MICHIGAN STATE
UNIVERSITY

Cloud Security Event Processing and Alerting Platform

The Capstone Experience

Team Rook

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From Students…
…to Professionals

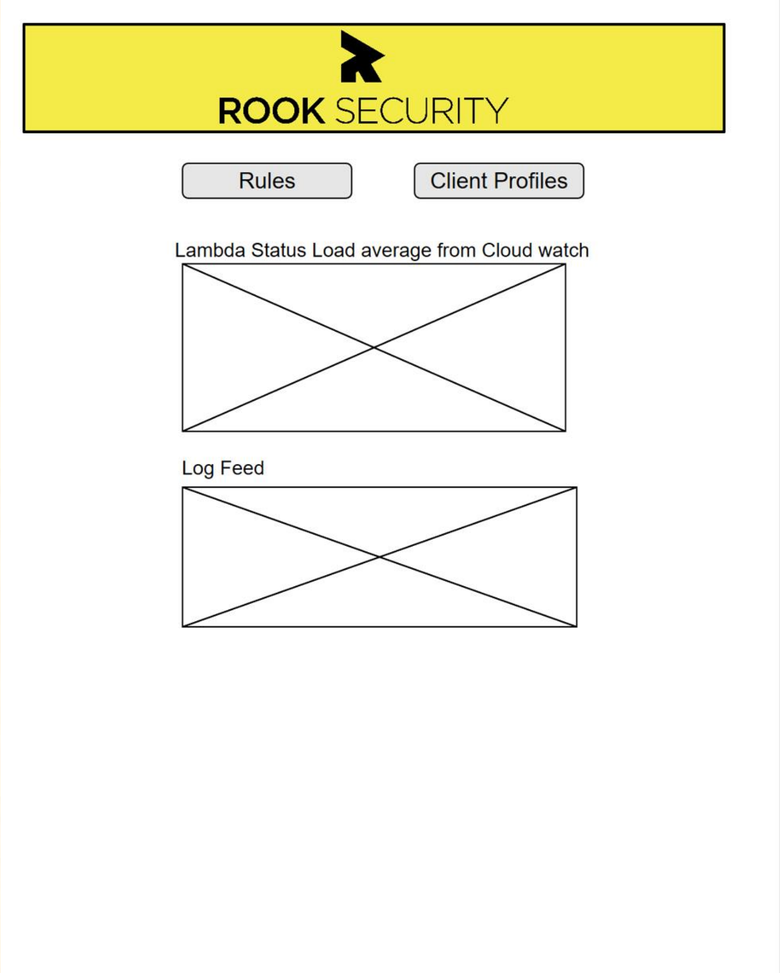
Functional Specifications

- Maintain features from current engines
- Manage and enable rules from web interface
- Manage addition of clients from web interface
  - Lambdas automatically handle new data
- Stretch: Allow testing of new rules

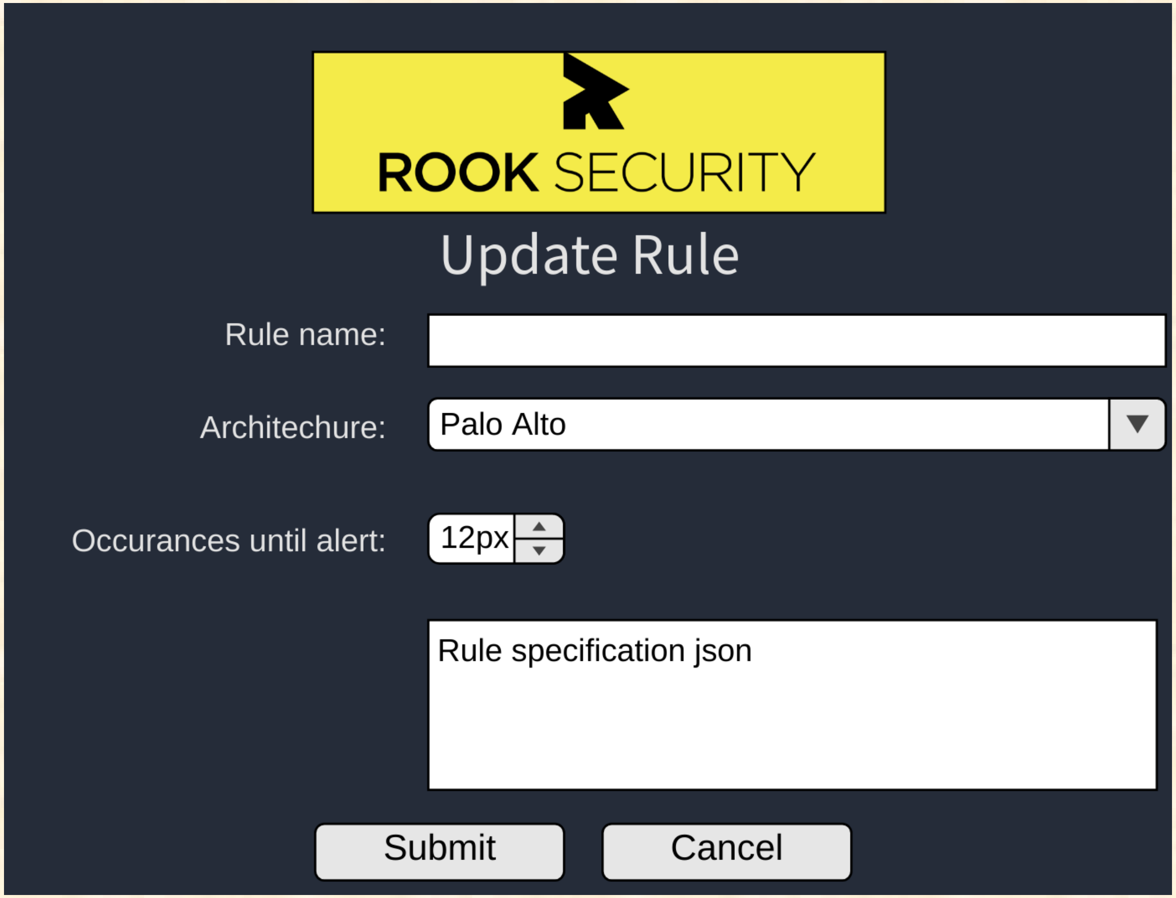
Design Specifications

- Security Analysts arrive at the Dashboard view for status
- Able to add and edit rules (CRUD)
- Can view client profiles
  - See all current rules for clients
- View performance of rule prospect.

Screen Mockup: Status/Landing Page



Screen Mockup: Update Rule



Update Rule

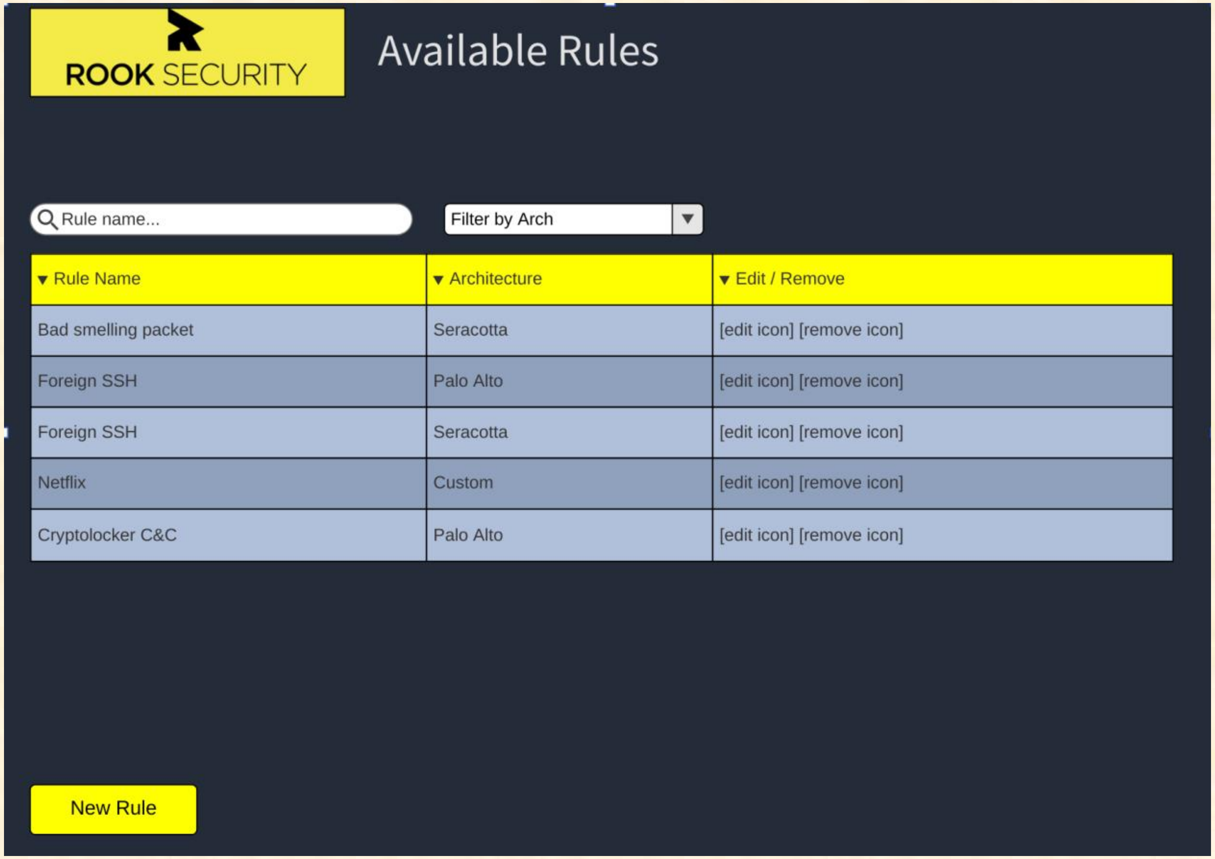
Rule name:

Architechure: Palo Alto

Occurances until alert: 12px

Rule specification json

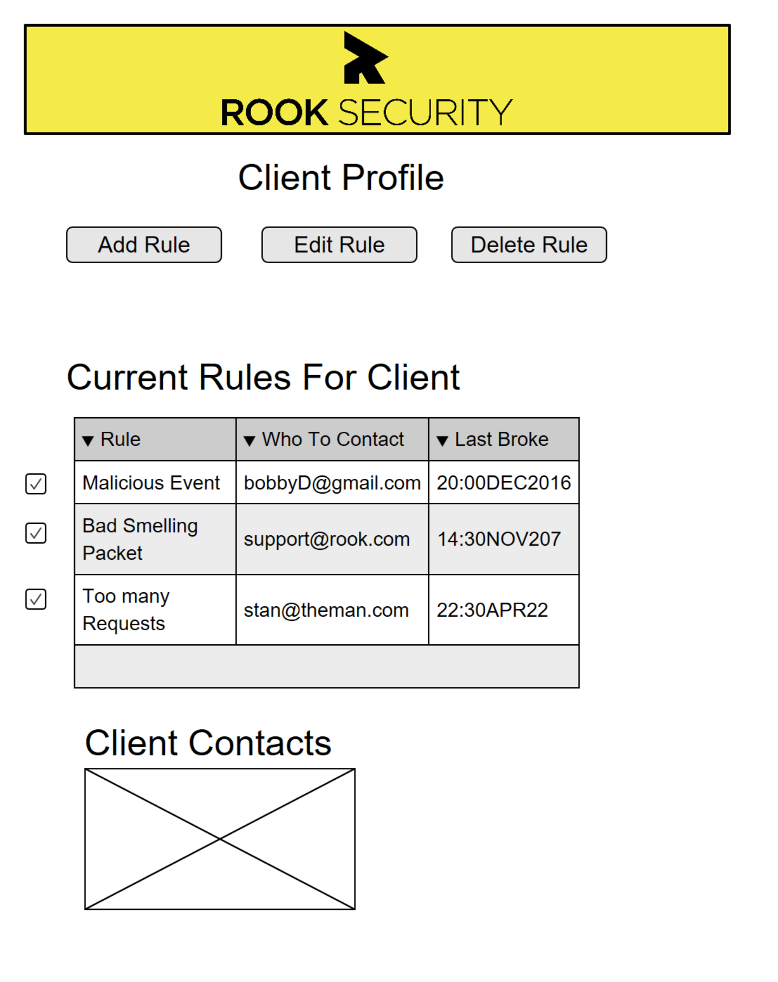
Screen Mockup: Rule List View



Available Rules

▼ Rule Name	▼ Architecture	▼ Edit / Remove
Bad smelling packet	Seracotta	[edit icon] [remove icon]
Foreign SSH	Palo Alto	[edit icon] [remove icon]
Foreign SSH	Seracotta	[edit icon] [remove icon]
Netflix	Custom	[edit icon] [remove icon]
Cryptolocker C&C	Palo Alto	[edit icon] [remove icon]

Screen Mockup: Client Profiles



Client Profile

Current Rules For Client

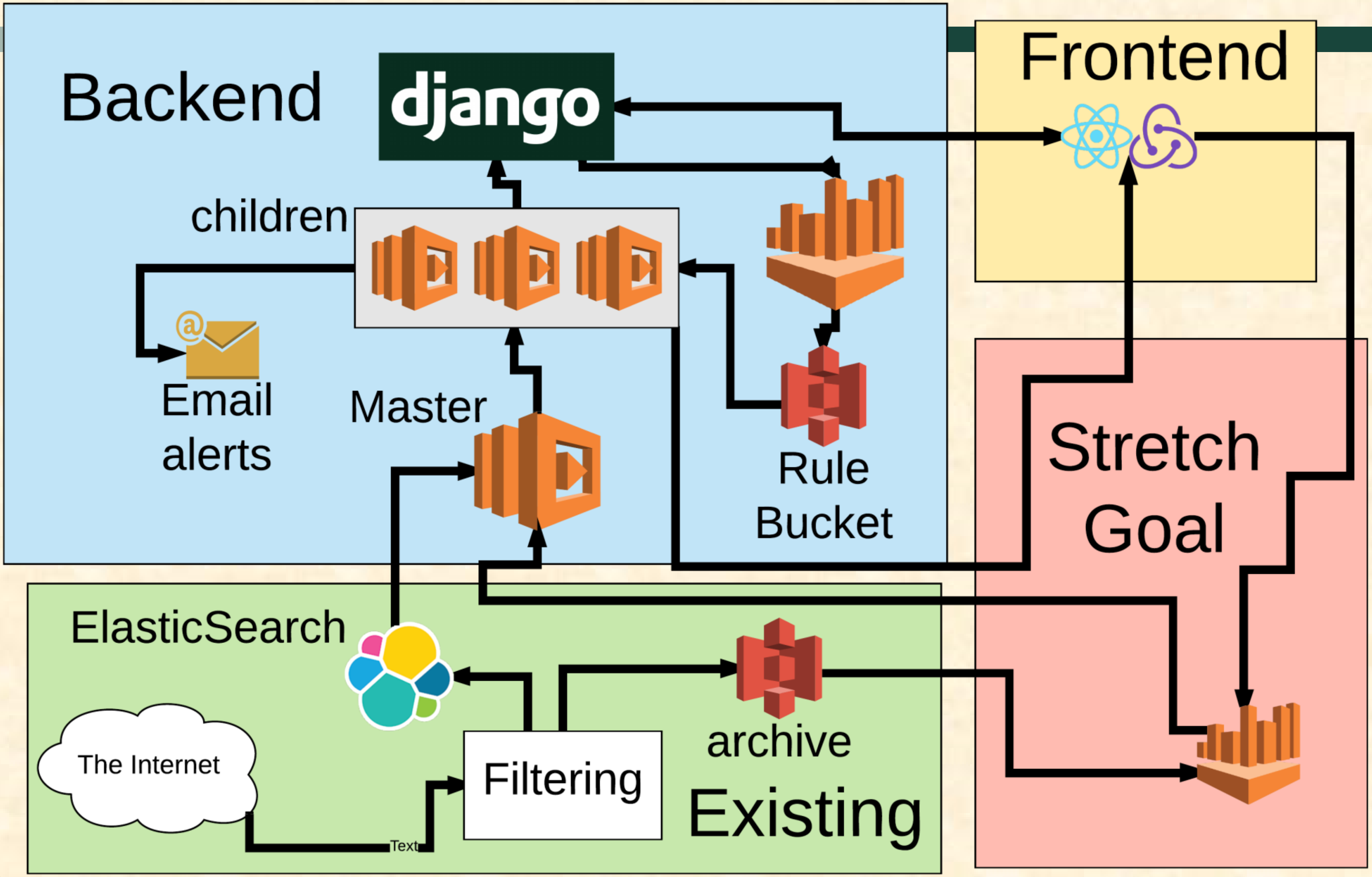
	▼ Rule	▼ Who To Contact	▼ Last Broke
☑	Malicious Event	bobbyD@gmail.com	20:00DEC2016
☑	Bad Smelling Packet	support@rook.com	14:30NOV207
☑	Too many Requests	stan@theman.com	22:30APR22

Client Contacts

Technical Specifications

- Master Lambda function
  - Pull new entries from ElasticSearch
  - Segregate by client and firewall architecture
  - Pass data to spawned child function
- Child Lambda function
  - Process client- and arch- specific events
  - Create tickets and/or send emails
- Python Django API
  - CRuD for the rules

System Architecture



Backend

django

children

Email alerts

Master

Rule Bucket

Frontend

Stretch Goal

ElasticSearch

The Internet

Text

Filtering

archive

Existing

System Components

- Hardware Platforms
  - AWS Lambda Functions
  - AWS EC2 Django Server
  - AWS EC2 Frontend Server
- Software Platforms / Technologies
  - Python Django
  - AWS Lambda Functions
  - ReactJS/Redux
  - SQLite

Testing

- Testing the Correlation Engine
  - Using sanitized archived data to simulate events
- Testing The Front End
  - Jest testing the React portion of our project
- Prototyping via Rook Personnel
- Django API
  - Postman

Risks

- Lambda Timing Out
  - Potential loss of vision on events
- Cannot currently reach Rook demo backend
  - Difficult to integrate UI when we can’t truly move through the state
- Django server needs access to S3 buckets
  - AWS credentials are sensitive
- Sending emails from engine
  - Not sure what our capabilities will be

Questions?