



# Tools, Tricks, and Tips for Product & UX Enhancements

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# Vonage Developer Center

## Communications API

Integrate sms, voice, video and two-factor authentication into your apps with Vonage communication APIs. Build complex conversational flows with a user friendly drag-and-drop interface in Vonage AI Studio.

Get Started

Full Documentation

Send an SMS

cURL Node.js Java .NET PHP Python Ruby

```
curl -X "POST" "https://rest.nexmo.com/sms/json" \
-d "from=$VONAGE_BRAND_NAME" \
-d "text=A text message sent using the Vonage SMS API" \
-d "to=$TO_NUMBER" \
-d "api_key=$VONAGE_API_KEY" \
-d "api_secret=$VONAGE_API_SECRET"
```

[View full source](#)

Most popular

Telecommunications

In-app communications

Identity verification

### Two factor authentication

Add an extra layer of security when users perform sensitive tasks by confirming their identities.

[Verify API](#)[Telecommunications](#)

### 1-to-1 Video Chats

Generate a 1-to-1 video appointment workflow. This can be used for a doctor-patient, student-teacher, or any other 1-to-1 web scheduling application.

[Video API](#)[In-app communications](#)

### Interactive Voice Response (IVR)

Build an automated phone system for users to input information with the keypad and hear a spoken response

[Voice API](#)[Telecommunications](#)

## Client SDKs

The Client SDK allows you to build in-app messaging, voice and video solutions.

### Voice/Chat Android SDK

Develop voice and realtime chat applications using the Vonage Client SDK for Android.

### Voice/Chat iOS SDK

Develop voice and realtime chat applications using the Vonage Client SDK for iOS.

### Voice/Chat JavaScript SDK

Develop voice and realtime chat applications using the Client SDK for JavaScript.

### Video Javascript SDK

Develop Video applications using the Vonage Video Client SDK for JavaScript.

### Video Android SDK

Develop Video applications using the Vonage Video Client SDK for Android.

### Video iOS SDK

Develop Video applications using the Vonage Video Client SDK for iOS.

### Video Linux SDK

Develop Video applications using the Vonage Video Client SDK for Linux.

### Video MacOS SDK

Develop Video applications using the Vonage Video Client SDK for MacOS.

### Video React Native SDK

Develop Video applications using the Vonage Video Client SDK for React Native.

### Video Windows SDK

Develop Video applications using the Vonage Video Client SDK for Windows.

## Framework Libraries

The Vonage framework libraries can get you up and running with the Vonage APIs quickly and easily in your framework of choice.

### vonage-laravel

Vonage framework library for Laravel

• PHP

### nexmo-rails

Vonage framework library for Rails

• Ruby

### nexmo-spring-boot-starter

Nexmo starter and auto configuration for Spring Boot

• Java

### version 1.1.0

• 5 ⚡ 5

## Server SDKs

The Server SDKs allow you to quickly get up and running with the Vonage APIs in your language of choice.

### vonage-ruby-sdk

gem version 7.20.0

Vonage REST API client for Ruby

• Ruby

★ 214 ⚡ 108

### vonage-dotnet-sdk

nuget package 6.15.0

Vonage REST API client for .NET

• C#

★ 102 ⚡ 80

### vonage-php-sdk

stable 4.0.0

Vonage REST API client for PHP

• PHP

★ 105 ⚡ 9

### vonage-node-sdk

npm package 3.12.2

Vonage REST API client for Node.js

• Javascript

★ 370 ⚡ 177

### vonage-python-sdk

pypi package 3.13.0

Vonage REST API client for Python

• Python

★ 179 ⚡ 114

### vonage-java-sdk

version 8.3.0

Vonage REST API client for Java

• Java

★ 90 ⚡ 119

## Silent Authentication SDKs

The Silent Authentication SDKs allow you to force a mobile connection for a successful HTTP request.

### verify-silent-auth-sdk-android

Vonage Android Silent Auth SDK

• Java

### verify-silent-auth-sdk-ios

Vonage iOS Silent Auth SDK

• Swift

★ 0 ⚡ 1

## Vonage CLI

You use the Vonage Command Line Interface (CLI) to manage your Vonage account and use Vonage API products from the command line.

### vonage-cli

npm package 1.2.4

Vonage CLI (Command Line Interface)

• JavaScript

★ 16 ⚡ 14

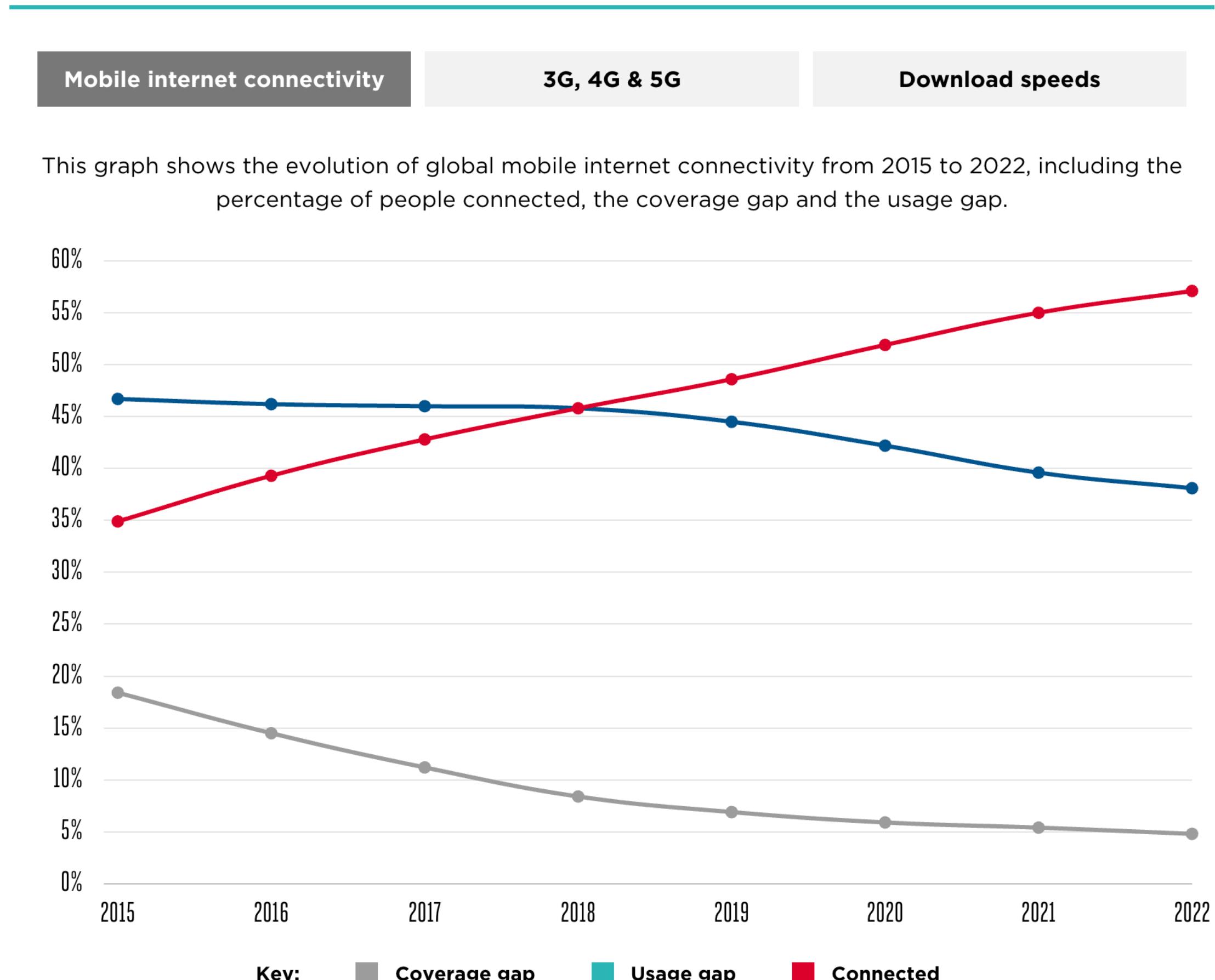
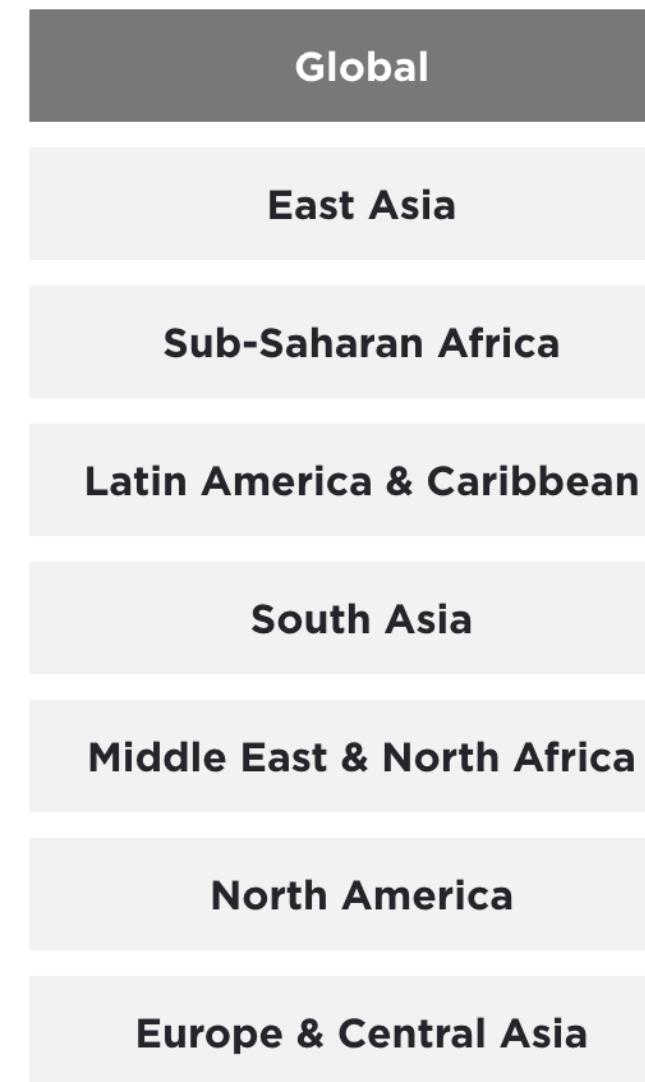


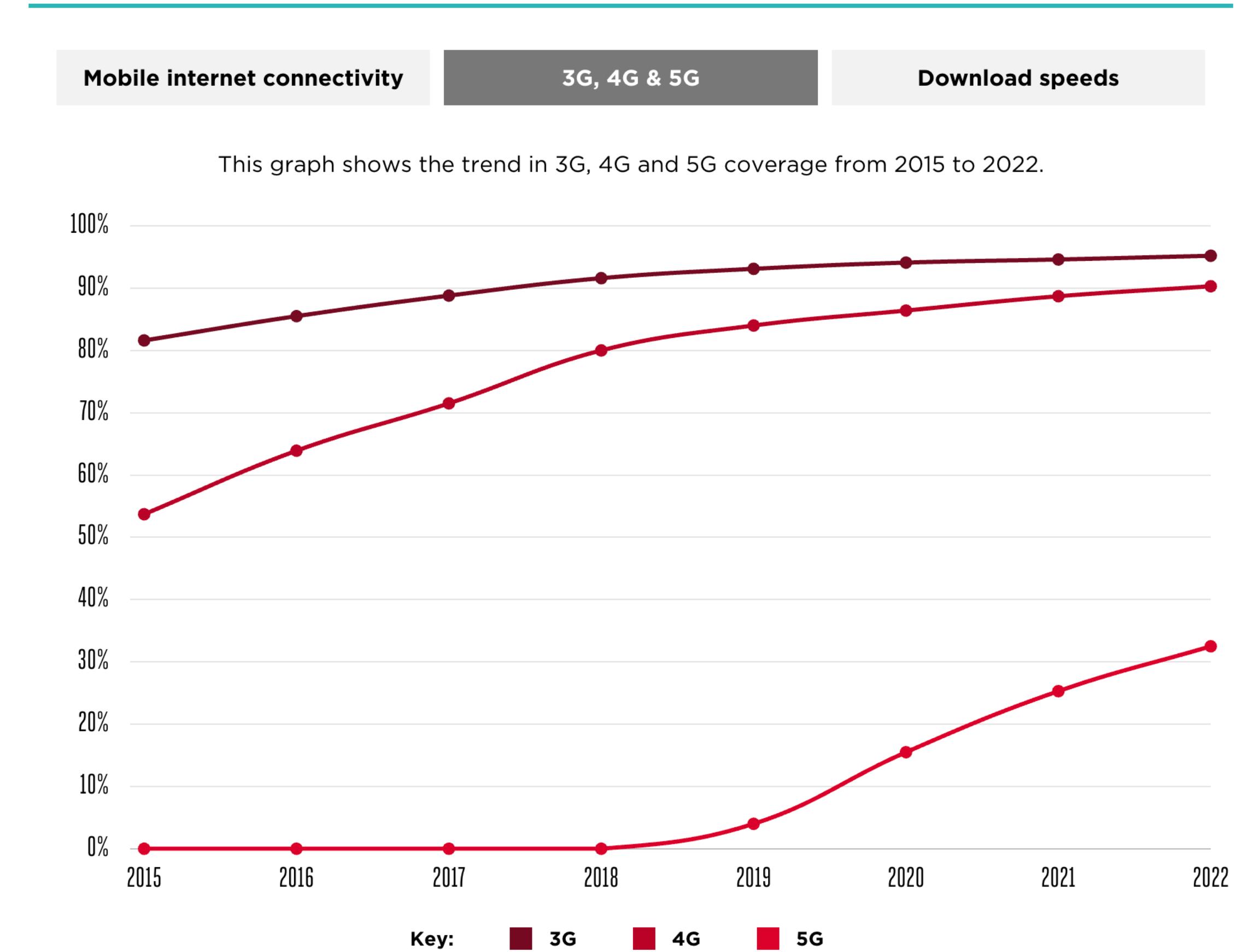
Latest News: Camara Graduates to Funded Model with Strong Industry Commitment

[Read More →](#)

# APIs enabling seamless access to Telco network capabilities

Telco network capabilities exposed through APIs provide a large benefit for customers. By simplifying telco network complexity with APIs and making the APIs available across telco networks and countries, CAMARA enables easy and seamless access.









## Premier Members



Code Issues 10

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Discussions

Actions

Projects 1

Security

Insights

## Files

main



Go to file

documentation

MeetingMinutes

SupportingDocuments

API proposals

APIFamilyproposal\_Identity&amp;...

APIProposal\_KYC-Age Verifi...

API\_Proposal\_Device\_Locati...

APIproposal\_NumberVerific...

APIproposal\_AnonymisedSu...

APIproposal\_BlockchainPubli...

APIproposal\_Call\_FWD\_Sign...

APIproposal\_CarrierBillingCh...

APIproposal\_ClickToDial\_Chi...

APIproposal\_DeviceIdentifier...

APIproposal\_DeviceVisitLoca...

APIproposal\_DynamicPeople...

## WorkingGroups / APIBacklog / documentation / SupportingDocuments / API proposals /

...



jordonezlucena

Merge pull request #361 from FabrizioMoggio/main

...

9da397b · 3 weeks ago

History

Name	Last commit message	Last commit date
..		
APIFamilyproposal_Identity&Consent.md	Update APIFamilyproposal_Identity&Consent.md	last year
APIProposal_KYC-Age Verification_Orange.md	Proposal for KYC Age Verification API	4 months ago
API_Proposal_Device_Location_Retrieval.md	Update API_Proposal_Device_Location_Retrieval.md	2 months ago
APIproposal_NumberVerification_DeustcheTele...	Update API backlog directory (issue #88 )	2 years ago
APIproposal_AnonymisedSubscriberIdentifier_V...	Update API backlog directory (issue #88 )	2 years ago
APIproposal_BlockchainPublicAddress_Telefonic...	Update APIproposal_BlockchainPublicAddress_Telefonica.md	10 months ago
APIproposal_Call_FWD_Signal_TIM.md	Removed unnecessary rows	last month
APIproposal_CarrierBillingCheckOut_Telefonica....	Update API backlog directory (issue #88 )	2 years ago
APIproposal_ClickToDial_ChinaMobile.md	Update APIproposal_ClickToDial_ChinaMobile.md	6 months ago
APIproposal_DeviceIdentifier_Vodafone.md	Update API backlog directory (issue #88 )	2 years ago



# Traditional Authentication



Sign in to GitHub

Username or email address

Password [Forgot password?](#)

**Sign in**

[Sign in with a passkey](#)  
New to GitHub? [Create an account](#)



Two-factor authentication

Authentication code



When your phone is ready, click the button below to receive a code via SMS.

**Send SMS**

Having problems?

- [Use a recovery code or begin 2FA account recovery](#)



Two-factor authentication

Authentication code [?](#)



**Verify**

We just sent you a message via SMS with your authentication code. Enter the code in the form above to verify your identity.

Having problems?

- [Resend SMS](#)
- [Send the code to your backup number](#)
- [Use a recovery code or begin 2FA account recovery](#)

# UX Opportunities

- Omnichannel
- MSISDN as identifier
- Network Auth Delegation
- Network APIs

# Omnichannel

[← View All docs](#)

## MESSAGES API

### OVERVIEW

### DISCOVER & TEST

#### Technical Details

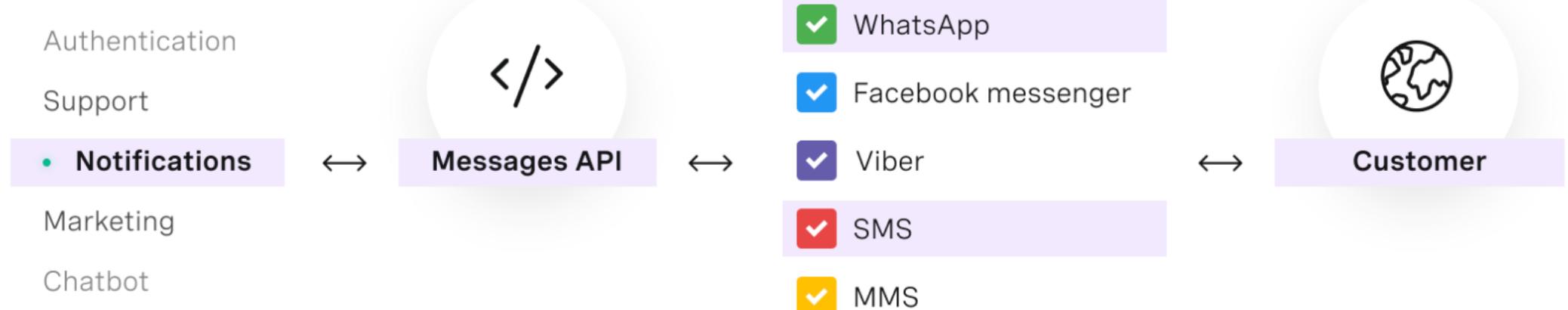
#### API Reference

#### Try it out

#### Use Cases

#### Pricing

### BUILD YOUR SOLUTION



## Versions

There are currently two versions of the API, v0.1 and v1. Each version has its own API endpoint:

[developer.vonage.com/messages](https://developer.vonage.com/messages)

### NAVIGATION

#### Messages API Technical Details

[Versions](#)[Supported features](#)[Additional v1 Features](#)[Authentication](#)[External Accounts API](#)[Getting started](#)[Reference](#)

# Vonage Messages API

```
curl -X POST https://api.nexmo.com/v1/messages \
-H 'Authorization: Bearer '$JWT \
-H 'Content-Type: application/json' \
-H 'Accept: application/json' \
-d ${'{
    "message_type": "text",
    "text": "Verification code: 12345. Valid for 10 mins.",
    "to": "'$TO_NUMBER'",
    "from": "'$FROM_NUMBER'",
    "channel": "sms"
}'}
```

[← View All docs](#)[Documentation](#) ➤ [Dispatch API](#)**DISPATCH API** BETA**OVERVIEW****DISCOVER & TEST****BUILD YOUR SOLUTION****MANAGE & SUPPORT****EXTERNAL ACCOUNTS API**

# Dispatch API

The Vonage Dispatch API allows you to ensure message delivery by specifying failover workflows with other messaging channels.

Send SMS, Facebook Messenger, WhatsApp, and Viber Business Messages with Dispatch built on-top of the Messages API

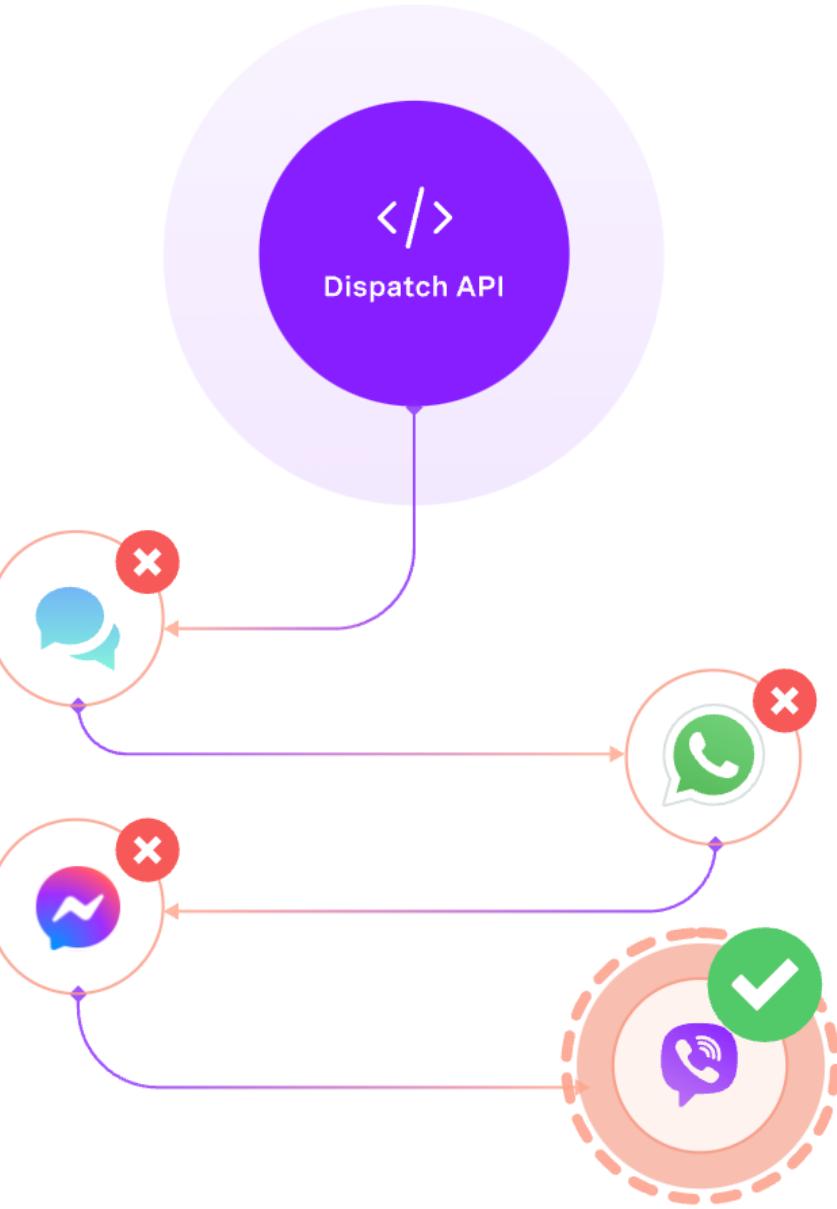
Easily develop and test

Cost-effective chat experience

Failover to the next message if success conditions are not met

Multichannel communication

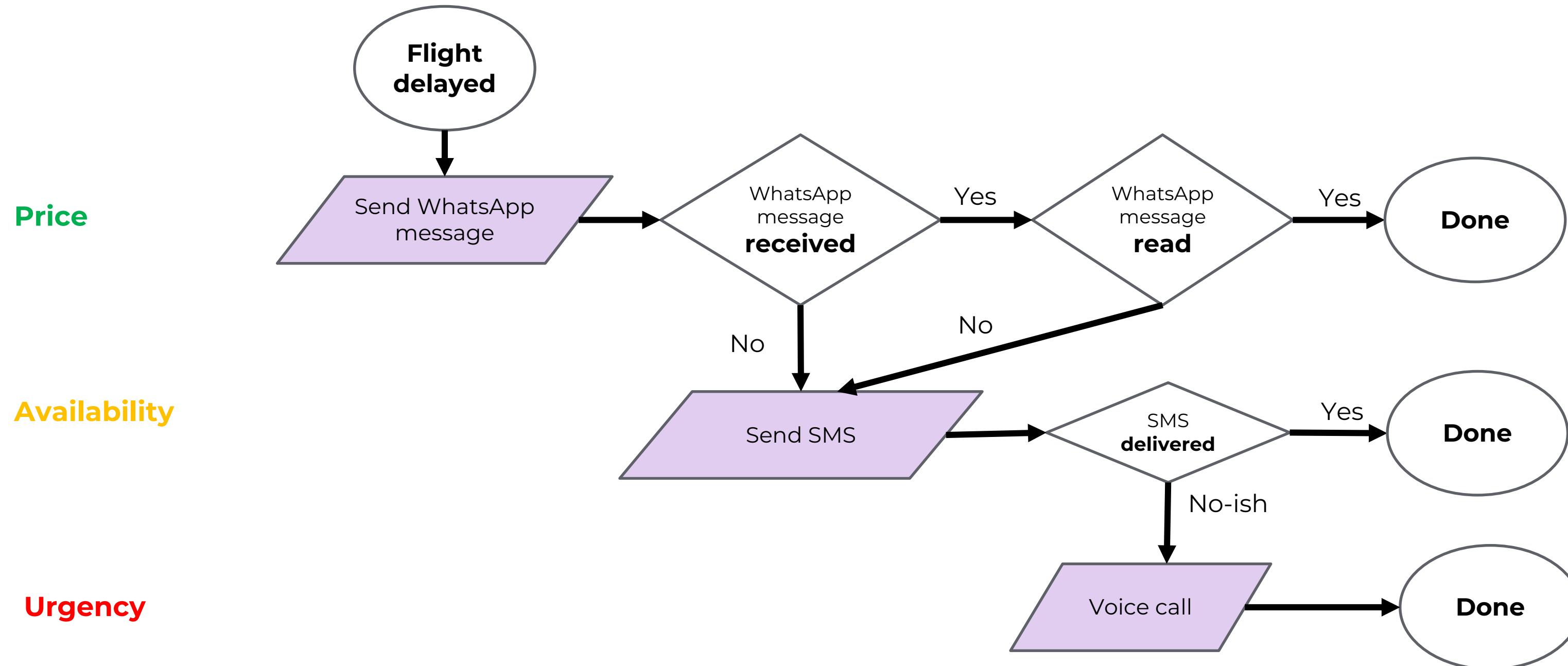
JWT authentication

 [Get started](#) [Learn more](#) [See pricing](#) [Try it out](#) [Use cases](#) [SDKs](#) [API Reference](#)

# Vonage Dispatch API

```
curl -X POST https://api.nexmo.com/v0.1/dispatch \
-H 'Authorization: Bearer '$JWT \
-H 'Content-Type: application/json' \
-H 'Accept: application/json' \
-d ${'{
    "template": "failover",
    "workflow": [
        {
            "from": { "type": "messenger", "id": '$FB_SENDER_ID' },
            "to": { "type": "messenger", "id": '$FB_RECIPIENT_ID' },
            "message": {
                "content": {
                    "type": "text",
                    "text": "This is a Facebook Messenger Message sent via the Dispatch API"
                }
            },
            "failover": {
                "expiry_time": 600,
                "condition_status": "read"
            }
        },
        {
            "from": { "type": "sms", "number": '$FROM_NUMBER' },
            "to": { "type": "sms", "number": '$TO_NUMBER' },
            "message": {
                "content": {
                    "type": "text",
                    "text": "This is an SMS sent via the Dispatch API"
                }
            }
        }
    ]
}'
```

# Use case: Airline Industry



# MSISDN as identifier

# MSISDN as identifier

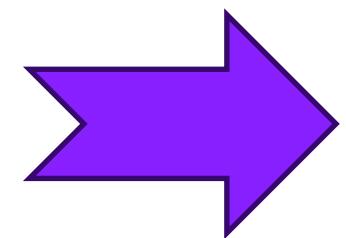


Sign in to GitHub

Username or email address

Password [Forgot password?](#)

**Sign in**



Sign in to GitHub

Phone number

**Send SMS**

[Sign in with a passkey](#)  
New to GitHub? [Create an account](#)



Sign in to Github

Authentication code [?](#)  
 XXXXXX

**Verify**

We just sent you a message via SMS with your authentication code. Enter the code in the form above to verify your identity.

**Having problems?**

- [Resend SMS](#)
- [Send the code to your backup number](#)
- [Use a recovery code or begin 2FA account recovery](#)

# Traditional Authentication



Sign in to GitHub

1

Username or email address

2

Password [Forgot password?](#)

3

**Sign in**

[Sign in with a passkey](#)  
New to GitHub? [Create an account](#)



Two-factor authentication

4

Authentication code



When your phone is ready, click the button below to receive a code via SMS.

**Send SMS**

**Having problems?**

- [Use a recovery code or begin 2FA account recovery](#)



Two-factor authentication

5

Authentication code [?](#)

**Verify**

We just sent you a message via SMS with your authentication code. Enter the code in the form above to verify your identity.

**Having problems?**

- [Resend SMS](#)
- [Send the code to your backup number](#)
- [Use a recovery code or begin 2FA account recovery](#)

# MSISDN as identifier

The image displays two screenshots of the GitHub mobile sign-in process, illustrating the use of MSISDN as an identifier.

**Screenshot 1: Initial Sign-in Screen**

This screen shows a large GitHub logo at the top. Below it, the text "Sign in to GitHub" is displayed. A red circle with the number "1" is positioned next to a "Phone number" input field. A red circle with the number "2" is positioned next to a green "Send SMS" button.

**Screenshot 2: Verification Screen**

This screen shows a large GitHub logo at the top. Below it, the text "Sign in to GitHub" is displayed. A red circle with the number "3" is positioned next to an "Authentication code" input field containing "XXXXXX". A green "Verify" button is located below the input field. A message at the bottom states: "We just sent you a message via SMS with your authentication code. Enter the code in the form above to verify your identity."

**Having problems?**

- [Resend SMS](#)
- [Send the code to your backup number](#)
- [Use a recovery code or begin 2FA account recovery](#)

# Multi-channel Strategy

Channel	Outbound Text	Outbound Image	Outbound Audio	Outbound Video	Outbound File	Outbound Template
SMS	✓	n/a	n/a	n/a	n/a	n/a
MMS	✓	✓	✓	✓	✓	n/a
Viber Business Messages	✓	✓	n/a	✓	✓	✓
Facebook Messenger	✓	✓	✓	✓	✓	✓
WhatsApp	✓	✓	✓	✓	✓	✓
Channel	Inbound Text	Inbound Image	Inbound Audio	Inbound Video	Inbound File	Inbound Location
SMS	✓	n/a	n/a	n/a	n/a	n/a
MMS	✓	✓	✓	✓	✓	n/a
Viber Business Messages	✓	✓	n/a	✓	✓	n/a
Facebook Messenger	✓	✓	✓	✓	✓	✓
WhatsApp	✓	✓	✓	✓	✓	✓

# WhatsApp Authentication Template

```
"to": "'$TO_NUMBER'",  
"from": "'$WHATSAPP_NUMBER'",  
"channel": "whatsapp",  
"message_type": "custom",  
"custom": {  
    "type": "template",  
    "template": {  
        "name": "'$WHATSAPP_AUTH_TEMPLATE_NAME'",  
        "language": {  
            "policy": "deterministic",  
            "code": "en"  
        },  
        "components": [  
            {  
                "type": "body",  
                "parameters": [  
                    {  
                        "type": "text",  
                        "text": "'$OTP'"  
                    }  
                ]  
            },  
            {  
                "type": "button",  
                "sub_type": "url",  
                "index": "0",  
                "parameters": [  
                    {  
                        "type": "text",  
                        "text": "'$OTP'"  
                    }  
                ]  
            }  
        ]  
    }  
}
```

# Network Auth Delegation

[← View All docs](#)[Documentation](#) > Verify API

## VERIFY API

### OVERVIEW

### DISCOVER & TEST

### BUILD YOUR SOLUTION

### MANAGE & SUPPORT

### VERIFY

Legacy

# Verify API

The Verify API is our next generation two-factor authentication (2FA) product. Authenticate your users and prevent fraud with our simple, easy-to-use API that removes the complexity of 2FA at a global scale.

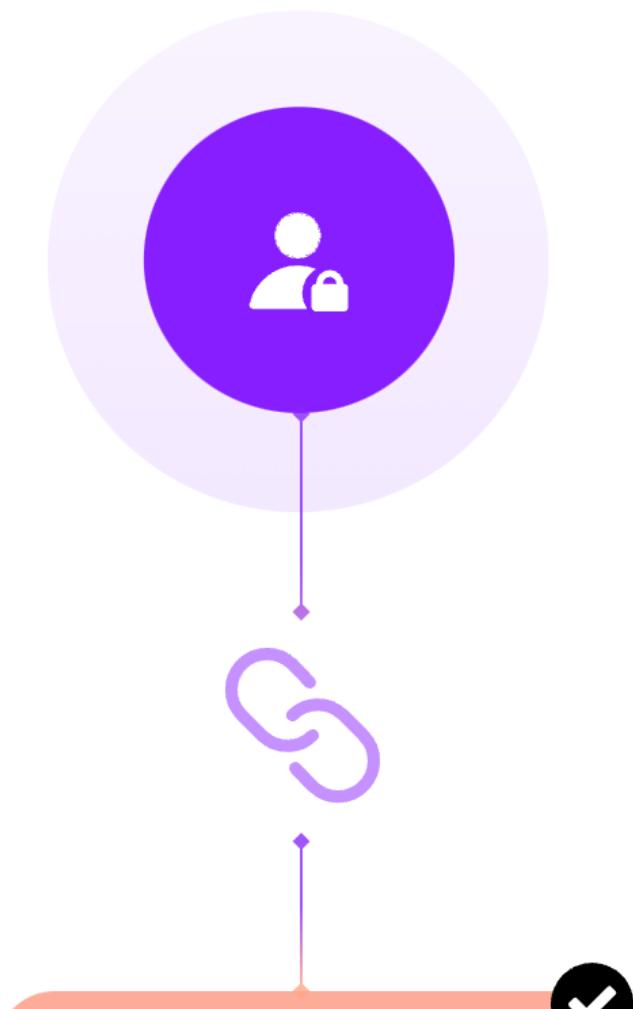
Prevent fraud with two-factor authentication

Choose from channels including SMS, Voice, Email, WhatsApp

Authenticate your end-users where they prefer

Define the workflow that works for you

JWT authentication available



# 447709000037

Get started

Learn more

See pricing

Try it out

SDKs

API Reference

[← View All docs](#)

## VERIFY API

### OVERVIEW

### DISCOVER & TEST

### BUILD YOUR SOLUTION

#### Getting Started

#### Guides

[Overview](#)[Verify Migration Guide](#)[Verify Languages](#)[Verify API Webhooks](#)[Verify Anti-Fraud System](#)[Network Unblock API](#)[Silent Authentication](#)[Using the Silent Authentication Sandbox](#)

# Silent Authentication

Silent Authentication uses a mobile phone's Subscriber Identity Module (SIM) to prove a user's identity, without any user input. This guide will explain what it is, how it works, and how it can be used with [Verify](#).

## What is Silent Authentication?

Once a user has entered their login credentials, Silent Authentication proves a user's identity by checking information from their SIM against their carrier's records to ensure that their phone number is active and genuine. Once a request has been verified, you are able to continuously authenticate the user until either the request expires or it is cancelled by the user. As with any authentication method, there are advantages and disadvantages to this approach:

## Advantages

- **Minimal user input** - Silent Authentication is very user friendly; once the user has entered their credentials, the authentication process happens in the background. There are no OTP codes to input, making the process as frictionless as possible.
- **No phishing** - By moving authentication directly between the carrier and the mobile device, the threat of phishing via SMS is removed.

## Disadvantages

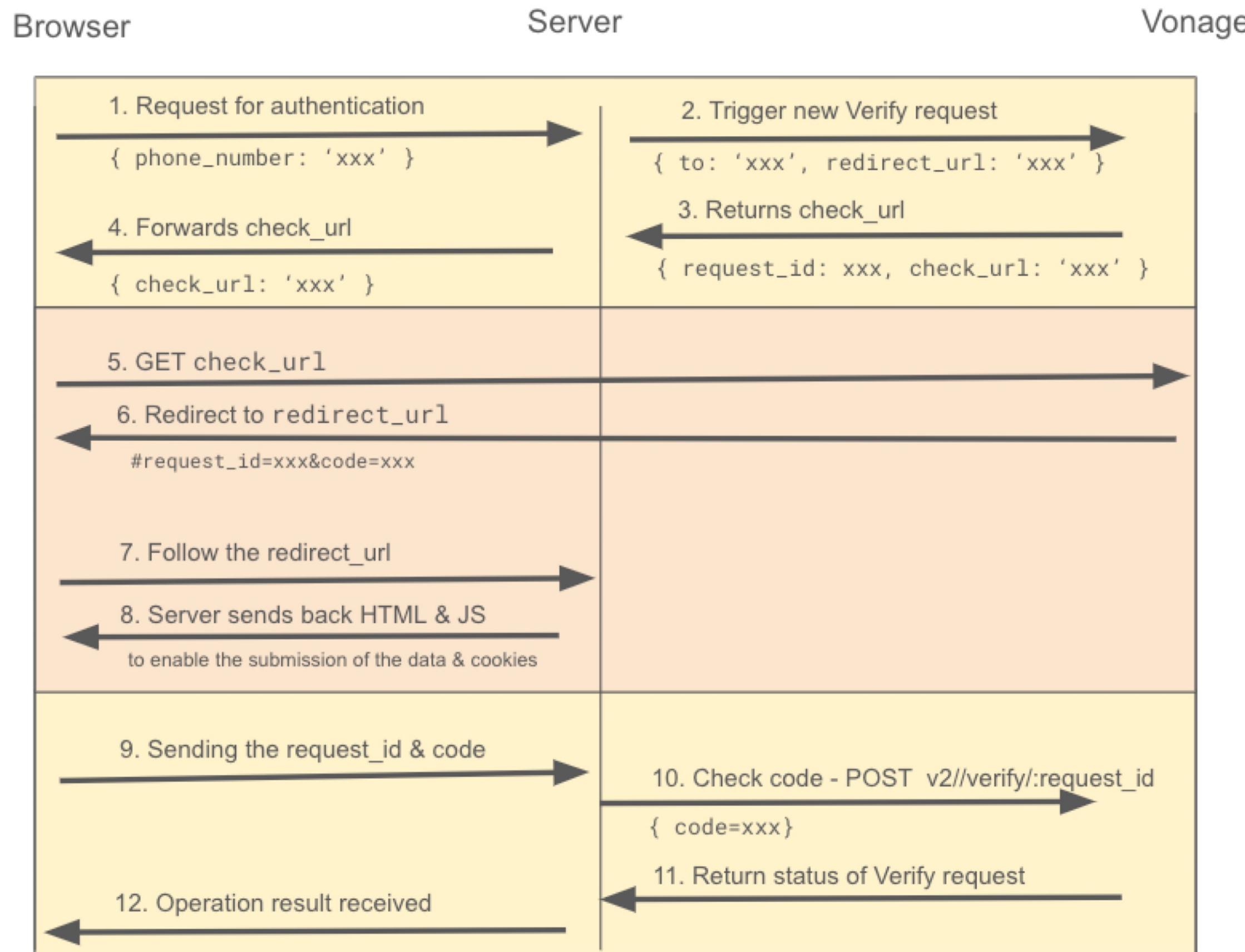
- **The user must own a mobile device** - Silent Authentication needs the user to authenticate from a mobile device, which they may not always have.
- **A cellular network connection is required** - Silent Authentication relies on a verified GSM response from the device to prove its credentials, which is not sent if the user is connected to Wi-Fi. The user must therefore trigger the authentication request using cellular data. You can use our [SDKs](#) to help force a mobile connection.

## NAVIGATION

### Silent Authentication

[What is Silent Authentication?](#)[Advantages](#)[Disadvantages](#)[Using Silent Authentication with Verify](#)[Synchronous Implementation](#)[Asynchronous Implementation](#)[Android and iOS SDKs](#)[Available Territories](#)

# Vonage Verify API Silent Auth



# Vonage Verify API Silent Auth

```
curl --X POST \
--url https://api.nexmo.com/v2/verify \
-H "Authorization: Bearer $JWT" \
-H 'Content-Type: application/json' \
-d ${'{
  "brand": "'$BRAND_NAME'",
  "workflow": [
    {
      "channel": "silent_auth",
      "to": "'$TO_NUMBER'"
    },
    {
      "channel": "sms",
      "to": "'$TO_NUMBER'"
    },
    ...
  ]
}'
```

12:05

5G



## Verify

2FA via SMS

Silent Auth

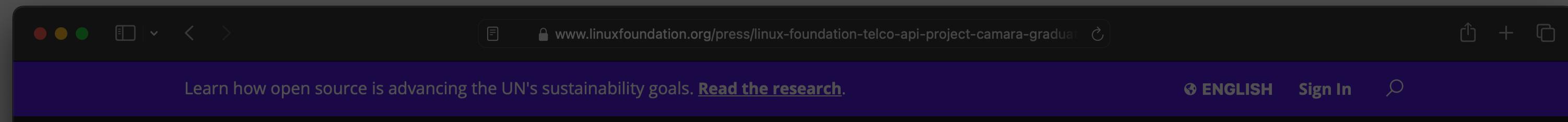
AA

16f3a1acf874.ngrok.app



# Network APIs

# CAMARA - The Telco Global API Alliance



## Ericsson

"The CAMARA initiative shows that there is a big interest in and revenue opportunities in exposing network APIs which is also a fundamental part of our strategy. This initiative is instrumental to bring all CSP and other players such as aggregators and developer platforms to the same table and a call for action to the telecom industry to jointly make it easy for developers to build exciting applications by using network capabilities like QoS or authentication. Together with Vonage part of the Ericsson group, we are committed to make Camara successful and are actively contributing to the standardization and aim to be a main driver of the future evolution of CAMARA," said Oliver Buschmann, Head of Group Strategy, Ericsson.

THE LINUX FOUNDATION | 19 SEPTEMBER 2023

- *Successful collaboration on open source telco APIs drives CAMARA project to next level with Premier and General project sponsors bolstering new funded model*
- *250 companies and 750+ contributors dedicated to collaboratively define interfaces providing customers with access to telecom industry network capabilities*

BILBAO, Spain — Open Source Summit Europe — September 19, 2023, The Linux Foundation, the nonprofit organization enabling mass innovation through open source, announced that its CAMARA project, an open source community addressing telco industry API interoperability, has graduated to a funded model.



**The Technical Steering Committee is the oversight body for the technical CAMARA Project. The Technical Steering Committee currently consists of the following participants:**

Name	(Company) Role
Herbert Damker	(Deutsche Telekom AG) Active Maintainer, TSC chair
Eric Murray	(Vodafone) Active Maintainer, TSC deputy chair
Ludovic Robert	(Orange) Active Maintainer, TSC deputy chair
Adnan Saleem	(Radisys) End User Council representative
Chris Howell	(Vonage) Active Maintainer
Diego González Martínez	(Telefónica) Active Maintainer
Doug Makishima	(Summit Tech) End User Council representative
George Glass	TM Forum representative
Henry Calvert	GSMA representative
Jan Friman	(Ericsson) Active Maintainer
Jose Luis Urien	(Telefonica) Active Maintainer
Kevin Smith	(Vodafone) Active Maintainer
Mahesh Chapalamadugu	(Verizon) End User Council representative
Shilpa Padgaonkar	(Deutsche Telekom AG) Active Maintainer
Toshi (Toshiyasu) Wakayama	(KDDI) Active Maintainer

The Technical Steering Committee meetings are held virtually, are open for the public and are scheduled each first Thursday in a month at 10am CE(s)T and every third Thursday in a month at 4pm CE(s)T time. You're welcome to join via: [Meeting link](#).

# All Vonage APIs and products

Jump to: [Network APIs](#) [Messages](#) [Voice calls](#) [Video](#) [Verify identity](#) [Low Code/No Code](#) [Account Management](#)

[Product Enablement](#)

## Network APIs

### Number Verification

Vonage's standalone Silent Authentication product built using CAMARA standards



### SIM Swap

Determine whether and when a SIM swap was last performed on an individual mobile phone number.



## Video

### Meetings API

## Messages

### SMS API

Programmatically send and receive **SMS** messages.



### Messages API

**Multi-channel** messaging that integrates with:



WhatsApp



Messenger



Viber

## Voice calls

### Voice API

**Create calls**, control calls in-progress, get information about previous calls.



### In-app Voice

Build live voice communications into your **application**.



### SIP

**Connect** to existing endpoints via the phone network and in-app voice.



[← View All docs](#)[Documentation](#) > Number Verification

## NUMBER VERIFICATION

[LIMITED AVAILABILITY](#)[OVERVIEW](#)[DISCOVER & TEST](#)[BUILD YOUR SOLUTION](#)[MANAGE & SUPPORT](#)

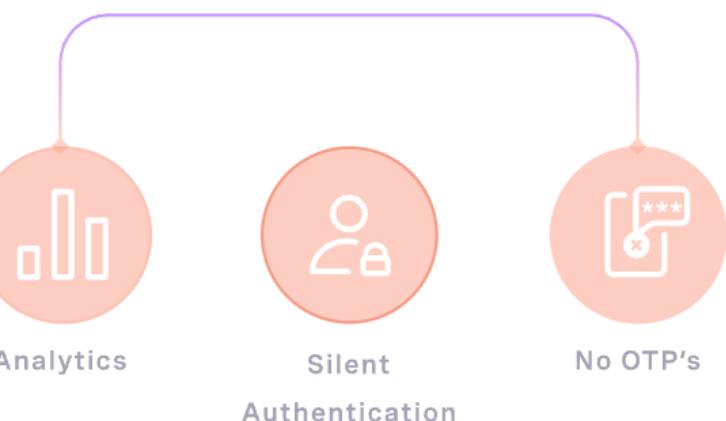
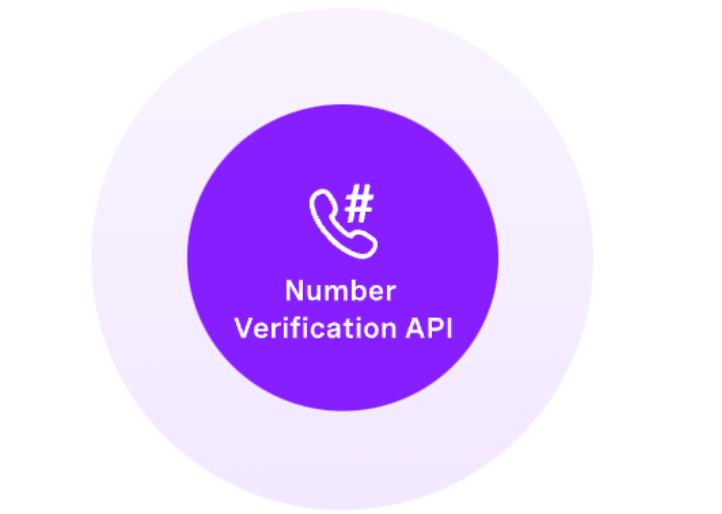
# Number Verification

The Number Verification API is Vonage's standalone Silent Authentication product built using CAMARA standards. Number Verification authenticates your end-users using a mobile data session and without the need for one-time passcodes (OTP) through SMS, Voice, or Email.

Reduce the end-user friction in the 2FA experience

Remove the risk of international revenue sharing fraud (IRSF)

No need for one-time passcodes (OTP)

 [Register Your Interest](#) [Get started](#) [Learn more](#)

SDKs



API Reference

[← View All docs](#)[Documentation](#) > [SIM Swap](#)**SIM SWAP** ALPHA[OVERVIEW](#)[DISCOVER & TEST](#)[BUILD YOUR SOLUTION](#)

# SIM Swap API

The SIM Swap API is a standalone product that enables developers to reduce the impact of account takeover fraud by strengthening SIM based authentication processes, such as SMS One-Time Passwords or silent authentication.

Determine whether and when a SIM swap was last performed on an individual mobile phone number.

Easily integrated into your application.

Check the activation date of a SIM card on the mobile network in real-time.

 [Register Your Interest](#) [Get started](#) [Learn more](#)

SDKs



API Reference

# UX Opportunities

- Omnichannel
- MSISDN as identifier
- Network Operator Auth Delegation
- Network APIs

# Thank you!

**Paul Ardeleanu**  
Developer Relations  
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[developer.vonage.com](https://developer.vonage.com)  
[vonage.dev/4YFN-Workshops](https://vonage.dev/4YFN-Workshops)