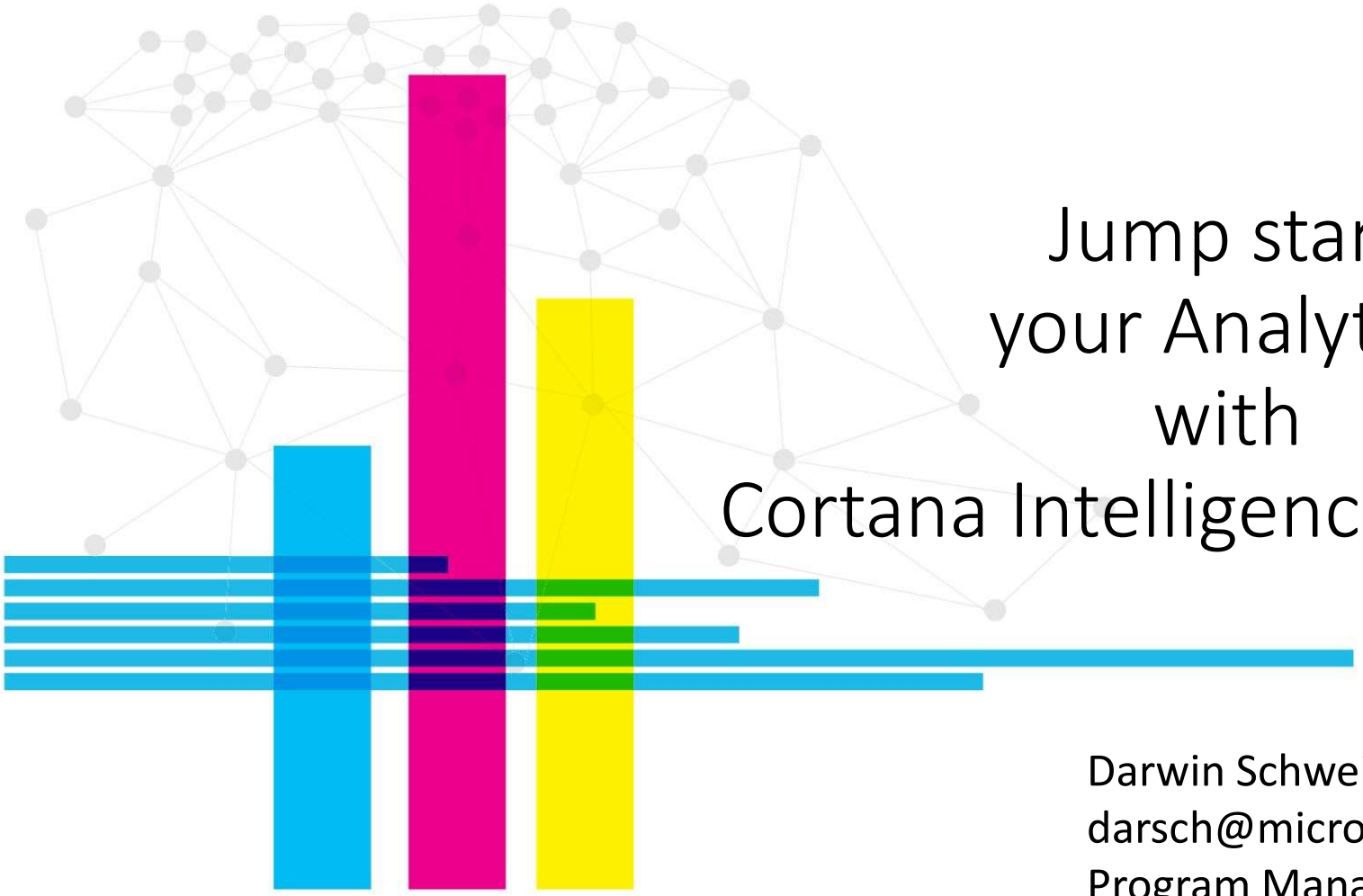


Jump start your Analytics with Cortana Intelligence Solutions

Darwin Schweitzer
darsch@microsoft.com
Program Manager

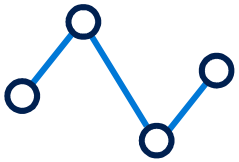
Our customers are building solutions for…

Improving visibility and making accurate predictions with remote monitoring

Getting the right products to the right places with inventory management

Offering customers exactly what they want, when they want it, with personalization

Fixing problems proactively before they start with predictive maintenance



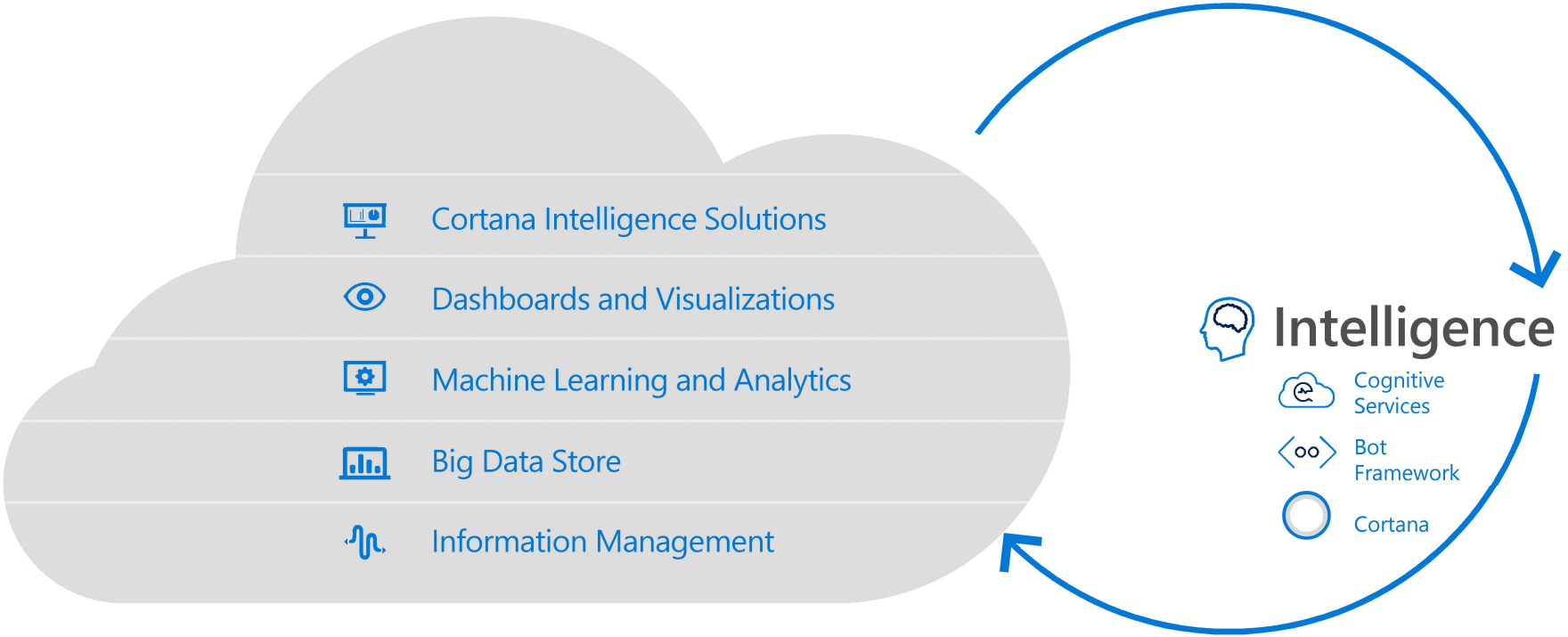
Exploring new business opportunities with data-driven services

Leverage Advanced Analytics for…

Marketing	Sales	Service	Finance	Operations	Workforce
Customer Insight	Customer Acquisition	Service Analytics	Financial Analytics	Demand Forecasting	Employee Insight
Customer Feedback Analytics	Cross sell & Upsell	Contact Center Analytics	Financial Forecasting	Inventory Optimization	HR Insight
Churn Analytics	Lead Generation & Opportunity Scoring		Fraud Management	IT Operations Insight	Pay for Performance
Product Innovation			Risk Management	Operational Efficiency	
Personalization				Procurement Insight	
Product Recommendation				Spend Insight	
Marketing Optimization				Supplier Insight	

Cortana Intelligence Suite

Transform data into intelligent action



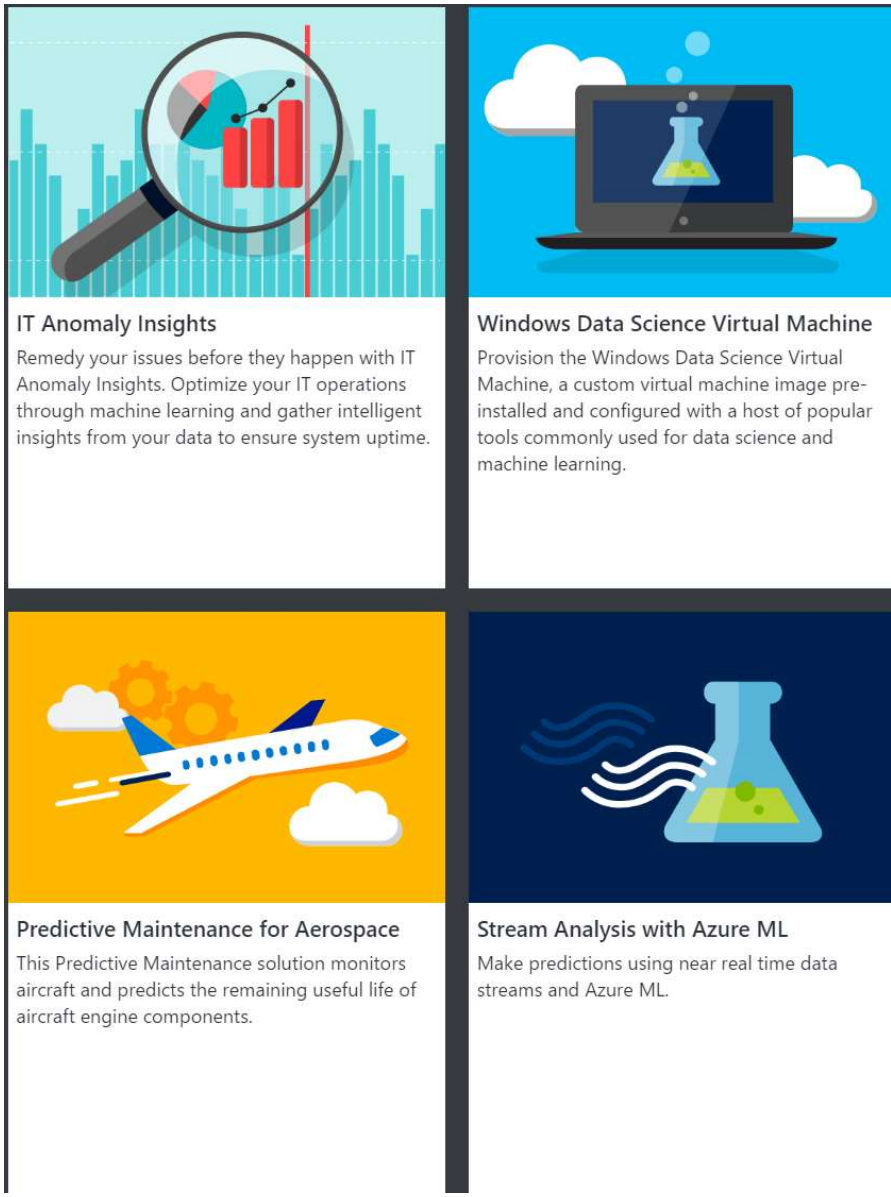
Introducing Cortana Intelligence Solutions

Discover

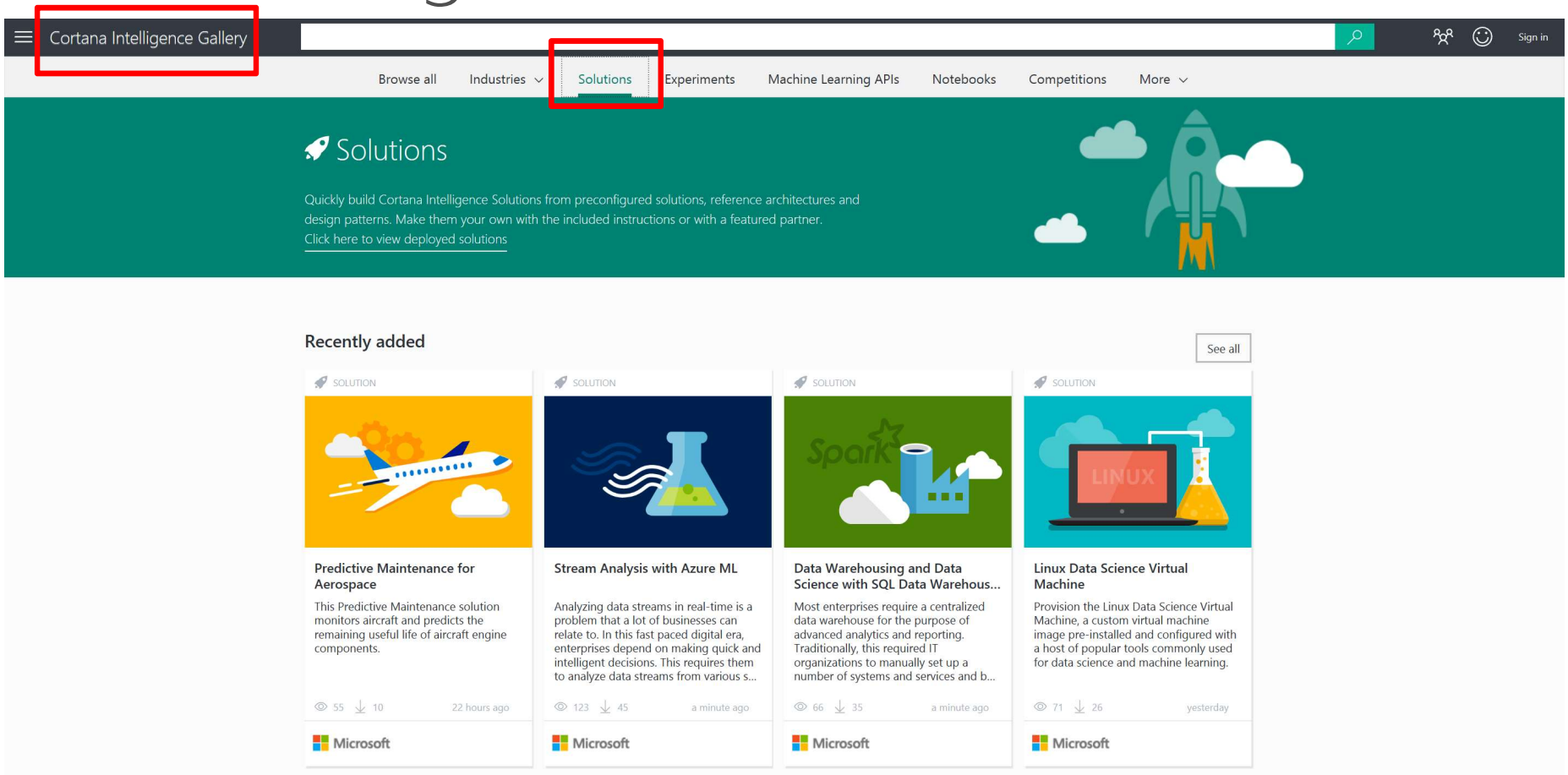
Deploy

Customize

Solutions at cloud speed

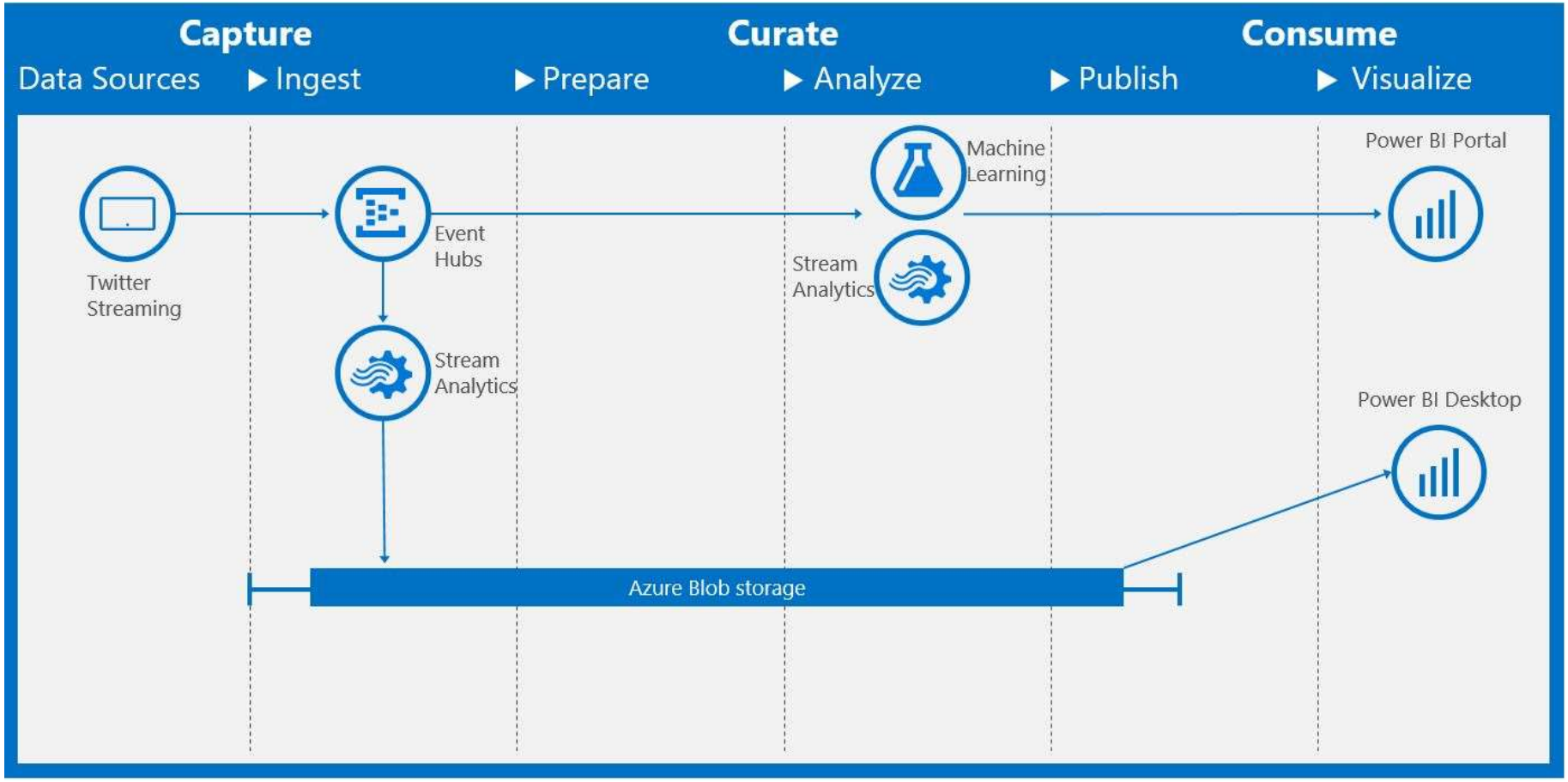


Cortana Intelligence Solutions: Discover

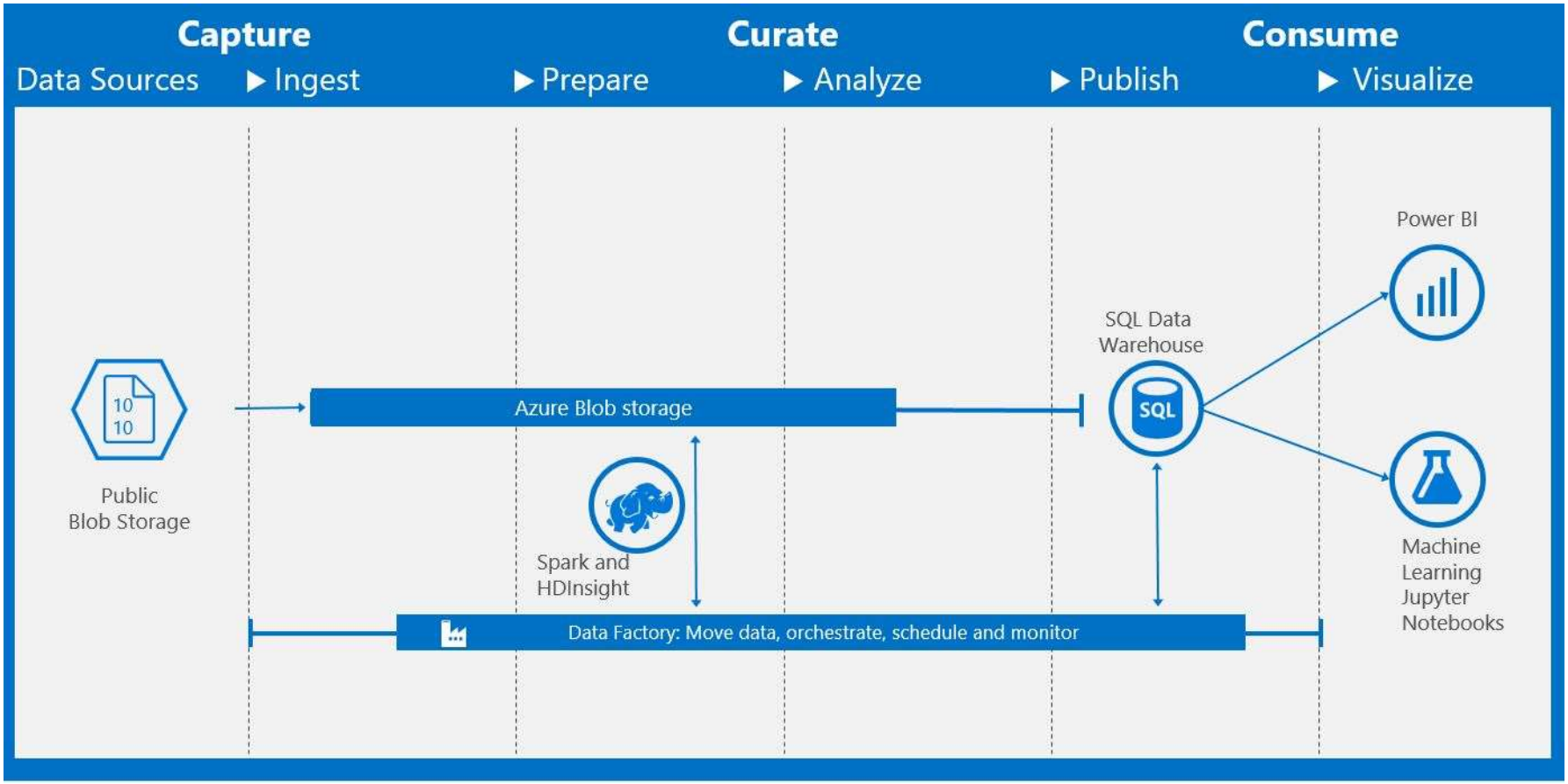


http://aka.ms/cisolutions

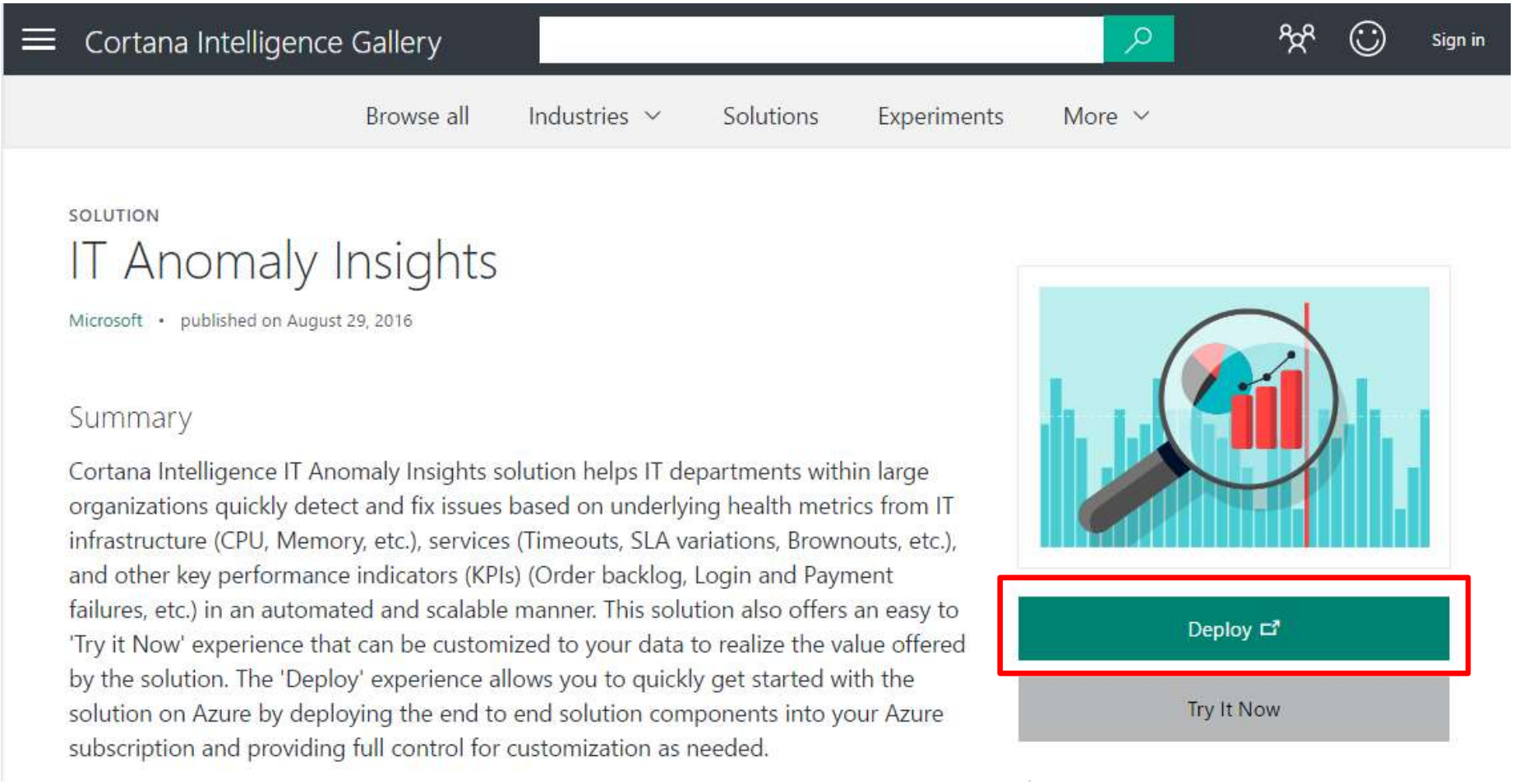
Stream Analysis with Azure ML



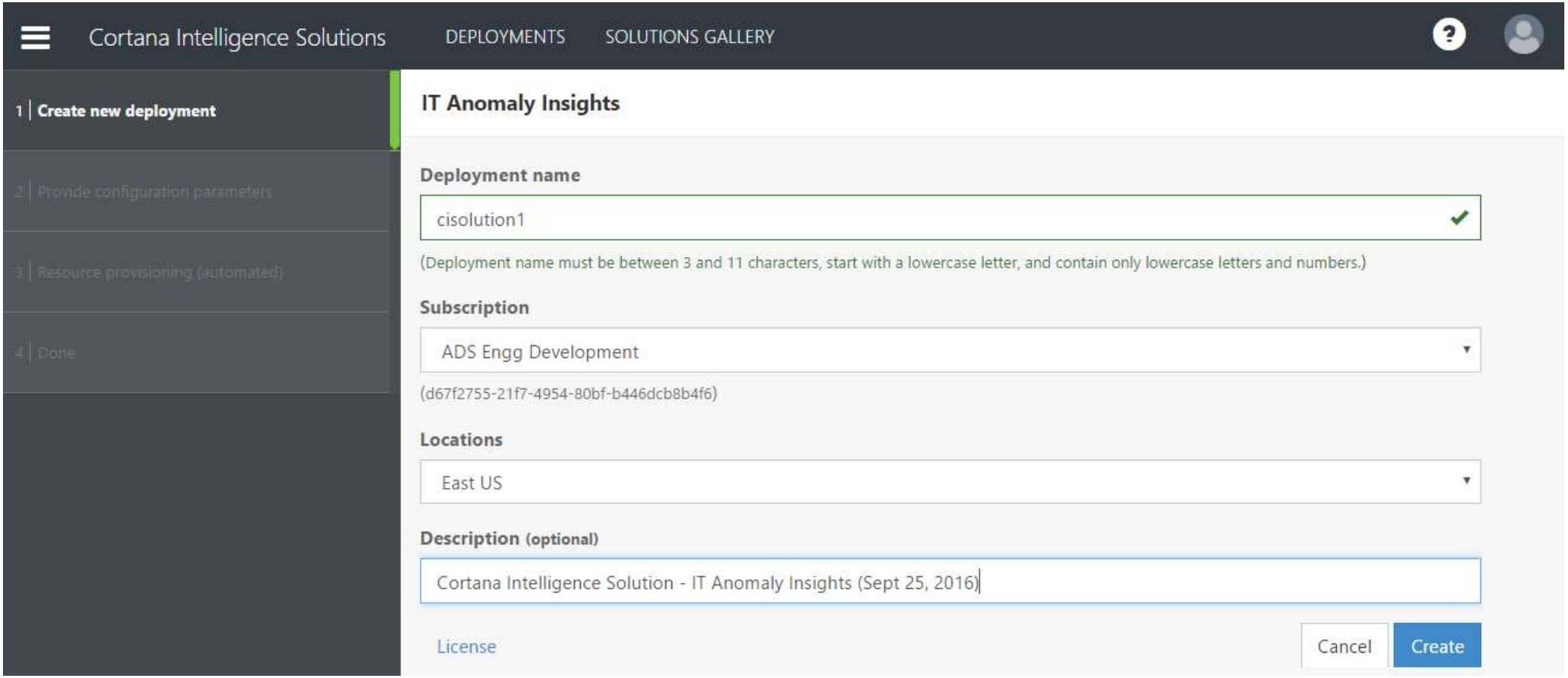
Data Warehousing and Data Science with SQL Data Warehouse and Spark



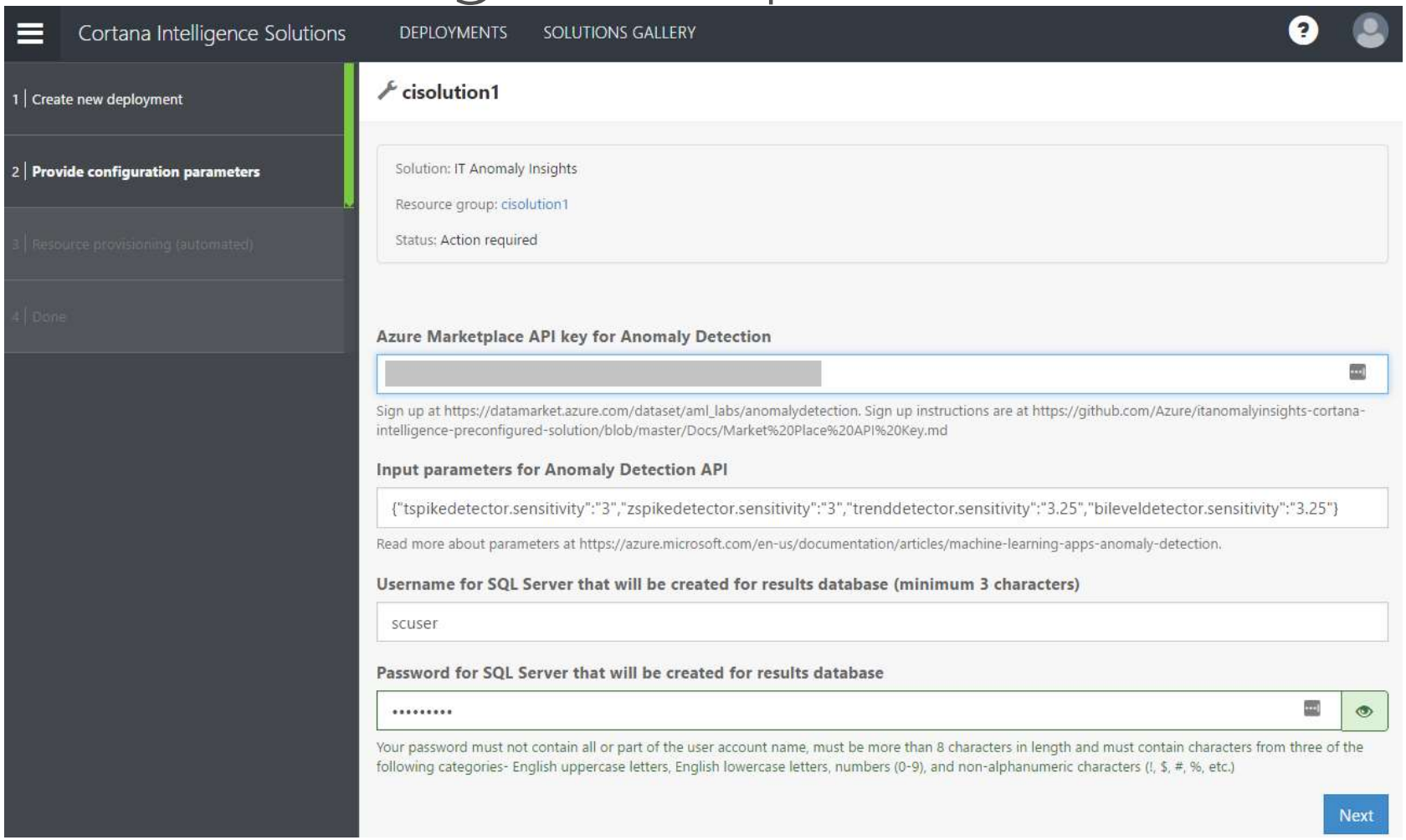
Cortana Intelligence Solutions: **Deploy**



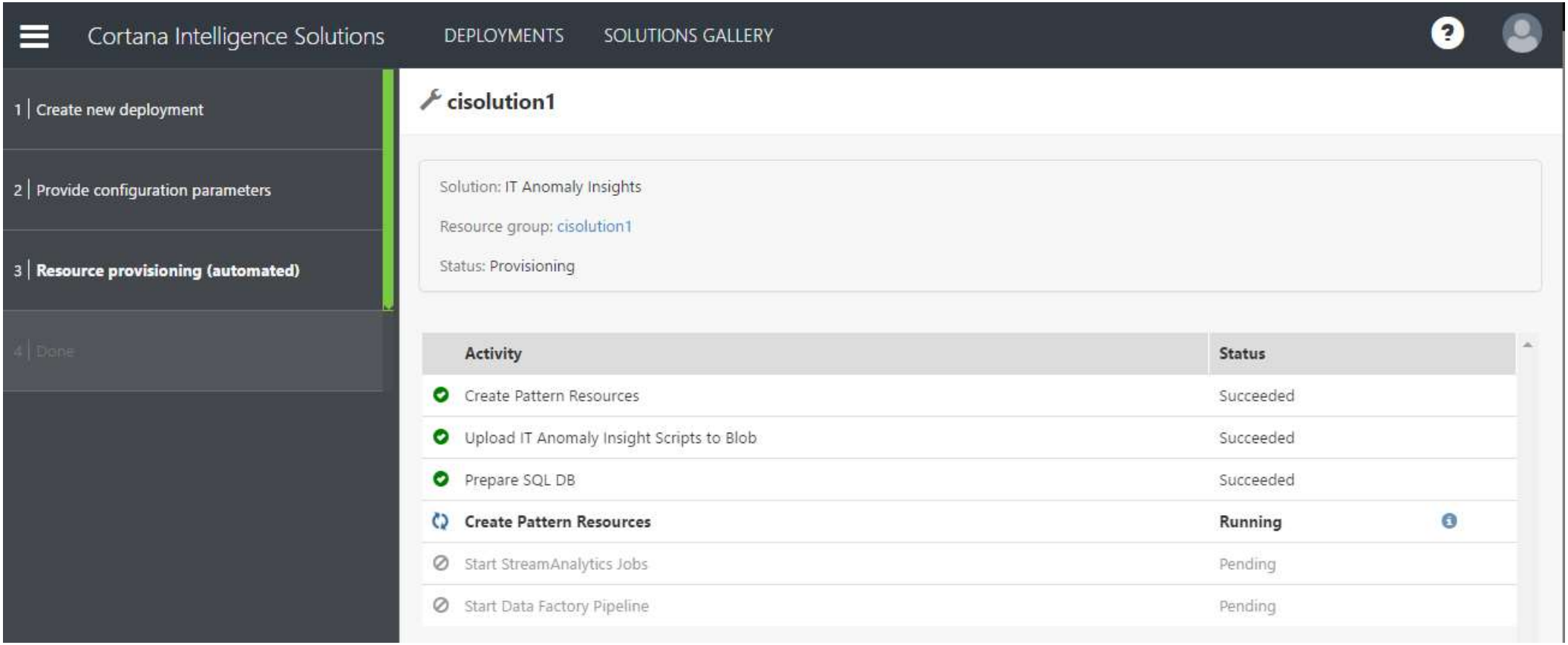
Create new deployment



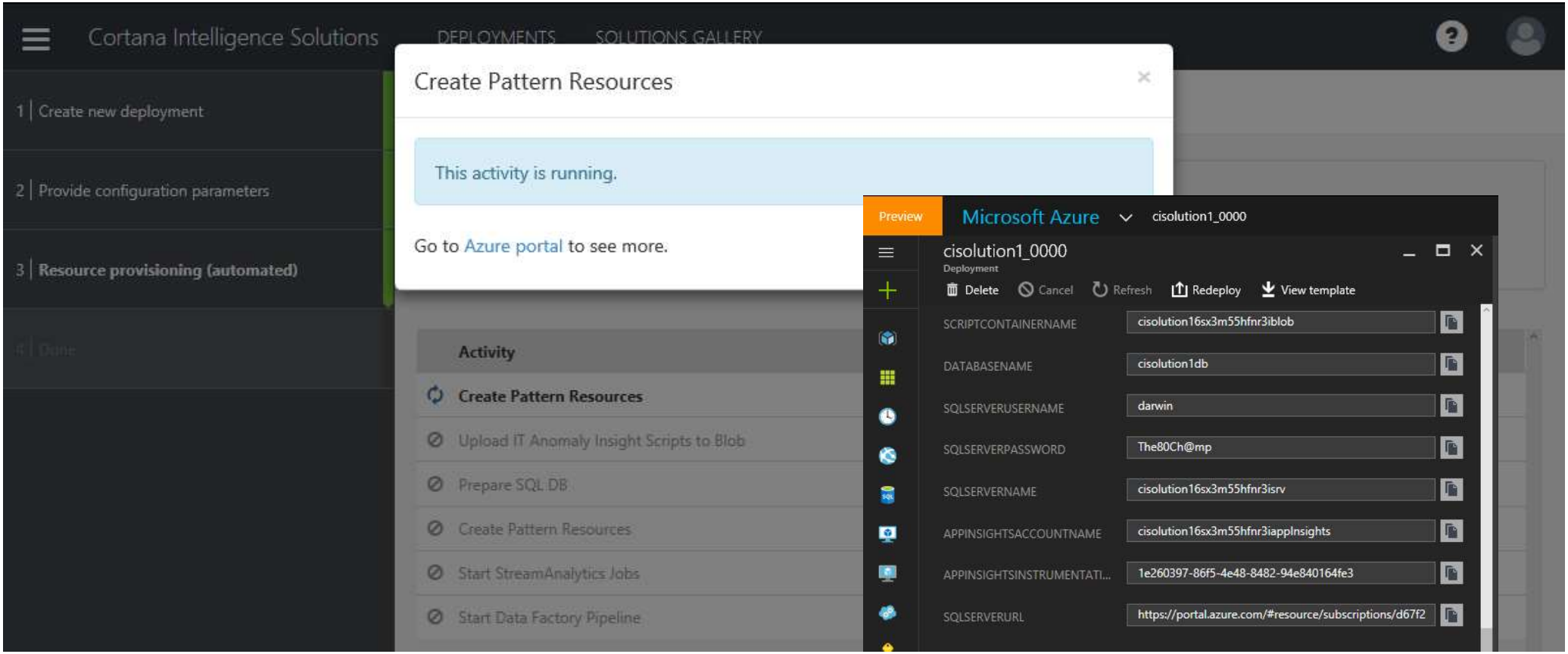
Provide configuration parameters

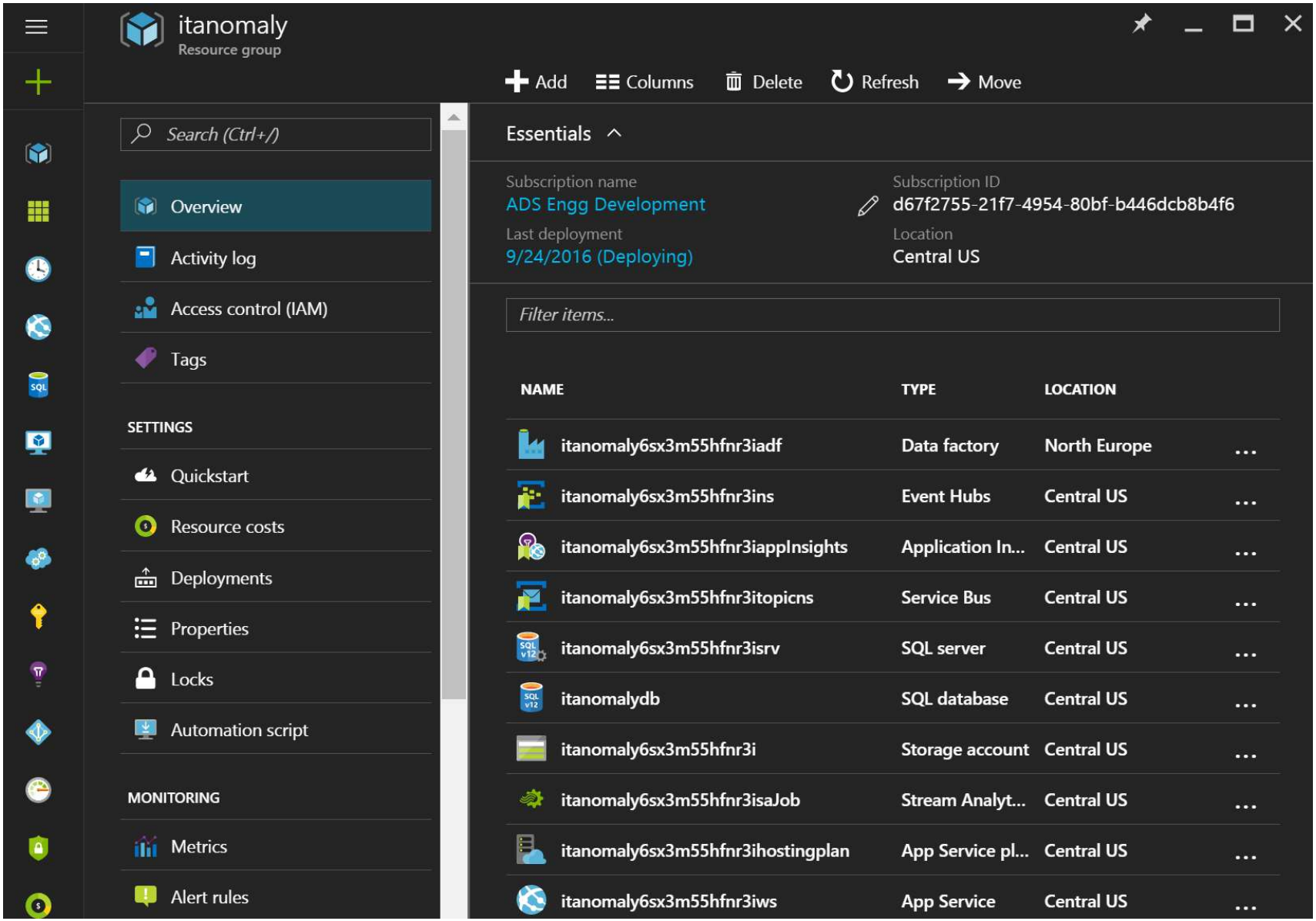


Provisioning activities

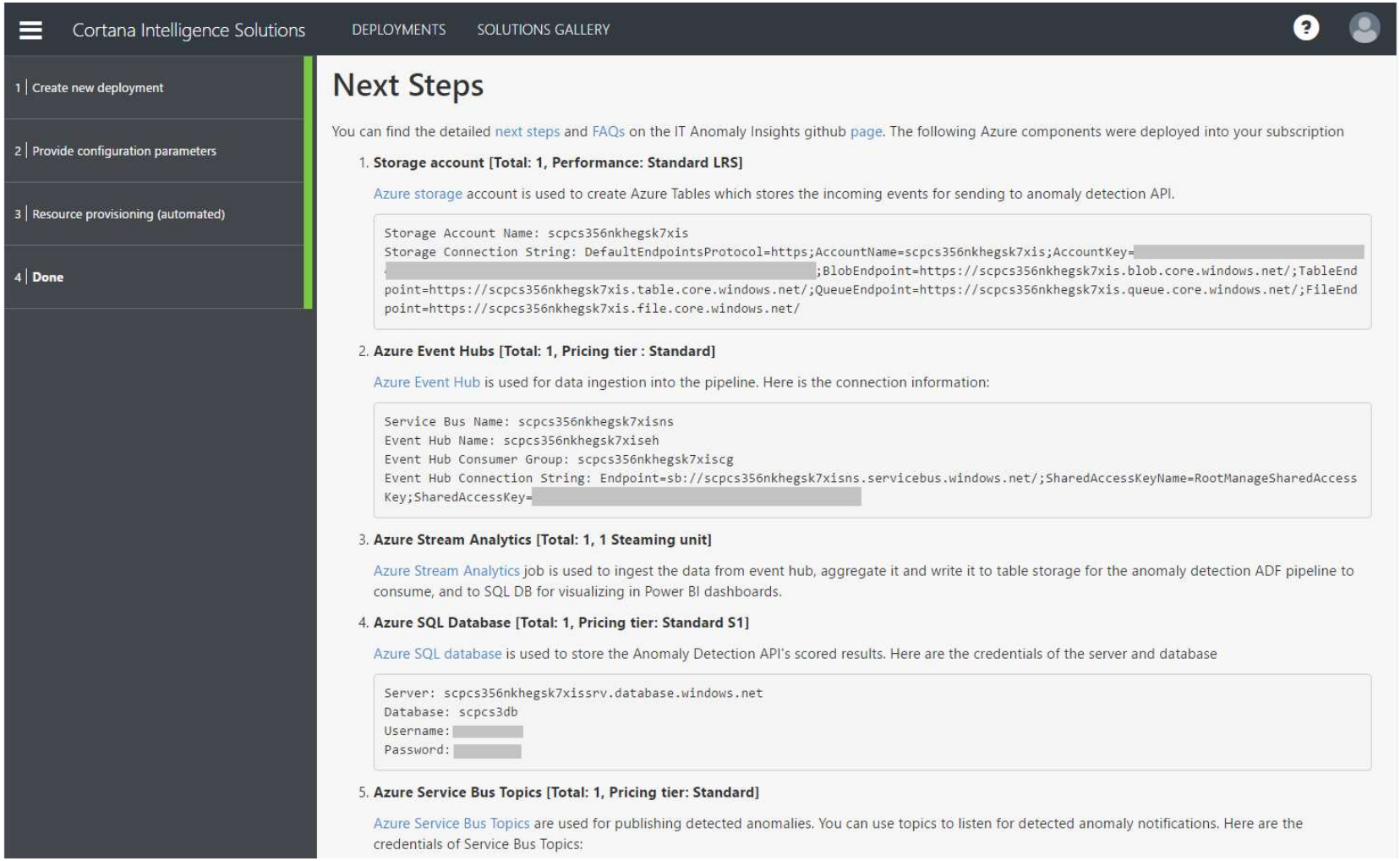


Go to Azure Portal from Activities




itanomaly
Resource group
Add
Columns
Delete
Refresh
Move
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
SETTINGS
Quickstart
Resource costs
Deployments
Properties
Locks
Automation script
MONITORING
Metrics
Alert rules
Essentials
Subscription name
ADS Engg Development
Subscription ID
d67f2755-21f7-4954-80bf-b446dcb8b4f6
Last deployment
9/24/2016 (Deploying)
Location
Central US
Filter items...
NAME
TYPE
LOCATION
itanomaly6sx3m55hfnr3iadf
Data factory
North Europe
itanomaly6sx3m55hfnr3ins
Event Hubs
Central US
itanomaly6sx3m55hfnr3iappInsights
Application In...
Central US
itanomaly6sx3m55hfnr3itopicns
Service Bus
Central US
itanomaly6sx3m55hfnr3isrv
SQL server
Central US
itanomalydb
SQL database
Central US
itanomaly6sx3m55hfnr3i
Storage account
Central US
itanomaly6sx3m55hfnr3isaJob
Stream Analyt...
Central US
itanomaly6sx3m55hfnr3ihostingplan
App Service pl...
Central US
itanomaly6sx3m55hfnr3iws
App Service
Central US

Instructions and Next Steps: Customize



IT Anomaly Insights

Implement yourself or with selected partners

IT Anomaly Insights

Remedy your issues before they happen with IT Anomaly Insights. Optimize your IT operations through machine learning and gather intelligent insights from your data to ensure system uptime.

NEAL ANALYTICS

- Specializes in Data Science implementations
- 22 Solutions in Cortana Intelligence Suite across Retail, Consumer Goods, Oil & Gas, Manufacturing, Education & Healthcare Industries
- Microsoft Partner of the Year
- 2015 Finalist in Big Data and Analytics

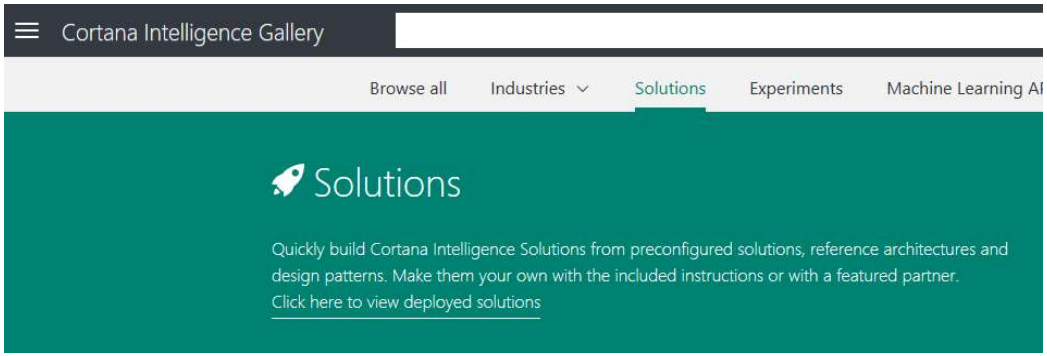
Empired

- Specializes in design, development and integration of business knowledge, information technology and creativity
- 2016 MAPA Excellence in Business Insights and Data
- 2015 Microsoft APAC Platinum Club
- Several Microsoft Most Valuable Professionals (MVPs) on staff

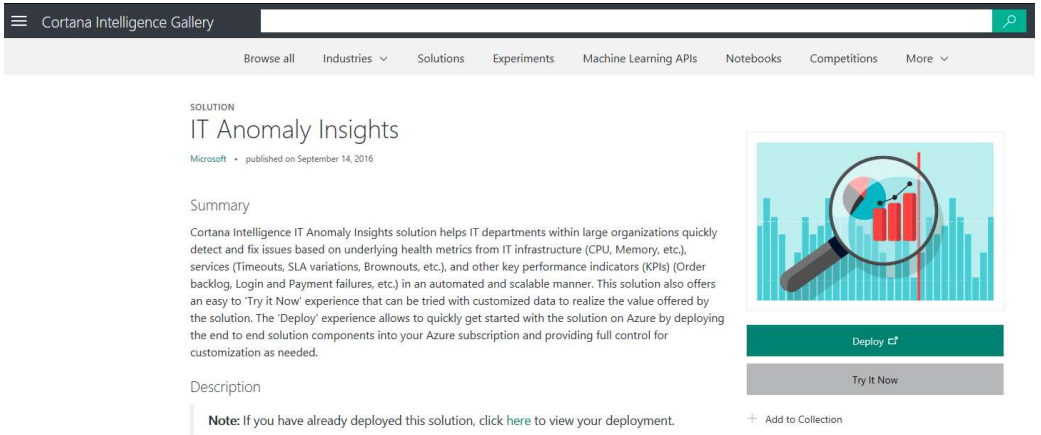
Visit analyticspartner.microsoft.com to learn more about Microsoft Advanced Analytics Partner Solutions

How to find and delete already deployed Cortana Intelligence Solutions

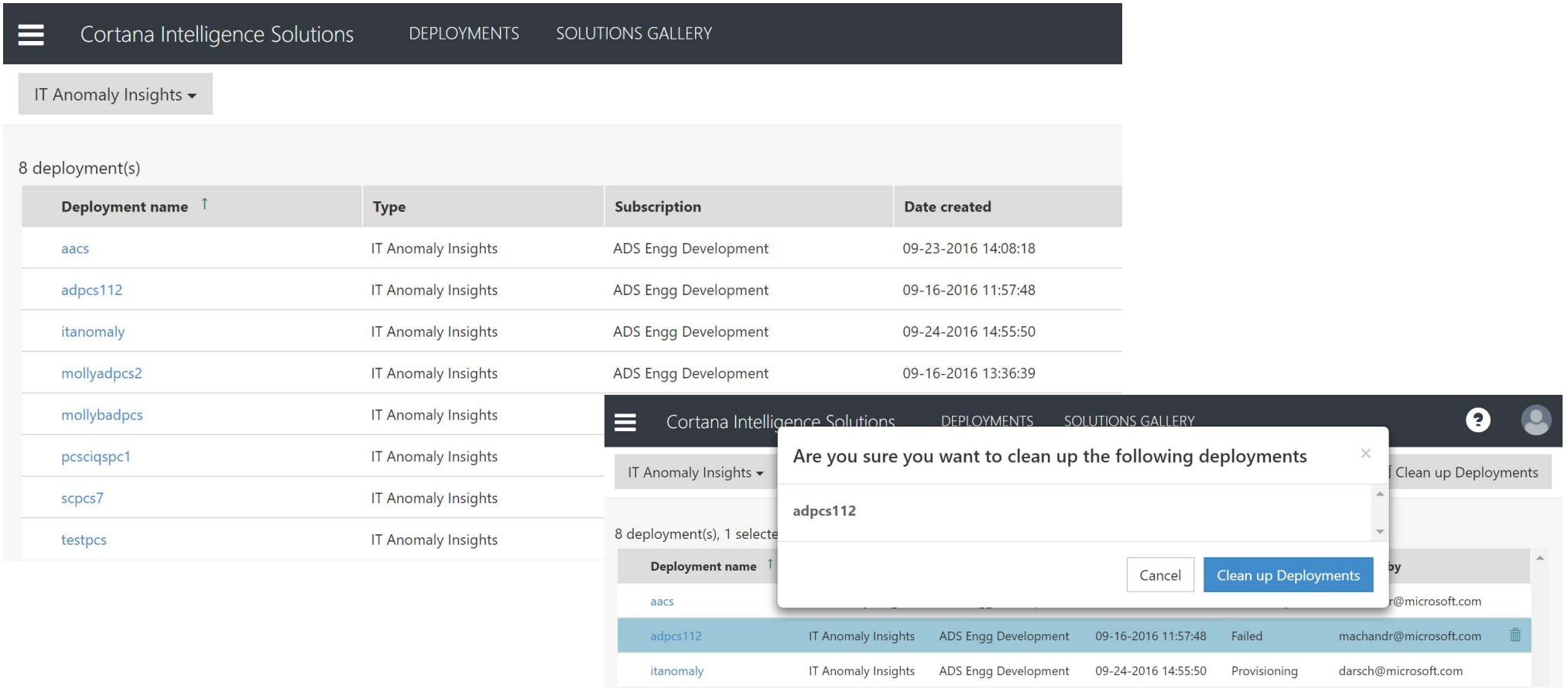
Click on the “Click here to view deployed solutions” link in the Solutions category in the Cortana Intelligence Gallery Cortana Intelligence Gallery



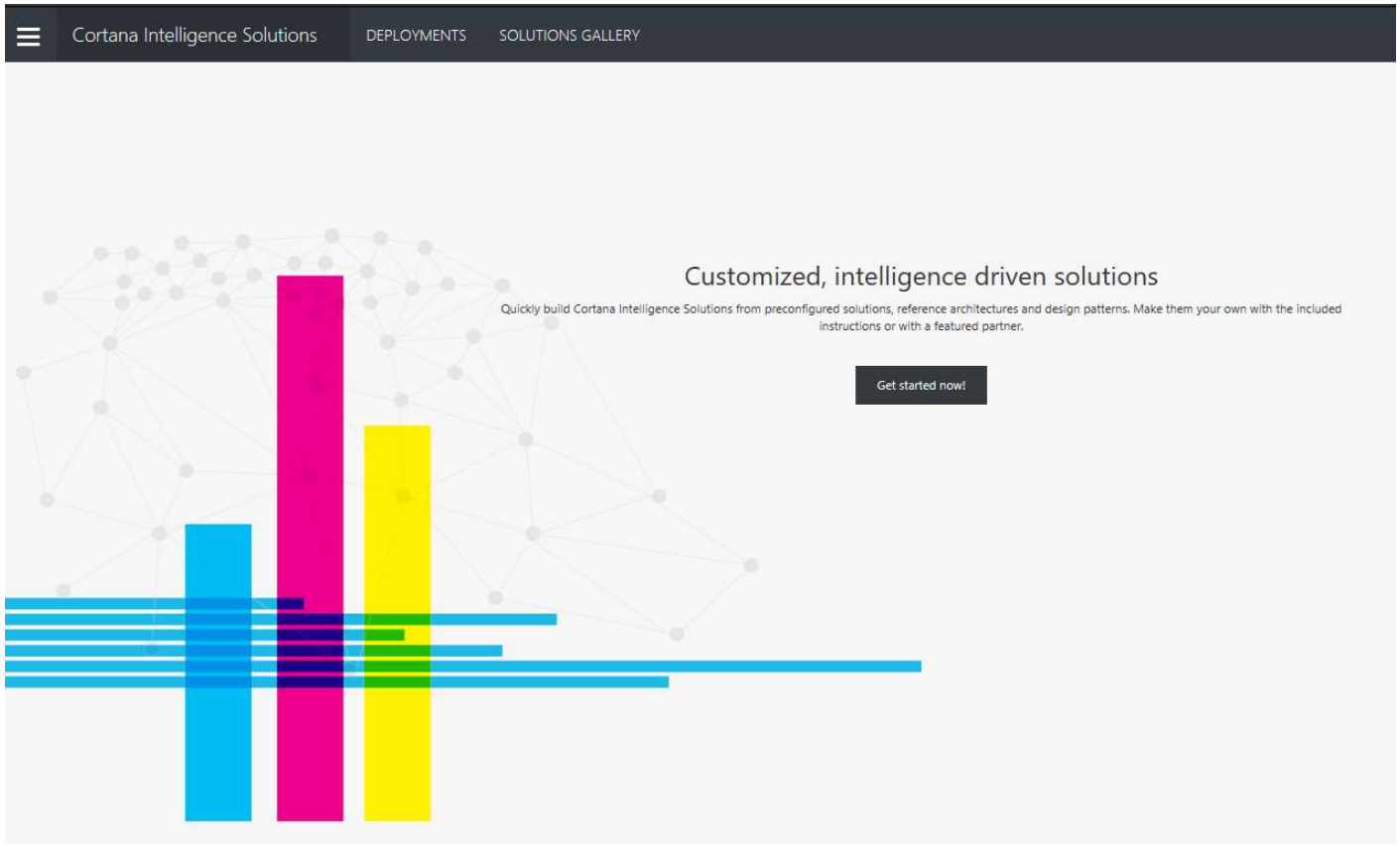
Note: If you have already deployed this solution, click here to view your deployment.



Find, Manage and Delete deployments



Visit the Cortana Intelligence Solutions landing page and click on 'Deployments'



https://start.cortanaintelligence.com

Demo of IT Anomaly Insights and DW and DS with SQL Data Warehouse and Spark

Solution User

Using Solutions Summary

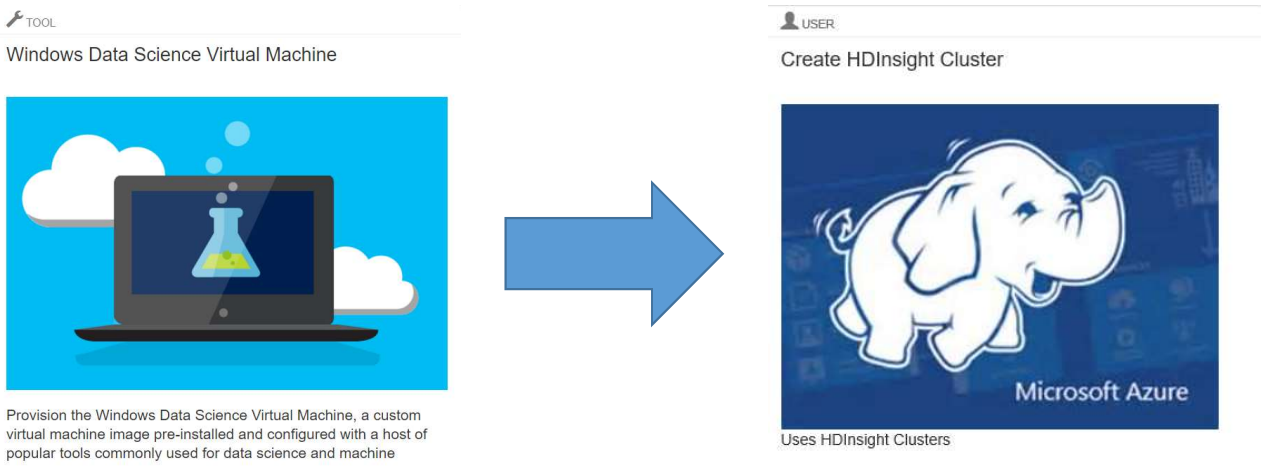
- Try It Now
- Deploy solutions into your Azure subscription
- Build and experiment with analytics services
- Jump start you analytics solutions
- Check back often for new solutions added

Solutions at cloud speed

Provide feedback at cisolutions@microsoft.com

Deck is available at
https://github.com/michhar/data-pipeline-education/tree/master/Decks/JumpStartAnalyticsWithCISplusPatternAuthoring.pdf

CIS Pattern Authoring



Help with pattern authoring cisauthors@microsoft.com

Disclaimer

Every effort has been made to make Cortana Intelligence Solution pattern authoring as complete and accurate as possible, but no warranty or fitness is implied. The information provided is on an “as is” basis. The development of Cortana Intelligence Solutions and the code used to build solutions is subject to change. **Specifically, since we are still developing our authoring platform, any solutions you might author would likely require modifications by the time we publicly release the authoring platform**. Authoring access provides sample code and data that are not published as public preview Cortana Intelligence Solutions. Cloning existing unpublished solutions provides access to code and sample datasets that per the license terms are solely for installation on your Microsoft Azure subscription. We value feedback on potential improvements to building solutions and can be reached at cisauthors@microsoft.com

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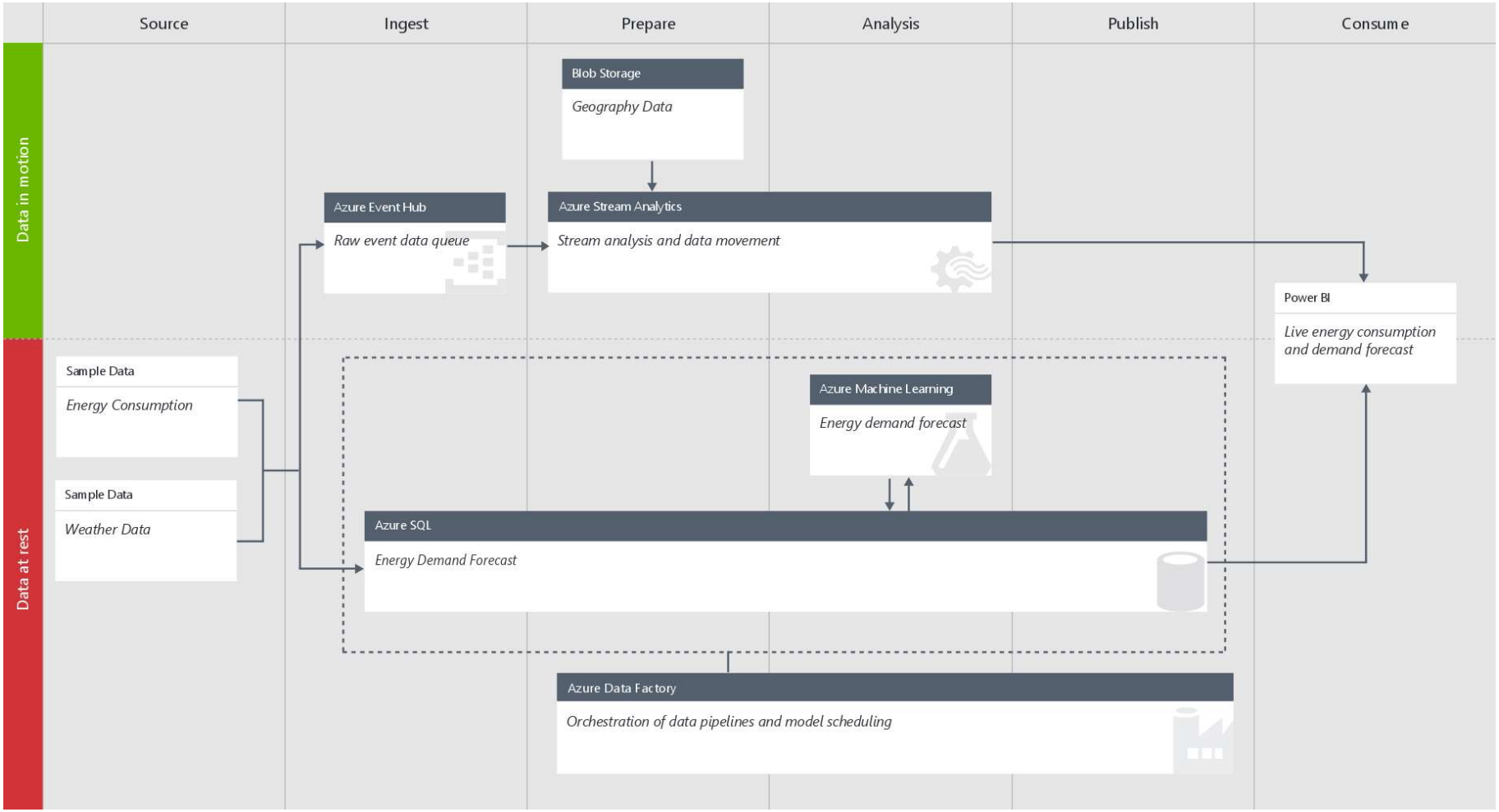
Cortana Intelligence Solution Patterns

CIS uses the concept of patterns to speed time to solution

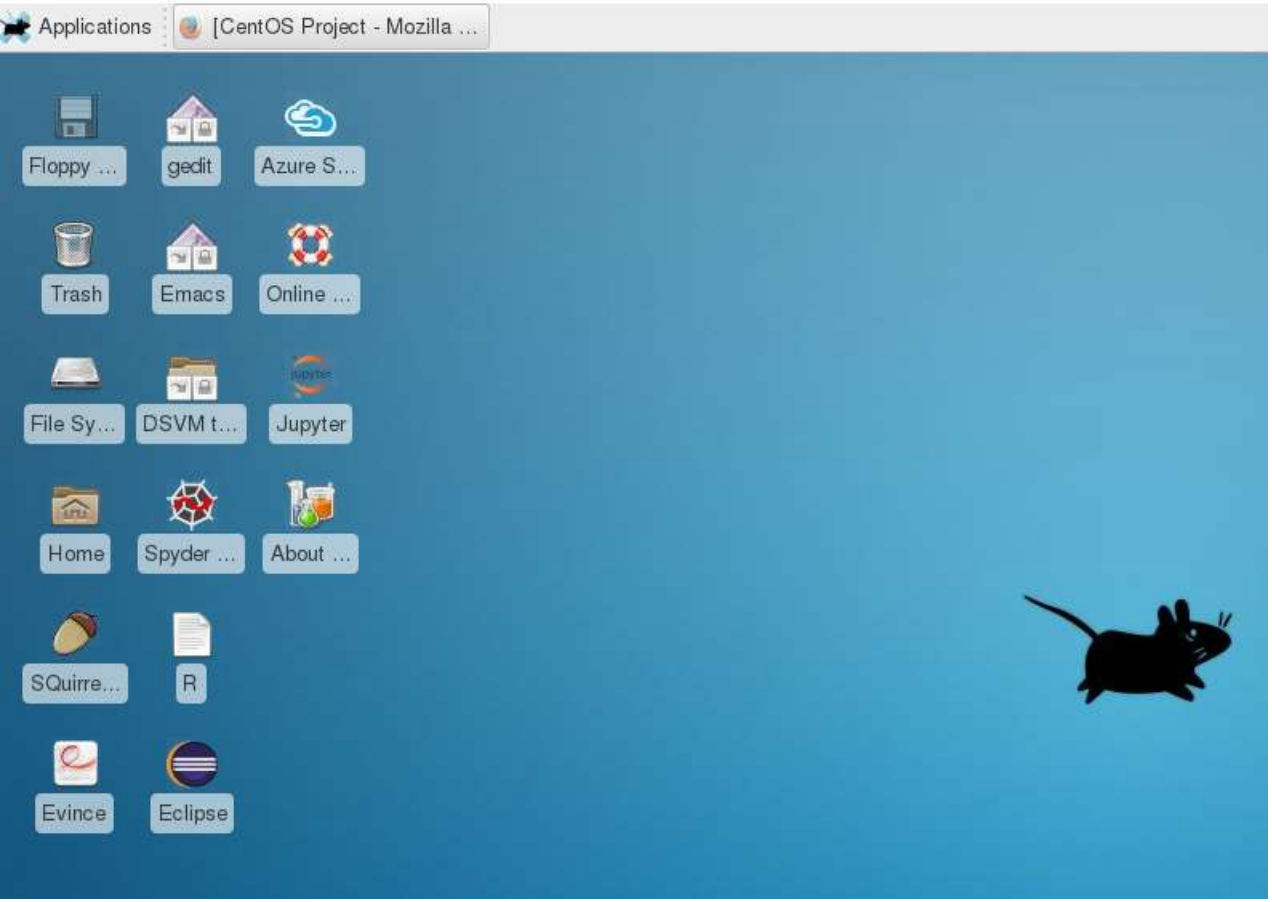
Patterns are composed of two or more Cortana Intelligence Suite components to create:

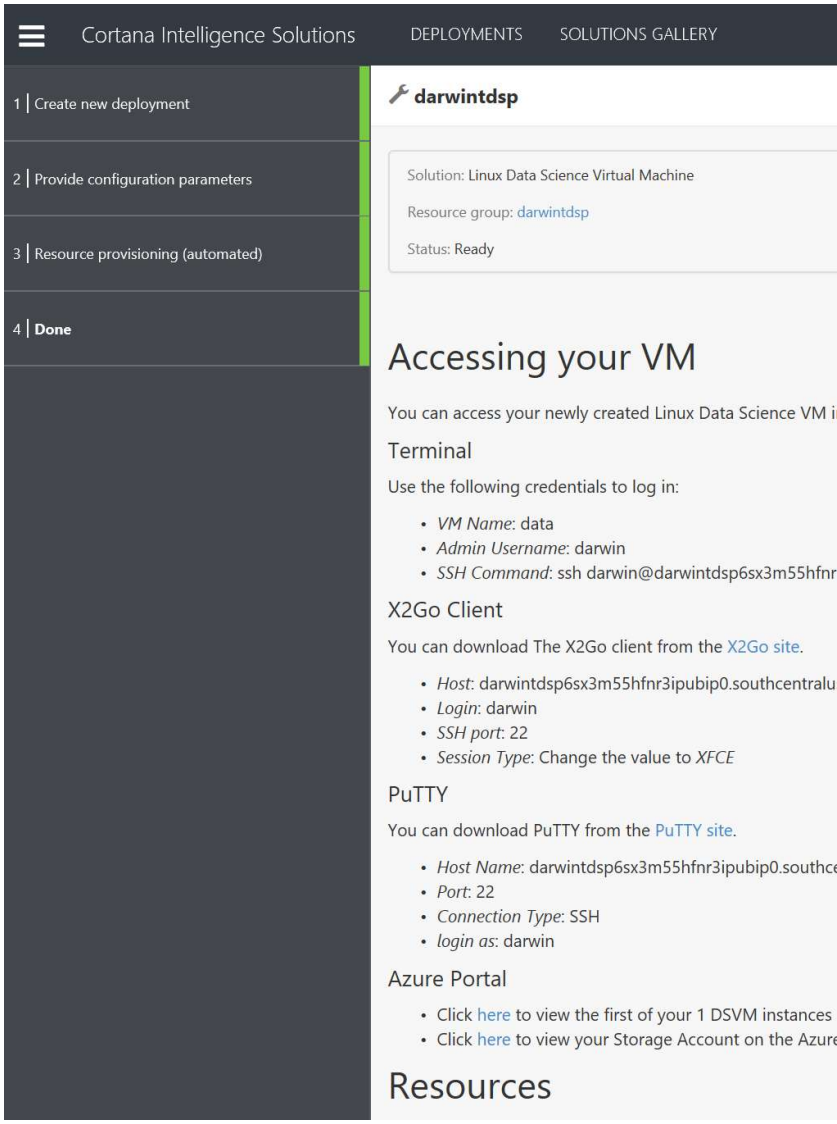
- demos
- design patterns (proven reference architectures)
- pre-configured solutions

Energy Demand Forecasting - Complex

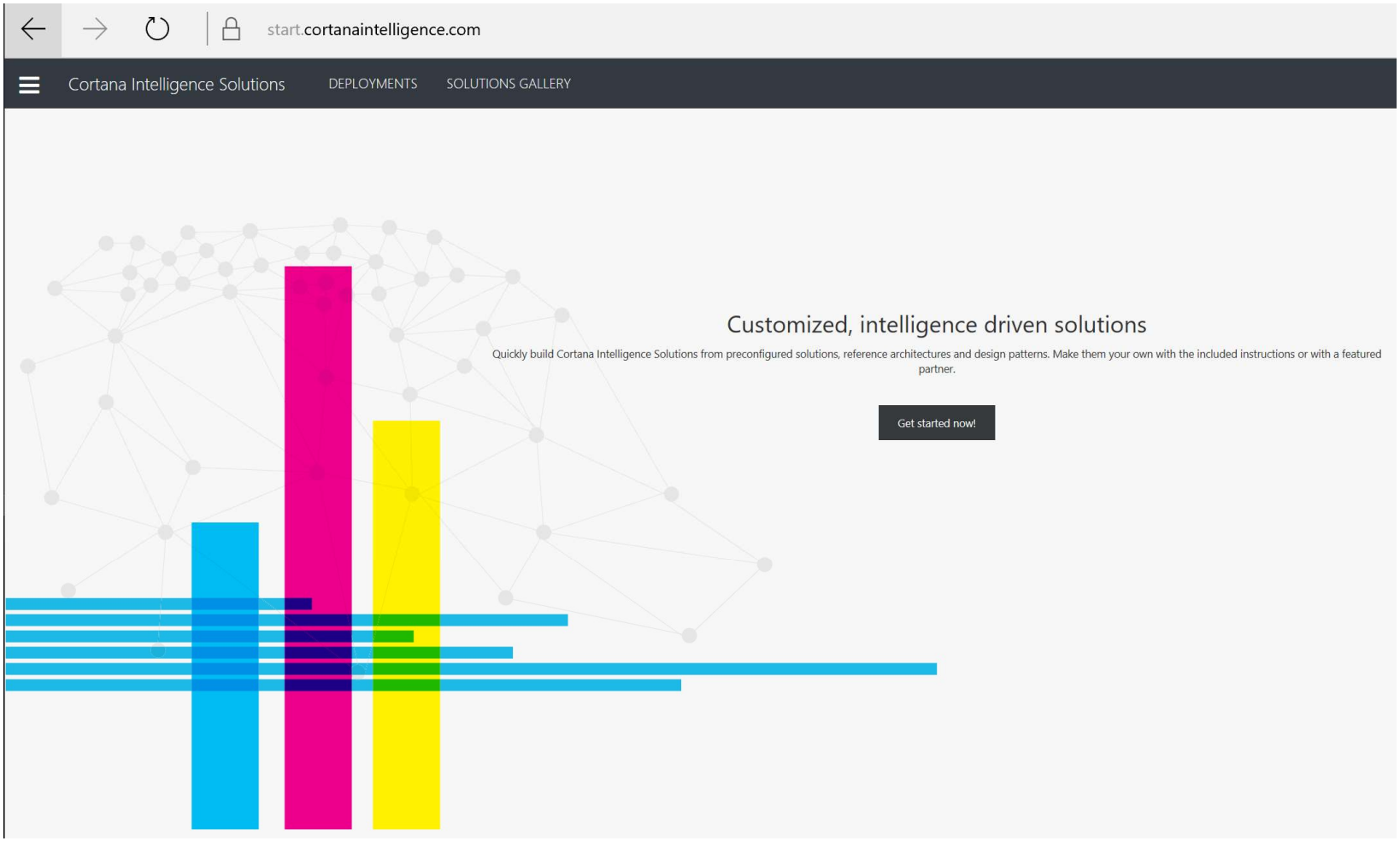


Data Science VM -Simple



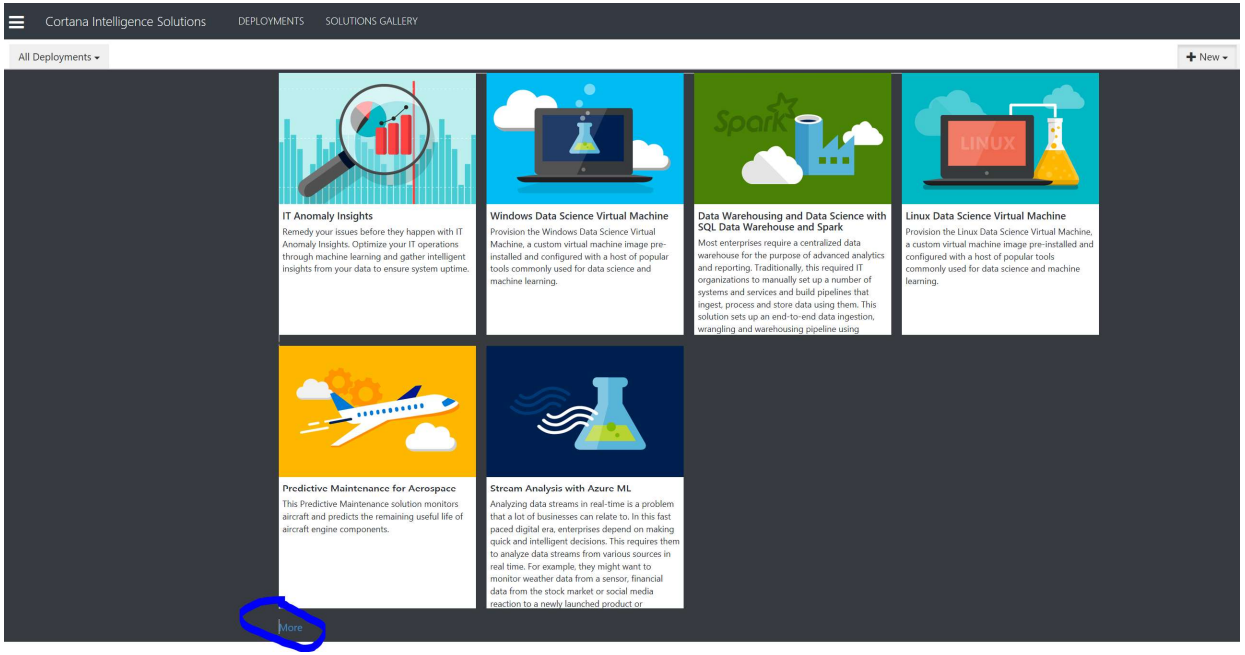


https://start.cortanaintelligence.com



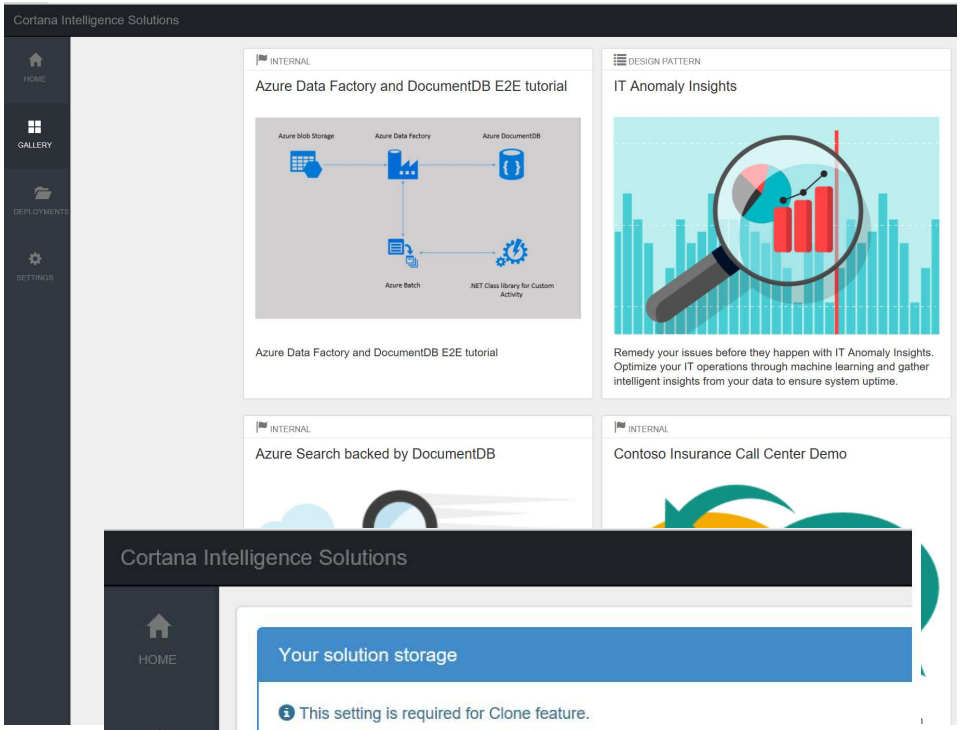
How do I Clone and Author solution patterns

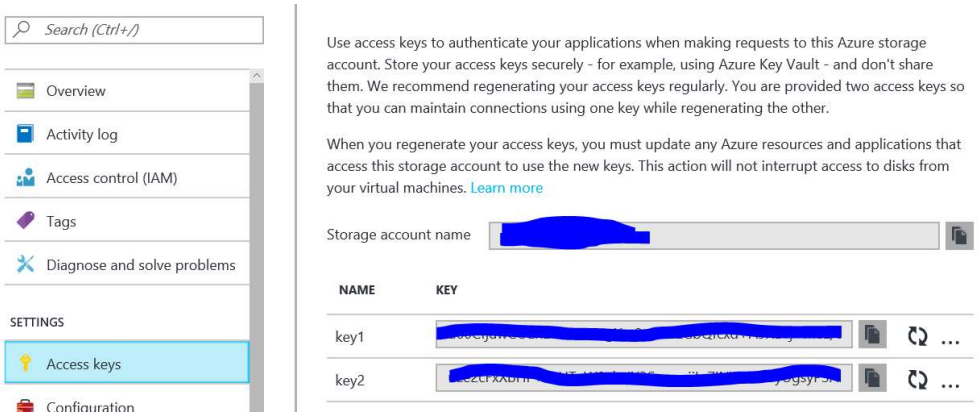
- Go to https://start.cortanaintelligence.com
- Click on DEPLOYMENTS
- Click on the +New
- Click on the More link
- This lands you in the Legacy Gallery

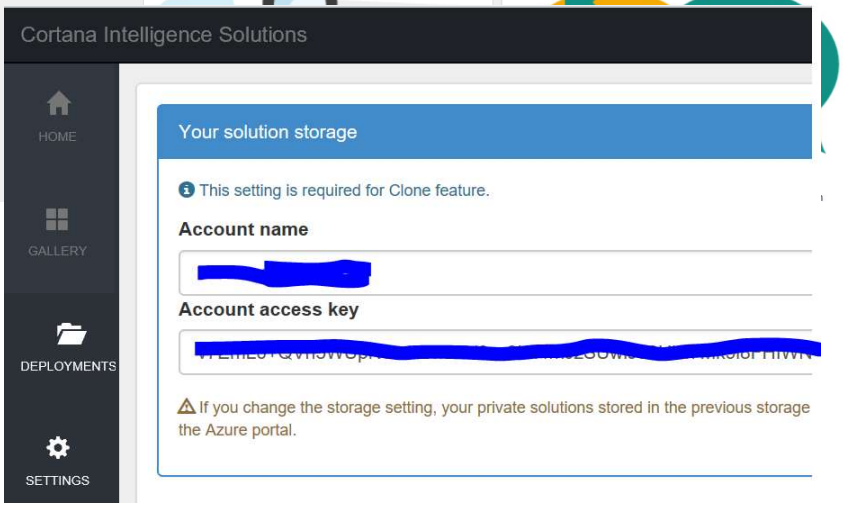


Legacy Gallery Setup

- Setup Azure Storage Account
  - Create a Resource group
  - Create a Standard Storage account
  - Copy the Storage account name and Storage account key into SETTINGS







Tools for Pattern Authoring

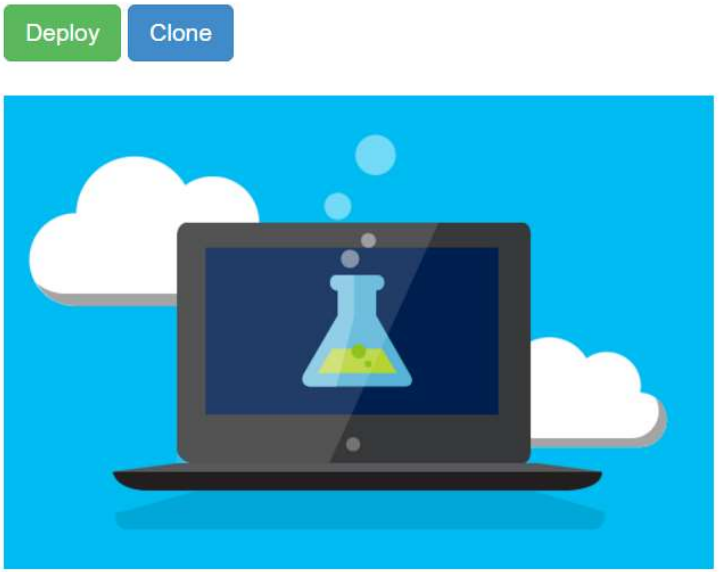
- Visual Studio Code
  https://code.visualstudio.com/
- Microsoft Azure Storage Explorer
  http://storageexplorer.com/
- Browser
  - Edge
  - Chrome
  - Firefox
  - Safari

Show how to Configure Setting for Cloning and provide time to download tools

Review of Pattern Cloning - Simple

Clone DSVM single ARM Template pattern

Clone existing pattern

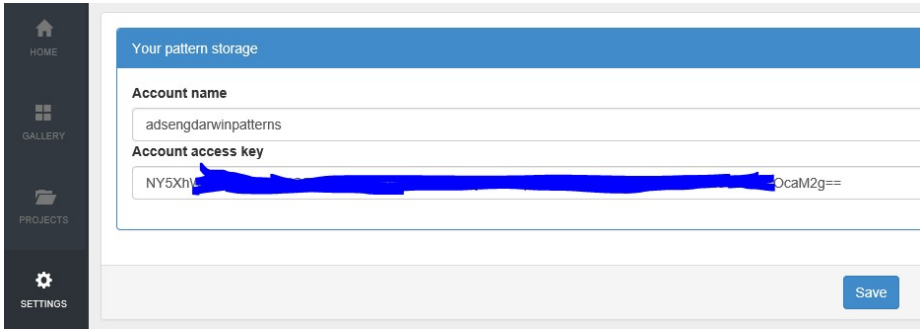


To get started authoring:

- Recommend you clone an existing pattern

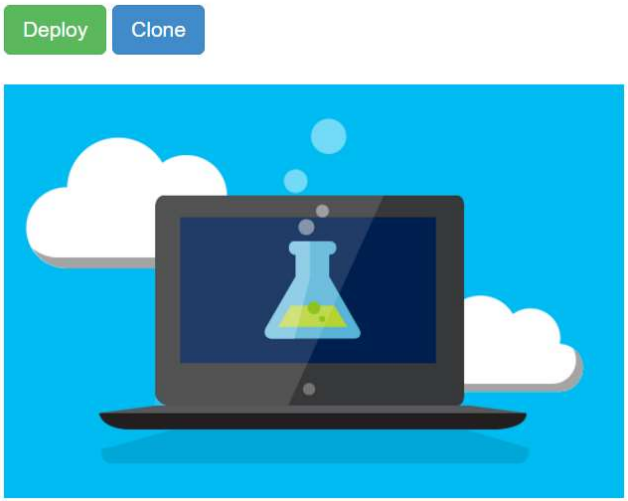
- Pre-reqs
  - Create an Azure Resource group and Storage account
  - Use Storage account name and key to configure Settings in CIS
  - Click Save

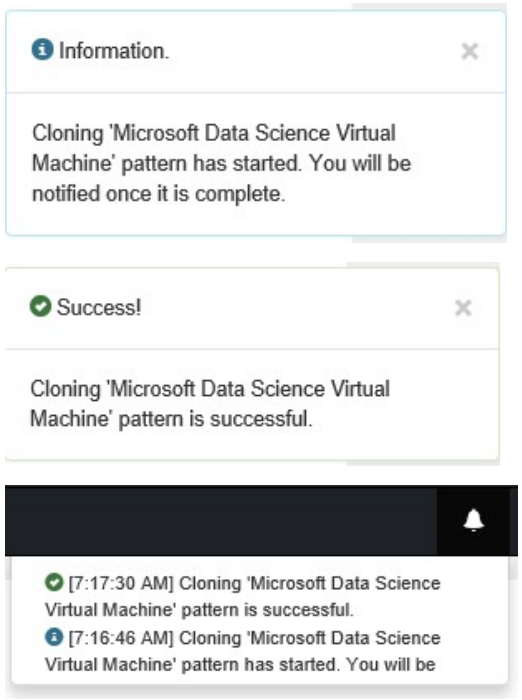
(you should have done this in slide 29)

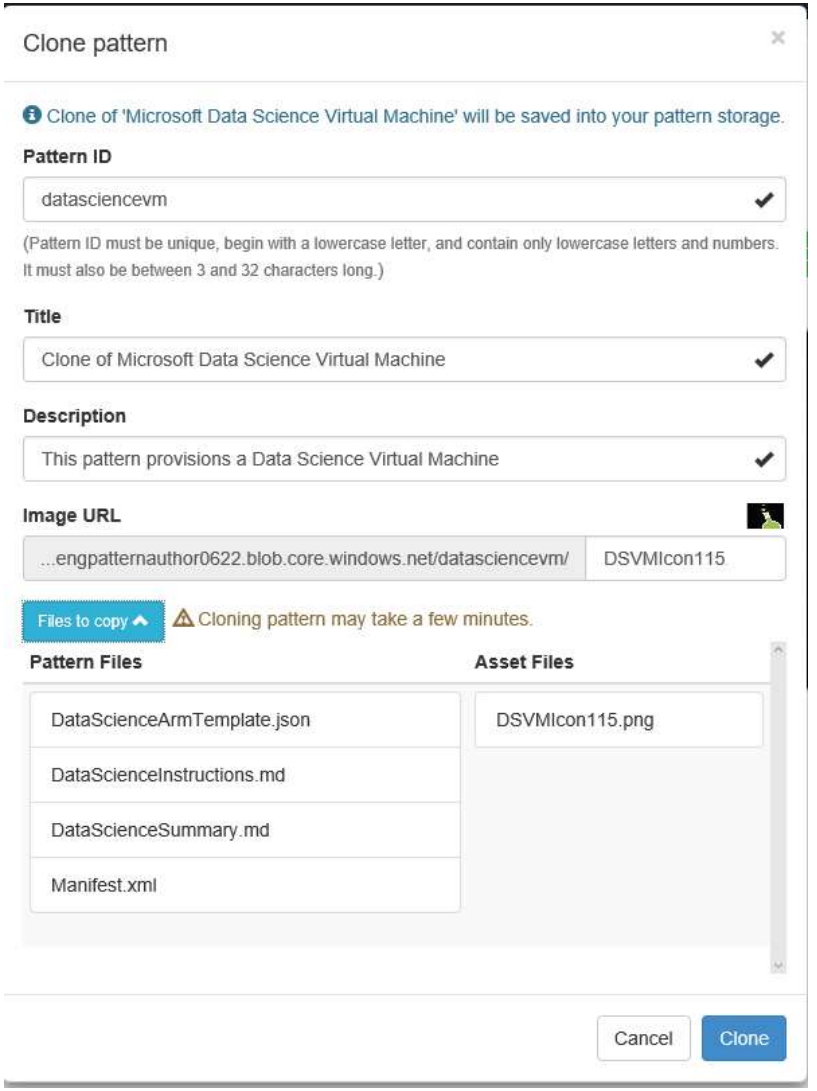


Choose a pattern and Click Clone

- give it a new Pattern ID, Title, Description and Image URL and Click Clone

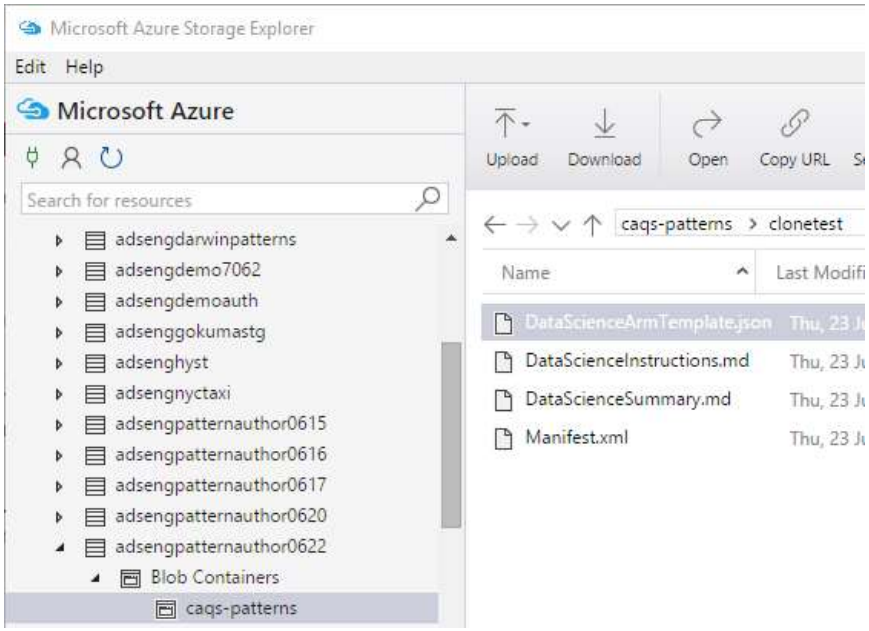


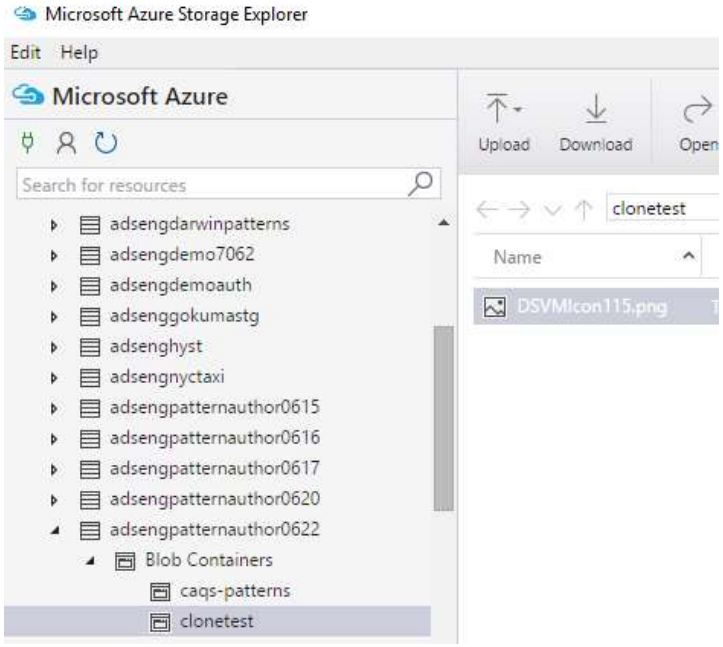




Open up Microsoft Azure Storage Explorer

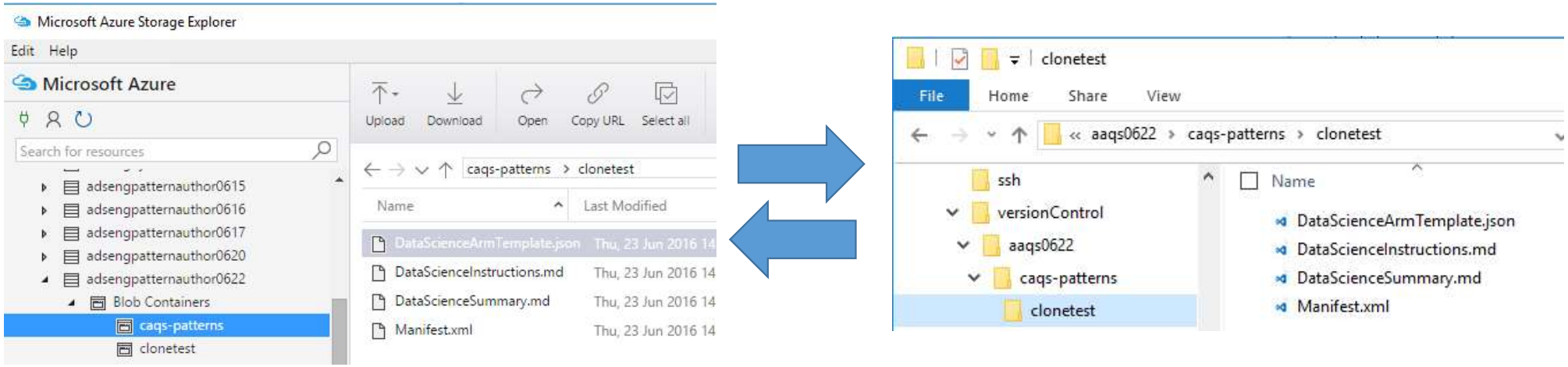
- Pattern Files are in caqs-patterns > clonetest (Pattern ID)
- Asset Files are in clonetest container (Pattern ID)





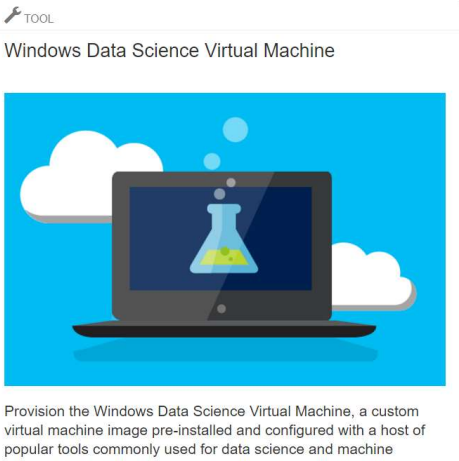
Download the files to your device

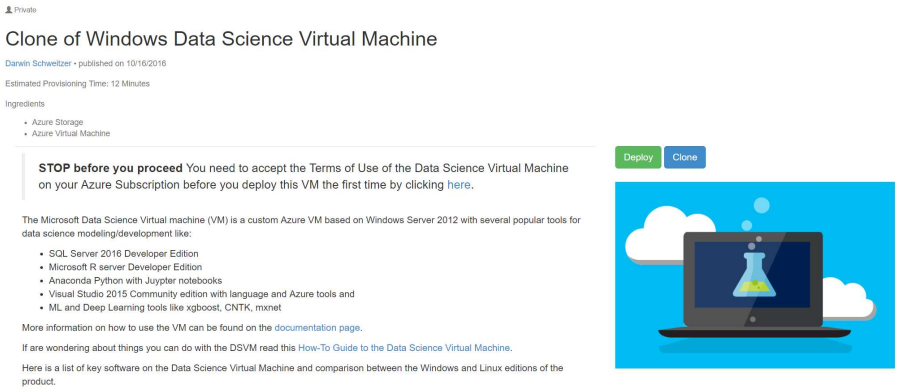
- Edit locally and then unload back to the storage account



Go back to CIS Legacy Gallery – Scroll to bottom

- Click on the new Private pattern
- It is a clone of the DSVM pattern
- Need to make edits and upload





Demo of Pattern Cloning

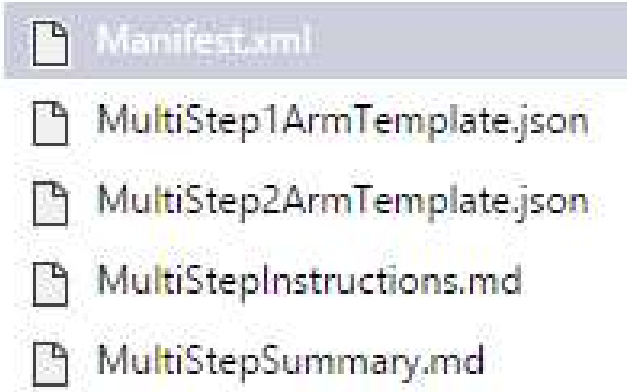
Clone DSVM single ARM Template pattern

What makes up a CIS pattern?

The components of a pattern

Main CIS Pattern files

- Manifest.xml
- JSON
  - MultiStep1ArmTemplate.json
  - MultiStep2ArmTemplate.json
- Markdown
  - Summary.md
  - Instructions.md



Manifest.xml

TempManifest.xml C:\Users\darsch\AppData\Local

```xml
<?xml version="1.0" encoding="utf-8"?>
<Template>
  <Category>InternalUse</Category>
  <Title>Clone2 of Multi-step Automation</Title>
  <Owner displayname="Darwin Schweitzer" email="darsch@microsoft.com" />
  <PublishedOn>06/16/2016</PublishedOn>
  <ImageUrl>https://acom.azurecomcdn.net/80C57D/cdn/cvt-604ca7be9281ef62b7b61093c2eee79fe68976e89c3abc41e7a3052185192080/images/page/documentation/samples/samples-hero-background.png</ImageUrl>
  <Description>Deploying multiple ARM templates and executing actions that cannot be accomplsihed through ARM templates</Description>
  <Summary src="MultiStepSummary.md" format="markdown">
    <Tabs>
      <Tab src="MultiStepSummary.md" format="markdown" />
    </Tabs>
  </Summary>
  <ProvisioningSteps>
    <ArmDeployment title="Create Storage Account" source="MultiStep1ArmTemplate.json">
      <Parameters>
        <Parameter name="baseUrl" hidden="true">
          <DefaultValue>{PatternAssetBaseUrl}</DefaultValue>
        </Parameter>
      </Parameters>
    </ArmDeployment>
    <WebJob title="Create Container and Blob in Storage Account">
      <Parameters>
        <Parameter name="appName">
          <DefaultValue>{Outputs.webJobSiteName}</DefaultValue>
        </Parameter>
        <Parameter name="jobName">
          <DefaultValue>{Outputs.webJobName}</DefaultValue>
        </Parameter>
        <Parameter name="arguments">
          <DefaultValue>{Outputs.stgContainerName} {Outputs.stgBlobName}</DefaultValue>
        </Parameter>
      </Parameters>
```

Changes to Manifest.xml

1) For private user patterns set Category to

<Category>**DesignPattern**</Category>

2) Added **EstimatedTime** and **Ingredients**

```
<?xml version="1.0" encoding="utf-8"?>
<Template>
<Category> DesignPattern </Category>
<Title>Clone of Multi-step Automation</Title>
<Owner displayname="Darwin Schweitzer" email="darsch@microsoft.com" />
<PublishedOn>08/25/2016</PublishedOn>
<ImageUrl>{PatternAssetBaseUrl}/multistep.png</ImageUrl>
<Description>Deploying multiple ARM templates and executing actions that cannot be accomplsihed through ARM templates</Description>
<Summary src="MultiStepSummary.md" format="markdown" />
<EstimatedTime>5 Minutes</EstimatedTime>
<Ingredients>
<Ingredient>Web</Ingredient>
<Ingredient>StorageAccount</Ingredient>
<Ingredient>DataFactory</Ingredient>
```

Here are the possible values to place in the Manifest

Data Factory -> DataFactory

Document Db ->DocumentDb

Search Service -> Search

Storage Account -> StorageAccount

Web jobs -> Web

Stream Analytics -> StreamAnalytics

Event Hub ->EventHub

Cognitive Service LUIS API -> CognitiveServicesLuis

Cognitive Service Speech API -> CognitiveServicesSpeech

Sql Server -> Sql

Data Lake Store -> DataLakeStore
Data Lake Analytics -> DataLakeAnalytics
Machine Learning -> MachineLearning,
Power BI -> PowerBi
Virtual Machine -> VirtualMachine
Azure HDInsight -> HDInsight
SQL DW -> SqlDw
Application Insights -> AppInsights
Azure Batch -> Batch

Azure Resource Manager template

Azure Resource Manager (ARM) templates are used to define the resources to deploy for a solution on Azure

- specify parameters and variables that enable you to input values for different environments
- The template consists of JSON and expressions which you can use to construct values for your deployment

https://azure.microsoft.com/en-us/documentation/articles/resource-group-authoring-templates/

ARM JSON sample

TempMultiStep1ArmTemplate.json C:\Users\darsch\AppData\Local

```
{
    "contentVersion": "1.0.0.0",
    "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
    "parameters": {
        "baseUrl": {
            "type": "string"
        }
    },
    "variables": {
        "namePrefix": "[resourceGroup().name]",
        "uniqueNamePrefix": "[toLower(concat(resourceGroup().name, uniqueString(subscription().subscriptionId)))]",
        "location": "[resourceGroup().location]",
        "stgVersion": "2015-06-15",
        "sfVersion": "2014-06-01",
        "wsVersion": "2015-08-01",
        "storageAccountType": "Standard_LRS",
        "storageContainerName": "multistep",
        "storageBlobName": "blob.txt",
        "hostingPlanSku": "Standard",
        "webJobName": "CreateBlob",
        "storageAccountName": "[variables('uniqueNamePrefix')]",
        "hostingPlanName": "[concat(variables('uniqueNamePrefix'), 'hostingplan')]",
        "webJobSiteName": "[concat(variables('uniqueNamePrefix'),'wj1')]",
        "webJobPackageUrl": "[concat(parameters('baseUrl'), '/', 'multistepwebjob.zip')]",
        "wsResourceId": "[resourceId('Microsoft.Web/sites', variables('webJobSiteName'))]"
    },
    "resources": [
        {
            "apiVersion": "[variables('stgVersion')]",
            "name": "[variables('storageAccountName')]",
            "type": "Microsoft.Storage/storageAccounts",
            "location": "[variables('location')]",
            "properties": {
                "accountType": "[variables('storageAccountType')]"
            }
        },
```

Markdown

Markdown is a lightweight markup language with plain text formatting syntax designed so that it can be converted to HTML and many other formats

http://daringfireball.net/projects/markdown/

John Gruber
and Aaron Swartz

TempMultiStepSummary.md C:\Users\darsch\AppData\Local

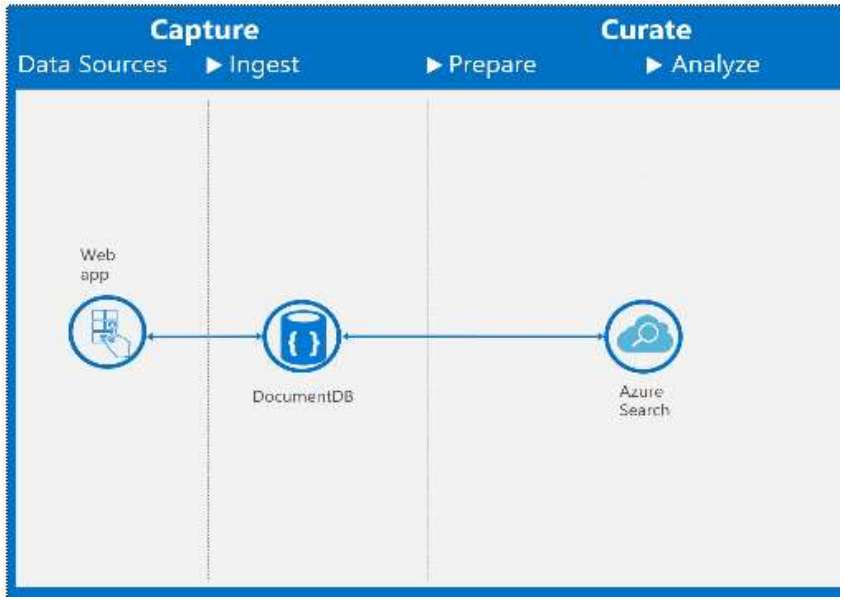
```
This pattern demonstrates how to automate a demo that requ

The pattern involves the following four steps:

1. Deploy an ARM template which creates a Storage Account a
2. Invoke the Web Job.
3. Deploy another ARM template which creates Data Factory a
4. Invoke the second Web Job.

## Ingredients
* Azure Web App
* Azure Storage
* Azure Data Factory

## Estimated Provisioning Time: 8 Minutes
```

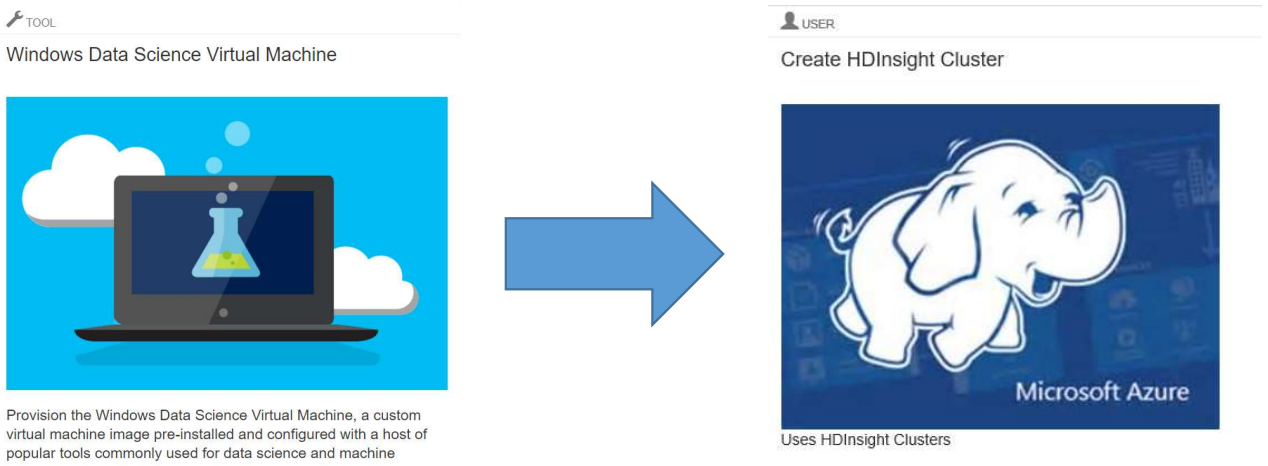
TempMultiStepInstructions.md C:\Users\darsch\AppData\Local

```
## Instructions

1. You can monitor the __Data Factory pipeline__ [here]({Outputs.dataFactoryUrl}).
2. You can view the logs of the Web Jobs __Create Container and Blob in Storage Acco

```

Asset Files

- Webjob.zip
- Image.jpg
- Image.png
- Code.zip
- Power BI pbix zipped
- Notebook ipynb zipped
- pdf
- docx





Review of Pattern Authoring

Make the pattern your own

Getting started - Change the Bookends

Take your first **steps** towards mastery of Cortana Intelligence Suite

Steps 1-3
Change the Bookends of the Manifest.xml before you edit the <ProvisioningSteps>

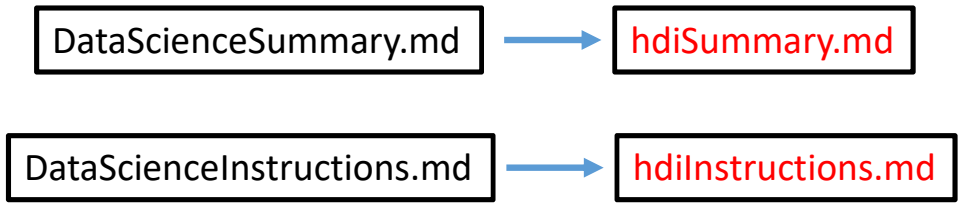
Step 1

- Make changes to:
  - Manifest.xml
- Set the Category in the Manifest to **DesignPattern**
- Change the name of the Summary src
- Set EstimateTime to 25 Minutes
- Change the Ingredients
- Change the name of the Instructions src
- Save

```
<?xml version="1.0" encoding="utf-8"?>
<Template>
  <Category>DesignPattern</Category>
  <Title>HDInsight Cluster</Title>
  <Owner displayname="Darwin Schweitzer" email="darsch@microsoft.com" />
  <PublishedOn>06/23/2016</PublishedOn>
  <ImageUrl>{PatternAssetBaseUrl}/HDInsightLogo.png </ImageUrl>
  <Description>Deploy a HDInsight Cluster</Description>
  <Summary src="hdiSummary.md" format="markdown" />
  <EstimatedTime>25 Minutes</EstimatedTime>
  <Ingredients>
    <Ingredient>HDInsight</Ingredient>
    <Ingredient>StorageAccount</Ingredient>
</Ingredients>
  <ProvisioningSteps>
    <ArmDeployment source="hdiArmTemplate.json" />
    <Manual title="Done">
      <Instructions src="hdiInstructions.md" format="markdown" />
    </Manual>
  </ProvisioningSteps>
</Template>
```

Step 2

- Rename your markdown files



Step 3

- Make changes to:
  - Summary.md
  - Instructions.md
    (no changes for now)
- Save

<folderName>Summary.md

```
This pattern will provision a **HDInsight Cluster** on Azure via CIS.

The various steps involved in this solution are as follows:

* Creation of aforementioned Azure resources in user's Azure Subscription.
* Copy dataset from a public storage location to a newly created Azure Storage container.
```

<folderName>Instructions.md

```
## Instructions

Click [here]({Outputs.hdiUrl}) to connect to your HDInsight Cluster

Cluster Name ```{Outputs.clusterName}```
Cluster Login User Name ```{Outputs.clusterLoginUserName}```
SSH User Name ```{Outputs.sshUserName}```
SSH Connection ```{Outputs.sshConnection}```

## Resources
*  [HDInsight Info](https://azure.microsoft.com/en-us/services/hdinsight/)
*  Contact <darsch@microsoft.com> if you have questions about this pattern
```

Step 4 - Make sure the ARM template works in PowerShell - Steps to test ARM Template on Azure PowerShell

1) Login PS C:\Users\user> **Login-AzureRmAccount**

2) Get Subscriptions PS C:\Users\user> **Get-AzureRmSubscription**

3) Select Default Subscription

PS C:\Users\user> **Get-AzureRmSubscription –SubscriptionName "My Development" | Select-AzureRmSubscription**

4) Create a Resource Group in a Location

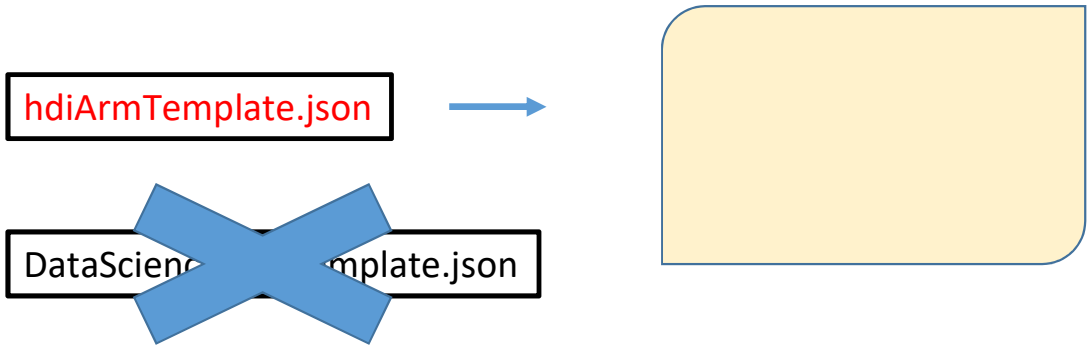
PS C:\Users\user> **New-AzureRmResourceGroup -Name aduserhdi0623a -Location "West US"**

5) Create an HDInsight Cluster with ARM

PS C:\Users\user> **New-AzureRmResourceGroupDeployment -ResourceGroupName aduserhdi0623a -TemplateFile C:\Users\user\versionControl\CIS\working\ARM\HDInsight\hdinsightArmTemplateString.json -clusterType hadoop -clusterWorkerNodeCount 2 -clusterLoginUserName admin -clusterLoginPassword MyP@ssw0d -sshUserName user123 -sshPassword MyP@ssw0rd**

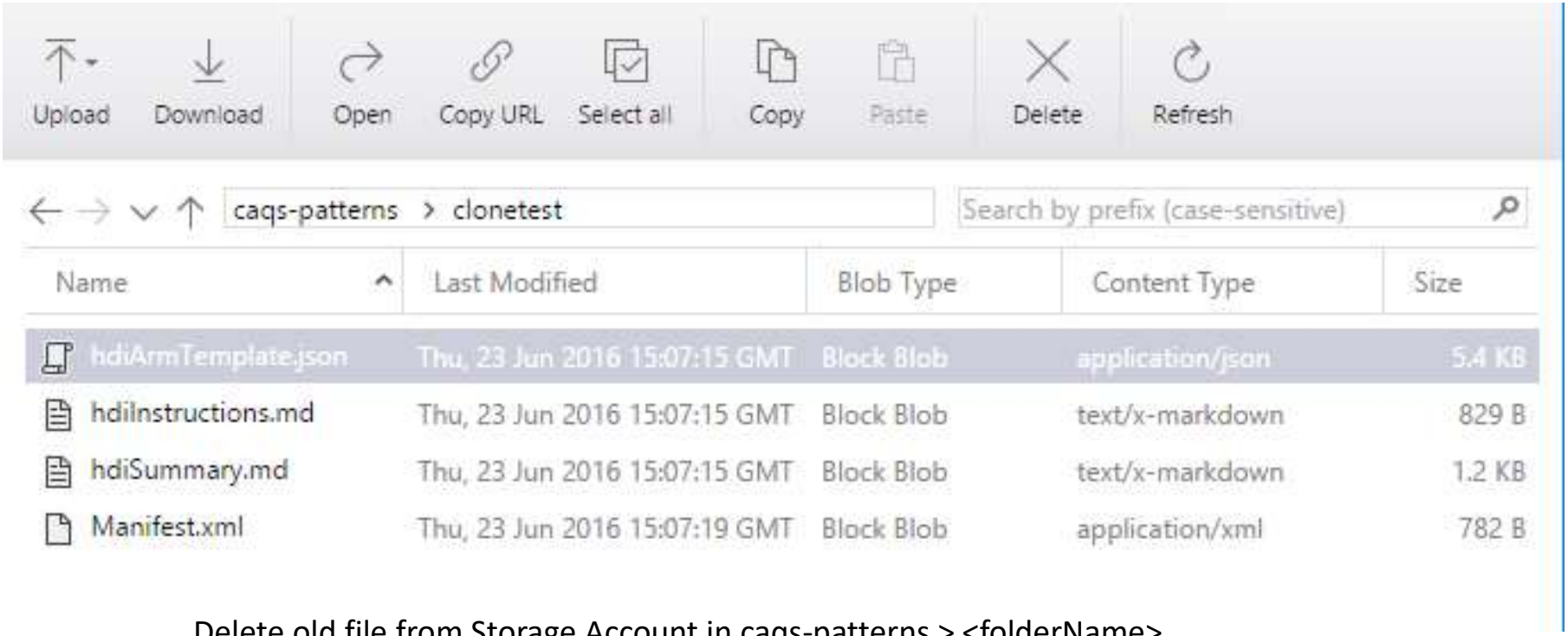
Step 5

- Copy over the new ARM template
- Delete the old ARM template



Step 6

- Upload local files to Storage Account at caqs-patterns > <folderName>



Delete old file from Storage Account in caqs-patterns > <folderName>

Step 7 - Go back to CIS Legacy Gallery – Scroll to bottom and test the changes you made

- Make sure you are signed in
- Click on the new Private pattern
- Click Continue to provision your cloned pattern

Stop Here

- Did it work?
- If not are the file names in the Manifest.xml the same as in the Storage account?
- Did you forget to upload the changed files to the Storage account?

Note: if this worked you might consider cloning your user pattern and editing that new clone.
This way you keep a working copy or use source control!

Demo of Pattern Authoring

Make the pattern your own

Review of Pattern Cloning - Complex

Clone Multi-step Automation

ARM Templates and Multi-step

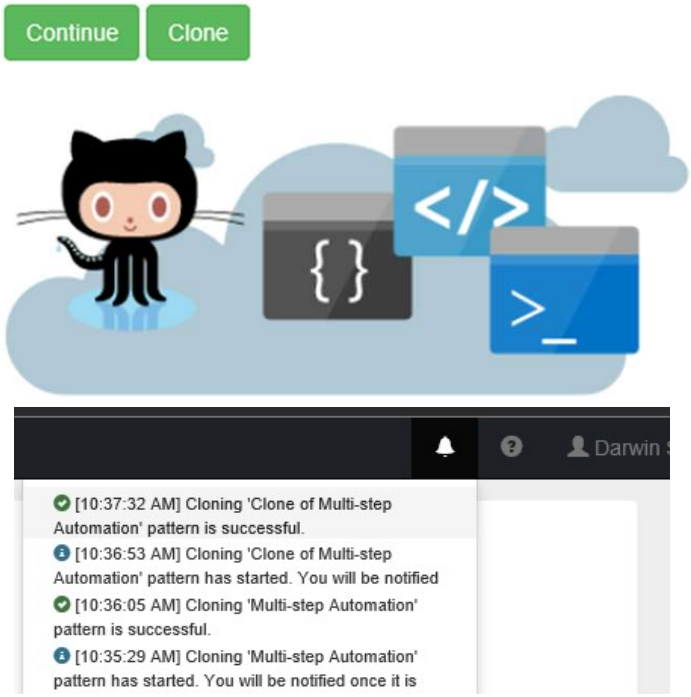
CIS supports multi-step provisioning for complex patterns via staged deployment of:

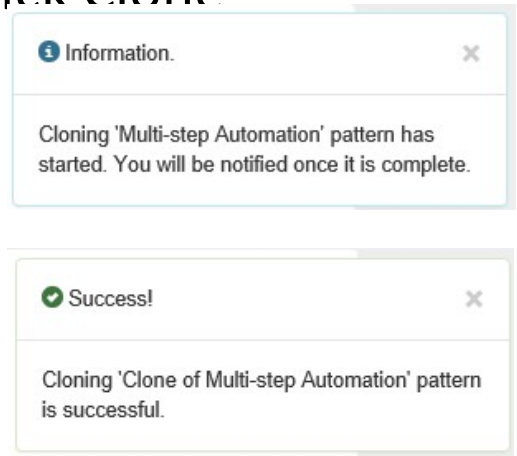
- multiple ARM templates
- interspersed with execution of custom tasks (WebJobs)
- manual steps not programmatically possible

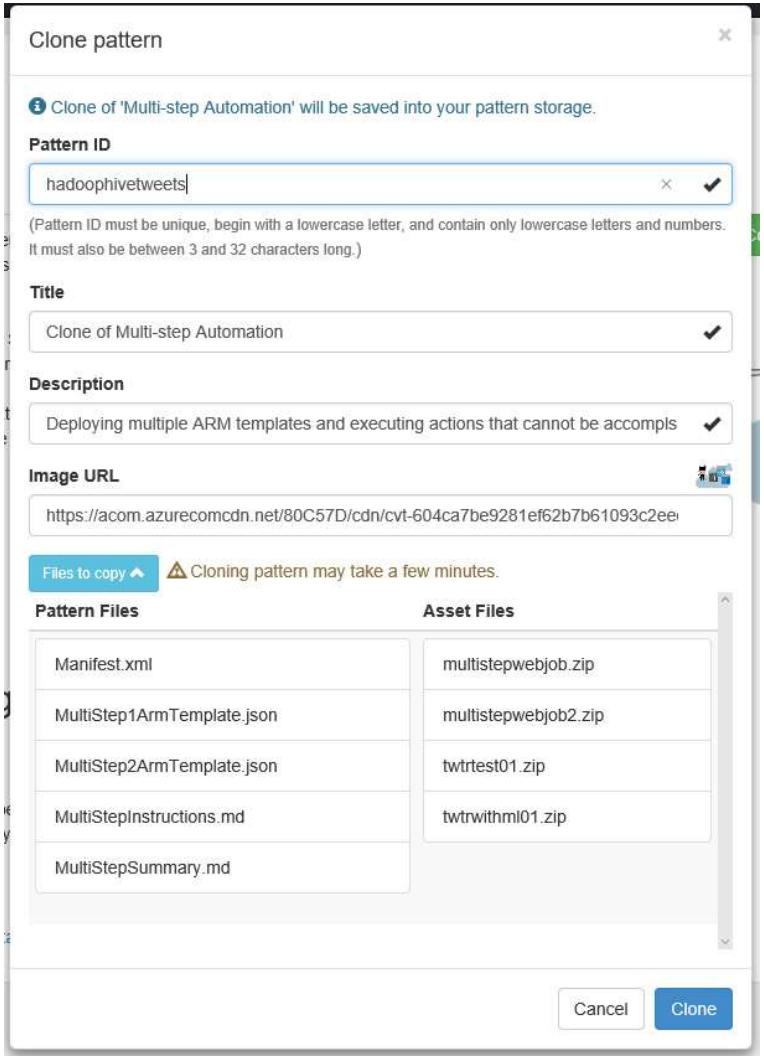
  (i.e. Power BI authorization in Stream Analytics job outputs)

Choose a pattern and Click Clone

- give it a new Pattern ID, Title, Description and Image URL and Click Clone

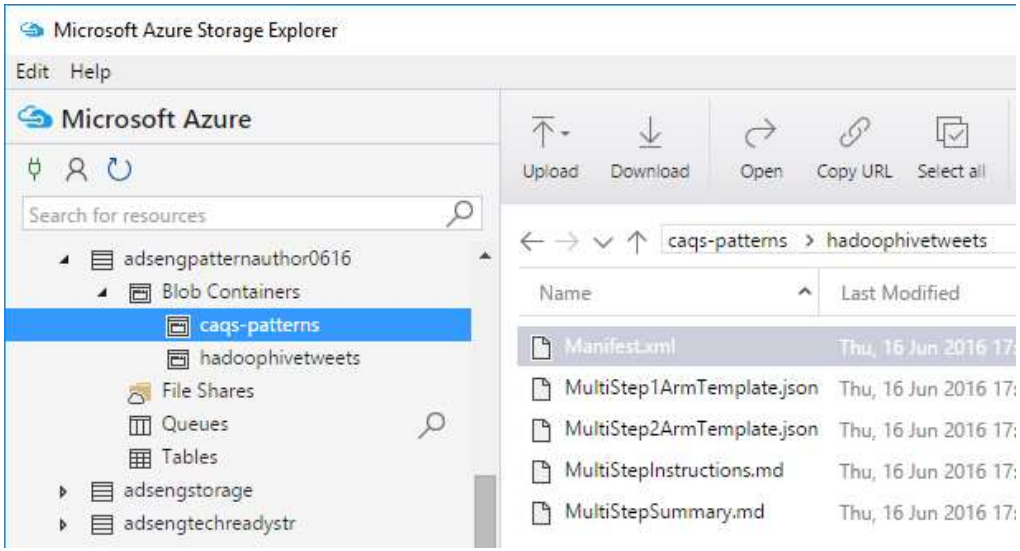


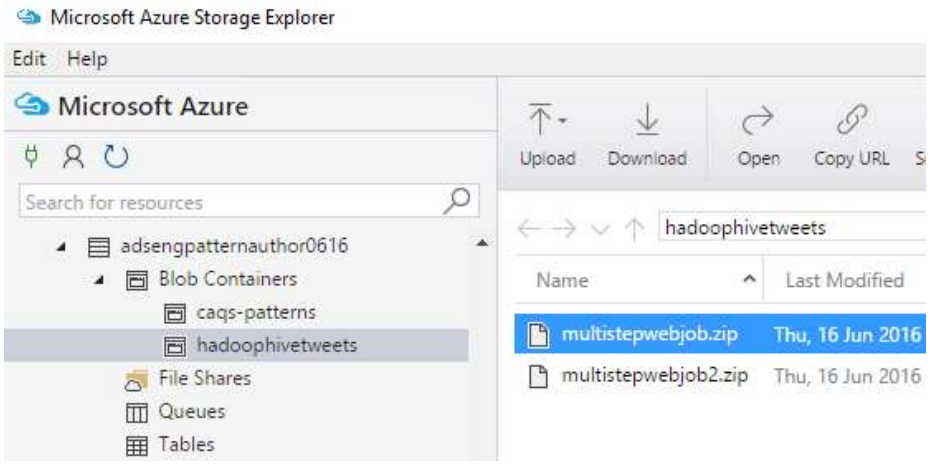




Open up Microsoft Azure Storage Explorer

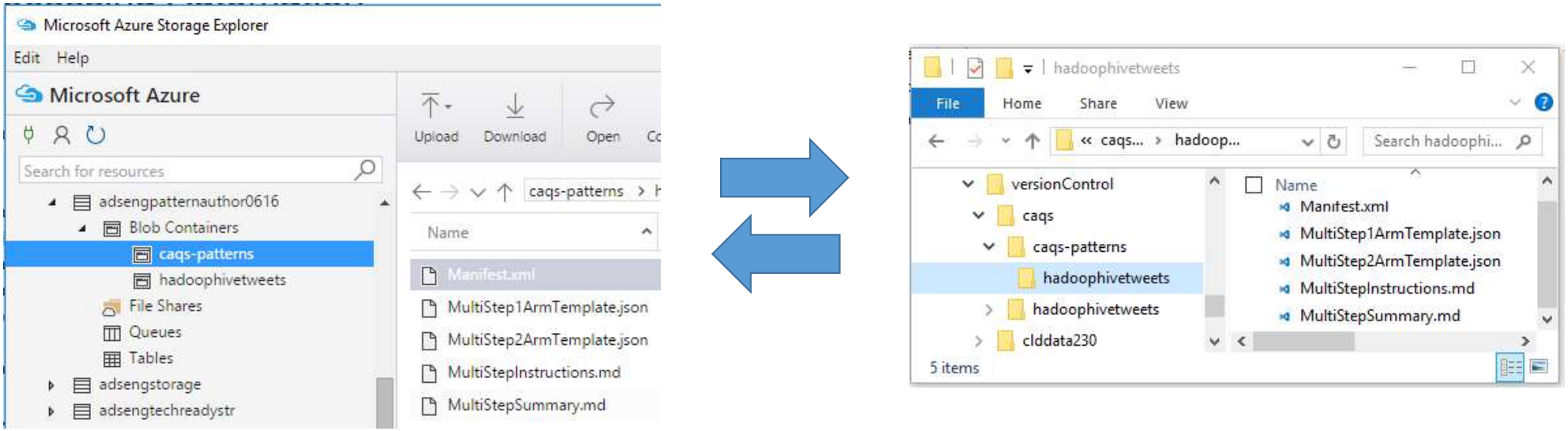
- Pattern Files are in caqs-patterns > hadoophivetweets (Pattern ID)
- Asset Files are in hadoophivetweets container (Pattern ID)





Download the files to your device

- Edit locally and then unload back to the storage account



Go back to CIS Gallery – Scroll to bottom

- Click on the new User Pattern
- Click Continue to provision your cloned pattern

Demo of Pattern Cloning

Clone Multi-step Automation

Review of Pattern Authoring

Make the pattern your own

Getting started - Change the Bookends

Take your first **steps** towards mastery of Cortana Intelligence Suite

Steps 1-3
Change the Bookends of the Manifest.xml before you edit the <ProvisioningSteps>

Step 1

- Make changes to:
  - Manifest.xml
- Set the Category in the Manifest to **DesignPattern**
- Save

Top

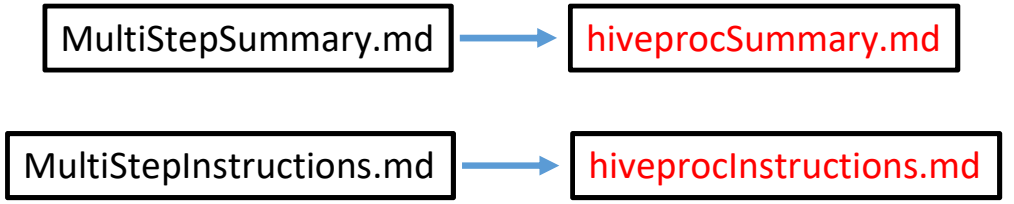
```
<?xml version="1.0" encoding="utf-8"?>
<Template>
 <Category>DesignPattern</Category>
 <Title>Hive Processing Automation</Title>
 <Owner displayname="Darwin Schweitzer" email="darsch@microsoft.com" />
 <PublishedOn>06/20/2016</PublishedOn>
 <ImageUrl>{PatternAssetBaseUrl}/HDInsightLogo.png</ImageUrl>
 <Description>Hive Processing of Tweets</Description>
 <Summary src="hiveprocSummary.md" format="markdown“/>
 <ProvisioningSteps>
```

Bottom

```
 <Manual title="Done">
    <Instructions src="hiveprocInstructions.md" format="markdown" />
  </Manual>
 </ProvisioningSteps>
</Template>
```

Step 2

- Rename your markdown files



Top

```
<Summary src="hiveprocSummary.md" format="markdown“/>
```

Bottom

```
<Manual title="Done">
    <Instructions src="hiveprocInstructions.md" format="markdown" />
  </Manual>
```

Step 3

- Make changes to:
  - Summary.md
  - Instructions.md
    (no changes for now)
- Save

<folderName>Summary.md

This pattern demonstrates hive processing of Tweets

The pattern involves the following six steps:

1. Deploy an ARM template which creates a Storage Account and a WebJob.
2. Invoke the first WebJob.
3. Deploy another ARM template which creates Data Factory and another Web Job.
4. Invoke the second WebJob to start the ADF pipeline.
5. Deploy an ARM template which creates an HDInsight Hadoop Cluster and ADF hive activity.
6. Invoke the second WebJob to start the ADF pipeline.

<folderName>Instructions.md

Instructions

1. You can monitor the __Data Factory pipeline__ [here]({Outputs.dataFactoryUrl}).
2. You can download the source for the Web Jobs __Create Container and Blob in Storage Account__ [here]({PatternAssetBaseUrl}/multistepsrc.zip).

Changing the <ProvisioningSteps>

Take another **step** towards mastery of
Cortana Intelligence Suite

Steps 4-7
Change and add the ARM templates and WebJobs to the Manifest.xml

- Make the appropriate adds of json files and edits to json files

Step 4

- Make changes to:
  - Manifest.xml
- Save

<folderName>1ArmTemplate.json or Arm1Template.json

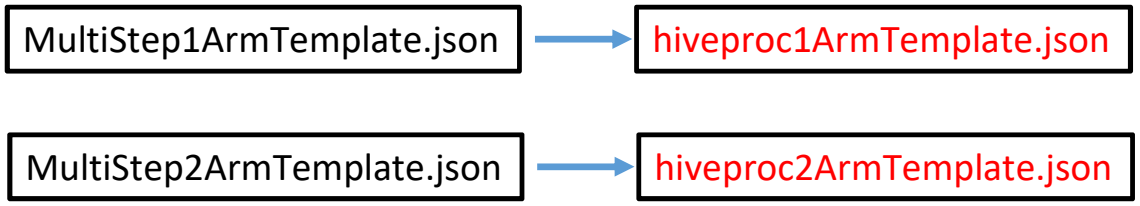
```
<ArmDeployment title="Create Storage Account" source="hiveproc1ArmTemplate.json">
  <Parameters>
   <Parameter name="baseUrl" hidden="true">
    <DefaultValue>{PatternAssetBaseUrl}</DefaultValue>
   </Parameter>
  </Parameters>
 </ArmDeployment>
```

<folderName>2ArmTemplate.json or Arm2Template.json

```
<ArmDeployment title="Create Data Factory" source="hiveproc2ArmTemplate.json">
  <Parameters>
   <Parameter name="baseUrl" hidden="true">
    <DefaultValue>{PatternAssetBaseUrl}</DefaultValue>
   </Parameter>
   <Parameter name="storageName" hidden="true">
    <DefaultValue>{Outputs.stgAccountName}</DefaultValue>
  </Parameters>
</ArmDeployment>
```

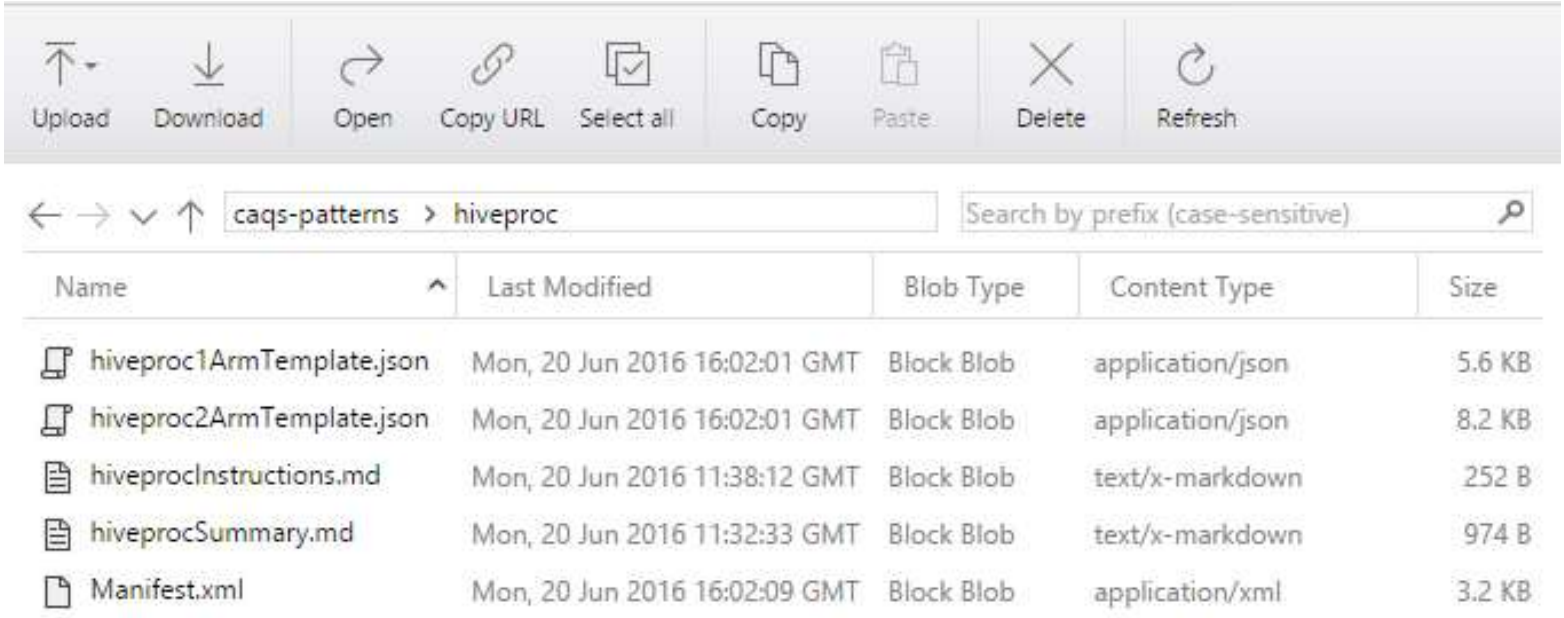
Step 5

- Rename your ARM json files



Step 6

- Upload local files to Storage Account at caqs-patterns > <folderName>



Delete old file from Storage Account in caqs-patterns > <folderName>

Step 7 - Go back to CIS Legacy Gallery – Scroll to bottom and test the changes you made

- Make sure you are signed in
- Click on the new User Pattern
- Click Continue to provision your cloned pattern

Stop Here

- Did it work?
- If not are the file names in the Manifest.xml the same as in the Storage account?
- Did you forget to upload the changed files to the Storage account?

Note: if this worked you might consider cloning your user pattern and editing that new clone.
This way you keep a working copy!

Demo of Pattern Authoring

Make the pattern your own

Review of Pattern Authoring

Add another ARM Step

Now come the Modifications

- Add new ARM Template
- Edit existing ARM Template(s)
- Modify the <ProvisioningSteps> in Manifest.xml

Steps 8-?

Add hdiArmTemplate.json as new Step 5

Deploy HDInsight Cluster

This is from the old UX but it helps explain what we are doing

Copy the HDInsight Parameters to the 1Arm

- Rename new arm if you want to
- Leave hdiArm3Template.json as is for now
- Copy the HDInsight parameters from hdiArm3Template.json into hiveproc1ArmTemplate.json

```
"clusterType": {
    "type": "string",
    "defaultValue": "hadoop",
    "allowedValues": [
        "hadoop",
        "hbase",
        "storm",
        "spark"
    ],
    "metadata": {
        "description": "The type of the HDInsight cluster to create."
    }
    },
    "clusterWorkerNodeCount": {
    "type": "string",
    "defaultValue": "2",
    "metadata": {
        "description": "The number of nodes in the HDInsight cluster."
    }
    },
    "clusterLoginUserName": {
    "type": "string",
    "defaultValue": "admin",
    "metadata": {
        "description": "These credentials can be used to submit jobs to the cluster and to log into cluster dashboards."
    }
    },
    "clusterLoginPassword": {
    "type": "securestring",
    "metadata": {
        "description": "The password for the cluster login."
```

Capture the HDInsight parameters as outputs in hiveproc1ArmTemplate.json

Add these 6 outputs at the end of the hiveproc1ArmTemplate.json

"clusterType": { "type": "string", "value": "[parameters('clusterType')]" },
"clusterWorkerNodeCount": { "type": "string", "value": "[parameters('clusterWorkerNodeCount')]" },
"clusterLoginUserName": { "type": "string", "value": "[parameters('clusterLoginUserName')]" },
"clusterLoginPassword": { "type": "string", "value": "[parameters('clusterLoginPassword')]" },
"sshUserName": { "type": "string", "value": "[parameters('sshUserName')]" },
"sshPassword": { "type": "string", "value": "[parameters('sshPassword')]" }

Add new Provisioning step into Manifest.xml

Important: Remove the baseUrl Parameter if you copied one of the other ARMDeployment provisioning steps

```
<ArmDeployment source="hdi3ArmTemplate.json" title="Provision HDInsight">
    <Parameters>
     <Parameter name="baseUrl" hidden="true">
      <DefaultValue>{PatternAssetBaseUrl}</DefaultValue>
     </Parameter>
     <Parameter name="clusterType" defaultValue="{Outputs.clusterType}" hidden="true" />
     <Parameter name="clusterWorkerNodeCount" defaultValue="{Outputs.clusterWorkerNodeCount}" hidden="true" />
     <Parameter name="clusterLoginUserName" defaultValue="{Outputs.clusterLoginUserName}" hidden="true" />
     <Parameter name="clusterLoginPassword" defaultValue="{Outputs.clusterLoginPassword}" hidden="true" />
     <Parameter name="sshUserName" defaultValue="{Outputs.sshUserName}" hidden="true" />
     <Parameter name="sshPassword" defaultValue="{Outputs.sshPassword}" hidden="true" />
     <Parameter name="stgAccountName" defaultValue="{Outputs.stgAccountName}" hidden="true" />
     <Parameter name="stgAccountKey" defaultValue="{Outputs.stgAccountKey}" hidden="true" />
    </Parameters>
</ArmDeployment>
```

Important: You have to pass the stgAccountName and stgAccountKey outputs from the 1ArmTemplate

Changes in hdi3ArmTemplate.json

- Change the password parameters in hdi3ArmTemplate.json to string not securestring
- Add a new parameter to pickup the stgAccountName and stgAccountKey outputs
- Remove any parameter default values

```
"stgAccountName":{
  "type": "string",
  "metadata": {
     "description": "Storage Account name"
  }
  },
  "stgAccountKey":{
  "type": "string",
  "metadata": {
     "description": "Storage Account key"
  }
  },
```

More Changes in hdi3ArmTemplate.json

- Use the stgAccountName and stgAccountKey parameter for all the references to the storage account for provisioning HDInsight
- Remove the storage variables

  "storageVersion": "2015-06-15",

  "storageAccountType": "Standard_LRS",

  "storageName": "[toLower(concat(variables('namePrefix'), 'store'))]",

Change storageaccounts key to use the parameter

"key": "[listKeys(resourceId('Microsoft.Storage/storageAccounts', variables('storageName')), variables('storageVersion')).key1]"

"key": "[parameters('stgAccountKey')]"

More Changes in hdi3ArmTemplate.json

- Remove resource that creates the Storage account and the use the storage account created in 1ARM

```
{
    "name": "[variables('storageName')]",
    "type": "Microsoft.Storage/storageAccounts",
    "apiVersion": "[variables('storageVersion')]",
    "location": "[variables('location')]",
    "properties": {
      "accountType": "[variables('storageAccountType')]"
    }
  },
```

- Remove depends on

```
"dependsOn": [
      "[concat('Microsoft.Storage/storageAccounts/', variables('storageName'))]"
    ],
```

Demo of Pattern Authoring

Add another ARM Step

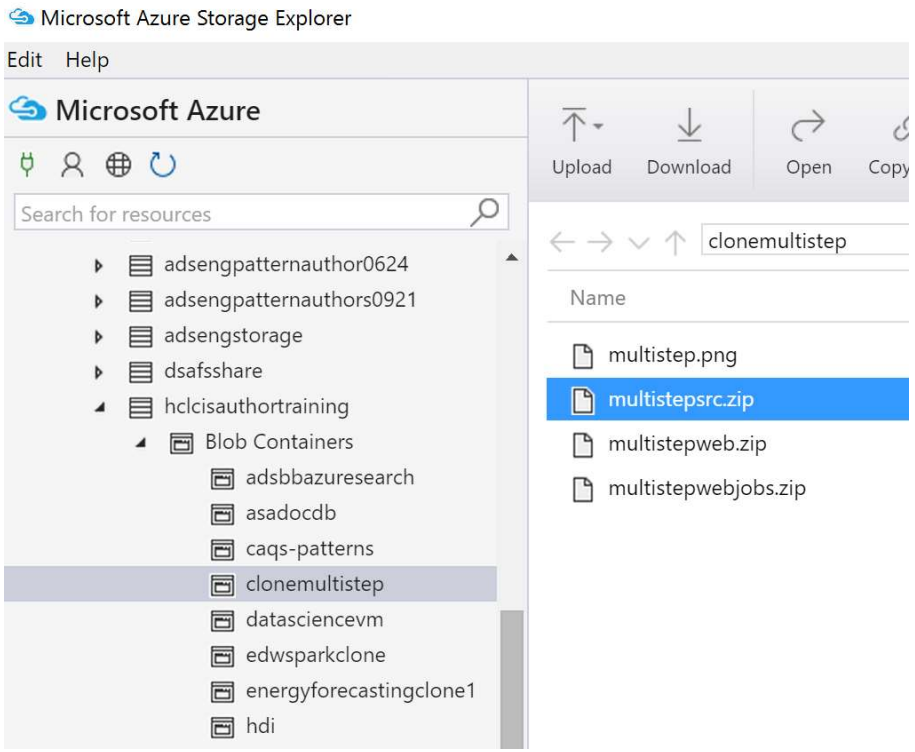
Overview of WebJobs for Pattern Authoring

Add another ARM Step

Note: Feature in CIS most likely to rapidly change

WebJobs – gluing together the deployment

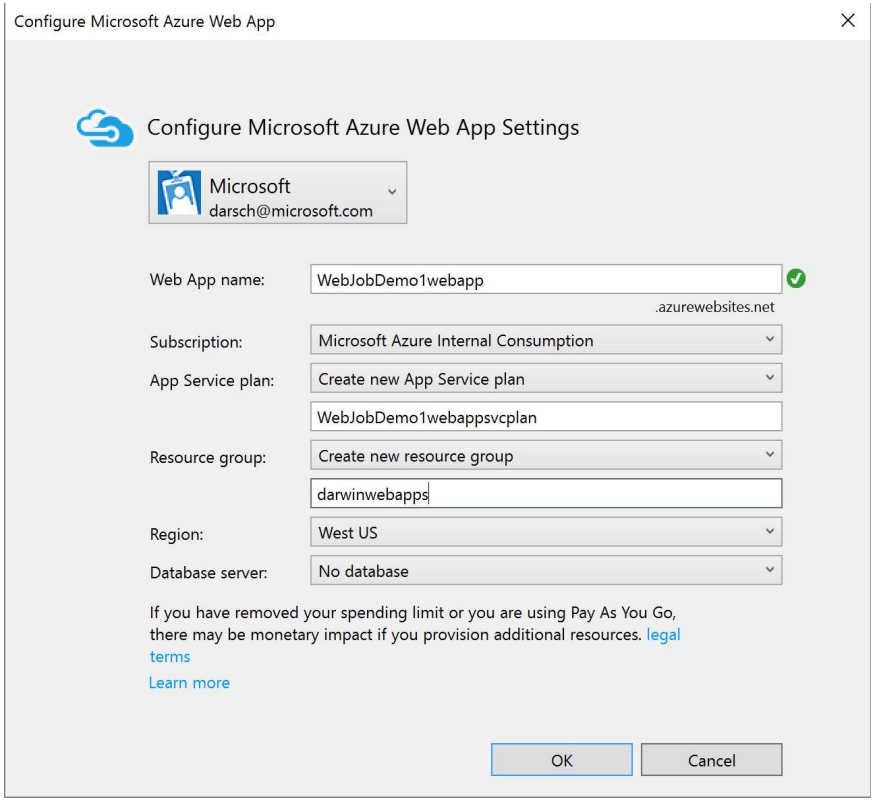
- Modify existing WebJobs?
- Clone the solution
- Download the source code from the asset files
- Open in Visual Studio



WebJobs – gluing together the deployment

- Write new WebJobs?
- Open Visual Studio
- New Project and use the Visual C# > Cloud Template > ASP.NET Web Application
- Select ASP.NET 4.5.2 Template > Empty and Click OK
- Authenticate to Azure Account
- Fill out the form and click OK
- Write your WebJob code and choose appropriate WebJob run mode
- Right Click on WebJob and select Publish
- Add webjob.zip to the correct assets blob container in the storage account

Note this is a massive simplification of the steps



Authoring Solutions Summary

- Try It Now
- Clone existing solutions into a storage account in your Azure subscription as private solutions
- Deploy your private solutions using the Cortana Intelligence solutions UX
- Look for authoring improvements; provide feedback

Solutions at cloud speed

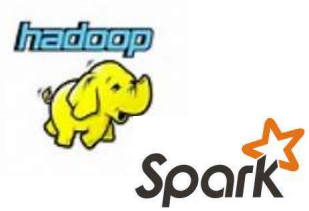
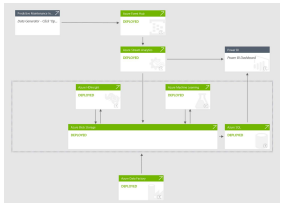
Help with pattern authoring at cisauthors@microsoft.com

Deck is available at
https://github.com/michhar/data-pipeline-education/tree/master/Decks/JumpStartAnalyticsWithCISplusPatternAuthoring.pdf

Appendix

Microsoft Advanced Analytics Portfolio

Solutions

HDInsight/Spark	Microsoft R	Azure Machine Learning	Cognitive Services	Preconfigured Solutions/Apps/Solution Templates
				
Big Data Platform	R-based analytics	Cloud analytics	Analytics APIs	Finished Apps & Solutions
Run large massively parallel compute and data jobs	Enterprise grade, write once deploy anywhere	Easy drag/drop UX with single click operationalization	Ready to consume APIs for Vision, Speech, Language, Knowledge	Ready to consume Apps and solutions for solving specific business scenarios
Data Engineer /Data Scientist	Advanced Data Scientist	Citizen Data Scientist	Developer	Decision Makers

IT Anomaly Insights

This solution is based on a set of curated parts:

- services and templates
- samples and documentation

Try It Now

- easily showcased within minutes without the need of installing any software or signing up for any services

Deploy It Now

- easily deploy into an Azure subscription for customization and further evaluation

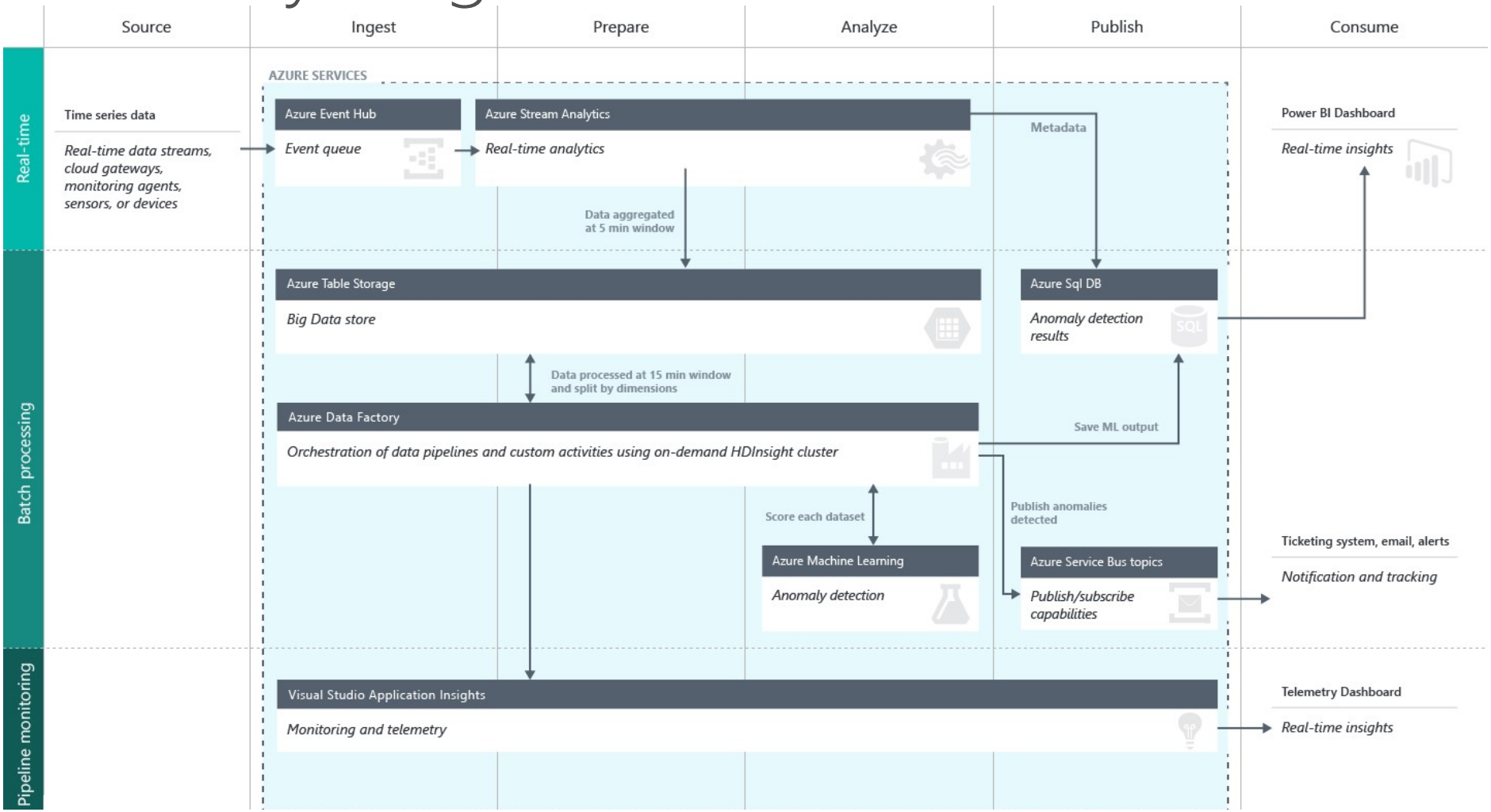
Solves customer pain

- provides a solution with a low barrier of entry that is based on Cortana Intelligence Solutions and the Azure Machine Learning Anomaly Detection API

IT Anomaly Insights

Remedy your issues before they happen with IT Anomaly Insights. Optimize your IT operations through machine learning and gather intelligent insights from your data to ensure system uptime.

IT Anomaly Insights



Data Science Virtual Machine

Custom virtual machine image

- pre-installed and configured with a host of popular tools commonly used for data science and machine learning

- Analytics Desktop in the cloud
- Data Science Training and Education
- On-demand elastic capacity for large workloads
- Short term experimentation and evaluation

Linux Data Science Virtual Machine

Provision the Linux Data Science Virtual Machine, a custom virtual machine image pre-installed and configured with a host of popular tools commonly used for data science and machine learning.

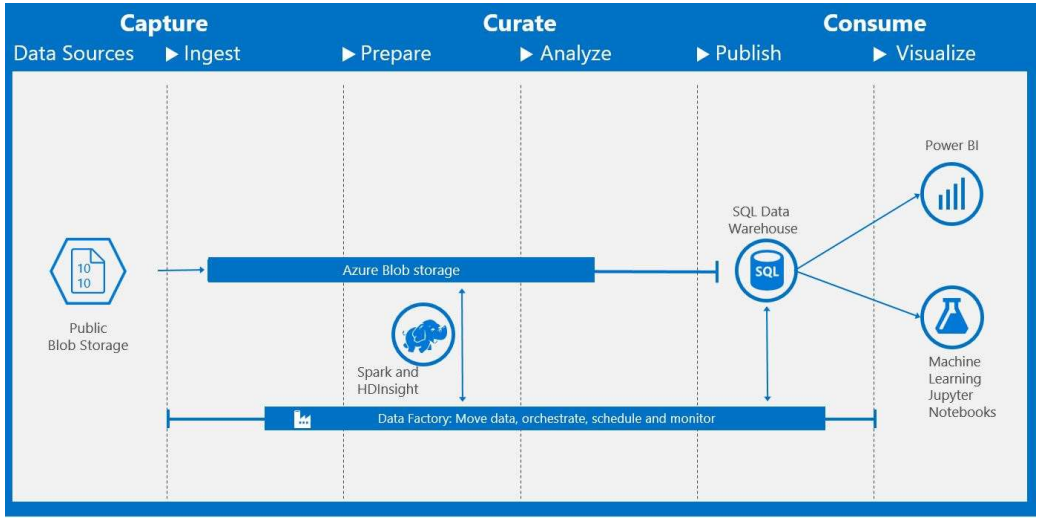
Windows Data Science Virtual Machine

Provision the Windows Data Science Virtual Machine, a custom virtual machine image pre-installed and configured with a host of popular tools commonly used for data science and machine learning.

Data Warehousing and Data Science with SQL Data Warehouse and Spark

Uses the Million Song dataset to demonstrate a data ingestion pipeline leveraging Spark, SQL Data Warehouse and Polybase.

- pipeline demonstrates loading, sanitization and aggregation against unstructured data
- allows you to visualize the data in Power BI



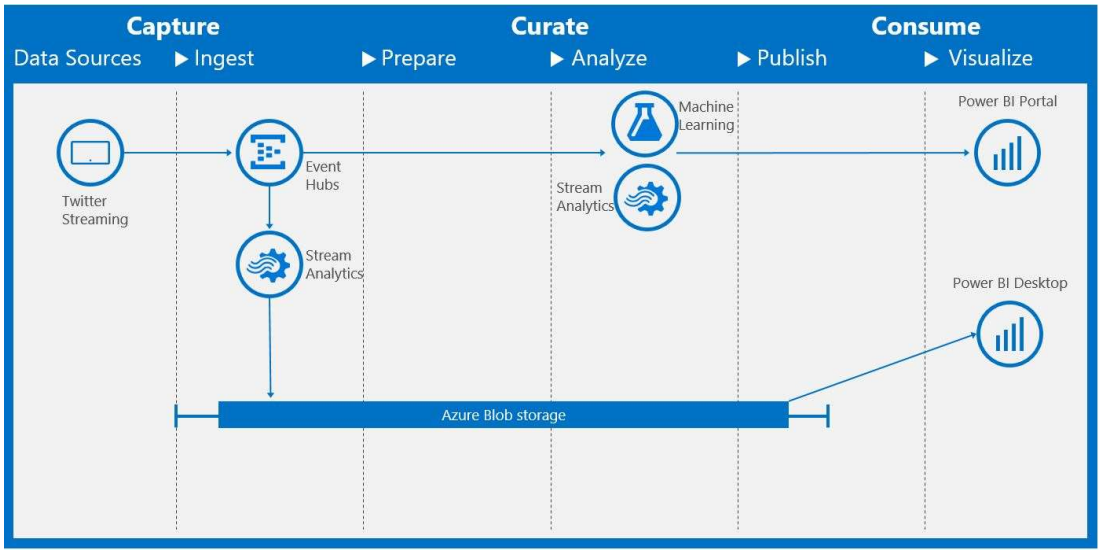
Data Warehousing and Data Science with SQL Data Warehouse and Spark

Uses the Million Song dataset to demonstrate a data ingestion pipeline leveraging Spark, SQL Datawarehouse and Polybase.

Stream Analysis with Azure ML

Make predictions using near real time data streams and Azure ML

Build a Cortana Intelligence environment quickly to perform Real-time Twitter sentiment analysis utilizing the Azure ML Web Service.



In order to create and run the TwitterClient web job, you will need:

- A Twitter account
- A Twitter application
- Twitter's Streaming API OAuth credentials

Predictive Maintenance for Aerospace

- Predicts the remaining useful life of aircraft engine components
- Combine real-time data from sensors with advanced analytics to monitor aircraft parts in real time
- Derived from publicly available data from the NASA data repository using the Turbofan Engine Degradation Simulation Data Set

Predictive Maintenance for Aerospace

This Predictive Maintenance solution monitors aircraft and predicts the remaining useful life of aircraft engine components.