

Lightning Components made easy with Lightning Data Service and Base Lightning Components

#MWD19

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Who is this?

and other interesting facts



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MVP

Salesforce MVP



Salesforce Certified



A bit about me.....



visual*force*TM



Love at first site



- Standard Controller
- Extensions
- Tables
- Styling
- Javascript



Love at first site



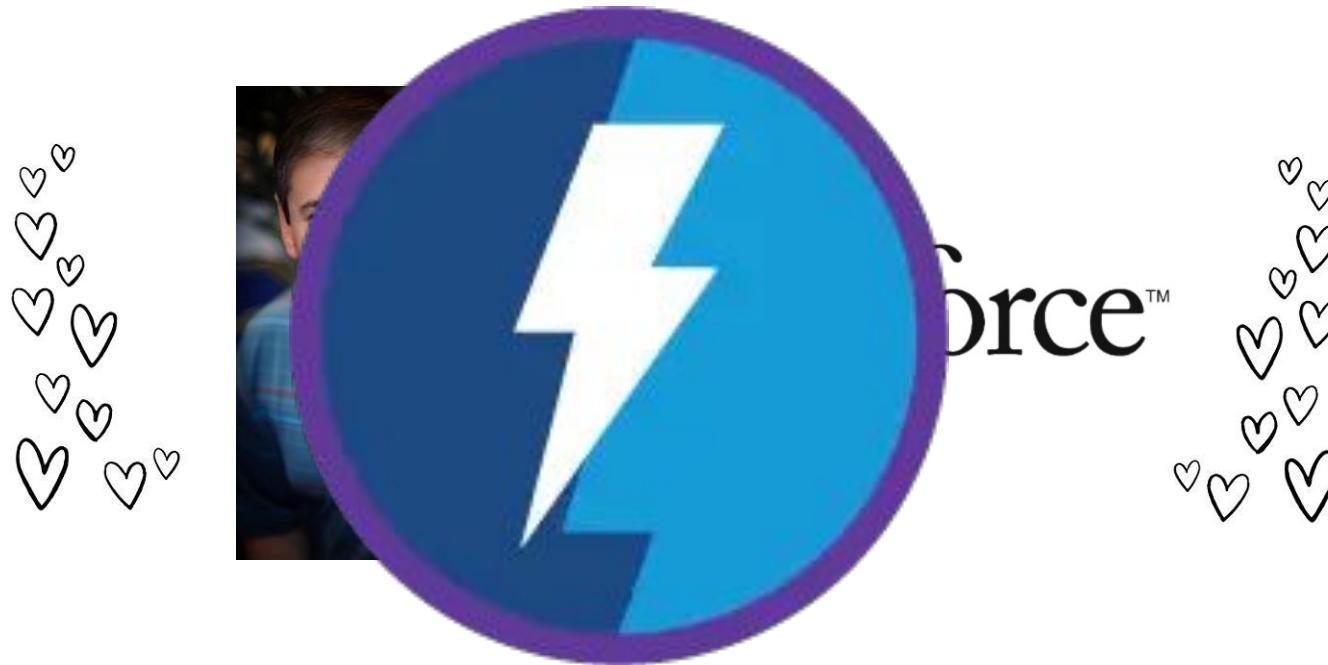
Portals / Communities

Edge Cases

Complex Functionality



Then what happened was....



Lightning Component - It's Easy!

(not really)



1. Apex Controller - FOR ANY DATA
2. Pass any data to JS Controller
3. Build HTML Tags
4. Iterate Data

```
<apex:page lightningStylesheets="true">  
    <apex:slds />
```



Let's Talk

1. Terminology
2. What the Component
3. Base Components
4. Lightning Data Service
5. Demo Time!



Terminology

Lightning Component

Aura/Web

Lightning Data Service / Lightning Service

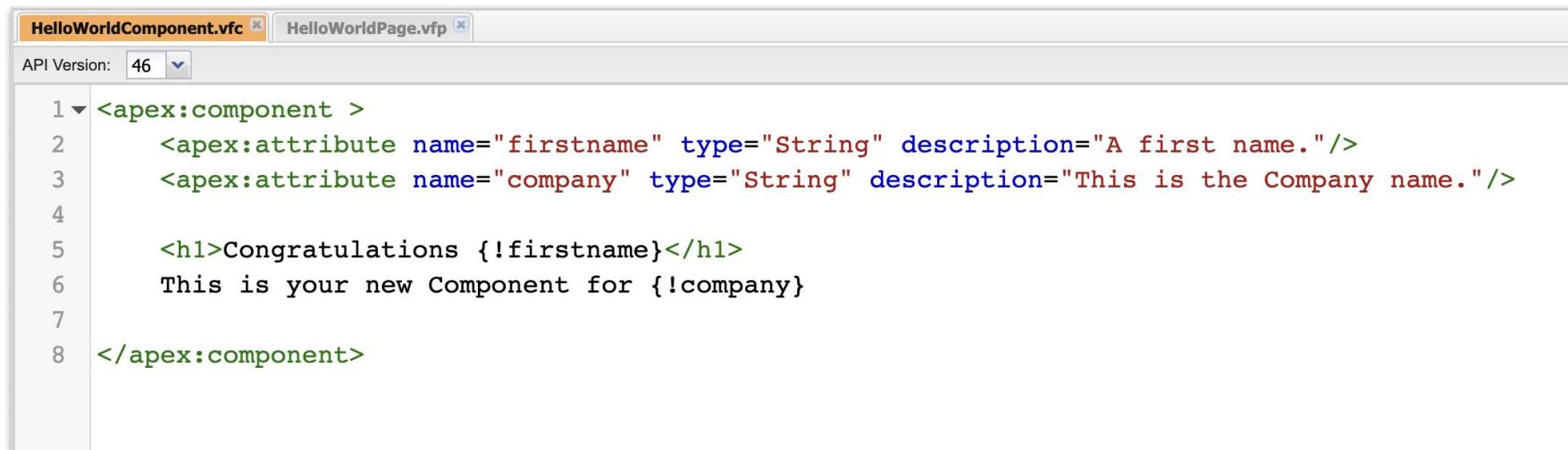
Base Component / Base Lightning Component

Visualforce Component / Visualforce Standard Component



What the component....

Visualforce



The screenshot shows the Visualforce Component Editor interface. The tab bar at the top has 'HelloWorldComponent.vfc' selected (highlighted in orange). Below the tabs, the API Version is set to 46. The code editor displays the following Apex component code:

```
1 <apex:component>
2     <apex:attribute name="firstname" type="String" description="A first name." />
3     <apex:attribute name="company" type="String" description="This is the Company name." />
4
5     <h1>Congratulations {!firstname}</h1>
6     This is your new Component for {!company}
7
8 </apex:component>
```



The screenshot shows the Visualforce Page Editor interface. The tab bar at the top has 'HelloWorldPage.vfp' selected (highlighted in orange). Below the tabs, the API Version is set to 46. The code editor displays the following Apex page code:

```
1 <apex:page>
2     <c:helloworldcomponent company="clicks 2 code" firstname=" {!$User.FirstName} " />
3 </apex:page>
```

What the component....

Visualforce Standard Components

Standard Component Reference

- analytics:reportChart
- apex:actionFunction
- apex:actionPoller
- apex:actionRegion
- apex:actionStatus
- apex:actionSupport
- apex:areaSeries
- apex:attribute
- apex:axis
- apex:barSeries
- apex:canvasApp
- apex:chart
- apex:chartLabel
- apex:chartTips
- apex:column

AccountContacts.vfp

Preview API Version: 46

```
1 <apex:page standardController="Account">
2   <apex:pageBlock title="Contacts">
3     <apex:pageBlockTable value="{!!account.Contacts}" var="contact">
4       <apex:column value="{!!contact.name}"/>
5       <apex:column value="{!!contact.email}"/>
6       <apex:column value="{!!contact.phone}"/>
7     </apex:pageBlockTable>
8   </apex:pageBlock>
9 </apex:page>
10
```

What the component....

Visualforce Standard Components

AccountContacts.vfp

Preview API Version: 46

```
1 <apex:page standardController="Account">
2   <apex:pageBlock title="Contacts">
3     <apex:pageBlockTable value="{!!account.Contacts}" var="contact">
4       <apex:column value="{!!contact.name}"/>
5       <apex:column value="{!!contact.email}"/>
6       <apex:column value="{!!contact.phone}"/>
7     </apex:pageBlockTable>
8   </apex:pageBlock>
9 </apex:page>
10
```

Contacts

Name	Email	Phone
Stella Pavlova	spavlova@uog.com	(212) 842-5500
Lauren Boyle	lboyle@uog.com	(212) 842-5500
Arthur Song	asong@uog.com	(212) 842-5500
Avi Green	agreen@uog.com	(212) 842-5500

Wait...Aura Web what?

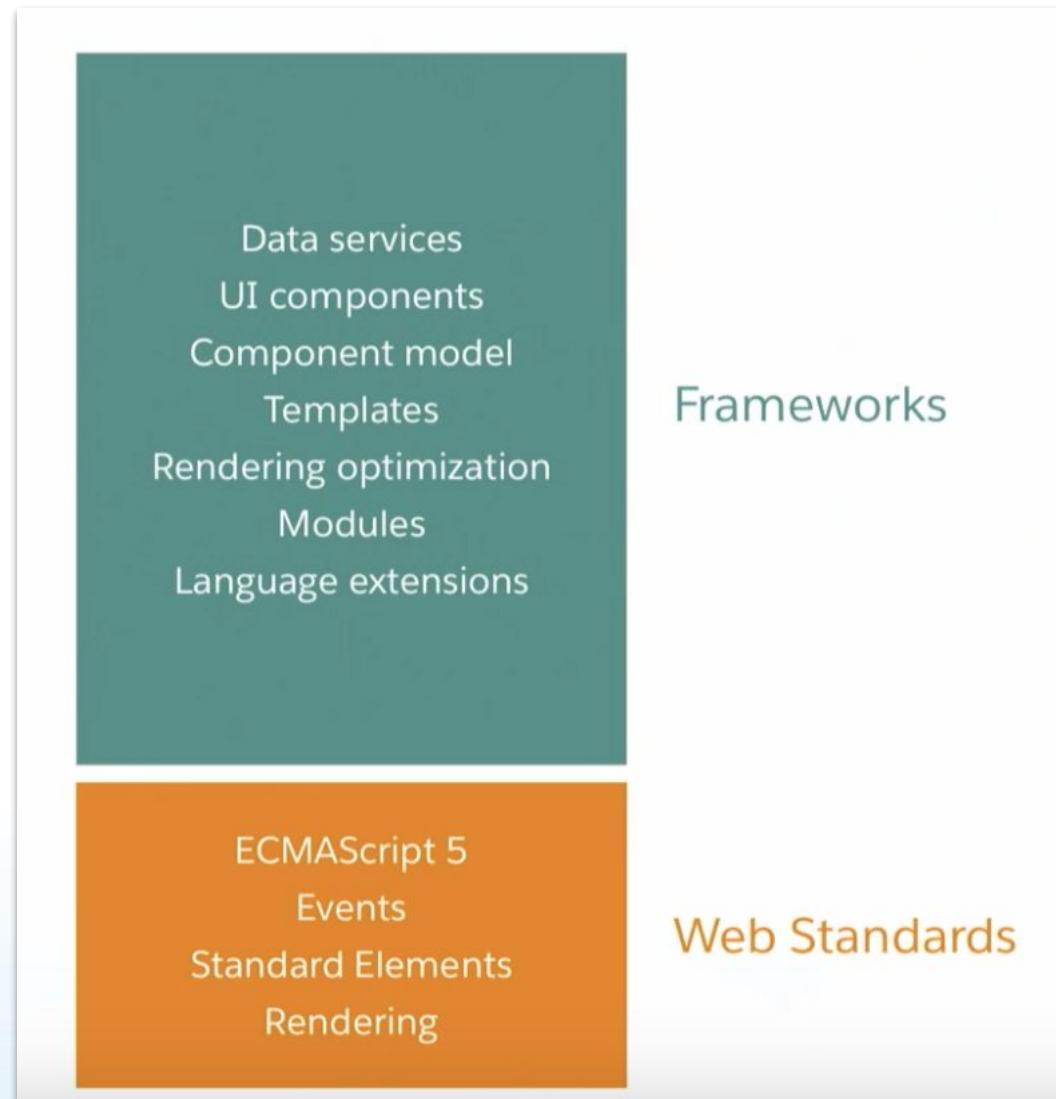
Lightning Component

	Aura	Web
Introduced	Dreamforce '13	Spring '19
Tooling	Developer Console and multiple IDE's	VS Code
Base Components	Yes	Yes
Data Service	Yes	Yes
Open Source	Yes	Yes
Web Standards	Some	Many



Wait...Aura Web what?

2014 Web Stack



Wait...Aura Web what?

Today



Base Lightning Components

Building blocks that make up the modern Lightning Experience, Salesforce app, and Lightning Communities user interfaces.

Incorporate Lightning Design System.

Handle the details of HTML and CSS for you.



Base Lightning Components

Namespace

All have the “lightning” namespace.

Framework	Button
Visualforce	<code><apex:commandButton action="{!save}" value="Save" id="theButton"/></code>
Aura	<code><lightning:button label="Neutral" title="Neutral action" onclick="{!! c.handleClick }"/></code>
Web	<code><lightning-button label="Neutral" title="Neutral action" onclick={handleClick}></lightning-button></code>



Base Lightning Components

A Timeline

Component	Release
Beta Release	Winter '17
lightning:datatable	Winter '18
lightning:inputField	Spring '18
lightning:recordForm	Summer '18



Lightning Component

Wait we had these.....

```
<force:inputField value=" {!v.contact.Name}"/>
```



Lightning Data Service

Use to load, create, edit, or delete a record in your component without requiring Apex code.

Handles sharing rules and field-level security for you.

Improves performance and user interface consistency.



Lightning Data Service

How do we do this?

```
<aura:attribute name="accountRecord" type="Object"/>

<force:recordData aura:id="recordLoader"
  recordId="{!!v.recordId}"
  fields="Name,Description,Phone,Industry"
  targetFields="{!!v.accountRecord}"
/>
```

Lightning Data Service

How do we do this?

```
<aura:attribute name="accountRecord" type="Object"/>

<force:recordData aura:id="recordLoader"
recordId="{!!v.recordId}"
fields="Name,Description,Phone,Industry"
targetFields="{!!v.accountRecord}"
/>

<div>
  <lightning:card iconName="standard:account" title="{!!v.accountRecord.Name}" >
    <div class="slds-p-horizontal--small">
      <p class="slds-text-heading--medium"><lightning:formattedPhone title="Phone" value="{!!v.accountRecord.Phone}" /></p>
      <p class="slds-truncate"><lightning:formattedText title="Description" value="{!!v.accountRecord.Description}" /></p>
      <p class="slds-truncate"> <lightning:formattedText title="Industry" value="{!!v.accountRecord.Industry}" /></p>
    </div>
  </lightning:card>
</div>
```

Lightning Data Service

How do we do this?

lightning:recordForm

lightning:recordViewForm

lightning:recordEditForm



Code

Record Component

Base Components + Data Service

So what's the big deal?

Before we had to:

1. Apex Controller
2. Pass any data to JS Controller
3. Build HTML Tags
4. Iterate Data



!(Base Components + Data Service)

So what's the big deal?

Component

```
<aura:component controller="ContactController">
    <aura:attribute name="contact" type="Contact"
        default="{ 'sobjectType': 'Contact' }"/>
    <aura:handler name="init" value="{!this}" action=" {!c.doInit} " />
    <force:inputField value=" {!v.contact.Name} "/>
</aura:component>
```

Component Javascript Controller

```
{
    doInit : function(component, event, helper) {
        var action = component.get("c.getContact");
        action.setCallback(this, function(response) {
            var state = response.getState();
            if (state === "SUCCESS") {
                component.set("v.contact", response.getReturnValue());
                console.log(response.getReturnValue());
            }
        });
        $A.enqueueAction(action);
    }
}
```

Apex Class

```
public with sharing class ContactController {
    @AuraEnabled
    public static Contact getContact() {
        return [select Id, Name from Contact Limit 1];
    }
}
```



Base Components + Data Service

So what's the big deal?

```
<aura:component implements="flexipage:availableForRecordHome,force:hasRecordId">
    <aura:attribute name="fields" type="String[]" default="['Name','Title','Email']" />
    <lightning:recordForm
        recordId="{!v.recordId}"
        objectApiName="Contact"
        fields="{!v.fields}"
        columns="1"
        mode="edit"/>
</aura:component>
```



Base Components + Data Service

So what's the big deal?

```
<aura:component implements="flexipage:availableForRecordHome,force:hasRecordId">
    <lightning:recordEditForm recordId="{!v.recordId}" objectApiName="Contact">
        <lightning:messages />
        <lightning:inputField fieldName="Name" />
        <lightning:inputField fieldName="Title" />
        <lightning:inputField fieldName="Email" />
        <lightning:button class="slds-m-top_small" type="submit" name="update" label="Update" />
    </lightning:recordEditForm>
</aura:component>
```

Base Components + Data Service

So what's the big deal?

* Full Name

Salutation

Mr.

First Name

Jack

* Last Name

Rogers

Title

VP, Facilities.

Email

jrogers@burlington.com

Base Components + Data Service

So what's the big deal?

```
<template>
  <lightning-record-form
    record-id={recordId}
    object-api-name={objectApiName}
    fields={fields}
    columns="1"
    mode="edit"
  >
</lightning-record-form>
</template>
```

```
import { LightningElement, api } from 'lwc';

import NAME_FIELD from '@salesforce/schema/Contact.Name';
import TITLE_FIELD from '@salesforce/schema/Contact.Title';
import EMAIL_FIELD from '@salesforce/schema/Contact.Email';

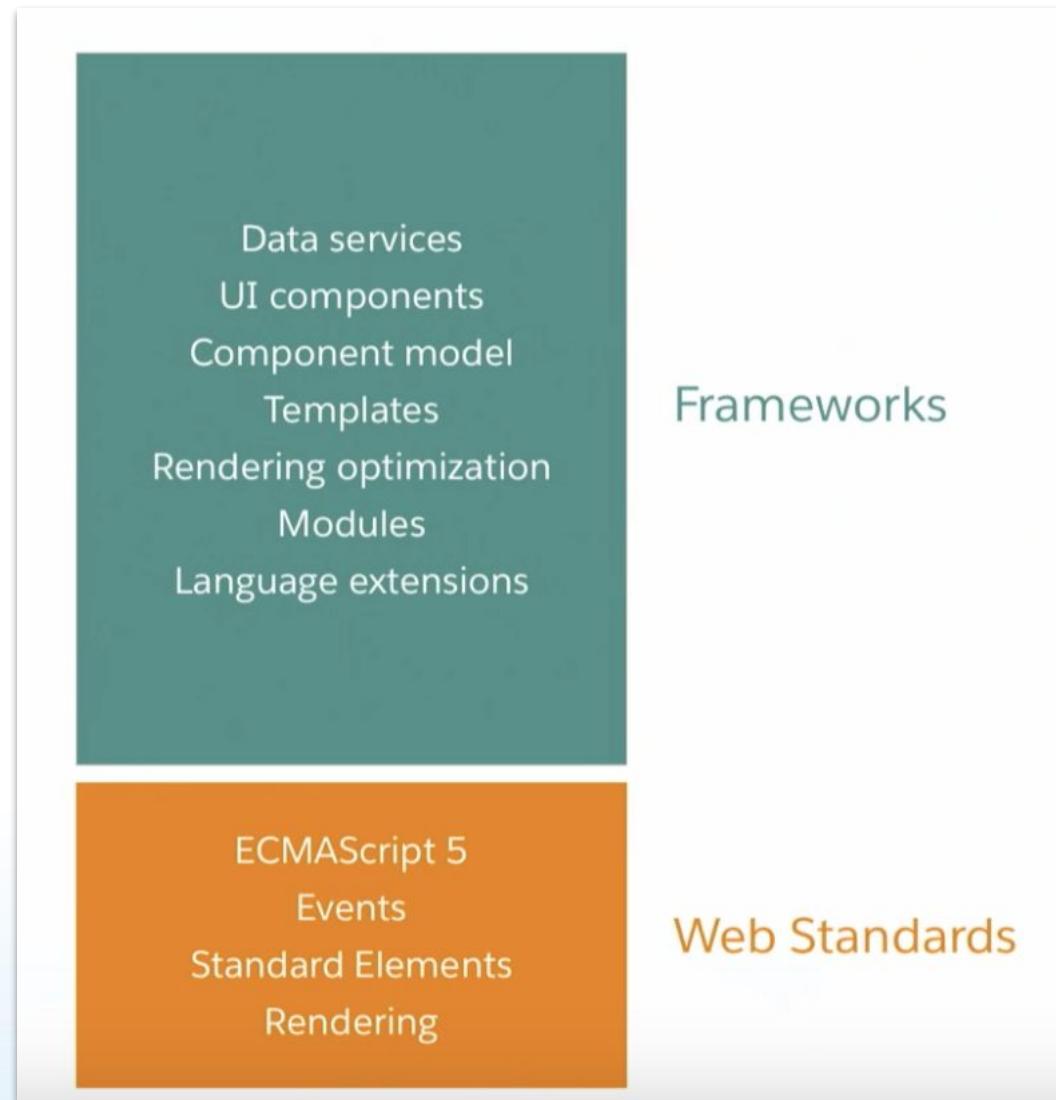
export default class ContactQuickEditLWC extends LightningElement {
  @api recordId;
  @api objectApiName;

  fields = [NAME_FIELD, TITLE_FIELD, EMAIL_FIELD];
}
```



Wait...Aura Web what?

2014 Web Stack



Wait...Aura Web what?

Today



Base Components + Data Service

So what's the big deal?

* Full Name

Salutation

Mr.

First Name

Jack

* Last Name

Rogers

Title

VP, Facilities.

Email

jrogers@burlington.com

Cancel

Save



Code

Visualforce Convert

Migrate Visualforce

```
<apex:page standardController="Account">
    <apex:pageBlock title="Contacts">
        <apex:pageBlockTable value="{!!account.Contacts}" var="contact">
            <apex:column value="{!!contact.name}"/>
            <apex:column value="{!!contact.phone}"/>
            <apex:column value="{!!contact.mobilephone}"/>
            <apex:column value="{!!contact.otherphone}"/>
        </apex:pageBlockTable>
    </apex:pageBlock>
</apex:page>
```

The screenshot shows the Salesforce interface for an account record. At the top, there's a navigation bar with tabs: Related, Details, and Contact Phone List (which is currently selected). Below the navigation bar, there's a summary section for the account, including fields for Type (Customer - Direct), Phone ((212) 842-5500), Website (<http://www.uos.com>), Account Owner (Phillip Southern), and Account Site.

Under the "Contact Phone List" tab, there's a sub-section titled "Contact Phones". It contains a table with the following data:

Name	Phone	Mobile	Other Phone
Stella Pavlova	(212) 842-5500	(212) 842-5501	(212) 842-5543
Lauren Boyle	(212) 842-5500	(212) 842-5611	
Arthur Song	(212) 842-5500	(212) 842-4535	
Avi Green	(212) 842-5500	(212) 842-2383	

Migrate Visualforce

```
<apex:page standardController="Account" lightningStylesheets="true">
    <apex:pageBlock title="Contacts">
        <apex:pageBlockTable value="{!!account.Contacts}" var="contact">
            <apex:column value="{!!contact.name}" />
            <apex:column value="{!!contact.phone}" />
            <apex:column value="{!!contact.mobilephone}" />
            <apex:column value="{!!contact.otherphone}" />
        </apex:pageBlockTable>
    </apex:pageBlock>
</apex:page>
```

The screenshot shows the Salesforce Lightning Experience. At the top, there's a navigation bar with icons for Home, Search, and Profile. Below it, the account record for "United Oil & Gas Corp." is displayed. The account details include:

Type	Phone	Website	Account Owner	Account Site
Customer - Direct	(212) 842-5500	http://www.uos.com	Phillip Southern	

Below the account details, there are tabs: Related, Details, and Contact Phone List. The Contact Phone List tab is selected, showing a table titled "Contact Phones". The contacts listed are:

NAME	PHONE	MOBILE	OTHER PHONE
Stella Pavlova	(212) 842-5500	(212) 842-5501	(212) 842-5543
Lauren Boyle	(212) 842-5500	(212) 842-5611	
Arthur Song	(212) 842-5500	(212) 842-4535	
Avi Green	(212) 842-5500	(212) 842-2383	

Migrate Visualforce

Component

```
<aura:component implements="flexipage:availableForRecordHome,force:hasRecordId" controller="ContactPhoneListController" access="global" >
    <aura:attribute name="Contacts" type="Contact" />
    <aura:attribute name="Columns" type="List" />

    <aura:handler name="init" value="{!this}" action=" {!c.myAction}" />

    <lightning:datatable data="{!!v.Contacts }" columns="{!! v.Columns }" keyField="Id" hideCheckboxColumn="true"/>

</aura:component>
```

Component Javascript Controller

```
{
    myAction : function(component, event, helper) {
        var action = component.get("c.getContacts");
        component.set("v.Columns", [
            {label:"Name", fieldName:"Name", type:"text"}, 
            {label:"Phone", fieldName:"Phone", type:"phone"}, 
            {label:"Mobile", fieldName:"MobilePhone", type:"phone"}, 
            {label:"Other", fieldName:"OtherPhone", type:"phone"}]);
        
        action.setParams({
            accountId: component.get("v.recordId")
        });
        action.setCallback(this, function(data) {
            component.set("v.Contacts", data.getReturnValue());
        });
        $A.enqueueAction(action);
    }
}
```

Apex Class

```
public with sharing class ContactPhoneListController
{
    @AuraEnabled(cacheable=true)
    public static List<Contact> getContacts(Id accountId)
    {
        return [Select Id, Name, Phone, MobilePhone, OtherPhone From Contact Where AccountId = :accountId];
    }
}
```

Migrate Visualforce

Account
United Oil & Gas Corp.

Type Customer - Direct	Phone (212) 842-5500	Website http://www.uos.com	Account Owner  Phillip Southern	Account Site
---------------------------	-------------------------	--	---	--------------

Related **Details** **Contact Phone List**

NAME	PHONE	MOBILE	OTHER
Stella Pavlova	(212) 842-5500	(212) 842-5501	(212) 842-5543
Lauren Boyle	(212) 842-5500	(212) 842-5611	
Arthur Song	(212) 842-5500	(212) 842-4535	
Avi Green	(212) 842-5500	(212) 842-2383	

Migrate Visualforce

HTML

```
<template>
    <lightning-datatable
        key-field="id"
        data={contacts.data}
        columns={columns}
        hide-checkbox-column=true>
    </lightning-datatable>
</template>
```

JavaScript

```
import { LightningElement, track, wire, api } from 'lwc';
import getContacts from '@salesforce/apex/ContactPhoneListController.getContacts';

const columns = [
    { label: 'Name', fieldName: 'Name' },
    { label: 'Phone', fieldName: 'Phone', type: 'phone' },
    { label: 'Mobile', fieldName: 'MobilePhone', type: 'phone' },
    { label: 'Other', fieldName: 'OtherPhone', type: 'phone' }
];

export default class ContactPhoneListLWC extends LightningElement {
    @api recordId;
    @track columns = columns;
    @wire(getContacts, {accountId:$recordId}) contacts;
}
```

Apex Class

```
public with sharing class ContactPhoneListController
{
    @AuraEnabled(cacheable=true)
    public static List<Contact> getContacts(Id accountId)
    {
        return [Select Id, Name, Phone, MobilePhone, OtherPhone From Contact Where AccountId = :accountid];
    }
}
```

Migrate Visualforce

Account
United Oil & Gas Corp.

Type Customer - Direct Phone (212) 842-5500 Website <http://www.uos.com> Account Owner Phillip Southern Account Site

Related	Details	<u>Contact Phone List</u>		
NAME	PHONE	MOBILE	OTHER	
Stella Pavlova	(212) 842-5500	(212) 842-5501	(212) 842-5543	
Lauren Boyle	(212) 842-5500	(212) 842-5611		
Arthur Song	(212) 842-5500	(212) 842-4535		
Avi Green	(212) 842-5500	(212) 842-2383		

Code

Complex Base Components

Aura Component
Tree Grid

[View as Lightning Web Component](#)

Displays a hierarchical view of data in a table. This component requires API version 42.0 and later.

Descriptor
lightning:treeGrid

Experience
Lightning Experience, Lightning Communities, Lightning Out / Visualforce, Standalone Lightning App



Account

United Oil & Gas Corp.Type
Customer - DirectPhone
(212) 842-5500Website
<http://www.uos.com>

Account Owner

Phillip Southern

Account Site

[Related](#)[Details](#)[Contact Phone List](#)[**Case Hierarchy**](#)

NAME	SUBJECT	STATUS
▼ United Oil & Gas Corp.		
> 00001001	Performance inadequate for second consecutive w...	Closed
> 00001002	Seeking guidance on electrical wiring installation f...	New
> 00001021	Generator GC3060 platform structure is weakening	Closed
> 00001022	Signal panel on GC5060 blinks intermittently	Closed
> 00001023	Electric surge damaging adjacent equipment	Closed
> 00001024	Design issue with mechanical rotor	New
> 00001025	Motor design hindering performance	Closed
▼ Burlington Textiles Corp of ...		
> 00001019	Structural failure of generator base	Closed
> 00001020	Power generation below stated level	Closed

```
<aura:component controller="AccountCaseHierarchyController" implements="flexipage:availableForRecordHome,force:hasRecordId" access="global" >
    <aura:handler name="init" value="{!this}" action=" {!c.init}" />
    <aura:attribute name="gridColumns" type="List" access="PRIVATE" />
    <aura:attribute name="gridData" type="Object" access="PRIVATE" />

    <lightning:treeGrid
        columns=" {!v.gridColumns}"
        data=" {!v.gridData}"
        keyField="recordId"
        hideCheckboxColumn="true"
        aura:id="casetree"
    />
</aura:component>
```



Resources

<https://developer.salesforce.com/docs/component-library/overview/components>

<https://github.com/phillipsouthern/LC-with-LDS-and-BLC>

<https://github.com/trailheadapps/lwc-recipes>

<https://trailhead.salesforce.com/content/learn/modules/lightning-web-components-basics>



#SED2020

southeastdreamin.com

SOUTHEAST DREAMIN'

SALESFORCE SOUTHERN STYLE



WHEN

March 26-27, 2020



WHERE

Atlanta, GA
Atlanta Marriott Buckhead



Session Survey

Text **D02** to this number: **+1 888 554 3370**



Thank You

