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HLC202

Making healthcare more personal with MetroPlus Health

Amanda Parsons, MD, MBA
Deputy Chief Medical Officer
MetroPlus Health

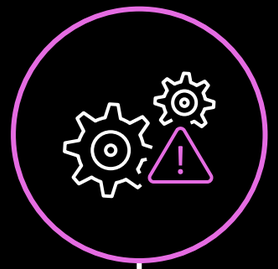
Praveen Modi
Sr. Consultant, Conversational AI
AWS

Eric Zimmerman
Business Development and Product Manager
AWS

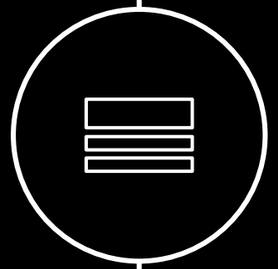
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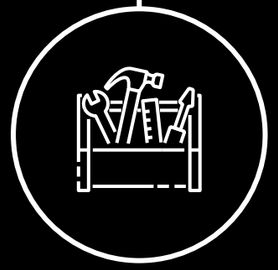
Agenda



Industry challenges



MetroPlus solution, benefits, and results



How it was built

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New York City Rapid Response Coalition

Created in March 2020 in response to the emerging COVID-19 crisis in New York City (NYC), the Rapid Response Coalition was initiated with the goal of focusing on at-risk populations in NYC

- **Humanitarian effort**
- **75+ organizations joined to share resources**
- **Pro bono work whenever possible**

By prioritizing education and support for vulnerable populations, the coalition helped those yet to be diagnosed with COVID-19 and those with pre-existing conditions who, due to constraints, were at increased risk



Projects



Delivered ~200,000 meals across NYC



Procured and distributed 8 metric tons of PPE



SMS outreach

Needed to work with a payer/provider with a strong local presence and deep healthcare network

About MetroPlus Health Plan

- Wholly owned subsidiary of NYC Health and Hospitals, the nation's largest public health system
- Insurer for ~580,000 New Yorkers (5 boroughs)
- Five-star rating based on the state's 2018 Consumer's Guide to Medicaid and Child Health Plus Managed Care Plans in New York City
- Many lines of business, including Medicaid (72%), Medicare, Managed Long–Term Care (MLTC), Health and Recovery Plan (HARP), HIV Special Needs Plan (SNP), and Small Business Health Options Program (SHOP)
- Diverse, culturally sensitive staff fluent in more than 40 languages

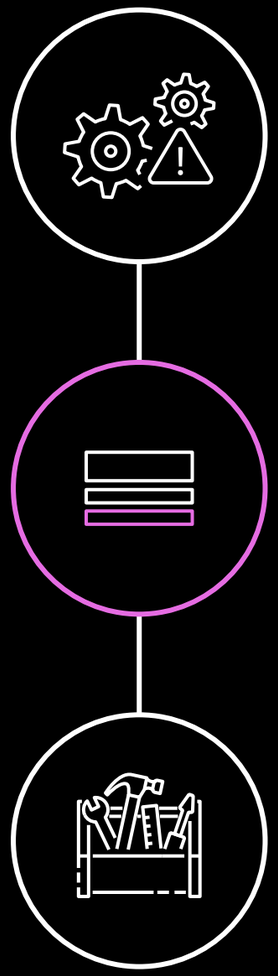


COVID-19 created an urgent need for rapid outreach

- New York State (NYS), by far, the hardest hit (at the time, #1 in the nation for cases and deaths)
- Many MetroPlus members are particularly vulnerable (e.g., overcrowding, low socioeconomic status, and high disease burden)
- Identified over 85,000 members to prioritize for resource-intensive telephonic outreach
- Pro bono project management from Bain & Company, tech expertise and solutions from AWS, and social service assistance from AIRnyc



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Product scope

Target population identification



Using risk stratification, identify those who are at greatest risk of mortality from COVID-19 and those who have pre-existing chronic conditions whose clinical state could decline due to constraints on the healthcare system

Need assessment and patient engagement



Proactive outreach to patients using scalable technology platform for quick education and an assessment of social and medical needs

Connect patients with resources



Based on digital engagement, connect patients with the various clinical and social services that will be most beneficial to them (Can refer to existing providers and solutions and/or work with local partners)

Monitor outcomes



Utilize closed-loop communications to verify that the clinical and social services support is delivered and fulfilled; create a sense of safety and security in the community

Developed and launched an interactive chatbot solution designed as a wellness check-in

Key design phase questions

Which **needs are most important** to assess and address?

- COVID-19 needs → COVID-19 hotline
- COVID-19 stress / anxiety → NYS Emotional Wellness Hotline
- Pharmacy refills → MetroPlus Pharmacy Team
- Need a doctor? → MetroPlus Virtual Visits (telemedicine via American Well)
- Need food / unemployment assistance? → AIRnyc CHW* → MetroPlus SDH** care manager
- Other needs → MetroPlus customer service

Which populations are **high risk** and should be prioritized for outreach?

Is it more important to go **wide or deep?**

What is the best language and framing to maximize **engagement and effectiveness?**

*Community Health Worker
**Social Determinants of Health

Designing the script

Script based on specific set of needs with endpoints to different service providers

Opening message

Language screen

English questions

Question sequence / language should be tailored depending on population needs and updated based on response rate

Hi. This is a wellness check from your health plan, [Insert data provider]. We can help with: COVID-19 (coronavirus), Other health conditions, Food, Unemployment assistance, and Housing issues. For help with ANY of the above, text Yes. If you don't need help, text No. Text STOP to opt-out of future wellness check messages

- If Yes – Continue to language screen
- If No – We hope you and your family stay well. Please try to stay at home and help prevent the spread of coronavirus. Text Hi at any point to restart.

[Language Screen]
Text 1 to complete this wellness check in English. Text 2 for Spanish (Responda 2 para español).

- If 1 – Go to 1
- If 2 – Go to Spanish questions

1. **(1 of 6) Alright. This wellness check will ask you 6 questions. Do you need help with food, unemployment assistance, or housing issues? If you need help with ANY of the above, text Yes. If you don't need help, text No**
   - If yes – Ok, if you would like to receive a call now from a community health worker who might be able to help, text Yes. If not and you would like to continue with your wellness check, text No
     - If yes – *Transfer to [Insert social services provider]*
     - If no – *Go to 2*
   - If no – *Go to 2*

2. **(2 of 6) Do you have a fever, cough, sore throat, or trouble breathing? If yes, or if you're worried you may have coronavirus, text Yes. If not, text No**
   - If yes – Ok, if you're not feeling well, you can speak with health care professionals who can help. Call the NYC Coronavirus Hotline at 311 or 1-844-NYC-4NYC. To continue with your wellness check, text Yes – *Go to 3 (no transfer)*
   - If no – *Go to 3*

3. **(3 of 6) The coronavirus outbreak may be stressful to you and your loved ones. Do you need extra emotional support? Text Yes or No**
   - If yes – Ok, free support is available. To speak with someone who can help, call the NYC Emotional Support line 1-888-692-9355 or text WELL to 65173. To continue, text Yes – *Go to 4 (no transfer)*
   - If no – *Go to 4*

4. **(4 of 6) Are you having problems getting your prescription medications or refills? Text Yes or No**
   - If yes – Alright, if you would like to receive a call now from a [Insert data provider] pharmacy representative, text Yes. If not and you would like to continue, text No
     - If yes – *Transfer to [Insert data provider]*
     - If no– *Go to 5*
   - If no – *Go to 5*

5. **(5 of 6) Are you having trouble reaching your doctor for any urgent health need? For info about speaking to a telehealth doctor, text Yes. If not, text No.**
   - If yes – Alright. We offer free telehealth doctor visits online, without having to leave your home. Visit [Insert data provider URL]. To continue with your wellness check, text Yes – *Go to 6*
   - If no – *Go to 6*

6. **(6 of 6) Do you have any other issues you want to speak to [Insert data provider] about? Text Yes or No**
   - If yes – If you would you like to receive a call now from a [Insert data provider] representative, text Yes. If not and you would like to continue, text No
     - If yes – *Transfer to [Insert data provider]*
     - If no – We hope you and your family stay well. Please try to stay at home and help prevent the spread of coronavirus. Text Hi at any point to restart.
   - If no – We hope you and your family stay well. Please try to stay at home and help prevent the spread of coronavirus. Text Hi at any point to restart.

If reply to final message while conversation is still active: You have reached the end. To restart, text Hi

In the first 3 weeks of deployment, we reached out to 54,000 at-risk New Yorkers

54K at-risk New Yorkers **received a text message** with an offer for health and social services support

9% of them **engaged with the SMS chatbot** text

55% of those indicated they had a **health or social services need**

At least **56%** of those agreed to be **connected with the appropriate service**

Focused on maximizing engagement rates and self-identified needs for the at-risk population

Guiding principles

- **Maximize engagement** to **broaden** the population of at-risk New Yorkers we are serving
- **Maximize the number of needs self-identified** by the at-risk population
- **Focus on services** that address the **most pressing needs** for the at-risk population that we are reaching out to
- **Connect members** to the services that they need **efficiently** through the use of technology (e.g., two-way connect functionality)

Launch summary (April 2 to April 27)		**Total**	**%**
Received a text message with an offer for health and social services support		**53,720**	
Engaged with the SMS chatbot		**5,016**	**9%**
Engaged with the chatbot and **self-identified a need** for …	**Total with 1+ needs**	**2,742**	**55%** *of engaged*
	Social services	**2,616**	**95%** *of those with 1+ needs*
	Pharmacy	**239**	**9%** *of those with 1+ needs*
	MetroPlus help	**386**	**14%** *of those with 1+ needs*
	COVID-19, emotional support, and telehealth	**657**	**23%** *of those with 1+ needs*
Connected with the appropriate service to address a need for …	**Total connected**	**1,547**	**56%** *of those with 1+ needs*
	Social services	**1,456**	**94%** *of those connected*
	Pharmacy	**122**	**8%** *of those connected*
	MetroPlus help	**254**	**16%** *of those connected*
	COVID-19, emotional support, and telehealth	*Connections not able to be tracked**	

*Connections only able to be tracked for handoffs with two-way connect functionality; launches from 4/2–4/7 did not have two-way connect functionality and could not track connections. Note: 4/10–4/15 campaigns were used to project expected connections for 4/2–4/7 by applying connection rates to members who identified 1+ need; slight discrepancies between population contact list and response data account for minor differences between launch totals.
Source: MetroPlus Response Data as of 4/27/2020 at 7 PM ET.

Member feedback

"I was at my lowest. So down and out, emotionally. I'd lost hope. When I saw that text from MetroPlusHealth, it was amazing. Someone *does* care. Someone *is* reaching out. They are concerned about *me*… So, I sucked up my tears and reached back out to them for help. Now, I am working with one of their housing specialists to see if maybe they can find my boys and me a new home."

MetroPlusHealth member Lenora Y (domestic abuse survivor, living in homeless shelter with her two sons)

"My situation was really, really bad. I'm a driver but I needed to stop because I couldn't risk my baby's health during this pandemic" Survia said. "When I got the text from MetroPlusHealth, I was surprised, very pleasantly. I think MetroPlusHealth really stepped it up."

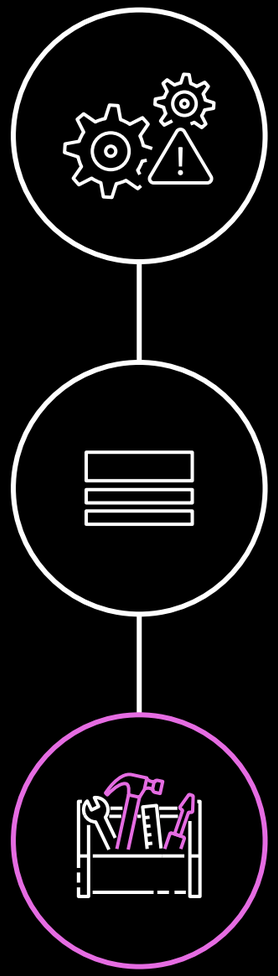
MetroPlusHealth member Survia R (pregnant with first child; was an Uber driver; needed help securing food, diapers, and formula)

Benefits of working with AWS

- Scrum development approach with morning and evening huddles to iteratively design, test, discuss, and refine
- AWS understood the operational and business drivers and presented creative solutions to meet the needs of the project
- Thought partners on guiding principles and problem solving, tapping into expertise
- Understood that we were using technology to change lives



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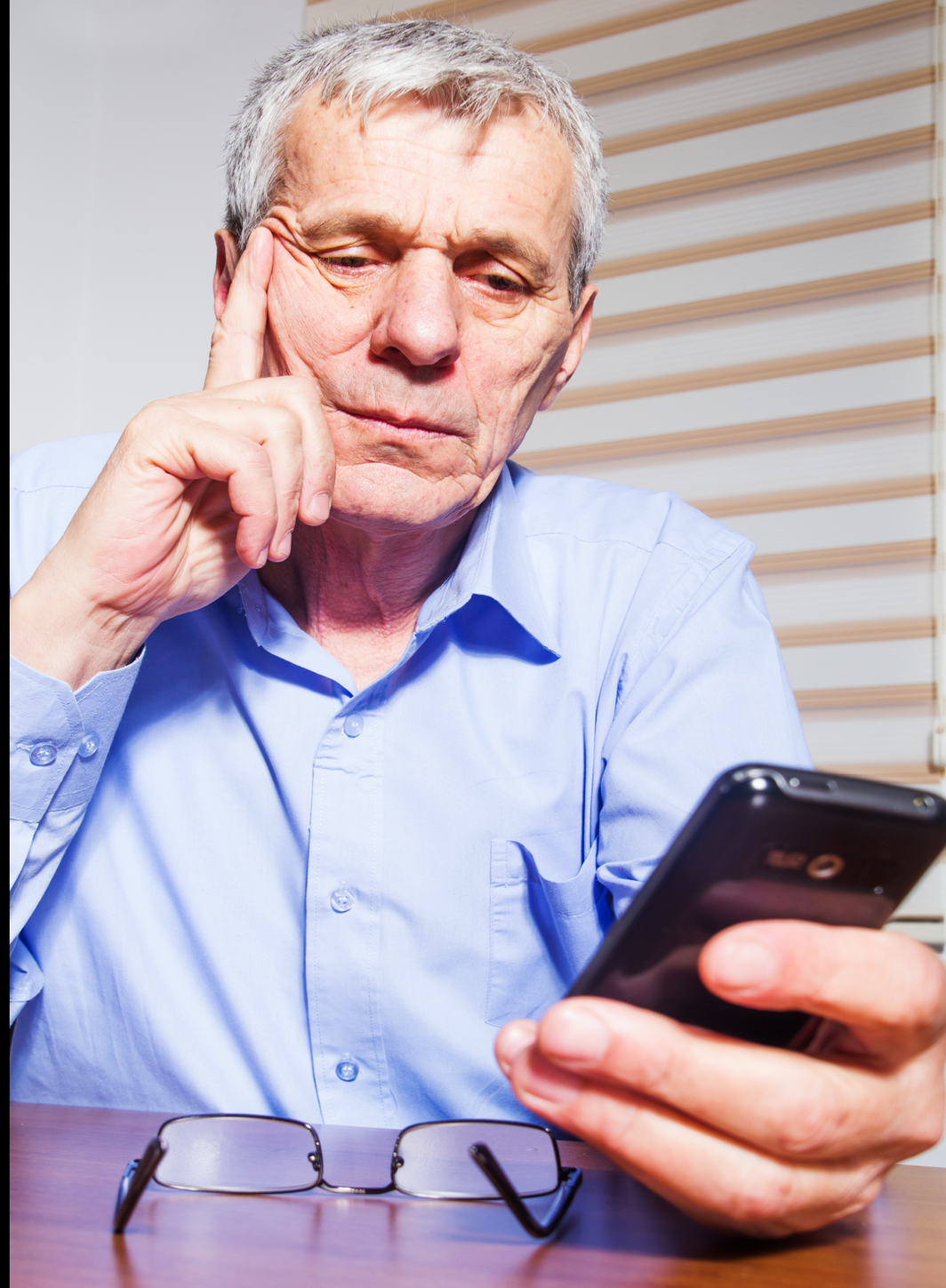
How it was built

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Key objectives

- Build a scalable solution that allows thousands of users to engage with the bot simultaneously
- Support multiple languages: English and Spanish
- Have the ability to connect users to a helpline for a medical provider, pharmacy refills, unemployment support, etc.
- Let business users update the content quickly without IT intervention or tedious code deployments

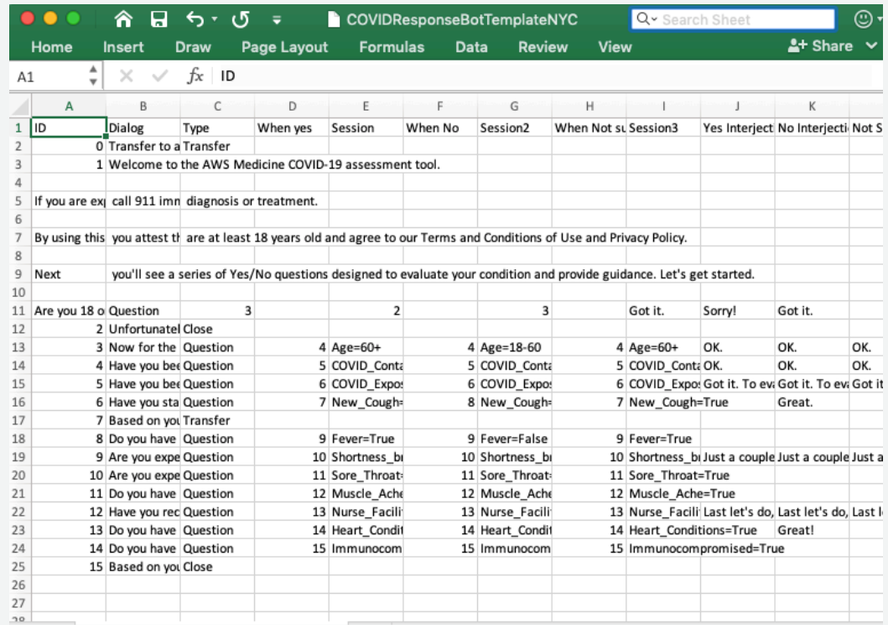


Solution

1. Use a comma-separated values (CSV) file to manage all messaging and questions

2. Leverage the UTF-8 support in CSV files to add Spanish translation

3. Let business users update the content in the CSV file and upload to Amazon S3



COVIDResponseBotTemplateNYC

Home | Insert | Draw | Page Layout | Formulas | Data | Review | View | Share

A1 | ID

	A	B	C	D	E	F	G	H	I	J	K	
1	ID	Dialog	Type	When yes	Session	When No	Session2	When Not su	Session3	Yes Interject	No Interjecti	Not S
2	0	Transfer to a	Transfer									
3	1	Welcome to the AWS Medicine COVID-19 assessment tool.										
4												
5	If you are ex	call 911 imn	diagnosis or treatment.									
6												
7	By using this	you attest th	are at least 18 years old and agree to our Terms and Conditions of Use and Privacy Policy.									
8												
9	Next	you'll see a series of Yes/No questions designed to evaluate your condition and provide guidance. Let's get started.										
10												
11	Are you 18 o	Question	3		2		3		Got it.	Sorry!	Got it.	
12	2	Unfortunatel	Close									
13	3	Now for the	Question	4	Age=60+	4	Age=18-60	4	Age=60+	OK.	OK.	OK.
14	4	Have you bee	Question	5	COVID_Conta	5	COVID_Conta	5	COVID_Conta	OK.	OK.	OK.
15	5	Have you bee	Question	6	COVID_Expos	6	COVID_Expos	6	COVID_Expos	Got it. To eva	Got it. To eva	Got it
16	6	Have you sta	Question	7	New_Cough=	8	New_Cough=	7	New_Cough=True		Great.	
17	7	Based on you	Transfer									
18	8	Do you have	Question	9	Fever=True	9	Fever=False	9	Fever=True			
19	9	Are you expe	Question	10	Shortness_b	10	Shortness_b	10	Shortness_b	Just a couple	Just a couple	Just a
20	10	Are you expe	Question	11	Sore_Throat=	11	Sore_Throat=	11	Sore_Throat=True			
21	11	Do you have	Question	12	Muscle_Ache	12	Muscle_Ache	12	Muscle_Ache=True			
22	12	Have you rec	Question	13	Nurse_Facili	13	Nurse_Facili	13	Nurse_Facili	Last let's do,	Last let's do,	Last l
23	13	Do you have	Question	14	Heart_Condit	14	Heart_Condit	14	Heart_Conditions=True		Great!	
24	14	Do you have	Question	15	Immunocom	15	Immunocom	15	Immunocompromised=True			
25	15	Based on you	Close									
26												
27												

AWS services



Amazon Pinpoint

Flexible and scalable outbound and inbound marketing communications service



Amazon Lex

Service for building conversational interfaces using voice and text



Amazon Connect

An easy-to-use omnichannel cloud contact center



Amazon DynamoDB

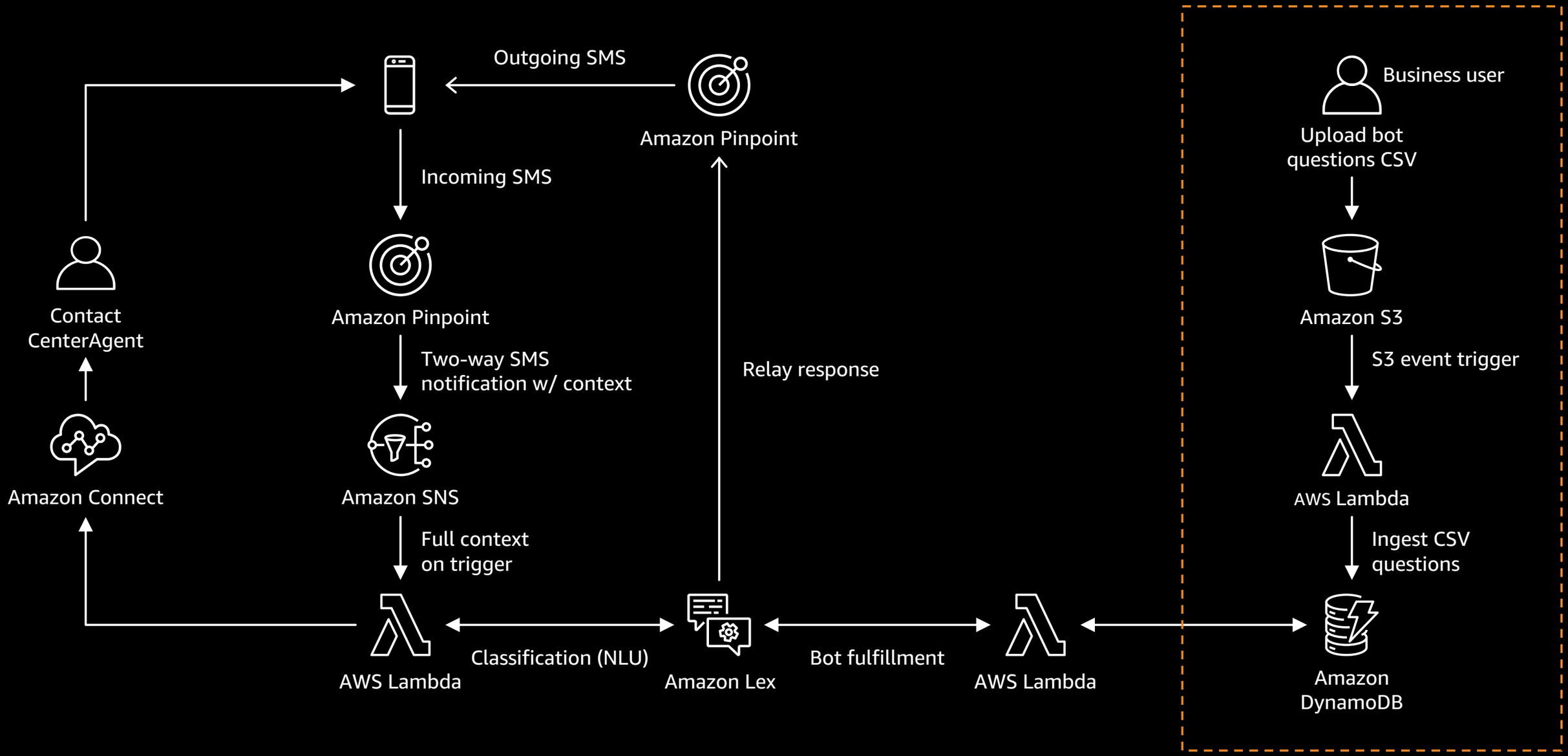
Fast and flexible NoSQL database service for any scale



AWS Lambda

Lets you run code without provisioning or managing servers

Solution architecture



Resources

Public Health Solutions

Blogpost demonstrating the MetroPlus solution with the sample code

NYC COVID-19 Rapid Response Coalition helps MetroPlus Health Plan partner …

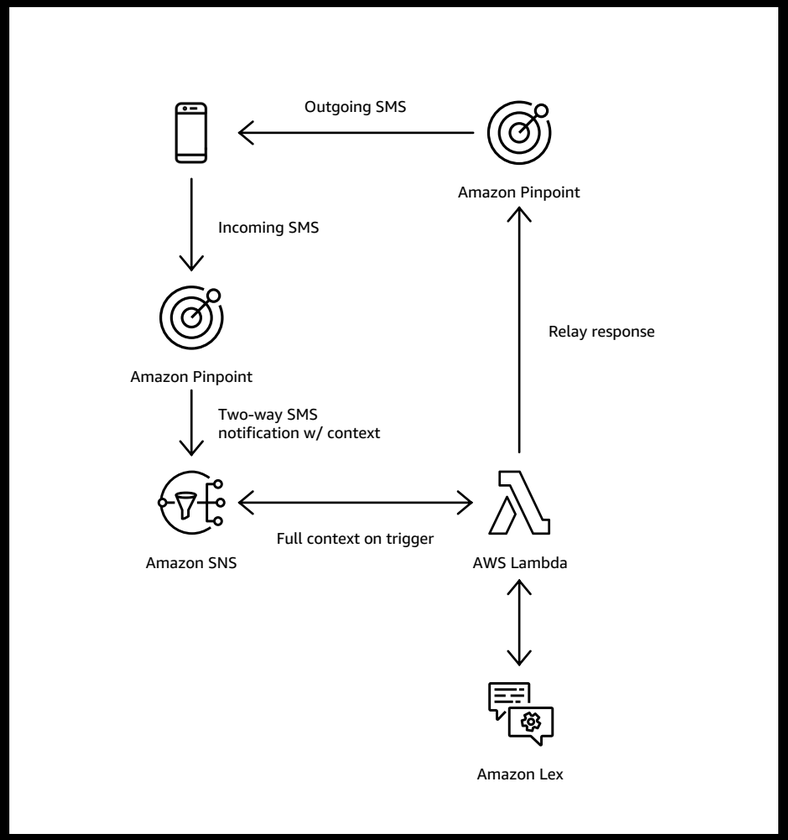
https://amzn.to/31mYJcG



Solution to build Amazon Connect-based triage bot

Building clinically-validated conversational agents to address novel coronavirus

https://amzn.to/3o9JSw0



Blogpost explaining how to build SMS-based chatbots

Create an SMS chatbot with Amazon Pinpoint and Lex

https://amzn.to/31mPLwe

“Customers around the world have leveraged the cloud to scale up services and stand up responses to COVID-19. We joined the New York City COVID-19 Rapid Response Coalition to develop a conversational agent to enable at-risk and elderly New Yorkers to receive accurate, timely information about medical and other important needs.”

Jeff Bezos
Founder and CEO of Amazon
April 16, 2020



Source: https://blog.aboutamazon.com/company-news/2019-letter-to-shareholders

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Healthcare sessions at re:Invent 2020

ID	TITLE
HLC201	Healthcare executive outlook: Accelerating transformation
HLC202	Making healthcare more personal with MetroPlus Health
HLC203	Securing protected health information and high-risk datasets
HLC204	Accelerating the transition to telehealth with AWS
WPS202	Transform research environments with Service Workbench on AWS
WPS209	Reinventing medical imaging with machine learning on AWS
WPS211	An introduction to healthcare interoperability and FHIR Works on AWS
WPS304	Achieving healthcare interoperability with FHIR Works on AWS
AIM303	Using AI to automate clinical workflows
AIM310	Intelligent document processing for the insurance industry
MKT206	Simplify healthcare compliance with third-party solutions
GPS211	AWS Partners driving innovation amidst COVID-19



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