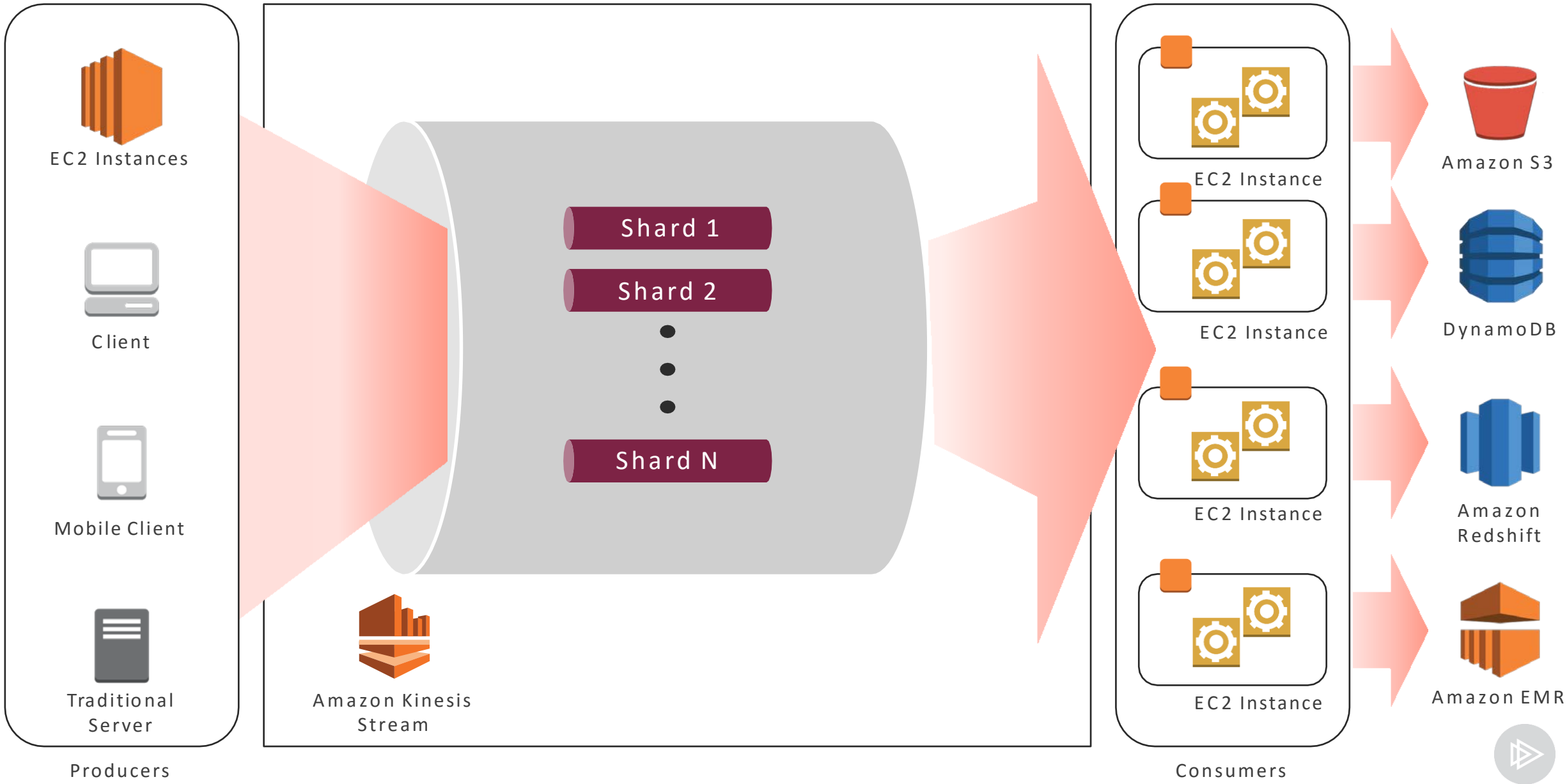
Additional AWS Services

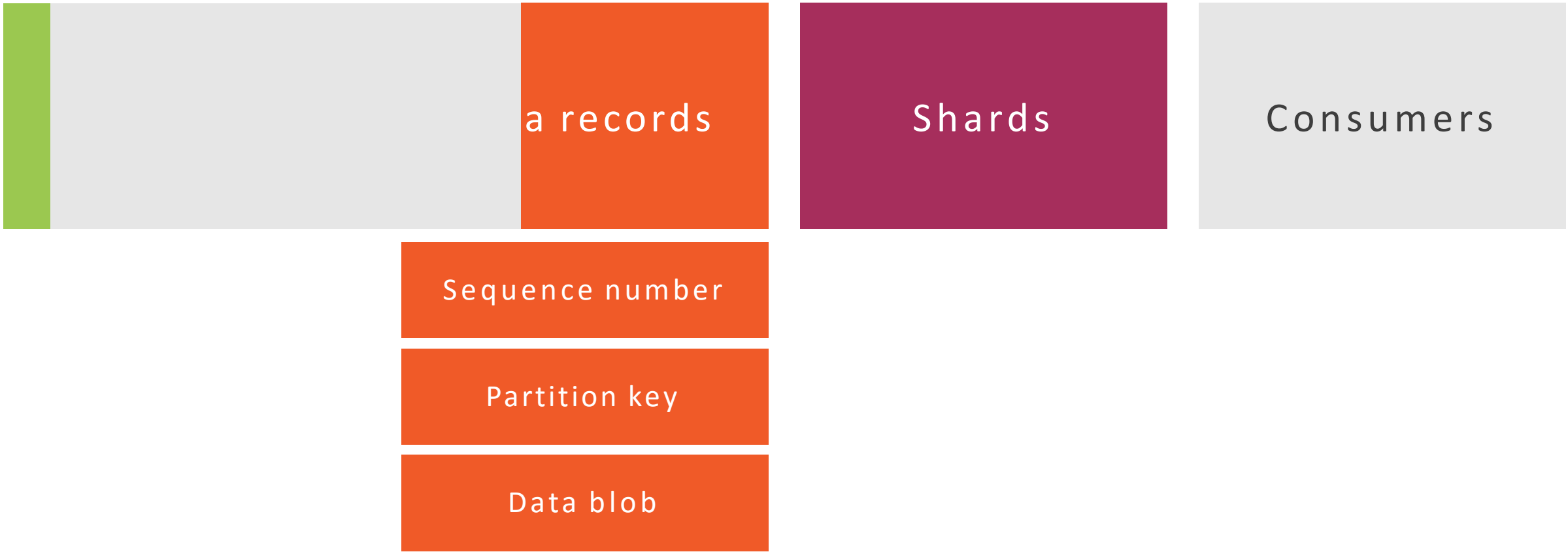
Kinesis Streams

Enables you to build custom applications that process or analyze streaming data for specialized needs. It can continuously capture and store TB of data per hour from thousands of sources such as website clickstreams, financial transactions, social media feeds, IT logs, and location-tracking events.


EC2 Instances
Client
Mobile Client
Traditional Server
Producers
Shard 1
Shard 2
Shard N
Amazon Kinesis Stream
EC2 Instance
EC2 Instance
EC2 Instance
EC2 Instance
Consumers
Amazon S3
DynamoDB
Amazon Redshift
Amazon EMR

By default data is stored for 24 hours, but can be increased to 7 days

Streams Terminology



Producers

Shards

A uniquely identified group of data records in a stream

A stream is composed of one or more shards, each of which provides a fixed unit of capacity

Can support up to 5 transactions per second for reads

Max total data read rate of 2 MB/s

Up to 1,000 records per second for writes

Max total data write rate of 1MB/s (including partition keys)

f your data rate increases, add more shards to increase the size of your stream. Remove shards if the data rate decreases.

Partition Keys

Used to group data by shard within a stream

Stream service segregates data records belonging to a stream into multiple shards

Use partition keys associated with each data record to determine which shard a given data record belongs to

Specified by the applications putting the data into a stream

Sequence Number

Data Blobs

The data your producer adds to a stream. The maximum size of a data blob (the data payload after Base64-decoding) is 1 megabyte (MB).

Consumers

Consumers get records from Amazon Kinesis Streams and process them. These consumers are known as Amazon Kinesis Streams Applications.

AWS CloudFormation

Gives developers and systems administrators an easy way to create and manage a collection of related AWS resources, provisioning and updating them in an orderly and predictable fashion.

Supported Services

- Virtual Private Cloud (VPC)
- Auto Scaling
- Elastic Compute Cloud (EC2)
- Elastic Load Balancer (ELB)
- Identity and Access Management (IAM)
- Route 53
- Amazon S3
- CloudWatch
- Relational Database Service
- DynamoDB
- CloudFront
- CloudTrail
- Elastic Beanstalk
- Amazon ElastiCache
- Simple Notification Service (SNS)
- Simple Queue Service (SQS)
- Amazon Kinesis
- AWS OpsWorks
- Amazon Redshift
- Amazon SimpleDB

Templates and Stacks

Templates

Templates are architectural designs

You can create, update and delete templates

CloudFormation templates are written in JSON

Stacks

Stacks are deployed resources based on templates

You can create, update and delete stacks using templates

Templates

You don’t need to figure out the order for provisioning AWS services

You don’t need to worry about making dependencies work

Modify and update templates in a controlled and predictable way

- In effect applying version control

Visualize your templates as diagrams and edit them using a drag-and-drop interface with the AWS CloudFormation Designer

Deploying Stacks

AWS Management Console

Command Line Interface

APIs

Template Elements

File format and version

List of resources and associated configuration values

Template parameters

Output values

List of data tables

AWS Elastic Beanstalk

A service for deploying and scaling web applications and services. Upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring.

Elastic Beanstalk Overview

- Integrates with VPC
- Integrates with IAM
- Can provision RDS instances
- Full control of resources
- Code is stored in S3
- Multiple environments are supported to enable versioning
- Changes from Git repositories are replicated
- Linux and Windows 2008 R2 AMI support

Elastic Beanstalk Overview

Deploy code using a WAR file or Git repository

Use AWS toolkit for Visual Studio and AWS Toolkit for Eclipse to deploy to Elastic Beanstalk

Elastic BeanStalk is fault tolerant within a single region (not FT between regions)

By default your applications are publicly accessible

Elastic Beanstalk Management

CloudWatch monitoring

Adjust Application Server settings

Run other application components

Access log files without logging into application servers

AWS OpsWorks

A configuration management service that helps you automate operational tasks like software configurations, package installations, database setups, server scaling, and code deployment using Chef.

What Is Chef?

Automation platform that transforms infrastructure into code

Automates how applications are configured, deployed, and managed across your network

Chef server stores your recipes and configuration data

Chef client (node) is installed on each server

OpsWorks Components

Use the AWS Management Console

Consists of two elements: Stack and Layers

Stacks are containers of resources (EC2, RDS, ELB) that you want to manage collectively

Every Stack contains one or more layers:

- Web application layer
- Database layer

Layers automate the deployment of packages for you

Summary

Kinesis Streams

CloudFormation

Elastic Beanstalk

OpsWorks