



DEVCON(16)

Visualizing real-time data for student outreach

Rachel Scherer
Marcos Montero

Our Institution

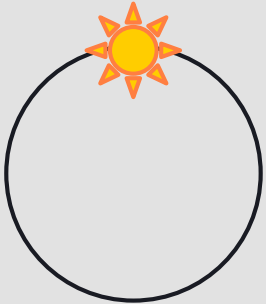
- A fully-online and LMS-centric institution
- Centralized course development processes
- Decentralized student support model
- Extensive student outreach practices
- 5- and 7- week overlapping course schedule tracks
- A rapidly-changing and integrated environment
- Managed Hosted (Diamond Engagement Plan) considering SaaS Advantage offering
- Robust data/reporting processes supporting operational, strategic, regulatory and compliance requirements

We Run On Students

- 10+ student-facing teams in the student lifecycle
- Outreach is key to student engagement and persistence
- Outreach is prioritized by (lack of) submissions, lack of engagement
- Current state of reporting:
 - Dashboard (one-stop shop) for student-facing teams
 - Toaster pop for engagement alerting

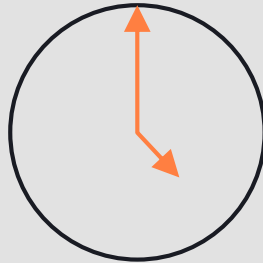
The Data

Nightly



- UMA data store
- OpenDb
- Grade Extract

Hourly



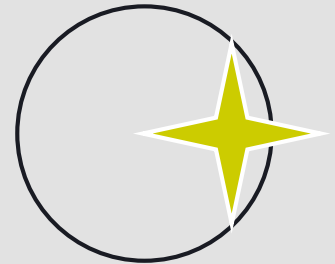
- Operational reporting, SIS
- Participation Reporting
- Engagement Reporting

Ad Hoc



- Business Intelligence
- Strategic/Tactical decisions

Real-time



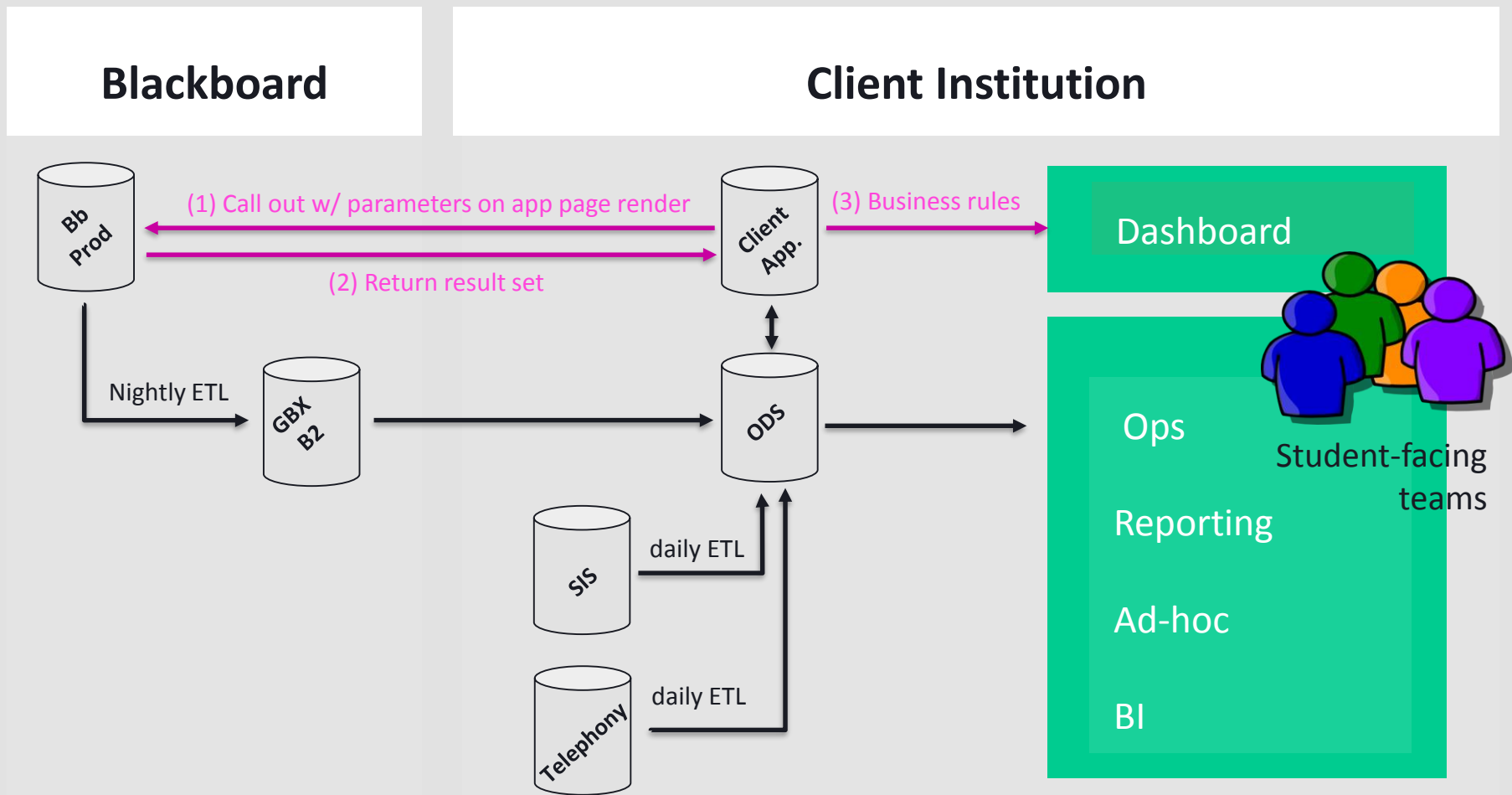
- Actionable insights
- Event streams:
Login, Grade, Submissions

Targeting outreach

Stop and ask, why?



Proposed Approach: The Gradebook On Demand



The Goal: Meaningful, actionable information, presented in context, to support our students and staff

Bb Data Visualization Framework B2 (Bb Consulting)



Data Exposure

Enables exposure of the Blackboard db schema via REST API

Data Visualization

Enables deployment of visualizations via modules inline to the Bb Learn environment

DVF B2, (Over-) Simplified

1



Configure required data source(s)

2

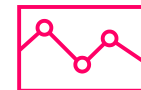


Configure query

3




API hook, Report



Inline Visualization


Expose the result set

Configure a Data Source





 Settings Page > Data Sources > **Configure Data Source**

Configure Data Source

Configure a data source for a query.

 Indicates a required field.

DATA SOURCE CONFIGURATION

 Name	<input type="text" value="BBLEARN"/>
Description	<input type="text" value="This is the connection to the BBLEARN schema."/>
 Host Url	<input type="text" value="localhost:1521:ORACLE"/>
 User Name	<input type="text"/>
 Password	<input type="password"/>
Type	<input type="text" value="ORACLE"/>
Availability	<input checked="" type="checkbox"/> Available

- Internal (Learn) or External
- Database or Web Service
- Configure source, connection pool

Configure a Query

Availability

To whom and what:

- *System Roles*
- *Course Roles*
- *REST API*

- ☐ None
- ☐ Authenticated Users
- ☒ Specific Roles
- ☐ Available
- ☐ REST Available

Post Processing

- Assessment (QTI/Question-Response)
- Gradebook (calculated grade)
- Translator (language pack)

Testing

Configure query string parameters for testing

Test Parameters

parameter1=value¶meter2=value



The Gradebook

Last Name	First Name	Wk 2 - Keyboard	Week 2 Grade %	Wk 3 - IHMO Di	Wk 3 - IHMO Te	Wk 3 - LOM As	Wk 3 - LOM Te
Student	Development Affiliat	30.00	100.00%	30.00	45.00	30.00	45.00
Student	Development Affiliat	--	0.00%	--	--	--	--

student + gradable item name + score + submission date

Student⁽¹⁾ + gradable item name⁽²⁾ + score⁽⁴⁾ + submission date⁽³⁾ ⁽⁵⁾

⁽¹⁾ unless it was an instructor or TA

⁽²⁾ if you can find it

⁽³⁾ may vary for certain item types

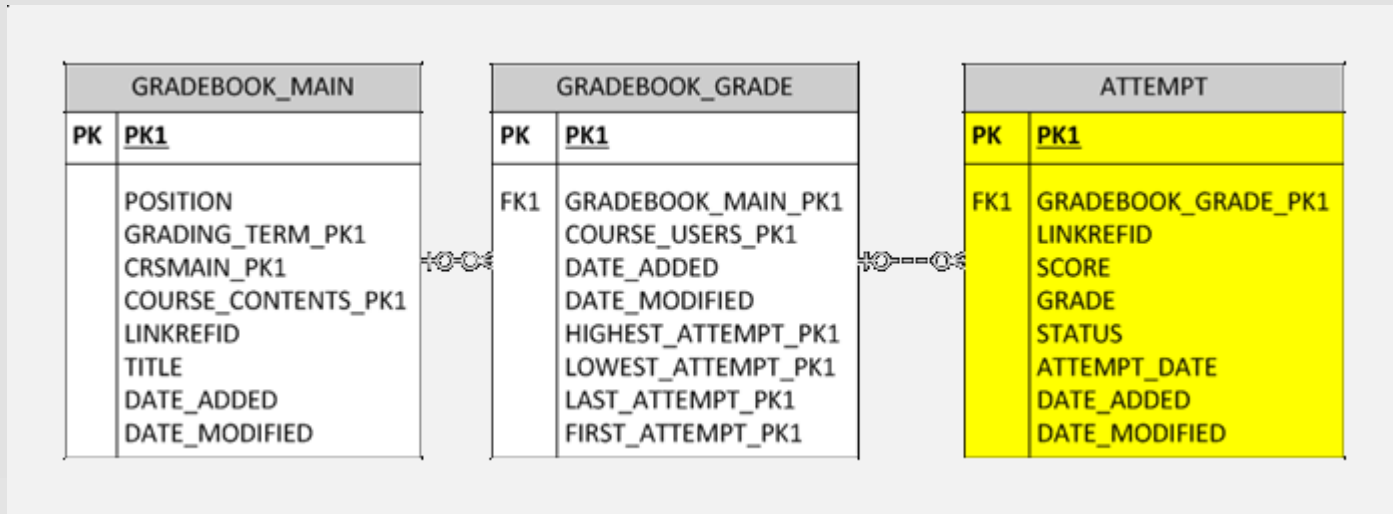
⁽⁴⁾ of ordered attempt

⁽⁵⁾ not terribly trustworthy

– depending on type

A Proposed Approach: The Gradebook On Demand

- ATTEMPT

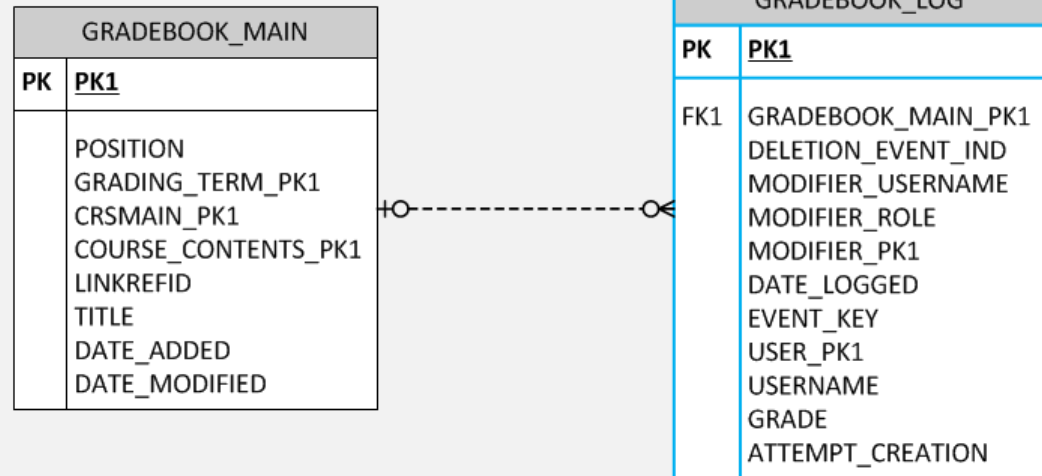


Protips:

- (1) Attempt is granular, but not *that* granular
- (2) Attempt Date and Last Modified Date can be misleading
- (3) Non-students can create attempts on behalf of students
- (4) No record of cleared attempts
- (5) McGraw Hill and 3rd Party integrations (linkrefid field)

A Proposed Approach: The Gradebook On Demand

GRADEBOOK_LOG



Protips:

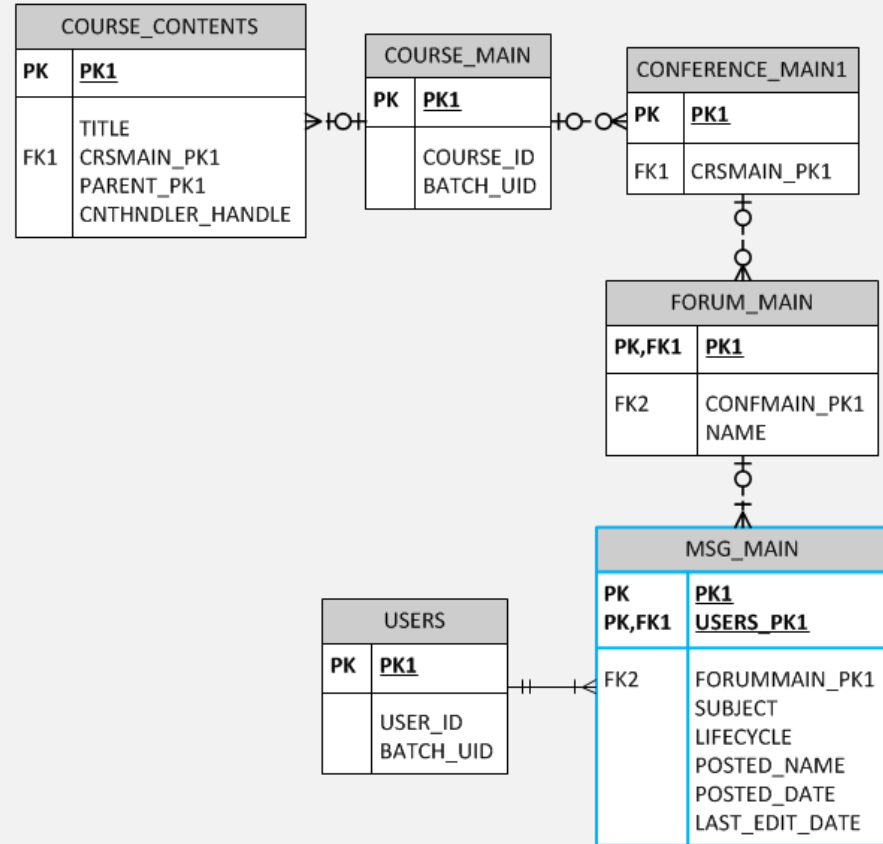
- (1) Information on cleared/deleted attempts can be found here
- (2) Good source for Assignments and Tests
- (3) Event Key and Modifier UserID

A Proposed Approach: The Gradebook On Demand

MSG_MAIN

Protips:

(1) Only place to find individual posts and replies in a forum



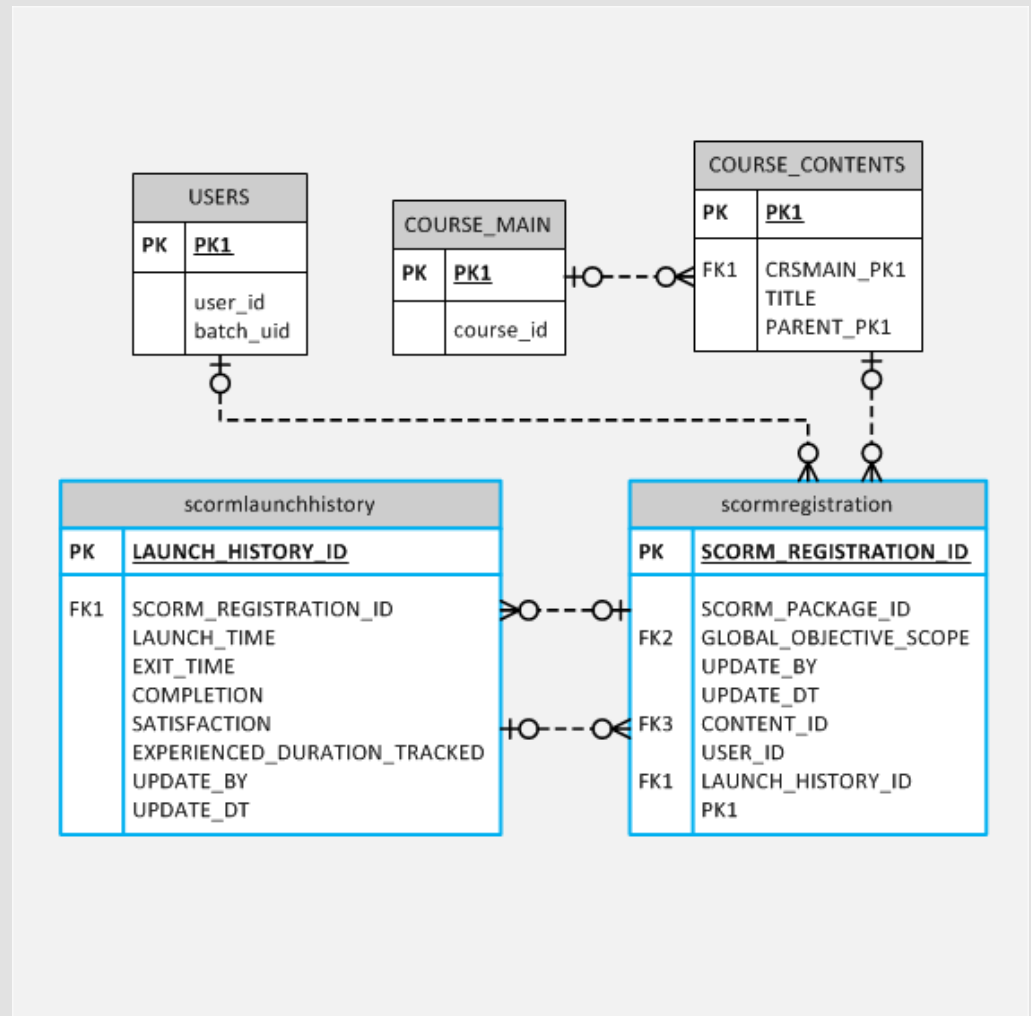
A Proposed Approach: The Gradebook On Demand

SCORM_REGISTRATION and
SCORM_LAUNCH_HISTORY

Protips:

(1) Individual launch
plus completion status

(2) Duration per launch



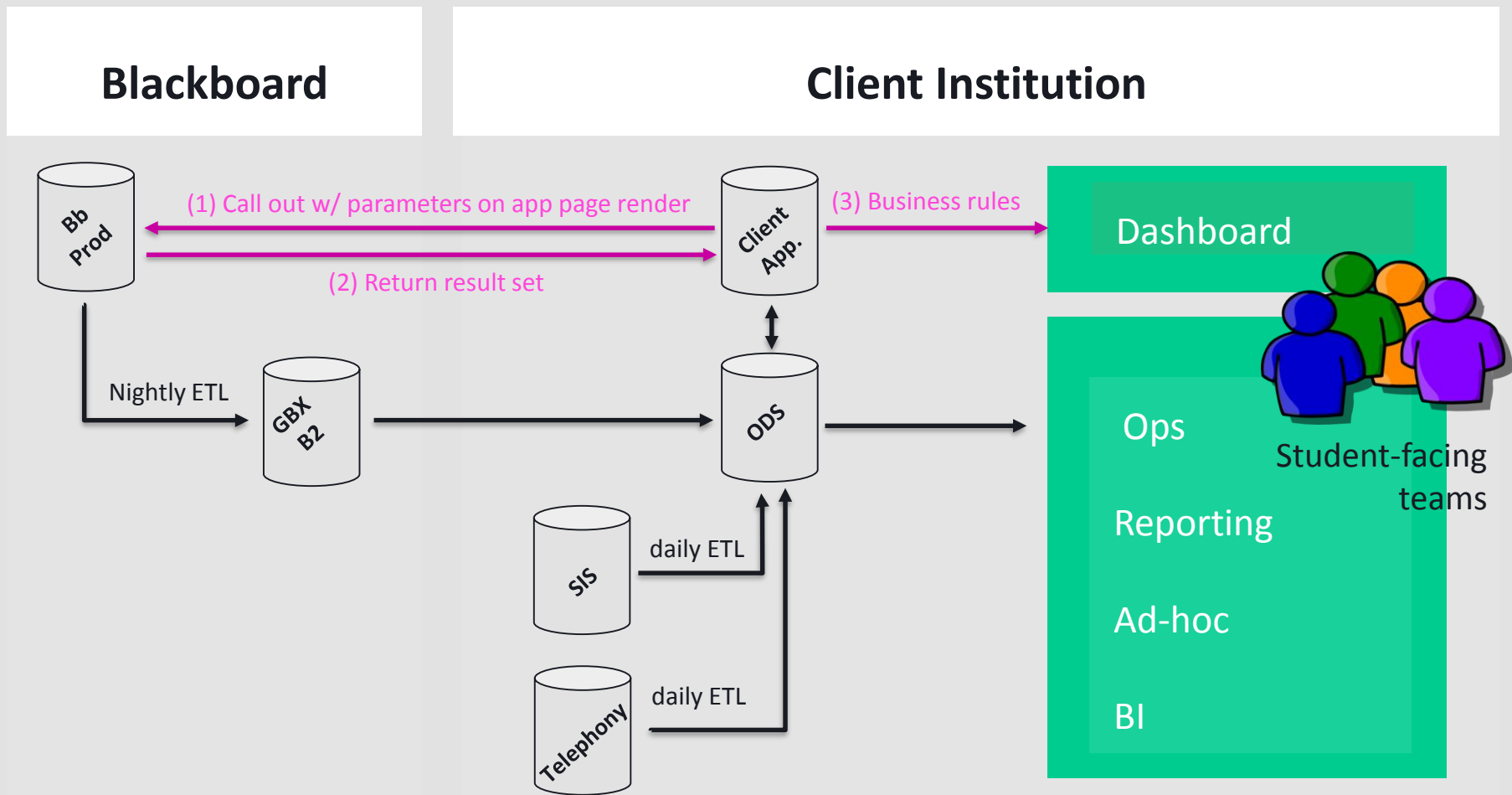
Post-Processors

- The framework is distributed with a pre-built grade post processor which provides the ability to get a primary grade schema value for a provided user and gradebook column (gradebook_main)
- When the query supplies the correct data to the post processor, the system will run the grade calculations for the specific data and will either append the grade value to the results or will populate into an existing column with a specified name.

Bb Consulting

Class Name	Description	Custom
com.blackboard.consulting.postprocessor.AssessmentPostProcessor	This post processor extracts question and response data from an assessment result.	N
com.blackboard.consulting.postprocessor.GradeBookPostProcessor	This post processor returns the calculated grade for each user and grade column provided. The post processor expects columns named, gb_crsmain_pk1, gb_gradebook_main_pk1, and gb_course_users_pk1. If a column titled Outcome.Grade is provided, the grade will be placed in that column, otherwise the column will be added to the end of the results.	N
com.blackboard.consulting.postprocessor.TranslatorPostProcessor	This post processor provides the translation for the appropriately named columns.	N

Proposed Approach: The Gradebook On Demand



The Goal: Meaningful, actionable information, presented in context, to support our students and staff

#3?

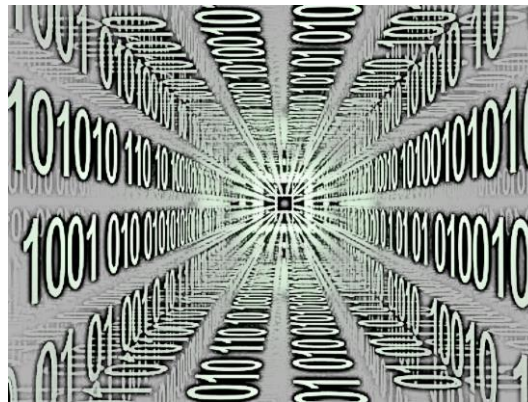
Configure a Report or Visualization

Choose Type

- AM Chart <https://live.amcharts.com/>
- Calendar
- Google Chart <http://tinyurl.com/h4wumaa>
- Table
- Merge

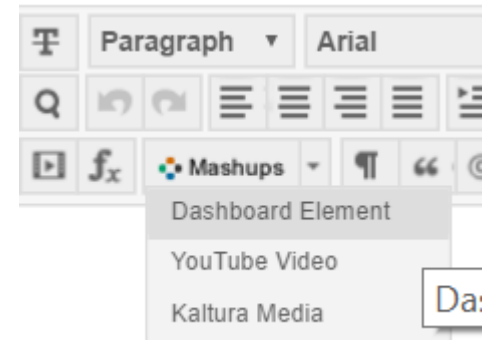
Include Script

HTML, Javascript, and CSS as applicable



Deploy

Via content editor anywhere it lives.





Admin Tools

▼ My Reports

Admin

[Admin: User Lookup](#)

On Call Resources

[On Call: ER / Grable Submission Delivery Cadence](#)

[On Call: ER / Grade Activity Delivery Cadence](#)

Start Prep

[Start Prep: Course Count Report](#)

[Start Prep: Course List Report](#)

UAT

[Grade Extract: BbC](#)

Lookup

▼ Start Prep: DSK Changes

DSK changes in the past 10 days.

COURSES

The Courses DSK

COURSES_INNOVATION_DEMO.TXT

- Was modified on 07-JUL-16.
- 1 courses are ENABLED/AVAILABLE in the DSK.
- 0 courses are DISABLED in the DSK.
- 0 courses are UNAVAILABLE in the DSK.

ENROLLMENTS

The Enrollment DSK

ENR_INNOVATION_DEMO.TXT

- Was modified on 07-JUL-16.
- 5 enrollments are ENABLED/AVAILABLE in the DSK.
- 0 enrollments are DISABLED in the DSK.
- 0 enrollments are UNAVAILABLE in the DSK.

FACULTY

The Faculty DSK

ENR_INNOVATION_DEMO.TXT

- Was modified on 07-JUL-16.
- 5 faculty assignments are ENABLED/AVAILABLE in the DSK.
- 0 faculty assignments are DISABLED in the DSK.
- 0 faculty assignments are UNAVAILABLE in the DSK.

Process Monitoring

▼ Event Reporting Delivery Cadence

Login Activity [\[Settings\]](#)

Reporting Login Activity delivery intervals over 60s

Grable Submissions [\[Settings\]](#)

Reporting Grable Submission delivery intervals over 4m

41-minute interruption before 10 55 today.
5-minute interruption before 11 22 today.

Grading Activity [\[Settings\]](#)

Reporting Grading Activity delivery intervals over 60s

8-minute interruption before 04 52 today.
8-minute interruption before 05 20 today.

Incident Reporting



Faculty / Student Tools

You have 14 assignments which are past due.

- Wk 1 - Disc is past due.
- Wk 1 - Assign is past due.
- Wk 1 - Test is past due.
- Wk 2 - Disc is past due.
- Wk 2 - Assign is past due.
- Wk 2 - Test is past due.
- Wk 3 - Disc is past due.
- Wk 3 - Assign is past due.
- Wk 3 - Test is past due.
- Wk 4 - Disc is past due.
- Wk 4 - Assign is past due.
- Wk 4 - Test is past due.
- Wk 5 - Disc is past due.
- Wk 5 - Assign is past due.

OK

Announcements

New Announcements appear directly below the repositionable bar. Reorder by dragging announcements to new positions. Move priority announcements above the repositionable bar to pin them to prevent new announcements from superseding them. The order shown here is the order presented to students. Students do not see the bar and cannot reorder announcements.

Create Announcement

Welcome, Instructor!

Posted on: Thursday, July 7, 2016 6:32:59 PM EDT

There are 83 submission attempts in a Needs Grading status. [Go to Needs Grading](#)
12 unread student posts have been submitted to the Ask Your Instructor area. [Review](#)

Dynamic In-Course Messaging

Next Steps for Our Institution



*B2 installed and validated in
UMA Prod; Query configured*



*Completing UMA-side dev
work for consumption*



*Developing and piloting
admin tools*



*Planning an experience;
Developing and piloting end-user tools*

Next Steps for You



tinyurl.com/j6gua5t

Grab Project Artifacts



tinyurl.com/j6gua5t

See Other Projects

Deep dive on administration and management of a complex, highly-integrated learning environment

Wednesday, 4:35 PM Venetian I

Attend Risky Business: 100% Uptime →

Rachel Scherer

Marcos Montero



UP NEXT! In Titian 2301B

Attend Assessing Your Organization's Readiness
for a Transition to Bb Leam SaaS

DEVCON 16