# IBM Bluemix
# Development & Certification

Summary decks for a course that covers the A to Z of IBM Bluemix.

For more information visit:
http://www.acloudfan.com

raj@acloudfan.com

1. Caching service
2. Object Storage

**PS: Certification practice test questions NOT included in the summary decks**

# Discounted access to the courses:


Learn IBM Bluemix on UDEMY

https://www.udemy.com/ibm-bluemix/?couponCode=BLUE100

Coupon Code = **BLUE100**


Learn REST API on UDEMY
API Design, Development & Management

https://www.udemy.com/rest-api/?couponCode=REST100

Coupon Code = **REST100**

**PS**:
- For latest coupons & courses please visit:  http://www.acloudfan.com
- Enter to **WIN Free access** – please visit:    http://www.acloudfan.com/win-free-access

raj@acloudfan.com
http://www.acloudfan.com

# Caching services

# Caching Strategies

## 1. On-demand

```
Retrieve
from
cache
   │
   ▼
 Data          NO      Retrieve
 Found  ──────────▶    from
                       Database
   │                      │
   ▼                      ▼
Send data  ◀────────   Set in
                       Cache
```
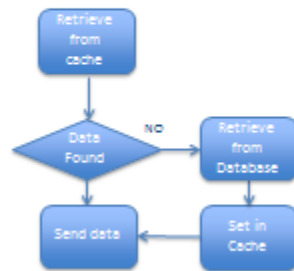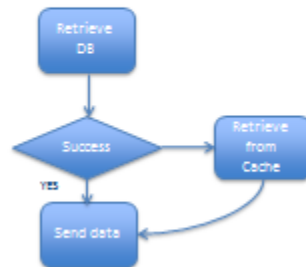
## 2. Background Push

- Data is continuously updated in Cache
- Requests are fulfilled by reading from Cache

# Caching Strategies

## 3. Circuit Breaker

```
Retrieve
  DB
   │
   ▼
                      Retrieve
 Success  ──────────▶ from
                      Cache
   │ YES                │
   ▼                    │
Send data  ◀────────────┘
```

# Data Cache


Data Cache
IBM

- Distributed Cache built on proven *Data Grid* technology
  - Caching for presentation layer - for frequently served data

- NoSQL style in memory grid
  - Distributed key value storage

- CRUD support
  - Supports the remote operations by way of create/retrieve/update/delete

- Throughput and Scalability
  - Linearly Scalable    • Fault Tolerant    • High Performance

# Session Cache


Session Cache
IBM

- Distributed Session Cache
  - Persistency of state/session information
  - Seamless recovery in case of application (instance) failures
  - Low latency reads/write
  - Transactional semantics

- Requires no code changes

- Replicates session data to remove single point of failure

# Memcached



Memcached Cloud
Third Party

"**Free & open source, high-performance, distributed memory object caching system**, generic in nature, but intended for use in speeding up dynamic web applications by alleviating database load"  - *memcached.org*

- In memory key-value store

- Ideal for small chunks of arbitrary data (Strings, Objects)

- Good for storing response from DB, API calls or page rendering

raj@acloudfan.com
http://www.acloudfan.com

# Summary

1.  Web applications can perform better by using distributed cache for storing data & sessions

2.  Bluemix has multiple ready to use Caching services

    - Data Cache

    - Session Cache

    - Memcached

# Object Storage

# Storage Needs for cloud scale apps

- Large volume of data; on an average enterprise data is growing 50% annually

- Scalability; Number of applications using the data is increasing

- Management complexity of traditional storage does not align well with the needs of cloud apps

# Cloud Object Storage

- A storage architecture that manages data as objects as opposed to files or block storage.  Each object has:

  1. The Data          2. Meta data          3. Global Unique Identifier (GUID)

- Used for diverse purposes:

  - Photo storage          - Video files          - Storage / Archival
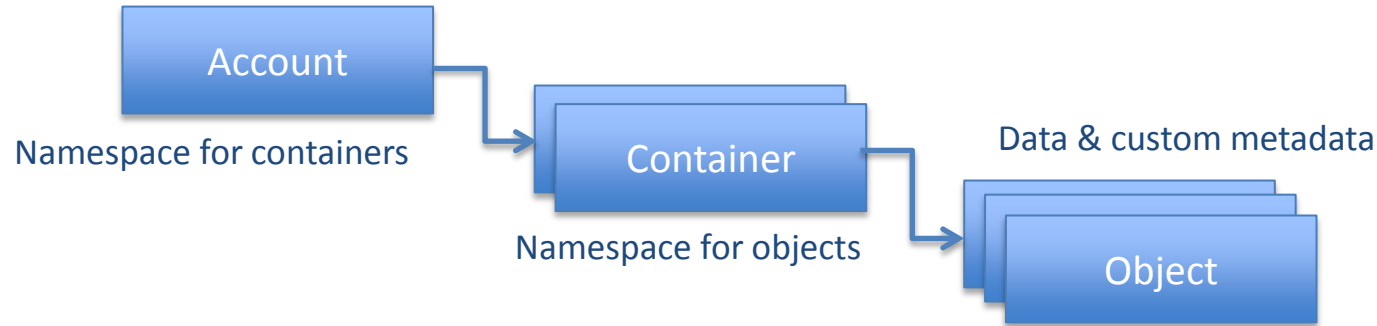
  - Static resources for web sites

# IBM Object Storage Service

- Object Storage

  - Highly Available
  - Distributed
  - Eventually Consistent

- RESTful API for CRUD

`/v1/{account}/{container}/{object}`

Account
Namespace for containers

Container
Namespace for objects

Object
Data & custom metadata

# Quick key points

- Openstack API used for managing the service instance

- Information about the data store in metadata

"Object Storage provides an unstructured
cloud data store to build and deliver cost
effective apps and services with high reliability
and fast speed to market. Bluemix users can
store and access unstructured data content
and can interactively compose and connect to
apps and services"