

The background is a vibrant, abstract graphic. It features a central bright white light source from which numerous colorful rays emanate, creating a sunburst or starburst effect. The rays transition through a spectrum of colors including yellow, orange, red, and various shades of blue and green. Overlaid on this are large, flowing, wavy shapes in similar colors, giving the overall impression of energy, movement, and a digital or network theme.

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The bridge to possible

Secure and manage your applications, users, policies and endpoints with Duo APIs

Boat Agboatwalla – Director Product Management; Technology Partnerships
DEVNET-2121

Cisco Webex App

Questions?

Use Cisco Webex App to chat with the speaker after the session

How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
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- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until June 9, 2023.



<https://ciscolive.ciscoevents.com/ciscolivebot/#DEVNET-2121>

Agenda

- Duo Overview
- How To Integrate
 - Web SDK
 - APIs
- Partner Use Cases

Duo Overview

Duo Access Management

Zero Trust for the Workforce

CORPORATE RESOURCES

Cloud, On-premise,
Public, Private, Hybrid



Authenticate users

- ✓ MFA
- ✓ Passwordless
- ✓ Employees, contractors, vendors, external 3rd parties, etc.



Verify devices

- ✓ Device Trust
- ✓ Device health & compliance
- ✓ Mac, Win, Linux*, iOS, Android, BYOD



Enable access

- ✓ Single Sign-On (SSO)
- ✓ VPN-less remote access
- ✓ All apps – cloud, on-prem and private



Continuous Trusted Access with Risk-Based Authentication

Basics – Starting an integration



Setup

- Applications → Search
- Client ID
- OR Integration key
- Secret
- API hostname

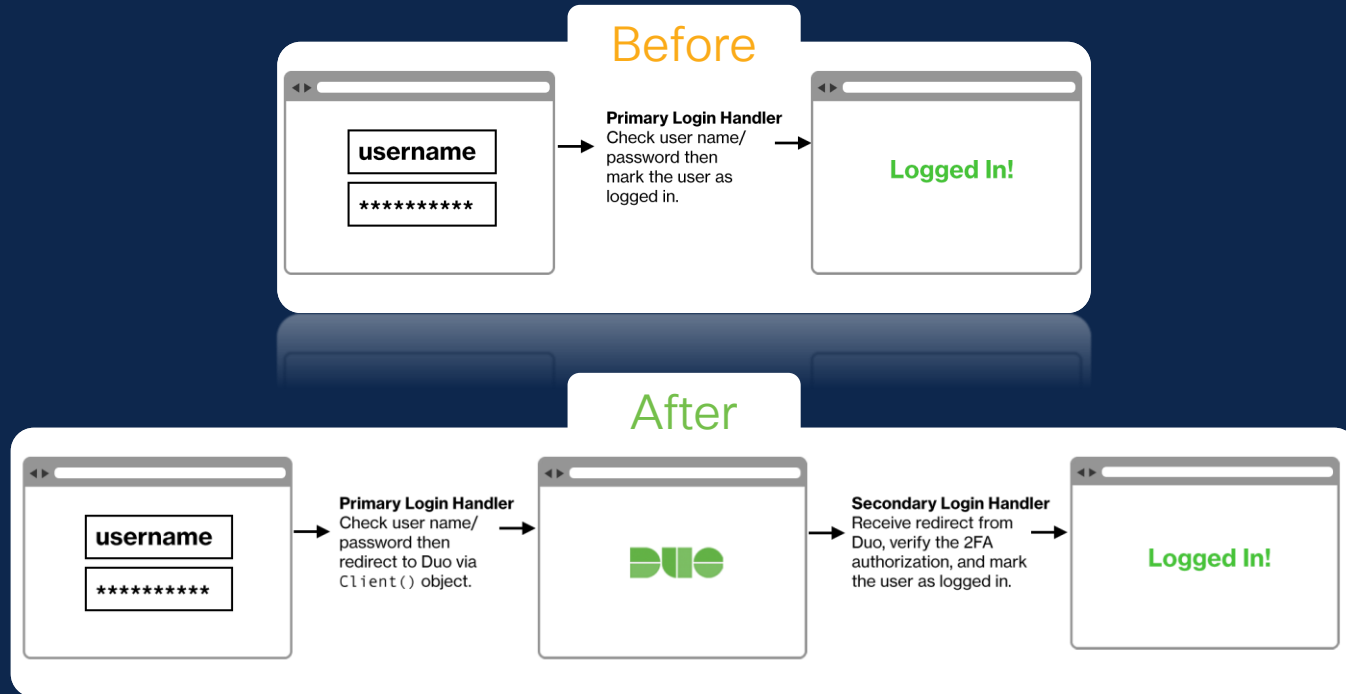
The screenshot shows the Duo Security web interface. The browser address bar displays 'admin-52fdb6bb.duosecurity.com/applications'. The sidebar on the left contains the following menu items: Dashboard, Device Insight, Policies, Applications (highlighted), Protect an Application, Single Sign-On, Users, Groups, Endpoints, 2FA Devices, Administrators, Trusted Endpoints, Trust Monitor, Reports, Settings, and Billing. Below the sidebar, there are links for 'Need Help?', 'Email Support', 'Support Tickets', and contact information: 'Call us at 1-855-386-2884', 'Versioning', and 'Core Authentication Service: 0204.11'. The main content area is titled 'Applications' and features a search bar with the placeholder text 'Search for users, groups, applications, or devices'. Below the search bar, there is a 'Protect an Application' button. The main heading is 'Applications', followed by the text 'Manage your update to the new Universal Prompt experience, all in one place.' and two buttons: 'See My Progress' and 'Get More Information'. Below this, there is a summary showing '10 All Applications' and '0 End of Support'. At the bottom, there is an 'Export' button and a search bar. A table lists the following applications:

Name	Type	Application Policy	Group Policies
1Password	1Password		
Admin API	Admin API		
Aeries SIS	Aeries SIS		
Auth API	Auth API		
Cisco RADIUS VPN	Cisco RADIUS VPN		

Web SDK v4 – Web App MFA

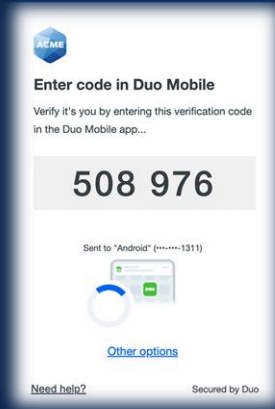
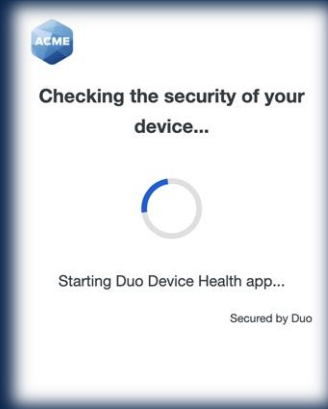
Fastest way to integrate

Add two-factor auth to your web application



Universal Prompt

- Self-Enrollment
- Authentication Method (9 options)
- Policy Checks*
- Duo Device Health Check*



Client Libraries (OIDC compliant)

- Python
- Java
- Go
- PHP
- Node.js
- C# (.NET)

* Duo Edition Dependent

<https://duo.com/docs/duoweb#detailed-sdk-workflow>

Add to your Python or PHP App

Python

https://github.com/duosecurity/duo_python/tree/master/demos/simple

12 lines (10 sloc) | 148 Bytes

```
1 ; Duo integration config
2
3 [duo]
4
5 ; integration key
6 ikey = ikey
7 ; secret key
8 skey = skey
9 ; application secret key
10 akey = akey
11 ; api_host
12 host = host
```

PHP

https://github.com/duosecurity/duo_php/tree/master/demos/simple

94 lines (84 sloc) | 2.71 KB

```
1 <?php
2 /*
3  * Simple Demo of Duo's Web SDK
4  *
5  * Simple login form with hardcoded username/password
6  * protected using Duo
7  */
8
9 require_once '../src/Web.php';
10
11 define('USERNAME', 'demo');
12 define('PASSWORD', 'letmein');
13
14 /*
15  * This is something uniquely generated by you for your application
16  * and is not shared with Duo.
17  */
18 define('AKEY', "THISISMYSUPERSECRETCUSTOMERKEYDONOTSHARE");
19
20 /*
21  * IKEY, SKEY, and HOST should come from the Duo Security admin dashboard
22  * on the integrations page. For security reasons, these keys are best stored
23  * outside of the webroot in a production implementation.
24  */
25 define('IKEY', "");
26 define('SKEY', "");
27 define('HOST', "");
```

Auth API – OIDC MFA

Auth API – OIDC

Add two-factor auth to your OIDC web application

- **Why?** A web app that already supports the OIDC protocol for authentication
- **Why not Web SDK v4?**
 - We don't support the language
 - You require a specific workflow not supported by the Web SDK

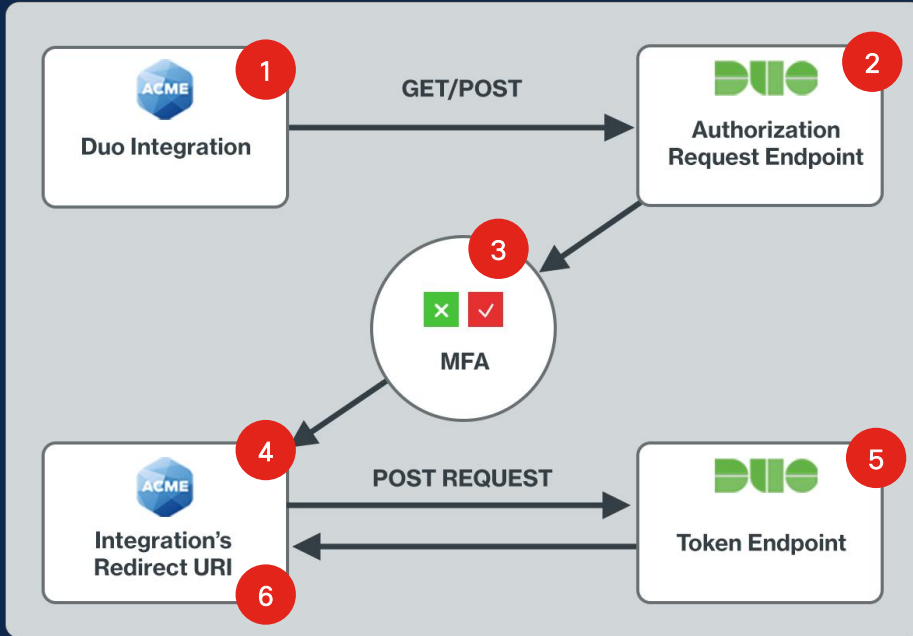
Universal Prompt

Self-Enrollment
Policy Checks*

Authentication Method (9 options)
Duo Device Health Check*

* Duo Edition Dependent

How It Works



1. OIDC Application (**App**) makes request to **Duo** to check for MFA authorization
2. **Duo** confirms or denies the request
3. If confirmed, **Duo** provides the redirect URL for the MFA Universal Prompt
4. User is redirected back to requesting **App**
5. The **App** will then request auth result from **Duo**
6. The **App** will approve/deny the login quest

Auth API – REST MFA

Auth API – REST

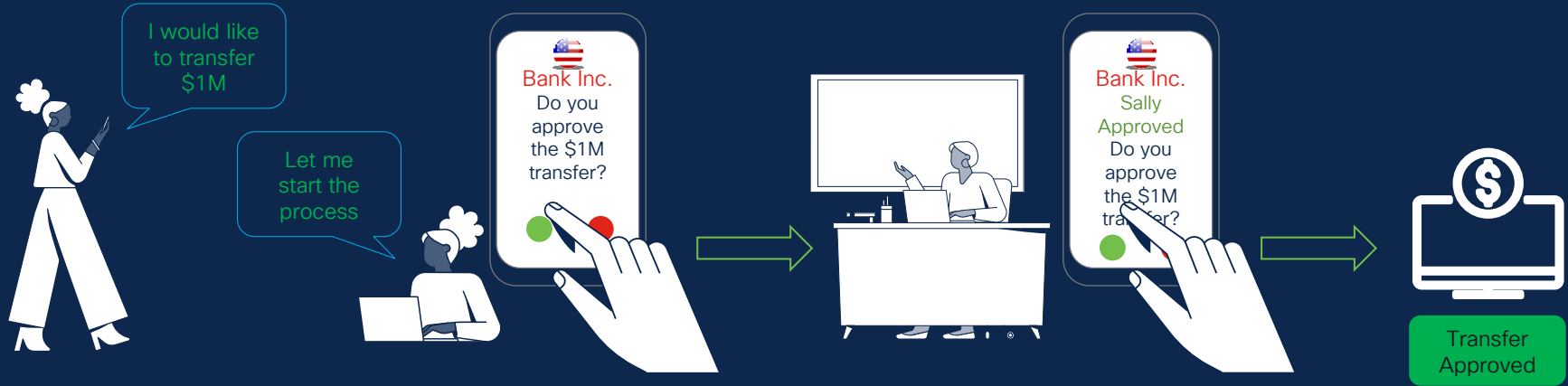
Add two-factor auth to ANY application

- Why?
 - End user experience requires custom UI/UX – No Universal Prompt
 - Need MFA for non-web applications (legacy apps)
- Why not Web SDK v4 or Auth API OIDC?
 - Is only for web applications
 - UI/UX is controlled by Duo via redirects to Universal Prompt
- What's Lost?
 - No Universal Prompt = No device health and no policy checks

What can you do?

- **Enroll Users** – generate a QR code for user to scan
- **Check User Status** – confirm is the user has been enrolled or not
- **Preauth** – determine is user is allowed to Auth
- **Auth** – Send the configured MFA auth factor to the user
- **Auth Status** – Success or Fail

Use Case: More than just MFA protection?



Embed an authorization flow into your application

Admin API





Lots of Admin Functions!

1. **Users**
2. Groups
3. **Phones**
4. Tokens
5. U2F Tokens
6. WebAuthn Credentials
7. Bypass Codes
8. Integrations
9. **Policy**
10. Endpoints
11. Administrators
12. Administrative Units
13. **Logs**
14. Trust Monitor
15. Settings
16. Custom Branding
17. Account Info

Users – List, Create, Enroll, Delete and Modify



Programmatically manage users from other systems



Human Resource Management Systems (Workday, Ripping, SAP) –
Programmatically create and enroll users into Duo



Student Systems – Highly dynamic population in EDU sector

Docs: <https://duo.com/docs/adminapi#users>

Logs – Auth, Telephony, User/Admin Actions, Trust Monitor, and Offline Enrollments



- Troubleshoot end user issues
- Investigate security incidents
- Import logs into SIEM
 - Aggregate logs from all your security systems
 - Gain greater observability of your organization's security posture



Blog: <https://duo.com/blog/get-most-from-duo-your-siem>



Phone – List, Create, Modify and Delete

- Associate a user and phone
- Send activation codes
- Retrieve a list of phone devices, attributes and associations
- Common use cases:
 - Troubleshoot/investigate: Activated, Encrypted and Last seen.
 - Determine: Platform, Tampered or Screenlock is Activated

Docs: <https://duo.com/docs/adminapi#phones>

Policy API – Create, Read, Update and Delete

Managing Policies via Admin panel can be burdensome

- **Audit**
 - For compliance – Can retrieve all policies for review
 - Troubleshooting – Access issues. Review IP addresses used in specific policies
- **Duplicate and Apply**
 - Applications that require the same policies
 - Read, Create and Apply!
- **Change Management**
 - Read and Modify
 - Send changes to Change Management Tools

Docs: <https://duo.com/docs/adminapi#policy>

Partner Integrations

bioconnect.





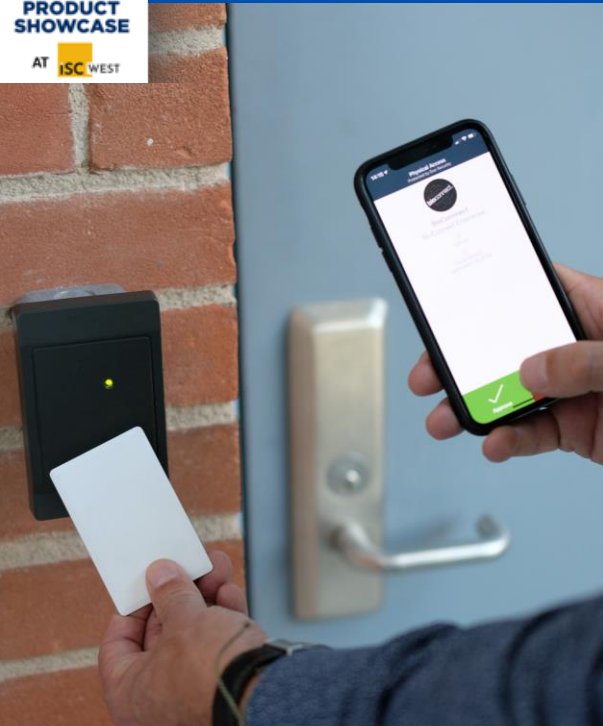
SIA AWARD WINNER
4 YEARS IN A ROW

bioconnect.

BioConnect Link

Enabling Duo MFA for physical access

- Small IoT Device that extends Cisco's Duo MFA to Cyber Physical Applications
- Retrofit existing readers in less than 30 min
- Grants Limited Access for Employees and Contractors in Real-Time.
- Data Center Server Cabinets, Remote Enclosures, Communications Closets, Critical Entry Doors



DIGITAL REALTY

cologix

EQUINIX

zayo

CyrusOne
Built for Tomorrow. Ready Today.

Cyxtera

FLEXENTIAL

CenturyLink

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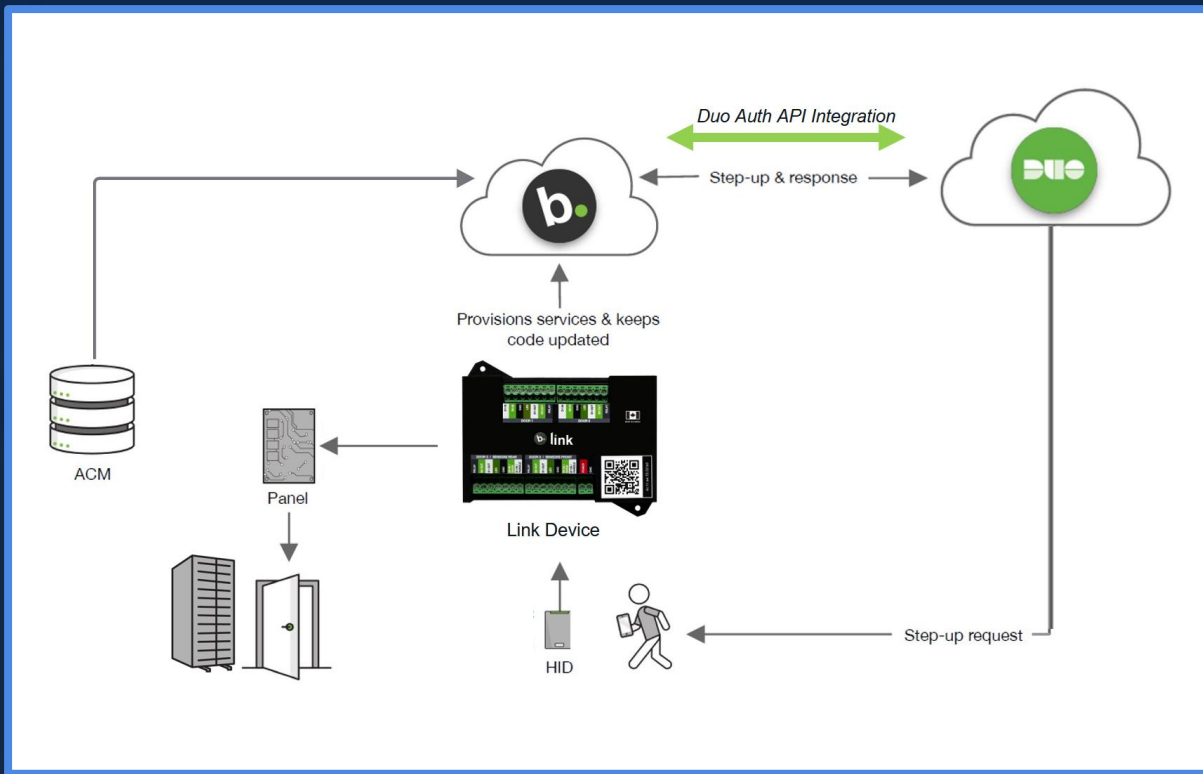
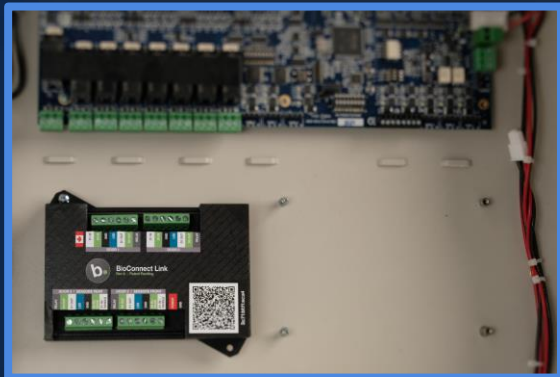
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System Diagram Overview



Fill out your session surveys!



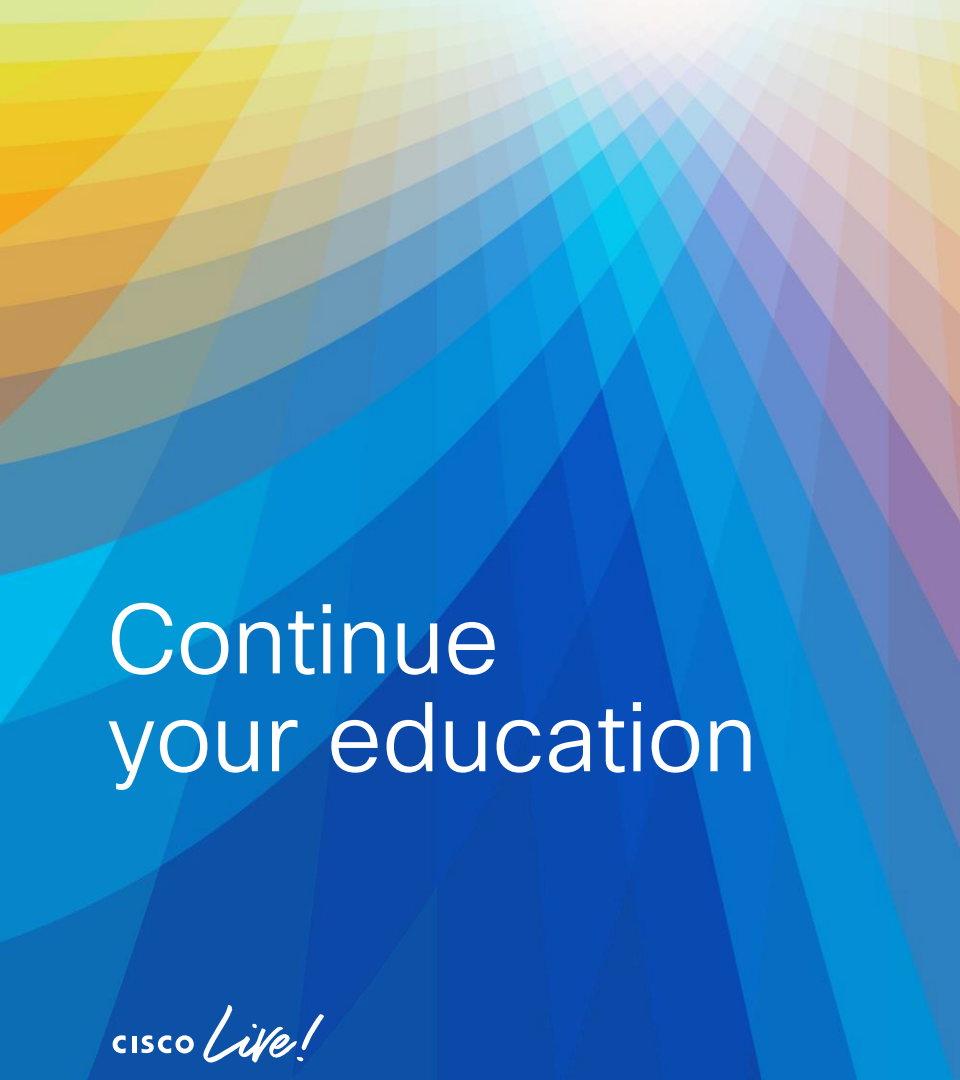
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Attendees will also earn 100 points in the **Cisco Live Challenge** for every survey completed.



These points help you get on the leaderboard and increase your chances of winning daily and grand prizes



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Thank You

Resources:

Docs: <https://duo.com/docs#api>

Sample Code: <https://github.com/duosecurity>

Partner Signup:

<https://duo.com/partnerships/technology-partners>

Contacts:

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Jenn Kwok jekwok@cisco.com

Cisco Live Challenge

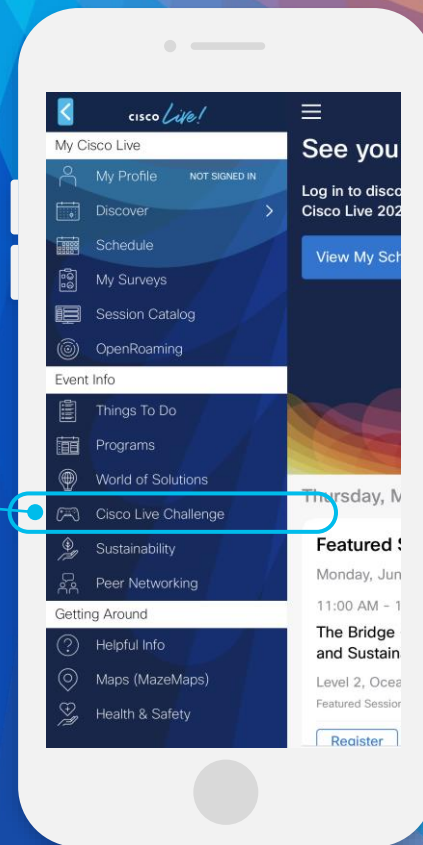
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How:

- 1 Open the Cisco Events App.
- 2 Click on 'Cisco Live Challenge' in the side menu.
- 3 Click on View Your Badges at the top.
- 4 Click the + at the bottom of the screen and scan the QR code:



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