Cookie Cutter APEX Applications

Photo by Dari Ili on Unsplash

a

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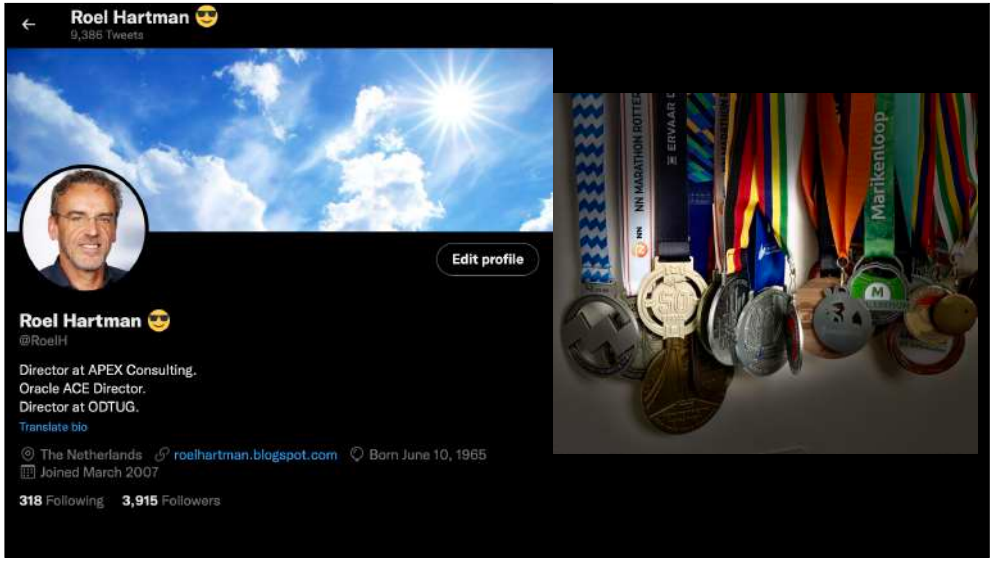
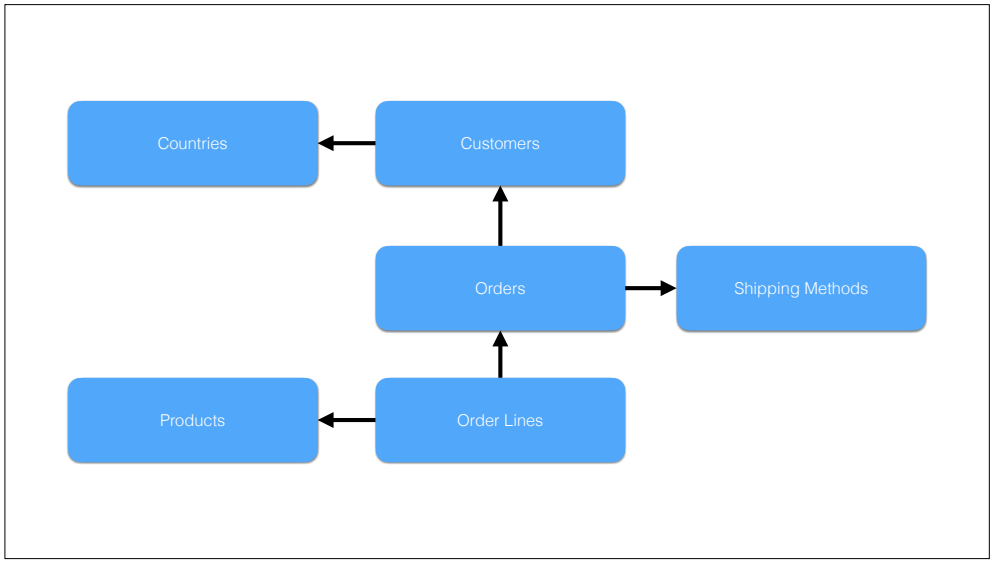
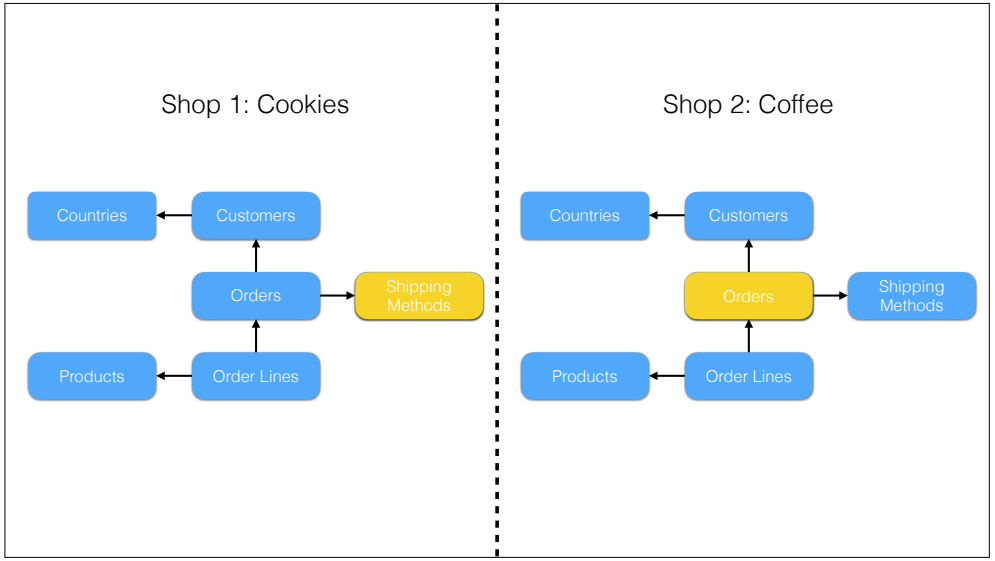
nuijten.blogspot.com

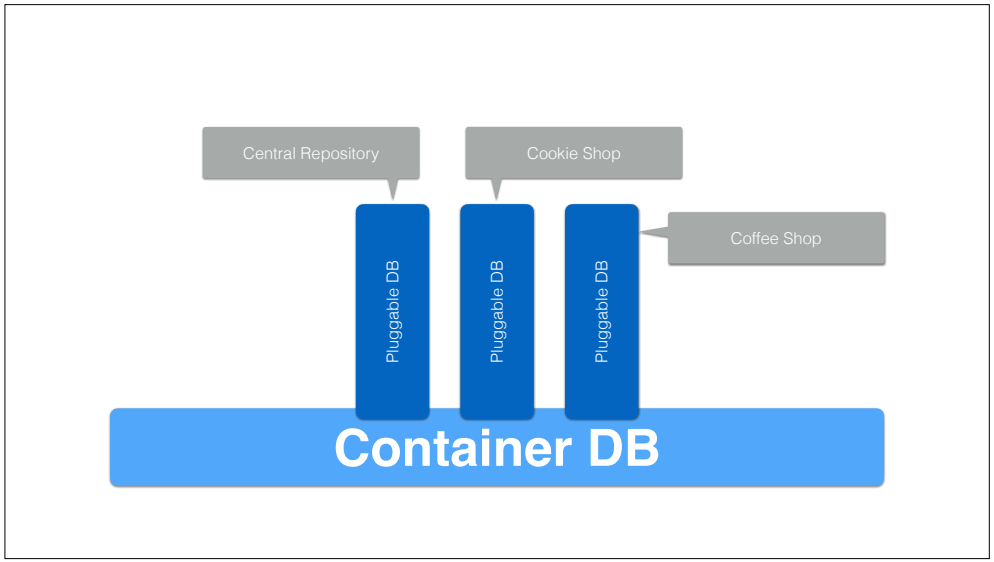


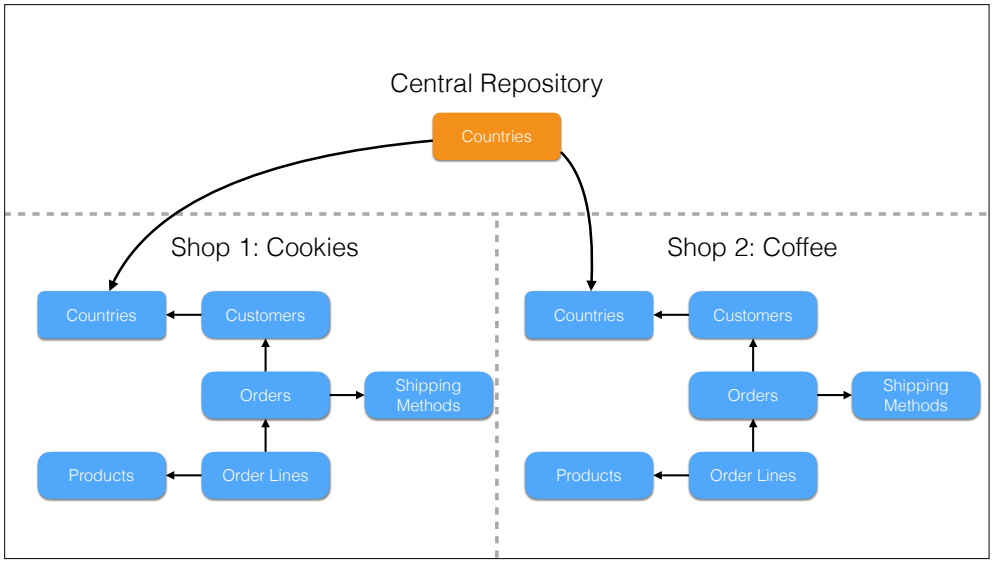

Countries
Customers
Orders
Shipping Methods
Products
Order Lines

Solution 1:
Copy-Paste


Shop 1: Cookies
Countries
Customers
Orders
Shipping Methods
Products
Order Lines
Shop 2: Coffee
Countries
Customers
Orders
Shipping Methods
Products
Order Lines

Solution 2:
Central Repo
(with REST)


Central Repository
Cookie Shop
Coffee Shop
Pluggable DB
Pluggable DB
Pluggable DB
Container DB


Central Repository
Countries
Shop 1: Cookies
Countries
Customers
Orders
Shipping Methods
Products
Order Lines
Shop 2: Coffee
Countries
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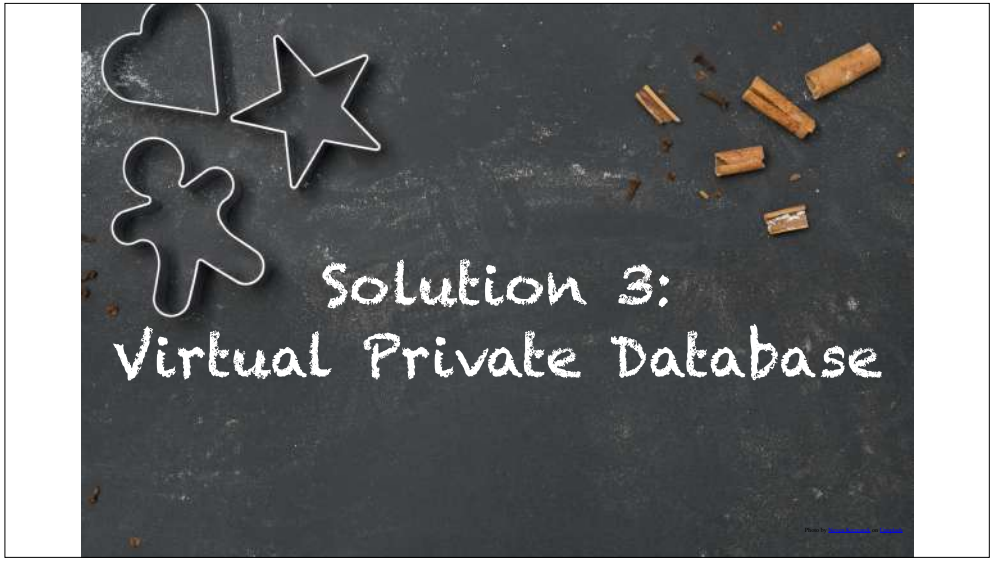
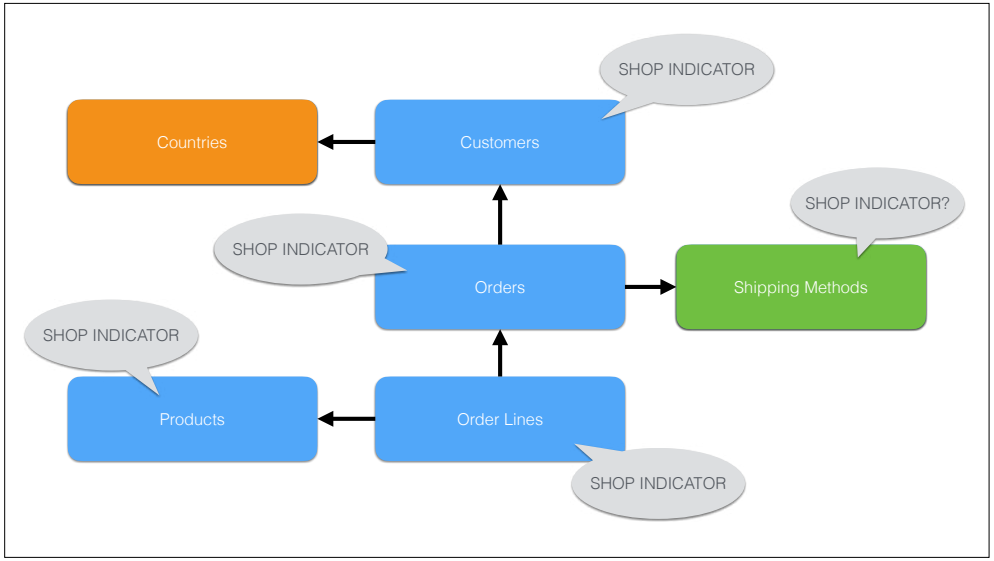
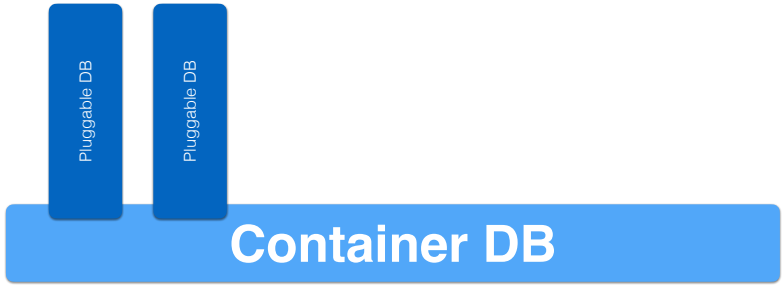
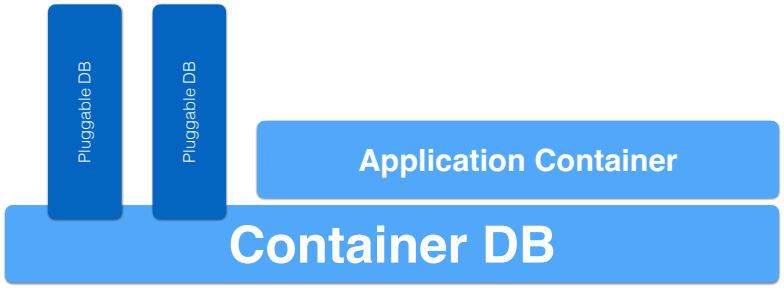
Order Lines

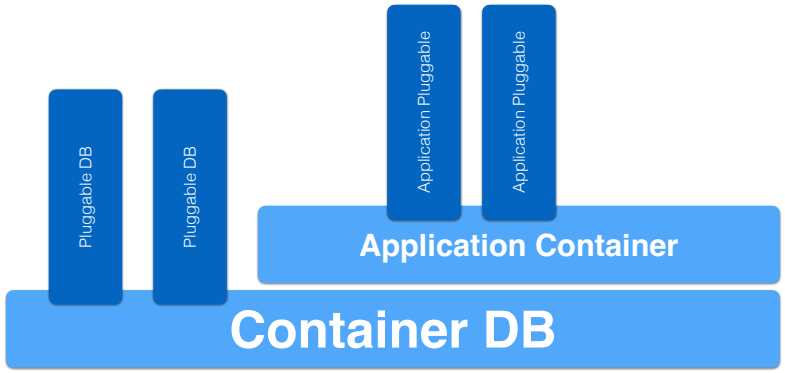

Solution 3:
Virtual Private Database

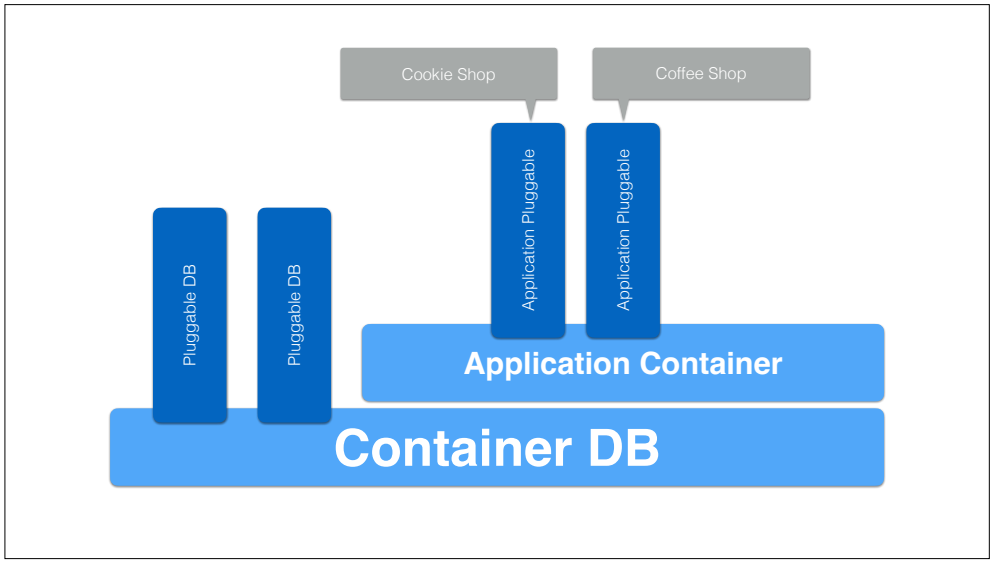

SHOP INDICATOR
Countries
Customers
SHOP INDICATOR?
SHOP INDICATOR
Orders
Shipping Methods
SHOP INDICATOR
Products
Order Lines
SHOP INDICATOR

Solution 4:
Application Containers

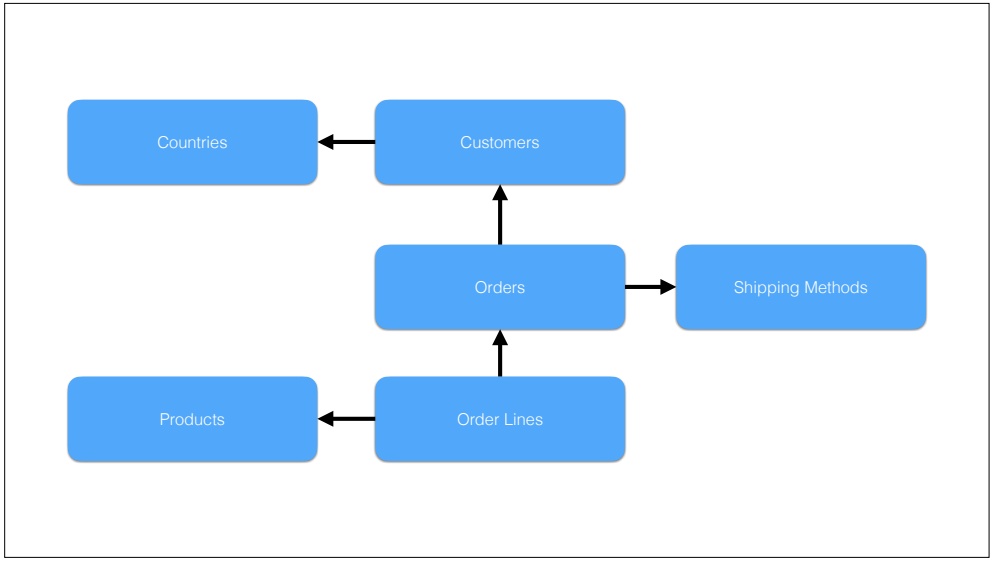

Pluggable DB
Pluggable DB
Container DB

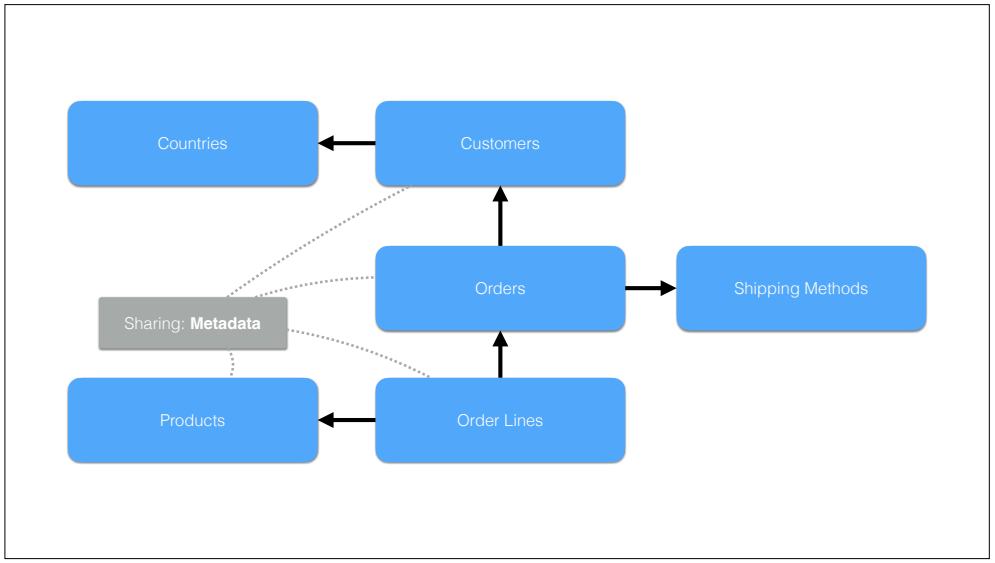

Pluggable DB
Pluggable DB
Application Container
Container DB

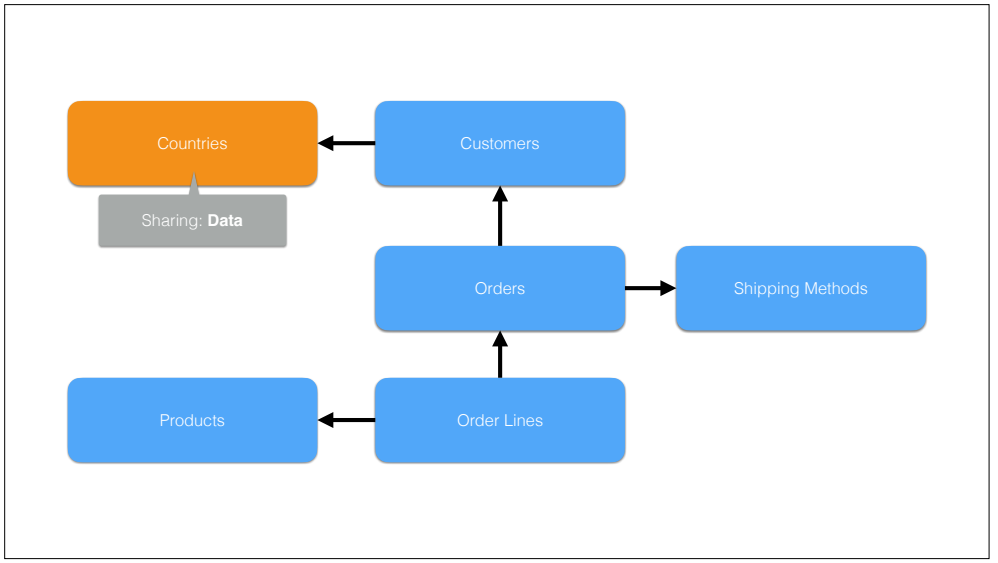

Pluggable DB
Pluggable DB
Application Pluggable
Application Pluggable
Application Container
Container DB

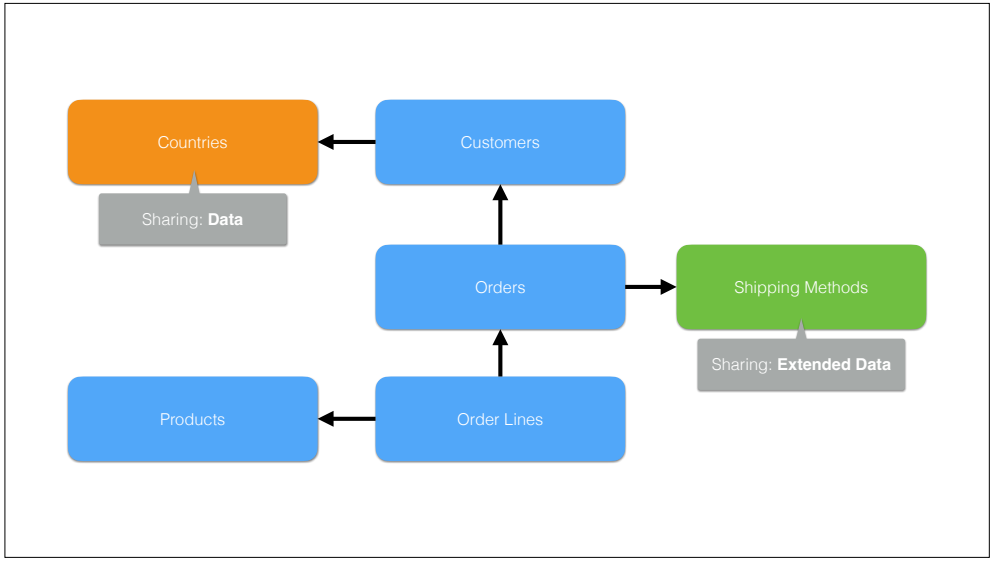

Cookie Shop
Coffee Shop
Application Pluggable
Application Pluggable
Pluggable DB
Pluggable DB
Application Container
Container DB

COFFEE SHOP
OLD AMSTERDAM
COFFEE SHOP


Countries
Customers
Orders
Shipping Methods
Products
Order Lines


Countries
Customers
Orders
Shipping Methods
Sharing: **Metadata**
Products
Order Lines


Countries
Customers
Sharing: **Data**
Orders
Shipping Methods
Products
Order Lines


Countries
Customers
Sharing: **Data**
Orders
Shipping Methods
Sharing: **Extended Data**
Products
Order Lines

Recipe
Photo by Markus Spiske: https://www.pexels.com/photo/bakery-flour-cooking-baking-94443/

CDB Root

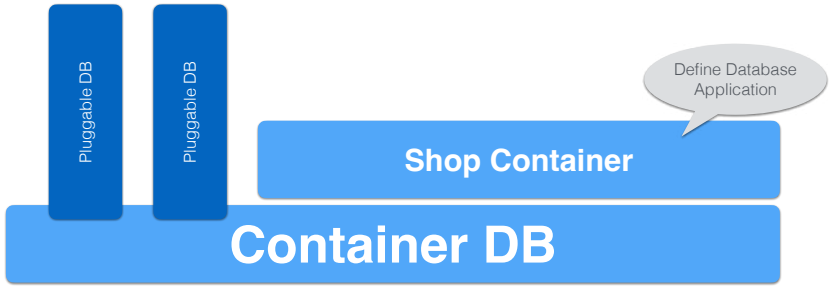
```
SQL> connect sys/oracle@free as sysdba

Connected.
```

CDB Root

```
SQL> create pluggable database shop_container as application container
  2* admin user app_admin identified by oracle;

Pluggable database SHOP_CONTAINER created.
```

CDB Root

```
SQL> create pluggable database shop_container as application container
  2* admin user app_admin identified by oracle;

Pluggable database SHOP_CONTAINER created.

SQL> alter pluggable database shop_container open;

Pluggable database SHOP_CONTAINER altered.

SQL> alter pluggable database shop_container save state;

Pluggable database SHOP_CONTAINER altered.
```



Application Container

```
SQL> alter session set container = shop_container;

Session altered.

SQL> show con_name
CON_NAME
------------------------------
SHOP_CONTAINER
```

Application Container

Name of the Application

```
SQL> alter pluggable database application webshops begin install 'v1.0';

Pluggable database APPLICATION altered.
```

Application Container

```
SQL> alter pluggable database application webshops begin install 'v1.0';

Pluggable database APPLICATION altered.
```

Create User, Grants, DDL, DML

Application Container

```
SQL> alter pluggable database application webshops begin install 'v1.0';

Pluggable database APPLICATION altered.
```

Create User, Grants, DDL, DML

```
SQL> alter pluggable database application webshops end install;

Pluggable database APPLICATION altered.
```

Application Container

```
SQL> create tablespace users;

Tablespace USERS created.

SQL> create user shop_owner identified by oracle
  2   default tablespace users
  3   quota unlimited on users
  4*  temporary tablespace temp;

User SHOP_OWNER created.

SQL> grant db_developer_role to shop_owner;

Grant succeeded.
```

New in 23c

Application Container

```
create table shop_owner.countries sharing = data
(id          number generated always as identity
,name        varchar2(150) not null
,constraint cty_pk primary key (id)
);
```

Identity Column can be used

Application Container

```
create table shop_owner.customers sharing = metadata
(id          number generated always as identity
,name        varchar2(50) not null
,country_id number not null
,constraint ctr_pk primary key (id)
,constraint ctr_cty_fk foreign key (country_id) references shop_owner.countries (id)
);
```

Application Container

Don't use Identity Column

```
create sequence shop_owner.smd_seq sharing = data
/
create table shop_owner.shippingmethods sharing = extended data
(id          number default shop_owner.smd_seq.nextval
,name        varchar2(25) not null
,constraint smd_pk primary key (id)
);
```

Application Container

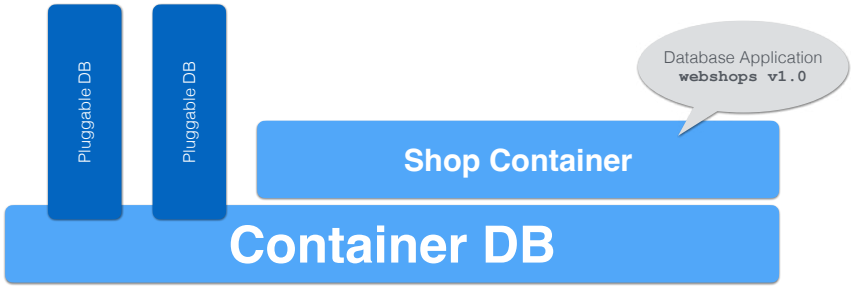
```
create table shop_owner.customers sharing = metadata
(id number generated always as identity
,name varchar2(50) not null
,country_id number not null
,constraint ctr_pk primary key (id)
,constraint ctr_cty_fk foreign key (country_id) references shop_owner.countries (id)
);
```

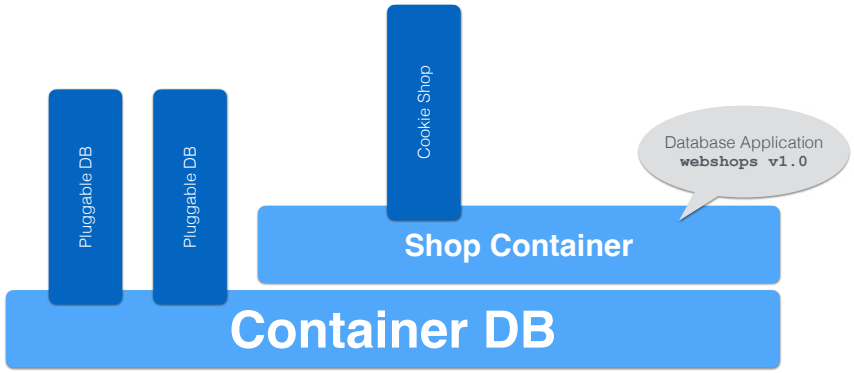
Sharing: **Data**

Application Container

```
.. Create Shop tables and sequences

Table SHOP_OWNER.COUNTRIES created.

Table SHOP_OWNER.CUSTOMERS created.

Sequence SHOP_OWNER.SMD_SEQ created.

Table SHOP_OWNER.SHIPPINGMETHODS created.

Table SHOP_OWNER.ORDERS created.

Table SHOP_OWNER.PRODUCTS created.

Table SHOP_OWNER.ORDERLINES created.
```

```
SQL> @shop_seed_data.sql
.. Populate Countries

1 row inserted.


1 row inserted.


1 row inserted.

.. Shipping Methods

1 row inserted.


1 row inserted.


Commit complete.
```





Application Container

```
SQL> create pluggable database cookie_shop
  2* admin user shop_admin identified by oracle;

Pluggable database COOKIE_SHOP created.

SQL> alter pluggable database cookie_shop open;

Pluggable database COOKIE_SHOP altered.

SQL> alter pluggable database cookie_shop save state;

Pluggable database COOKIE_SHOP altered.
```

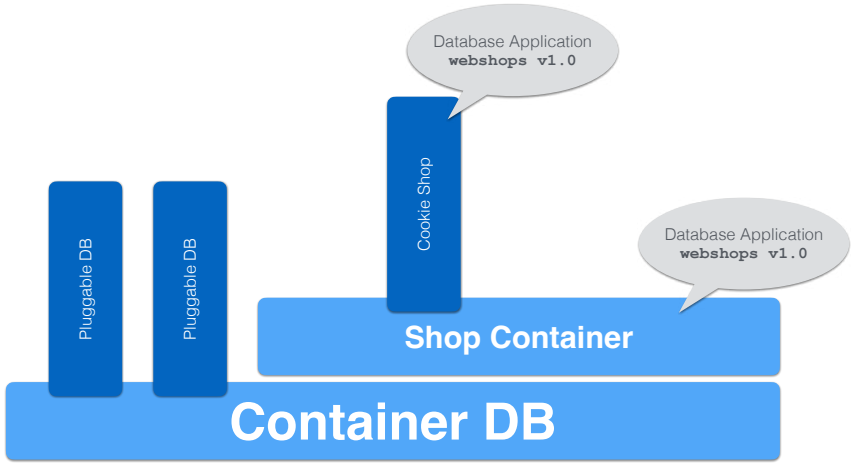
Application Pluggable

```
SQL> alter session set container = cookie_shop;

Session altered.
```

Application Pluggable

```
SQL> alter session set container = cookie_shop;

Session altered.

SQL> alter pluggable database application webshops sync;

Pluggable database APPLICATION altered.
```

To Sync Multiple Applications, use **all**

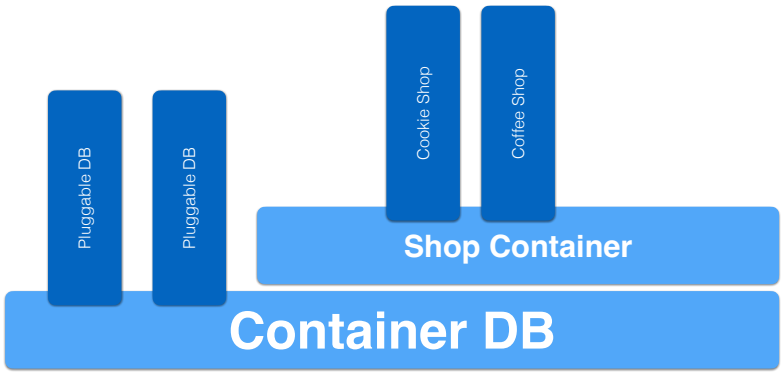


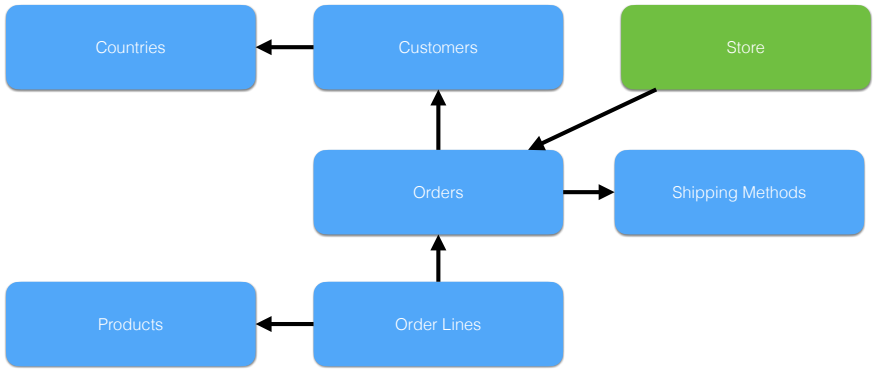
Application Container

```
SQL> create pluggable database coffee_shop
  2* admin user shop_admin identified by oracle;

Pluggable database COFFEE_SHOP created.

SQL> alter pluggable database coffee_shop open;

Pluggable database COFFEE_SHOP altered.
```

Application Pluggable

```
SQL> create pluggable database coffee_shop
  2* admin user shop_admin identified by oracle;

Pluggable database COFFEE_SHOP created.

SQL> alter pluggable database coffee_shop open;

Pluggable database COFFEE_SHOP altered.

SQL> alter session set container = coffee_shop;

Session altered.

SQL> alter pluggable database application webshops sync;

Pluggable database APPLICATION altered.
```





Application Container

```
SQL> alter session set container = shop_container
  2* /

Session altered.
```

Application Container

```
SQL> alter session set container = shop_container
  2* /

Session altered.

SQL> alter pluggable database application webshops
  2    begin upgrade 'v1.0' to 'v2.0'
  3    comment 'physical stores added to data model'
  4* /

Pluggable database APPLICATION altered.
```

Application Container

```
SQL> create table shop_owner.stores sharing = metadata
  2  (id number generated always as identity
  3  ,store_name         varchar2(255 char) not null
  4  ,web_address        varchar2(100 char)
  5  ,physical_address   varchar2(512 char)
  6  ,latitude           number
  7  ,longitude          number
  8  ,constraint ste_pk primary key (id)
  9  )
 10* /

Table SHOP_OWNER.STORES created.

SQL> alter table shop_owner.orders
  2  add (store_id integer)
  3* /

Table SHOP_OWNER.ORDERS altered.

SQL> alter table shop_owner.orders
  2  add constraint odr_ste_fk foreign key (store_id) references shop_owner.stores (id)
  3* /

Table SHOP_OWNER.ORDERS altered.
```

Application Container

```
SQL> alter pluggable database application webshops end upgrade to 'v2.0'
  2* /

Pluggable database APPLICATION altered.
```

Application Container

```
SQL> select app_id
  2        ,app_name
  3        ,app_version
  4        ,app_status
  5        ,app_capture_service
  6        ,con_id
  7*   from cdb_applications;

    APP_ID APP_NAME        APP_VERSION                    APP_STATUS   APP_CAPTURE_SER     CON_ID
---------- --------------- ------------------------------ ------------ --------------- ----------
         3 WEBSHOPS        v2.0                           NORMAL       shop_container           5
         2 WEBSHOPS        v1.0                           NORMAL       coffee_shop              4
         2 WEBSHOPS        v1.0                           NORMAL       cookie_shop              6
```

Application Container

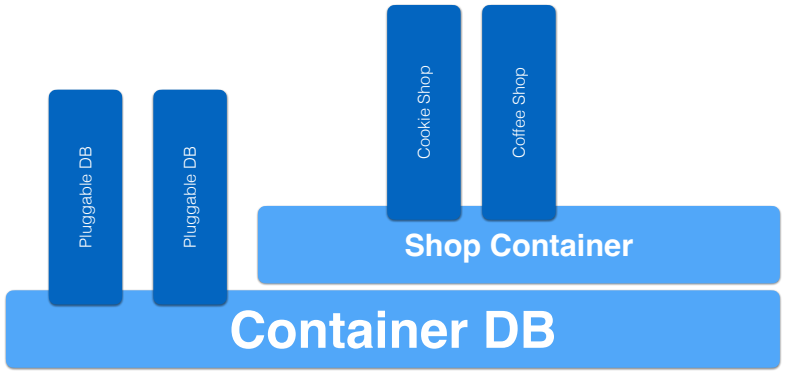
```
SQL> select app_id
  2        ,app_name
  3        ,app_version
  4        ,app_status
  5        ,app_capture_service
  6        ,con_id
  7*   from cdb_applications;

    APP_ID APP_NAME        APP_VERSION                    APP_STATUS   APP_CAPTURE_SER     CON_ID
---------- --------------- ------------------------------ ------------ --------------- ----------
         3 WEBSHOPS        v2.0                           NORMAL       shop_container           5
         2 WEBSHOPS        v1.0                           NORMAL       coffee_shop              4
         2 WEBSHOPS        v1.0                           NORMAL       cookie_shop              6
```

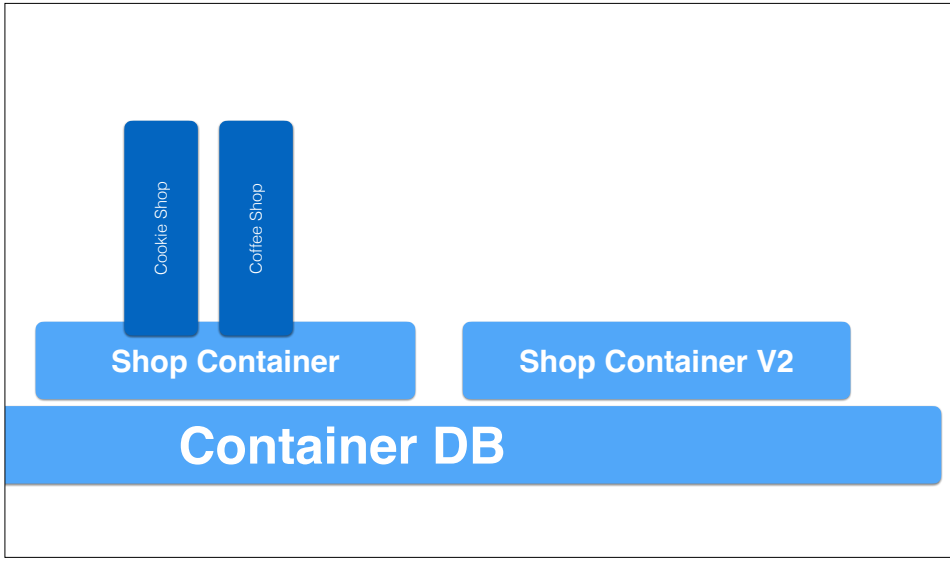
Application Pluggable

```
SQL> alter session set container = cookie_shop
  2* /

Session altered.

SQL> alter pluggable database application webshops sync;

Pluggable database APPLICATION altered.
```

Application Container

```
SQL> select app_id
  2         ,app_name
  3         ,app_version
  4         ,app_status
  5         ,app_capture_service
  6         ,con_id
  7*   from cdb_applications;

    APP_ID APP_NAME        APP_VERSION                    APP_STATUS   APP_CAPTURE_SER     CON_ID
---------- --------------- ------------------------------ ------------ --------------- ----------
         3 WEBSHOPS        v2.0                           NORMAL       shop_container           5
         2 WEBSHOPS        v1.0                           NORMAL       coffee_shop              4
         2 WEBSHOPS        v2.0                           NORMAL       cookie_shop              6
```





Application Container

```
SQL> alter session set container = shop_container
  2* /

Session altered.
```

Application Container

```
SQL> alter session set container = shop_container
  2* /

Session altered.

SQL> alter pluggable database application webshops begin patch 42 minimum version 'v2.0'
  2* /

Pluggable database APPLICATION altered.
```

Application Container

```
SQL> alter session set container = shop_container
  2* /

Session altered.

SQL> alter pluggable database application webshops begin patch 42 minimum version 'v2.0'
  2* /

Pluggable database APPLICATION altered.

SQL> alter table shop_owner.customers
  2  add (phone varchar2(25))
  3* /

Table SHOP_OWNER.CUSTOMERS altered.
```

Application Container

```
SQL> alter session set container = shop_container
  2* /

Session altered.

SQL> alter pluggable database application webshops begin patch 42 minimum version 'v2.0'
  2* /

Pluggable database APPLICATION altered.

SQL> alter table shop_owner.customers
  2  add (phone varchar2(25))
  3* /

Table SHOP_OWNER.CUSTOMERS altered.

SQL> alter pluggable database application webshops end patch 42
  2* /

Pluggable database APPLICATION altered.
```

Application Pluggable

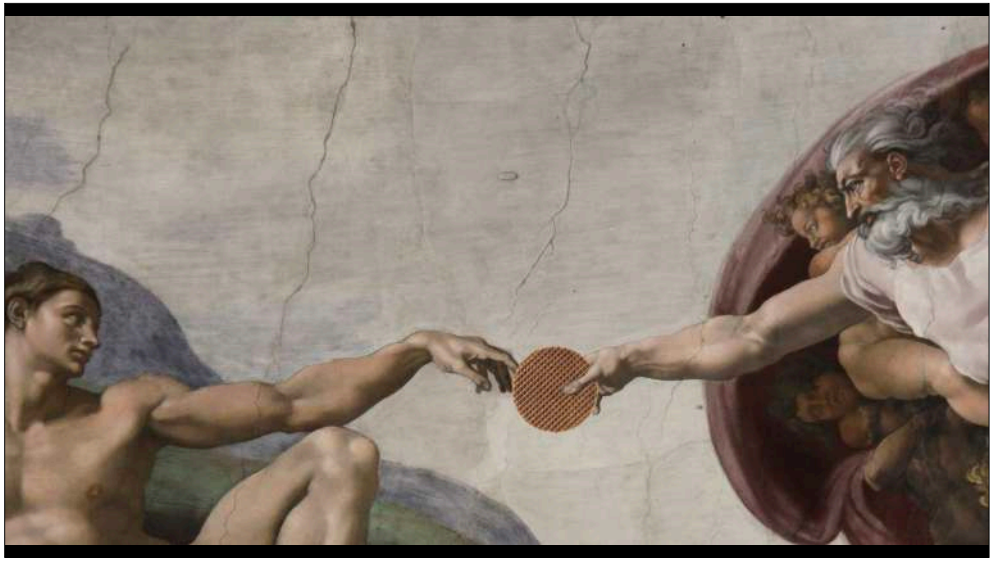
```
SQL> alter session set container = cookie_shop
  2* /

Session altered.

SQL> desc shop_owner.customers
Name       Null?    Type
---------- -------- ------------
ID         NOT NULL NUMBER
NAME       NOT NULL VARCHAR2(50)
COUNTRY_ID NOT NULL NUMBER
```

Application Pluggable

```
SQL> alter session set container = cookie_shop
  2* /

Session altered.

SQL> desc shop_owner.customers
Name       Null?    Type
---------- -------- ------------
ID         NOT NULL NUMBER
NAME       NOT NULL VARCHAR2(50)
COUNTRY_ID NOT NULL NUMBER

SQL> alter pluggable database application webshops sync to patch 42;

Pluggable database APPLICATION altered.

SQL> desc shop_owner.customers
Name       Null?    Type
---------- -------- ------------
ID         NOT NULL NUMBER
NAME       NOT NULL VARCHAR2(50)
COUNTRY_ID NOT NULL NUMBER
PHONE               VARCHAR2(25)
```

Application Pluggable

```
SQL> select app_name
  2        ,patch_number
  3        ,patch_min_version
  4        ,patch_status
  5    from dba_app_patches
  6* /

APP_NAME   PATCH_NUMBER PATCH_MIN_VERSION              PATCH_STAT
---------- ------------ ------------------------------ ----------
WEBSHOPS             42 v2.0                           INSTALLED
```



Install components
(in Application Root Container)

APEX

Application Container

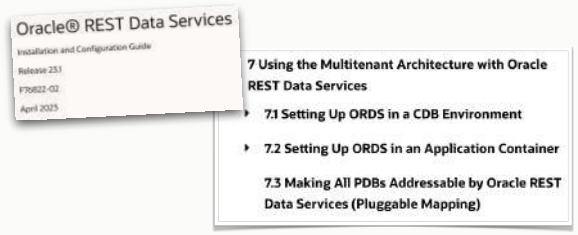
```
@apxappcon SYSAUX SYSAUX TEMP /i/ oracle
```

Application Container

```
SYS> select app_id
  2  ,      app_name
  3  ,      app_version
  4  ,      app_status
  5  ,      app_capture_service
  6  ,      con_id
  7  from   cdb_applications
  8* where  app_implicit='N';
```

APP_ID	APP_NAME	APP_VERSION	APP_STATUS	APP_CAPTURE_SERVICE	CON_ID
3	WEBSHOPS	v1.0	NORMAL	shop_container	7
4	APEX	23.1	NORMAL	shop_container	7

ORDS



Application Container

```
@ords_app_con_install.sql /log-folder/ SYSAUX TEMP SYSAUX TEMP oracle /scripts-path
```

Application Container

Unzip the war file > unzip the jar file

```
@ords_app_con_install.sql /log-folder/ SYSAUX TEMP SYSAUX TEMP oracle /scripts-path
```

Application Container

ORDS schema Default Tablespace

```
@ords_app_con_install.sql /log-folder/ SYSAUX TEMP SYSAUX TEMP oracle /scripts-path
```

Application Container

ORDS proxy schema Default Tablespace

```
@ords_app_con_install.sql /log-folder/ SYSAUX TEMP SYSAUX TEMP oracle /scripts-path
```

Application Container

```
SYS> select app_id
  2  ,      app_name
  3  ,      app_version
  4  ,      app_status
  5  ,      app_capture_service
  6  ,      con_id
  7  from   cdb_applications
  8* where  app_implicit='N';
```

APP_ID	APP_NAME	APP_VERSION	APP_STATUS	APP_CAPTURE_SERVICE	CON_ID
3	WEBSHOPS	v1.0	NORMAL	shop_container	7
4	APEX	23.1	NORMAL	shop_container	7
21	ORDS	23.2.2.r2081534	NORMAL	shop_container	7

Application Container

```
SQL> alter pluggable database application APEX begin patch 1 comment 'Fix APEX/ORDS setup';

Pluggable database APPLICATION altered.

SQL> alter user APEX_PUBLIC_USER grant connect through ORDS_PUBLIC_USER;

User APEX_PUBLIC_USER altered.
SQL> begin
  2    ords_admin.config_plsql_gateway(
  3        p_runtime_user       => 'ORDS_PUBLIC_USER',
  4        p_plsql_gateway_user => 'APEX_PUBLIC_USER',
  5        p_comments           => 'APEX proxied to ORDS');
  6    commit;
  7  end;
  8* /

PL/SQL procedure successfully completed.

SQL> @@create_apex_workspace.sql
SQL> alter pluggable database application APEX end patch 1;

Pluggable database APPLICATION altered.
```

Application Container

```
SQL> select app_name
  2        ,patch_number
  3        ,patch_min_version
  4        ,patch_status
  5        ,patch_comment
  6  from dba_app_patches
  7* /

APP_NAME       PATCH_NUMBER PATCH_MIN_VERSION    PATCH_STATUS    PATCH_COMMENT
---------- ---------------- -------------------- --------------- --------------------
APEX                      1 23.1                 INSTALLED       Fix APEX/ORDS setup
```

Webshop Application

Application Container

```
SQL> alter pluggable database application webshops_app begin install '1.0';

Pluggable database APPLICATION altered.

SQL> @@create_apex_application.sql
:::::::

SQL> alter pluggable database application webshops_app end install;

Pluggable database APPLICATION altered.
```

Application Container

```
SQL> select app_id
  2  ,      app_name
  3  ,      app_version
  4  ,      app_status
  5  ,      app_capture_service
  6  ,      con_id
  7  from   cdb_applications
  8* where  app_implicit='N';
```

APP_ID	APP_NAME	APP_VERSION	APP_STATUS	APP_CAPTURE_SERVICE	CON_ID
3	WEBSHOPS	v1.0	NORMAL	shop_container	7
4	APEX	23.1	NORMAL	shop_container	7
21	ORDS	23.2.2.r2081534	NORMAL	shop_container	7
41	WEBSHOPS_APP	V1.0	NORMAL	shop_container	7

Application Container

```
SQL> create pluggable database as seed
Admin user shop_admin identified by oracle;

Pluggable database created.

SQL> alter pluggable database shop_container$seed open;

Pluggable database SHOP_CONTAINER$SEED altered.

SQL> alter pluggable database shop_container$seed save state;

Pluggable database SHOP_CONTAINER$SEED altered.
```

Application Pluggable

```
SQL> alter session set container = shop_container$seed;

Session altered.

SQL> alter pluggable database application webshops sync;

Pluggable database APPLICATION altered.

SQL> alter pluggable database application ords sync;

Pluggable database APPLICATION altered.

SQL> alter pluggable database application apex sync;

Pluggable database APPLICATION altered.

SQL> alter pluggable database application webshops_app sync;

Pluggable database APPLICATION altered.
```

Application Pluggable

```
SQL> select app_id
  2  ,      app_name
  3  ,      app_version
  4  ,      app_status
  5  ,      app_capture_service
  6  ,      con_id
  7  from   cdb_applications
  8* where  app_implicit='N';
```

APP_ID	APP_NAME	APP_VERSION	APP_STATUS	APP_CAPTURE_SERVICE	CON_ID
2	WEBSHOPS	v1.0	NORMAL	shop_container$seed	5
3	ORDS	23.2.2.r2081534	NORMAL	shop_container$seed	5
4	APEX	23.1	NORMAL	shop_container$seed	5
21	WEBSHOPS_APP	v1.0	NORMAL	shop_container$seed	5

Create a Cookie Shop Application

Application Pluggable

```
SQL> alter session set container = shop_container;

Session altered.

SQL> create pluggable database cookieshop;

Pluggable database created.

SQL> alter pluggable database cookieshop open;

Pluggable database altered.

SQL> alter pluggable database cookieshop save state;

Pluggable database altered.
```

Application Container

```
SQL> select app_id
  2  ,      app_name
  3  ,      app_version
  4  ,      app_status
  5  ,      app_capture_service
  6  ,      con_id
  7  from   cdb_applications
  8* where  app_implicit='N';
```

APP_ID	APP_NAME	APP_VERSION	APP_STATUS	APP_CAPTURE_SERVICE	CON_ID
2	WEBSHOPS	v1.0	NORMAL	shop_container$seed	6
3	ORDS	23.2.2.r2081534	NORMAL	shop_container$seed	6
4	APEX	23.1	NORMAL	shop_container$seed	6
21	WEBSHOPS_APP	v1.0	NORMAL	shop_container$seed	6

http://localhost:8080/app/cookieshop/r/webshops/webshops/login

Application Pluggable

Photo by Chevanon Photography: https://www.pexels.com/photo/woman-pouring-cappuccino-302899/

Photo by Aysegül Akdaş: https://www.pexels.com/photo/woman-holding-cookies-in-basket-14318499/

Take Away

Should you use Application Containers?

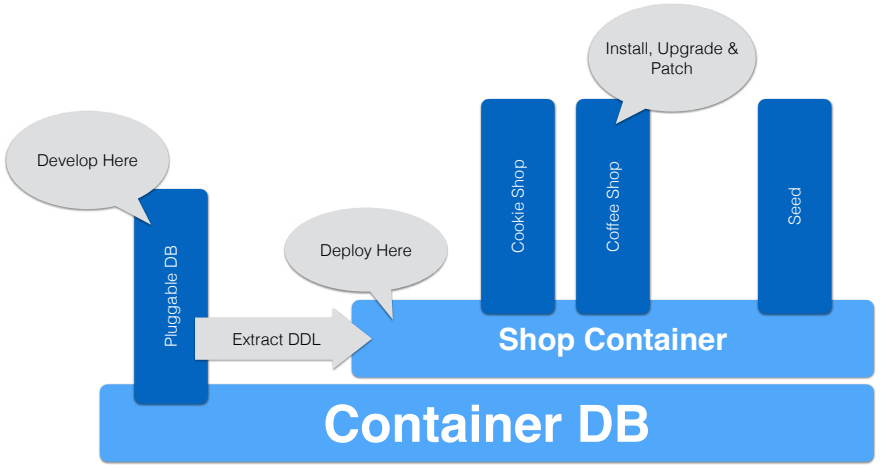
SAAS Provider

Data Shared across Applications

Clean Development and Deployment

⚠️ Don't Develop in Application Container ⚠️

Install, Upgrade & Patch



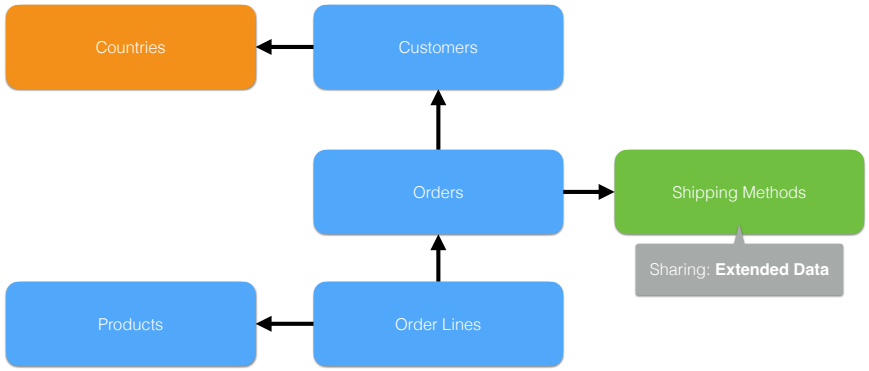
Installation not 100% trivial

Enhancements Underway

3 PDBs Might not be Sufficient

Questions?

Trivia



Application Pluggable

```
SQL> alter session set container = coffee_shop;
Session altered.
SQL> insert into shop_owner.shippingmethods (name) values ('Express 2 Day');
1 row inserted.
SQL> commit;
Commit complete.
```

Application Pluggable

```
SQL> select *
  2    from shop_owner.shippingmethods
  3* ;

        ID NAME
---------- ------------------------
         1 One Day Delivery
         2 Two Day Delivery
         5 Express 2 Day
```

Container

Application Pluggable

```
SQL> select *
  2    from shop_owner.shippingmethods
  3* ;

        ID NAME
---------- ------------------------
         1 One Day Delivery
         2 Two Day Delivery
         5 Express 2 Day
```

Pluggable

Application Pluggable

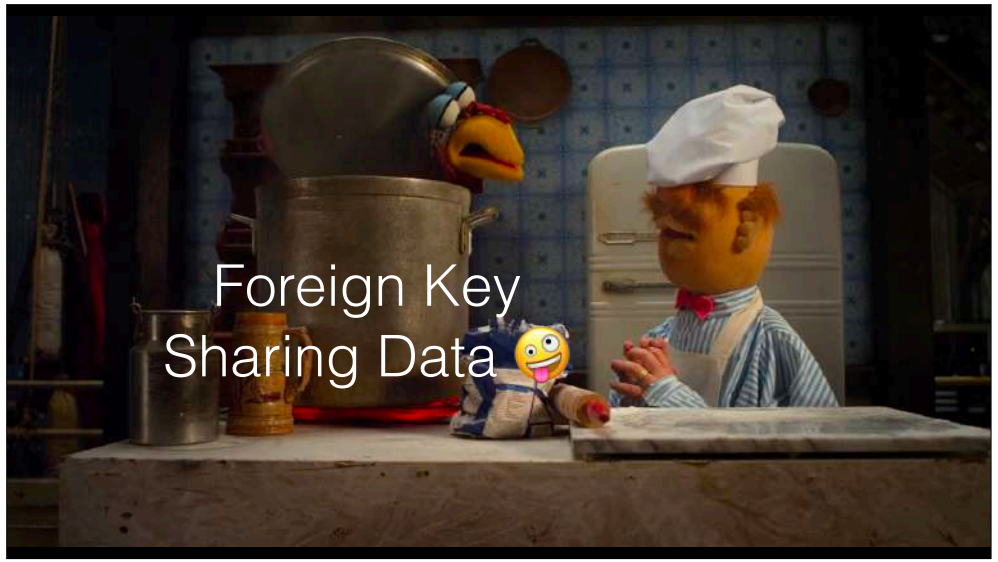
```
SQL> truncate table shop_owner.shippingmethods
  2* /

Table SHOP_OWNER.SHIPPINGMETHODS truncated.
```

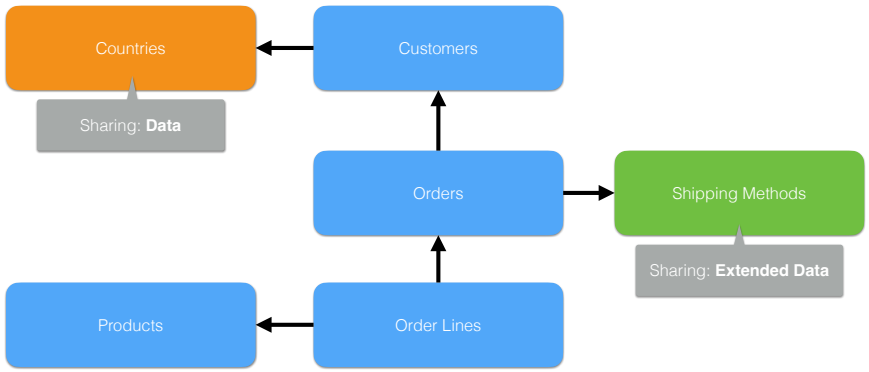
Application Pluggable

```
SQL> truncate table shop_owner.shippingmethods
  2* /

Table SHOP_OWNER.SHIPPINGMETHODS truncated.

SQL> select *
  2    from shop_owner.shippingmethods
  3* /
```

Application Pluggable

```
SQL> truncate table shop_owner.shippingmethods
  2* /

Table SHOP_OWNER.SHIPPINGMETHODS truncated.

SQL> select *
  2    from shop_owner.shippingmethods
  3* /

        ID NAME
---------- -------------------------
         1 One Day Delivery
         2 Two Day Delivery
```





Application Container

```
SQL> select *
  2    from shop_owner.countries
  3* /

        ID NAME
---------- --------------------
         1 Netherlands
         2 United Kingdom
         3 United States
```

Application Container

```
SQL> select *
  2    from shop_owner.countries
  3* /

        ID NAME
---------- --------------------
         1 Netherlands
         2 United Kingdom
         3 United States
```

```
SQL> select name
  2        ,country_id
  3    from containers (shop_owner.customers)
  4   order by country_id
  5* /

NAME                 COUNTRY_ID
-------------------- ----------
Alex                          1
Roel                          1
Mick Jagger                   2
Keith Richards                2
Ronnie Wood                   2
John Lennon                   2
Paul McCartney                2
George Harrison               2
Ringo Star                    2
Jennifer                      3

10 rows selected.
```

Application Container

```
SQL> select *
  2    from shop_owner.countries
  3* /

        ID NAME
---------- --------------------
         1 Netherlands
         2 United Kingdom
         3 United States
```

```
SQL> select name
  2        ,country_id
  3    from containers (shop_owner.customers)
  4   order by country_id
  5* /

NAME                 COUNTRY_ID
-------------------- ----------
Alex                          1
Roel                          1
Mick Jagger                   2
Keith Richards                2
Ronnie Wood                   2
John Lennon                   2
Paul McCartney                2
George Harrison               2
Ringo Star                    2
Jennifer                      3

10 rows selected.
```

Application Container

```
SQL> desc shop_owner.customers

Name        Null?    Type
----------- -------- ------------
ID          NOT NULL NUMBER
NAME        NOT NULL VARCHAR2(50)
COUNTRY_ID  NOT NULL NUMBER
PHONE                VARCHAR2(25)
```

Application Container

```
SQL> delete
  2    from shop_owner.countries
  3   where id = 1
  4* /
```

Application Container

```
SQL> delete
  2    from shop_owner.countries
  3   where id = 1
  4* /

1 row deleted.

SQL> commit;

Commit complete.
```

Application Container

```
SQL> select name
  2        ,country_id
  3    from containers (shop_owner.customers)
  4   order by country_id
  5* /
```

Application Container

```
SQL> select name
  2        ,country_id
  3    from containers (shop_owner.customers)
  4   order by country_id
  5* /


NAME                 COUNTRY_ID
-------------------- ----------
Alex                          1
Roel                          1
Mick Jagger                   2
Keith Richards                2
Ronnie Wood                   2
John Lennon                   2
Paul McCartney                2
George Harrison               2
Ringo Star                    2
Jennifer                      3

10 rows selected.
```

Application Pluggable

```
SQL> alter session set container = cookie_shop

Session altered.

SQL> select ctr.name
  2        ,cty.name
  3    from shop_owner.customers ctr
  4    join shop_owner.countries cty
  5      on ctr.country_id = cty.id
  6* /

NAME                 NAME
-------------------- --------------------
Mick Jagger          United Kingdom
Keith Richards       United Kingdom
Ronnie Wood          United Kingdom
John Lennon          United Kingdom
Paul McCartney       United Kingdom
George Harrison      United Kingdom
Ringo Star           United Kingdom
Jennifer             United States

8 rows selected.
```

Application Pluggable

```
SQL> select ctr.name
  2        ,cty.name
  3    from shop_owner.customers ctr
  4    left outer
  5    join shop_owner.countries cty
  6      on ctr.country_id = cty.id
  7* /

NAME                 NAME
-------------------- --------------------
Mick Jagger          United Kingdom
Keith Richards       United Kingdom
Ronnie Wood          United Kingdom
John Lennon          United Kingdom
Paul McCartney       United Kingdom
George Harrison      United Kingdom
Ringo Star           United Kingdom
Jennifer             United States
Alex
Roel

10 rows selected.
```

Application Container

```
SQL> alter session set container = shop_container
  2* /

Session altered.

SQL> alter pluggable database application webshops begin patch 43 minimum version 'v2.0'
  2* /

Pluggable database APPLICATION altered.

SQL> alter table shop_owner.countries
  2  read only
  3* /

Table SHOP_OWNER.COUNTRIES altered.

SQL> alter pluggable database application webshops end patch 43
  2* /

Pluggable database APPLICATION altered.
```