduce our CAPEX

We need to integrate web born data

We need to deliver better resiliency

DB2 is CloudReady

Need webcast troubleshooting help? Click attachments
DB2: Ready for Any Cloud
DB2 on Cloud: Potential for Deployment

Private Clouds

Public & Managed Clouds

Amazon Web Services
Gayapipe
Yahoo! Japan / IDCF
Korea Telecom
Logicworks
IBM SmartCloud
Rackspace
SoftLayer
Tata
UnGeo
DB2 on Cloud – Delivery Models

1. Infrastructure deployments
   • Deploy existing DB2 on the Cloud
   • E.g. DB2 images and templates

2. Cloud First
   • DB2 based offerings designed for Cloud
   • E.g. BLU Acceleration for Cloud

3. As a service
   • DB2 based services managed and operated by IBM
   • E.g. Stay tuned …
Dogfooding

@your place, @your pace DB2 and Big Data skills acquisition

120,000+ Registered participants

Runs on the cloud and provides cloud sandbox for hands-on exercises

Leverages DB2 technologies e.g. HADR

Continuous availability since launch in January 2011
BLU on Cloud
Is this familiar?

- **Big Business**
  - Limited access to IT resources and insufficient budgets
  - Cannot respond to emerging opportunities and never enough access to analytics tools

- **Small Business and SaaS**
  - Little to no budget and resources or infrastructure to afford sophisticated analytics

- **IT**
  - Struggle to accommodate urgent reporting and analytics needs of business
  - Hampered by lengthy budget approvals and seen as ‘roadblocks’

Do better…

- **Big Business Needs**
  - Access to best of breed analytics and reporting
  - Skip budget approvals

- **Small Business and SaaS Needs**
  - Cheap, secure access to BI and analytics tools

- **IT Needs**
  - Deliver IT as a Service
  - Create secure and compliant reporting & analytic datamarts from an EDW
  - Develop and test systems on demand in days and weeks versus months
Our Mission

Democratize access to enterprise grade data warehousing.

Enable anyone to derive business insight regardless of skill or budget.
IBM introduces BLU Acceleration for Cloud
Preview the future of powerful, simple and agile warehousing

Get involved today!
Visit bluforcloud.com

Plans for this Solution Include:

**Powerful**
- Latest breakthrough IBM technology
- In-Memory with BLU Acceleration
- Cognos Business Intelligence

**Simple**
- Everything you need from Business Intelligence tools to OLAP and a data warehouse
- Just load and get insight – fast and simple

**Agile**
- Self Service BI for analysts and technical professionals
- Less than one hour to business insight
- No infrastructure needed

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What BLU Acceleration for Cloud will do for you …

**Business Users**
- Get your own BI reporting environments in minutes with little help from IT
- No need for budget approvals. Pay only for what you use
- Access market leading BI and analytic capabilities

**Enterprise IT**
- Deliver IT as a Service
- Create secure & compliant reporting and analytic data marts from your EDW using breakthrough IBM technology
- Dev & test systems on demand, in minutes not weeks
- Create training and experimentation environments

**SaaS providers**
- Add operational BI capability to your services
- Help clients analyze performance leveraging big data (multiple data sources, comparative performance etc.)
- Predictive Analytics
- Offer BI as a Service
Powered by BLU Acceleration

- Easy – Just create, load and go!
- Designed for Analytics
- FAST, breakthrough technology

**Dynamic In-Memory**
In-memory columnar processing with dynamic movement of data from storage data

**Actionable Compression**
Patented compression technique that preserves order so that the data can be used without decompressing

**Parallel Vector Processing**
Multi-core and SIMD parallelism (Single Instruction Multiple Data)

**Data Skipping**
Skips unnecessary processing of irrelevant data
Fast: Compare Deployment - Months to Hours

Traditional BI & Warehouse

- secure budget
- add to capital plan and data center capacity
- purchase equipment and software, wait for delivery
- rack and cable servers, update firmware
- install, patch & secure OS
- install, configure and Tune DW
- install, configure and tune BI
- initial schema tune & design
- implement consistent user management e.g. LDAP
- load Data

1 week - 3 months
2 weeks
1 week - 10 weeks
1 day - 1 week
1 day
1 week
1 week
1 day - 1 week
71/2 weeks – 7 months

BLU Acceleration for Cloud

- purchase, provision & boot
- create schema & load data

30 Minutes
30 Minutes
30 Minutes

Fully deployed in under an hour
Fast: Compare Design & Tuning Effort

Database Design & Tuning

1 week

- Decide on partition strategies
- Select compression strategy
  - Create table
  - Load data
- Create auxiliary performance structure
  - Materialized Views
  - Create Indexes
    - B+ Indexes
    - Bitmap Indexes
- Tune memory
- Tune IO
- Add optimizer hints
- Statistics collection

BLU Acceleration for Cloud

- 30 Minutes
- Create table
- load data

Fully deployed in under an hour

Need webcast troubleshooting help? Click attachments

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What’s Inside?

BLU Acceleration for Cloud

- EBS / iSCSI
- Object storage
- Web Console
- LDAP user management
- Web-based interface and admin
- Unified user & security management
- Downloadable
  - drivers
  - Data Architect
  - Data Studio
  - Cognos FM
- Warehouse Packs
  - Customer Insight
  - Supply Chain
  - Market & Campaign
- Pre-defined database templates and sample reports
- BLU Virtual Machine running in the Cloud

Persistent storage

Persistent storage

DBMS

DBMS

DB2 BLU

DB2 BLU

Cognos

Cognos

BI

BI

Persistent storage

Persistent storage

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**Purchase & Deploy**
- Go to marketplace. Accept terms.
- Login to account.
- Deploy Warehouse

**Create Schema & Load Data**
- Define data warehouse.
- Move data in.

**Connect Apps to BLU**
- Use what’s included.
- Use your own.

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**BLU Acceleration for Cloud**

- DBMS
- BI analytics and reporting
- Workload-optimized data warehouse and design tools
- Unified security and management capabilities

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Purchase & Provision (e.g. on AWS)

**Common scenarios:**

- Need to do analysis of the new marketing campaign. Need to provision an environment now!

  BLU Acceleration for Cloud process (expected time to complete is <30 minutes):
  2. Select size (1TB or 10TB), charge period (hourly vs monthly) and click on “Accept Terms & Launch with 1-Click”
  3. Login to your AWS account or open a new account (have your credit card handy)
  4. When the BLU server finishes booting, point your browser to the IP address of the instance to set up users
Create

BLU Acceleration for Cloud Process to Create Database Schema:

1. Download InfoSphere Data Architect from BLU Acceleration for Cloud and install on workstation
2. Connect IDA to the source data store and reverse engineers the source schema
3. Modify schema to suit the requirements not addressed in the source schema (e.g. generate star schema)
4. Deploy schema in to BLU database
5. Able to reverse engineer schema from cloud DBMS and apply the schema to BLU Acceleration for Cloud

Enterprise Data (Source Data)

Downloadable
- drivers
- IDA
- Data Studio
- Cognos FM

BLU Acceleration for Cloud

Warehouse Packs
- Customer Insight
- Supply Chain
- Market & Campaign

Cognos

BLU DBMS

Alter schema (optional)

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Load

BLU Acceleration for Cloud process to Load Data:

1. Extract data from on-premise data store
2. Upload (or ship physical media) to the cloud object data store (e.g. AWS S3, Softlayer Swift)
3. Perform initial Load of data from the object store into BLU database:
4. Set up a process for regular extract and upload of changed data to the object store (e.g. S3, Swift)
5. Use INGEST utility to ingest any new arriving data from the object store
Connect

BLU Acceleration for Cloud process to Connect Apps:

1. Download driver (e.g. JDBC, ODBC, PHP, Python, RoR) to the system requiring connectivity
2. Get connection information from the Web Console and configure app connectivity
3. Add users that will require connectivity to the BLU database
4. Use application with data BLU database
5. Applications can reside on customer premises or be running on the cloud
Deploy Everywhere

Public & Managed Clouds
- Amazon Web Services
- SoftLayer

Virtual Private Clouds
- AWS VPC
- SoftLayer Private Cloud

Need webcast troubleshooting help? Click attachments
Why BLU Stratus on Softlayer

- Significantly better warehouse performance:
  - Dedicated hardware i.e. no sharing with others
  - Bare metal = no “virtualization penalty”
  - Highly tuned I/O: a must for databases

- Consistency of performance: dedicated infrastructure means “no noisy neighbor” issues

- Better security: dedicated infrastructure = no risk of hypervisor exploits

- Better elasticity:
  - place Cognos on separate CloudLayer (virtualized) servers while keeping database on bare-metal
  - Scale Cognos servers with BI workload without affecting BLU Stratus DBMS
Designed for Millennials

Source: IBM Engaging the New Client
BLU Acceleration for Cloud – Early Access Preview

Please take a few moments to complete this request to participate in the IBM BLU Acceleration for Cloud Early Access Preview.

Email *

Name *

First
Last

Company (Organization) Name *

By submitting this form you grant us permission to communicate with you using email. *

I agree

Submit
Data Scientists and Business Analysts

Check out the analytical power of IBM BLU Acceleration for Cloud.

- Explore sample Cognos reports
- Explore statistical analysis with R
- Explore with Excel

Data Warehouse Developers

Try out common tasks for the database on IBM BLU Acceleration for Cloud.

- Design your database
- Load data
Pre-integrated Analytics and reporting with Cognos

IBM Cognos Viewer - 2013 Revenue by Product and Retailer Drillable

2013 Revenue by Product and Retailer

<table>
<thead>
<tr>
<th></th>
<th>Americas</th>
<th>Asia Pacific</th>
<th>Northern Europe</th>
<th>Central Europe</th>
<th>Southern Europe</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camping Equipment</td>
<td>104,876,453.52</td>
<td>90,777,778.86</td>
<td>41,926,376.64</td>
<td>77,269,626.44</td>
<td>38,060,094.51</td>
<td>352,910,329.97</td>
</tr>
<tr>
<td>Mountaineering Equipment</td>
<td>41,912,364.58</td>
<td>36,901,217.65</td>
<td>15,992,034.47</td>
<td>30,757,697.28</td>
<td>15,957,335.72</td>
<td>141,520,649.70</td>
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<tr>
<td>Personal Accessories</td>
<td>135,242,959.61</td>
<td>109,631,420.28</td>
<td>50,032,268.30</td>
<td>101,152,585.77</td>
<td>47,634,215.89</td>
<td>443,693,449.85</td>
</tr>
<tr>
<td>Outdoor Protection</td>
<td>1,331,354.48</td>
<td>1,168,288.14</td>
<td>496,714.75</td>
<td>984,535.72</td>
<td>490,132.17</td>
<td>4,471,025.26</td>
</tr>
</tbody>
</table>
Statistical Modeling with R

Applications

Add Application

Customer Analysis Samples
- Customer Acquisition
- Customer Churn
- Customer Winback

Add Script

US Census Samples
- Education Level by Gender
- Veteran Status by Gender
- Class of Worker

Add Script
Excel Integration – Load / Analyze / Save

Select an Excel file or a CSV file to define the table.

Sample - US Census

Create the DDL statements. Use the semicolon character ; as the statement terminator.

CREATE TABLE US Census ("RT" VARCHAR(150), "SERIALNO" DECIMAL(7,2), "SPORDER" DECIMAL(7,2), "PUMA" DECIMAL(7,2), "DECIMAL(7,2), "ADJINC" VARCHAR(150), "MWGT" DECIMAL(7,2), "AGER" DECIMAL(7,2), "CIT" VARCHAR(150), "COW" VARCHAR...
Exciting New Cloud Technology
Join BLU Acceleration for Cloud Technology Preview

Get involved today!

Visit bluforcloud.com
Agenda – Phil Nelson

- Brief Introduction to “the Cloud”
- IBM’s support for DB2 in the cloud
- Recent (1) : IBM Data Server Client RightScript
- Recent (2) : DB2 for LUW 10.5 RightScale ServerTemplate
- Recent (3) : BLU in the Cloud
- Some advice from experience
What is “The Cloud” Anyway?
Cloud Layers

SaaS = Software as a Service

PaaS = Platform as a Service

IaaS = Infrastructure as a Service
DB2 Cloud Support: Well Established

- **DB2 AMIs (Amazon Machine Images)**
  - Prebuilt DB2 environment for rapid deployment
  - Also variety of (old) DB2 + appserver AMIs
  - Fine for short lifetime systems (e.g. testing and proof of concept use)

- **RightScale ServerTemplate for DB2 for LUW Express-C 10.1**
  - Recipe to build DB2 server
  - Can be customized to individual requirements
  - Support for preserving DB2 instance and data over reboots / rebuilds
Recent : Client RightScript

- Usual to separate database and application servers
- Provided following request at DB2 Customer Advisory Council : thanks !!!
- Recipe to install and configure DB2 client
  - Only for Linux x64_64 environments
  - Installs the Data Server Driver package (lightweight)
  - Suitable for most application servers
  - Needs additional configuration for some connections (e.g. ODBC)
Recent: DB2 10.5 ServerTemplate

- Brings DB2 ServerTemplate up to 10.5 level
- Many more deployment targets (not just AWS and Rackspace)
- Easier to move from Express-C to other versions
  - Feature of DB2 10.5 packaging changes
- Some work still required
  - Separation / preservation of instance and data not brought from 10.1 template
Recent : BLU Acceleration in the Cloud

- This would be possible with the 10.5 ServerTemplate
- However …
  - Simpler “all in one” solution available
    - DB2 10.5 with BLU Acceleration
    - Cognos BI tools
    - Help with utilities (e.g. getting data into the system)
  - [http://bluforcloud.com](http://bluforcloud.com)
  - Currently available as an Early Access Preview
    - Some teething problems
    - But in general easy to use
DB2 on the Cloud : Hints and Tips

- Plan for failure
  - HA and DR: use different regions (or even different providers)
  - Don’t forget your backups
    - You can exploit cloud-based storage (e.g. Amazon S3 or Glacier) to store these

- Plan carefully
  - Think through how you will upgrade the system (separate data / config)
  - Cloud management recipes (e.g. RightScale) are a good solution

- Think about security and data placement
  - Where does you data physically reside: is it legal?
  - Generally security is good: if you don’t compromise it with your setup!!!
DB2 Tech Talk:
Next Steps Roadmap - DB2 and BLU Acceleration for Cloud

Step One
Register for the Technology preview!
- bluforcloud.com

Step Two
Learn more about BLU Acceleration technology
- eBook: ibm.co/ZBWysX
- Mini-course free: bit.ly/miniblucourse (1 hour)

Step Three
Watch the BLU with Cognos “Fast on Fast”
- Interview with Jessica Rockwood: bit.ly/1dZEyB4 (7 mins)
- Demo of DB2 10.5 with Cognos Dynamic Cubes: bit.ly/197F4ty (4 minutes)

Step Four
Join the community
- IBM DB2 Facebook: bit.ly/DB2FBK
- DB2 on Twitter: @tryDB2 or @IBM_DB2

Reference
Call IBM to schedule a demo or learn more
- 1 800 966-9875 (U.S)
- 1-888-746-7426 (Canada)
- 1800-425-3333 (India)
- Or visit http://www.ibm.com/planetwide/ for contact information worldwide

IBM DB2 10.5 product page
ibm.com/db2

IBM DB2 10.5 Product features
ibm.co/12c1PJz

IBM Data Studio product page
ibm.co/ibmdsinfo

Tech forum on developerWorks
bit.ly/db2forumluw

SQL Tips Blog:
www.sqltips4db2.com
Upcoming Tech Talks

Don't miss these in-depth DB2 feature talks!

**Next DB2 Tech Talk:**

Using Data Studio To Create and Deploy Stored Procedures
- December 19, 2013 at 12:30 PM
- Anson Kokkat, IBM Data Studio Manager

**Recommended replays from this year:**
- Introduction and Technical Tour of DB2 10.5
- Adopt BLU Acceleration the Faster Easier Way
- BLU Acceleration Competitive Advantages
- pureScale + HADR for Always Available Transactions
- IDUG Tech Talk: Tuning Queries with Data Studio
- IDUG Tech Talk: Ten Principles of Highly Effective DBAs

How to register:

[DB2 Tech Talks web site](http://www.ibm.com/)

Dates and topics subject to change and modification.
Experience IDUG
The Worldwide DB2 User Community

Educational Events

Quality Education
Volunteer committees of DB2 professionals plan the IDUG educational events
Networking Opportunities with Top Product Developers, Industry Experts, Renowned Consultants, Fellow Users, and Vendors

IDUG Mentor Program
Opportunity for IDUG members to pass on valuable skills with an 80% discount to bring a coworker to an IDUG DB2 Tech Conference

IDUG DB2 Tech Conferences

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12 - 16 May, 2014
Register Now!

Melbourne, Australia
11 - 13 September, 2013

* Barcelona, USA
Oct 13 -18, 2013

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