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**DEVELOPERS’  
CONFERENCE**  
June 15–17, 2021

# Leveraging Blackbaud’s School API in K-12

HOT TOPIC MEDLEY TRACK

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**EVAN YORK, CHRIS FLEISCHL, LUCIEN PIEKUT, BRIAN GRAY**

*Session Host: Michael Sullivan*



# Safe Harbor Statement

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# Customization of Blackbaud Solutions

As a Blackbaud customer, your Authorized Support Contacts retain the responsibility for providing internal support for Customizations of your Blackbaud solutions by:

- Providing direct support to answer questions regarding Subscription functionality, internal business practices, and troubleshooting processes to Your Non-Authorized Users
- Providing direct support to answer questions regarding Customization specifications, features, intended usage, and Error correction and troubleshooting processes to Your Non-Authorized Users



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*He/Him/His*

Product Management



Greenwood 

Lucien Piekut

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Database Manager



 Dwight-Englewood School

Chris Fleischl

*He/Him/His*

Administrative Systems  
Coordinator



 St. Stephen's  
EPISCOPAL SCHOOL

Brian Gray

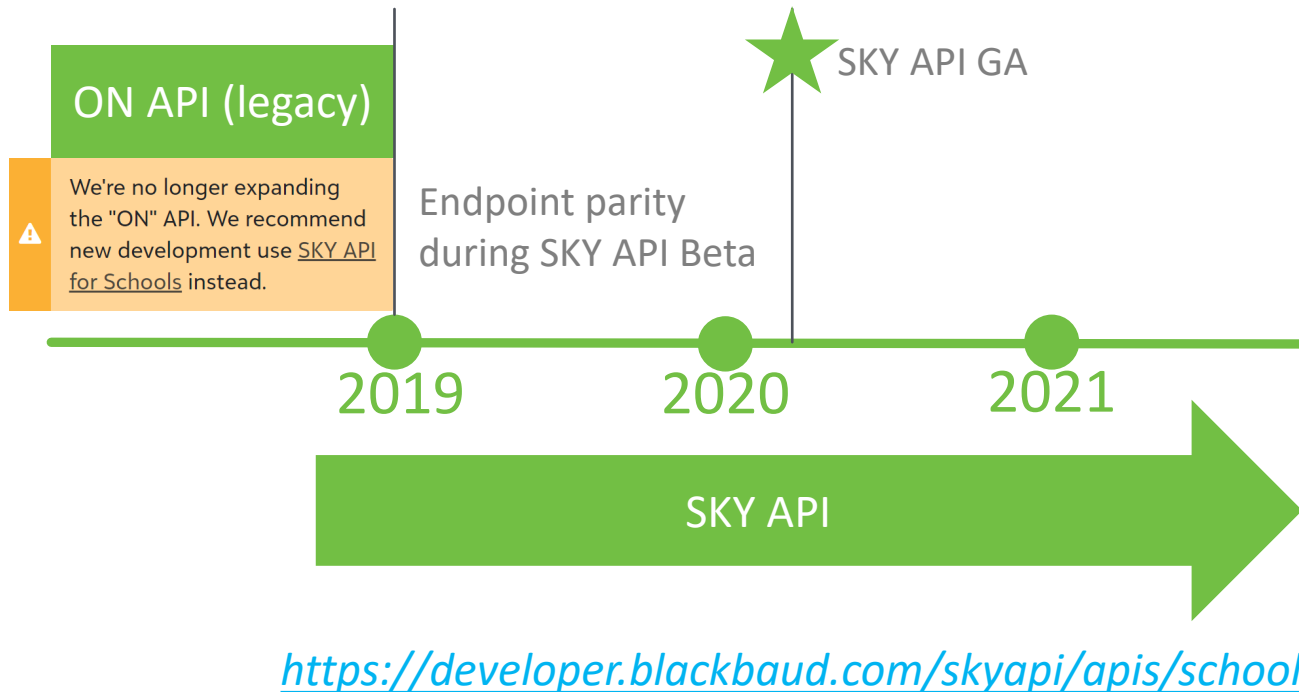
*He/Him/His*

Technology Systems  
Administrator

# Blackbaud's School APIs



Enables Customers & Partners to programmatically access data in Education Management



- Unified Blackbaud Experience
- Free Access Tier
  - 25K calls per day
- Self-Service Application Development
  - Developer Portal: <https://developer.blackbaud.com>
  - Community: <https://community.blackbaud.com/forums/viewcategory/486>
- Partner Marketplace
  - <https://app.blackbaud.com/marketplace/>
  - Discoverable partner products
  - Easy third-party application installs

# Hello! I'm Lucien Piekut

*He/Him/His*

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GREENWOOD COLLEGE

TORONTO, ON

Lucien is a seasoned database developer and manager with eight years Blackbaud product experience in the fundraising & K12 sector, and fifteen years IT systems integration and development.



# Data development for K12

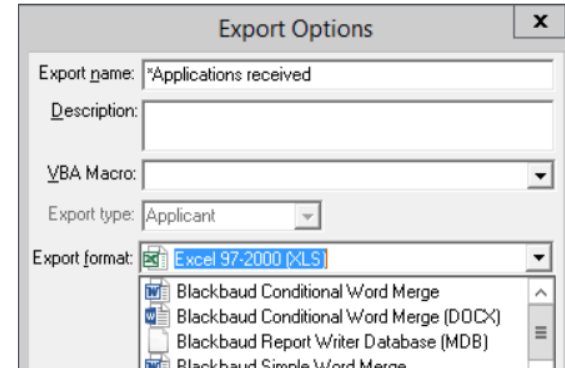
## From Education Edge to SDK to SKY API

- **Education Edge**

- Manual export of **Blackbaud Report Writer** Access .mdb
- Import to SQL data warehouse

- **Blackbaud K12 SIS**

- ODBC Read-Only Views (K12 SDK)
  - Connect via Fortinet SSL VPN, load views to data warehouse (*must be connected via VPN*)
- SKY API
  - Run Python scripts from server to load SQL data warehouse, use Advanced Lists as base



# Types of information we pull

- Demographic
  - Address
  - Contact
  - Relationships
- Grading
  - Grades
  - Grade Plans
- Scheduling
  - Course configuration
  - Student scheduling
  - Course requests
    - *ODBC View only*
- Attendance
- Conduct







# Types of reports & dashboards we use

- Demographic
  - Data synchronization
  - Data cleansing
- Grading
  - Progress of Graduation
  - Administration reports
  - Government reporting
  - Custom provincial transcript
  - Custom Progress of Graduation
- Scheduling
  - Schedules matrix
  - Scheduling conflicts
  - Course selection review
  - Custom timetable
  - Schedule fulfilment report
- Attendance
  - Truancy
- Conduct
  - Conduct Tracking

# Dashboarding @ Greenwood

## Course Selection

The Course Selection Checker dashboard provides a comprehensive overview of a student's course requirements. It includes validation tables for compulsory missing courses and credit requirements, a list of previously taken or chosen courses, and administrative options for counselor assignment and grade progression.

## Scheduling Matrix

The Scheduling Matrix is a grid-based interface that allows users to view and manage course offerings. The columns represent different grade levels and sections, while the rows represent individual course offerings with details like course ID and credits.

## Progress of Graduation

The Progress of Graduation dashboard tracks a student's progress towards graduation. It features a detailed table of elective and compulsory credits, along with summary statistics for enrollment, credit accumulation, and achievement of various milestones like OSSSL and community service.

## Conduct Tracking

The Conduct Tracker provides a detailed view of student conduct incidents. It includes a table of infractions with associated dates, descriptions, and advisor information, along with summary statistics for incomplete infractions and missed deadlines.

## Absence Tracking

The Absence Tracker monitors student attendance. It features a table of late arrivals for a specific period, a weekly bar chart showing late counts by grade level, and a cohort calendar for tracking attendance across different cohorts.

## Data Validation (RE & K12)

The Data Validation dashboard compares address and contact information. It includes two comparison tables and a note indicating that certain addresses have been modified for better matching accuracy.



# Summer of 2020

## **New Ontario Provincial Requirement for COVID-19 Screening**

- Daily self-screening is required by all students, employees, and third-party building entrants
- Ensure quick accessibility to any information regarding self-screening
- Lack of clarity on future requirements
- App market didn't seem ready at start of year



# Extensibility, Flexibility

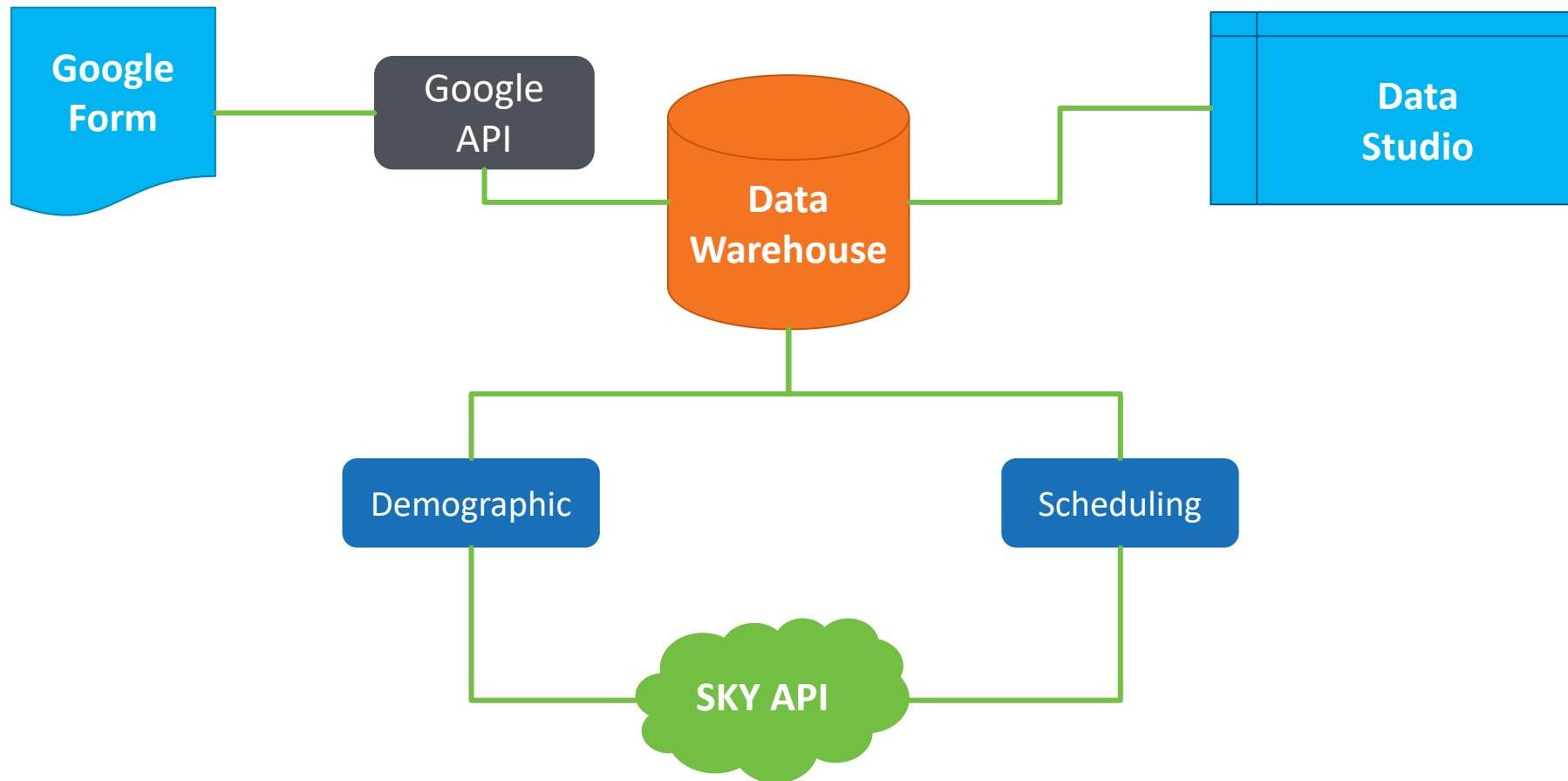
## Questions:

- How will attendance staff review incoming screening
- How will attendance staff follow-up with missing screeners
- How will we handle form / questionnaire changes

## Primary Goals:

- Ensure we can meet future changes
- Make user experience easy (attendance, parents, nurse)
- Be able to control data (privacy) and easily visualize information

# SKY API, Data Studio, Google API



# COVID-19 Dashboard

## Attendance Staff View

**COVID-19 Screening Dashboard + Main Office Daily View (Student)**

18 Nov 2020 - 18 Nov 2020

Week A Cohort A: In Person Cohort B: Online

Student Daily Assessment (Grade 07/08) Student Daily Assessment (Cohort A, Grade 09-12) Student Daily Assessment (Cohort B, Grade 09-12)

Cohort	Grd	Name	Assessment Date	Absent
B	08			Yes
B	07		18 Nov 2020	
B	08		18 Nov 2020	
B	07			
B	08			
B	08		18 Nov 2020	Yes
B	08		18 Nov 2020	
B	08		18 Nov 2020	Yes
A	08		18 Nov 2020	
B	08		18 Nov 2020	
B	08		18 Nov 2020	
A	07		18 Nov 2020	
A	07		18 Nov 2020	

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Daily Assessment Follow-up Contact List

Co...	Grd...	Name	Parents' Email	Absent D...	Virtual...
A	07			18 Nov 2020	
B	07			18 Nov 2020	
B	07			18 Nov 2020	
B	07				
A	07				
A	08				
B	08				
B	08			18 Nov 2020	
A	08			18 Nov 2020	

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COVID-19 Screening Alerts (Daily) (Employee & Student)

Cohort	Name	Symptom (R)	Travel	Contact	Health Official	Building Entry

Submitted Assessment by Grade

Grade	Submitted	Total
07	53	55
08	61	68
09	41	83
10	41	92
11	39	74
12	26	76

## Nurse's View

**COVID-19 Screening Dashboard + Nurse's Office View**

Name

COVID-19 Screening Alerts (Employee & Student)

Assessment Date	Cohort	Name	Screening	Symptom (R)	Contact	Health Official	Travel	Building Entry	Parents' Email	Phone	Wireless

COVID-19 Tracking over time

Submitted Daily Assessment (Gr 7/8)

Grade	Submitted
08	65
07	55

Submitted Daily Assessment (Cohort A)

Grade	Submitted
09	43
10	26
11	48
12	29

Submitted Daily Assessment (Cohort B)

Grade	Submitted
09	33
10	38
11	24
12	47

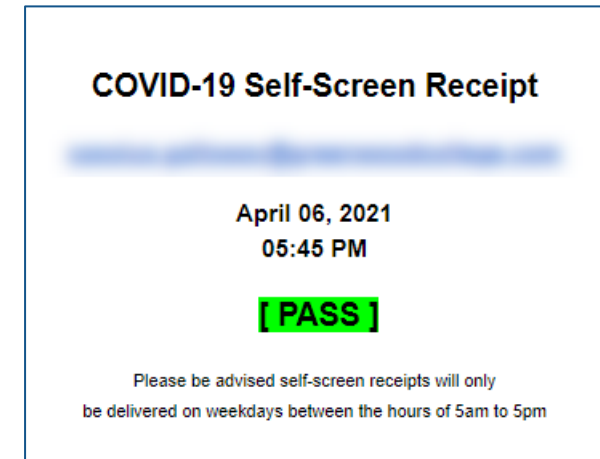
Submitted Daily Assessment (Employee)

Date	Submitted
2 Jun 2021	94

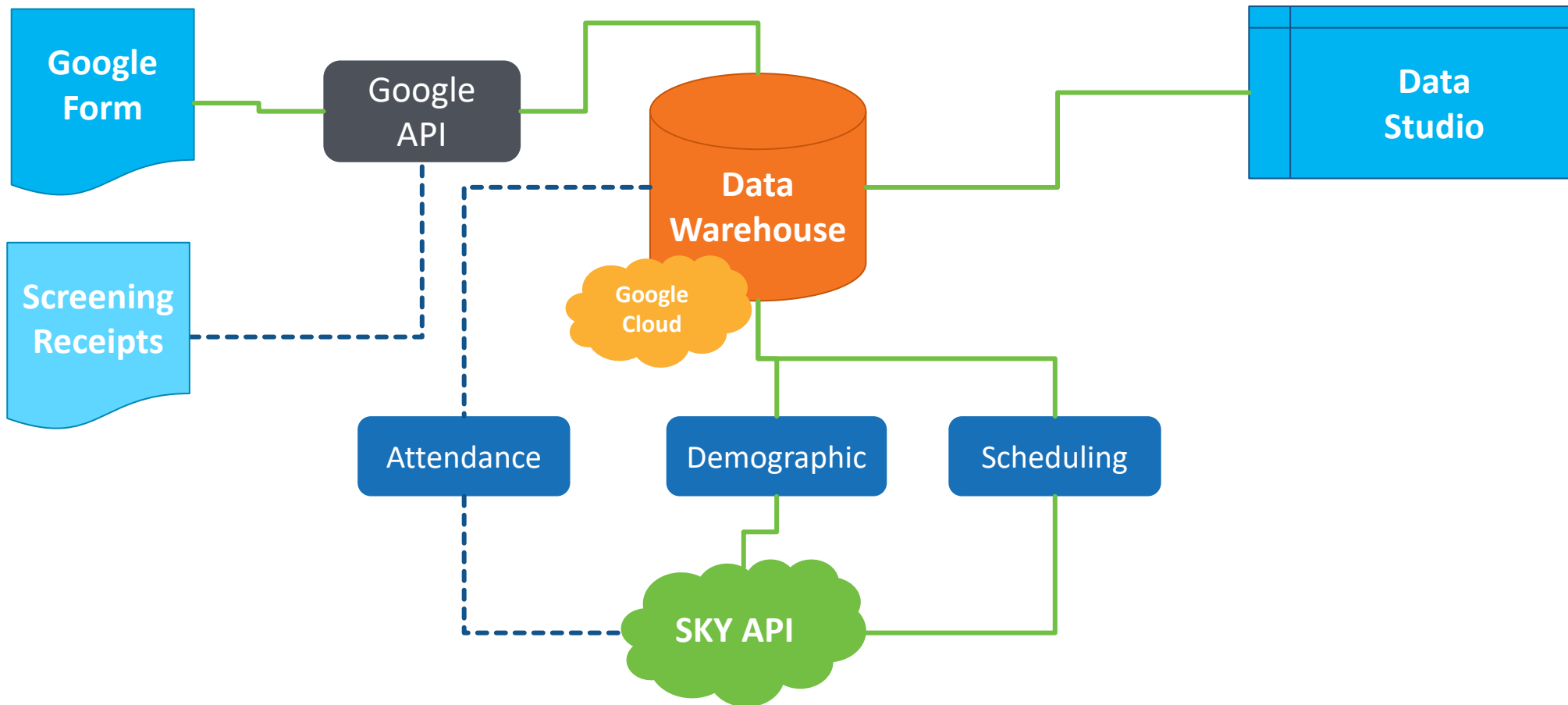
# New Requirements

## As requirements changed we were able to add on functionality:

- Issue screening receipts via e-mail
- Ensure we can integrate with attendance to reduce pressure on attendance team
- Add student Cohorts (specific to our school's needs)
- Constant re-wording of form questions
  - We were able to modify front-end, and maintain back-end

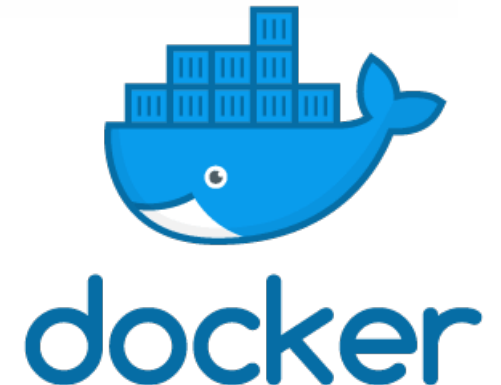


# SKY API, Data Studio, Google API





# Working Environment





Dwight-Englewood School

# Hello! I'm Chris Fleischl

*He/Him/His*

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DWIGHT-ENGLEWOOD SCHOOL  
ENGLEWOOD, NJ

Chris Fleischl is the Systems Administrator at Dwight-Englewood School, where he has worked for the past 7 years. He also coaches our school's 3 FIRST Tech Challenge Robotics teams.





# The Old Way: Account Management

- One of the most tedious and time-consuming tasks for our small IT team.
- A large and growing collection of Advanced List CSV exports for Active Directory, Google, and various other school services, done as a yearly bulk import.
- Manual processes:
  - Late Admits
  - Mid-year withdrawals
  - Google Group updates



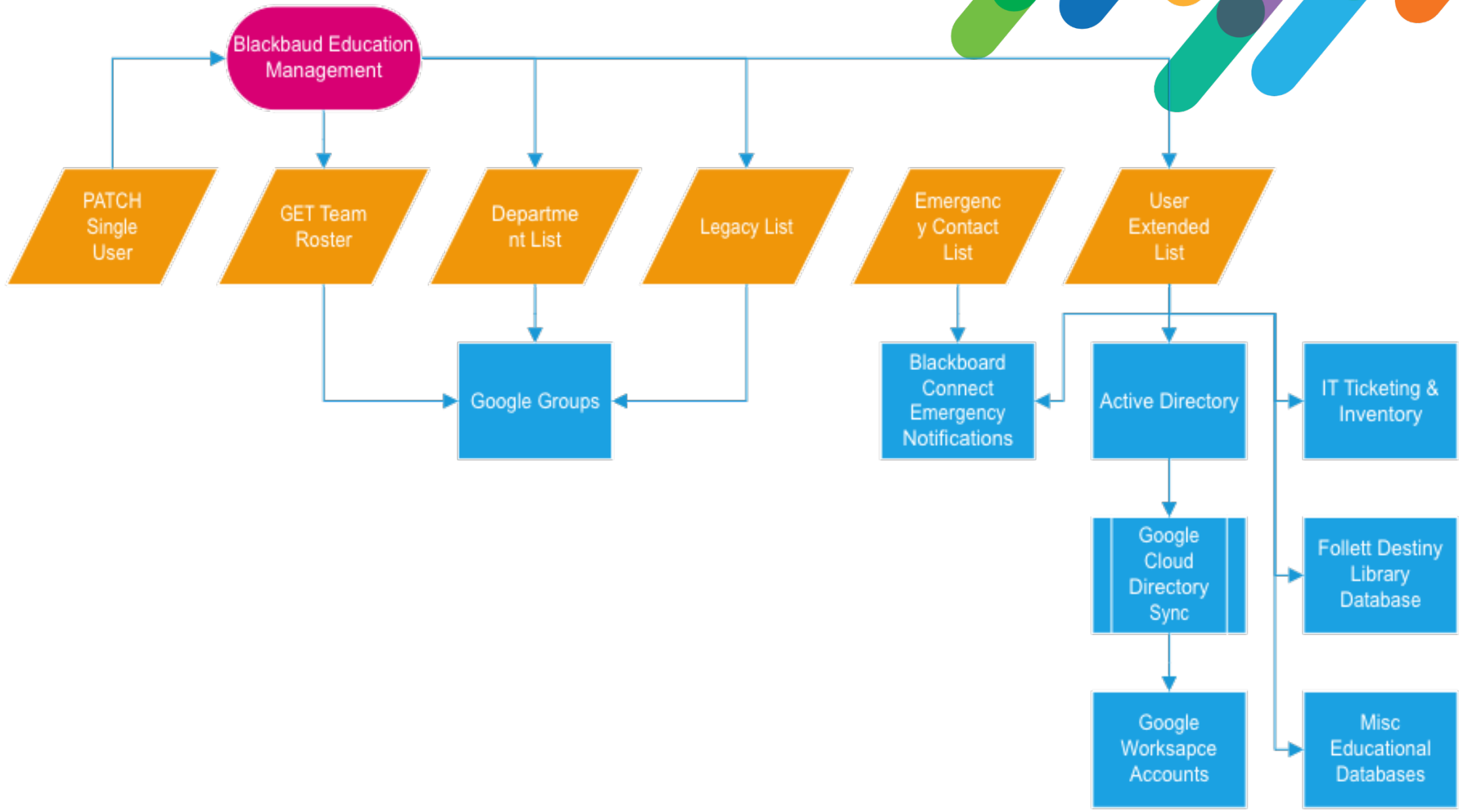
# The Task: Automate!

- Eliminate the potential for human error on an import process that only gets done once a year.
- Remove the need to tediously perform single account creation or removal during the year.
- Automate adding and removing users from many community groups.



## Our Solution: School API

- We designated our Blackbaud Education Management student directory as the authoritative copy of all constituent information for students and families.
- Use the School API to pull constituent information from the directory for importing into various other services.
- Run a nightly sync to handle any changes over time.
  - New users or disabling attrits
  - Constituent field changes
  - Username or email address changes





# Continuous Improvement

- Moving away from Legacy Advanced Lists towards new endpoints as the API grows
- Scripted onboarding for students
- Automated handling of employee accounts



St. Stephen's  
EPISCOPAL SCHOOL

# Hello! I'm Brian Gray

*He/Him/His*

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ST. STEPHEN'S EPISCOPAL SCHOOL

AUSTIN, TX

Brian Gray is a system administrator, database manager, programmer and teacher at St. Stephen's Episcopal School in Austin, Texas. He is the primary administrator for online services for the School, including Blackbaud, Google, and several others.

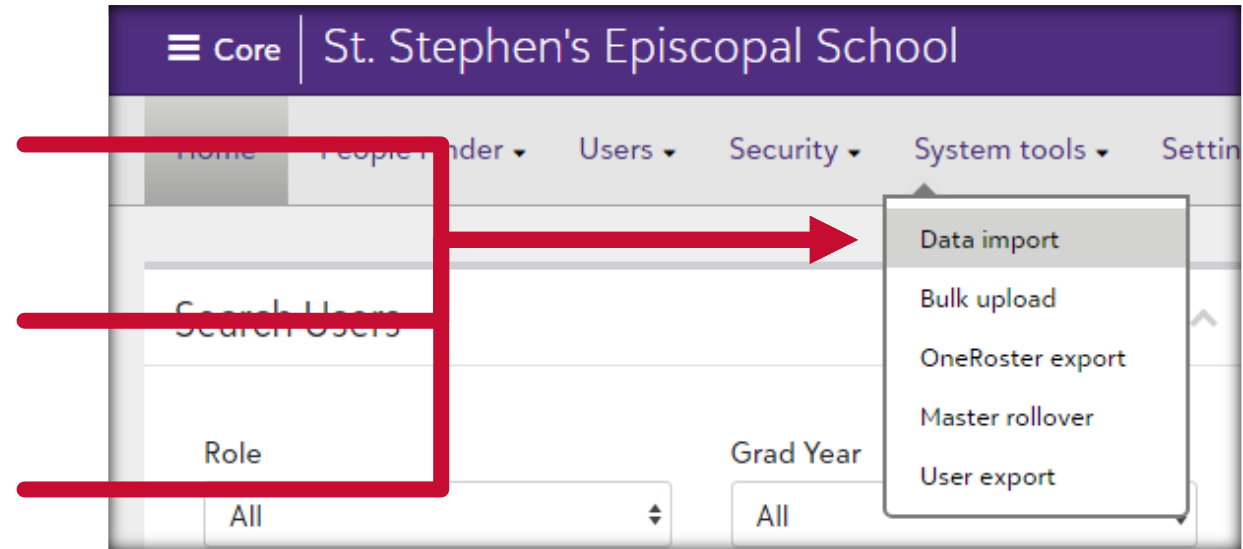
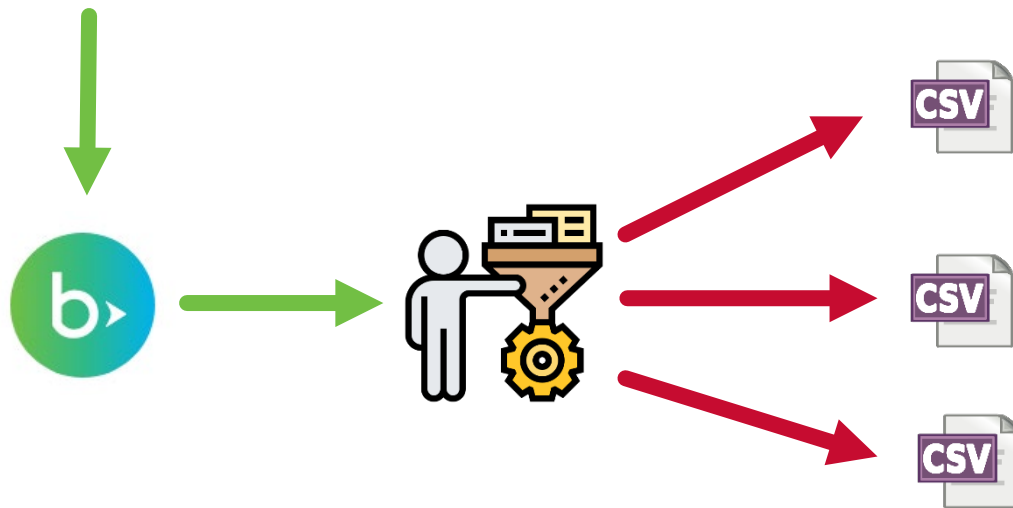




Preliminary Data Scrubbing

Incoming students and parents

SchoolAdmin



## Incoming Student Data Scrubbing



Preferred  
mailing address



Preferred  
name



Bulk email  
greeting



Phone number  
formats



Username  
(BB-ID)



Student related  
to himself



Student/Sibling  
check

Account Audit – what looks wrong?

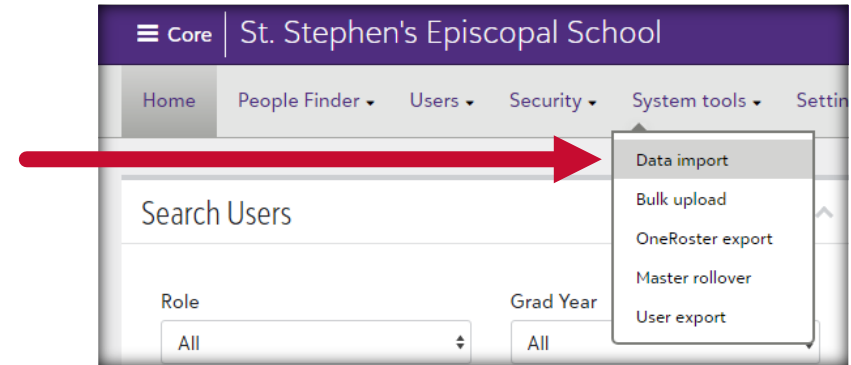
- Incoming students and parents
- Current students and parents
- Employees



Draft of salutations for manual review



Worklist for Registrar



## Account Audit – what looks wrong?



Complete name info



Missing email



Bulk email greeting



Missing phone number



Phone number formats



At least one mailing address



Preferred mailing address



Student relationship info



Prefix matches gender



Username (BB-ID)

Schedule Grids like EE used to make  
7 day x 9 period rotating schedule

Yugest, Shirley

Winter Term - 2020 - 2021

	A	B	C	D	E	F	G
1	English 9 (1) Temple - Rm 23	English 9 (7) Temple - Rm 23		Adv. Writing: Writing Across Genres (1) Temple - Rm 23			English 12A - W (1) Temple - Rm 23
2	English 12A - W (1) Temple - Rm 23	English 9 (1) Temple - Rm 23	English 9 (7) Temple - Rm 23		Adv. Writing: Writing Across Genres (1) Temple - Rm 23		
3	Study Hall A (A3) Temple - Rm 12	English 12A - W (1) Temple - Rm 23	English 9 (1) Temple - Rm 23	English 9 (7) Temple - Rm 23		Adv. Writing: Writing Across Genres (1) Temple - Rm 23	
Adv	US Advisory (YujestS)	US Advisory (YujestS)	US Advisory (YujestS)	US Advisory (YujestS)	US Advisory (YujestS)	US Advisory (YujestS)	US Advisory (YujestS)
4			English 12A - W (1) Temple - Rm 23	English 9 (1) Temple - Rm 23	English 9 (7) Temple - Rm 23		Adv. Writing: Writing Across Genres (1) Temple - Rm 23
5							
6							
7	Adv. Writing: Writing Across Genres (1) Temple - Rm 23			English 12A - W (1) Temple - Rm 23	English 9 (1) Temple - Rm 23	English 9 (7) Temple - Rm 23	
8		Adv. Writing: Writing Across Genres (1) Temple - Rm 23			English 12A - W (1) Temple - Rm 23	English 9 (1) Temple - Rm 23	English 9 (7) Temple - Rm 23

Unscheduled classes:

Ind Study English (212IS - 1)

## Attendance Call Log

Student roster and parent names from Core  
Data stored in MySQL

Available to

- Attendance Clerk
- Dean of Students

The screenshot shows the 'Attendance Log v3.1.0.17' application window. It features a menu bar with 'File' and 'Options', and a search field containing 'bgray'. Below the menu is a toolbar with buttons for 'Add New Entry', 'Look-up by Date', 'Look-up by Name', and 'Notes'. The main form includes a 'Student' dropdown menu with 'Example, Anthony (10-B)' selected, and a 'Caller' dropdown menu with 'Example-Alpha, Alice (Cindy)' selected. A 'Contact by' section has radio buttons for 'Email', 'In Person', 'Note', 'Phone' (which is selected), and 'Other'. A calendar for 'May 2021' is displayed, with the date '29' highlighted. Below the calendar is a text area labeled 'Quarantining after possible exposure'. At the bottom right, there is an 'Add' button.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
25	26	27	28	29	30	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

## Contact Tracing

### Six Degrees of Contamination

The screenshot shows the SixDegrees v2.0.0.17 application window. The interface includes a file path input field set to "C:\Temp\SixDegrees", a CSV file path input field set to "C:\Temp\SixDegrees\SectionAttendanceWorklist.csv", and a search filter set to "nich" for "Friday, December 11, 2020". The results pane displays a list of sections, with "11-D" selected. The details pane shows attendance for "Physics I - [814-1] Hines - Lab 17C" on "12/11/2020 10:10:00 AM", listing several students as present.

File path: C:\Temp\SixDegrees

CSV file path: C:\Temp\SixDegrees\SectionAttendanceWorklist.csv

Filters:  Exclude Lunch,  Exclude Unscheduled,  Include Unknown and Present ONLY

Date: Friday, December 11, 2020

Search: nich

Results:

- 9-B
- 11-D (Selected)
- 12-D
- 12-B




Details for 11-D:

Physics I - [814-1] Hines - Lab 17C  
--- 12/11/2020 10:10:00 AM  
--- Attendance taken

- [Redacted] s 11-D [Present]
- [Redacted] ng 11-D [Present]
- [Redacted] 1-D [Present]
- [Redacted] na 10-D [Present]
- [Redacted] 10-D [Present]

# Contact Tracing

## Six Degrees of Contamination

- Student course enrollments 
- Class Attendance reports 
- Section meeting schedule 





Programming Tools



APACHE



SKYLib•NET



#bbdevdays

Thank you!