

Breakout Session 3: Track B

Migrating ASA24 Automated Self-Administered 24-hour Dietary Assessment Tool

Dr. Kirsten Herrick

Program Director; System Owner and COR for ASA24, NCI

Mr. Tom Nicholson

Senior Developer, Westat/NCI

Migrating



ASA24

Automated Self-Administered 24-Hour Dietary Assessment Tool

<https://epi.grants.cancer.gov/asa24>



January 2024



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Automated Self-Administered 24-Hour Dietary Assessment Tool

Agenda

- Overview of ASA24
- ASA24 architecture
- Lessons learned
- Future plans
- Discussion



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Automated Self-Administered 24-Hour Dietary Assessment Tool

What is ASA24?

- Fully automated, web-based, self-administered 24-hour dietary assessment tool
 - Web-based system for probing, coding, and calculation of intakes
 - Runs on desktops & mobile devices
- Developed by NCI (Westat as contractor)
 - Format based on Automated Multiple-Pass Method (AMPM) interviewer-administered recalls collected in the National Health and Nutrition Examination Survey by the U.S. Centers for Disease Control and Prevention
- Publicly available at no cost to researchers, clinicians, and educators
 - Other research-ready systems are expensive
- Allows collection of multiple recalls (retrospective) or records (prospective) in large-scale nutrition research



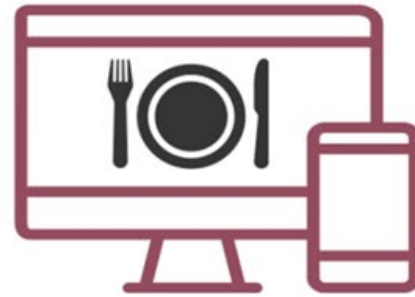
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ASA24 System



Researchers register a study



Respondents complete dietary recalls or records



Researchers monitor responses and obtain data analysis



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ASA24 Respondent Site

ASA24 Show Tips A A Finish Later

Report Meals and Snacks **Find Food and Drinks** **Add Details** **Review**

Find Foods & Drinks

Breakfast, Tuesday, November 30th

Search:

Filter your results:

Breads, Cereals, Bakery products & Salty snacks:

- Bread, Muffin, Roll, Tortilla (1)
- Cracker, Chip, Popcorn (1)

Main dishes & Entrees:

22 Results:

[Add a recipe »](#)

- Bagel
- Bagel Bites
- Bagel chips
- Dunkin' Donuts Egg, Sausage and Cheese on Bagel
- McDonald's Steak, Egg and Cheese on Bagel

What I ate and drank for Breakfast, Tuesday 12:00am

Coffee		
Banana		



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ASA24 Respondent Site

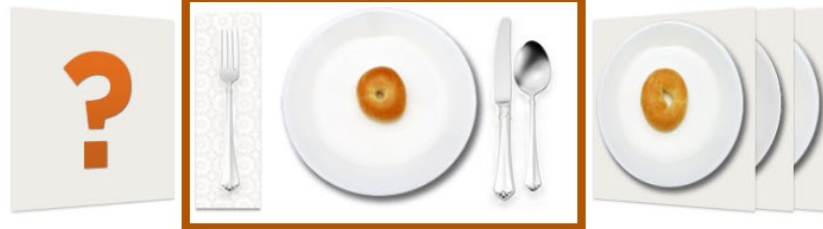
Bagel: Did it have any fruit or vegetable?

Select an option

Bagel: What kind was it?

White

Bagel: What size was it? ⓘ



Don't know

Miniature

Small

Medium

Large



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ASA24 Respondent Site

Bagel: How much did you actually eat? ⓘ



Don't know	Less than 1/4 bagel	1/4 bagel	1/2 bagel	3/4 bagel	1 bagel	More than 1 bagel
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Bagel: Did you add anything to your Bagel that you haven't already reported?

- Yes
- Nothing Added
- Don't know



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Since 2006 ASA24 has . . .

- Collected ~1 million days of dietary data
- Used for > 800 peer-reviewed publications
- Supported research, teaching, and clinical applications
- Supported grantees from 19 IOCs at NIH
 - NIDDK, NHLBI, NIA, NICHD & NCI are the most common



ASA24 into the future . . .

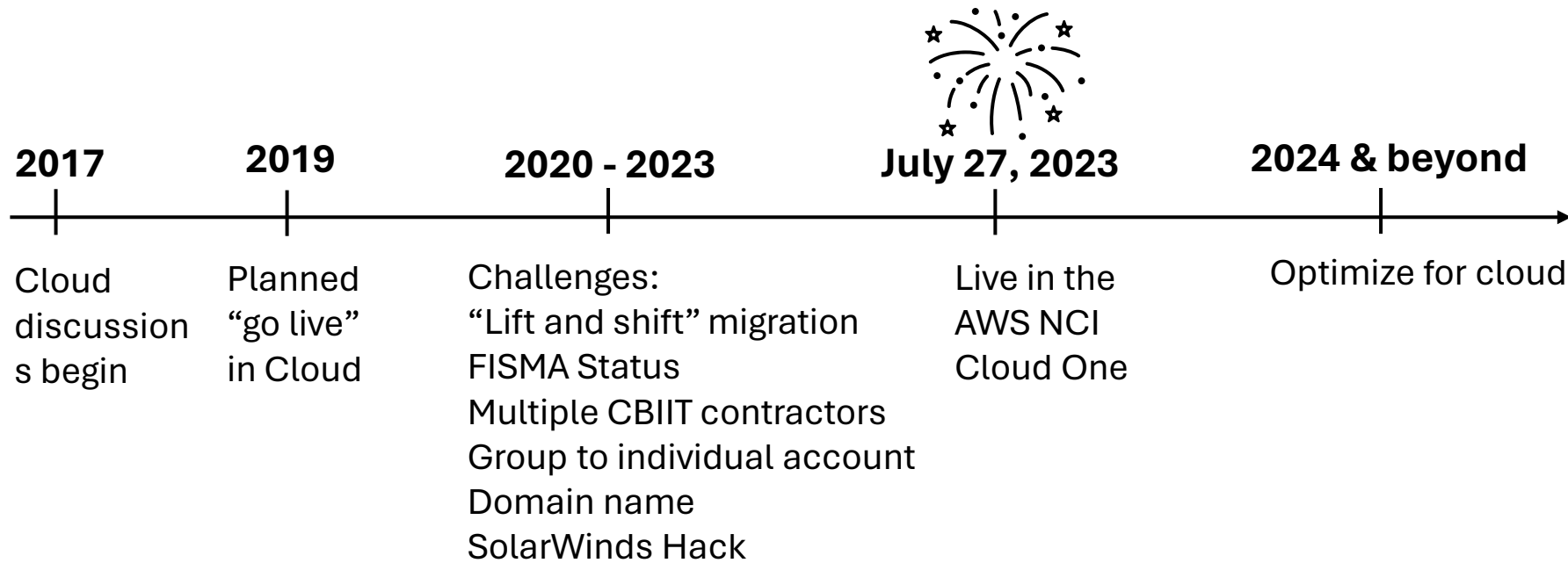
- Integral to 2020-2030 Strategic Plan for NIH Nutrition Research
- Essential to Nutrition for Precision Health (\$187 Million), powered by the All of Us program



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ASA24 Timeline

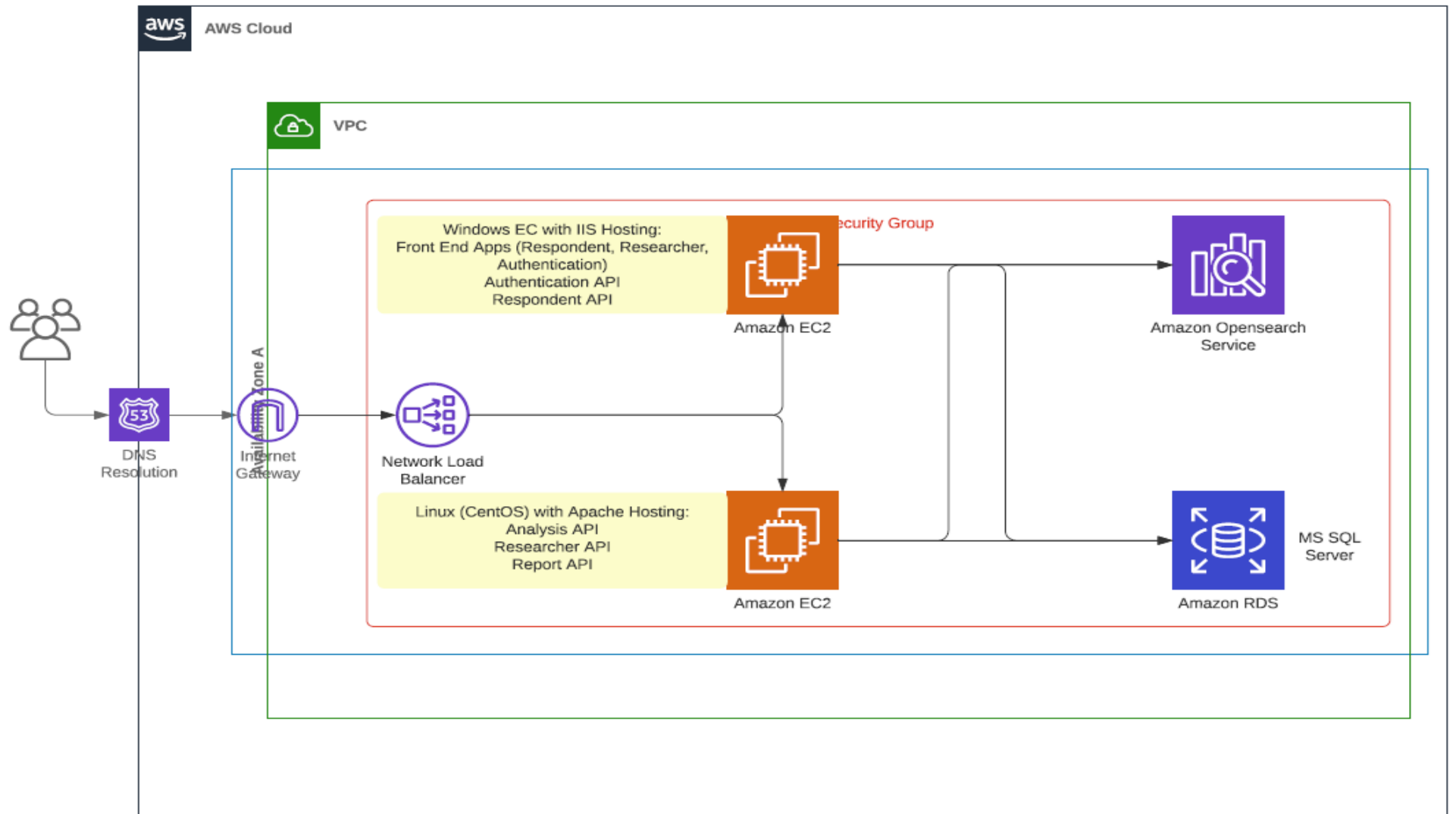




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ASA24 Architecture





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Data Structures

- SQL Server
 - Data types
 - User management
 - Question pathways
 - Participant responses
 - Study configurations
 - Stored Procedures to support Respondent UI exchanges
 - Size: 2TB
- Response data transformed for analysis
- Analysis reference data
- Search
- Reporting tables
- Memory caching
- OpenSearch
 - Data types



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Cloud Optimization & Cost Mitigation Strategies

- Cloud Services
 - Providing cost transparency (e.g. cost alerts)
 - Utilize reserved instances instead of on-demand
 - Review scheduled uptime for non-production tiers
- Application Changes
 - Optimizing RDS usage to minimize storage space
 - Archiving "older" data using other storage mechanisms (S3)
 - Containerize the application components



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Lessons Learned

Challenges

- Costs
 - Early adopter
 - Lift & shift or re-factoring
 - Delays
- Communication – ticketing system

Successes

- Table topic exercises/documentation
- Load testing



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