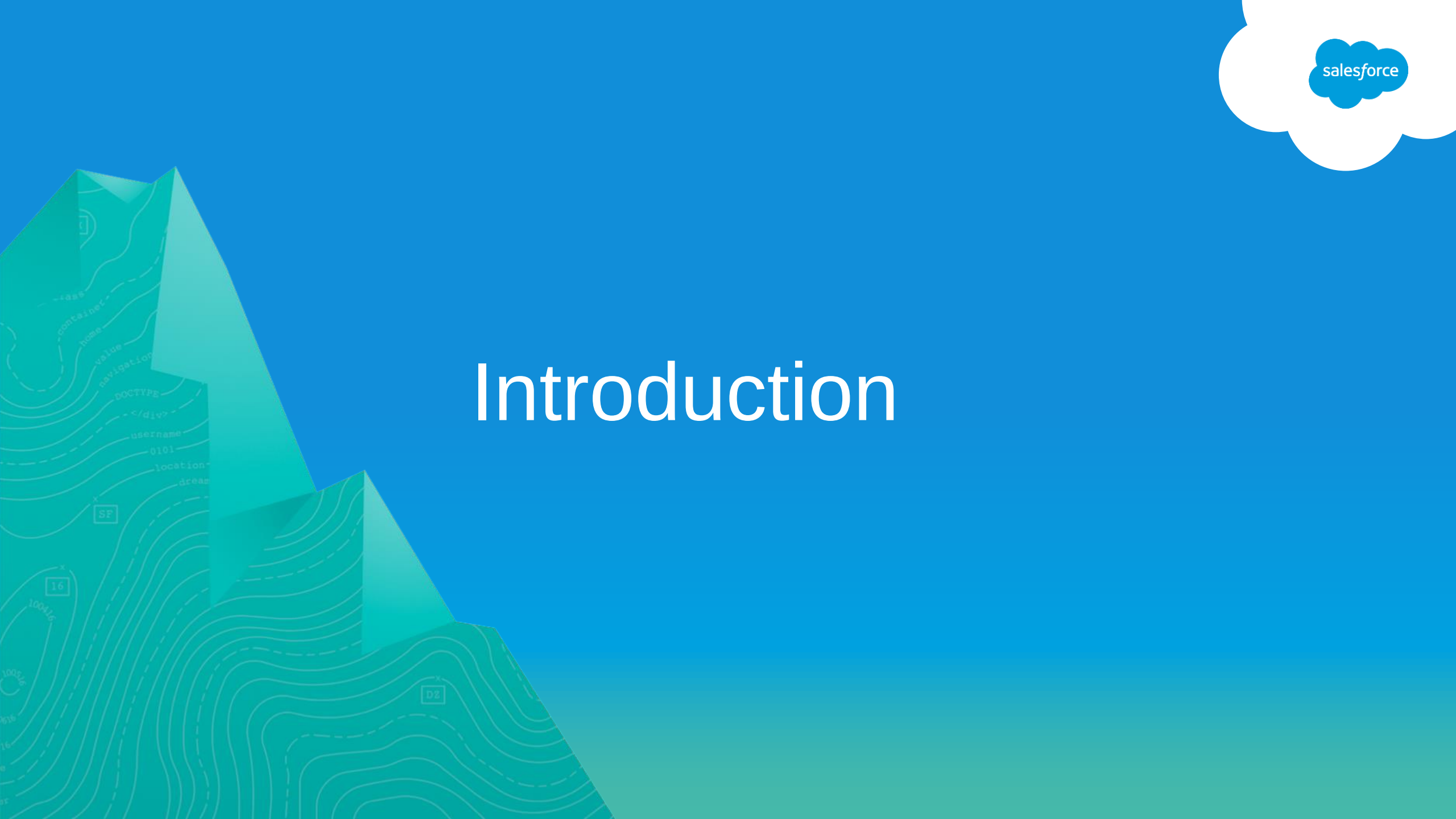
Salesforce Platform for TMF Hackathon

Architecture Document

{open}:hack - 14-16 May 2017- Nice - France

Revision Date: May 10, 2017


salesforce
Introduction

We've Built the World's Leading Business Apps

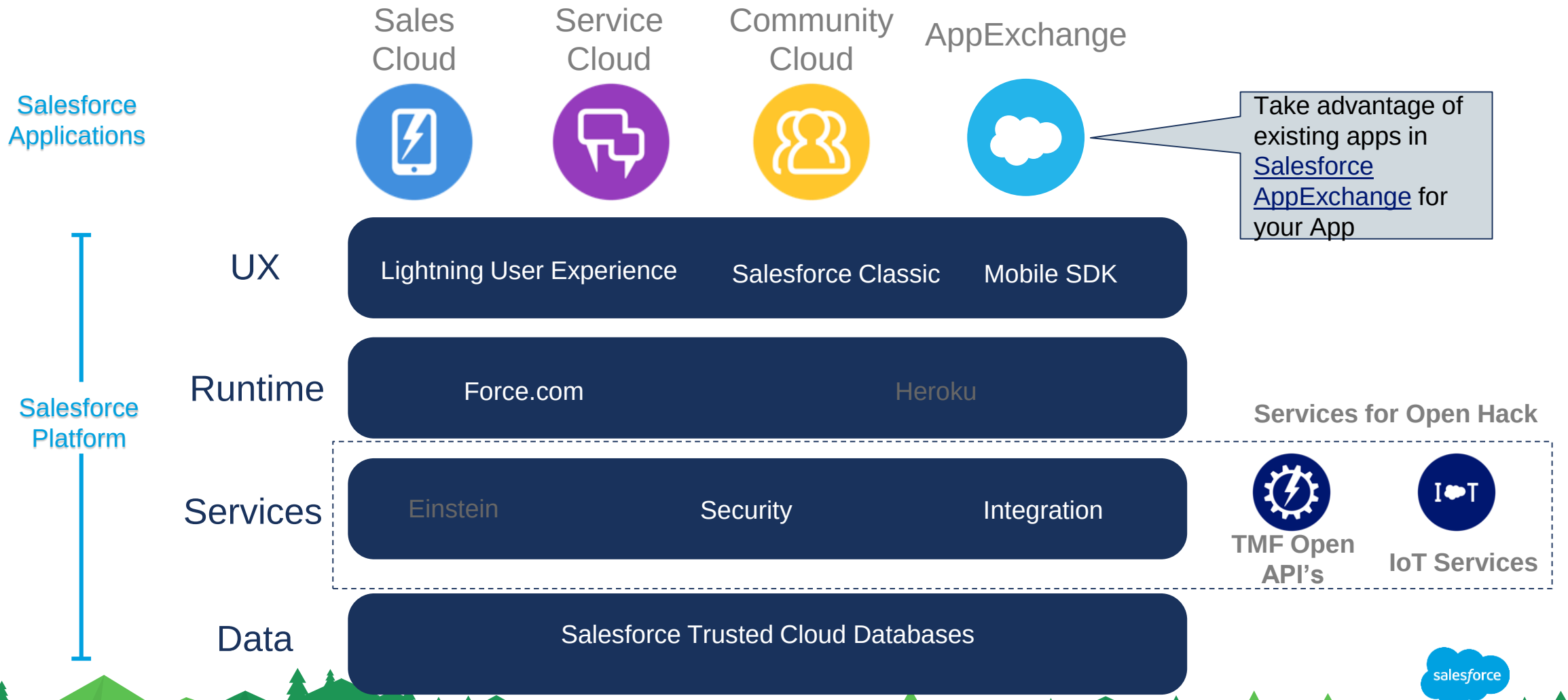
On the world's most powerful enterprise platform

Sales Cloud | Service Cloud | Marketing Cloud | Community Cloud | Analytics Cloud | App Cloud | Commerce Cloud | IoT Cloud

8 Industry Leading Apps | 1 Platform

Salesforce Platform and Technology

Exposed for Hackathon at TMF Live, Nice 2017



Build Apps with Every Skillset

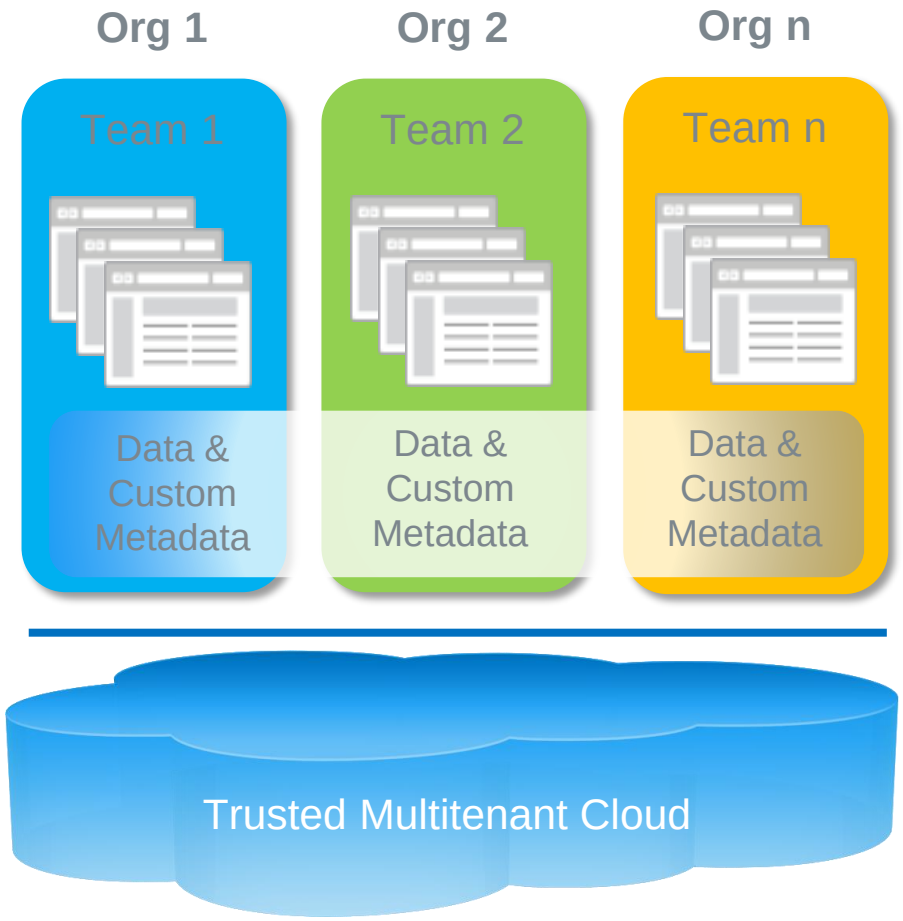
Empower developers, admins and business users to build the way they want

Tools for Building Any App

Full spectrum of capabilities on a single platform

Environment Basics for Hackathon

Each Team Will Have Its Own Salesforce “Org”



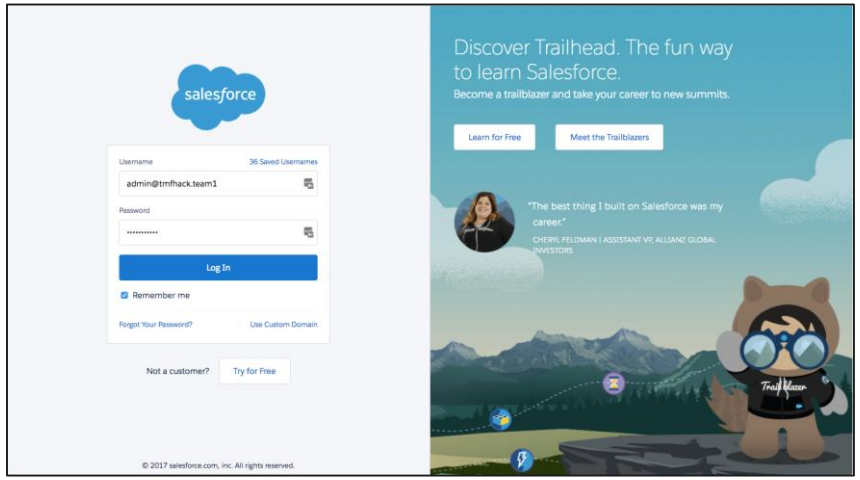
- An org is a provisioned set of resources that contain data and metadata supporting one or more applications.
- Although each org is a distinct entity, all orgs share the same underlying Salesforce multitenant platform.
- Each tenant’s data is secure and insulated from other tenants.

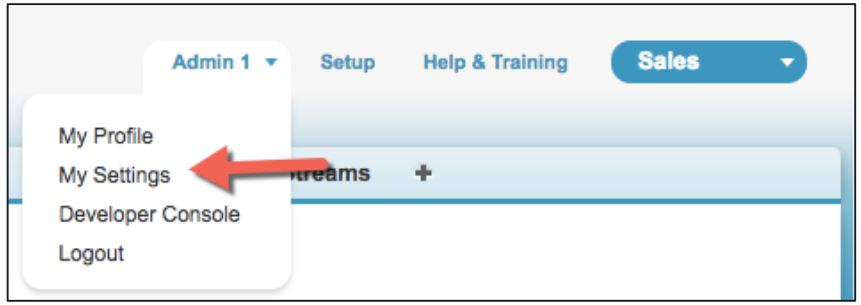
- Seamless upgrades
- No scaling / tuning
- Shared components

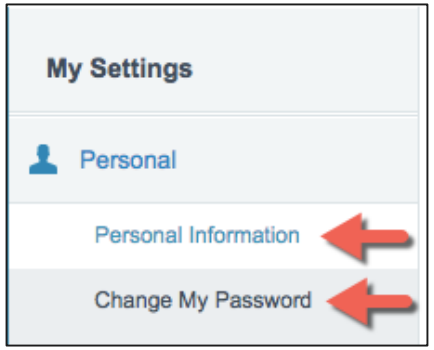
How To Connect To Your Org

1. https://login.salesforce.com/
2. Username = admin@tmfhack.teamX
   where X = your team number
3. Password = salesforce1

   When first connecting, take ownership of the Org
4. Click on *Admin User* in top right hand corner
   - pick *My Settings*
5. Expand *Personal*
   - pick *Personal Information*
     & then change the name & email address
     you will receive a confirmation email with a link
   - pick *Change My Password* & change the password

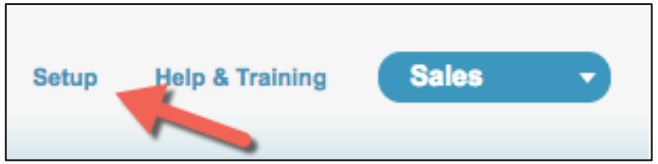


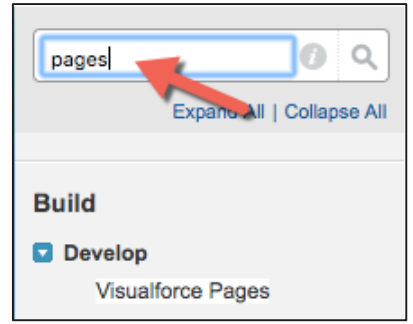


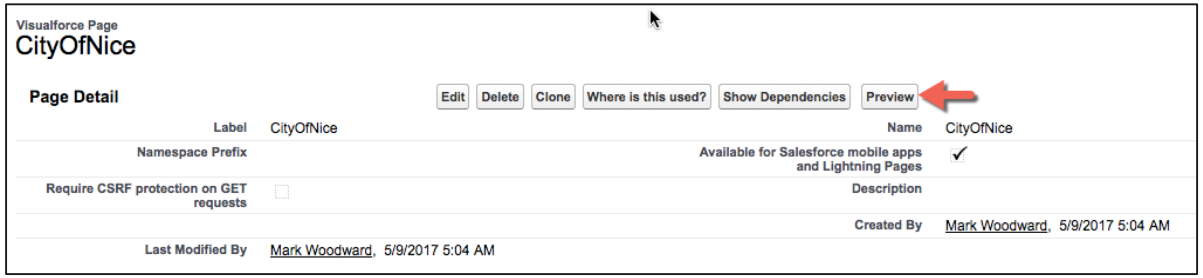


Finding The Integration Code Samples

1. Click on *Setup* in top right hand corner
2. In *Quick Find / Search* box
   Type *pages*
   Click on *Visualforce Pages*
3. Click into one of the sample pages
   e.g. *CityOfNice*
4. Click the *Preview* button to see it in action

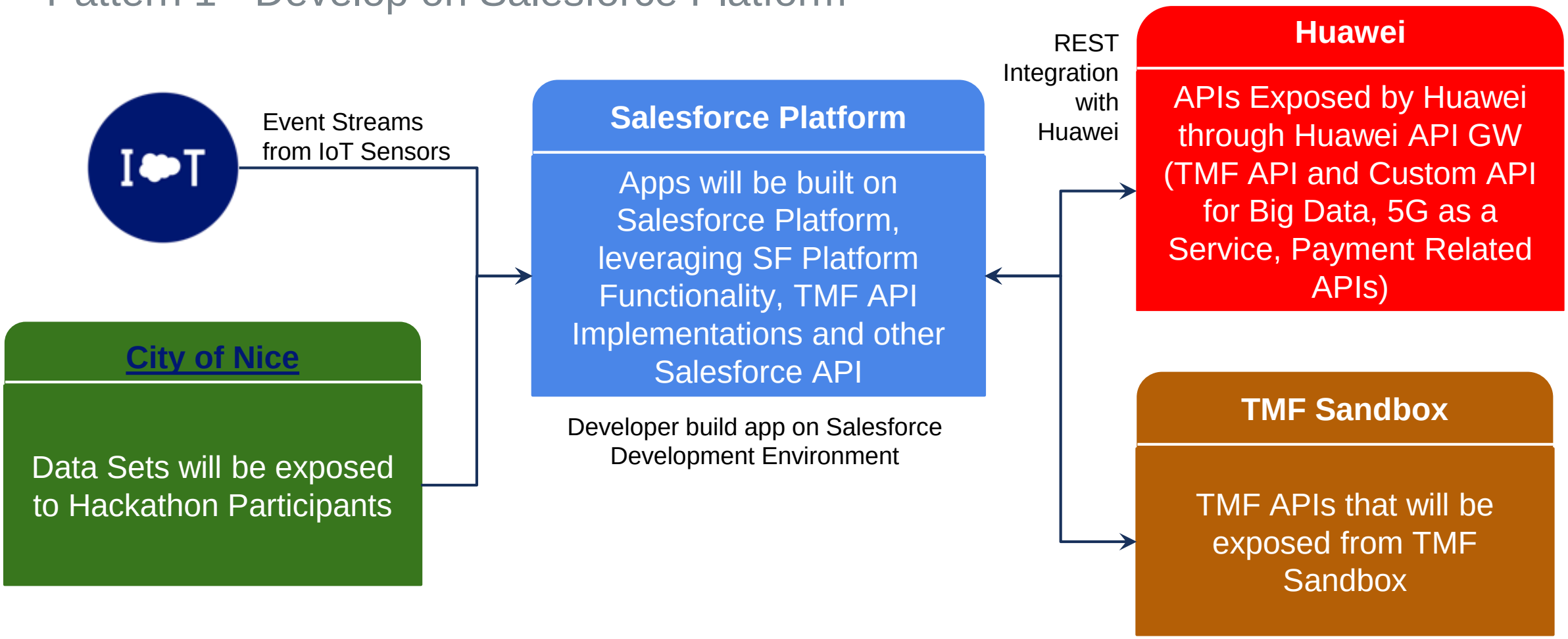






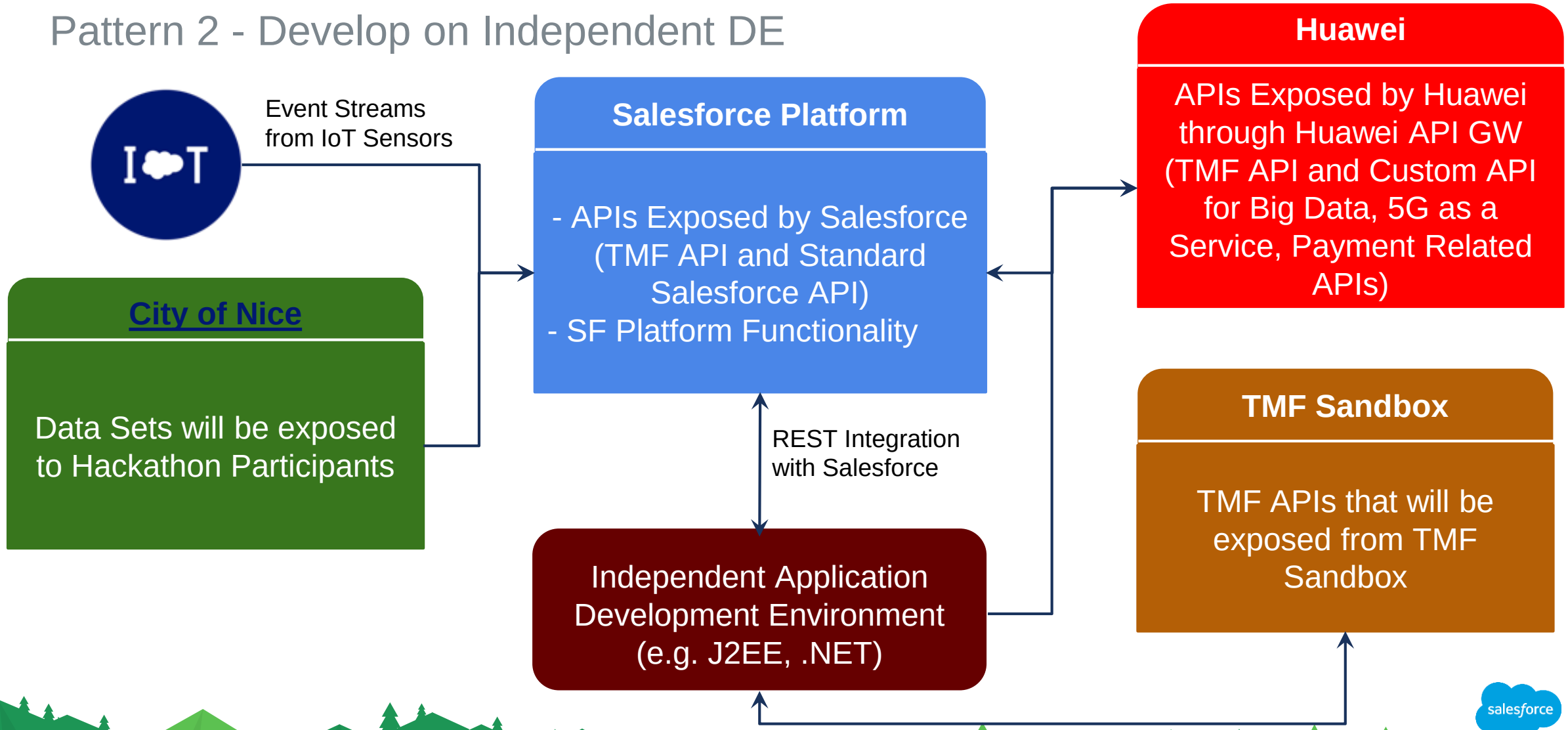
Putting it All Together

Pattern 1 - Develop on Salesforce Platform



Putting it All Together

Pattern 2 - Develop on Independent DE



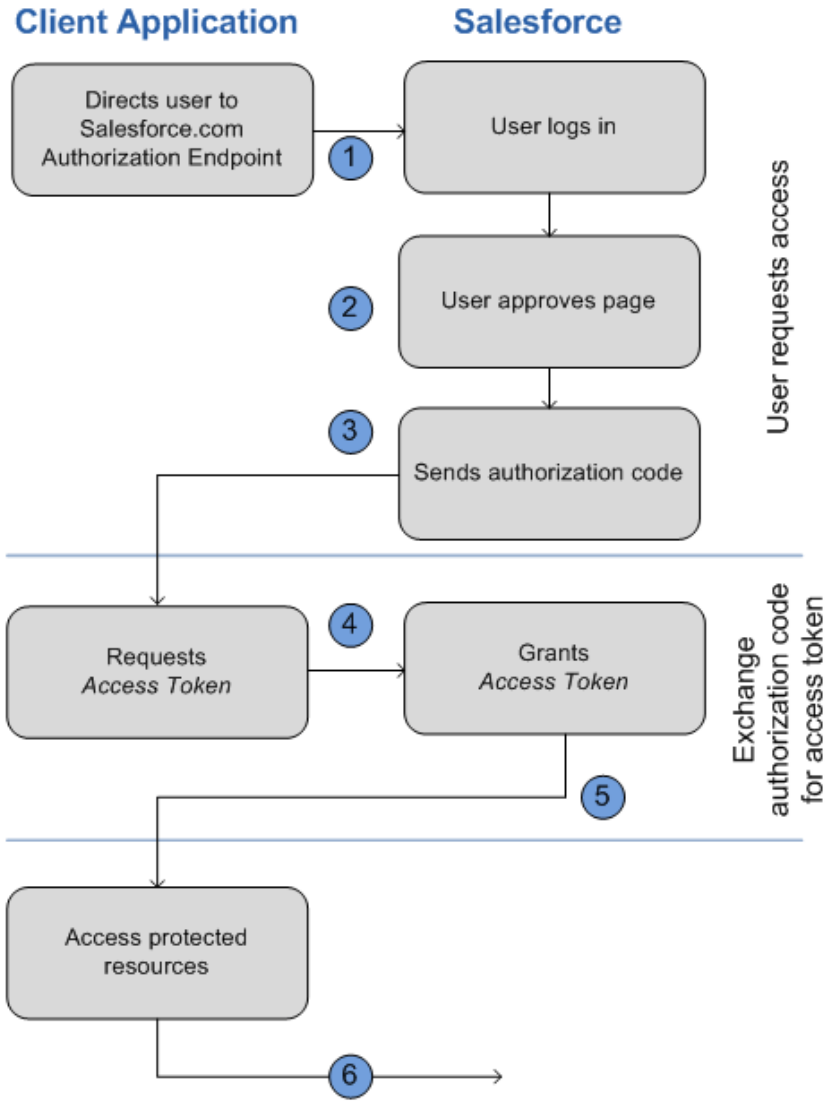
OAuth Authentication Flow

Client Application > Salesforce

Refer here to understand OAuth Endpoints

OAuth Authentication Flow (Refer here for additional details):

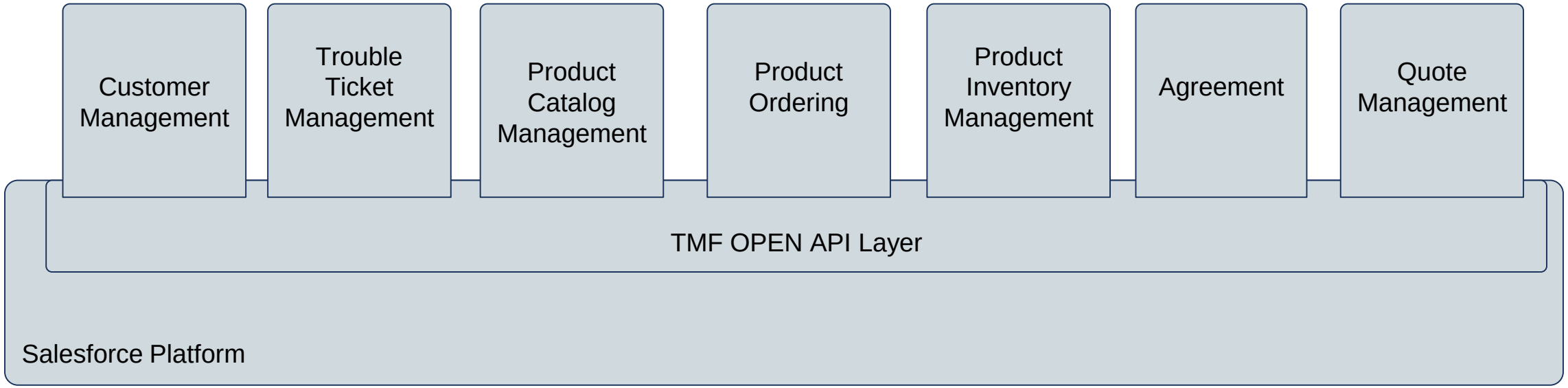
1. The application redirects the user to the appropriate Salesforce authorization endpoint
2. The user logs into Salesforce with their credentials
3. After Salesforce confirms that the client application is authorized, the end-user's Web browser is redirected to the callback URL specified by the redirect_uri parameter
4. The application extracts the authorization code and passes it in a request to Salesforce for an access token.
5. If this request is successful, the server returns a response body
6. The application uses the provided access token and refresh token to access protected user data.



Refer here for additional information on REST API

TMF APIs Available on Salesforce Platform

Exposed for Hackathon



Documentation for Detailed Mapping will be provided separately

Hackathon Assets for IoT Track

How To prepare your Salesforce ORG for IoT Track

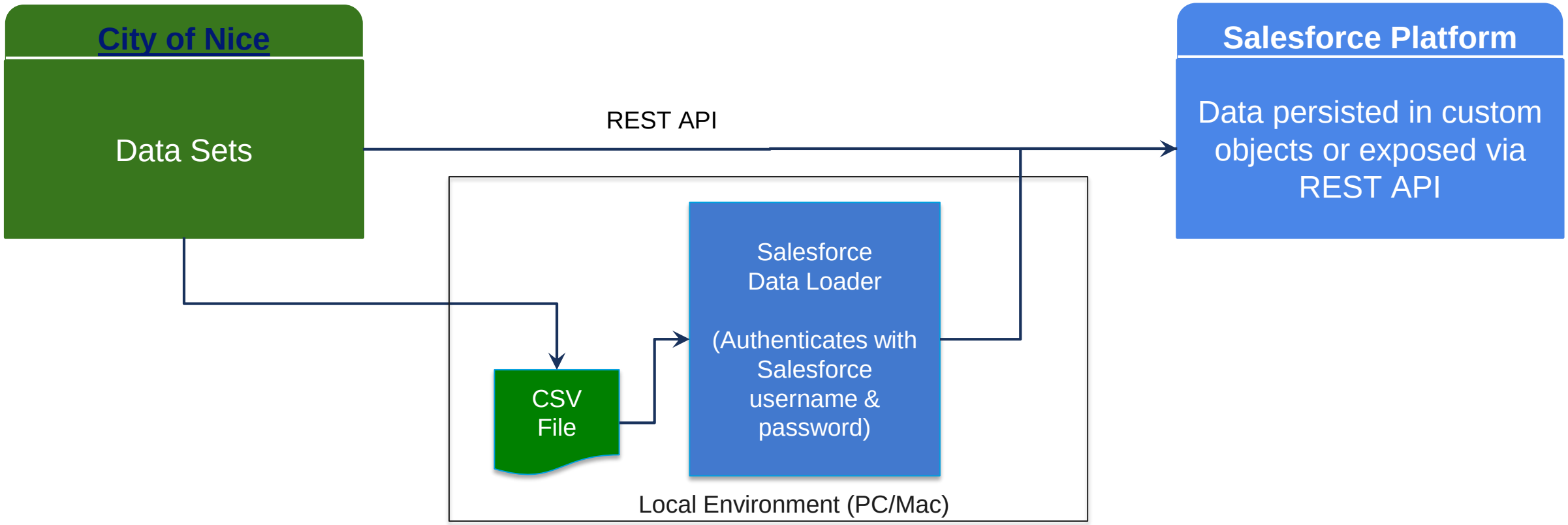
Event Registration HTML Page	Event Stream Setup	Create Custom Object in SF Org	Define workflows/triggers
Sensor Field 1 Team Name: Name: Electric Temp, Value: Trigger High Value – Trigger Low Value – Trigger Equal Value - **Sensor Field 2** Team Name: Name: Electric Temp, Value: Trigger High Value – Trigger Low Value – Trigger Equal Value -	**Event Stream and Standard Orchestration for each sensor is automatically created in IOT Cloud for every team**	**A custom object will be built in SF Org for team (through managed package) with fields for each sensor** **(A row will be inserted in this object for every trigger match)**	**Hackathon Team should configure workflow or create triggers or APEX classes for each row entry**

Integration with City of Nice

API integration and Data Upload

Integration Mechanism

City of Nice -> Salesforce



How To Retrieve ID - Step 1

The City of Nice has 80 datasets:

http://opendata.nicecotedazur.org/data/organization/ville-de-nice

Identify a data set and click on the link:

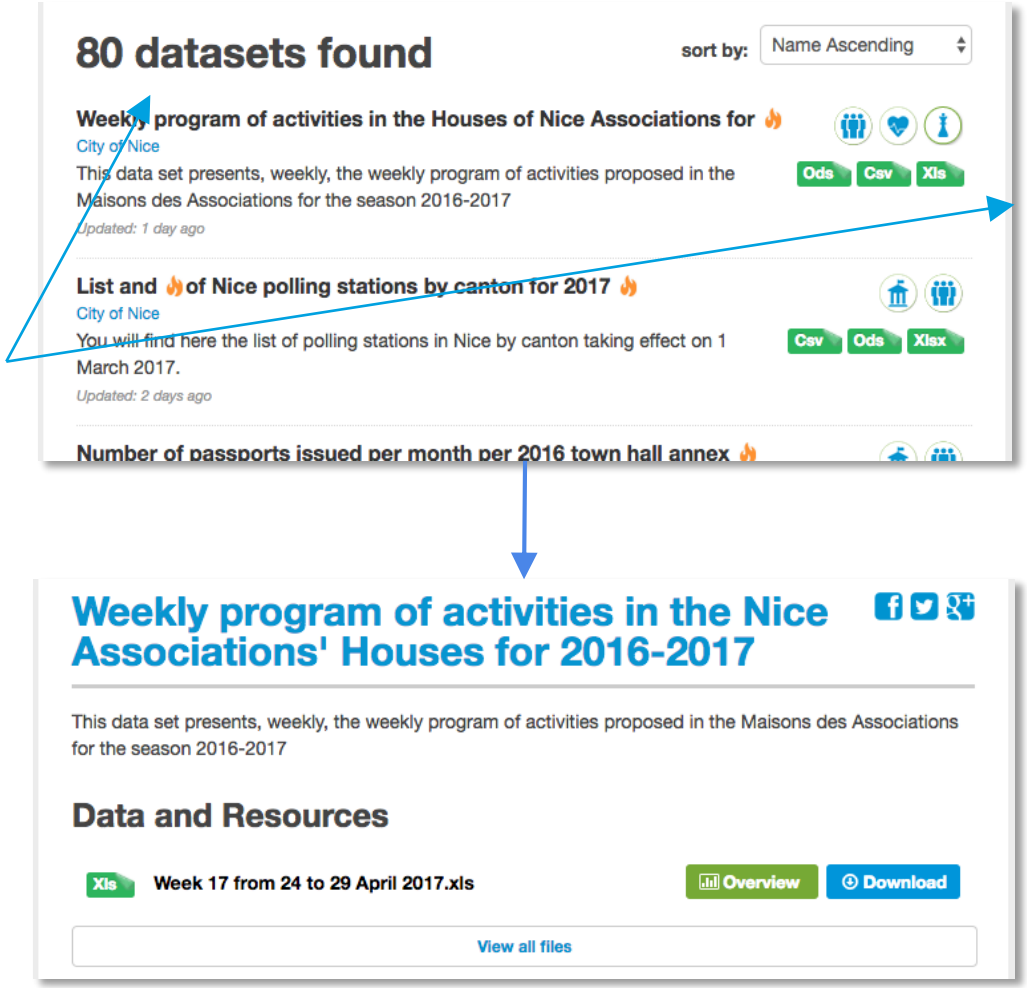
(e.g., Weekly program of activities in the House of Nice Associations)

Additional Information:

City of Nice Developer Resource Documentation

CKAN API Guide

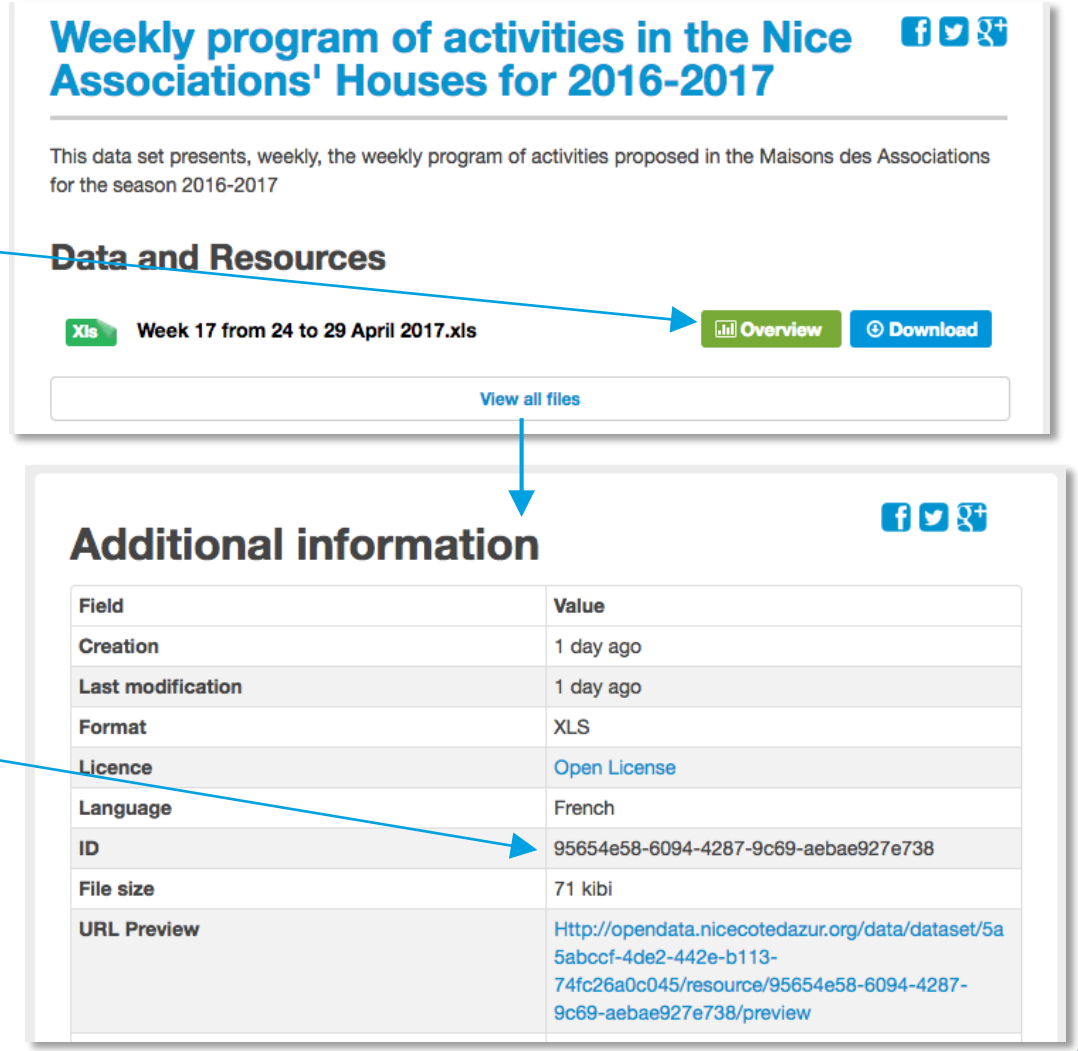
City Of Nice OpenData URL



How To Retrieve ID - Step 2

Click on the ‘Overview’ button:

Scroll down to the ‘Additional Information’section (click the ‘Show More’ link). Take note of the ID. This is what you will use in the query param for ‘resource_id in the API. There are additional query parameters, please refer to aforementioned documentation for a full list.



How To Retrieve ID - Step 3

http://opendata.nicecotedazur.org/data/api/3/action/datastore_search?resource_id=a53ec36a-87b0-43c3-9f4d-93c0d099a4f9

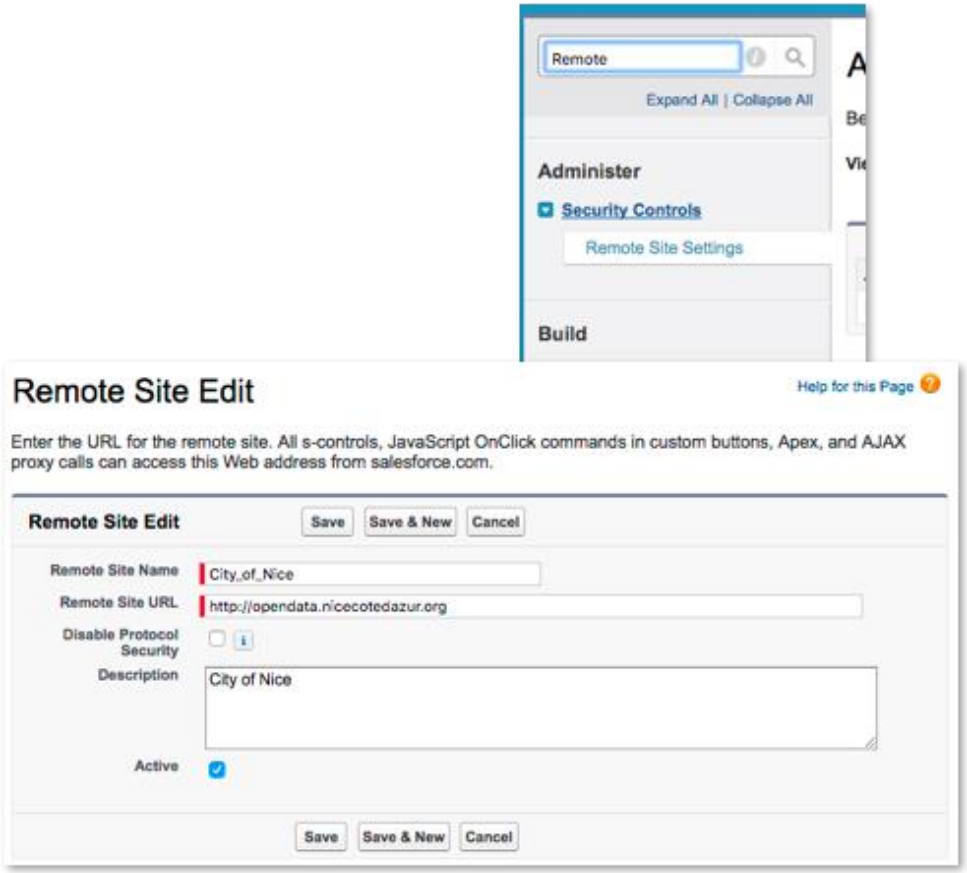
Additional information

Field	Value
Creation	10 October 2016
Last modification	10 October 2016
Format	Xlsx
Licence	Open License
Language	French
ID	A53ec36a-87b0-43c3-9f4d-93c0d099a4f9

How to integrate API into Salesforce

In order to utilize the previously referenced APIs, the remote site needs to be registered with your Salesforce instance:

1.From within your Salesforce instance, click on the ‘Setup’ link in the upper right-hand corner.
2.In the left-hand menu, type in ‘Remote’ in the search bar.
3.Click the ‘Remote Site Settings’ and register the URL for the remote site.
4.For more details, please refer to the official Salesforce documentation: https://developer.salesforce.com/docs/atlas.en-us.apexcode.meta/apexcode/apex_callouts_remote_site_settings.htm



How to integrate API into Salesforce (City of Nice)

The next few slides shows a very simple implementation of a Custom Visual Force page (figure 1.) and Extension Class (figure 2.) invoking an External API.

Figure 1. – Custom Visual Force page

```
<apex:page standardController="Account" extensions="AccountExtension" >
    <apex:pageBlock title="Polling Stations">
        <apex:pageBlockTable value="{!calloutResponseContents}" var="myStation">
            <apex:column value="{!myStation.adresses}"/>
            <apex:column value="{!myStation.bureaux}"/>
        </apex:pageBlockTable>
    </apex:pageBlock>
</apex:page>
```

How to integrate API into Salesforce (City of Nice), cont'd

```
public List<PollingStation> getCalloutResponseContents() {

  // Instantiate a new http object
  Http h = new Http();

  // Instantiate a new HTTP request, specify the method (GET) as well as the endpoint
  HttpRequest req = new HttpRequest();
  //req.setEndpoint(url);
  req.setEndpoint('http://opendata.nicecotedazur.org/data/api/3/action/datastore_search?resource_id=a53ec36a-87b0-43c3-9f4d-93c0d099a4f9');
  req.setMethod('GET');

  // Send the request, and return a response
  HttpResponse res = h.send(req);

  // Parse JSON response to get all the id field values.
  JSONParser parser = JSON.createParser(res.getBody());
  String prevToken = '';
  List<PollingStation> pollingStations;

  while (parser.nextToken() != null) {
      if ((parser.getCurrentToken() == JSONToken.FIELD_NAME) && (parser.getText() == 'records')) {
          prevToken = 'records';
      }
      if (parser.getCurrentToken() == JSONToken.START_ARRAY && prevToken == 'records') {
        pollingStations = new List<PollingStation>();
        while (parser.nextToken() != null) {
          if (parser.getCurrentToken() == JSONToken.START_OBJECT) {
            PollingStation station = (PollingStation)parser.readValueAs(PollingStation.class);
            pollingStations.add(station);
            parser.skipChildren();
          }
        }
      }
  }
  return pollingStations;
}

public class PollingStation {
  public String degree { get; set;}
  public String bureaux { get; set;}
  public String adresses { get; set;}
  public String id;

  public PollingStation(String parserDegree, String parserBureaux, String parserAdresses, String parserId) {
    degree = parserDegree;
    bureaux = parserBureaux;
    adresses = parserAdresses;
    id = parserId;
  }
}
```

Figure 2. – Custom Extension Class and method responsible for

How to integrate API into Salesforce (City of Nice), cont'd

Figure 3. – Rendered List of data served from external API

Polling Stations

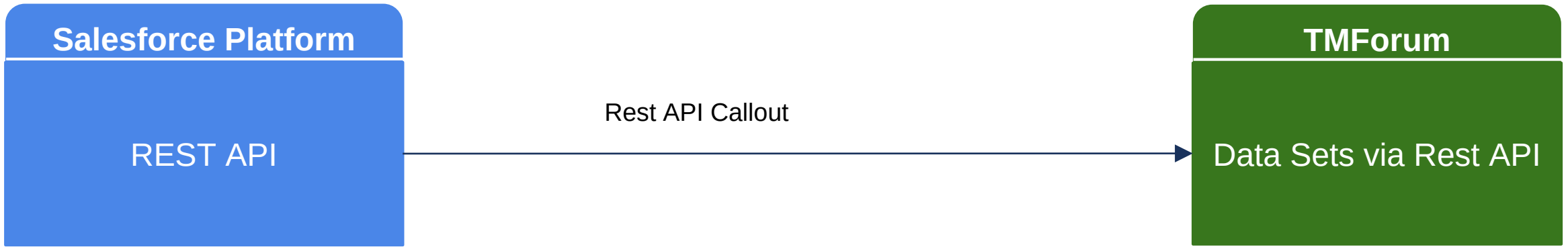
Palais Masséna 65, rue de France	MASSENA
Palais Masséna 65, rue de France	MEYERBEER
Palais Masséna 65, rue de France	RIVOLI
Ecole Ronchèse maternelle rue Spitalieri	LONGCHAMP
Ecole Ronchèse maternelle rue Spitalieri	DEROULEDE
Ecole Auber maternelle 35, avenue Auber	AUBER
Ecole Auber maternelle 35, avenue Auber	ROSSINI
Ecole Auber maternelle 35, avenue Auber	PAGANINI
Ecole Auber maternelle 35, avenue Auber	GUIGLIA
Ecole Auber mixte 35, avenue Auber	BERLIOZ
Ecole Auber mixte 35, avenue Auber	MARECHAL JOFFRE
Ecole des Baumettes maternelle I 13, rue des Potiers	FRANKLIN
Ecole des Baumettes maternelle I 13, rue des Potiers	CHATEAUNEUF
Ecole des Baumettes maternelle II 24, rue Dante	BAUMETTES
Ecole des Baumettes maternelle II 24, rue Dante	BOTTERO
Ecole des Baumettes maternelle II 24, rue Dante	LES FLEURS
Ecole des Baumettes mixte I 23, rue Dante	DANTE
Ecole des Baumettes mixte I 23, rue Dante	FRANCOIS GROSSO
Ecole des Baumettes mixte I 23, rue Dante	ORANGERS
Ecole des Baumettes mixte II 26, rue Dante	SHAKESPEARE
Lycée Honoré d'Estienne d'Orves - Rive Gauche 38, avenue d'Estienne d'Orves	CLUVIER

Integration with TMForum Sandbox

API integration

Integration Mechanism

Salesforce -> TMForum

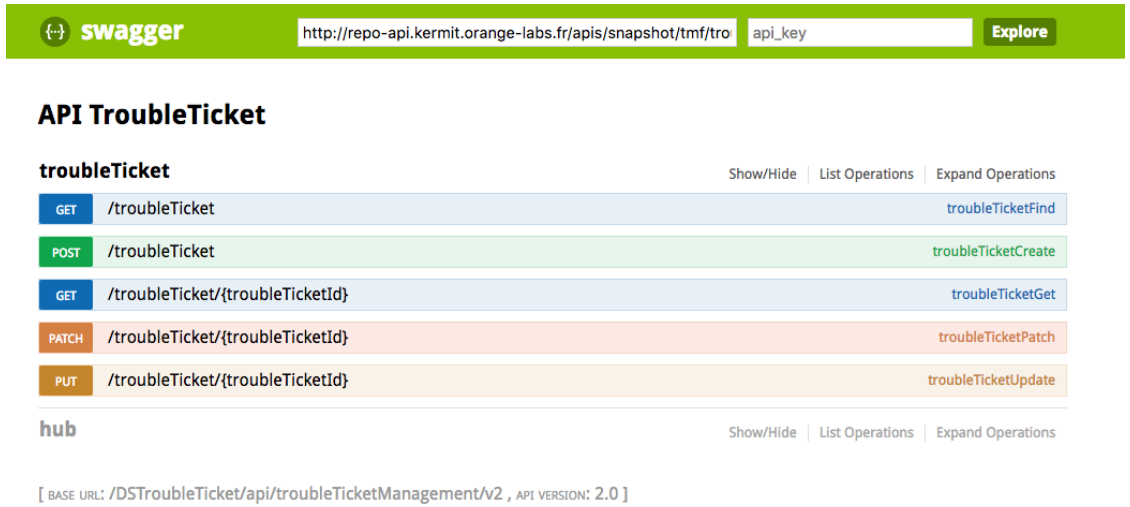


TM Forum Open API Table

https://projects.tmforum.org/wiki/display/API/Open+API+Table

Sandbox URL (e.g. of TroubleTicker API in the Swagger_UI)

http://repo-api.kermit.orange-labs.fr/swagger-ui/?url=http://repo-api.kermit.orange-labs.fr/apis/snapshot/tmf/troubleTicket/v2/swagger2.json



How to integrate API into Salesforce (TMForum)

The next few slides shows a very simple implementation of a Custom Visual Force page (figure 1.) and Extension Class (figure 2.) invoking an External API (User is able to enter in a trouble ticket and get response).

TMForumAPI.page — BlueTug Dev Org

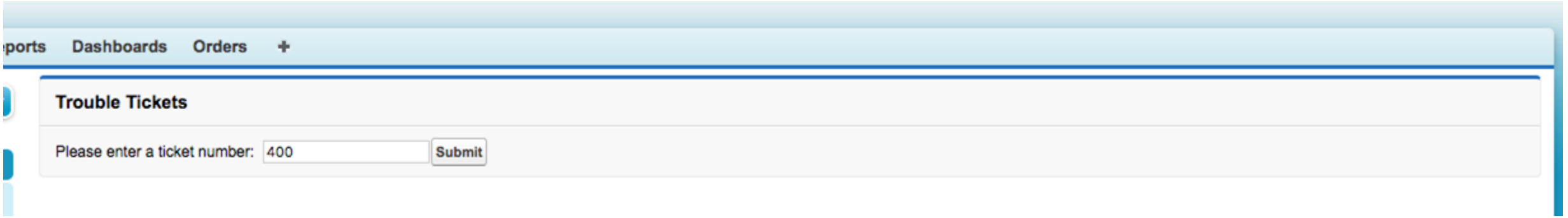
TMForumAPI.page × | AccountExtension.cls × | CityOfNice.page × | TMForumDrone.page × | { ● | SFField

```
1  <apex:page standardController="Account" extensions="AccountExtension" >
2     <apex:pageBlock title="Trouble Tickets">
3     <apex:form>
4             Please enter a ticket number:  
5              <apex:inputText value="{!ticketNumber}"/>
6             <apex:commandButton action="{!submitTicketNumber}" value="Submit"/> 
7
8          </apex:form>
9         <apex:pageBlockTable value="{!troubleTickets}" var="ticket" rendered="{!ticketNumber != NULL}">
10           <apex:column value="{!ticket.description}"/>
11           <apex:column value="{!ticket.type}"/>
12           <apex:column value="{!ticket.creationDate}"/>
13           <apex:column value="{!ticket.targetResolutionDate}"/>
14           <apex:column value="{!ticket.status}"/>
15           <apex:column value="{!ticket.statusChangeReason}"/>
16           <apex:column value="{!ticket.statusChangeDate}"/>
17           <apex:column value="{!ticket.severity}"/>
18        </apex:pageBlockTable>
19    </apex:pageBlock>
20 </apex:page>
```

How to integrate API into Salesforce (TMForum), cont'd

```
public void submitTicketNumber() {
    System.debug('Not much to do here, page is refreshed with the ticket number in the field');
}

public List<TroubleTicket> getTroubleTickets(){

 // Instantiate a new http object
 Http h = new Http();

  // Instantiate a new HTTP request, specify the method (GET) as well as the endpoint
 HttpRequest req = new HttpRequest();
 req.setEndpoint('http://env-0693795.jelastic.servint.net/DSTroubleTicket/api/troubleTicketManagement/v2/troubleTicket/' + ticketNumber);
 req.setMethod('GET');

 // Send the request, and return a response
 HttpResponse res = h.send(req);

 // Parse JSON response to get all the id field values.
 JSONParser parser = JSON.createParser(res.getBody());
 System.debug(res.getBody());
 List<TroubleTicket> troubleTickets;

 troubleTickets = new List<TroubleTicket>();

 while (parser.nextToken() != null) {
   if (parser.getCurrentToken() == JSONToken.START_OBJECT) {
     TroubleTicket station = (TroubleTicket)parser.readValueAs(TroubleTicket.class);
     troubleTickets.add(station);
     parser.skipChildren();
   }
 }

 return troubleTickets;
}
```

How to integrate API into Salesforce (TMForum), cont'd



Trouble Tickets

Please enter a ticket number: 400 Submit

nanana	device	2017-05-08T14:37:30Z	Submitted	2017-05-08T14:37:30Z	High

How to integrate API into Salesforce, cont'd

Developer resources for items referenced above:

1.Creating custom visual force pages:

https://developer.salesforce.com/docs/atlas.en-us.pages.meta/pages/pages_quick_start_hello_world.htm

2.Building custom controllers and extensions:

https://developer.salesforce.com/docs/atlas.en-us.pages.meta/pages/pages_controller_custom.htm

https://developer.salesforce.com/docs/atlas.en-us.pages.meta/pages/pages_controller_extension.htm

3. APEX Json Parser:

https://developer.salesforce.com/docs/atlas.en-us.apexcode.meta/apexcode/apex_json_jsonparser.htm

https://developer.salesforce.com/docs/atlas.en-us.apexcode.meta/apexcode/apex_class_System_JsonParser.htm

Thank You