

MICHIGAN STATE
UNIVERSITY

Project Plan

Identity Based Communication and Content Services

The Capstone Experience

Team MaxCogito

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From Students...
...to Professionals

Functional Specifications

- Companies are largely unaware of the data going through their servers.
- Data regulation legislation:
 - CCPA
 - GDPR
- Our project will analyze and process e-mails:
 - Redact personally identifiable information (PII)
 - Tag messages that do not comply with firm policies
 - Allow companies to create their own custom policies

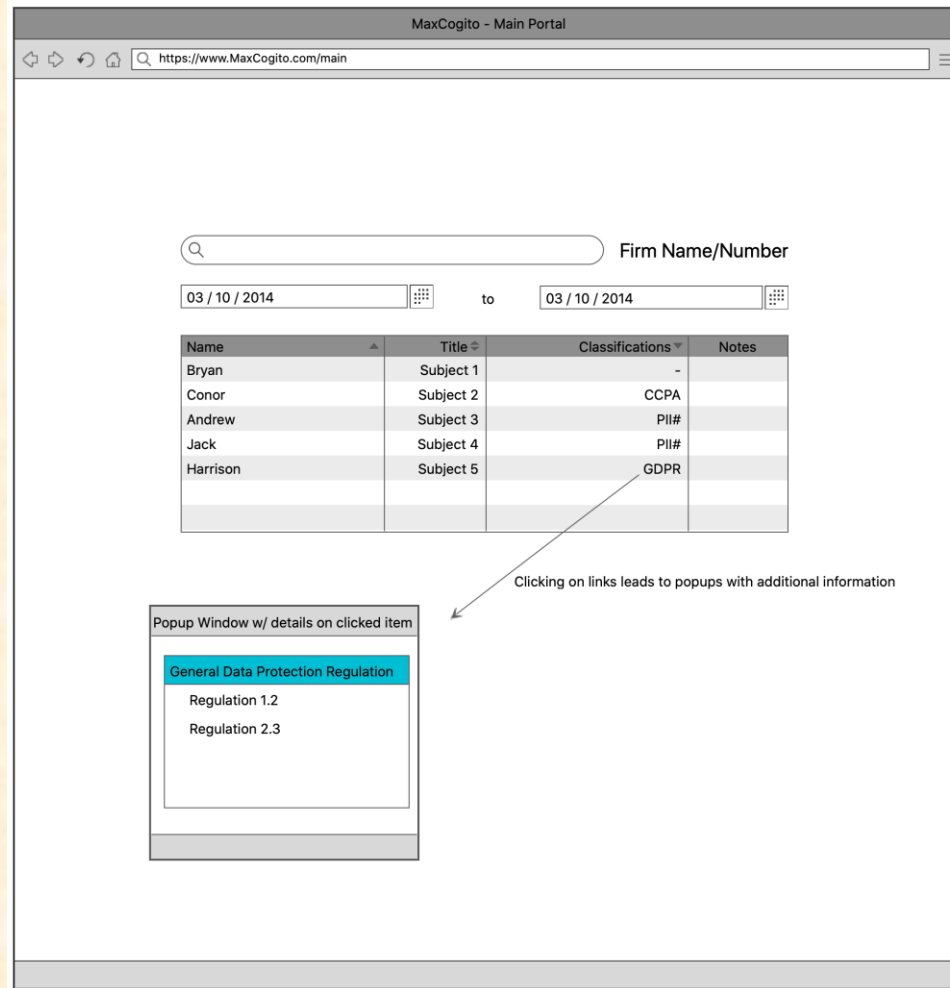


Design Specifications

- Web Portal
 - System-wide admins
 - Handle administrative tasks involving firms (e.g., create, delete, etc.)
 - Firm admins
 - Manage users within their firm
 - Assign compliance offers
 - Compliance officers
 - Manage policy domains, policies, regexes, etc. within a firm
 - Query firm data
 - ❖ E.g., Show messages from last week with GDPR violations



Screen Mockup: Main Portal



Screen Mockup: System Admin

MaxCogito - System Portal

https://www.MaxCogito.com/system

Search by Name / ID

Add Firm Remove Firm Manage Firm Options

Name	ID	Users	Option	Option	Option	Notes	Date Added	Last Accessed	Records
Firm1	A34324	23324	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Under Review	7/4/19	7/4/19	21324
Firm2	C23432	5675	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		10/11/19	2/4/20	23
Firm3	B23452	345325	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Needs AACA search	3/1/20	3/2/20	123563



Screen Mockup: Firm Admin

MaxCogito - Firms Portal

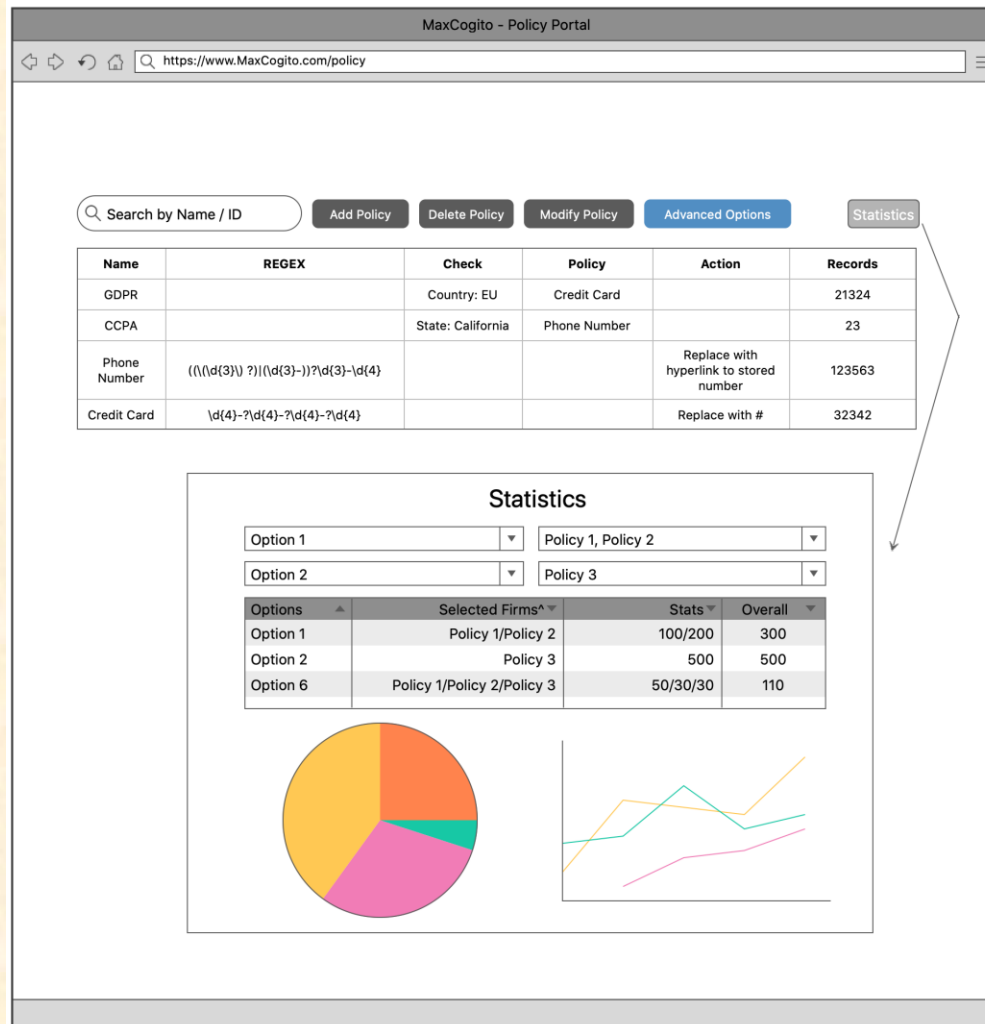
https://www.MaxCogito.com/firms

Search by Name / ID Add User Delete User Modify User Options

Name	ID	Access Permissions	Option	Notes	Date Added	Last Accessed	E-mail
User1	A34324	Sitewide Admin	<input type="checkbox"/>	Contract not yet renewed	7/4/19	7/4/19	User1@Firm.com
User2	C23432	Firm Admin	<input checked="" type="checkbox"/>		10/11/19	2/4/20	User2@Firm.com
User3	B23452	Compliance Officer	<input checked="" type="checkbox"/>	Requested Admin Permissions	3/1/20	3/2/20	User3@Firm.com



Screen Mockup: Policies

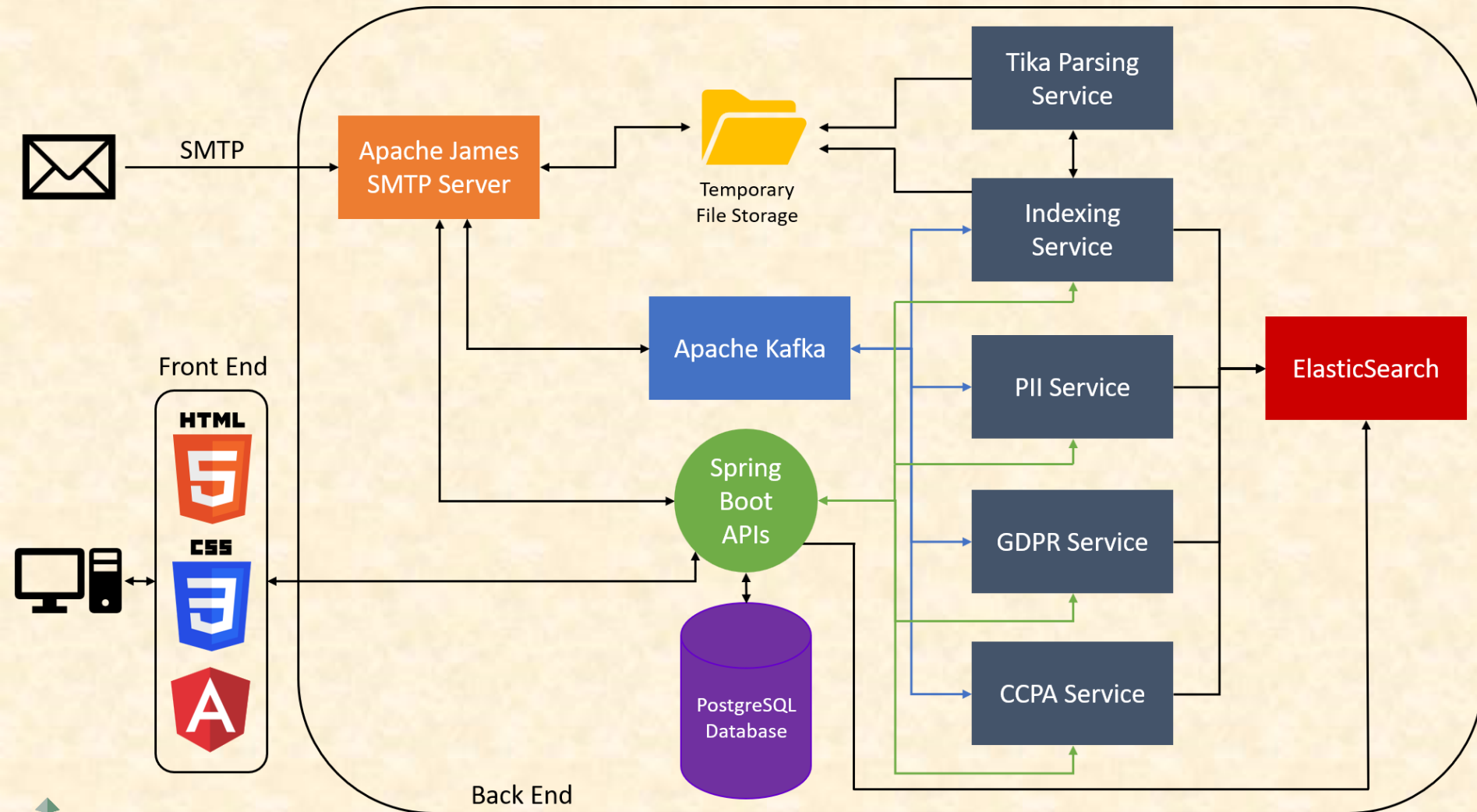


Technical Specifications

- Web Portal
 - Angular SPA
- Cloud Microservices
 - Email handling
 - Apache James
 - RESTful APIs
 - Spring Boot + PostgreSQL integration
 - Spring Cloud Gateway + Load Balancer
 - Policy processing
 - Kafka consumers
 - Indexing
 - Elasticsearch
- Security
 - JWT auth tokens with roles embedded as claims



System Architecture



System Components

- Hardware Platforms
 - Amazon Web Services (AWS) EC2 (CentOS)
- Software Platforms / Technologies
 - Front end
 - HTML5 & CSS
 - Angular
 - TypeScript
 - Back end
 - Java 8
 - Spring Boot
 - PostgreSQL
 - Apache James
 - Apache Kafka
 - Elasticsearch

Risks

Integration of Systems

- Compatibility issues when integrating systems (developed in parallel)
- Early attempts to configure communication between our services

Deployment

- AWS deployment of microservices can be complex
- Research and early attempts to incorporate our services with the cloud

Accuracy

- Impossible to know if we will cover all expressions
- Compliance officers will be able to add their own REGEX policies

Testing

- Sufficient testing will require mocking our APIs and a large set of emails
- Use of Mockito & JUnit, production of email generator, and supplementation of personal emails

Security

- Ensure that API end points are secure
- Make sure administration roles are configured properly



Questions?

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