
AWS
re:Invent
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ENT216

How NextGen Healthcare uses AWS to deliver better services

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Agenda

Context

Approach

Journey to AWS

Foundations built/Lessons learned

What’s next

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At NextGen Healthcare we Believe in Better

NextGen Healthcare is a leading provider of innovative healthcare technology solutions, on a mission to improve the lives of those who practice medicine and their patients

We believe in better healthcare outcomes for all, patients and providers alike

We help clinicians provide **better** care

We help them run their businesses **better**

We make the experience of healthcare **better**



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Application landscape

BUILDING A DIFFERENTIATED OFFERING FOR OUR CLIENTS

Enterprise



Clinical care solutions
NextGen Enterprise EHR

Financial solutions
NextGen Enterprise PM

Patient engagement solutions
NextGen Enterprise PM

Office



Integrated clinical care and financial solutions
NextGen Office

Insights

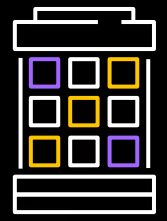


Interoperability, data analytics, value-based care
- Mirth Connect by NextGen Healthcare
- NextGen Share
- NextGen Health Data Hub
- NextGen Population Health Solutions

Professional services/Client experience

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Technology landscape



Programming languages

Microsoft .NET

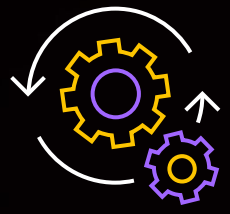
Java



Javascript



Python



Data stores

Microsoft SQL Server

Oracle

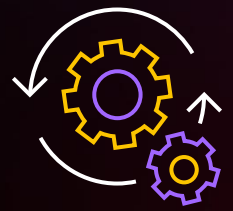




Redshift

MySQL

OpenSearch

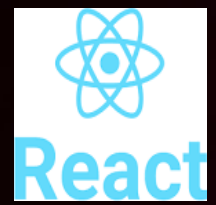


Frameworks

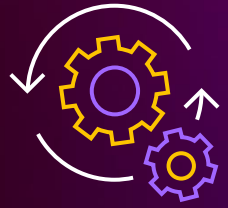
Microsoft .NET

Java J2EE









DevOps









CloudFormation

Terraform

Puppet

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Challenges and goals

Challenges

Agility

Operational burden

Availability/Reliability

Staffing for unique skills

Capacity and growth

Goals

Demystify legacy application infrastructure and configuration

Remove single points of failure

Standardization and economies of scale

Compliance/Security

Cost management

Development of existing staff

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Our journey

2010

Initial AWS Adoption

2015

AWS as a primary platform

2017

Account landing zone

2018

All in with AWS

2022

13 Data centers closed 3 remaining

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Business drivers for migrating to the cloud

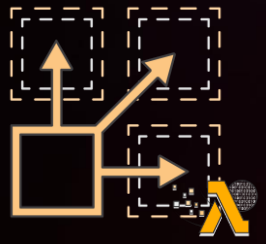


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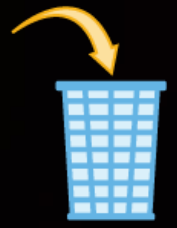
Migration paths: The 6 Rs of Migration



Retain



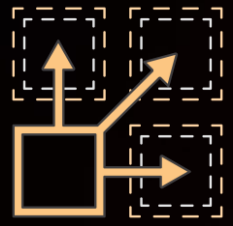
Replatform



Retire



Refactor



Rehost



Rearchitect
(Replace)

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3 keys to migration and modernization success

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Make a plan for your application portfolio



Build an operating model and a service management framework



Iterate, learn, repeat!

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Make a plan for your application portfolio



Build an operating model and a service management framework



Iterate, learn, repeat!

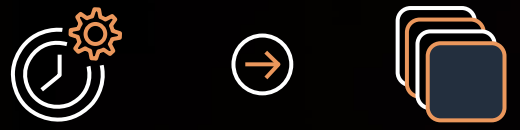
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Make a plan for your application portfolio

FOCUS ON YOUR DIFFERENTIATORS

Reduce the size of your estate



Retire

10%+



SaaS

20%

Move to AWS



Lift and shift

\+



50%



Replatform

Transform on AWS



Modernize

Serverless/Containers/Microservices



20%

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Make a plan for your application portfolio



Build an operating model and a service management framework



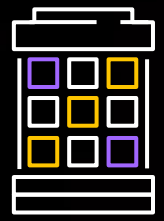
Iterate, learn, repeat!

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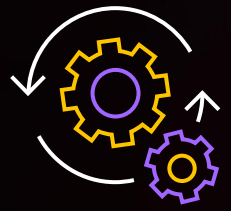
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Select one or more operating models for your cloud



Self-managed

- AWS Service Catalog
- AWS Systems Manager
- AWS management tools and services
  - Modeling and provisioning
  - Automation and operations
  - Monitoring and logging
- Third-party tools



AWS Managed Services (AMS)

- Out-of-the-box cloud operating model
- Addresses security and compliance operations
- Managed AWS landing zone
- Self-service automation
- 24/7 worldwide AWS operations support engineers
- “Month-to-month” terms



Partner-managed

- 100+ Managed Service Provider Partners (MSPs)
- Certification program
- Third-party audit
- Full lifecycle services

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Identify technical/IT domains to modernize for better automation and governance



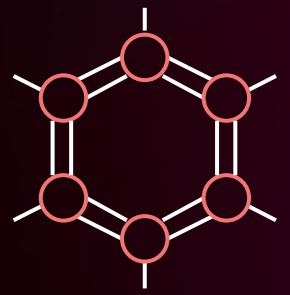
Virtual machine formats, OS standards & patch management



Security, identity, and network



Storage and database tools



Monitoring and control mechanisms



Training and learning new skill sets & tools

AWS removes barriers for faster cloud adoption

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Make a plan for your application portfolio



Build an operating model and a service management framework



Iterate, learn, repeat!

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Migration journey – Phase 1

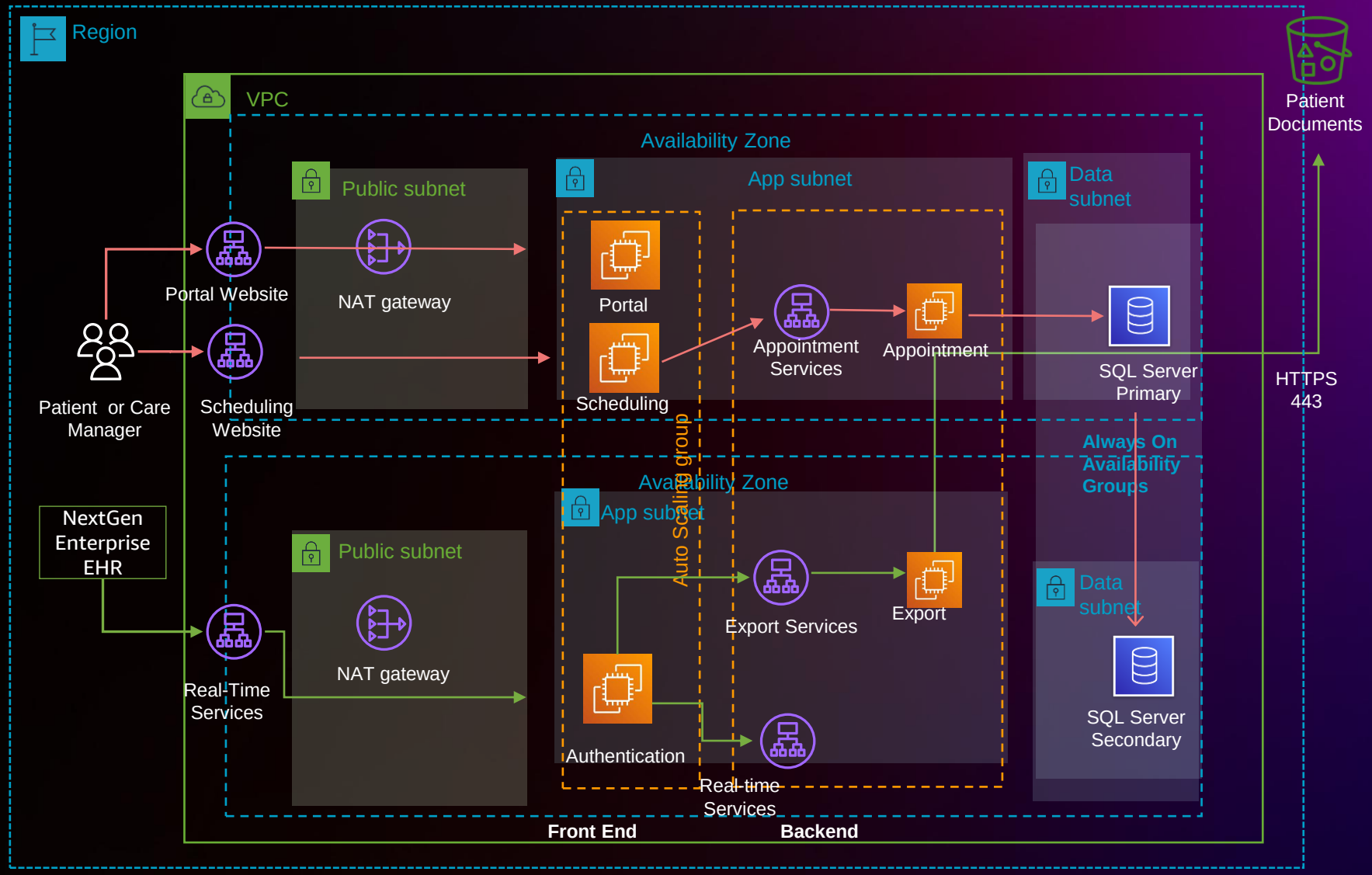
Patient Portal (2017)

Objective
- Reliability
- Capacity

Methodology
- Rehost++

Architecture & Tooling
- Automation

Results
- Stabilization



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Migration journey – Phase 2

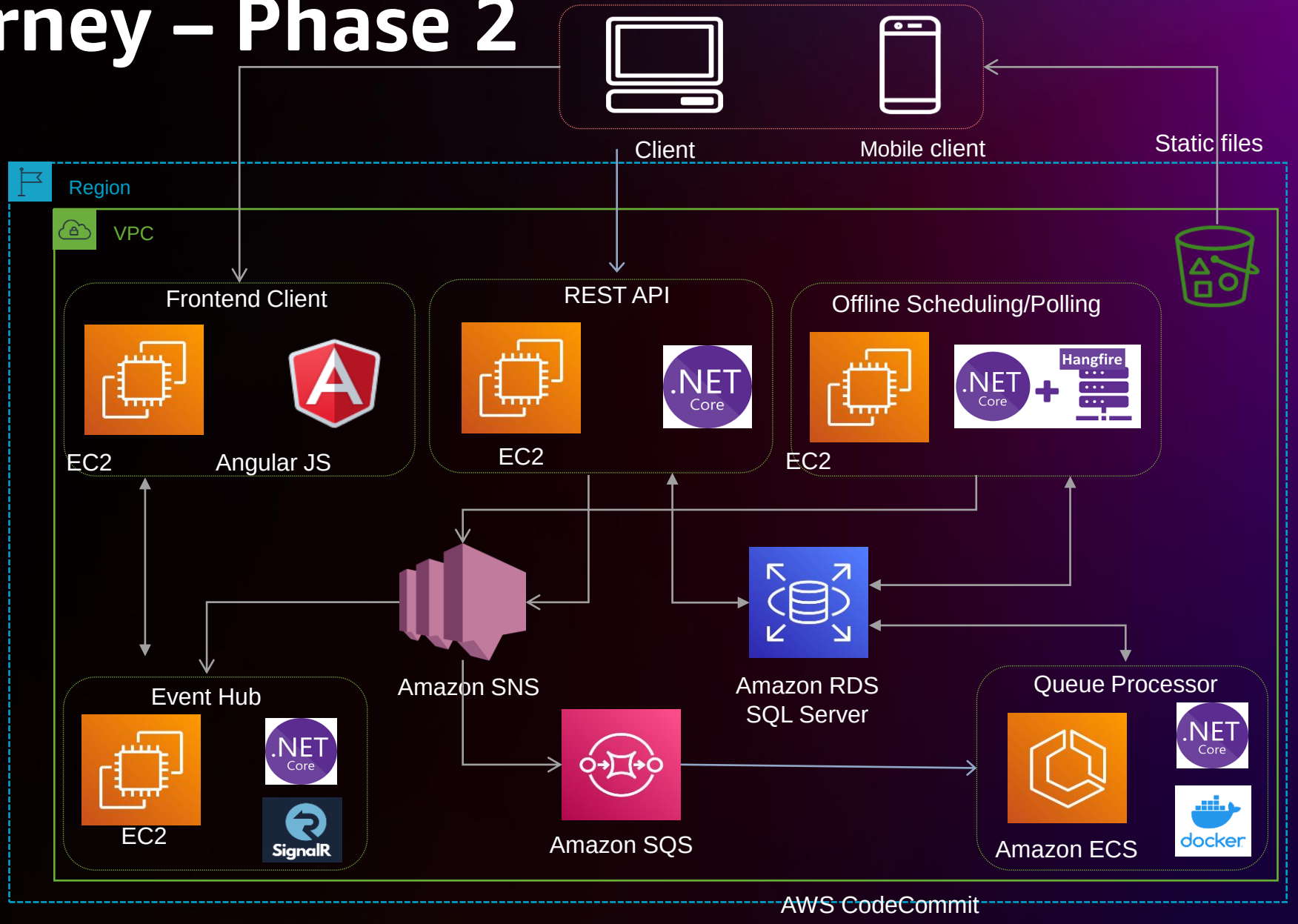
Virtual Visits (2020)

Objective
- Exponential growth
- Reliability

Methodology
- Replatform

Architecture & Tooling
- Automation
- Managed services

Results
- Supported 140x growth
- Seamless deployments



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Migration journey – Phase 3

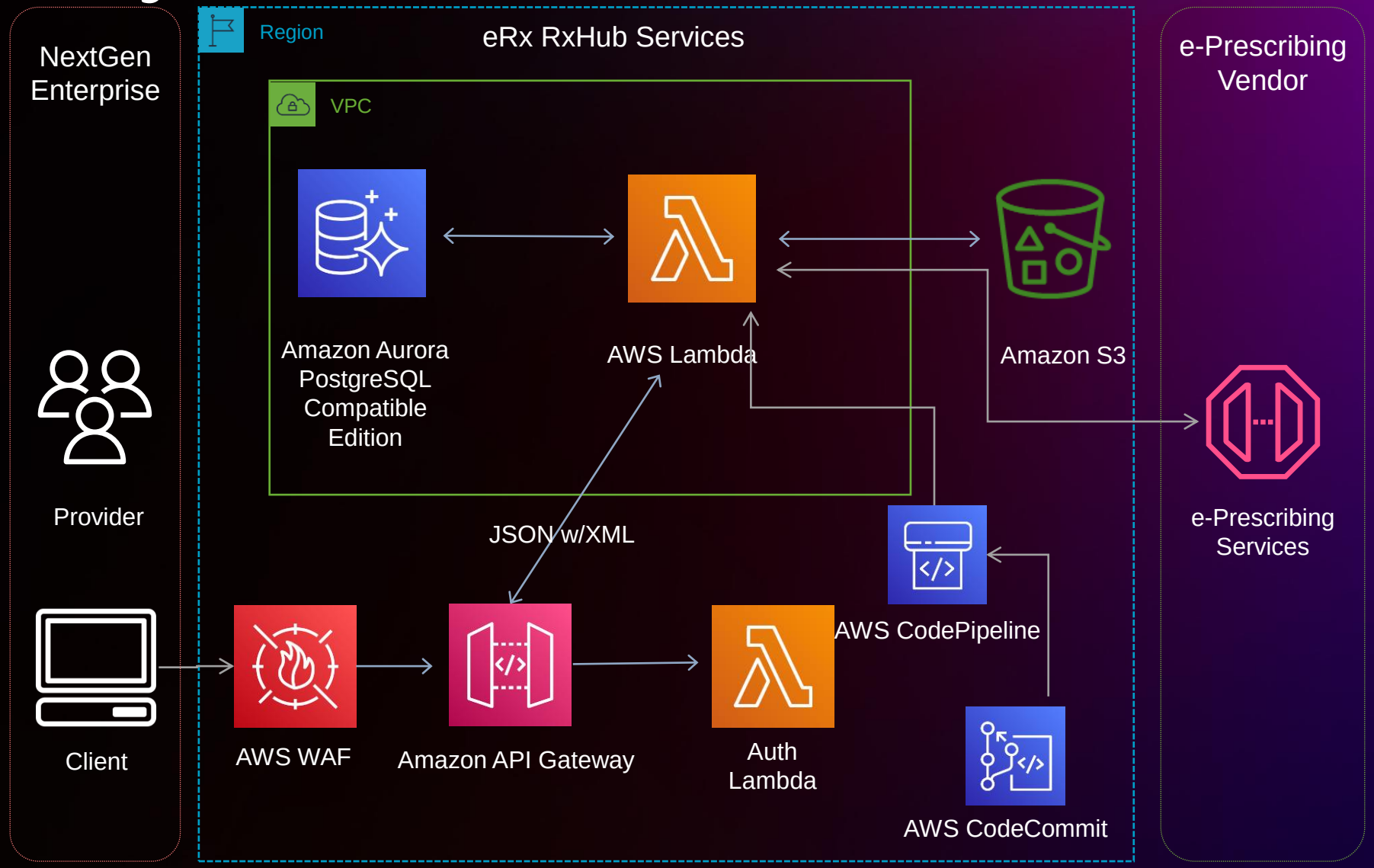
RxHub API (2022)

Objective
- Data center closure
- Operational burden

Methodology
- Refactor

Architecture & Tooling
- .NET Core
- AWS Managed services

Results
- Simplification
- Constant reliability



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Regulatory environment

Laws & Regulations
• HIPAA/HITECH
• 21st Century Cures

Key Data
• Protected health information (PHI)
• Personally Identifiable Information (PII)

Our approach

- Assume everything is sensitive
- Use BAA approved services
- Go-live review and audit trail
- Third-party assurance

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Security & guardrails

Access	Dedicated AWS Account		Okta with IAM Identity Center		
Landing Zone	Custom Landing Zone	Custom Vending Machine	Control Tower		Account Factory
Detective Guardrails	Account Config Rules	Manual Prowler Scans	Security Hub Controls	Organization Config Rules	Continuous Prowler Scans
	Real-time Alerts		Run-books		Automatic Remediation
Infrastructure Code	Reusable Terraform Modules and Reference Architectures				
Preventative Guardrails	Service Control Policies		Static Code Analysis in Pipelines		Static Code Analysis in Pull Requests
Reviews	Manual Checklist		Security Hub with QuickSight		

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What’s next?



Cost



Data



Operations



Self-Service

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Summary

Key takeaways

Account structure & guardrails

Reusable tooling and components

Prioritize pipelines

Move to managed services

Training & upskilling

Key benefits

Achieved 2x reliability and feature delivery

Empower product teams without excessive friction

Iterative enhancement to migration capabilities

Automated security and compliance

Reduced operational burden

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Thank you!

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