

The background features a vibrant blue gradient with subtle, wavy horizontal lines. A diagonal band of lighter blue and green runs from the top right towards the center. The bottom right corner is dominated by a large, flowing shape in shades of purple, pink, and orange, resembling a stylized wave or a modern architectural element.

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Adoption of AWS for localizing data

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Agenda

- Data localization need
- Barclays history
- Use case
- Migration approach and execution
- Challenges on the way and mitigation
- Benefits, road map and way ahead
- Enable security and compliance at scale
- Call to action

Security and compliance at scale

Before...

Move fast **OR** Stay secure

Now...

Move fast **AND** Stay secure

Data localization need

- The payment ecosystem in India has expanded considerably. All payment providers (Banks, NBFCs) need to store data pertaining to domestic payments in India
- Data Localization requirements are creating the need to be able to scale up a data center to meet the local compliance requirements and timelines



Barclays history

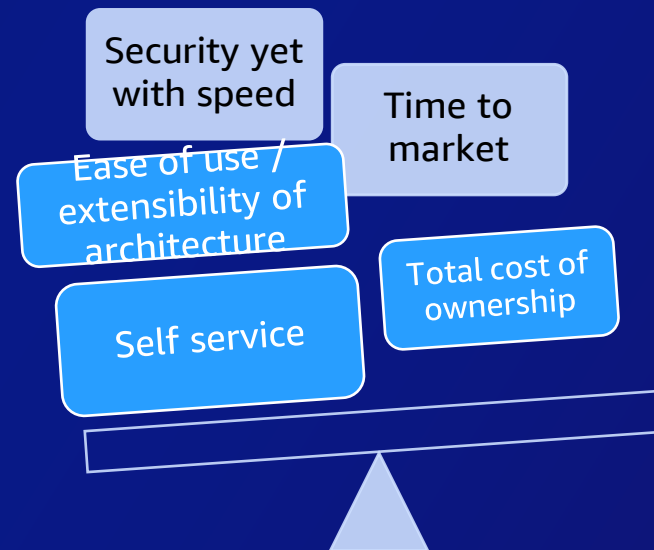
Barclays history

- Barclays is a British universal bank.
- We are diversified by business, by different types of customer and client, and geography.
- Our businesses include consumer banking and payments operations around the world, as well as a top-tier, full service, global corporate and investment bank
- all of which are supported by our service company which provides technology, operations and functional services across the Group
- For further information about Barclays, please visit our website www.barclays.com

Current use case

Use case: To host services in India

- Barclays INDIA www.barclays.in was hosted on premise and had to be brought to INDIA
- We evaluated augmenting infra at our on-premise data center or leverage cloud as extended Data center with hybrid connectivity
- We created a business case with following evaluation parameters:



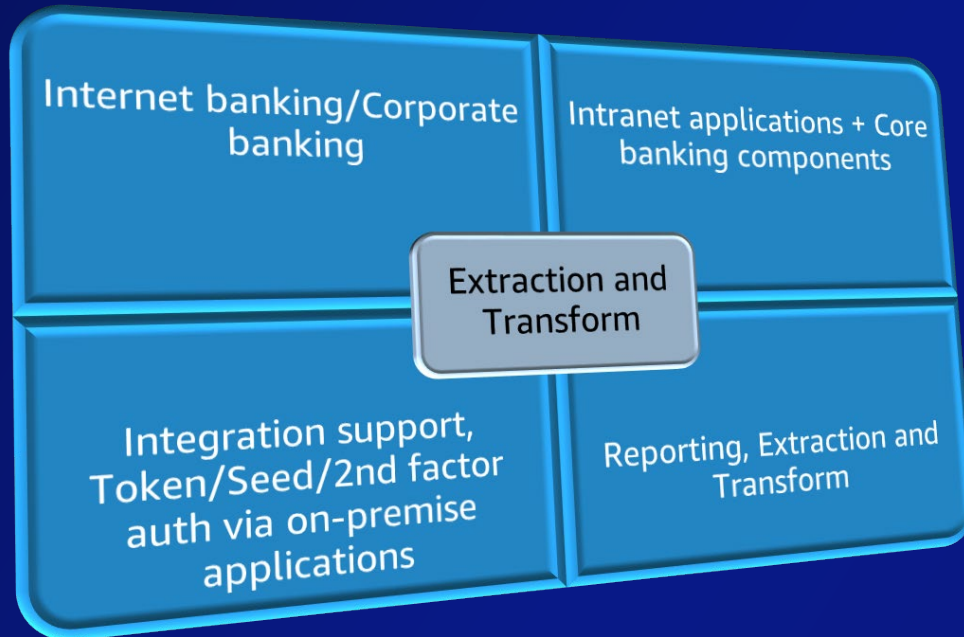
Migration approach and execution

Design considerations

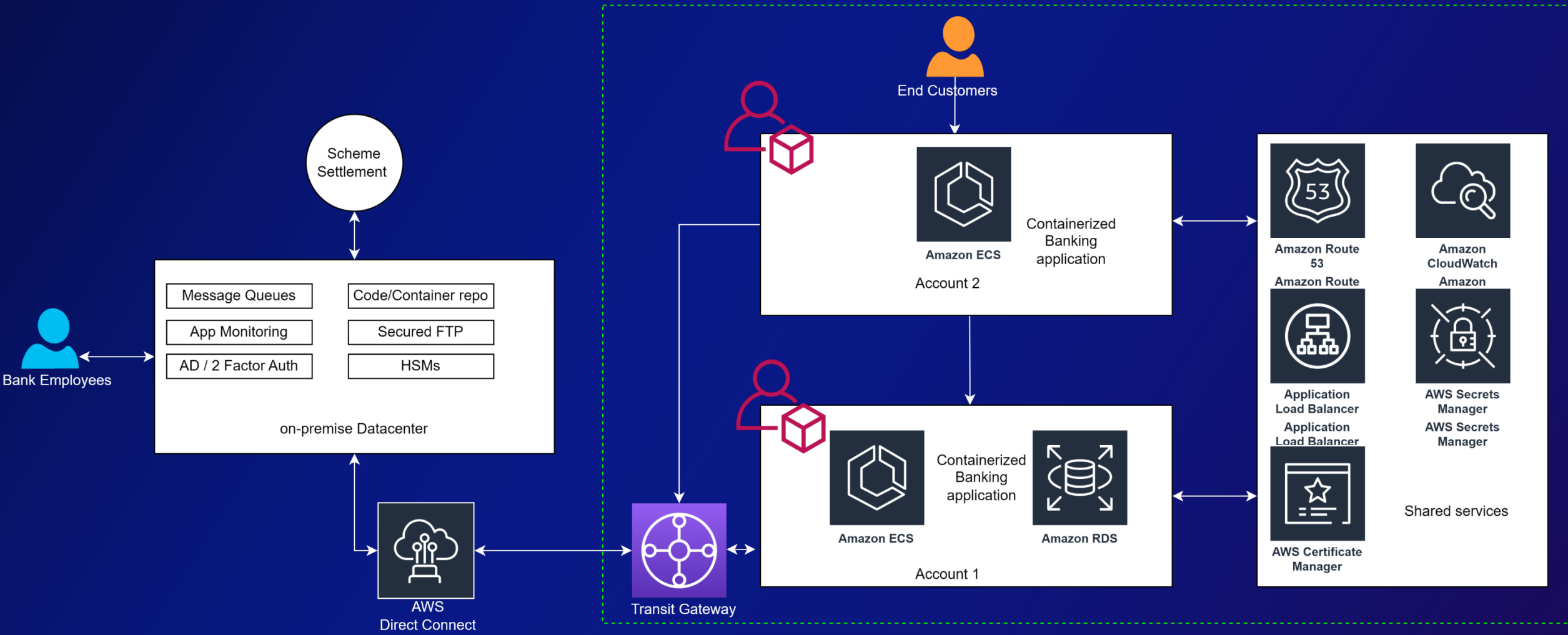
- On-premise and AWS hybrid deployment adoption
- Strong security control developed using bring your own keys
- HSM on-premise
- Data migration approach with minimal downtime
- Availability of application
- Ease of operations for run-the-bank team

High level application landscape and assessment

- We did application assessment for multiple apps and migration feasibility
- We created a hybrid architecture with AWS Mumbai (ap-south-1) region
- Created an Internet Facing yet secured environment and reference architecture patterns (reusable for the organization)
- Stringent guardrails like hardened AMI, auto tearing of infra on SSH or unauthenticated access attempt



High level deployment architecture



Lift and shift vs Modernization – we chose modernization

- Leveraged Goldengate for CDC due to requirement of CLOB support
- We decided to modernize with help of vendor support, for e.g.
 - ✓ Containerization of application and deployment onto ECS
 - ✓ Using Elastic Cache for session persistence
 - ✓ EFS for resiliency
 - ✓ Significant automation in infrastructure and deployment

Challenges on the way and mitigation

Technical challenges faced on the way and mitigation

Challenge	Mitigation
Internet Facing Secure Patterns	created internet facing secured environment, reusable, templated
Data Migration	complex datatypes UDT, LOB, VARRAY etc and we had to migrate as CDC
Multi-account structure made operations difficult	created custom portal with dashboard to watch health of EC2/ECS using instance health, patching , Load balancer, RDS, Secrets rotation, Certificate expiry and rotation etc
Latency	Established resilient connectivity via DirectConnect and TGW. Leveraged AWS backbone / PrivateLink
Multi AZ	Have made it a routine test approach to follow chaos engineering and do the DR drills more frequently and in automated way
RDS Service offerings	While architecting solution on AWS identified few gaps which was collaborated with AWS engineering and suggested solution to address, and now available for wider community

Overall benefits, road map and way ahead

Migration benefits

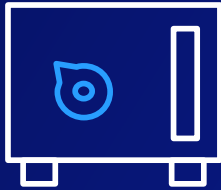
- 20% improved processing capability with almost same infra
- Maintain TCO – test infra down during non-working hours
- Speedy recovery
- Customized monitoring dashboard

Road map and way ahead

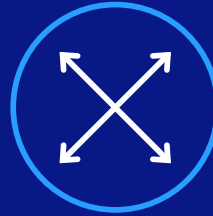
- Planning for multi-region setup extending the hybrid setup
- Automation and optimization

Enable security and compliance at scale

Infrastructure & services to elevate your security



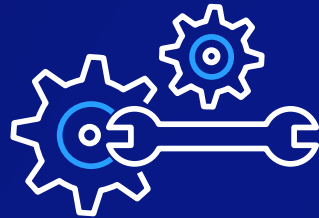
Inherit global security and compliance controls



Scale with superior visibility and control



Highest standards for privacy and data security



Automate & reduce risk with deeply integrated services



Largest ecosystem of security partners and solutions

Inherit global security and compliance controls

- More than 300 security, compliance, and governance services and key features
- All 117 AWS services that store customer data offer the ability to encrypt that data
- AWS also supports 98 security standards and compliance certifications, helping satisfy compliance requirements for virtually every regulatory agency around the globe
- We provide best practices documents, encryption tools and other guidance for application-level security measures
- AWS partners offer hundreds of tools and features to help customers meet their security objectives, ranging from network security, configuration management, access control, and data encryption

Highest standards for privacy and data security



Meet data residency requirements

Choose an AWS Region, and AWS will not replicate it elsewhere unless you choose to do so



Encryption at scale with keys managed by AWS Key Management Service or manage your own encryption keys with AWS CloudHSM using FIPS 140-2 Level 3 validated HSMs



Comply with data privacy laws by controlling who can access content, its lifecycle, and its disposal



Access services and tools that enable you to **build compliant infrastructure** on top of AWS

AWS security, identity, and compliance solutions

AWS CUSTOMERS CAN ACCESS SERVICES THAT STRENGTHEN SECURITY POSTURES IN SIX KEY AREAS:



Identity and access management

- AWS Identity and Access Management (IAM)
- AWS IAM Identity Center (successor to AWS SSO)
- AWS Organizations
- AWS Directory Service
- Amazon Cognito
- AWS Resource Access Manager
- Amazon Verified Permissions (preview)



Detection

- AWS Security Hub
- Amazon GuardDuty
- Amazon Inspector
- Amazon CloudWatch
- AWS Config
- AWS CloudTrail
- VPC Flow Logs
- AWS IoT Device Defender
- Amazon Security Lake (preview)



Network and Application protection

- AWS Firewall Manager
- AWS Network Firewall
- AWS Shield
- AWS WAF
- Amazon VPC
- AWS PrivateLink
- AWS Systems Manager



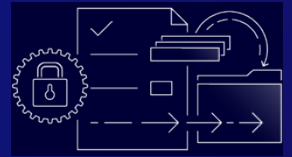
Data protection

- Amazon Macie
- AWS Key Management Service (KMS)
- AWS CloudHSM
- AWS Certificate Manager
- AWS Private Certificate Authority
- AWS Secrets Manager
- AWS VPN
- Server-Side Encryption



Incident response

- Amazon Detective
- Amazon EventBridge
- AWS Config Rules
- AWS Security Hub
- AWS Elastic Disaster Recovery



Compliance

- AWS Artifact
- AWS Audit Manager

Call to action



Financial services customer compliance support



Contractual compliance

- AWS provides customers with contractual terms that enable them to comply with applicable laws and regulations, such as data protection and outsourcing requirements
- During Enterprise Agreement (EA) negotiations, AWS assists customers in mapping their internal control requirements and service provider requirements to our EA terms, which helps customers link their AWS contract to their regulatory obligations



Customer guidance

- AWS hosts Compliance and Security Immersion Days during which customers dive into controls and audit reports, review due diligence questionnaires, and learn about cloud governance, risk, and compliance transformation
- AWS offers Cloud Audit Academy, a learning path designed to provide the education and tools to audit for security in the cloud using a risk-based approach
- AWS provides thought leadership on topics such as cybersecurity and operational resilience in the form of whitepapers, blog posts, and videos



Vendor due diligence

- AWS provides customers with a wide range of artifacts and independent audit reports to enable our customers to efficiently and quickly perform their due diligence
- AWS works with customers to develop appropriate vendor oversight models and assists in the documentation of their assessment of AWS
- AWS conducts compliance briefings for customers to discuss the AWS Shared Responsibility Model, AWS audit reports and certifications, and best practices for secure architecture



Regulatory engagement

- AWS enables customers to meet regulatory expectations across countries and assists customers in the preparation of their submissions to regulators by aligning with regulatory compliance requirements and evidencing control implementations
- AWS helps examiners audit AWS environments, helps advocate for a regulatory landscape that advances our customers priorities, and facilitates dialogue between the industry and its regulators
- AWS engages in regulatory policy evaluations to assess the potential impact of regulations, completes country-by-country impact assessments to map how financial institutions need to operate, and develops region- and country-specific compliance guides to document key policy changes and responses



AWS Professional Services

- AWS Professional Services (ProServe) guides customers to a cloud-based IT operating model using the AWS Cloud Adoption Framework (CAF)
- AWS ProServe engagements include shared responsibility model analysis, application of AWS security services and features, and design of cloud-based controls based upon AWS best practices and the AWS CAF

AWS has a team specialized in Financial Services technology, security, compliance, risk, and controls, helping customers in Capital Markets, Insurance, Banking, and Payments transform and innovate with AWS.

Have questions?

Email the AWS FSI Compliance team
aws-fsi-compliance@amazon.com

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Thank you!

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session survey