



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

The Blackbaud Payments API in action

HOT TOPIC MEDLEY TRACK

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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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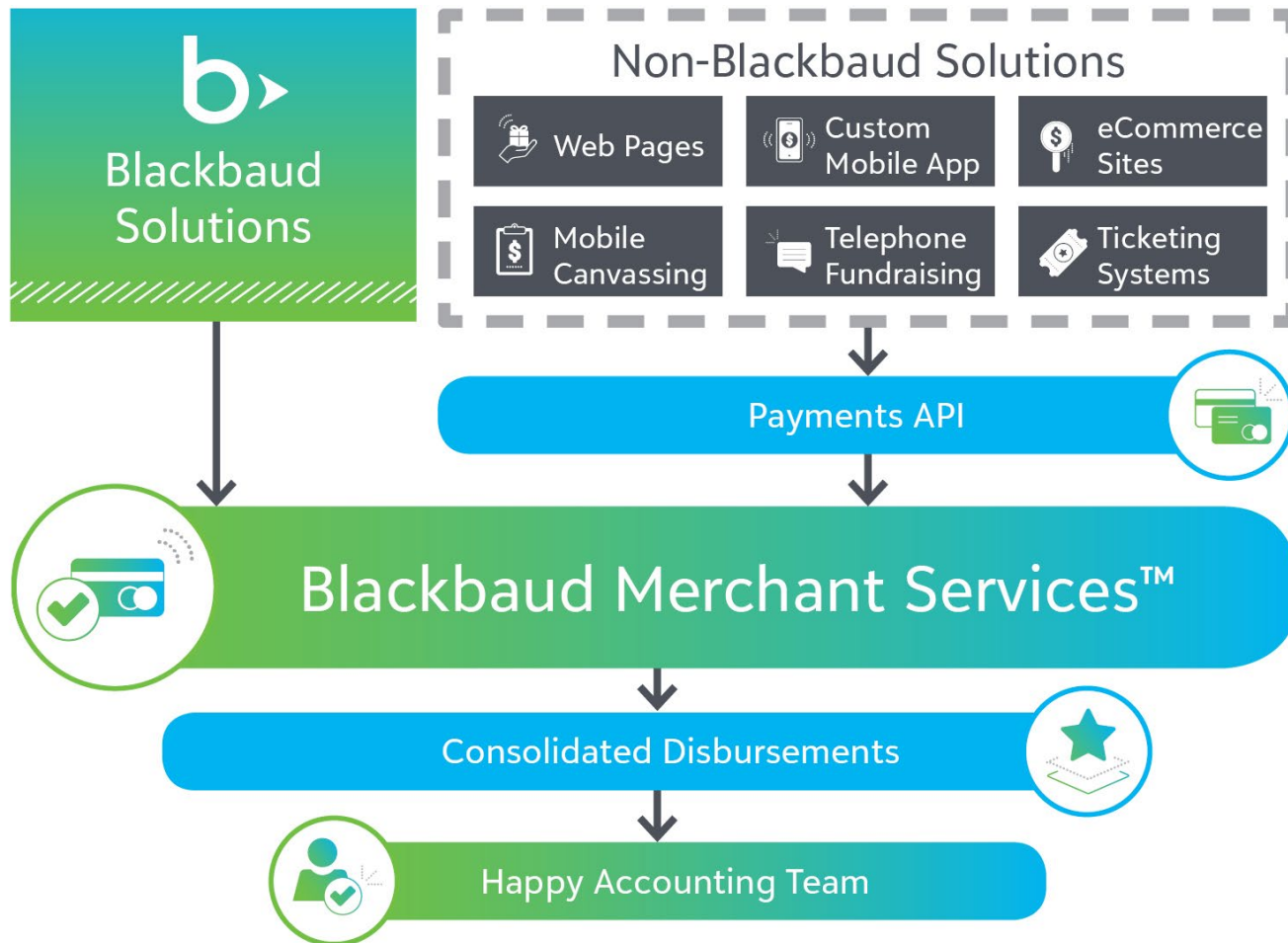




In this session

- How the SKY Payments API can help your organization
- Introduction to ELCA and the online Good Gifts catalog
- Getting started with the Payments API
- Overview of ELCA's integration with the Payments API
- Tips and tricks
- Key wins and outcomes from the project for ELCA

Take payments with any non-Blackbaud app



*"With Blackbaud's Payments API, we can keep Blackbaud Merchant Services for all credit card, direct debit, and digital wallet processing. **Our accounting team saves time by not having multiple processors to reconcile.**"*

Jon Beyer
Chief Information Officer
Evangelical Lutheran Church In America

Simplify your back office

- Single reconciliation between bank account and payment processor
- Single disbursement and schedule for all incoming contributions
- Single processor agreement with OneRATE™ vs. managing multiple payment processing vendors
- Centralized view of donations by using APIs for Blackbaud CRM™ and Blackbaud Raiser's Edge NXT®
- Pre-built integrations with key service providers in the industry



Blackbaud Marketplace

Explore. Discover. Connect.

Discover applications that extend the capabilities of your Blackbaud solutions.

Find new technology that works with the Blackbaud solutions you use daily

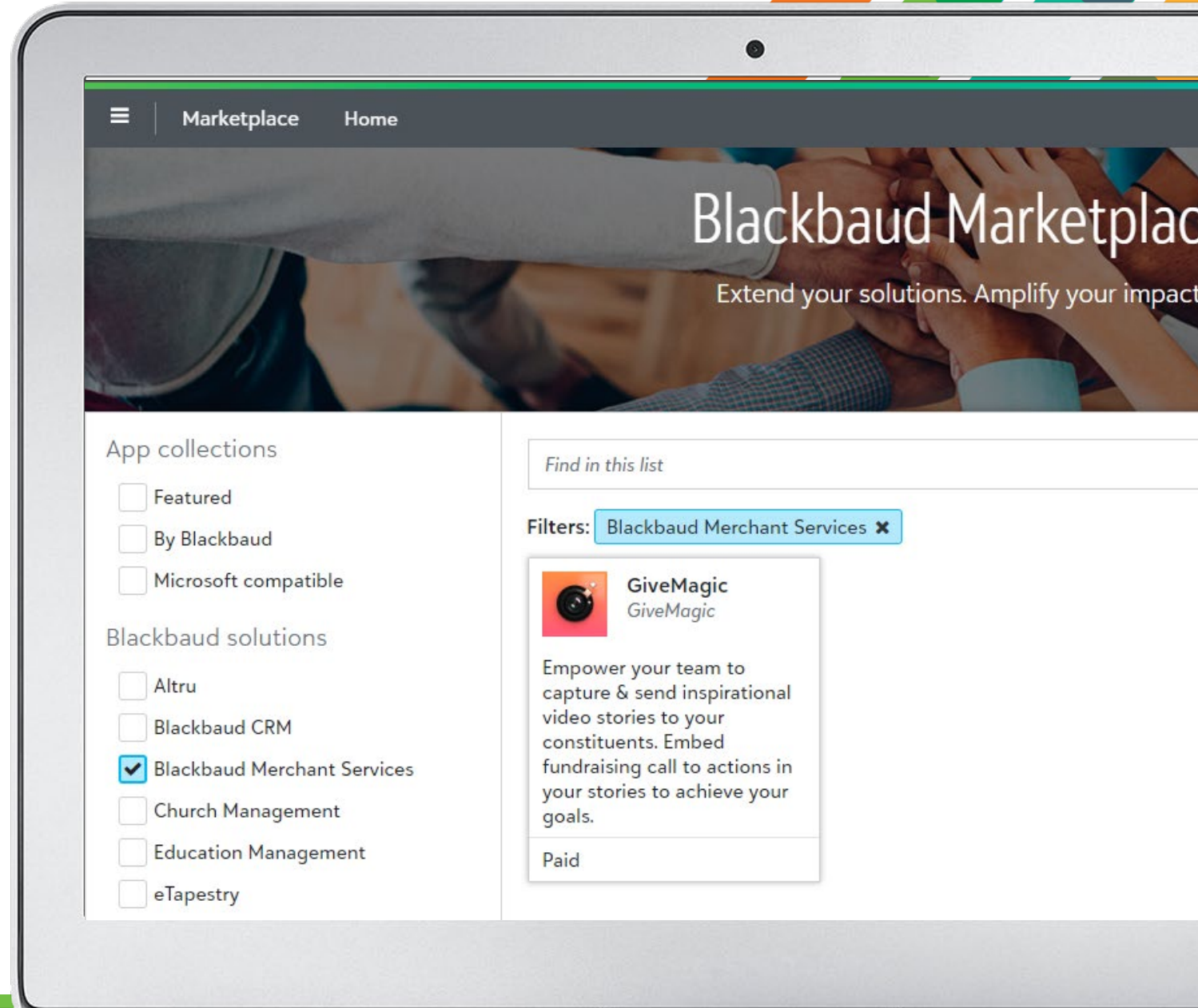
Filters help you identify apps that are compatible with your Blackbaud solutions

Any user with a Blackbaud ID can access and browse the Blackbaud Marketplace

Enhanced security ensures only admins can connect or disconnect apps

Request direct follow up from trusted technology providers

Learn more <https://app.blackbaud.com/marketplace>



Leverage benefits of Blackbaud Checkout

- Reduced PCI scope
- Apple Pay & Click-to-Pay digital wallets
- Point to Point Encryption (P2PE)
- Payment Terminal
- Fraud prevention tools
 - 3D Secure
 - Strong Customer Authentication
 - ReCaptcha





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ELCA - Who We Are

Evangelical Lutheran Church in America

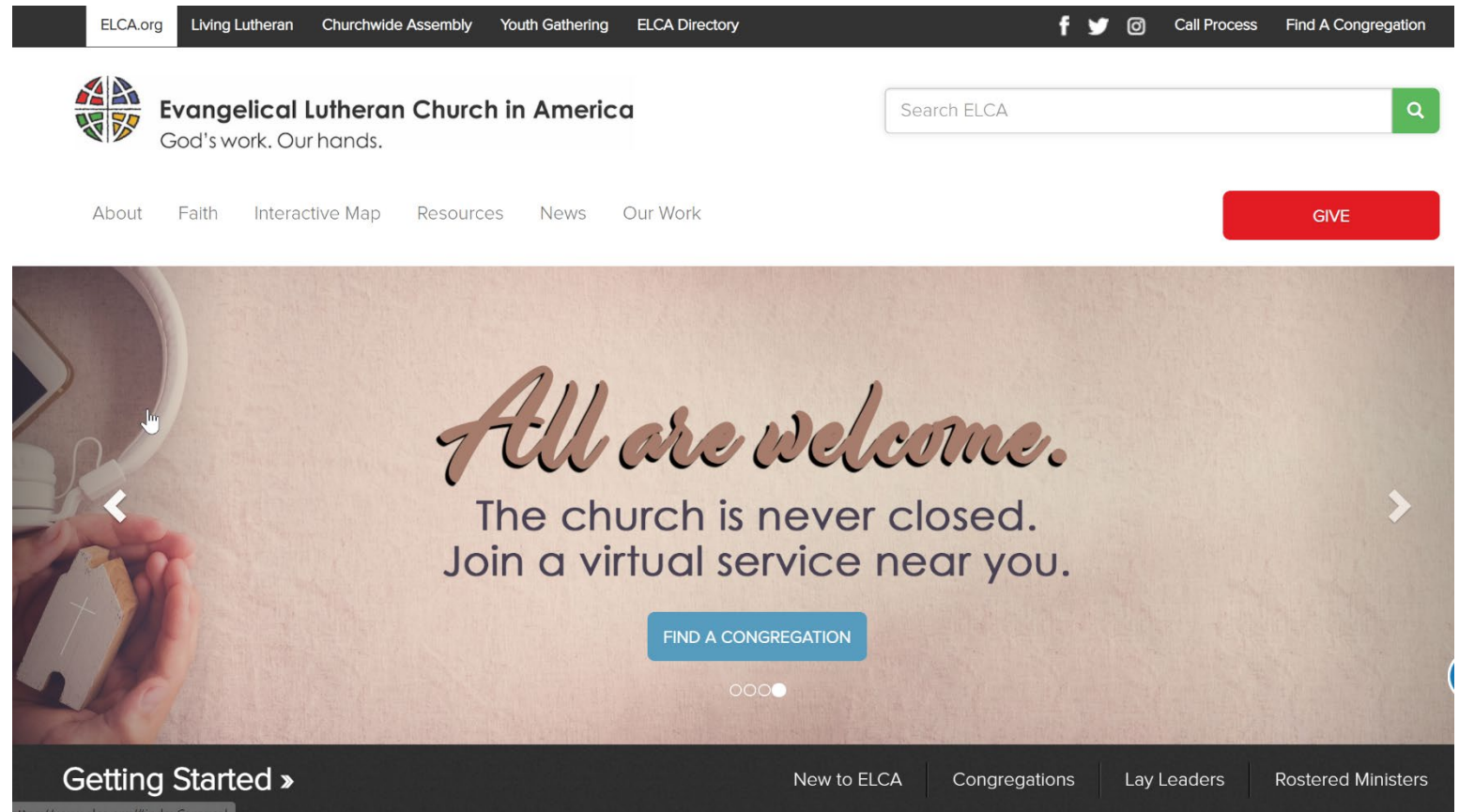
Office in Chicago, Illinois

Blackbaud customer since 2005

Raiser's Edge go-live 2006

Blackbaud CRM go-live 2009

LO TeamRaiser/Advocacy go-live 2015



The screenshot shows the ELCA website homepage. At the top, there is a navigation bar with links for ELCA.org, Living Lutheran, Churchwide Assembly, Youth Gathering, and ELCA Directory. On the right side of the navigation bar are social media icons for Facebook, Twitter, and Instagram, along with links for Call Process and Find A Congregation. Below the navigation bar is the ELCA logo, which consists of a globe with a cross, followed by the text "Evangelical Lutheran Church in America" and the tagline "God's work. Our hands." To the right of the logo is a search bar labeled "Search ELCA" with a magnifying glass icon. Below the logo and search bar is a horizontal menu with links for About, Faith, Interactive Map, Resources, News, and Our Work. On the far right of this menu is a red button labeled "GIVE". The main content area features a large banner with a background image of hands holding a small wooden house. The banner text reads "All are welcome." in a large, cursive font, followed by "The church is never closed. Join a virtual service near you." in a smaller, sans-serif font. Below the banner text is a blue button labeled "FIND A CONGREGATION". At the bottom of the banner are navigation arrows and a progress indicator. Below the banner is a dark footer with the text "Getting Started >" on the left and a list of links: "New to ELCA", "Congregations", "Lay Leaders", and "Rostered Ministers" on the right.

ELCA Good Gifts in 2017

Blackbaud Internet Solution (BBIS)

The screenshot displays the ELCA Good Gifts website. At the top, a navigation bar includes links for 'ELCA.org', 'Future Directions', 'Living Lutheran', 'Youth Gathering', and 'Reformation 500', along with social media icons and 'Call Process' and 'Find A Congregation' buttons. The main header features the ELCA logo and the tagline 'God's work. Our hands.' Below this is a large banner image of children with the text 'ELCA GOOD GIFTS' and a gift icon. A secondary navigation bar contains links for 'HOW IT WORKS', 'CONGREGATIONAL RESOURCES', 'ANNOUNCE YOUR GIFT', 'FAQS', and 'CHECKOUT'. On the left, a sidebar menu offers 'By Interest' and 'By Price' filters, a 'Welcome' message, and links for 'View All', 'Cart', 'Please Login', and 'Contact Us'. Below the menu is a search bar. The main content area features a featured gift: 'Water well \$2,500' and 'Share of a well \$250' with a 'SEE ALL GIFTS' button. A 'POPULAR GIFTS' section displays six items: 'Chicks \$10', 'Pig \$30', 'Goat \$50', 'Uniform for a Girl \$40', 'Mosquito Net \$10', and 'Water Well \$2,500'. The footer contains four columns of information: 'This is Christ's church.' with a mission statement and social media icons; 'Looking for Something?' with search options; 'Related Organizations' listing various ELCA departments; and 'Contact Information' with address, phone, fax, and a 'ELCA COMMUNITY LOGIN' button.

What are ELCA Good Gifts?

ELCA Good Gifts are a creative, meaningful way to support the ministries of the Evangelical Lutheran Church in America (ELCA). These gifts are real examples from projects currently supported through ELCA ministries.

DISASTER RESPONSE



Feed a refugee family: one month

GROW THE CHURCH



Sunday school start-up kit

ANIMALS



Share of a cow

COVID-19



Soap and sanitation supplies

HEALTH CARE



Vaccinations for a child

The ELCA is at work in nearly 80 countries around the world

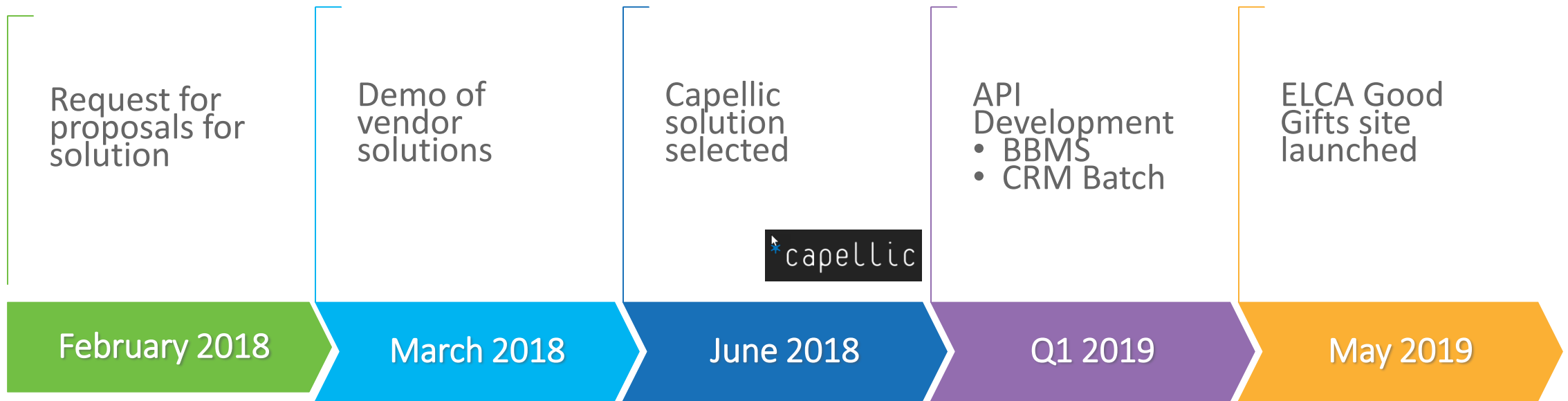


ELCA Good Gifts Project – Business Case

As the trend for online donations increased, the ELCA made a decision to search for a new platform to host ELCA Good Gifts

- Robust and flexible solution in order to increase our online giving
- Reduce manual work performed by ELCA staff
- Improve tribute card functionality
- Mobile friendly site with a responsive design
- BBMS for credit card processing
- Process all transactions in CRM Enhanced Revenue Batches

Project Timeline



ELCA Good Gifts Today

Evangelical Lutheran Church in America
God's work. Our hands.

How It Works ▾
By Price ▾
By Interest ▾
Congregational Resources
Where Needed Most
Mother's and Father's Day Gifts
🔍

Piglet \$30

This little piggy couldn't be a bigger lifesaver for a family in need.

SHOP NOW

How It Works

Goat \$50

1. CHOOSE YOUR GIFT

A gift has been given in your honor.

2. GET A CARD

3. MAKE A DIFFERENCE

POPULAR GIFTS

Stock a backpack with food

ADD TO CART

School fees and uniform for a girl

ADD TO CART

Microloan for a woman

ADD TO CART

NEW GIFTS

Soap and sanitation

Personal protective

Goat and flock of



Launched in May 2019

NEW GIFTS



Soap and sanitation supplies

\$25

ADD TO CART



Personal protective equipment

\$25

ADD TO CART



Goat and flock of chicks

\$60

ADD TO CART

Goat and flock of chicks

\$60

With this gift — a combination of two of our most popular gifts — a family gains access to an ongoing supply of eggs from their chickens and protein-packed milk from their goat. Even better, extra eggs and dairy products can be sold at the market for a steady income.

1 ▾

ADD TO CART

[Create wish list](#) (What's this?)

Greeting Card options available at checkout:
eCard ▾ PDF download ▾ Customized card ▾ Send blank card to me ▾

Share: [f](#) [t](#) [p](#)

SKU: GOAT-CHICKS



You may also like...



In this session

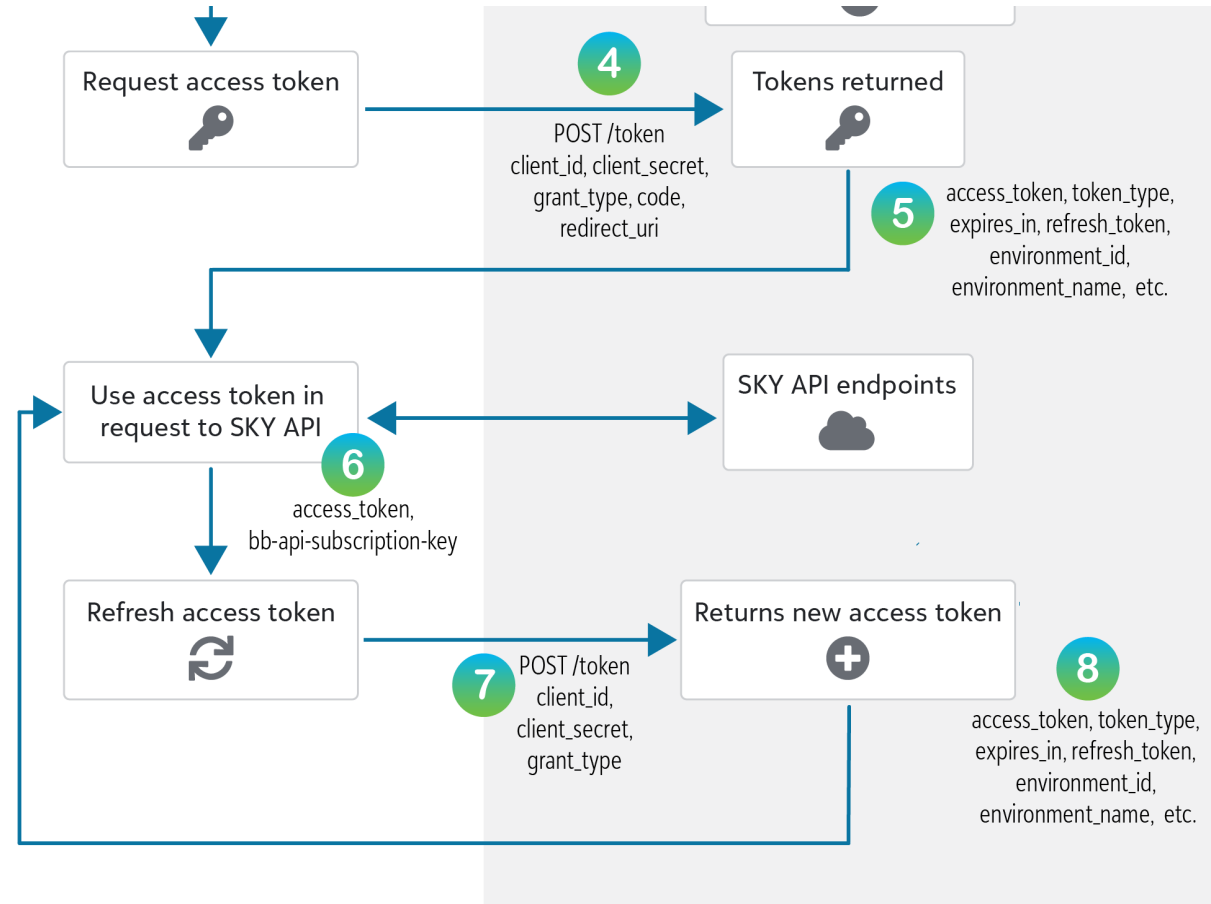
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Application authorization

Oauth 2.0 standard authorization

Tokens should be refreshed every hour

.... Excerpt from documentation



<https://developer.blackbaud.com/skyapi/docs/authorization/auth-code-flow>

Begin collecting payments

Authorized SKY developers can try out the API right from the documentation.

The screenshot shows the SKY API documentation interface. The top navigation bar includes links for SKY API, Home, Documentation, API reference, Developer account, Partners, Support, and Status. The main content area is titled 'Payments' and includes a breadcrumb trail: Home / API Reference / Payments / Endpoint Reference. A list of endpoints is shown on the left: GET Batch transaction (BETA), POST Batch transaction (BETA), GET Card, and POST Card token. The 'Payments' section has buttons for 'API definition' and 'Comments'. A modal window is open for the 'POST Transaction' endpoint, with the following details:

- POST Transaction**
Create a transaction.
Try it
- Request URL**
`https://api.sky.blackbaud.com/payments/v1/transactions`
- Request headers**

Required	Type	Description
✓	string	Bb-API-Subscription-Key
✓	string	Authorization
- Request body**
An object that represents the transaction to process.

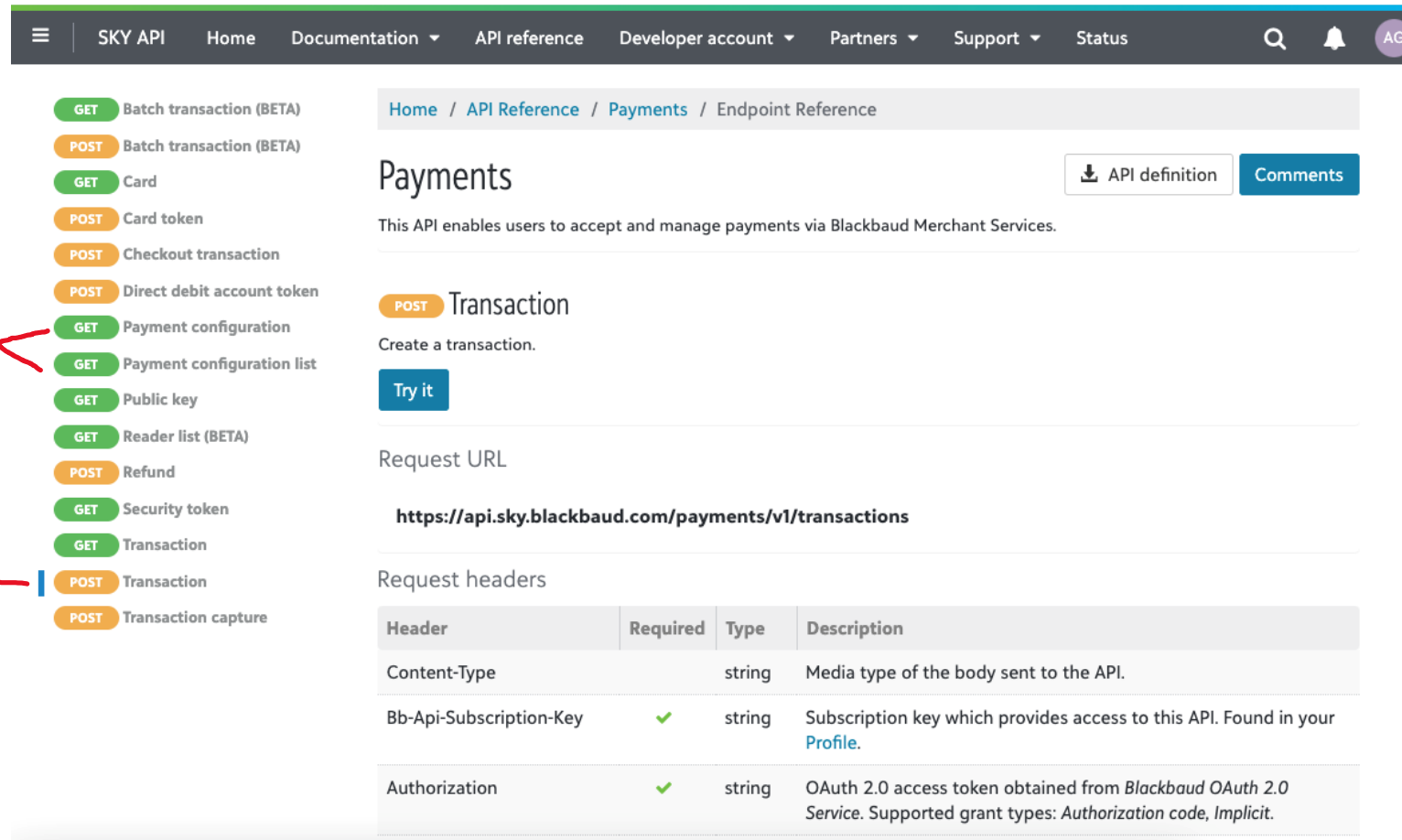
```
1 - {
2   "amount": 0,
3   "authorize_only": true,
4   "billing_contact": {
5     "address": "string",
6     "city": "string",
7     "country": "string",
8     "first_name": "string",
9     "last_name": "string",
10    "post_code": "string",
11    "state": "string"
12  },
13  "card_token": "string"
}
```
- Authorization**
 - Blackbaud OAuth 2.0 Service**: Authorization code (dropdown)
 - Subscription key**: Primary-5819... (dropdown)
 - Access token expires on: 05/11/2021 7:04 PM

Let's see that in action (video)

The screenshot shows the Blackbaud API documentation interface. The top navigation bar includes links for SKY API, Home, Documentation, API reference, Developer account, Partners, Support, and Status. A search icon, a notification bell, and a user profile icon (AG) are on the right. The left sidebar lists various API endpoints with their methods (GET or POST) and names. The main content area is titled 'Payments' and includes a breadcrumb trail: Home / API Reference / Payments / Endpoint Reference. Below the title are buttons for 'API definition' and 'Comments'. A description states: 'This API enables users to accept and manage payments via Blackbaud Merchant Services.' The 'Transaction' endpoint is highlighted, with a 'POST' method and a 'Try it' button. Below this, the 'Request URL' is shown as `https://api.sky.blackbaud.com/payments/v1/transactions`. The 'Request headers' section contains a table with the following data:

Header	Required	Type	Description
Content-Type		string	Media type of the body sent to the API.
Bb-Api-Subscription-Key	✓	string	Subscription key which provides access to this API. Found in your Profile .
Authorization	✓	string	OAuth 2.0 access token obtained from <i>Blackbaud OAuth 2.0</i>

Transaction Workflow



Navigation: SKY API | Home | Documentation | API reference | Developer account | Partners | Support | Status

Home / API Reference / Payments / Endpoint Reference

Payments

This API enables users to accept and manage payments via Blackbaud Merchant Services.

POST Transaction

Create a transaction.

[Try it](#)

Request URL

https://api.sky.blackbaud.com/payments/v1/transactions

Request headers

Header	Required	Type	Description
Content-Type		string	Media type of the body sent to the API.
Bb-Api-Subscription-Key	✓	string	Subscription key which provides access to this API. Found in your Profile .
Authorization	✓	string	OAuth 2.0 access token obtained from <i>Blackbaud OAuth 2.0 Service</i> . Supported grant types: <i>Authorization code</i> , <i>Implicit</i> .

1

2



In this session

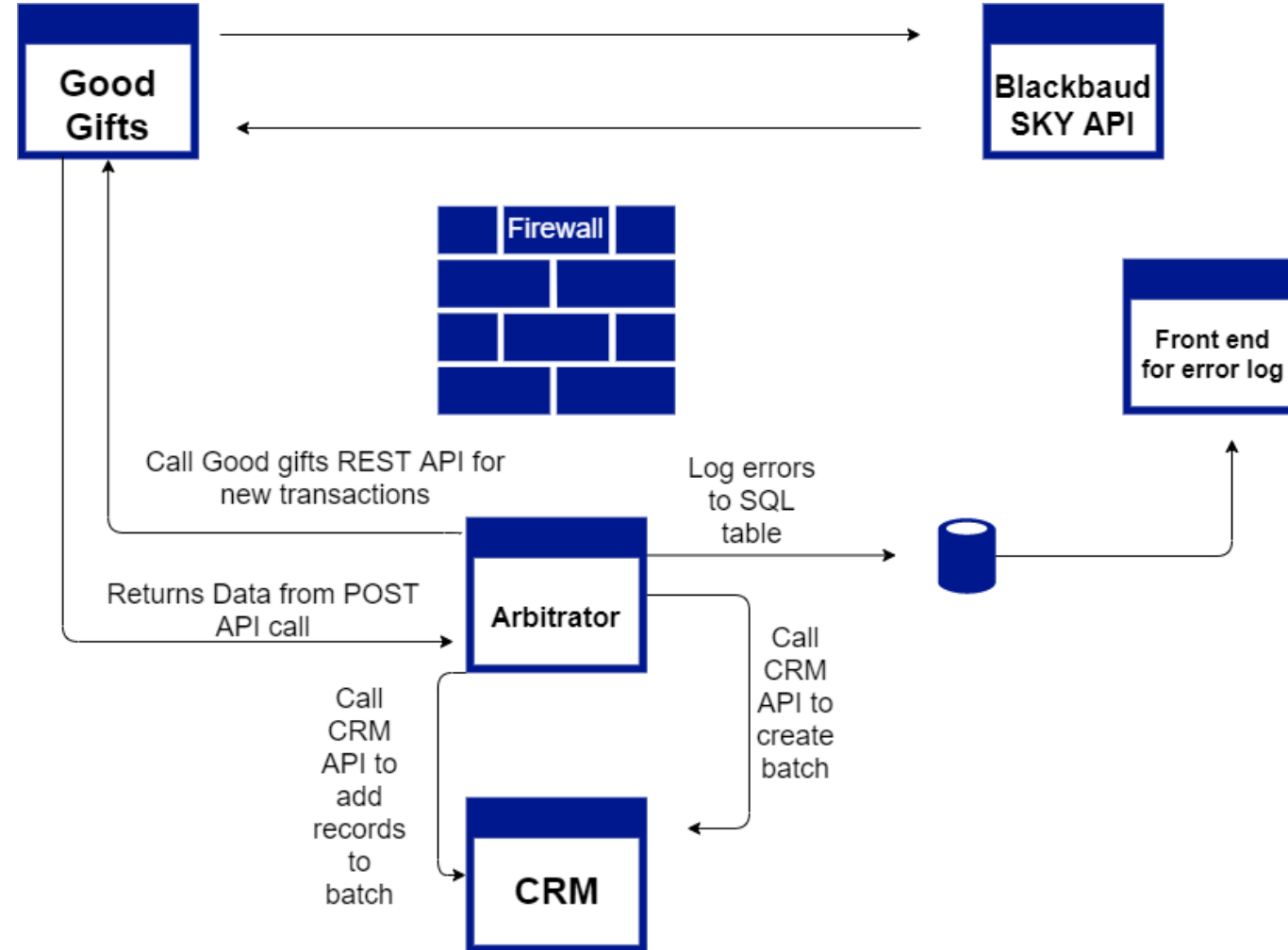
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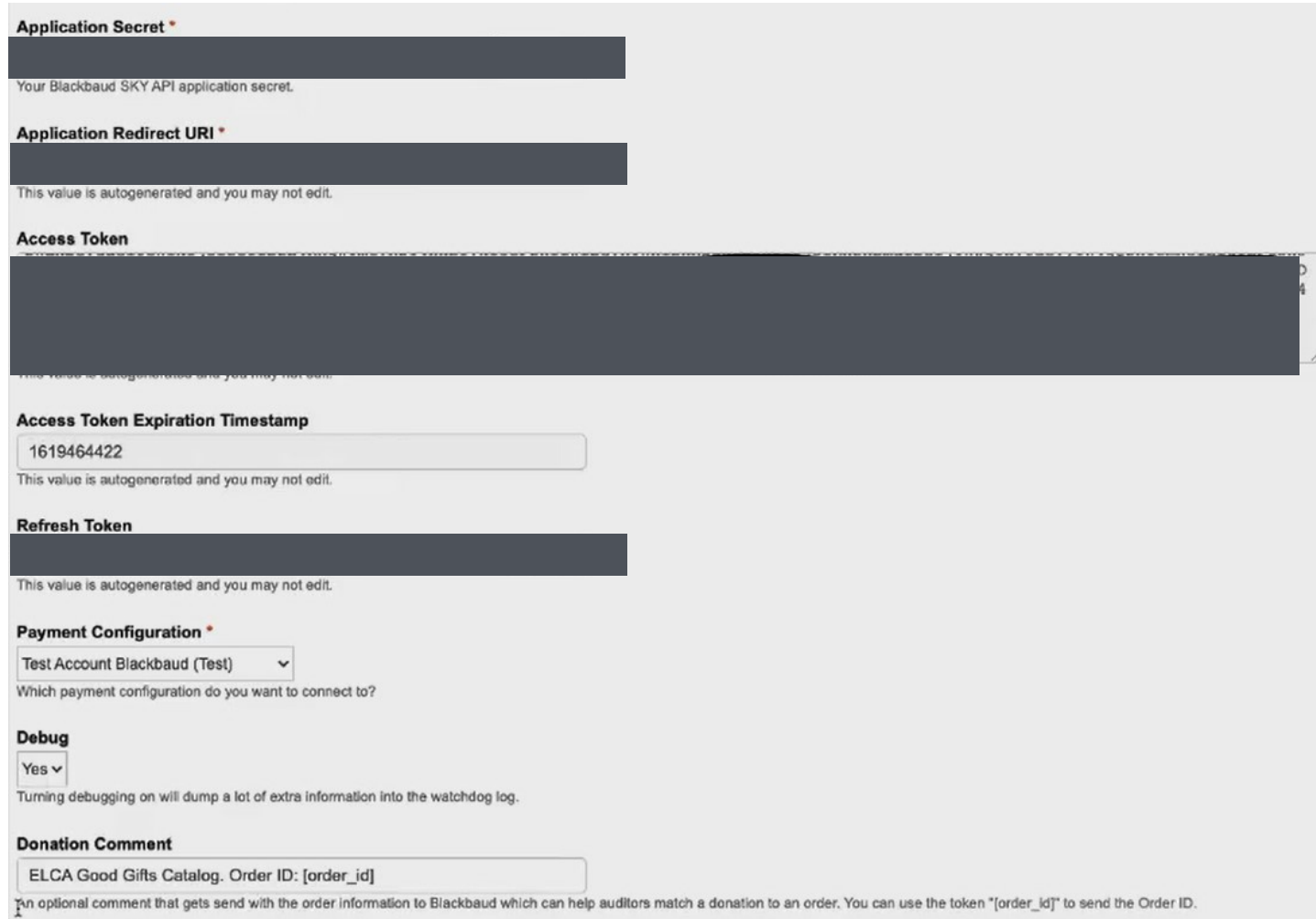
Good Gifts Technology

- PHP
- Drupal
- CURL
- Rest
- OAuth
- C#
- MVC
- SQL

ELCA Gift Store Flow



Good Gifts Admin Configuration



Application Secret *
Your Blackbaud SKY API application secret.

Application Redirect URI *
This value is autogenerated and you may not edit.

Access Token
This value is autogenerated and you may not edit.

Access Token Expiration Timestamp
1619464422
This value is autogenerated and you may not edit.

Refresh Token
This value is autogenerated and you may not edit.

Payment Configuration *
Test Account Blackbaud (Test) ▾
Which payment configuration do you want to connect to?

Debug
Yes ▾
Turning debugging on will dump a lot of extra information into the watchdog log.

Donation Comment
ELCA Good Gifts Catalog. Order ID: [order_id]
An optional comment that gets send with the order information to Blackbaud which can help auditors match a donation to an order. You can use the token "[order_id]" to send the Order ID.

Good Gifts Logging



HOME > CONTROL PANEL

Orders

ORDERS SHOPPING CARTS

Billing Name Order ID

Apply

Operations

- Choose an operation -

HOME > CONTROL PANEL > ORDERS > ORDER 61525

Order 61525

VIEW EDIT PAYMENT REVISIONS DEVEL

Status	Date	Method	Remote ID	Result message	Amount	Operations
✓	04/26/2021 - 13:17	Blackbaud Payments - Credit card	[REDACTED]	[REDACTED]	\$175	refund view delete

Blackbaud Payments - Credit card

Total paid \$175
Order balance \$0

Order number	Order Date	Updated	Name	User	Total	Order status	
1 61525	April 26, 2021, 1:18 PM CDT	April 26, 2021, 2:18 PM EDT	Joan SpARKle	cgcuser1_elca_3...	\$175	Completed	<input checked="" type="checkbox"/>
2 58556	March 22, 2021, 9:44 AM CDT	March 22, 2021, 10:44 AM EDT	Joan SpARKle	cgcuser1_elca_3...	\$50	Completed	<input type="checkbox"/>
3 61524	March 19, 2021, 10:58 AM CDT	March 19, 2021, 12:00 PM EDT	Joan of SpARKle	Anonymous (not verified)	\$1,265	Completed	<input type="checkbox"/>
4 61522	March 19, 2021, 4:37 AM CDT	March 19, 2021, 5:40 AM EDT	Joan of SpARKle	Anonymous (not verified)	\$150	Completed	<input type="checkbox"/>
5 61521	March 18, 2021, 8:47 PM CDT	March 18, 2021, 9:50 PM EDT	Joan of SpARKle	Anonymous (not verified)	\$70	Completed	<input type="checkbox"/>

Good Gifts logging Response

```
Array
(
    [1619461077] => stdClass Object
        (
            [additional_fee] => 0
            [amount] => 17500
            [application] => Payments API
            [billing_info] => stdClass Object
                (
                    [city] => Dixon
                    [country] => United States
                    [post_code] => 61021
                    [state] => Illinois
                    [street] => 555 Capellic Court
                )
            [comment] => ELCA Good Gifts Catalog. Order ID: 61525
            [credit_card] => stdClass Object
                (
                    [card_type] => Visa
                    [exp_month] => 5
                    [exp_year] => 2021
                    [last_four] => 1111
                    [name] => Joan SpARKle
                )
            [currency] => USD
            [disbursement_status] => NotDisbursable
            [donor_ip_address] => 38.5.166.1
            [email_address] =>
            [fraud_result] => stdClass Object
                (
                    [anonymous_proxy_result] => NotProcessed
                    [bin_and_ip_country_result] => NotProcessed
                    [high_risk_country_result] => NotProcessed
                    [result_code] => NotProcessed
                    [risk_score] => 0
                    [risk_threshold] => 0
                    [velocity_result] => NotProcessed
                )
            [id] => 62ad5d8b-da7a-4e85-93ea-e7147e5ac99d
            [is_live] =>
            [phone_number] =>
            [state] => Processed
            [token] => 00000000-0000-0000-0000-000000000000
            [transaction_date] => 4/26/2021 2:17:58 PM
            [transaction_type] => CardNotPresent
            [authorization_code] => 123456
        )
)
```

Token Helper Methods

```
function commerce_blackbaud_payments_access_token_valid() { ...  
function commerce_blackbaud_payments_access_token_expired() { ...  
function commerce_blackbaud_payments_can_refresh_token() { ...
```


Payment API Payload

```
// Build an array of data to send to the API
$payload = array(
    'tokenize' => 'false',
    'amount' => $amount,
    'payment_configuration_id' => $payment_method['settings']['commerce_blackbaud_payments_payment_configuration'],
    'donor_ip' => $remote_ip,
    'comment' => $comment,
    'credit_card' => array(
        'exp_month' => $pane_values['credit_card']['exp_month'],
        'exp_year' => $pane_values['credit_card']['exp_year'],
        'name' => $billing_info['name'],
        'number' => $pane_values['credit_card']['number'],
    ),
    'csc' => $pane_values['credit_card']['code'],
    'billing_contact' => array(
        'address' => $billing_info['address'],
        'city' => $billing_info['city'],
        'country' => $billing_info['country'],
        'first_name' => $address['first_name'],
        'last_name' => $address['last_name'],
        'post_code' => $billing_info['postcode'],
        'state' => $billing_info['state'],
    ),
);
```

Arbitrator Overview

```
private static string Processing()
{...
}
private static string ARBITRATOR_get_payload_ggprod()
{...
}
private static bool INFINITY_chk_dups()
{...
}
private static BatchDetails INFINITY_get_batch_id()
{...
}
private static BatchDetails INFINITY_create_batch()
{...
}
private static string INFINITY_send_payload(string batch_id, string payload)
{...
}
private static string ARBITRATOR_ack_payload_ggprod(string GG_SUCCESS, string GG_REASON)
{...
}
private static void ARBITRATOR_Notifications()
{...
}
private static void Logging(BatchDetails BATCHSET, string PAYLOAD)
```

Technical Good gifts reconciliation

```
// Comment
$comment = $payment_method['settings']['commerce_blackbaud_payments_comment_donation'];

// Comment field can have tokens in it.
$comment = str_replace('[order_id]', $order_id, $comment);
```



Lessons Learned

- Refresh token issue
- Batch gift duplication
- Remote workers using admin page to enter gifts from donors calling our call center
- DNS IP6 from logs



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Tips and tricks

- Always log each stage of your processing and include
 - Transaction id
 - Internal correlation id (if used)
 - Organization Identifier
- Suggested timeout is 60 seconds
 - *v1/checkout/transaction* is idempotent, retry after 60 seconds
- Consider your integration style
 - direct with *v1/transactions*
 - utilize Blackbaud Checkout UI + *v1/checkout/transaction*

Checkout Transaction Workflow

Blackbaud UI & servers collect the sensitive information for you!

3
1
2

The screenshot shows the Blackbaud API documentation interface. At the top, there is a navigation bar with links for SKY API, Home, Documentation, API reference, Developer account, Partners, Support, and Status. Below the navigation bar is a list of API endpoints, each with a colored circle indicating its method (GET or POST). The endpoints are: Batch transaction (BETA) (GET), Card (GET), Card token (POST), Checkout transaction (POST), Direct debit account token (POST), Payment configuration (GET), Payment configuration list (GET), Public key (GET), Reader list (BETA) (GET), Refund (POST), Security token (GET), Transaction (GET), Transaction (POST), and Transaction capture (POST). A red bracket labeled '3' encompasses the 'Checkout transaction' endpoint. A red arrow labeled '1' points to the 'Checkout transaction' endpoint, and a red arrow labeled '2' points to the 'Checkout transaction' endpoint. The main content area shows the 'Payments' section, with a sub-section for 'Checkout transaction'. It includes a 'Try it' button, a 'Request URL' field with the value 'https://api.sky.blackbaud.com/payments/v1/checkout/transaction', and a 'Sample' section showing a JSON response for 'application/json'. The JSON response is:

```
{  "amount": 1000,  "authorization_token": "992c159f-dcca-4495-aa33-1025546c7af2",  "application_fee": 100}
```

 A red arrow points to the 'authorization_token' value in the JSON response. A red text annotation 'From checkoutComplete JS event' is placed above the JSON response.

<https://developer.blackbaud.com/skyapi/apis/payments/checkout>

Leverage technical benefits of Blackbaud Checkout

- Your servers never touch sensitive card or bank information
- Client IPs and other fraud detection details are collected automatically
- Less UI for you to implement ;)
- Idempotent capture endpoint



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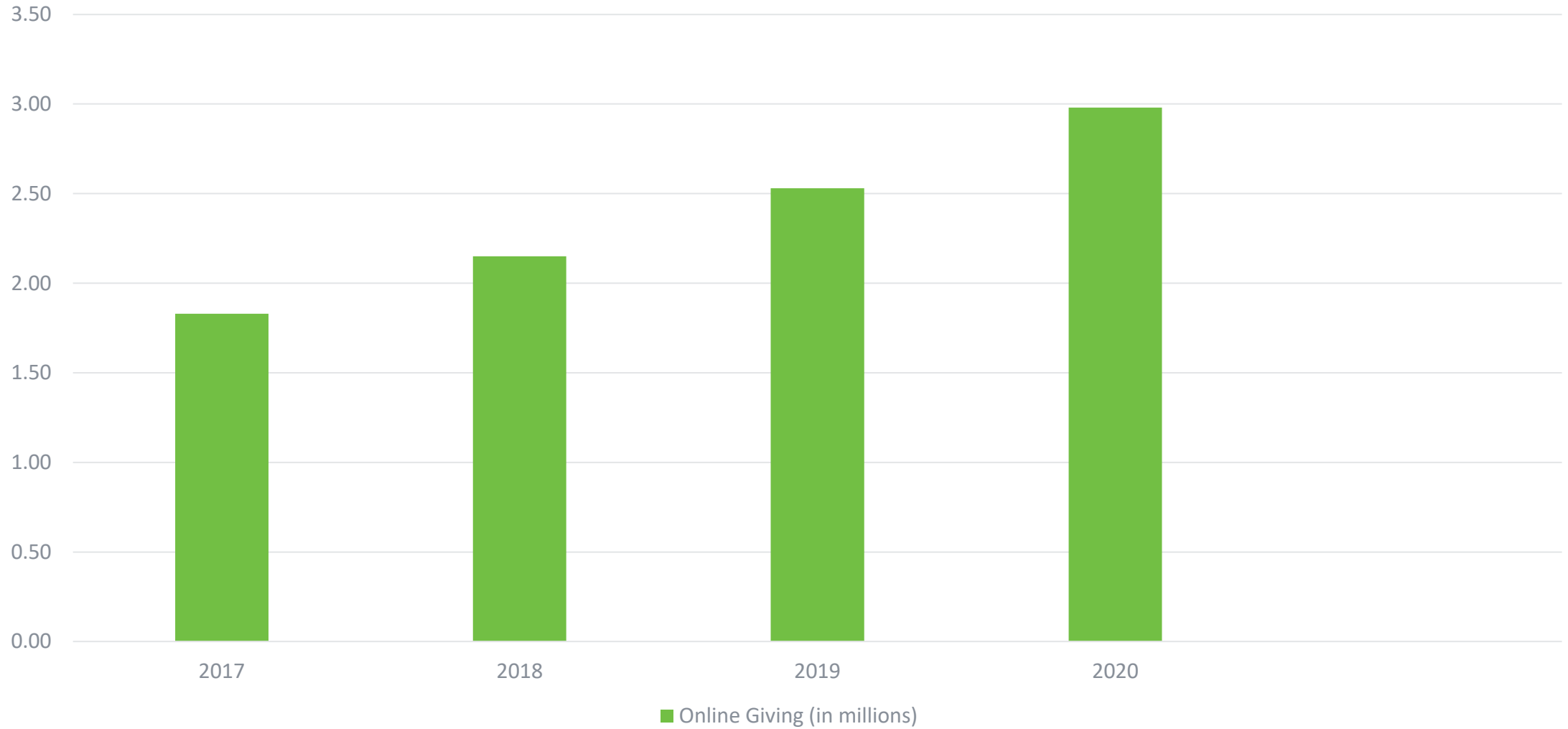


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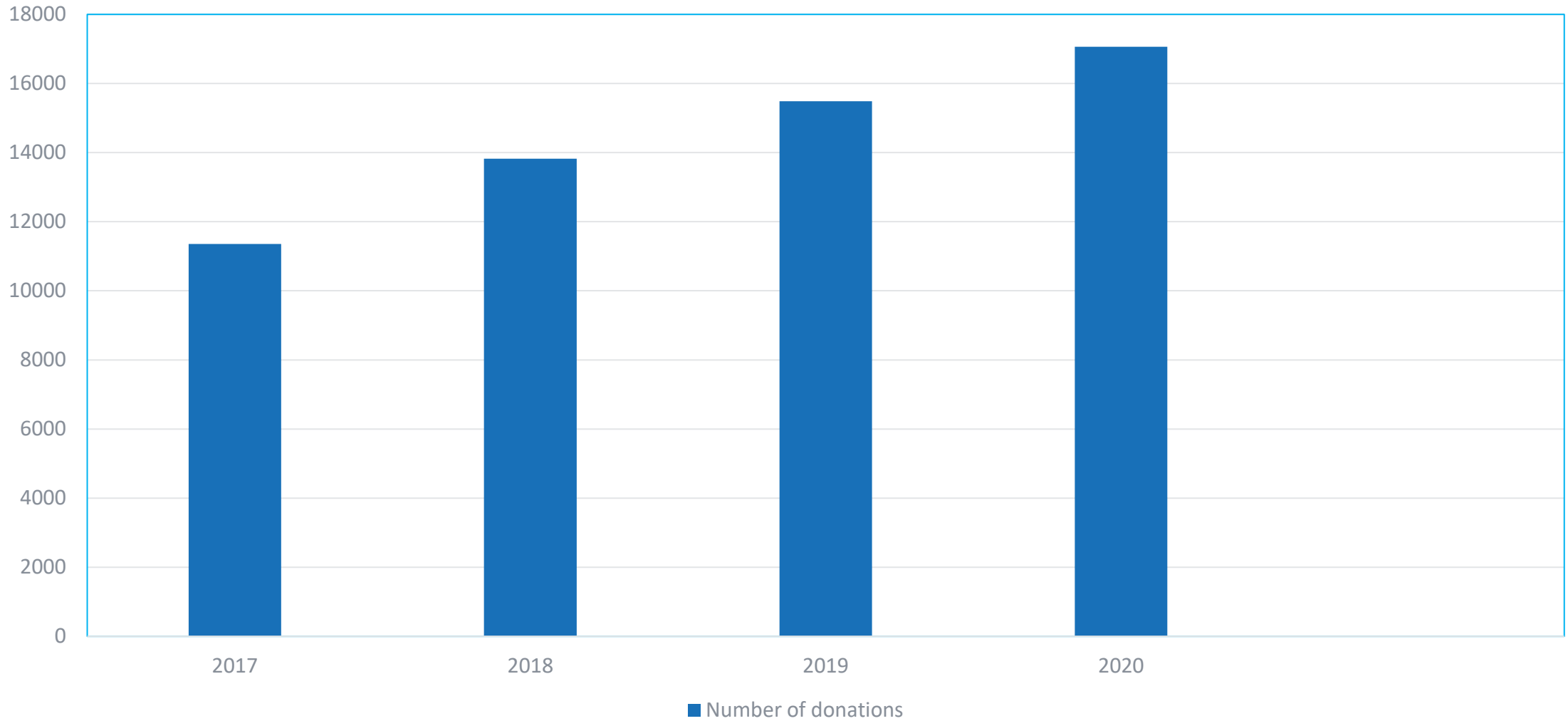
Outcomes

ELCA Good Gifts - Online (in millions)



Outcomes

ELCA Good Gifts – Online Donations)





Outcomes

- Seamless API integration of transactions processed outside of a Blackbaud application
- Reduced printing and mailing costs of paper catalogs with the increase percentage of online gifts
- Positive donor experience resulting with significantly fewer calls from donors requesting assistance
- Mobile usage increase from 34% in 2019 to 61% in 2020
- Increase of 40% in the number of page views in 2020
- Good Gifts site had zero down time during holiday giving season



Future

- Continue to enhance the ELCA Good Gifts site and build on our success
- The API provides us unlimited opportunity to integrate with other applications
- ELCA Youth Gathering event in Minneapolis, MN - July 2022. Event management solution for this event will use the Payments API to process registration fees



#bbdevdays

Thank you!